APPENDIX F

Final Environmental Analysis

Prepared for the
Proposed Update to the SB 375 GHG Emissions Reduction Targets

California Air Resources Board
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Sacramento, California, 95814

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ACRONYMS AND ABBREVIATIONS

APA	Administrative Procedures Act
APS	alternative planning strategy
AV	autonomous vehicle
BEVs	battery electric vehicles
BRT	bus rapid transit
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
dBA	A-weighted decibels
EA	Environmental Analysis
EIRs	environmental impact reports
EV	electric vehicle
FED	Functional Equivalent Document
FSORs	Final Statement of Reasons
FTA	Federal Transit Authority
GHG	greenhouse gas
HOV	high-occupancy vehicle
ISOR	Initial Statement of Reasons
L_{eq}	noise equivalent level
L_{max}	maximum sound level
MPO	Metropolitan Planning Organization
MTPs	metropolitan transportation plans
NEV	Neighborhood Electric Vehicles
NO_X	nitrogen oxides
PHEVs	plug-in hybrid electric vehicles
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
ROG	reactive organic gases
RTAC	Regional Targets Advisory Committee

RTP/SCSs	Regional Transportation Plans and Sustainable Communities Strategies
SB	Senate Bill
SCS	sustainable communities strategy
SMARA	Surface Mining and Reclamation Act
TAC	toxic air contaminant
TDM	Transportation Demand Management
TMAs	transportation management associations
TPA	Transit Priority Area
TSM	Transit Systems Management
v2i	Vehicle-to-Infrastructure
v2v	vehicle-to-vehicle
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
ZEV	zero emission vehicle
ZNE	Zero Net Energy

PREFACE

The California Air Resources Board (CARB) released a Draft Environmental Analysis (Draft EA) for the Proposed Update to the SB 375 GHG Emissions Reduction Targets (Target Update) on June 13, 2017 for a 45-day public review and comment period that concluded July 28, 2017. During the public comment period for the Target Update, 36 comment letters were received. Four additional letters were received after the close of the comment period resulting in a total of 40 comment letters received on the Target Update, ten of which were determined to raise significant environmental issues related to the analysis in the Draft EA and are responded to in this document.

CARB staff made modifications to the Draft EA to create the Final EA. To facilitate identifying modifications to the document, modified text is presented in the Final EA with ~~strike-through~~ for deletions and underline for additions. Based on stakeholder input received, the proposed project has been modified to represent a hybrid of the originally-proposed project and Alternative 3 from the Draft EA. None of the modifications alter any of the types of foreseeable compliance responses evaluated or conclusions reached in the Draft EA, introduce new significant effects on the environment, or provide new information of substantial importance relative to the EA. As a result, these revisions do not require recirculation of the draft document pursuant to the California Environmental Quality Act (CEQA) Guidelines, California Code of Regulations, title 14, section 15088.5, before consideration by the Board.

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1.0 INTRODUCTION AND BACKGROUND

A. Introduction

This ~~Draft~~ Final Environmental Analysis (~~Draft~~ Final EA) is Appendix F to the California Air Resources Board (CARB or Board) Final Staff Report for the Proposed Update to the SB 375 GHG Emissions Reduction Targets (Target Update). The Target Update will be presented to the Board for consideration for approval ~~in the fall of~~ on March 22, 2018~~7~~. The Project Description section of this ~~Draft~~ Final EA presents a summary of the proposed Target Update, as required by the California Environmental Quality Act (CEQA). A more detailed description of the Target Update is in the Final Staff Report for the Proposed Update to the SB 375 GHG Emissions Reduction Targets, date of release ~~June 13~~February 20, 2018~~7~~, which is hereby incorporated by reference.

As discussed in more detail under section C. of this chapter, a prior EA was certified when the current SB 375 emissions reduction targets were approved by the Board in 2010. This ~~Draft~~ Final EA provides a programmatic level analysis of the potential for continued or expanded strategies and potential new strategies that could be implemented in response to the Target Update. This ~~Draft~~ Final EA is intended to disclose potential adverse impacts and identify potential mitigation measures specific to the Target Update. The Target Update is intended to create environmental benefits related to greenhouse gas (GHG) emissions and air quality conditions. However, in some cases, as described in Chapter 4 of this ~~Draft~~ Final EA, potentially significant effects to environmental resources may occur because of implementation of reasonably foreseeable compliance responses associated with the Target Update. As described in each resource area, many of these potentially significant impacts can be feasibly avoided or mitigated to less-than-significant levels because of project-specific environmental review processes that would be undertaken by others (e.g., regional or local agencies), and compliance with local and state laws and regulations. The ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be sufficient or may not be implemented by other parties) and discloses, as a result, that potentially significant environmental impacts may be unavoidable.

B. Background

Federal transportation law requires metropolitan planning organizations (MPO) to be designated for all urban regions with a population greater than 50,000 (Title 23 U.S. Code). Each MPO is a transportation policy-making body made up of representatives from local government and transportation agencies with authority and responsibility in metropolitan planning areas. Because MPOs typically neither own nor operate the transportation systems they serve, most MPOs are not involved in implementing the transportation project priorities they establish. Rather, MPOs serve an overall coordination and consensus-building role in planning and programming funds for projects and operations. The MPO must involve local transportation providers in the planning process by including transit agencies, State and local highway departments, airport authorities, maritime operators, rail-freight operators, Amtrak, port operators,

private providers of public transportation, and others within the MPO region. In accordance with federal requirements, MPOs must cooperate with these entities to create regional transportation plans (RTPs), which are also sometimes referred to as metropolitan transportation plans (MTPs).

The RTP identifies how the region intends to invest in the transportation system. As noted in Title 23 U.S. Code § 450.322 subd. (b), federal law requires the RTP to "include both long-range and short-range program strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods."

The RTP is prepared through active engagement with the public and stakeholders using an approach that considers how roadways, transit, nonmotorized transportation, and intermodal connections can improve the operational performance of the multimodal transportation system. Accordingly, the RTP must cover performance measures and targets and include a report evaluating whether the condition and performance of the transportation system is meeting those targets. RTPs are updated every five years in air quality attainment areas, every four years in nonattainment or maintenance areas, or more frequently in areas as State and local officials deem necessary.

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities.

Under SB 375, CARB establishes regional targets for GHG emissions reductions from passenger vehicle use and must update these targets at least every eight years. Each of the California MPOs must prepare a "sustainable communities strategy" (SCS) as an integral part of its RTP update process. SB 375 also integrates the regional housing needs assessment (RHNA) into SCSs. The SCS contains land use, housing, and transportation strategies that, if implemented, would result in the region meeting its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. CARB reviews the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets set by CARB. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate "alternative planning strategy" (APS) to meet the targets. The APS is not a part of the RTP. Under SB 375, the local jurisdictions within an MPO are not required to follow the SCS land use or transportation strategies, but certain incentives, including CEQA streamlining, are included in SB 375 to encourage compliance.

In 2010, following input on draft targets and environmental review, CARB initially approved targets for the regional MPOs for the years 2020 and 2035. Table 2-1, below in Chapter 2, Project Description, identifies the initial regional targets for 2020 and 2035 for each of the 18 MPOs.

C. Prior Environmental Analysis

On August 9, 2010, CARB released a Draft Functional Equivalent Document (2010 FED) for the initial regional GHG emissions reduction targets developed pursuant to SB 375 (State Clearinghouse No. 2010081021). (See the discussion below concerning FEDs and CEQA.)

The 2010 FED analyzed the reasonably foreseeable indirect environmental effects that could result from implementing the initial regional emission reduction targets. The 2010 FED also included an analysis of a range of five alternatives to the initial regional targets, including a "no project" alternative, a plan with substantially increased targets, a plan with substantially decreased targets, a plan relying on an absolute emissions metric, and a plan relying on a vehicle miles traveled (VMT) metric. Following the public review and comment period, the regional targets were initially approved by the Board in 2010.

This ~~Draft~~ Final EA serves as a comprehensive, programmatic environmental analysis by assessing the potential for adverse and beneficial environmental impacts associated with reasonably foreseeable compliance responses to the Target Update.

D. Environmental Review Process

i. Requirements under the California Air Resources Board Certified Regulatory Program

CARB is the lead agency for the Target Update, and has prepared this ~~Draft~~ Final EA pursuant to its CEQA certified regulatory program. Public Resources Code (PRC) § 21080.5 allows public agencies with regulatory programs to prepare a functionally equivalent substitute document in lieu of an environmental impact report or negative declaration once the program has been certified by the Secretary for Resources Agency as meeting the requirements of CEQA. CARB's regulatory program was certified by the Secretary of the Resources Agency in 1978 (see Cal. Code Regs. tit.14, § 15251 subd.(d)). As required by CARB's certified regulatory program, and the policy and substantive requirements of CEQA, CARB has prepared this ~~Draft~~ Final EA to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed action and to provide a succinct analysis of those impacts (see Cal. Code Regs. tit.17, § 60005(a) and (b)). The resource areas from the CEQA Guidelines Environmental Checklist (Appendix G) were used as a framework for assessing potentially significant impacts.

CARB has determined that approval of the Target Update is a "project" as defined by CEQA. At Title 14, § 15378(a) of the California Code of Regulations, the CEQA Guidelines define a "project" as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is an activity directly undertaken by any public agency." Although the policy aspects of the Target Update do

not directly change the physical environment, physical changes to the environment could result from reasonably foreseeable compliance responses taken by other parties.

ii. Scope of Analysis and Assumptions

The degree of specificity required in a CEQA document corresponds to the degree of specificity inherent in the underlying activity it evaluates. An environmental analysis for broad programs will necessarily be less detailed than that for a specific project (CEQA Guidelines § 15146). For example, the assessment of a construction project would naturally be more detailed than one concerning the adoption of a local general plan because the construction effects can be predicted with a greater degree of accuracy (CEQA Guidelines § 15146 (a)).

The scope of analysis in this ~~Draft~~ Final EA is intended to help focus public review and comments on the Target Update, and ultimately to inform the Board of the environmental benefits and adverse impacts before Board action on the proposal. This analysis focuses on reasonably foreseeable potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses to the Target Update.

The analysis of potentially significant adverse environmental impacts from the Target Update is based on the following assumptions:

1. This analysis addresses the potentially significant adverse environmental impacts resulting from implementing the foreseeable compliance responses within the Target Update compared to existing conditions, which includes the physical effects of the implementation of RTP/SCSs following the release of CARB's initial target reductions for 2020 and 2035.

2. The analysis of environmental impacts and determinations of significance are based on reasonably foreseeable compliance responses to the Target Update.

3. The analysis in this ~~Draft~~ Final EA addresses environmental impacts within California to the extent they are reasonably foreseeable and do not require speculation.

4. The level of detail of impact analysis is necessarily and appropriately general because the Target Update is programmatic. Furthermore, decisions by entities regarding the specific location and design of new development, facilities, or infrastructure that may be undertaken in response to the Target Update are speculative, if not impossible, to predict with precision at this stage. Specific subsequent actions included in future RTP/SCSs because of the Target Update would undergo any required project-level environmental review and compliance processes at the time they are proposed.

5. This ~~Draft~~ Final EA generally does not analyze site-specific impacts when the locations of future actions are speculative. However, the ~~Draft~~ Final EA does examine regional (e.g., air basin) and local issues to the degree feasible, where appropriate. As a result, the impact conclusions in the resource-oriented sections of Chapter 4, Impact Analysis and Mitigation Measures, cover broad types of impacts, considering the potential effects of the full range of reasonably foreseeable actions undertaken in response to the Target Update.

iii. Organization of the ~~Draft~~ Final Environmental Analysis

The ~~Draft~~ Final EA is organized into the following chapters to assist the reader in obtaining information about the Target Update and specific environmental issues.

- Chapter 1, Introduction and Background – provides a project overview, background information, and other introductory material.
- Chapter 2, Project Description – summarizes the Target Update, implementation assumptions, and reasonably foreseeable compliance responses taken in response to the Target Update.
- Chapter 3, Environmental and Regulatory Setting, in combination with Attachment A – contains the environmental setting and regulatory framework relevant to the environmental analysis of the Target Update.
- Chapter 4, Impact Analysis and Mitigation – identifies the potential environmental impacts associated with the Target Update and mitigation measures for each resource impact area.
- Chapter 5, Cumulative and Growth-Inducing Impacts – identifies the cumulative effects associated with the Target Update against a backdrop of past, present, and reasonably foreseeable future projects.
- Chapter 6, Mandatory Findings of Significance – discusses whether the Target Update would have the potential to degrade the quality of the environment, cause substantial adverse impacts on human beings, and cause cumulatively considerable environmental impacts.
- Chapter 7, Alternatives Analysis – discusses a reasonable range of potentially feasible alternatives that could reduce or eliminate adverse environmental impacts associated with the Target Update.
- Chapter 8, References – identifies sources of information used in this ~~Draft~~ Final EA.

iv. Public Review Process for the Environmental Analysis

During an update to the Board on March 23, 2017 and at a series of public workshops held in March 2017, CARB staff described plans to prepare a Draft EA for the Target Update and invited public feedback on the scope of the analysis. CARB also prepared and circulated a Notice of Preparation on March 1, 2017. CARB received several comments on the Notice of Preparation, which were taken into consideration when preparing ~~this~~ the Draft EA.

In accordance with CARB's certified regulatory program, and consistent with CARB's commitment to public review and input on its proposed actions, ~~this~~ the Draft EA ~~is~~ was subject to a public review process through the posting of the draft staff report for the Target Update along with ~~this~~ the Draft EA for a public review period that ~~begins~~ began on June 13, 2017 and ~~ends~~ ended on July 28, 2017.

After the public review period, CARB ~~will~~ prepared written responses to comments raising significant environmental issues related to the Target Update and on the analysis in the Draft EA and revised the Draft EA, as necessary. The Final EA, along with ~~and the~~ written responses to environmental comments contained in a separate document, will be considered by the Board at a public hearing ~~in late~~ on March 22, 2018~~7~~. If the Target Update is approved, a Notice of Decision will be posted on CARB's website and filed with the Secretary for Natural Resources (Cal. Code Regs. tit. 17, § 60007, subd. (b).) The Notice of Decision will also be filed with the State Clearinghouse.

2.0 PROJECT DESCRIPTION

A. Introduction and Background

SB 375 designates the California Air Resources Board (CARB) as the lead agency in establishing region-specific greenhouse gas (GHG) emissions reduction targets (targets) for each metropolitan planning organization (MPO). In 2010, CARB approved the initial per capita targets for each of the State's 18 MPOs for the years 2020 and 2035 relative to 2005 per capita emissions. Since then, MPOs have developed and approved Regional Transportation Plans and Sustainable Communities Strategies (RTP/SCSs) that include strategies to achieve the targets. SB 375 also requires that CARB review the GHG quantification methodology that each MPO used to determine if implementation of the plans would achieve the targets for the respective region. Based on information to date contained in CARB's technical evaluations of each MPO's SCS, the plans adopted by 17~~6~~ of the State's 18 MPOs would meet their 2020 and 2035 targets. The ~~two~~ one MPO~~s~~ that did not meet ~~their~~ its targets ~~are currently revising~~ amended its RTP/SCS to demonstrate how the targets could be met in that region. CARB is currently in the process of evaluating that amended plan. In accordance with the provisions of SB 375, every four or five years these MPOs must update their existing RTP/SCS or develop an alternative planning strategy (APS) to ensure that the region is on track to meet the targets.

SB 375 mandates that CARB update the targets every eight years. The revised targets adopted under the Target Update would become effective in 2018, eight years after the initial targets were adopted in 2010. SB 375 gives MPOs the option to recommend targets appropriate for their regions to CARB based on region-specific technical information. During the 2010 target-setting process, CARB staff worked collaboratively with MPOs and other stakeholders through a process in which MPOs recommended targets to CARB based on feasible RTP/SCSs scenarios and other considerations. CARB and the MPOs undertook a similar approach for the current Target Update, whereby many MPOs submitted target recommendations to CARB.

The proposed regional GHG targets that will be considered by the Board under the current Target Update, along with the existing targets adopted in 2010, are compared and summarized below in Table 2-1.

The proposed numeric targets in Table 2-1 differ from those presented in the Draft EA. CARB staff has revised the proposed targets to better align with project objectives, as discussed further in the following section. The final proposed targets are lower, in aggregate, than the original proposal reflected in the Draft EA, but are higher, in aggregate, than the recommendations provided by the MPOs, evaluated under Alternative 3. This revised proposal would also be accompanied by the provision that the four largest MPOs and the eight San Joaquin Valley MPOs begin reporting to CARB 1) actual changes in land use and transportation metrics representing their SCS strategies between 2005 and their plan base year, and 2) the expected increment of progress made from land use and transportation strategy commitments in their next SCS compared to what was included in their latest effective plans as of October 2018.

The proposed targets for the six remaining small MPOs are unchanged from the proposed project in the Draft EA, with one exception for the proposed 2020 target for San Luis Obispo COG, which has been updated to align with updated information submitted by that MPO. The additional reporting provisions would apply to SCSs adopted by the six remaining small MPOs after 2020.

The proposed provision that MPOs verify to CARB that their SCSs would meet the targets through new or enhanced strategies would promote implementation of the same compliance responses, and similar intensity of compliance responses, evaluated in the Draft EA. For this reason, the foreseeable compliance responses evaluated in the Draft EA would be the same under the proposed targets in Table 2-1.

Table 2-1 Existing and Proposed SB 375 GHG Emission Reduction Targets

	Existing GHG Targets[1] (adopted in 2010)		**Proposed GHG Targets[1] (effective as of 2018)**	
MPO	**2020**	**2035**	**2020**	**2035**
MTC/ABAG	-7%	-15%	-10%	-19%
SACOG	-7%	-16%	-7%	-19%[2]
SANDAG	-7%	-13%	-15%	~~-21~~ -19%
SCAG	-8%	-13%	-8%	~~-21~~ -19%
Fresno COG	-5%	-10%	-6%	-13%[3]
Kern COG	-5%	-10%	-9%	-15%[3]
Kings CAG	-5%	-10%	-5%	-13%[3]
Madera CTC	-5%	-10%	-10%	-16%[3]
Merced CAG	-5%	-10%	-10%	-14%[3]
San Joaquin COG	-5%	-10%	-12%	-16%[3]
Stanislaus COG	-5%	-10%	-12%	-16%[3]
Tulare COG	-5%	-10%	-13%	-16%[3]
AMBAG	0%	-5%	-3%	-6%
Butte CAG	1%	1%	-6%	-7%
San Luis Obispo COG	-8%	-8%	~~-8~~ -3%	-11%
Santa Barbara CAG	0%	0%	-13%	-17%
Shasta RTA	0%	0%	-4%	-4%
Tahoe MPO	-7%	-5%	-8%	-5%

Notes: AMBAG = Association of Monterey Bay Area Governments; CAG = County Association of Governments; COG = Council of Governments; CTC = County Transportation Commission; GHG = greenhouse gas; MTC/ABAG = Metropolitan Transportation Commission/Association of Bay Area Governments; MPO = Metropolitan Planning Organization; SACOG = Sacramento Area Council of Governments; SANDAG = San Diego Association of Governments; SCAG = Southern California Association of Governments; RTA = Regional Transportation Agency.
[1] Targets are expressed as percent change in per capita GHG emissions relative to 2005 levels for each region.
[2] 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. See Final Staff Report "Proposed Update

Table 2-1 Existing and Proposed SB 375 GHG Emission Reduction Targets

	Existing GHG Targets[1] (adopted in 2010)		Proposed GHG Targets[1] (effective as of 2018)	
MPO	**2020**	**2035**	**2020**	**2035**
to the SB 375 Greenhouse Gas Emission Reduction Targets". Appendix A. MPO Target Recommendations and CARB Staff Recommendations, pages A-7 through A-9 for further discussion. [3] Recommended targets apply to the San Joaquin Valley MPOs' third cycle SCS plans.				

B. Project Objectives

The project objectives for the Target Update are defined by relevant portions of SB 375 that apply to CARB, Board direction provided when targets were initially adopted in 2010, along with the proposed 2017 Climate Change Scoping Plan Update (CARB 2017a), which are summarized below.

1. Update the regional GHG emission reduction targets at least every eight years and take into account:

   a) GHG emissions reductions that will be achieved by improved vehicle emission standards, changes in fuel composition, and other measures CARB has approved that will reduce GHG emissions in the affected regions, and prospective measures CARB plans to adopt to reduce GHG emissions from other sources as that term is defined in subd. (i) of § 38505 of the Health and Safety Code and consistent with the regulations promulgated pursuant to the California Global Warming Solutions Act of 2006 (Division 12.5 (commencing with § 38500) of the Health and Safety Code).

   b) Updated technical data, forecasts, and other information provided by the Department of Transportation, MPOs, local governments, affected air districts, and public and private stakeholders.

   c) Advancement of technical tools and methods, such as consistent standards for data and modeling assumptions, model improvements, and measures of achievement of emission reductions.

2. Update regional GHG emissions reduction targets to continue to achieve a balance between goals that motivate further positive planning and action toward more sustainable communities that foster co-benefits such as improved public health outcomes, more mobility choices, more housing choices, and resource and land conservation; but are not out of reach for regions and local governments.

3. Update regional GHG emissions reduction targets to further the objectives set forth in SB 32 and Executive Order B-30-15, specifically that would, if implemented, result in greater GHG emission reductions directly from ~~the~~ transportation and land use strategies ~~sector~~ compared to reductions that would be achieved under currently adopted SCSs. Targets would contribute to achieving the overall statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030, as well as support achievement of our statewide public health and air quality objectives. (CARB 2017a)

CARB staff developed the proposed targets using analysis of what would be necessary to achieve the State's ambitious climate and air quality goals (a "top-down" process) and MPO target recommendations (a "bottom-up" process) as inputs. The analysis identified a gap between what the MPOs recommended and GHG emissions reductions identified in the 2017 Scoping Plan Update.

In June 2017, the Draft EA evaluated the initially proposed targets that represented a point between the bottom-up and top-down inputs. Several MPOs indicated that CARB staff's proposed targets would not be achievable based on the MPOs' most recent data and modeling tools, combined with known shortcomings of the current SB 375 target metric and the use of modeling as the primary means for demonstrating SB 375 target achievement.

Because incorporating the latest technical information from the MPOs and setting targets that are not out of reach were two key objectives of the target update, CARB staff has revised the proposed targets to better align with those project objectives. To achieve this, CARB staff recommends updating and enhancing the current targets and the method for evaluating MPOs' SCSs in a way that encourages additional GHG emission reductions with greater emphasis on MPO strategy and investment decisions.

The proposed new approach to targets would help avoid the challenges identified by both MPO and CARB staff associated with ever-changing assumptions around vehicle fuel efficiency, economic conditions, demographic projections, and similar exogenous factors. CARB staff aims to provide additional transparency and focus on the efforts regional and local agencies are making to advance the land use and transportation strategies most relevant to SB 375.

C. Existing RTP/SCS Strategies

Following the passage of SB 375, CARB worked closely with MPOs and the SB 375 Regional Targets Advisory Committee (RTAC) to develop GHG reduction targets and methods to measure how each region can meet the targets. After CARB adopted the initial GHG reduction targets in 2010, MPOs developed the first round of RTP/SCSs that included an array of land use, housing, and transportation strategies that would reduce GHG emissions from the automobile and light-duty truck sector.

The development of the first RTP/SCSs included the use of a planning method known as regional blueprint planning, which entails engaging public input on sets of regional growth scenarios containing a range of land use, transportation, and other outcomes. Regional blueprint planning assists MPOs in balancing transportation and land use planning, housing needs, and resource protection to achieve more sustainable regional growth patterns and improve the quality of life for residents. Examples of growth scenarios include:

- Business as Usual: Assumes a land use forecast based on existing general plans and a continuation of current growth trends.
- Low-Density/Low-Transit Investment: Allocates a small budget for future transit projects and sets a low average unit density for future development.
- Moderate-Density/Moderate-Transit Investment: Allocates a moderate budget for future transit projects and sets a moderate average unit density for future development.
- High-Density/High-Transit Investment: Allocates a large budget for future transit projects and sets a high average unit density for future development.

Depending on the MPO, preferred RTP/SCS scenarios often were based on input from public stakeholders and member local jurisdictions. The preferred scenario may ultimately take the form of a hybrid scenario, with attributes drawn from the different scenarios proposed during public workshops. Variations in geographic size, population, existing land use allocation, transportation priorities, available funding resources, and other factors produce an assortment of strategies that can result in GHG emissions reductions. The strategies discussed below were categorized as either addressing land use patterns or transportation infrastructure and facilities; however, when these strategies are implemented together, they have a synergistic effect on reducing GHG emissions. These types of strategies are summarized further below.

1. Land Use Strategies

RTP/SCSs adopted by MPOs to achieve the existing regional GHG targets contain land use policies that are recognized to reduce vehicle miles traveled (VMT) and associated GHG emissions. To arrive at these policies, MPOs first coordinate with their member local jurisdictions to develop a regional growth and land use forecast. MPOs work with the local jurisdictions to identify areas where it makes sense to plan for increased density as it relates to the transportation system. The land use forecast includes location-appropriate strategies that are known to reduce VMT by shortening trip length, and facilitating non-auto travel compared to historical development patterns. Focusing growth within existing urban centers or along transit corridors improves the efficiency of the transportation system, which reduces VMT and associated GHG emissions. Common land use strategies included in RTP/SCSs include increased multi-family and small-lot housing, increased average densities, mixed land use, and infill development; focusing development of Transit Priority Projects (TPPs) (as defined; Chapter 4.2 of CEQA) within Transit Priority Areas (TPAs); new parking requirements or standards, such as shared parking or reductions in parking requirements; and preservation of open space.

Focusing development in existing or planned urban areas requires a combination of land use strategies that optimize use of space. For example, local jurisdictions may work in coordination with MPOs to establish a higher average density for residential use within and adjacent to urban areas. This results in investments in multi-family, attached, and/or small-lot housing development. Further, land use plans (e.g., general plans) are more frequently discouraging single-use zoning and incorporating mixed-use zoning into future development.

Additionally, infill development and redevelopment are strategies in RTP/SCSs to maximize urban density where transportation efficiencies can be achieved. Infill development refers to the redevelopment of existing parcels or use of undeveloped lots within urban and suburban areas. Vacant lots or underutilized sites such as surface parking lots are infill opportunities that can make more efficient use of limited urban space, which helps to increase proximity of housing to jobs and other services within urban centers. Further, focusing on infill encourages more compact development within the margins of existing urban centers and reduces encroachment into rural agriculture and open spaces.

Focusing development within TPAs has also been included as a strategy in completed RTP/SCSs. TPAs are designated based on their location within a quarter to a half mile of existing or planned transit stations (and other criteria) and many RTP/SCSs focus on developing residential and mixed-use development—TPPs, as defined-- in those areas. Use of TPPs increases proximity and accessibility to transit, thereby enhancing the walkability of a community and reducing the need for automobile use.

A supplemental land use strategy that yields indirect reductions of passenger vehicle GHG emissions is the adoption of policies designed to preserve the integrity of open space, agriculture, and environmentally-sensitive habitats. These policies discourage development in such areas and, when applied in coordination with other land use strategies at the regional level described above, can further encourage more compact, future development to existing urbanized areas near transit. Thus, conservation of open space functions as a complementary strategy to other land use strategies to help prevent suburban sprawl and reduce VMT.

2. Transportation Strategies

RTP/SCSs adopted by MPOs to achieve the existing regional GHG targets also include transportation-related strategies designed to reduce VMT and GHG emissions. These include the development of complete streets, increasing transit efficiency and frequency, expansion and improvement of transit systems, development of low-emission fueling and charging infrastructure, and use of Transportation Demand Management (TDM) and Transit Systems Management (TSM) strategies.

Complete streets are defined as streets that support the safety and efficiency of all forms of transportation. A complete street provides pedestrian walkways, and bicycle, transit, and vehicle lanes. These streets are designed to ensure safe access for all users and, thus, encourage the use of low-emission forms of transportation.

Incorporation of complete streets in land use planning increases the attractiveness of walking and bicycling, and stimulates a transition away from automobile use.

MPOs have dedicated a substantial portion of RTP investments to improving and expanding transit systems and strengthening transit corridors. Transit services include local and express buses; bus rapid transit (BRT); trolleys, trams, or other streetcars; aboveground passenger rail services, such as light rail and commuter rail; or underground subway systems. New transit lines, extensions, connections, and stations are planned to increase the availability of transit services.

Fixed-route rail transit systems (e.g., light rail transit) and BRT comprise two transit options that improve service rates and transit efficiency and are included in several adopted RTP/SCSs. Fixed-route rail transit systems operate aboveground on a discrete track or prioritized vehicle lane. Similarly, BRT includes features that separate bus movement from passenger vehicles. Typical features of BRT systems consist of dedicated lanes, busway alignment, off-board fare collection, platform-level boarding, and intersection treatment. The separate infrastructure of fixed-route rails and BRT increases transit efficiency through reducing traffic-related causes of delay. Additionally, BRT supports RTP/SCS goals to increase transit frequency by shortening transit-related headways, or the minimum distances or waiting times between vehicles.

Natural gas, zero-emissions vehicle (ZEV), and plug-in hybrid-electric vehicle (PHEV) buses are currently being incorporated into transit fleets. Investments in ZEV- and PHEV-bus fueling and charging infrastructure to support transit needs are also underway.

Another measure included in RTP/SCSs is the investment and expansion of regional ZEV and PHEV fueling and charging infrastructure for cars and light-duty trucks beyond existing and future State programs and investments. This strategy is intended to stimulate fleet turnover by improving the convenience of ZEV and PHEV usage. Also, to advance the rate of fleet turnover, MPOs can also engage in ZEV and PHEV rebate programs. To incent the purchase of a low-emission vehicle, MPOs and local jurisdictions can buy back high-emission vehicles from automobile owners. This rebate is then used as a contribution to the future purchase of a low-emission vehicle.

TDM strategies incent behaviors that lower the demand for single-occupancy vehicle (SOV) use. For instance, MPOs have included incentive programs in their RTP/SCSs to minimize need for SOVs. Ridesharing opportunities have become more widespread as local jurisdictions invest in high-occupancy vehicle (HOV) programs (e.g., carpool, vanpool). Demand for SOV use can be further reduced through corporate rebate programs or the formation of transportation management associations (TMAs) wherein companies exceeding a certain number of employees or groups of companies or employers provide incentives to carpool, use public transit, and/or provide company shuttles to satisfy the commute needs of their employees. MPOs can also partner with privatized ride sharing companies (e.g., Zipcar, Car2Go) to provide affordable and accessible ride sharing services to their residents.

Other TDM measures to lower SOV use entail providing managed lanes, shortcuts that bypass congested roadways, and reduced costs for HOVs. Enforcing dedicated lanes and shortcuts for HOVs generate traffic-related time and cost-effective advantages that can alter existing behaviors.

Additional TDM measures included in RTP/SCSs target bicycle use. Government funded or privatized bicycle sharing programs offer users fast and efficient bicycle rentals for hourly and/or day-long periods. MPOs and local governments can also promote bicycle education programs and events to encourage bicycle use.

Further, vehicle-related GHG reductions can be achieved through reduced on-site parking requirements for new development. This results in an overall reduction in parking availability and potential vehicle trip reductions and changes in travel mode, because parking becomes more expensive and difficult to locate. Reducing and more actively managing on-site parking can incent more frequent transit use, ridesharing, walking, and the use of bicycles. Also, as vehicle-related parking becomes less available, bicycle parking may become more common and accessible.

RTP/SCSs have also included TSM strategies to reduce vehicle-related GHG emissions associated with traffic and congestion. Through TSM, vehicle movement can become more streamlined and efficient. For example, incorporating roundabouts into community planning in lieu of traditional stop signs can lower GHG emissions associated with braking and accelerating. Ramp metering on freeway and highway on-ramps is another strategy designed to improve traffic flow. Metering manages the rate of vehicle movement during peak traffic hours and contributes to smoother traffic flow.

Technological improvements, such as traffic signal optimization and incident management, can also contribute to freer flowing traffic patterns. Traffic signal optimization involves improving the operations, maintenance, timing, and location of traffic signals to promote smoother traffic flows. The use of incident management could entail support for programs that identify and clear traffic-related accidents.

The physical separation of trucks and railroads from passenger vehicle-dominated roadways is another TSM strategy to improve traffic rates. Through this strategy, truck-only lanes would be managed to compartmentalize varying traffic speeds and improve flow. Similarly, interaction between railroad lines and roadways would minimize interactions between rail and passenger vehicles and would result in fewer stops and optimize traffic flow.

Passenger vehicle-related GHG emissions can also be reduced through simple roadway maintenance. Roadways deteriorate over time due to everyday vehicle use, roadway cleaning, snow removal, and general weathering. Periodic resurfacing of roadways can improve the efficiency of a vehicle through reducing friction.

The land use and transportation strategies discussed above represent the range of actions included in existing RTP/SCSs adopted by MPOs since the initial regional GHG reduction targets were adopted by CARB in 2010. Thus, these strategies represent the

compliance responses of MPOs and local jurisdictions to the existing regional GHG reduction targets and serve as the baseline for the impact analysis presented in this ~~Draft~~ Final EA.

D. Reasonably Foreseeable Compliance Responses to the Target Update.

This ~~Draft~~ Final EA evaluates the reasonably foreseeable compliance responses expected to be taken by MPOs or local agencies because of new targets set under the Target Update. Compliance responses include those reasonably foreseeable actions that would occur if new or expanded strategies in future updates to RTP/SCSs are implemented by MPOs or local jurisdictions in response to the Target Update.

The anticipated compliance responses discussed in this section focus on those activities with the potential to result in either a direct or indirect physical change in the environment (e.g., construction activities, infrastructure and equipment installations, operation of vehicles and transit systems, and other activities). Some potential compliance responses are activities that would not result in direct or indirect environmental effects (e.g., deployment of software designed to help members of the public easily compare their travel mode choices), or where direct or indirect effects are unknown and too speculative to define (e.g., autonomous vehicles). Such activities are noted in the discussion.

It is expected that implementation of the Target Update would result in a continuation and expansion of existing strategies included in already adopted RTP/SCSs that achieve the existing GHG targets, as well as new strategies not previously included or quantified in adopted RTP/SCSs. The existing strategies were summarized above in Section B of this chapter. Below, the continuation and expansion of existing GHG reduction strategies and the new strategies that are most foreseeable, based on current information, are discussed, along with the strategies' reasonably foreseeable compliance responses. Table 2-2 summarizes the potential for continuation or expansion of existing GHG reduction strategies and Table 2-3 summarizes potential new GHG reduction strategies, with each table followed by a summary of the reasonably foreseeable compliance responses associated with those strategies.

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
Land Use			
Infill Development	Accommodating growth within existing urban areas through redevelopment of existing parcels or development of vacant lots	• Continuation and/or increased rate of infill development and redevelopment where feasible • Updates to local land use plans and zoning ordinances	Local agencies with land-use authority Private sector

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
Increased Multi-Family and/or Small-Lot Housing	Prioritizing and planning for more multi-family or attached housing instead of single-family housing	• Continuation and/or increased emphasis on multi-family and small-lot housing for future housing developments • Updates to local land use plans and zoning ordinances	Local agencies with land-use authority Private sector
Increased Density	Increasing the regional average density by implementing other land use strategies, or through up-zoning	• Continuation and/or increased frequency of mixed use development • Updates to local land use plans and zoning ordinances	Local agencies with land-use authority Private sector
Transit Priority Projects	Identification of TPAs to encourage new residential or mixed-use development (i.e., TPPs) within one half-mile of existing and future transit stations.	• Continuation and/or increased development in TPAs • Updates to local land use plans and zoning ordinances	MPOs Local agencies with land-use authority Private sector
Farmland/Open Space Preservation	Supporting existing farmland preservation and open space policies in local GPs or providing incentives to preserve farmland and open space from future development	• Continuation and/or increased preservation of open space and agricultural land • Updates to local land use plans and zoning ordinances	Local agencies with land-use authority Private sector
Transportation			
Bike and Pedestrian Infrastructure/Complete Streets	Improving or expanding bike and pedestrian facilities including bike lanes, multi-use trails, and sidewalks through signage, striping, safety improvements, and dedicating new right-of-way for these purposes	• Continued, modified, or new investments in bike and pedestrian infrastructure and/or complete streets • Increased MPO-funded incentive programs • Updates to local land use plans and zoning ordinances	MPOs Local agencies with land-use authority Local public works or transit agencies Private sector School districts

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
			Park districts
Increased Transit Operations and Efficiency	Expanding transit services into areas that are underserved; reducing transit headways; implementing transit services with dedicated right of way	• Continuation and/or increased development of transit operations and efficiency • Expansion of roads • Construction of new transit corridors • Incorporation of ZEV and PHEV buses and supporting infrastructure • Increase in electric battery production and associated industries	MPOs Local agencies with land-use authority Local public works or transit agencies School districts Private sector
Transportation Demand Management			
Carpool/Vanpool	Organized ridesharing through workplaces or through MPO-provided programs, and supporting infrastructure	• Increase funding for carpool/vanpool programs • Construction of park-and-ride lots	MPOs Local public works or transit agencies Transportation Management Associations Employers
Corporate Shuttles	Employer-provided shuttles or private buses	• Increase funding for corporate shuttle or private bus programs	MPOs Local public works or transit agencies Transportation Management Associations Private sector employers
Carshare	MPO partnerships with privatized car access programs	• Expansion of privatized car-sharing services	MPOs

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
			Transportation Management Associations Local agencies with land use authority Private sector
High-Occupancy Vehicle (HOV) Lanes	Dedicating highway lanes to vehicles with two or more passengers	• Increase in miles of managed highway and freeway HOV lanes	MPOs Caltrans Local public works or transit agencies
HOV Priority	Providing incentives for vehicles with two or more passengers such as reduced bridge tolls and shortcuts	• Increase shortcut opportunities for HOVs • Increase reductions in toll pricing for HOVs	MPOs Caltrans Local public works or transit agencies
Parking Supply Management	Allowing reduced on-site parking requirements for new development	• Construction of development with limited parking opportunity	Local agencies with land-use authority Private sector
Employer-Based Trip Reduction Programs	Financial incentives or technical support for employer-sponsored programs, such as transit subsidy, telecommuting, or parking cash-out	• Continuation and/or increase funding of programs to reduce commuter-related VMT	MPOs Local transit agencies Transportation Management Associations Employers
Bicycle/Pedestrian Incentive and Education Programs	Investments in education or promotion of alternative modes of transportation	• Continuation and/or increase in funding for education programs • Continuation and/or increased promotion of community-wide	MPOs Local public works or transit agencies

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
		active transportation events	Transportation Management Associations Private or Nonprofit sectors
Bikeshare Systems	Programs that allow for short-term bicycle renting and borrowing	• Continuation and/or increase in availability and funding for bikeshare systems near transit centers	MPOs Local public works or transit agencies Private sector
Transportation Systems Management			
Traffic Signal Optimization	Improving the operations, maintenance, timing, and location of traffic signals to promote smoother traffic flow	• Continuation and/or increased improvements to traffic-related infrastructure	Local public works agencies
Transit Signal Priority	Giving transit vehicles signal priority to increased passenger throughput and speed	• Continuation and/or increased priority for transit	Local public works or transit agencies
Ramp Metering	Controlling the rate at which vehicles enter a freeway to improve traffic flow	• Continuation and/or increased number of metered onramps	Caltrans Local public works agencies
Incident Management	Programs to quickly detect and clear traffic incidents	• Continuation and/or increased level of use of incident management programs	Caltrans Local public works agencies
Roundabouts	Replacing existing traffic signals or stop signs with roundabouts to improve traffic flow	• Continuation and/or increased construction of roundabouts where applicable	Local public works agencies
Speed Limit Reduction and Enforcement	Lowering and/or enforcing speed limits or implementing variable speed limits to optimize traffic flow	• Continuation and/or increased enforcement of speed limits	Caltrans CA Highway Patrol Local public works agencies

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
			Local law enforcement agencies
~~Resurfacing Roads~~	~~Resurfacing rough roads to reduce friction-related GHG emissions~~	• ~~Continuation and/or increased roadway maintenance~~	~~MPOs~~ ~~Caltrans~~ ~~Local public works agencies~~
~~Truck Auxiliary Lanes~~	~~Separating trucks from general traffic to improve traffic flow~~	• ~~Increase separation of trucks through designating or constructing truck-only lanes~~	~~MPOs~~ ~~Caltrans~~ ~~Local public works agencies~~
Railroad Grade Separations	Separating trains from general traffic to improve traffic flow and eliminate vehicle idling	• Increase separation of trains and vehicles through transportation planning	Local public works agencies Railroads
Intelligent Transportation Systems	Applying communications-based information and wireless technologies, such as variable messaging, incident management, system monitoring, etc., to improve system-wide traffic flow	• Incorporate more communications-based technologies into transportation systems	MPOs Caltrans Local public works agencies
Integrated Corridor Management	Integrating transportation networks through signal coordination/optimization, speed control, ramp metering, etc., to improve traffic flow at the corridor level	• Increase integration of transportation systems to improve system efficiency	MPOs Caltrans Local public works agencies
Rebate Programs			
Clean Vehicle Rebates	Promoting clean vehicle adoption by offering rebates for the purchase or lease of new, eligible zero-	• Construction of EV charging or hydrogen refueling infrastructure	CARB MPOs Air Districts

Table 2-2 Summary of Potential Continuation or Expansion of Existing GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
	emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles.	• Increase in electric battery or hydrogen fuel cell production and associated industries	
Pricing Strategies			
HOV Toll Lanes	Allowing single occupancy vehicles to pay a toll for access to HOV lanes	• Modifications to existing roadway infrastructure to include toll booths and cameras	MPOs Caltrans Local public works agencies
Congestion Pricing	Charging a toll to drive within certain districts of an urban area during peak hours to limit congestion	• Modifications to existing roadway infrastructure to include toll booths and cameras	State Transportation Agencies Local Transportation Authority
Variable Parking Pricing	A parking metering system where the price of parking fluctuates based on demand	• Continuation and/or increased rates of parking prices based on demand	Local agencies with land use authority
Vehicle Technology			
ZEV/PHEV Charging Infrastructure	Investments in, and availability of, public and workplace charging stations promotes electric vehicles ownership	• Construction of regional ZEV/PHEV infrastructure • Increase in electric battery production and associated industries	MPOs Local public works agencies Local agencies with land-use authority Private sector Utilities

1. Potential Continuation or Expansion of Existing GHG Reduction Strategies

a. Land Use

Many of the land use strategies that could be implemented under the Target Update are already included in existing RTP/SCSs, although not all land use strategies are

uniformly applicable or would be applicable to the same degree across all MPOs, given the variability of regional and local conditions. Further reductions in passenger vehicle-related GHG emissions could be achieved if land use strategies are strengthened or increased. Each MPO, in consultation with local agencies within each MPO region, would determine the appropriate mix and timing of implementation for any expanded or new strategies included in future RTP/SCS updates.

MPOs do not have land use authority; therefore, implementation of land use strategies under the Target Update would typically require local action through the form of updates or amendments to general plans, community plans, specific plans, zoning; or, through the review and approval of specific land use development projects. However, MPOs can still play a role in implementing land use strategies in adopted RTP/SCSs by providing technical assistance to local jurisdictions to take actions that help implement regional land use strategies.

i. Infill Development

Infill development would continue and could increase under the Target Update. Reasonably foreseeable compliance responses could include modified strategies for infill development that increase the rate of new development on vacant lots in developed areas, as well as increase the rate of redevelopment of underutilized properties in developed areas. This could result in updates to existing local land use plans and zoning ordinances, as well as the approval, construction and operation of additional new infill development projects. Examples of potential infill development projects include residential, commercial, and industrial buildings. Infill projects could also occur as mixed-use and within TPAs. Some infill projects could result in demolition of existing structures prior to the construction and operation of new development. Increased infill development could also require modifications to or expansion of existing infrastructure, including streets, water, sewer, drainage, energy (i.e., electricity generation and distribution and natural gas distribution), telecommunications, parks, schools, and other facilities in existing developed areas to accommodate infill development.

ii. Increased Multi-family and Small-Lot Housing

Reasonably foreseeable compliance responses to the Target Update could include regional strategies to further increase emphasis on more compact, land-efficient residential development, prioritizing and planning for more multi-family or attached housing, instead of single-family housing. This could result in updates to existing local land use plans and zoning ordinances to increase permitted densities, as well as the approval, construction and operation of additional new multi-family and small-lot housing development projects.

Increased multi-family or small-lot housing could also require modifications to or expansion of existing infrastructure, to accommodate multi-family and small-lot development that could occur at higher densities than previously planned. This could include streets, water, sewer, drainage, energy (i.e., electricity generation and

distribution and natural gas distribution), telecommunications, parks, schools, and other facilities in existing developed areas.

iii. Increase Mix of Land Uses

Reasonably foreseeable compliance responses to the Target Update could include expanding existing strategies to increase the integration of residential, commercial, industrial and other land use types within proximity to each other. Mixed urban uses can reduce the number of vehicle trips where walking or bicycling is feasible, or where one vehicle trip can serve multiple purposes. This could result in updates to existing local land use plans and zoning ordinances to allow greater mixing of uses in various types of land use designations (e.g., neighborhoods, commercial districts, industrial areas, downtowns, TPAs). Implementing such updates to plans and ordinances could result in the approval, construction and operation of mixed-use development projects, along with single-use infill development projects that introduce new land uses in geographic areas that were originally developed under traditional single-use zoning could also occur (e.g., introducing neighborhood-serving retail uses in a traditional single-family neighborhood, or adding housing in existing commercial corridors). Mixed-use projects could also include greater vertical or horizontal mixing of uses within existing buildings or allowing a greater mix of uses in existing campus-like settings.

iv. Transit Priority Areas (TPAs)

Reasonably foreseeable compliance responses to the Target Update could include expansion of existing strategies to continue or increase designations of TPAs in areas within one quarter to one half mile from existing or planned transit stations. This could result in updates to existing local land use plans and zoning ordinances to adjust permitted land uses, densities and other regulations to enable the development of TPPs within TPAs.

Construction and operation of new infill, mixed-use, or higher-density TPPs in TPAs in response to these local actions would be reasonably foreseeable. Where TOD would occur in existing developed areas as infill projects, modifications to or expansion of existing infrastructure could occur to accommodate additional development, including streets, water, sewer, drainage, energy (i.e., electricity generation and distribution and natural gas distribution), telecommunications, parks, schools, and other facilities.

v. Preservation of Farmland and Open Space

Reasonably foreseeable compliance responses to the Target Update could include enhanced strategies to increase the preservation of existing farmland and open space. These strategies would be complementary to other land use strategies described above and, thus, could contribute to increasing more compact land use patterns that reduce VMT. Specific actions could include the creation and implementation of regional or local programs dedicated to agricultural and open space preservation through the purchase of conservation easements, the creation and operation of open space and habitat reserves, and other regulatory and voluntary tools to ensure that such lands are conserved in perpetuity and not available for urban development (e.g., transfer of

development rights). In some cases, updates to existing local land use plans and zoning ordinances could occur consistent with regional programs or measures to protect farmland and open space, such as zoning to create buffers that separate existing agricultural uses and open space from encroaching development.

b. Transportation

Many of the transportation strategies that could be implemented by MPOs or local agencies in response to the Target Update are already included in existing RTP/SCSs. These existing strategies could be continued and expanded in future RTP/SCS updates. Not all transportation strategies are uniformly applicable or would be applicable to the same degree across all MPOs or local jurisdictions, given the variability of regional and local conditions. Each MPO, in consultation with local agencies within each MPO region, would determine the appropriate mix and timing of implementation for any expanded or new strategies that would be included in future RTP/SCS updates.

i. Bike and Pedestrian Infrastructure/Complete Streets

Reasonably foreseeable compliance responses to the Target Update could include new or modified strategies to increase bike and pedestrian infrastructure and the development of complete streets. This could result in expansion of regional programs sponsored by MPOs or others to fund local implementation of bicycle, pedestrian and complete streets projects. Local agencies could also update general plans and other transportation plans to be consistent with strategies in updated RTP/SCSs. Local governments could also increase construction and operation of bicycle, pedestrian and complete streets projects, including bicycle and pedestrian lanes, walkways, and greenbelts; pedestrian, bicycle, and transit preferred crosswalks, passing lanes (e.g., reversible lane), and traffic signal priority; and development of bicycle parking facilities or structures. Incorporation of complete streets could also require the expansion or alteration of existing roadway systems to include tracks for light rail and streetcars.

ii. Increased Transit Operations and Efficiency

Reasonably foreseeable compliance responses to the Target Update could include new or modified strategies to expand transit operations and improve transit operation efficiency. Implementation actions by transit agencies or other local entities could include modifications to transportation and transit plans, as well as the construction and operation of new transit routes and stations. This could result in the demolition and removal of existing structures to provide space for new infrastructure. Expansion or modification of existing roadways could also occur to incorporate BRT and commuter rail lanes. Incorporation of ZEV and PHEV buses could require the construction of charging and hydrogen fueling infrastructure. Further, the use of ZEV and PHEV could produce additional demand such that ZEV and PHEV manufacturing and associated facilities would need to increase production such that new or modified facilities would need to be constructed. Demand for lithium ion batteries could increase, which could result in increased rates of battery production. Used lithium ion batteries could also be re-used in stationary applications and later refurbished, which could require new facilities, or modifications to existing facilities to accommodate battery recycling.

iii. Transportation Demand Management

Reasonably foreseeable compliance responses associated with TDM strategies in updated RTP/SCSs could include expansions of roadways to include managed lanes for HOVs and construction of ride sharing infrastructure (e.g., park-and-ride lots). Managed lanes for HOVs would provide incentive to automobile users to engage in ride sharing programs as HOV-only lanes would allow users to circumvent traffic during peak hours, and reduce users' travel time.

iv. Transportation Systems Management

Reasonably foreseeable compliance responses to the Target Update could include enhanced TSM strategies that would result in physical alterations to roadways, including installation of ramp metering at freeway interchanges, and installation of traffic calming infrastructure (e.g., roundabouts), which ~~and expansion of existing roadways to include truck auxiliary lanes. Ramp metering, roundabouts, and managed truck-only lanes~~ can minimize traffic-related GHG emissions associated with braking and acceleration.

v. Rebate Programs

Reasonably foreseeable compliance response to the Target Update could include the continuation, expansion, or establishment of clean vehicle rebate programs. MPOs and other local jurisdictions may complement existing statewide rebate programs by incentivizing owners of high-emission vehicles to purchase low-emission vehicles through buying back high-emission vehicles. The profit from the transaction can then be allocated as a rebate for the purchase of a low-emission vehicle (e.g., ZEV, PHEV).

vi. Pricing Strategies

Reasonably foreseeable compliance responses ~~associated~~ to the Target Update could include increased use of pricing strategies that could result in modifications to existing roadways, including new infrastructure to support increased use of roadway or congestion pricing programs and high-speed tolling. Tolls could be applied to SOV use of HOV lanes, which could require the installation of toll-related infrastructure (e.g., cameras, toll booths). To reduce congestion in urban areas, local transportation authorities could charge a toll to drive in certain areas during peak hours. Varying parking prices can manage demand and control supply.

vii. ZEV and PHEV Charging Infrastructure

Reasonably foreseeable compliance responses to the Target Update could include regional strategies to fund or provide incentives to install electric vehicle (EV) charging and hydrogen fueling infrastructure to support increased adoption of ZEV and PHEV vehicles. Implementing actions under this strategy could include updates to local zoning or building codes to establish standards and specification for the installation of charging and fueling infrastructure. This could lead to the construction and operation of individual ZEV fueling and PHEV electric charging infrastructure projects. Similar to Increased Transit Operations and Efficiency, increased use of ZEVs and PHEVs would increase demand on manufacturers and associated industries such that new or modified

facilities would need to be constructed. Demand for lithium ion batteries would increase, which could result in increased rates of battery production. Used lithium ion batteries could also be re-used in stationary applications and later refurbished, which could require new facilities, or modifications to existing facilities to accommodate battery recycling.

2. Potential New GHG Reduction Strategies

Table 2-3 Summary of Potential New GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
Autonomous Vehicle (AV) Fleets	Incorporating public or shared AVs into the passenger vehicle fleet when available	• Modifications to existing infrastructure that supports AV use including sensors and transponders	MPOs Caltrans Local transit agencies Local public works agencies Private sector
Vehicle-to-Vehicle (v2v) Technology	Incorporating v2v technology to enable vehicles to communicate with each other to optimize traffic flow	• Encourage users and manufacturers to adopt v2v technology when available	Private sector
Vehicle-to-Infrastructure (v2i) Technology	Incorporating v2i technology to enable vehicles to communicate with infrastructure to optimize traffic flow	• Encourage users and manufactures to adopt v2i technology when available	Caltrans Local public works and transit agencies Private sector
Neighborhood Electric Vehicles (NEV) and Infrastructure	Providing NEVs for short-distance, local trips	• Construction of NEV infrastructure • Increase in electric battery production and associated industries	Local public works and transit agencies Private sector
Rideshare/Ride Matching	Increasing vehicle occupancy through use of transportation network companies, leveraging services to provide better access to and from fixed-route transit corridors,	• Public and private partnerships to incorporate vehicle/ride sharing in more locations	MPOs Local public works agencies Private sector

Table 2-3 Summary of Potential New GHG Reduction Strategies in Future RTP/SCS Updates

Strategy	Description	Compliance Responses	Implementing Parties
	and for residents living more than a quarter mile from a transit stop, reducing the first mile/last mile limitation of public transit.		
Transportation Aggregators	Using applications that provide real-time information about travel times and costs associated with various forms of transportation	• Encourage public use and private/public development of applications to deliver a comprehensive outlook of travel options	MPOs Private sector
Last-Mile Delivery	Incorporating efficient vehicles into the delivery fleet as a response to a projected increase in the popularity of on-line shopping	• Construction of urban distribution centers and parcel pick-up locations • Increase in electric battery production and associated industries	CARB MPOs Local public works agencies Local agencies with land-use authority Private Sector

a. Autonomous Vehicle Fleet

Reasonably foreseeable compliance responses to the Target Update could include new strategies in future updates to RTP/SCSs related to the incorporation of autonomous vehicles (AV) into the existing fleet. AVs are driverless vehicles with the capacity to navigate and communicate efficiently with the environment and other vehicles with limited or no human input. The advanced software used in the development of AVs increases the safety of drivers and improves efficiency by reducing traffic impacts related to human error (e.g., reaction time, rubbernecking, aggressive driving). The use of AVs could contribute to meeting passenger vehicle-related GHG reductions by improving operational efficiency and contributing to overall improvements in traffic flow compared to current conditions. Further, the following distance currently needed between human-driven vehicles to avoid collisions could theoretically be reduced with deployment of an AV fleet, effectively increasing the capacity of existing roadways. In addition, collisions and incidents contribute substantially to congestion of the roadway

network, especially during peak travel periods. An AV fleet could theoretically reduce the occurrence of collisions and incidents, which could also have the effect of increasing capacity of the existing roadway network. It should be noted that increasing roadway capacity may result in increased travel demand for passenger vehicles (CARB 2014a). Thus, additional research and observation will be needed to make a definitive conclusion about the impact of AVs on roadway capacity.

RTP/SCSs prepared pursuant to the Target Update could include strategies to integrate AVs and the associated technology into the passenger vehicle fleet in a way that integrates AVs with other strategies to increase connectivity to transit and other non-auto travel modes; and, as a complement to other measures intended to increase vehicle occupancy such as carpooling, ridesharing, or ride-matching. However, as the automobile and transportation networking services industries are still in the preliminary stages of testing various applications of the use of AV technology, there is a degree of uncertainty as to how such strategies would be implemented. As noted above, research indicates that the use of AVs could lead to increased demand for roadway capacity. AVs could also increase the passenger vehicle fleet size, expand travel opportunities to low-income areas, and lower passenger vehicle travel costs. As a result, regional VMT and associated GHG emissions could increase because of the use of AVs (CARB 2014a). Therefore, MPOs would need to develop AV-related strategies that complement other GHG-reducing measures which lower automobile-generated VMT and associated emissions. Given that research will still need to be conducted to conclude what modifications to existing infrastructure will be needed to adequately incorporate AVs into everyday use, this EA cannot definitively provide a comprehensive inventory of all AV-associated compliance responses. Available research indicates that sensors could be applied to existing roadway systems to enhance AV communication with the surrounding environment. AV-related transponders could be installed along roadways to transmit data regarding traffic density, flow, volume, and speed, as well as static road hazards such as curves and narrow bridges.

b. Vehicle-to-Vehicle Technology

Reasonably foreseeable compliance responses to the Target Update include the incorporation of vehicle-to-vehicle (v2v) technology into the passenger vehicle fleet. This technology enables cars, trucks, buses, and other vehicles to wirelessly communicate with each other. Through the use of v2v, safety, mobility, and environmental information could be continuously communicated through the vehicle fleet and could contribute to improved roadway system operation and traffic flow. It would be expected the v2v would be assimilated into future passenger vehicle models or v2v devices could be purchased for use.

c. Vehicle-to-Infrastructure Technology

Reasonably foreseeable compliance responses to the Target Update could include the incorporation of vehicle-to-infrastructure (v2i) technology into the passenger vehicle fleet. This technology allows vehicles to wirelessly communicate with traffic signals, roadway censors, work zones, toll booths, school zones, and other types of infrastructure. This technology could be used to supplement existing TSM strategies

designed to optimize roadway system operation and improve traffic flow. The technology could be combined with personal navigation systems to re-route traffic. It would be expected that v2i would be assimilated into future passenger vehicle models or v2i devices could be purchased for use.

d. Neighborhood Electric Vehicles and Infrastructure

Reasonably foreseeable compliance responses to the Target Update could include the implementation of NEVs and associated infrastructure in location-appropriate contexts. NEVs are a subset of electric vehicles with use permitted only on roadways of limited speeds depending on the local ordinances. Construction of NEV charging stations and dedicated right-of-way could occur as a result of the adoption of this strategy.

e. Rideshare/Ride Matching

Reasonably foreseeable compliance responses to the Target Update could include public and private partnerships to increase the frequency and availability of ridesharing options. Existing private transportation network companies, such as Uber and Lyft and traditional taxis, already provide on-demand ridesharing opportunities in select locations (e.g., San Francisco, Los Angeles, Sacramento). Local transportation authorities could coordinate with these private entities to expand these services to more locations throughout the State, especially in communities with limited access to transit stops due to locational barriers (i.e., first mile/last mile). Modifications to existing infrastructure and roadways could occur to improve passenger loading and drop off in some locations to accommodate increased demand for these services while avoiding conflicts with other roadway users. These could include alterations to curbs, increased designated loading zones, marked pullouts separated from bike lanes, and increased space between sidewalks and vehicle lanes. Similar to the deployment of AVs, expanded rideshare and ride matching programs could improve car access and lower the cost of travel, and, as a result, increase regional VMT. Investments in ridesharing and ride matching programs would need to be developed in conjunction with other measures that target reductions in single-occupant passenger vehicle trips and VMT.

f. Transportation Aggregators

Reasonably foreseeable compliance responses to the Target Update could include the use of transportation aggregators. This technology consists of web- and mobile-based applications that provide real time information regarding availability and travel times of varying modes of transportation (e.g., carsharing, taxis, carpooling, bicycling, walking). Transportation aggregators also factor in costs associated with each transportation option. Examples of transportation aggregators, such as the mobile phone application, RideScout, are currently in use and provide users with a comprehensive awareness of the most time- and cost-efficient travel options within their vicinity.

g. Last-Mile Delivery

Reasonably foreseeable compliance responses to the Target Update could include development of regional strategies that increase the GHG efficiency of “last-mile delivery”

options related to increases in on-line shopping, in lieu of vehicle trips to retail stores or longer distance deliveries by trucks. These could include increasing the deployment of near-zero or zero-emission delivery vehicles, development and construction of urban distribution centers and parcel pick-up locations within existing communities, and other actions to expand alternative delivery options to more efficiently deliver goods. Near-zero or zero-emission vehicles could include a variety of bicycles, passenger vehicles, and low-emission heavy-duty trucks. Incentive programs could also initiate the incorporation of low-emission vehicles (e.g., ZEVs, PHEVs) into the delivery fleet. Notably, reductions in passenger vehicle GHG emissions from the use of "last-mile delivery" would be contingent upon the use of near-zero or zero-emission vehicles as local and regional VMT could increase from deployment of such measures.

Increased use of ZEVs and PHEVs could increase demand on manufacturers and associated industries such that new or modified facilities would need to be constructed. Demand for lithium ion batteries would increase, which could result in increased rates of battery production. Used lithium ion batteries could also be re-used in stationary applications and later refurbished, which could require new facilities, or modifications to existing facilities to accommodate battery recycling.

E. Conclusion

The Target Update would result in a wide range of reasonably foreseeable compliance responses that could be implemented by MPOs and local agencies. CARB cannot predict with any certainty which combination of strategies will be included by MPOs in future RTP/SCS updates, or which strategies will be implemented by local agencies, in response to the Target Update. It would be expected that following implementation of the Target Update, existing measures could continue or be expanded, coupled with potential new measures, in future RTP/SCS updates. Thus, the range of reasonably foreseeable compliance responses described above are broad and include a wide range of physical actions that could occur. These physical actions would not necessarily occur in each region, nor would they occur uniformly in the same region or in the same manner when comparing one region to another. Specific actions that could be taken by individual MPOs or local agencies within an MPO region would dictate the specific compliance responses and associated physical actions in the future. These actions would be subject to future environmental review by each MPO or local agency responsible for approving future actions described.

A programmatic level of analysis of potential environmental impacts that could occur because of reasonably foreseeable compliance responses to the Target Update is included in Chapter 4 of this ~~Draft~~ Final EA.

3.0 ENVIRONMENTAL AND REGULATORY SETTING

The California Environmental Quality Act (CEQA) Guidelines require an environmental impact report to include an environmental setting section, which discusses the current environmental conditions near the project. This environmental setting constitutes the baseline physical conditions by which an impact is determined to be significant. (Cal. Code Regs. tit. 14 § 15125.) As discussed above in Chapter 1, the California Air Resources Board (CARB or Board) has a certified regulatory program and prepares an environmental analysis (EA) in lieu of an environmental impact report (EIR). This ~~Draft~~ Final EA is a functional equivalent to an EIR under CEQA. Therefore, in an effort to comply with the policy objectives of CEQA, an environmental setting, as well as a regulatory setting with relevant environmental laws and regulations, has been included as Attachment 1 to this document.

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4.0 IMPACT ANALYSIS AND MITIGATION MEASURES

A. Approach to the Environmental Impacts and Mitigation Measures

This chapter contains an analysis of potential environmental impacts resulting from implementation of the proposed SB 375 Target Update (Target Update). The California Environmental Quality Act (CEQA) requires the baseline for determining the significance of environmental impacts to normally be the existing conditions at the time the environmental review is initiated (see Cal. Code Regs. tit.14, § 15125(a)). Therefore, significance determinations reflected in this Environmental Analysis (EA) are based on a comparison of the potential environmental consequences of the Target Update with the regulatory setting and physical conditions in 2017 (see Chapter 3 and Attachment 1).

For determining whether the Target Update has a potential effect on the environment, the California Air Resources Board (CARB or Board) evaluated the potential physical changes to the environment resulting from the reasonably foreseeable compliance response described in further detail in Chapter 2 of this ~~Draft~~ Final EA. It would be expected that following implementation of the Target Update, existing measures in regional transportation plans and sustainable community strategies (RTP/SCSs) could continue or be expanded, coupled with new greenhouse gas (GHG)-reducing measures, in future RTP/SCS updates. As such, the physical effects associated with both the incorporation of new measures and continuation or expansion of existing measures are disclosed in this ~~Draft~~ Final EA.

1. Significant Adverse Environmental Impacts and Mitigation Measures

The analysis of adverse effects on the environment, and significance determinations for those effects, reflect the programmatic nature of the analysis of the anticipated reasonably foreseeable compliance actions taken by various entities in response to the Target Update. The ~~Draft~~ Final EA addresses broadly defined types of impacts or actions that may be taken by others in the future in response to the targets set by CARB as part of the Target Update.

This ~~Draft~~ Final EA takes a conservative approach and considers some adverse environmental impacts as potentially significant because of the inherent uncertainties about the specific nature or range of activities that could be carried out by various entities in response to the Target Update. The relationship between reasonably foreseeable physical actions carried out in response to the Target Update, as well as environmentally sensitive resources or conditions that may be affected, are also taken into consideration. This conservative approach may overstate environmental impacts in light of these uncertainties and is intended to satisfy the good-faith, full-disclosure intention of CEQA.

If and when reasonably foreseeable compliance responses to the Target Update are proposed to be carried out by metropolitan planning organizations (MPOs) and/or local jurisdictions, such proposals would be subject to more detailed environmental review by

these jurisdictions, who will have approval authority over subsequent actions. For example, MPOs prepare EIRs for RTP/SCSs. Some impacts identified in this ~~Draft~~ Final EA could be avoided or reduced to a less-than-significant level by specific and enforceable mitigation measures required through later environmental review. Nonetheless, at this stage, this ~~Draft~~ Final EA takes a conservative approach in its post-mitigation significance conclusions, to avoid any risk of understating the impact, considering the current uncertainty and lack of CARB control as to which specific strategies MPOs will select and implement, and whether feasible mitigation would be sufficient or would be implemented by other parties. This approach fulfills CARB's disclosure responsibility under CEQA by noting that potentially significant environmental impacts may be unavoidable.

Where applicable, consistent with CARB's certified regulatory program requirements (Cal. Code Regs. tit.17, § 60005 (b)), this EA also acknowledges potential beneficial effects on the environment in each resource area that may result from implementation of the Target Update. Any beneficial impacts associated with the Target Update will be included in the impact assessment for each resource area described in this chapter.

B. Resource Area Impacts and Mitigation Measures

Below is a programmatic analysis of potential impacts resulting from reasonably foreseeable compliance responses to the Target Update. The reasonably foreseeable compliance responses are analyzed in a programmatic manner for several reasons:

(1) any individual action or activity could be carried out by various entities because of the same program (i.e., the Target Update);

(2) the reasonably foreseeable compliance response would result in generally similar environmental effects that can be mitigated in similar ways (Cal. Code Regs. tit.14, § 15168 (a)(4)); and

(3) while the types of foreseeable compliance responses can be reasonably predicted, the specific location, design, and setting of the potential actions cannot feasibly be known at this time. If a later activity would have environmental effects that are not examined within this EA, the public agency with authority over the later activity would be required to conduct additional environmental review as required by CEQA or other applicable statutes.

The impact analysis is organized according to the environmental resource topics presented in the Environmental Checklist in Appendix G to the CEQA Guidelines.

When an impact is determined to be potentially significant, mitigation measures are described. In some cases, several mitigation measures are provided to reduce the impact severity or avoid potentially significant environmental impacts. These mitigation measures correspond to subheadings provided in the impact analysis text.

C. Resource Area Impacts and Mitigation Measures

1. Aesthetics

Impact 1-1: Short-Term Construction-Related Effects on Aesthetics Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in Transportation Priorities Areas (TPAs); and, expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of Transportation Systems Management (TSM) and Transportation Demand Management (TDM) strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed to implement pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and neighborhood electric vehicle (NEV) programs. Increased use of low-emission vehicles (e.g., battery electric vehicles [BEVs], plug-in hybrid electric vehicles [PHEVs], zero emission vehicles [ZEVs]) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support autonomous vehicles (AVs) and expansion of intelligent transportation systems (e.g., vehicle-to-vehicle (v2v) and vehicle-to-infrastructure [v2i] software).

Short-term construction-related activities associated with the reasonably foreseeable compliance responses would involve typical off-road construction equipment (e.g., backhoes, graders, dozers) and on-road heavy duty vehicles for transport of materials to and from construction sites. Earth moving, paving, or other activities could create temporary mounds or piles of dirt or require staging areas where materials or equipment would be temporarily stored. Depending on the hours when construction is conducted, sources of glare or lighting could be present. Although there is uncertainty regarding the locations of these activities, scenic vistas or views from a State scenic highway could be degraded by the presence of heavy duty equipment, glare, lighting, or disturbed earth.

Development and redevelopment in infill areas as well as TOD could entail the demolition of existing structures. For small- to medium-sized structures, demolition would require the use of cranes, excavators, and bulldozers. For larger structures, demolition could also involve the use of wrecking balls. Demolition-related activities could contribute to the degradation of a scenic area.

Therefore, short-term construction-related impacts on aesthetic resources associated with reasonably foreseeable compliance responses to the Target Update would be potentially significant.

Potential scenic, glare, and lighting impacts could be reduced to a less-than-significant level by mitigation measures prescribed by local or State land use or permitting agencies with approval authority over specific development projects.

Mitigation Measure 1-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of aesthetic resources. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities or infrastructure that would be approved by other State agencies or local jurisdictions. The ability to require such measures is within the purview of jurisdictions with land use approval and/or permitting authority. Project-specific impacts and mitigation would be identified during the project review process and carried out by agencies with approval authority. Recognized practices routinely required to avoid and/or minimize impacts to aesthetic resources include:

- Proponents of new development and new facilities and structures constructed because of reasonably foreseeable compliance responses would submit applications to State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant scenic or aesthetic impacts of the project.
- To the extent feasible, the sites selected for use as construction staging and laydown areas would be areas that are already disturbed and/or are in locations of low visual sensitivity. Where feasible, construction staging and laydown areas for equipment, personal vehicles, and material storage would be sited to take advantage of natural screening opportunities provided by existing structures, topography, and/or vegetation. Temporary visual screens would be used where helpful, if existing landscape features did not screen views of the areas.
- All construction and maintenance areas would be kept clean and tidy, including the re-vegetation of disturbed soil and storage of construction materials and equipment would be screened from view and/or are generally not visible to the public, where feasible.
- Siting projects and their associated elements next to important scenic landscape features or in a setting for observation from State scenic highways, national historic sites, national trails, and cultural resources would be avoided to the greatest extent feasible.

- The project proponent would contact the lead agency to discuss the documentation required in a lighting mitigation plan, submit to the lead agency a plan describing the measures that demonstrate compliance with lighting requirements, and notify the lead agency that the lighting has been completed and is ready for inspection.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant scenic and nighttime lighting impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related scenic and nighttime lighting impacts resulting from reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 1-2: Long-Term Operational-Related Effects on Aesthetics Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Infill, high-density residential, TOD, and mixed-use development could introduce new structures into urban areas. Compact, high-density development within urban centers would likely introduce structures exceeding two stories consistent with applicable zoning

designations. Mixed-use and higher-density infill residential development could alter or conflict with the existing visual character of some areas because of increases in building heights, the introduction of commercial or other new land uses in mixed-use buildings or in adjacent mixed-use settings, as well as new buildings containing a greater number of units. Infill, high-density residential, TOD, and mixed-use developments could also result in new sources of glare and night-time lighting in populated areas.

Updates and amendments to planning documents (e.g., general plans) could designate existing rural agricultural and open space as sites for conservation and preservation. This strategy would focus development inward into urban environments while simultaneously preserving the visual rural character of conservation sites. Reducing the level of allowable development within these areas would inhibit the introduction of man-made structures and buildings such that impacts to visual resources (e.g., trees, rock outcroppings) would be minimized.

Infrastructure associated with TSM, TDM, and pricing strategies could be developed following the release of the Target Update. These could include new meters on highway and freeway on ramps, roundabouts, park-and-ride lots, and traffic cameras. Installation of meters and cameras would result in a minimal alteration of the existing environment and would not be expected to alter the visual character of an area. Introduction of roundabouts would produce a localized change in the aesthetics of intersections; however, this change would not be considered adverse. Construction and operation of new park-and-ride lots could result in the degradation of visual resources if vegetation or other resources are paved over to support these lots. However, park-and-ride lots developed from existing parking structures would not include a physical environmental change such that aesthetic resources could be negatively affected.

The incorporation of complete streets into roadway function and design could result in modifications to the typical character of roadways. Complete streets provide dedicated lanes for transit, pedestrian, and/or bicycle use in addition to vehicle-designated lanes. Transit and bicycle facilities could include bicycle lanes, tracks associated with train-related transit (e.g., light rail, trolley cars), and bicycle racks. While the introduction of such facilities would change the existing aesthetics of such roadways, modifications would not be substantial such that visual quality would be diminished. Further, pedestrian-related facilities, such as greenbelts, would have the potential to enhance the existing visual quality of a roadway. Establishment of a greenbelt could entail the planting and maintenance of aesthetically pleasing trees and vegetation, which would produce an increase in the aesthetic value of those areas.

The establishment of new transportation corridors and associated infrastructure (e.g., bus stops, stations) could introduce mobile and stationary artificial elements to a rural area. Improved transportation networks could increase the frequency of bus, automobile, and train movement through a region. The presence of these mobile elements could deter from the visual quality of a scenic view, and could be a source of substantial night-time lighting.

Electric charging and hydrogen fueling infrastructure constructed and operated because of programs and investments into zero and near-zero emission vehicles and transit could occur within locations of existing gas-related infrastructure or in areas of consistent zoning; however, there is inherent uncertainty as to the exact locations of future zero and near-zero emission vehicle-related infrastructure. Therefore, construction and operation of these facilities could conceivably introduce or increase the presence of artificial elements (e.g., vehicle chargers) in areas of scenic importance, such as visibility from a State scenic highway. The visual effects of such development would depend on several variables, including the type and size of facilities, distance and angle of view, visual prominence, and placement in the landscape. In addition, operation may introduce sources of glare and nighttime lighting for safety and security purposes.

Modifications to existing roadways to support autonomous vehicles and intelligent transportation systems may require the installation of sensors on pavement, which would communicate with the software found in on-road autonomous vehicles; however, given that this technology is still being developed and would require further research and investment, specific demand on infrastructure and it's potential to affect visual resources is uncertain at this time. It would be expected that implementation of sensors would not produce a physical change such that the existing aesthetic character of existing roadways would be substantially affected. Further, incorporation of v2v and v2i software would not require physical modifications to the environment such that visual resources would be affected.

New or modifications to existing recycling facilities could be required to accommodate lithium-ion battery recycling-related activities. Incorporation of zero and near-zero emission vehicles (e.g., BEVs, ZEVs) into the fleet would produce an increase in the rate of battery turnover. Modifications to existing recycling centers could occur within the confines of such facilities and, therefore, would not result in additions of external equipment that would degrade visual quality; however, development of new facilities, although expected to occur in areas appropriately zoned, could increase or increase the presence of visible human-made elements (e.g., heavy-duty trucks, new structures) in areas of scenic importance. There is uncertainty surrounding the specific locations of new recycling facilities; therefore, adverse effects to scenic vistas or views from a State scenic highway could occur. Further, sources of daytime glare and nighttime lighting associated with these facilities could be introduced.

Thus, long-term operational impacts to aesthetic resources associated with the Target Update would be potentially significant.

Potential scenic, glare, and lighting impacts could be reduced to a less-than-significant level by mitigation measures prescribed by local or State land use or permitting agencies with approval authority over specific development projects.

Mitigation Measure 1-2: Implement Mitigation Measure 1-1

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the

programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant scenic and nighttime lighting impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational scenic and nighttime lighting impacts resulting from reasonably foreseeable compliance responses to with the Target Update would be **potentially significant and unavoidable**.

2. Agricultural and Forest Resources

Impact 2-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Agricultural and Forest Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and, expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Measures implemented following the approval of the Target Update would have short-term and long-term effects to agriculture and forest resources. Regional transportation plan (RTP) and sustainable communities strategy (SCS) documents (RTP/SCSs) prepared in accordance with the Target Update could identify areas eligible for land use and transportation projects. While preservation of rural agriculture and open space could be employed in future RTP/SCS updates and local agency responses to such updates, projects could still be located on existing farmland or forest land under some scenarios. Where there would be new facilities (e.g., transit corridors) constructed outside of urbanized areas, undisturbed and vacant land could be used for transportation purposes. Additionally, new development approved by local agencies associated with land use measures in future RTP/SCS updates could also be located on agricultural or forest lands. These lands could have been historically or currently

farmed for agriculture, been under a Williamson Act contract, or be considered forest or timber lands.

Modifications to roadway infrastructure associated with TSM, TDM, and pricing strategies would include installation of meters, roundabouts, toll booths, and park-and-ride lots. Meters and roundabouts would occur within existing roadway systems and would not result in the rezoning or loss of agriculture or forest resources. Toll booth improvements and park-and-ride lots, however, would have the potential to encroach on agricultural and open space areas.

Planning documents could be amended or updated to adopt programs to limit outward urban development into rural agricultural or forest areas; however, given the programmatic nature of this ~~Draft~~ Final EA, it cannot be assumed that such programs would be incorporated as a measure in future RTP/SCSs. Although anticipated developed associated with RTP/SCSs would be expected to be focused in urban areas, consumption of agricultural and forest lands could occur to support future growth and development.

Therefore, short-term construction-related and long-term operational impacts associated with implementation of the Target Update on agriculture and forest resources could be potentially significant.

This impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 2-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of agricultural and forest resources. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities or infrastructure that could be approved by local jurisdictions. The ability to require such measures is within the purview of jurisdictions with land use approval and/or permitting authority. Project-specific impacts and mitigation would be identified during the project review process and carried out by agencies with approval authority. Recognized practices routinely required to avoid and/or minimize impacts to agriculture and forest resources include:

- Proponents of new development and new facilities and structures constructed because of reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the

environmental document to reduce or substantially lessen the environmental impacts of the project.

- Any mitigation specifically required for a new or modified facility would be determined by the local lead agency and future environmental documents by local and State lead agencies should include analysis of the following:
  - Avoidance of lands designated as Important Farmlands as defined by the Farmland Mapping and Monitoring Program.
  - Analysis of the feasibility of using farmland that is not designated as Important Farmland prior to deciding on the conversion of Important Farmland.
  - The feasibility, proximity, and value of the proposed project sites should be balanced before a decision is made to locate a facility on land designated as Important Farmland.
  - Any action resulting in the conversion of Important Farmlands should consider mitigation for the loss of such farmland. Any such mitigation should be completed prior to the issuance of a grading or building permit by providing the permitting agency with written evidence of completion of the mitigation. Mitigation may include but is not limited to:
    - Permanent preservation of off-site Important Farmland (State defined Prime Farmland, Farmland of Statewide Importance, and Unique Farmland) of equal or better agricultural quality, at a ratio of at least 1:1.
    - Preservation may include the purchase of agricultural conservation easement(s); purchase of credits from an established agricultural farmland mitigation bank; contribution of agricultural land or equivalent funding to an organization that provides for the preservation of farmland towards the ultimate purchase of an agricultural conservation easement.
    - Participation in any agricultural land mitigation program, including local government maintained that provides equal or more effective mitigation than the measures listed.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts related to the conversion of agriculture and forest resources.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related and long-term operational impacts to agriculture and forest resources resulting from development associated with reasonably foreseeable

compliance responses to the Target Update would be **potentially significant and unavoidable**.

3. Air Quality

Impact 3-1: Short-Term Construction-Related Effects on Air Quality

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and, expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Proposed development of new land uses, infrastructure, and facilities would be required to secure local or State land use approvals before their implementation. Part of the development review and approval process for projects located in California requires environmental review consistent with California environmental laws (e.g., CEQA) and other applicable local requirements (e.g., local air quality management district rules and regulations). The environmental review process would include an assessment of whether implementation of such projects could result in short-term construction-related air quality impacts.

At this time, the specific location, type, magnitude, and number of construction activities is not known and would be dependent upon a variety of factors that are not subject to authority under CARB and not within its purview. Nonetheless, the analysis presented herein provides a good-faith disclosure of the general types of construction emission impacts that could occur with implementation of these reasonably foreseeable compliance responses. Further, subsequent environmental review would be conducted at such time that an individual project is proposed and land use or construction approvals are sought.

Generally, criteria air pollutants and toxic air contaminants (TACs) could be generated from a variety of activities and emission sources during the construction phase for any specific project. These emissions would be temporary and occur intermittently depending on the intensity of construction on a given day. Site grading and excavation activities would generate fugitive particulate matter (PM) dust emissions, which is the primary pollutant of concern during construction. Fugitive PM dust emissions (e.g., respirable particulate matter [PM_{10}] and fine particulate matter [$PM_{2.5}$]) vary as a function of several parameters, such as soil silt content and moisture, wind speed, acreage of disturbance area, and the intensity of activity performed with construction equipment. Exhaust emissions from off-road construction equipment, material delivery trips, and construction worker-commute trips could also contribute to short-term increases in PM emissions, but to a lesser extent. Exhaust emissions from construction-related mobile sources also include reactive organic gases (ROG) and nitrogen oxides (NO_X). These emission types and associated levels fluctuate greatly depending on the type, number, and duration of usage for the varying equipment.

The site preparation phase typically generates the most substantial emission levels because of the on-site equipment and ground-disturbing activities associated with grading, compacting, and excavation. Site preparation equipment and activities typically include backhoes, bulldozers, loaders, and excavation equipment (e.g., graders and scrapers). Although detailed construction information is not available at this time, based on the types of activities that could be conducted, it would be expected that the primary sources of construction-related emissions include soil disturbance- and equipment-related activities (e.g., use of backhoes, bulldozers, excavators, and other related equipment).

Based on typical emission rates and other parameters for above-mentioned equipment and activities, construction activities could result in substantial emissions of daily NO_X and PM, which may exceed general mass emissions limits of a local or regional air quality management district depending on the location of generation. In addition, increased construction activity in urban areas, because of denser land use strategies, would bring construction-related emissions closer to a greater number of sensitive receptors and general population. Thus, implementation of new regulations and/or incentives could generate levels of emissions that conflict with applicable air quality plans, exceed or contribute substantially to an existing or projected exceedance of State or national ambient air quality standards, or expose sensitive receptors to substantial pollutant concentrations.

As a result, short-term construction-related air quality impacts associated with the Target Update would be **potentially significant**.

Mitigation Measure 3-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of air quality. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is generally within the purview of jurisdictions with local or State land use approval and/or

permitting authority with direct authority over the project. New development and new or modified facilities in California would likely qualify as a "project" under CEQA because they would generally need a discretionary public agency approval and could affect the physical environment. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to air quality include the following:

- Proponents of new development and new or modified facilities constructed because of reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local jurisdiction with land use authority would determine that the environmental review process complied with CEQA and other applicable regulations, prior to project approval.
- Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce the construction-related air quality impacts of the project.
- Project proponents would apply for, secure, and comply with all appropriate air quality permits for project construction from the local agencies with air quality jurisdiction and from other applicable agencies, if appropriate, prior to construction mobilization.
- Project proponents would comply with federal Clean Air Act and the California Clean Air Act regulations (e.g., New Source Review and Best Available Control Technology criteria, if applicable).
- Project proponents would comply with local plans, policies, ordinances, rules, and regulations regarding air quality-related emissions and associated exposure (e.g., construction-related fugitive PM dust regulations, indirect source review, and payment into offsite mitigation funds).
- For projects located in PM nonattainment areas, prepare and comply with a dust abatement plan that addresses emissions of fugitive dust during construction and operation of the project.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. With mitigation, construction emissions could still exceed local air district threshold levels of significance depending on the magnitude of construction activities.

Consequently, while project-level impacts could be reduced to a less-than-significant level by mitigation measures required by land use and/or permitting agencies as a conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related air quality impacts resulting from the development of new land uses, infrastructure, and facilities associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 3-2: Long-Term Operational-Related Effects on Air Quality

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Denser land use strategies would lead to overall statewide and regional reductions in per capita passenger vehicle miles traveled (VMT) by concentrating development in urban areas, thereby reducing the distances between vehicular trip origins and destinations. A reduction in passenger VMT would consequently reduce overall fuel use and criteria and toxic air pollutants from passenger vehicles. Although mobile source emissions are expected to decrease overall, concentrating land use development in urban areas could result in increases in vehicle activity (i.e., other than passenger vehicles) on a localized level in certain areas, and thereby increase the concentration of air pollutants in areas with higher population densities and a greater number of sensitive receptors. These increases could exceed local thresholds for TACs and other pollutants. As discussed in Attachment 1, various federal and state laws, policies, and regulations exist to reduce mobile source emissions of TACs and ozone precursors, and it is expected that as legislative and regulatory actions become more stringent, combined with statewide passenger vehicle VMT reductions, long-term exposure, even localized exposures, would be reduced over time.

Infill residential development constructed as a component of an RTP/SCS could also result in increased exposure of sensitive receptors to concentrations of harmful air pollutants because previously undeveloped areas near freeways and congested intersections could be re-zoned for residential use. To achieve VMT-generated greenhouse gas (GHG) emissions reductions, there is likely to be more development in infill areas, which could result in placing new sensitive land uses (e.g., residences) within 500 feet of a freeway or an urban road with traffic volumes exceeding 100,000 vehicles per day, a practice discouraged by CARB and the California Air Pollution Control Officers Association (CAPCOA) due to related health risks (CAPCOA 2009). As such, future residential development may be more frequently located near TAC- and $PM_{2.5}$-producing transportation hubs leading to greater occurrences of asthma, acute and chronic respiratory and cardiovascular disease, stroke, cancer, and pre-term births and other gestational diseases.

Regional and local mobile source emissions of air pollutants and TACs generated by on-road medium-duty and heavy-duty trucks, other off-road mobile source equipment, and existing or future stationary sources would not be directly reduced because of implementation of the Target Update. While near-term future development, constructed consistent with an updated RTP/SCS, could be exposed to emissions associated with these existing TAC sources, various federal and State laws, policies, and regulations exist to reduce both these mobile and stationary source emissions of air pollutants and TACs, and are expected to reduce both long-term and localized exposure over time and result in long-term air quality benefits.

Furthermore, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, clarified that lead agencies are not required by CEQA to analyze the effects of existing environmental conditions on a project's future users or residents unless the project will exacerbate the existing environmental hazards or conditions. Therefore, in cases where parcels are zoned and developed for residential use nearby existing mobile and stationary sources of air pollutants (e.g., freeways, gas stations), these levels of emissions would constitute the existing environmental conditions and not a CEQA impact. On the other hand, because MPOs could encourage land use strategies, such as transit priority areas and infill development, future residential development could increase localized mobile source emissions, as well as increase proximity to existing sources of mobile and stationary sources of volatile organic compounds (VOCs) and $PM_{2.5}$. Implementation of both land use and transportation strategies could also lead to an increased concentration of related mobile source emissions (e.g., commuter trips) on existing roadways in infill areas or transit priority areas, rather than in other portions of a region, and thereby possibly exacerbate an existing environmental hazard to a level beyond an applicable significance threshold, which could constitute a CEQA air quality impact.

At this time, the specific location, type, magnitude of future development constructed consistent with a future RTP/SCS to meet the Updated Targets is not known and would be dependent upon a variety of factors that are not subject to CARB's authority and not within its purview. Because the implementation details of these compliance responses as part of future RTP/SCSs depend on regional decisions, the potential localized air

quality impacts are too speculative to determine. However, in light of these uncertainties, and to satisfy the intention of CEQA's good-faith disclosure of the general types of emission impacts that could occur, CARB acknowledges that some implementation choices could yield potentially significant impacts on air quality in terms of near-term localized exposure to criteria pollutants and TACs as discussed above.

Non-infrastructure transportation strategies, such as most TSM, TDM, pricing, and vehicle technology strategies, would contribute to per capita VMT reductions, increase vehicle efficiency, and increase alternative fuel mode share in the long-term, thereby reducing long-term fuel use and associated air pollutant emissions.

In sum, MPOs are expected to meet the new GHG targets through actions that would reduce per capita passenger vehicle and light-duty truck VMT, encourage the use of ZEVs, and decrease reliance on single-occupancy vehicles. These reductions would reduce GHG emissions and yield ROG, NO_X, and PM reduction co-benefits overall. However, as infill development near freeways and urban roadways could become more common as a result of implementation of a region's RTP/SCS, localized impacts related to exposure of sensitive receptors to mobile source TAC emissions could be exacerbated. Further, increased urbanization under an RTP/SCS could locate future sensitive land uses to existing or planned stationary sources. Although more stringent SB 375 targets would reduce criteria air emissions on a regional basis, sensitive receptors, located near transportation centers (i.e., freeways and urban roadways with traffic volumes of 100,000 vehicles per day) and stationary sources, could experience increased exposure to TACs. Based on the above, it is expected that overall the Target Update will result in long-term operational air quality ***benefits***. However, some development could lead to near-term localized exposure to criteria pollutants and TACs, as discussed above, and because there is not enough information at this time about ultimate design and implementation of future infill and other land use development as a component of an RTP/SCS developed pursuant to the Target Update, this ~~Draft~~ Final EA conservatively finds for purposes of this programmatic analysis that near-term localized operational impacts to air quality could be ***potentially significant***.

Mitigation Measure 3-2

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of air quality. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is generally within the purview of jurisdictions with local or State land use approval and/or permitting authority with direct authority over the project. New development and new or modified facilities in California would likely qualify as a "project" under CEQA because they would generally need a discretionary public agency approval and could affect the physical environment. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority.

Recognized practices routinely required to avoid and/or minimize impacts to air quality include the following:

- Proponents of new development and new or modified facilities constructed because of reasonably foreseeable compliance responses would submit applications to local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local jurisdiction with land use authority would determine that the environmental review process complied with CEQA and other applicable regulations, prior to project approval.
- Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce the operational-related air quality impacts of the project.
- Project proponents would apply for, secure, and comply with all appropriate air quality permits for project construction from the local agencies with air quality jurisdiction and from other applicable agencies, if appropriate, prior to operation.
- Project proponents would comply with federal Clean Air Act and the California Clean Air Act regulations (e.g., New Source Review and Best Available Control Technology criteria, if applicable).
- Project proponents would comply with local plans, policies, ordinances, rules, and regulations regarding air quality-related emissions and associated exposure.
- For projects located within the vicinity of a freeway or urban roadways with traffic volumes of 100,000 vehicles per day, project proponents would conduct a health risk assessment to evaluate potential levels of TACs. In cases where TACs exceed the applicable standard as established by a local air quality management district, on-site exposure reduction measures would be implemented.
- For projects located within the vicinity of a freeway or urban roadways with traffic volumes of 100,000 vehicles per day, project proponents would consult CARB's Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways Technical Advisory and incorporate appropriate mitigation measures to help decrease exposure to TACs and other harmful air pollutants (CARB 2017b).
- For projects located in PM nonattainment areas, prepare and comply with a dust abatement plan that addresses emissions of fugitive dust during operation of the project.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. With mitigation, operational emissions, though not likely, could still exceed local air district threshold levels of significance depending on the project and location of sensitive receptors.

Consequently, while project-level impacts could be reduced to a less-than-significant level by mitigation measures required by land use and/or permitting agencies as a conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational-related air quality impacts resulting from the development of new land uses, infrastructure, and facilities associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 3-3: Short-Term Construction-Related and Long-Term Operational-Related Effects on Odors

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Although it is reasonably foreseeable that construction activities could occur, the exact location of such construction activities is uncertain. Typically, land use development projects associated with increased density would be in urbanized areas with appropriate zoning to accommodate these specific activities. Construction activities could generate odors associated with the operation of diesel equipment; however, such activities would be short-term in nature and would not be expected to adversely affect long-term air quality.

Reasonably foreseeable compliance responses would be not expected to generate the need for new wastewater treatment plants, landfills, chemical manufacturing, or other similar facilities that would be considered substantial sources of odor. New facilities or modified facilities would primarily include transportation improvements designed to reduce VMT, such as expanded bus or rail service, park-and-ride lots, pedestrian

bicycle amenities, or other infrastructure that would not be considered substantial sources of odor.

Denser infill or mixed-use development associated with the reasonably foreseeable compliance responses could result in the physical location of new residents (i.e., sensitive receptors) in closer proximity to wastewater treatment plants, landfills, or other odor sources common to urban infill and mixed-use developments (e.g., waste transfer stations, industrial uses, auto body shops); however, neither the precise locations of such development projects and existing sources of odor nor the precise distances between potential new sensitive receptors and existing odor sources are known.

In the context of land use planning and specific land use development projects, one of the most important factors influencing the potential for an odor impact to occur is the distance between the odor source and receptors, also referred to as a buffer zone or setback. Many local agencies employ such buffer zones or setbacks in general plans and zoning policies as key mechanisms to avoid or minimize odor impacts. The greater the distance between an odor source and receptor, the less concentrated the odor emission would be when it reaches the receptor. Thus, when considering whether to approve a specific project, local land use agencies typically consider proximity to existing odor sources when updating a land use plan or considering whether to approve a specific development project, as a matter of ensuring consistency with adopted plans and zoning.

The California Supreme Court decision in the case of *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369 clarified that lead agencies are not required by CEQA to analyze the effects of existing environmental conditions on a project's future users or residents unless the project will exacerbate the existing environmental hazards or conditions. The Target Update and associated reasonably foreseeable compliance responses could exacerbate existing environmental conditions related to existing odor sources by reducing distances between sensitive receptors and existing odor sources. Additionally, increased infill residential or mixed-use development could result in increases in the volume of solid waste deposited at existing landfills or the volume of wastewater at existing treatment plants, which could result in the increased presence of odors from existing odor sources.

Thus, increased infill, residential, and mixed-use development in various locations due to continued or expanded land use strategies in future RTP/SCS updates could potentially expose sensitive receptors to adverse concentrations of odors from existing wastewater treatment plants, short-term construction odors, or landfills. Long-term operation-related effects associated with the Target Update could be potentially significant.

This impact associated with the Target Update could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 3-3

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that govern odor emissions. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is within the purview of jurisdictions with local or state land use approval and/or permitting authority. New or modified facilities in California would likely qualify as a "project" under CEQA, because they would generally need a discretionary public agency approval and could affect the physical environment. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices routinely required to avoid and/or minimize impacts to odors include the following:

- Projects constructed as a result of reasonably foreseeable compliance responses would coordinate with local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirement (e.g., CEQA). The local jurisdiction with land use authority would determine that the environmental review process complied with CEQA and other applicable regulations, prior to project approval.

- Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce or sustainably lessen the operational odor impacts of the project.

- Project proponents would comply with local plans, policies, ordinances, rules, and regulations for reducing exposure to existing sources of odor or odiferous processes, including the incorporation of setbacks and buffer areas between odor sources and sensitive land uses.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. With mitigation, operational emissions of odors could still exceed the threshold of significance for local land use plans, policies, rules, ordinances, and regulations. Consequently, while impacts would be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this EA takes the conservative approach in its post-mitigation significance conclusions and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational-related odor impacts associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

4. Biological Resources

Impact 4-1: Short-Term Construction-Related Effects on Biological Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Although it is reasonably foreseeable that construction activities could occur for these types of activities, there is uncertainty as to the exact location of any new development, facilities, and structures, or modifications made to existing development, facilities, and structures. Any construction undertaken could require disturbance of undeveloped areas, such as clearing of vegetation; earth movement and grading; trenching for utility lines; erection of new buildings and infrastructure; and paving of parking lots, delivery areas, and roadways.

The biological resources that could be affected by the construction of new infill, high-density residential, and mixed-use development; concentrated development in TPAs; zero and near-zero emission related infrastructure; new recycling facilities; and transit corridors and stations would depend on the specific location of any necessary construction and its environmental setting, which is anticipated to mostly occur within existing disturbed urban areas. However, there is uncertainly with respect to the exact locations of these new projects, and it would be expected that build out under future RTP/SCSs would result in the development of open space habitat. Adverse impacts could include modifications to existing habitat including removal, degradation, and fragmentation of riparian systems, wetlands, or other sensitive natural wildlife habitat and plant communities; interference with wildlife movement or wildlife nursery sites; loss of special-status species; and/or conflicts with the provisions of adopted habitat conservation plans, natural community conservation plans, or other conservation plans or policies to protect natural resources.

Short-term construction-related impacts to biological resources associated with the Target Update would be potentially significant.

This impact on biological resources associated with the Target Update could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 4-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of biological resources. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize impacts to biological resources include:

- Proponents of new development, facilities, and structures constructed as a result of reasonably foreseeable compliance response would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA).
- The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
    - Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project actions required to mitigate potentially significant biological impacts may include the following; however, any mitigation specifically required for a new or modified facility or structure would be determined by the local lead agency.
        - Retain a qualified biologist to prepare a biological inventory of site resources prior to ground disturbance or construction. If protected species or their habitats are present, comply with applicable federal and State endangered species acts and regulations. Construction and operational planning will require that important fish or wildlife movement corridors or nursery sites are not impeded by project activities.
        - Retain a qualified biologist to prepare a wetland survey of onsite resources. This survey shall be used to establish setbacks and prohibit disturbance of riparian habitats, streams, intermittent and ephemeral drainages, and other wetlands. Wetland delineation is

required by section 404 of the Clean Water Act and is administered by the U.S. Army Corps of Engineers.

- Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices.
- Prohibit construction activities near raptor nests during nesting season or establish protective buffers and provide monitoring, as needed, to address project activities that could cause an active nest to fail.
- Prepare site design and development plans that avoid or minimize disturbance of habitat and wildlife resources, and prevent stormwater discharge that could contribute to sedimentation and degradation of local waterways. Depending on disturbance size and location, a National Pollution Discharge Elimination System construction permit may be required from the State Water Resources Control Board.
- Prepare spill prevention and emergency response plans, and hazardous waste disposal plans as appropriate to protect against the inadvertent release of potentially toxic materials.
- Plant replacement trees and establish permanent protection suitable habitat at ratios considered acceptable to comply with "no net loss" requirements.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related impacts to biological resources associated with reasonably foreseeable compliance response to the Target Update would be **potentially significant and unavoidable.**

Impact 4-2: Long-Term Operational-Related Effects to Biological Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering,

traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Development under future RTP/SCSs could include the construction of new transportation corridors and development that could form barriers to animal migration and foraging routes. The construction and operation of these compliance responses could result in habitat fragmentation throughout MPO-specific regions and species loss through wildlife to roadway interactions. Infill, mixed-use, and high-density residential development could displace wildlife existing on habitat fragments (e.g., parks, hillsides) within urban areas. The intensity and severity of these effects would depend on the size and quality of the habitat impacted as well as the magnitude of each individual project and its ability to lessen its effects. Further, operation of new transportation corridors could result in an increased rate of litter, trampling, light pollution, and roadway noise in previously inaccessible and undisturbed natural areas.

Future RTP/SCSs may include updates and amendments to planning documents (e.g., general plans) that could designate existing open space as sites for conservation and preservation. This strategy would focus development inward into urban environments while simultaneously preserving the existing biological settings of these conservation sites. Reducing the level of allowable development within these areas would serve to minimize operational-related impacts such as impeding wildlife corridors, vehicle collisions, and habitat fragmentation. However, such conservation areas may provide recreational opportunities (e.g., trails) which could cause behavioral changes, increased stress, and reduced reproductive success to certain species (Larson et al. 2016).

Long-term operational-related impacts to biological resources associated with the Target Update would be potentially significant.

Impacts to biological resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of the CARB and not within its purview.

Mitigation Measure 4-2: Implement Mitigation Measure 4-1

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with this ~~Draft~~ Final EA does not attempt to address project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational impacts to biological resources associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable.**

5. Cultural Resources

Impact 5-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Cultural Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Construction activities could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Demolition of existing structures may also occur before the construction of new buildings and structures. The cultural resources that could potentially be affected by ground disturbance activities include, but are not limited to, prehistoric and historical archaeological sites; tribal cultural resources; paleontological resources; historic buildings, structures, or archaeological sites associated with agriculture and mining; and heritage landscapes. Properties important to Native American communities and other ethnic groups, including tangible properties possessing intangible traditional cultural values, also may exist. Historic buildings and structures may also be adversely affected by demolition-related activities. Such resources may occur individually, in groupings of modest size, or in districts. Because culturally sensitive resources can also be located in developed settings; historic, archeological, and paleontological resources, and places important to Native American communities, could also be adversely affected by construction of new facilities and structures.

New development and new facilities and structures constructed as reasonably foreseeable compliance responses may be located in a region where significant prehistoric or historic-era cultural resources may have been recorded and there remains a potential that undocumented cultural resources could be unearthed or otherwise discovered during ground-disturbing and construction activities. Prehistoric materials might include flaked stone tools, tool-making debris, stone milling tools, shell or bone items, and fire affected rock or soil darkened by cultural activities; examples of significant discoveries would include villages and cemeteries. Historic material might include metal, glass, or ceramic artifacts; examples of significant discoveries might include former privies or refuse pits (i.e., middens).

Due to the possible presence of undocumented cultural resources and paleontological resources, short-term construction-related and long-term operational impacts on cultural resources associated with the Target Update would be potentially significant.

This impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of the CARB and not within its purview.

Mitigation Measure 5-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of cultural resources. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize impacts to cultural resources include:

- Proponents of new development and new or modified facilities or infrastructure constructed because of reasonably foreseeable compliance responses would submit applications to State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant scenic or aesthetic impacts of the project. Actions required to mitigate potentially significant cultural impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

- Retain the services of cultural resources specialists with training and background that conforms to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61.
- Seek guidance from the State and federal lead agencies, as appropriate, for coordination of Nation-to-Nation consultations with the Native American Tribes.
- Provide notice to Native American Tribes of project details to identify potential tribal cultural resources. In the case that a tribal cultural resource is identified, prepare mitigation measures that:

    - avoid and preserve the resources in place,
    - treat the resource with culturally appropriate dignity,
    - employ permanent conservation easements, and
    - protect the resource.

- Consult with lead agencies early in the planning process to identify the potential presence of cultural properties. The agencies will provide the project developers with specific instruction on policies for compliance with the various laws and regulations governing cultural resources management, including coordination with regulatory agencies and Native American Tribes.
- Define the area of potential effect for each project, which is the area within which project construction and operation may directly or indirectly cause alterations in the character or use of historic properties. The area of potential effect should include a reasonable construction buffer zone and laydown areas, access roads, and borrow areas, as well as a reasonable assessment of areas subject to effects from visual, auditory, or atmospheric impacts, or impacts from increased access.
- Retain the services of a paleontological resources specialist with training and background that conforms with the minimum qualifications for a vertebrate paleontologist as described in Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures (Society of Vertebrate Paleontology 2010).
- Conduct initial scoping assessments to determine whether proposed construction activities would disturb formations that may contain important paleontological resources. Whenever possible potential impacts to paleontological resources should be avoided by moving the site of construction or removing or reducing the need for surface disturbance. The scoping assessment should be conducted by the qualified paleontological resources specialist in accordance with applicable agency requirements.
- The project proponent's qualified paleontological resources specialist would determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of

the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high known potential for containing resources. If the assessment is inconclusive a surface survey is recommended to determine the fossiliferous potential and extent of the pertinent sedimentary units within the project site. If the site contains areas of high potential for significant paleontological resources and avoidance is not possible, prepare a paleontological resources management and mitigation plan that addresses the following steps:

- a preliminary survey (if not conducted earlier) and surface salvage prior to construction;
- physical and administrative protective measures and protocols such as halting work, to be implemented in the event of fossil discoveries;
- monitoring and salvage during excavation;
- specimen preparation;
- identification, cataloging, curation and storage; and
- a final report of the findings and their significance.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related and long-term operational-related cultural resources impacts associated with reasonably foreseeable compliance responses the Target Update could be **potentially significant and unavoidable**.

6. Energy Demand

Impact 6-1: Short-Term Construction-related Effects on Energy Demand

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or

expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Construction of new infrastructure, transportation facilities, and alternative fueling stations would require the use of motor vehicle fuels, natural gas, and electricity. Typical earth-moving equipment would be necessary for construction of infrastructure, including: graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. While various forms of energy would be required for construction of new or modified facilities, specific project details are not currently known; however, the use of energy for construction would be temporary and limited in magnitude and would not be expected to result in energy demand beyond existing available supplies. Additionally, existing statewide measures to reduce electricity and natural gas consumption in stationary facilities and equipment, reduce motor vehicle emissions through improved fuel efficiency, and other measures designed to decrease emissions and improve energy reliability could contribute to reductions in construction-related energy demands over the long term.

Thus, short-term construction-related impacts on energy demand associated with the Target Update would be **less than significant**.

Impact 6-2: Long-Term Operational-Related Effects on Energy Demand

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs)

could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Over the long term, implementation of the reasonably foreseeably compliance responses under the Target Update would result in a statewide reduction in fossil fuel use from decreases in per capita VMT as a result of reduced trips, reduced trip lengths, and increased use of alternate modes such as transit, biking, walking, or ridesharing. These reductions in fossil fuel consumption would complement other statewide measures intended to improve vehicle fuel efficiency and shift from petroleum-based fuels toward renewable electricity, hydrogen fuel cells, and other alternative fuels in passenger vehicles.

Increases in the capacity of the electrical grid could be required as a result of increased production and use of electric vehicles under complementary regulations such as the Advance Clean Cars Program, which are focused on increasing the rate of adoption of electric vehicles and hydrogen fuel cell vehicles. At the same time, all electrical generation in the State will be required to meet a Renewable Portfolio Standard of 50 percent by 2030, combined with a doubling in energy efficiency in existing buildings by 2030, under the Clean Energy and Pollution Reduction Act of 2015 (i.e., SB 350). Additionally, a large portion of the liquid fuels for combustion engine vehicles would also need to be sourced from renewable feedstock under the Low Carbon Fuels Standard, and the supply of hydrogen for fuel cells would need to increase over time as a result of increasing hydrogen fuel cell vehicle adoption under Advance Clean Cars Program. Thus, fuel-switching activities designed to increase the use of renewable or alternative fuels in order to reduce GHG emissions would help to reduce fossil fuel usage, but would potentially increase demand for these alternate fuel sources.

The reasonably foreseeable compliance responses to the Target Update would not result in a direct change in the requirements of the electricity sector or vehicle fuels sector related to potential increases in energy demand. Any potential changes or shifts in demand are already expected pursuant to the above-referenced laws or regulations that are being implemented by CARB or others.

Potential land use changes or increased infill development under the Target Update could increase electricity and natural gas demands within urban areas, but could also result in reduced energy demands on a per capita basis as multi-story buildings with higher floor-to-area ratios and shared walls between units tend to have higher building energy efficiencies than lower-density, single-family residential or single-use commercial buildings. Additionally, California's increasingly-stringent energy efficiency standards for new construction in Title 24, Part 6 of the California Building Code would help to minimize increases in energy demand over the long term, as well as expand the feasibility of using on-site renewables. For instance, the 2016 Title 24 Standards require that new residential and non-residential buildings constructed after January 1, 2017 be "solar ready," or designed to accommodate use of on-site solar technology (California Energy Commission 2017a, 2017b). Further, as noted in the State's Energy

Efficiency Strategic Plan and Residential Zero Net Energy (ZNE) Action Plan, ZNE standards would be phased in for all new residential construction starting in the year 2020 and for all new non-residential construction starting in 2030, thereby further reducing energy demands (California Public Utilities Commission 2011, 2015).

According to Appendix F of the CEQA Guidelines (Cal. Code Regs. tit. 14, § 15000 et seq.), the wise and efficient use of energy includes:

1. Decreasing overall per capita energy consumption;
2. Decreasing reliance on fossil fuel such as coal, natural gas, and oil; and
3. Increasing reliance on renewable energy sources.

Implementation of the Target Update would contribute to decreased energy consumption per capita, increased demand for alternative fuel supplies, and decrease the use of fossil fuels through increased use of electric and other alternative fuel vehicles. Thus, the Target Update would support wise and efficient uses of energy, and would result in a **less-than-significant** long-term operational impact on energy demand.

7. Geology Seismicity, and Soils

Impact 7-1: Short-Term Construction-Related Effects to Geology, Seismicity, and Soils

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Although it is reasonably foreseeable that construction and operation of new mixed-use, high-density residential, and infill development; development with TPAs; transit corridors and stations; and low-emission vehicle-related infrastructure could occur, there is uncertainty as to the exact location of any new development. Construction activities could require disturbance of undeveloped areas, such as clearing of vegetation, earth

movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. These activities would have the potential to adversely affect soil and geologic resources in construction areas.

New development could be located in a variety of geologic, soil, and slope conditions with varying amounts of vegetation that would be susceptible to soil compaction, soil erosion, and loss of topsoil during construction. The level of susceptibility varies by location. However, the specific design details, siting locations, and soil compaction and erosion hazards for particular developments are not known at this time and would be analyzed on a site-specific basis at the project level.

Short-term construction-related impacts to geology and soils associated with the Target Update would be potentially significant.

The impacts to soil and geologic resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 7-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of geology and soils. CARB does not have the authority to require implementation of mitigation related to new development or new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize impacts to geology and soils include:

- Proponents of new development, facilities, and structures constructed because of reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant geology and soil impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

- Prior to the issuance of any development permits, proponents of new or modified facilities or infrastructure would prepare a geotechnical investigation/study, which would include an evaluation of the depth to the water table, liquefaction potential, physical properties of subsurface soils including shrink-swell potential (expansion), soil resistivity, slope stability, mineral resources, and the presence of hazardous materials.
- Proponents of new or modified facilities or infrastructure would provide a complete site grading plan, and drainage, erosion, and sediment control plan with applications to applicable lead agencies. Proponents would avoid locating facilities on steep slopes, in alluvial fans and other areas prone to landslides or flash floods, or with gullies or washes, as much as possible.
- Disturbed areas outside of the permanent construction footprint would be stabilized or restored using techniques such as soil loosening, topsoil replacement, revegetation, and surface protection (i.e., mulching).

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related impacts to soil and geologic resources associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 7-2: Long-Term Operational-Related Effects to Geology, Seismicity, and Soils

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support

low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

New infill, mixed-use, high-density residential; development within TPAs; transit corridors and stations; and low-emission vehicle-related infrastructure could be located within or across Alquist-Priolo Fault Zones. These zones are identified as areas located directly over faults that are susceptible to surface rupture. Operation of new facilities and structures constructed as potential compliance responses to the Target Update could expose additional people to areas of strong seismic shaking, liquefaction, and landslide. Further, in coastal areas, seismically induced tsunami and seiche waves could damage high-density development and transportation infrastructure associated with the Target Update.

Road cutting associated with the development of new transportation corridors could occur following implementation of the Target Update. This could expose soils to long-term erosion over the life of a roadway or rail, creating potential landslide and falling rock hazards. Further, engineered roadways could be undercut over time by uncontrolled stormwater drainage. Road cutting on steep grades or roads requiring substantial amount of cut and fill would pose the greatest potential for landslides and erosion impacts. Poorly executed construction methods or lack of maintenance could increase the likelihood of erosion-related effects to occur.

Long-term operation-related impacts to geology and soils associated with the Target Update would be potentially significant.

The impacts to soil and geologic resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of the CARB and not within its purview.

Mitigation Measure 7-2: Implement Mitigation Measure 7-1

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational-related impacts to soil and geologic resources associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

8. Greenhouse Gases

Impact 8-1: Short-Term Construction-Related Effects on Greenhouse Gases

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Although it is reasonably foreseeable that construction activities associated with land use or transportation measures could occur, there is uncertainty as to the exact size, scale, type, or location of any construction projects for such facilities or structures. Examples of typical earth-moving equipment that may be necessary for various types of construction activities include: graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. Specific, project-related construction activities would result in increased generation of GHG emissions associated with the use of heavy-duty off-road equipment, materials transport, and worker commutes for the duration of the construction phase. Depending on the size, scale, or type of construction, large-scale projects constructed as a result of the Target Update (e.g., development project) could conceivably generate GHG emissions exceeding applicable thresholds of significance as established by local Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs).

However, it should be noted that implementation of the Target Update would not create additional population or job growth beyond what is projected by local governments and State agencies. In developing RTP/SCSs, MPOs collaborate with local and state agencies to assess regional growth patterns as they are projected at that time. Regional-specific land use and transportation strategies account for these projections and aim to accommodate growth while also reducing passenger vehicle GHG emissions. As such, implementation of RTP/SCSs developed pursuant to the Target

Update would not generate additional growth beyond baseline projections. Therefore, the construction of facilities, developments, or structures would be similar to those constructed without the implementation of the Target Update. Local agencies, such as air pollution control districts, are generally charged with determining acceptable thresholds of GHG emissions, measured in metric tons of carbon dioxide equivalent per 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 2014 (CARB 2010, 2014b). These models require consideration of assumptions, including construction timelines and energy demands (e.g., fuel and electricity). However, most local agencies (e.g., APCDs) do not recommend or require the quantification of short-term construction generated GHGs for typical construction projects because these only occur for a finite period of time (e.g., during periods of construction) that is typically much shorter than the operational phase. Thus, local agencies generally recommend that GHG analyses focus on operational phase emissions, as discussed in the next impact section, unless the project is of a unique nature requiring atypical (e.g., large scale, long-term) activity levels (e.g., construction of a new dam or levee) for which quantification and consideration (e.g., amortization of construction emissions over the lifetime of the project) may be recommended.

Construction activities associated with accommodating growth under the Target Update would not be greater than statewide growth projections. Although construction emissions could exceed applicable local thresholds for construction-generated GHGs, these emissions would be similar to emissions occurring without the Target Update. Therefore, short-term construction-related impacts to GHG associated with implementation of the Target Update are **less than significant**.

Impact 8-2: Long-Term Operational-Related Effects on Greenhouse Gases

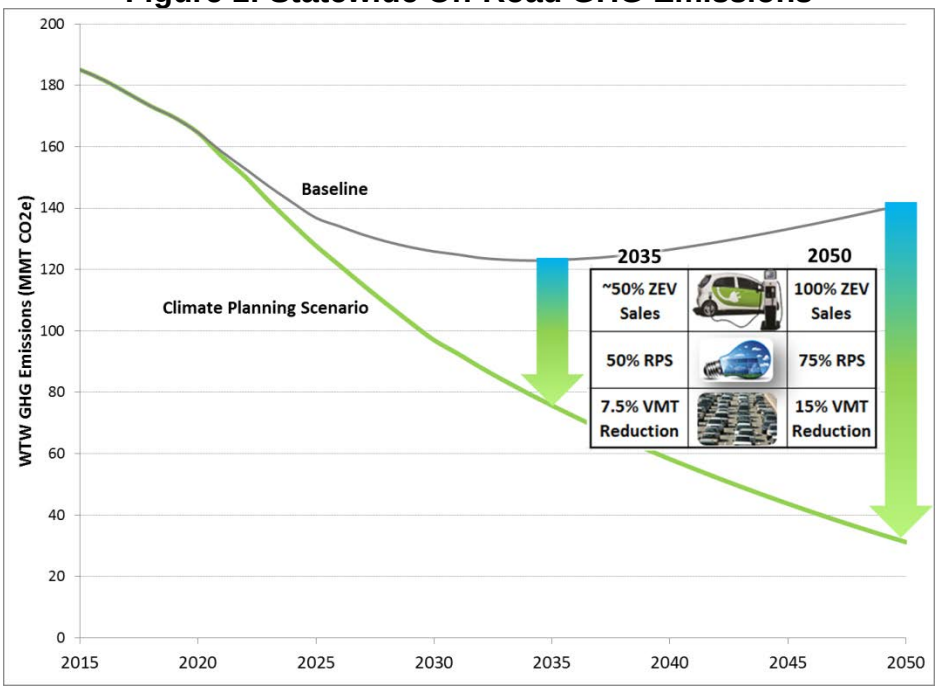
Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities

would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

The purpose of SB 375 and the Target Update is to achieve long-term operational GHG emissions reduction from passenger vehicles. Land use strategies to encourage increased infill development and compact, mixed-use and higher-density development would lead to statewide and regional reductions in per capita VMT by concentrating development in urban areas, reducing the distances between trip origins and destinations, and reducing trip lengths due to increased proximity between land uses. These per capita reductions in VMT would consequently reduce fuel use and GHG emissions from passenger vehicles.

As stated in the project objectives in Chapter 2, more stringent SB 375 targets are identified in the 2017 Climate Change Scoping Plan as one of the measures in the transportation sector to achieve the statewide 2030 emissions reduction target of 40 percent below 1990 levels by 2030. Figure 1 in the Draft and Final Staff Report prepared for the Target Update, and included here, illustrates the GHG emissions reductions envisioned in the Scoping Plan for the transportation sector.

Figure 1: Statewide On-Road GHG Emissions



WTW = well-to-wheel emissions
MMT CO2e = million metric tons carbon dioxide equivalent
RPS = renewable portfolio standard

The 2017 Climate Change Scoping Plan recommends this reduction be achieved through substantially greater increases in sales of zero-emission vehicles (ZEVs) compared to current requirements, greater increases in fuel efficiency standards for gasoline vehicles compared to current requirements, and a reduction in statewide VMT

compared to currently adopted SCSs. The blue segment in Figure 1 represents the GHG emissions reduction contribution from VMT. While currently adopted SB 375 ~~plans~~ targets achieve, on average, a ~~17~~ 13 percent reduction in statewide per capita GHG emissions relative to 2005 by 2035, CARB staff's proposed targets would achieve nearly ~~20~~ a 19 percent reduction. Overall, the Target Update would result in an additional reduction of GHG emissions of ~~over 10~~ approximately 8 million metric tons of carbon dioxide (CO2) per year in 2035 compared to the current targets.

As noted in the Energy Demand analysis above, land use strategies would also result in reduced energy demands on a per capita basis as multi-story buildings with higher floor-to-area ratios and shared walls between units tend to have higher building energy efficiencies than lower-density, single-family residential or single-use commercial buildings. Additionally, California's increasingly stringent energy efficiency standards for new construction in Title 24, Part 6 of the California Building Code would help to minimize increases in energy demand over the long term, as well as expand the feasibility of using on-site renewables and working towards achieving ZNE, thereby reducing energy-related GHG emissions in new development.

Transportation strategies would increase vehicle occupancy rates, reduce automotive mode share, and smooth overall vehicle traffic operations, resulting in reduced GHG emissions through per capita VMT reduction and improved vehicle fuel efficiency. Most transportation infrastructure strategies, such as new transit routes and stations and roadway reconfigurations, would require regular long-term maintenance. This would involve regular fuel use in various maintenance vehicles and equipment. These maintenance activities would regularly result in GHG emissions; however, any potential increases in maintenance-related GHG emissions would be minimal compared to operational per capita VMT reductions and associated fuel and GHG reductions resulting from implementation of land use and transportation strategies.

Non-infrastructure transportation strategies, such as most TSM, TDM, pricing, and vehicle technology strategies would also reduce VMT per capita and increase vehicle efficiency, thereby reducing long-term fossil fuel use and associated GHG emissions.

Thus, the Target Update would result in compliance responses that reduce per capita VMT, improve vehicle efficiency, and deploy cleaner vehicles into the fleet mix, and their implementation is anticipated to result in overall long-term reductions in per capita GHG emissions in California. Because the state population is expected to continue to grow over the coming decades, per capita reductions will be integral to meeting the state's mid-term 2030 target established in SB 32. Further, as illustrated in Figure 1, implementation of the Target Update is an integral part of the proposed 2017 Scoping Plan Update strategy for the transportation sector, leading to an overall reduction in GHG emissions compared to the existing ~~targets~~ baseline, resulting in long-term **beneficial** impacts in reducing GHG emissions.

9. Hazards and Hazardous Materials

Impact 9-1: Short-Term Construction-Related and Long-Term Operational-Related Effects on Hazards and Hazardous Materials

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Construction activities associated with the Target Update may require the transport, use, and disposal of hazardous materials. Construction activities generally use heavy-duty equipment requiring periodic refueling and lubricating fluids. Large pieces of construction equipment (e.g., backhoes, graders) are typically fueled and maintained at the construction site as they are not designed for use on public roadways. Thus, such maintenance uses a service vehicle that mobilizes to the location of the construction equipment. It is during the transfer of fuel that the potential for an accidental release is most likely. Although precautions would be taken to ensure that any spilled fuel is properly contained and disposed, and such spills are typically minor and localized to the immediate area of the fueling (or maintenance), the potential still remains for a substantial release of hazardous materials into the environment. Consequently, construction activities could 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.

Maintenance of transportation facilities (e.g., light rail) could also entail the use of hazardous materials such as fuels, solvents, paints, and other architectural coatings. It would be expected that implementation of tolls or fees for dedicated truck lane facilities could induce transfer of goods movement to the freight sector, including movement of hazardous materials. Increased transport and handling of hazardous materials via freight could increase the risk of accidental release near neighborhoods and communities adjacent to freight facilities.

Further, there is uncertainty surrounding the exact locations of new high-density development, transit networks, and low-emission vehicle-related infrastructure; therefore, it would be expected that construction and maintenance activities associated with reasonably foreseeable compliance responses to the Target Update could occur near a school, hospital, or nursing center resulting in the possible release of hazardous materials within a quarter mile of a sensitive receptor.

Increased use of EVs and PHEVs because of incentive programs and more available infrastructure could conceivably increase demand for hybrid battery recycling which would require modifications to existing facilities or construction of new facilities. It would be expected that these facilities would be required to comply with US EPA and State regulations governing disposal and recycling of waste including car batteries. However, it is possible that battery disposal may not be properly executed, and nickel-metal hydride and lithium-ion batteries from EVs and PHEVs could be directed to a landfill wherein toxins could leach into the environment.

The short-term construction-related and long-term operational-related impact associated with the Target Update on hazards and hazardous materials would be potentially significant.

The impacts could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 9-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that apply to accident-related hazards and risk of upset. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a “project” under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid upset and accident-related impacts include:

- Proponents of new development and new or modified facilities or infrastructure constructed because of reasonably foreseeable compliance responses would submit applications to State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.

- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially hazardous impacts of the project.
- Actions required to mitigate potentially significant upset and accident-related hazard impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Handling of potentially hazardous materials/wastes should be performed under the direction of a licensed professional with the necessary experience and knowledge to oversee the proper identification, characterization, handling and disposal or recycling of the materials generated because of a project. As wastes are generated, they would be placed, at the direction of the licensed professional, in designated areas that offer secure, secondary containment and/or protection from stormwater runoff. Other forms of containment may include placing waste on plastic sheeting (and/or covering with same) or in steel bins or other suitable containers pending profiling and disposal or recycling.
    - The temporary storage and handling of potentially hazardous materials/wastes should be in areas away from sensitive receptors such as schools or residential areas. These areas should be secured with chain-link fencing or similar barrier with controlled access to restrict casual contact from non-project personnel. All project personnel that may come into contact with potentially hazardous materials/wastes will have the appropriate health and safety training commensurate with the anticipated level of exposure.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related and long-term operational-related hazards and hazardous materials impacts associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

10. Hydrology and Water Quality

Impact 10-1: Short-Term Construction-Related Effects to Hydrology and Water Quality

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Construction activities could require disturbance of undeveloped areas, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Specific construction projects would be required to comply with applicable erosion, water quality standards, and waste discharge requirements (e.g., National Pollution Discharge Elimination System, stormwater pollution prevention plan [SWPPP]). With respect to depleting groundwater supplies, impairing quality, and runoff issues, construction of new facilities would not be anticipated to result in substantial demands due to the nature of associated activities. However, depending on the location of construction activities, there could be adverse effects on drainage patterns and exposure of people or structures to areas susceptible to flood, seiche, tsunami, or mudflow.

Short-term construction-related impacts to hydrologic resources associated with the Target Update would be potentially significant.

Impacts to hydrologic resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 10-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations regarding hydrology and water quality. CARB does not have the authority to require

implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or mitigate hydrology and water quality-related impacts include the following:

- Proponents of new development and new or modified facilities constructed because of reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant hydrology and water quality impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Under the oversight of the local lead agency, prior to issuance of any construction permits, the proponents for proposed projects would prepare a stormwater drainage and flood control analysis and management plan. The plans would be prepared by a qualified professional and would summarize existing conditions and the effects of project improvements, and would include all appropriate calculations, a watershed map, changes in downstream flows and flood elevations, proposed on- and off-site improvements, features to protection downstream uses, and property and drainage easements to accommodate downstream flows from the site. Project drainage features would be designed to protect existing downstream flow conditions that would result in new or increased severity of offsite flooding.
    - Establish drainage performance criteria for off-site drainage, in consultation with county engineering staff, such that project-related drainage is consistent with applicable facility designs, discharge rates, erosion protection, and routing to drainage channels, which could be accomplished by, but is not limited to: (a) minimizing directly connected impervious areas; (b) maximizing permeability of the site; and, (c) stormwater quality controls such as infiltration, detention/retention, and/or biofilters; and basins, swales, and pipes in the system design.

- The project proponent would design and construct new facilities to provide appropriate flood protection such that operations are not adversely affected by flooding and inundation. These designs would be approved by the local or State land use agency. The project proponent would also consult with the appropriate flood control authority on the design of offsite stream crossings such that the minimum elevations are above the predicted surface-water elevation at the agency's designated design peak flows. Drainage and flood prevention features shall be inspected and maintained on a routine schedule specified in the facility plans, and as specified by the county authority.
- As part of subsequent project-level planning and environmental review, the project proponent shall submit applications to the local groundwater management authority and prepare a detailed hydrogeological analysis of the potential project-related effects on groundwater resources prior to issuance of any permits. The proponent shall mitigate for identified adverse changes to groundwater by incorporating technically achievable and feasible modifications into the project to avoid offsite groundwater level reductions, use alternative technologies or changes to water supply operations, or otherwise compensate or offset the groundwater reductions.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related impacts to hydrology and water quality associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 10-2: Long-Term Operational-Related Effects to Hydrology and Water Quality

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as

modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

High-density residential, mixed-use, infill development and concentrated development within TPAs would introduce a greater concentration of impervious surface areas, which would result in an increase in urban runoff. It would be expected that development would occur within existing urban centers; however, it is possible that development under future RTP/SCSs could occur in previously rural areas. Implementation of transportation-related projects such as expanded roadways (e.g., new express and auxiliary lands) and transit systems could also introduce impervious surfaces to urban and rural environments which could alter existing drainage patterns.

The introduction of new impervious surfaces related to development could lead to the transport of greater quantities of contaminants to receiving waters associated with precipitation events, landscape irrigation, highway runoff, and illicit dumping. It would be expected that urban-focused development would lead to an increase in stormwater pollutant loads of suspended sediments, hydrocarbons, metals, and oil and grease to unimpaired or impaired waters. These flows could affect the quality of groundwater through infiltration. Further, the increase in impermeable surfaces associated with high-density development could decrease the amount of precipitation that filters into the ground; therefore, impeding groundwater recharge.

Development of land use and transportation projects could alter the existing drainage pattern of a region or substantially increase the rate or amount of surface runoff such that flooding could occur or water drainage systems capacity would be exceeded. The probability of effect would depend on rainfall intensity, ground surface permeability, watershed size and shape, and the physical barriers of a region. Paved surfaces associated with implementation of the Target Update could accelerate the velocity of runoff, concentrating peak flows in downstream areas faster as compared to natural conditions.

Further, although there is uncertainty surrounding the exact location of development and transportation projects, it would be expected that future project sites could be located within 100-year flood hazard areas and also, in the Central Valley, within 200-year flood hazard areas. New development, facilities, and structures associated with the Target Update established within an existing floodplain could impede flood water, altering the flood risks both upstream and downstream. Implementation of the Target Update and its associated compliance responses could contribute to flood-related hazards.

Long-term operational-related impacts to hydrologic resources associated with the Target Update would be potentially significant.

Impacts to hydrologic resources could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 10-2: Implement Mitigation Measure 10-1

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational-related impacts to hydrology and water quality associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

11. Land Use and Planning

Impact 11-1: Short-Term Construction-Related and Long-Term Operational-Effects on Land Use and Planning

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

MPOs are required to update their RTP/SCS approximately every four years in consultation with local governments within each MPO region. Local governments maintain land use authority and are responsible for implementing and updating local general plans, community plans, conservation plans, zoning ordinances, and other applicable plans that address land use. While MPOs will continue to update their RTP/SCSs to reflect the Target Update, they do not have the authority to carry out or approve local land use plans or development projects that are under the jurisdiction of local agencies, nor do they have the authority to require changes or updates to local land use plans. Local governments may amend or update local plans in response to RTP/SCS updates, and thus changes in land use or the approval of amendments or updates to existing general plans or other land use plans in response future to RTP/SCS updates are reasonably foreseeable. However, the precise nature and timing of any future plan updates or proposed land use changes is uncertain. MPOs typically consult with local agencies during development of RTP/SCS updates, including consideration of permitted or planned land uses and associated standards in existing local land use plans, along with potential changes that could occur in the future, to avoid conflicts with existing local plans. Thus, reasonably foreseeable compliance responses would not be expected to conflict with a land use or conservation plan.

Localized implementation of specific land use and transportation projects or programs included in future RTP/SCSs under the Target Update could result in variety of localized adverse effects, such as the conversion or modification of natural and working lands, adverse effects on sensitive species or habitat, long-term erosion effects, adverse effects on local or regional water resources, long-term water quality deterioration associated with erosion and run-off, and, other effects. New roadways or transit projects could also have the potential to divide or displace an existing community, depending on the nature or configurations of future alignments. The specific environmental effects associated with land use changes are considered in their respective sections of this ~~Draft~~ Final EA. Potential indirect environmental effects associated with land use change on agriculture and forestry, biology, geology and soils, and hydrology and their related mitigation measures are discussed in further detail throughout this ~~Draft~~ Final EA under Impact 2-1, “Short-Term Construction-Related and Long-Term Operational-Related Effects to Agricultural and Forest Resources”; Impact 7-1, “Short-Term Construction-Related Effects to Geology, Seismicity, and Soils”; Impact 7-2, “Long-Term Operational-Related Effects to Geology, Seismicity, and Soils”; Impact 10-1, “Short-Term Construction-Related Effects to Hydrology and Water Quality”; and Impact 10-2, “Short-Term Operational-Related Effects to Hydrology and Water Quality.” Potential indirect effects related to the displacement of housing and people from land use projects are discussed under Impact 14-2, “Long-Term Operational-Related Effects to Population and Housing.”

12. Mineral Resources

Impact 12-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Mineral Resources

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Construction of new infill, high-density residential, and mixed-use development; development within TPAs; and new transportation, EV charging, and hydrogen fueling infrastructure could conceivably result in the loss of available land containing known mineral resources, or loss of an available locally important mineral resource recovery site. Although it is reasonably foreseeable that construction activities could occur following implementation of the Target Update, the location and extent of construction activities related to new development cannot be determined at this time. However, new development, facilities, and infrastructure would likely occur within areas of consistent zoning where original permitting and analyses considered these issues. Local agencies designate land with known mineral resources through the general plan and typically include policies on the use, management and protection of these resources in the conservation element, consistent with the requirements of the Surface Mining and Reclamation Act (SMARA) and §s 2762-2763 of the Public Resources Code.

Further, pursuant to SB 375, RTP/SCSs focus growth within or near existing urban centers to reduce transportation-related emissions. As such infill, high-density residential, and mixed-use development would be concentrated within appropriate zoning as identified in applicable general plans. Therefore, construction and operation of new development and transportation-related infrastructure would not affect the availability of a known mineral resource or recovery site.

Thus, short-term construction-related and long-term operational-related impacts to mineral resources associated with reasonably foreseeable compliance responses to the Target Update would be **less than significant**.

13. Noise

Impact 13-1: Short-Term Construction-Related Effects on Noise

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Noise levels that could result from the construction of new transportation infrastructure would fluctuate depending on the type, number, magnitude, and duration of usage for the varying equipment. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise sensitive receptors, and the existing ambient noise environment in the receptor's vicinity. Construction generally occurs in several discrete stages, each phase requiring a specific complement of equipment with varying equipment type, quantity, and intensity. These variations in the operational characteristics of the equipment change the effect they have on the noise environment of the project site and in the surrounding community for the duration of the construction process.

To assess noise levels associated with the various equipment types and operations, construction equipment can be considered to operate in two modes, mobile and stationary. Mobile equipment sources move around a construction site performing tasks in a recurring manner (e.g., loaders, graders, dozers). Stationary equipment operates in a given location for an extended period of time to perform continuous or periodic operations. Operational characteristics of heavy construction equipment are

additionally typified by short periods of full-power operation followed by extended periods of operation at lower power, idling, or powered-off conditions.

Additionally, when construction-related noise levels are being evaluated, activities that occur during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as traffic volumes and commercial activities decrease, construction activities performed during these more noise-sensitive periods of the day can result in increased annoyance and potential sleep disruption for occupants of nearby residential uses.

The site preparation phase typically generates the most substantial noise levels because of the on-site equipment associated with grading, compacting, and excavation, which uses the noisiest types of construction equipment. Site preparation equipment and activities include backhoes, bulldozers, loaders, and excavation equipment (e.g., graders and scrapers). Construction of large structural elements and mechanical systems could require the use of a crane for placement and assembly tasks, which may also generate noise levels. Although a detailed construction equipment list is not currently available, based on this project type it is expected that the primary sources of noise would include backhoes, bulldozers, and excavators. Noise emission levels from typical types of construction equipment can range from approximately 74 to 94 A-weighted decibels (dBA) at 50 feet.

Based on this information and accounting for typical usage factors of individual pieces of equipment and activity types, on-site construction could result in hourly average noise levels of 87 dBA noise equivalent level (L_{eq}) at 50 feet and maximum noise levels of 90 dBA maximum sound level (L_{max}) at 50 feet from the simultaneous operation of heavy-duty equipment and blasting activities, if deemed necessary. Based on these and general attenuation rates, exterior noise levels at noise-sensitive receptors located within thousands of feet from project sites could exceed typical standards (e.g., 50/60 dBA L_{eq}/L_{max} during the daytime hours and 40/50 dBA L_{eq}/L_{max} during the nighttime hours).

Additionally, construction activities may result in varying degrees of temporary groundborne noise and vibration, depending on the specific construction equipment used and activities involved. Groundborne noise and vibration levels caused by various types of construction equipment and activities (e.g., bulldozers, blasting) range from 58 – 109 vibration decibels (VdB) and from 0.003 – 0.089 inches per second (in/sec) peak particle velocity (PPV) at 25 feet. Similar to the above discussion, although a detailed construction equipment list is not currently available, based on this project type it is expected that the primary sources of groundborne vibration and noise would include bulldozers and trucks. According to the Federal Transit Authority (FTA), levels associated with the use of a large bulldozer and trucks are 0.089 and 0.076 in/sec PPV (87 and 86 VdB) at 25 feet, respectively. With respect to the prevention of structural damage, construction-related activities would not exceed recommended levels (e.g., 0.2 in/sec PPV). However, based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, bulldozing and truck activities could

exceed recommended levels with respect to the prevention of human disturbance (e.g., 80 VdB) within 275 feet.

Thus, implementation of reasonably foreseeable compliance responses could result in the generation of short-term construction noise in excess of applicable standards or that result in a substantial increase in ambient levels at nearby sensitive receptors, and exposure to excessive vibration levels.

Short-term construction-related impacts on noise associated with the Target Update would be potentially significant.

This impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 13-1

The Regulatory Setting in Attachment 1 includes, but is not limited to, applicable laws and regulations that pertain to noise. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that could be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize noise include:

- Proponents of new development or new or modified facilities constructed under the reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant noise impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Ensure noise-generating construction activities (including truck deliveries, pile driving, and blasting) are limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours) for projects near sensitive receptors.

- Consider use of noise barriers, such as berms, to limit ambient noise at property lines, especially where sensitive receptors may be present.
- Ensure all project equipment has sound-control devices no less effective than those provided on the original equipment.
- All construction equipment used would be adequately muffled and maintained.
- Consider use of battery-powered forklifts and other facility vehicles.
- Ensure all stationary construction equipment (i.e., compressors and generators) is located as far as practicable from nearby sensitive receptors or shielded.
- Properly maintain mufflers, brakes and all loose items on construction and operation related vehicles to minimize noise and address operational safety issues. Keep truck operations to the quietest operating speeds. Advise about downshifting and vehicle operations in sensitive communities to keep truck noise to a minimum.
- Use noise controls on standard construction equipment; shield impact tools.
- Consider use of flashing lights instead of audible back-up alarms on mobile equipment.
- Install mufflers on air coolers and exhaust stacks of all diesel and gas-driven engines.
- Equip all emergency pressure relief valves and steam blow-down lines with silencers to limit noise levels.
- Contain facilities within buildings or other types of effective noise enclosures.
- Employ engineering controls, including sound-insulated equipment and control rooms, to reduce the average noise level in normal work areas.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that the potentially significant short-term construction-related impacts regarding noise resulting from the construction of new facilities associated with reasonably foreseeable compliance response to the Target Update could be **potentially significant and unavoidable**.

Impact 13-2: Long-Term Operational-Related Effects on Noise

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and

facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

New sources of noise associated with implementation of these compliance responses could include new transportation infrastructure or increased operation of passenger rail, buses, and transit stations. The compliance responses could also result in an increased number of vehicles on freeways, highways or local roadways due to increased high-density, mixed-use, or infill development in existing urbanized areas, thus result in potential increases in noise generated by these sources. Conversely, additional development in existing urbanized areas could expose new residents to existing and new noise sources. While the Target Update and associated compliance responses are designed to reduce VMT (including vehicle usage), localized trips and associated vehicle usage could still increase and result in increased noise levels. Depending on the proximity of specific transportation projects to existing or new noise-sensitive receptors, and depending on the proximity of new noise-sensitive receptors to existing or new sources or noise, compliance responses under the Target Update could result in a substantial increase in ambient noise levels that could exceed applicable noise standards.

Thus, long-term operational noise impacts associated with the Target Update would be potentially significant.

These impacts on noise could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB.

Mitigation Measure 13-2.

The Regulatory Setting in Attachment ~~A~~ 1 includes, but is not limited to, applicable laws and regulations that pertain to noise. CARB does not have the authority to require implementation of mitigation related to new or modified facilities that could be approved by local jurisdictions. The ability to require such measures is under the purview of

jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize noise include:

- Prior to receiving building permits, project proponents would demonstrate that noise levels would meet applicable noise standards at the nearest existing or planned sensitive receptors to a project site. Methods of reducing ambient noise levels include, but are not limited to, the following:
  - External mechanical and powered equipment would be used and maintained according to manufacturer's specifications.
  - Noise reducing features would be applied to external mechanical equipment to ensure compliance with community noise standards.
  - Public notice of activities would be provided to nearby noise-sensitive receptors of potential noise-generating activities.
  - All motorized equipment would be shut down when not in use. Idling of equipment or trucks shall be limited to five minutes.
  - Loading docks constructed as a result of implementation of the Target Update would be located and designed so that noise emissions do not exceed stationary noise standards at any existing or planned sensitive receptor.
  - For projects located near freeways or high volume roadways, sound walls would be constructed to attenuate noise levels at nearby existing or planned sensitive receptors.
  - Noise sensitive structures would be designed to attenuate long-term exterior noise to an interior noise level of 45dBA CNEL

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational-related noise impacts associated with reasonably foreseeable compliance responses to the Target Update could be **potentially significant and unavoidable**.

14. Population and Housing

Impact 14-1: Short-Term Construction-Related Effects to Population and Housing

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Although it is reasonably foreseeable that construction activities associated with high-density development, transportation projects, and low-emission vehicle-related infrastructure could occur, there is uncertainty as to the exact location or character of any new facilities. Construction activities would be anticipated to require relatively small crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project). Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available.

Further, construction associated with the Target Update would occur over the course of an RTP/SCS projected horizon. <u>As discussed elsewhere in this EA and in the Staff Report, the Target Update would not generate additional population growth, but instead would incentivize local governments to make development patterns more efficient, favoring high-density residential, infill, multi-use development, and TPA projects.</u> This would result in a steady amount of construction-related work <u>distributed around the State</u> such that communities would have adequate housing to support these activities. New housing would not be required to meet construction-related demands.

As a result, short-term construction-related <u>impacts</u> associated with implementation of the Target Update on population and housing would be **less than significant**.

Impact 14-2: Long-Term Operational-Related Effects to Population and Housing

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed because of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Potential compliance responses to the Target Update could include a percentage increase of high-density residential, infill, multi-use development, and TPA projects. Through future RTP/SCSs pursuant to SB 375, MPOs would recommend that these land uses be applied to their respective regions to adequately accommodate projected population growth forecasts as well as maximize space. Following the adoption of RTP/SCSs, local land use agencies may decide to apply the principles of their respective plans when making land use decisions.

Transportation projects such as expanded transit networks, transit stations, roadway improvements, or other large-scale infrastructure could result in the removal of residential or other types of buildings to make way for new or expanded facilities. In other cases, certain transportation improvements could permanently alter the characteristics and qualities of a neighborhood such that existing populations may be motivated or relocate or, conversely, such neighborhoods may become more attractive housing locations.

Deployment of RTP/SCS-related land use development within the proximity of transit corridors (e.g., within TPAs) has the potential to result in the displacement of existing lower-income households from urban neighborhoods with existing access to transit, jobs, and other amenities if the housing market is under-producing new homes that are affordable to persons at lower income levels. A study published in 2017 examined the relationship between fixed-rail transit neighborhoods and displacement of low-income housing in the San Francisco and Los Angeles metropolitan areas. The study demonstrated that increased infill development is often coupled with rising land costs. As such, housing prices inflate and neighborhood composition changes (i.e.,

gentrification) resulting in the displacement of low-income residents and housing (Chapple et al. 2017).

While displacement itself is not a direct environmental impact, a project that would displace a substantial number of people and/or require the construction of new housing elsewhere could result in indirect adverse effects on the environment. In cases where displacement occurs from the implementation of an RTP/SCS and results in lower-income households searching for housing in other communities, either within or outside of a given region, it is reasonable to assume that such displacement could warrant the construction of new housing in those locations. Effects related to new housing construction could include short-term increases in criteria pollutants (see Impact 3-1); loss of farmland or forestland (see Impact 2-1); adverse effects on special-status species such as the loss of habitat or individuals (see Impact 4-1); worsened traffic during construction (see Impact 17-1); increased demand on water, wastewater, and other utilities requiring expansion of infrastructure (see Impact 18-2); and increased demand on public services requiring the construction of facilities such as schools, police stations, and fire stations (see Impact 15-2).

Long-term operational-related impacts to displacement of people and housing associated with the Target Update would be potentially significant.

Impacts to population and housing could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 14-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations regarding population and housing. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are required to avoid and/or mitigate population and housing impacts include the following:

- Proponents of new development and new facilities constructed as a result of reasonably foreseeable compliance responses would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.

- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. Local jurisdictions may adopt actions required to mitigate potentially significant displacement impacts, and may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Increasing the production of housing at all income levels, especially for low- and moderate-income households in transit priority areas.
    - Adopting reasonable tenant protections such as just-cause eviction requirements and rent stabilization, where appropriate, to counter sudden market shifts that threaten neighborhood stability.
    - Balancing revenue-generation from development fees and use of underutilized public lands with fulfilling community priorities such as affordable housing.
    - Limiting speculation in the housing market that impacts neighborhood stability by moderating up-zoning and other land use policy changes over time.

- Project proponents may adopt actions required to mitigate potentially significant displacement impacts, and may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Selecting alignments within existing public rights-of-ways where feasible.
    - Design sections above- or below-grade to avoid property acquisition that causes displacement of businesses or housing where feasible.
    - Select alignments within properties that result in the least amount of displacement.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational impacts related to the displacement of people and housing associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

15. Public Services

Impact 15-1: Short-Term Construction-Related Effects to Public Services

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Although it is reasonably foreseeable that construction activities associated with high-density development, transportation projects, and low-emission vehicle-related infrastructure could occur, there is uncertainty as to the exact location or character of any new facilities. Construction activities would be anticipated to require relatively small crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project). Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available. Thus, demand on public services would not be substantially increased and new or physically altered government facilities would not be anticipated as a result of construction-related activities.

Further, construction associated with the Target Update would occur over the course of an RTP/SCS projected horizon. This would result in a steady amount of construction-related work such that communities would have adequate population to support these activities as well as public services. Additional public service resources would not be required to meet construction-related demands.

As a result, short-term construction-related impacts associated with the Target Update on public services would be **less than significant**.

Impact 15-2: Long-Term Operational-Related Effects to Public Services

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use

development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Pursuant to SB 375, RTP/SCSs contain land use and transportation strategies to accommodate projected increases in population within an MPO's jurisdiction. To reduce automobile-generated sources of GHGs, growth is often focused within or near existing urban centers and uses mixed-use, high-density residential, and infill development to keep growth localized. Population growth would increase demand for schools; fire, police, and emergency services; and other general government services (e.g., libraries). Depending on growth and housing patterns, these public services could exceed their capacity.

However, population growth associated with the Target Update is not a ~~direct~~ result of implementation; rather, the components of the Target Update and future RTP/SCSs are prepared to accommodate anticipated increases in population within the jurisdictions of MPOs. Therefore, implementation of the Target Update would not directly contribute to population growth and its related effects on public services. Further, most jurisdictions require developers to pay fees to accommodate increased demand for public services. Nonetheless, it is possible that implementation of the Target Update could result in increases in demand for public services that exceed existing service capabilities.

Transportation-related projects associated with the Target Update could result in expanded roadway capacity which could result in increased vehicle use and the potential for increased levels of traffic and/or accidents, which may impeded police, fire, and emergency access; however, consistent with the goals of SB 375, overall vehicle miles traveled would be reduced at the MPO regional level through incorporation of TDM, TSM, complete streets, improved transit systems, and other strategies designe3d to reduce automobile travel. Further, transportation facility improvements could also result in less demand for services per vehicle mile because of better traffic flow or improve road surfaces. Transportation projects that increase capacity in heavily congested areas would reduce levels of congestion and the effects of bottlenecking, which could improve response times for police, fire, and emergency services. Such measures would be implemented at the local level, and measures that could increase

roadway capacity (e.g., deployment of AVs) could lower level of service and response times for public services.

Long-term operational-related impacts to public resources associated with the Target Update would be potentially significant.

Impacts to public services could be reduced to a less-than-significant level by mitigation that can and should be implemented by federal, State, and local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 15-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations regarding public services. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a "project" under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or mitigate public services-related impacts include the following:

- Proponents of new development and facilities constructed as a result of reasonably foreseeable compliance responses to the Target Update would submit applications to local or State land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant impacts top public services may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Under the oversight of the local lead agency, prior to issuance of any construction permits, the proponents for proposed projects shall ensure that adequate public services, and related infrastructure and utilities, will be available to meet or satisfy levels identified in the applicable local general plan or service master plan prior to approval of new development project through compliance with existing local policies related to minimum levels of service for police protection, fire protection, emergency services, and schools.

- Comply with requirements to provide additional services to meet service levels, or pay fees towards the project's fair share portions of the required services pursuant to adopted free programs and State law.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that long-term operational-related impacts to public services associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

16. Recreation

Impact 16-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Recreation

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Although it is reasonably foreseeable that construction activities associated with new development, transportation projects, and low-emission vehicle-related infrastructure could occur, there is uncertainty as to the exact location or character of any new facilities. Construction activities would be anticipated to require relatively small crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project).

Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available. Thus, demand on recreational would not be substantially increased and new or physically altered recreational facilities would not be anticipated as a result of construction-related activities.

Further, construction associated with the Target Update would occur over the course of an RTP/SCS's projected horizon. This would result in a steady amount of construction-related work such that communities would be have adequate population to support these activities as well as recreational resources. Additional recreational facilities would not be required to meet construction-related demands.

Anticipated regional growth under future RTP/SCSs could increase demand on recreational facilities as development occurs to accommodate new populations; however, consistent with the State of California General Plan Guidelines, jurisdictions must consider preservation and expansion of recreational areas (e.g., open spaces, greenbelts, public parks) in the Open Space and Conservation elements of general plans (Office of Planning and Research 2003). Moreover, the Quimby Act requires parkland dedication associated with new development on a per population basis and ensures adequate new park facilities would be provided to match increased population in. As such, effects to recreational resources associated with new development, transportation projects, and low-emissions vehicle-related infrastructure would be addressed by local jurisdictions during development review. Implementation of policies related to Open Space and Conservation would not be within the purview of CARB and would, therefore, be the responsibility of local jurisdictions.

Furthermore, RTP/SCSs that include complete streets and enhanced bicycling and pedestrian infrastructure measures may increase a region's capacity to service growing populations with recreational resources.

As such, short-term construction-related and long-term operational-related effects to recreational resources associated with the Target Update would be **less than significant**.

17. Transportation and Traffic

Impact 17-1: Short-Term Construction-Related Effects on Transportation and Traffic

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as

modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Although detailed information about potential construction activities associated with compliance responses is not currently available, short-term construction-related traffic (primarily motorized) would be generated from worker commute- and material delivery-related trips. The amount of construction activity would vary depending on the type, number, and duration of usage for the varying equipment, and the phase of construction. These variations would affect the amount of project-generated traffic for both worker commute trips and material deliveries. Depending on the amount of trip generation and the location of new facilities, implementation could conflict with applicable programs, plans, ordinances, or policies (e.g., performance standards, congestion management); and/or result in hazardous design features and emergency access issues from road closures, detours, and obstruction of emergency vehicle movement, especially due to project-generated heavy-duty truck trips.

The short-term construction-related impacts associated with the Target Update on traffic and transportation would be potentially significant.

This impact on transportation and traffic could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB.

Mitigation Measure 17-1

The Regulatory Setting in Attachment 1 includes applicable laws and regulations regarding transportation. CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or State land use approval and/or permitting authority. New development and new or modified facilities in California would qualify as a “project” under CEQA. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Project-specific impacts and mitigation would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize construction traffic impacts include:

- Proponents of new development and new or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses would submit applications to State or local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body must follow all applicable environmental regulations as part of approval of a project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation to reduce or substantially lessen the potentially significant scenic or aesthetic impacts of the project. Actions required to mitigate potentially significant traffic impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.
- Minimize the number and length of access, internal, service, and maintenance roads and use existing roads when feasible.
- Provide for safe ingress and egress to/from the proposed project site. Identify road design requirements for any proposed roads, and related road improvements.
- If new roads are necessary, prepare a road siting plan and consult standards contained in federal, state, or local requirements. The plans should include design and construction protocols to meet the appropriate roadway standards and be no larger than necessary to accommodate their intended functions (e.g., traffic volume and weight of vehicles). Access roads should be located to avoid or minimize impacts to washes and stream crossings, follow natural contours and minimize side-hill cuts. Roads internal to a project site should be designed to minimize ground disturbance. Excessive grades on roads, road embankments, ditches, and drainages should be avoided, especially in areas with erodible soils.
- Prepare a Construction Traffic Control Plan and a Traffic Management Plan.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that the short-term construction-related traffic and transportation impacts associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

Impact 17-2: Long-Term Operational-Related Effects on Transportation and Traffic

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian- and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly and indirectly incentivized through funding for infrastructure, and vehicle rebate, last-mile delivery, and NEV programs. Increased use of low-emission vehicles (e.g., BEVs, PHEVs, ZEVs) could produce an elevated rate of battery disposal such that new or modified facilities would be required to accommodate recycling of lithium-ion batteries. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v and v2i software).

Land use strategies to increase infill, higher-density residential, mixed-use development, and TPA project would lead to overall statewide and regional reductions in VMT per capita by concentrating development in urban areas and reducing the distance between trip origins and destinations. These land use strategies, when combined with transportation strategies under the Target Update, would also have the effect of shifting modes of travel for some trips from automobile usage to transit, walking, or biking. However, concentrating land use development in urban areas could also result in some localized increases in vehicle trips on roadways, which could result in additional local traffic and congestion in urbanized areas with higher population densities. At the same time, transportation infrastructure strategies, such as new transit routes and stations, traffic calming, express lanes, and other roadway reconfigurations, could increase or decrease the number of lanes on roadways and freeways depending on the project. These strategies could affect roadway volumes by changing roadway capacity and result in either higher or lower levels of service. These strategies could also increase vehicle occupancy rates, reduce passenger vehicle mode share, and smooth overall vehicle traffic.

Non-infrastructure transportation strategies, such as most TSM, TDM, pricing, and vehicle technology strategies, could also increase vehicle occupancy rates, reduce passenger vehicle mode share, and smooth overall vehicle traffic.

Overall, MPOs are expected to meet new regional GHG targets through a combination of expanded or new land use and transportation strategies that would reduce per capita

VMT. While increases in vehicle trips could be partially offset by other strategies and local actions such as increasing transit, walking, biking, TSM, TDM, pricing, and other strategies, localized increases in traffic congestion on local and regional roadways could still occur in some jurisdictions.

Public Resources Code § 21099(b)(2) states that automobile delay, as described solely by level of service or similar measures of traffic congestion are not a significant environmental impact except in certain specified locations; and, § 21099(c)(1) also permits OPR to establish alternative metrics for assessing traffic impacts outside transit priority areas. However, until such guidelines have been finalized and proceedings to update the CEQA Guidelines have been completed, localized increases in traffic congestion and automobile delay could still be considered significant.

Thus, long-term operational-related impacts to transportation and traffic associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant**.

Mitigation Measure 17-2

The Regulatory Setting in Attachment 1 includes applicable laws and regulations regarding transportation and traffic. CARB does not have the authority to require implementation of mitigation related to changes to traffic patterns; these must be addressed by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local land use approval and/or permitting authority. The jurisdiction with primary approval authority over a proposed action is the Lead Agency, which is required to review the proposed action for compliance with CEQA statutes. Local agencies with project-approval authority would need to consider changes in traffic patterns in their relevant traffic management plans, regional transportation plans, or other relevant documents. Recognized practices that are routinely required to avoid and/or minimize operational traffic impacts include:

- revisions to traffic signals,
- requirements to pay a fair share contribution to local traffic operation centers,
- coordination with Caltrans, or other relevant agencies, to broadcast real-time information on existing changeable message signs,
- consultation with local authorities to revise public transit system operations, and
- consultation with local emergency service provides to ensure that operating conditions on local roadways and freeway facilities are maintained.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and that the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the

conservative approach in its post-mitigation significance conclusion and discloses that long-term operational traffic and transportation impacts associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

18. Utilities and Service Systems

Impacts on utilities and service systems inherently long-term, thus, short-term effects are not addressed below.

Impact 18-1: Long-Term Operational-Related Effects to Utilities and Service Systems

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, and mixed-use development; focused growth in TPAs; and expansion of associated infrastructure and facilities, which could result in the demolition of existing structures. Regional and local planning documents (e.g., general plans, specific plans) could be amended to include programs to preserve rural agricultural and open space. Increased funding for transit could include construction and operation of new transit (e.g., light-rail) routes and stations. Use of TSM and TDM strategies could require the installation of metering, traffic calming (e.g., roundabouts), and park-and-ride lot infrastructure, as well as modifications to existing roadways to support managed lanes. Toll-related infrastructure could be constructed as a result of implementing pricing programs. Modifications or expansions to existing roadways could occur to support redevelopment of streets and pedestrian-and bicycle-related facilities (e.g., lanes, parking, greenbelts). Construction of public and individual electric charging and hydrogen fueling infrastructure to support low-emission transit, automobiles, and light-duty trucks could be directly incentivized through funding for infrastructure, and indirectly through vehicle rebate, last-mile delivery, and NEV programs. Roadway infrastructure modifications could be needed to support AVs and expansion of intelligent transportation systems (e.g., v2v, v2i software).

Reasonably foreseeable compliance responses associated with the Target Update including new infill, mixed-use, and high-density residential development could result in new demand for water, wastewater, landfill, electricity, and gas services. Generally, facilities would be sited in areas within existing utility infrastructure, or areas where existing utility infrastructure is easily available. New or modified utility installation, connections, and expansions would be subject to the requirements of the applicable utility providers. Changes in land use associated with new development are likely to change water demand to support residential and commercial uses depending on the size, location, and existing uses. This could result in an increase in water demand and would be subject to availability and regulatory requirements.

Any new development, regardless of size or location, would be required to seek local or State land use approvals prior to construction. In addition, depending on size, part of the land use entitlement process for new develop proposed in California requires that each of these projects undergo environmental review consistent with the requirements of

CEQA and the CEQA guidelines. Through the environmental review process, utility and service demands would be calculated; agencies would provide input on available service capacity and the potential need for service-related infrastructure including expansions to wastewater treatment plants, new water supply entitlements and infrastructure, storm water infrastructure, and solid waste handling capacity (e.g., landfills). Resulting environmental impacts would also be determined through this process.

Thus, long-term operational-related impacts to utilities and services systems associated with the Target Update would be potentially significant.

This impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of CARB and not within its purview.

Mitigation Measure 18-1

CARB does not have the authority to require implementation of mitigation related to new development and new or modified facilities that would be approved by local jurisdictions. The ability to require such measures is under the purview of jurisdictions with local or the corresponding state land use approval and/or permitting authority. There is uncertainty surrounding the location of construction activities, and therefore the applicable local or state laws adopted to reduce operational-related impacts to utilities and service systems will vary. The measures discussed below are based on recognized practices that are routinely required to avoid and/or mitigate utilities and service systems-related impacts, and could be implemented regardless of location:

- Proponents of new development and new facilities constructed as a result of reasonably foreseeable compliance responses would submit applications to the corresponding local or state land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA, NEPA). The local or state land use agency or governing body must comply with applicable regulations and would approve the project for development.
- Based on the results of project level environmental review, project proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. The definition of actions required to mitigate potentially significant utility or service-related impacts may include the following; however, any mitigation specifically required for a new or modified facility would be determined by the local lead agency.

    - Comply with local plans and policies, include payment of impact fees, regarding the provision of water supply, wastewater treatment, and storm water drainage utilities, and solid waste services.
    - Where an on-site wastewater system is proposed, submit a permit application to the appropriate local jurisdiction.

- Comply with local plans and policies regarding the provision of wastewater treatment services.

Because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts.

Consequently, while impacts could be reduced to a less-than-significant level by land use and/or permitting agency conditions of approval, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that the potentially significant impact to utilities and service systems resulting from the operation of new facilities associated with reasonably foreseeable compliance responses to the Target Update would be **potentially significant and unavoidable**.

5.0 CUMULATIVE AND GROWTH-INDUCING IMPACTS

A. Approach to Cumulative Analysis

This section satisfies requirements of the California Environmental Quality Act (CEQA) to discuss how the project could contribute to cumulative impacts. The California Air Resources Board's (CARB's) certified regulatory program (Cal. Code Regs. tit. 17, § 60000-60008) does not provide specific direction on a cumulative impacts analysis, and while CARB, by virtue of its certified program, is exempt from Chapters 3 and 4 of CEQA and corresponding sections of the CEQA Guidelines (Cal. Code Regs. tit. 14, § 15000 et. seq.), the Guidelines nevertheless contain useful information for preparation of a thorough and meaningful cumulative analysis. The CEQA Guidelines require a cumulative impact to be found if the project's incremental effect combined with the effects of other projects is "cumulatively considerable." (Cal. Code Regs. tit. 14, § 15130, subd. (a).) The discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone. (Cal. Code Regs. tit. 14, § 15130.) Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

In considering cumulative impacts, an agency may choose from among two approaches: it can prepare a list of past, present, and probable future projects that would produce related or cumulative impacts, or it can rely on a summary of projections contained in an adopted planning document or an adopted or certified environmental document for the planning document. (Cal. Code Regs. tit. 14, §15130, subd. (b).) Further, the CEQA Guidelines state that the pertinent discussion of cumulative impacts contained in one or more previously certified environmental impact reports (EIRs) may be incorporated by reference pursuant to provisions for tiering and program EIRs, and that no further cumulative analysis is required when the lead agency determines the regional and area wide impacts have already been addressed in the prior certified EIR. (Cal. Code Regs. tit. 14, § 15130.)

The CEQA Guidelines state that a previously approved plan for the reduction of GHG emissions may be used in cumulative impacts analysis, and that the pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference. (Cal. Code Regs. tit. 14, § 15130, subd. (d).) Furthermore, no further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or area wide cumulative impacts of the proposed project have already been adequately addressed, as defined in § 15152, subd. (f), in a certified EIR for that plan. (Cal. Code Regs. tit. 14, § 15130, subd. (d).) CEQA further directs that a tiered EIR focus on significant environmental effects that were not already analyzed in the previous environmental analysis. (Pub. Resources Code § 21068.5; 21093; see also 21094 subd. (c).)

For purposes of this analysis, CARB is relying on the summary of projections contained in the Environmental Analysis (EA) prepared for the 2014 First Update to the Climate Change Scoping Plan (2014 Scoping Plan Update EA). Since the release of the Draft EA, in June 2017, California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) was adopted by the Board on December 14, 2017. Therefore, CARB has included the updated projections contained in the 2017 Scoping Plan EA and is also relying on those projections in this EA. The 2014 Scoping Plan Update EA and the 2017 Scoping Plan EA provided a program level review of significant adverse impacts associated with the reasonably foreseeable compliance responses that appeared most likely to occur as a result of implementing the recommended actions identified in each of the nine sectors discussed in the 2014 Scoping Plan Update and the measures discussed in the 2017 Scoping plan. The impact discussion includes, where relevant, construction-related effects, operational effects of new or modified facilities, and influences of the recommended actions on greenhouse gas (GHG) and air pollutant emissions. The 2014 and 2017 Scoping Plan Update EAs considered cumulative impacts of a full range of reasonably foreseeable compliance responses to all the recommendations in all nine sectors, including this Target Update, along with the expected background growth in California in its impacts conclusions for each resource topic area. The 2014 and 2017 Scoping Plan Update EAs considered the cumulative effect of other "closely related" past, present, and future reasonably foreseeable activities undertaken to reduce GHGs in response to statewide programs and policies, as well other activities with "related impacts." (Cal. Code Regs. tit. 14, § 15355, subd. (b); 15130, subd. (a)(1).) CARB has determined that the cumulative effects of the Target Update have been examined at a sufficient level of detail in the 2014 and 2017 Scoping Plan Update EAs.[1] Therefore, CARB has determined that for a cumulative analysis of the Target Update, it is appropriate to rely on the cumulative analysis contained in the 2014 and 2017 Scoping Plan Update EAs, which ~~is~~ were prepared for the statewide plan designed to reduce GHGs. The ~~analysis of the~~ 2014 and 2017 Scoping Plan Update EAs ~~is~~ are hereby incorporated by reference. The portions of the 2014 and 2017 Scoping Plan Update EAs relevant to this discussion are also summarized below.

The analysis of cumulative impacts includes the following:

- A summary of the cumulative impacts found for each resource area in the 2014 and 2017 Scoping Plan Update EAs.
- A discussion of the types of compliance responses associated with the Target Update, pertinent to each resource area.
- A significance conclusion that determines if the Target Update could result in a significant cumulative effect or a considerable contribution to an existing significant cumulative impact.

This approach to cumulative impacts analysis is "guided by the standards of practicality and reasonableness" (Cal. Code Regs. tit. 14, § 15130, subd. (b)) and serves the

[1] A copy of the 2014 Scoping Plan Update EA is available at http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

purpose of providing “a context for considering whether the incremental effects of the project at issue are considerable” when judged “against the backdrop of the environmental effects of other projects.” (*CBE v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 119.)

1. Summary of the 2014 Scoping Plan Update Compliance Responses

The 2014 Scoping Plan Update EA provided a program-level review of significant adverse impacts associated with the reasonably foreseeable compliance responses that appeared most likely to occur as a result of implementing the recommended actions identified in each of the nine sectors discussed in the 2014 Scoping Plan Update. The impact discussion includes, where relevant, construction-related effects, operational effects of new or modified facilities, and influences of the recommended actions on GHG and air pollutant emissions. The 2014 Scoping Plan Update EA was prepared as a program environmental document for the entire statewide plan of GHG reductions projects, including the Target Update. The EA is available online at http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm

The 2014 Scoping Plan Update EA considered nine sectors: energy, transportation, agriculture, water waste management, natural and working lands, short-lived climate pollutants, green buildings, and cap-and-trade regulation. The compliance responses associated with these sectors are described as follows.

a) Energy Sector under the 2014 Scoping Plan Update

Reasonably foreseeable compliance responses evaluated in the 2014 Scoping Plan Update EA ranged from small modifications to existing structures to utility-scale renewable energy projects. For instance, the EA considered energy storage systems that could be developed by modifying existing hydroelectric dams; and smart-grid technology such as the installation of smart meters. Improvements to energy production, processing, storage, distribution, and transmission systems were considered, and consist of general housekeeping, vapor recovery valves, and frequent maintenance checks. In addition, renewable energy projects were considered, including the installation of solar panels and micro-turbines onto buildings (e.g., to create zero net energy buildings or combined heat and power systems) to large-scale energy generation facilities, such as solar photovoltaic and wind turbine farms, and geothermal plants

b) Transportation Sector under the 2014 Scoping Plan Update

The 2014 Scoping Plan Update contains four main types of recommended actions associated with the Transportation Sector: (1) improve vehicle efficiency and develop zero-emission technologies; (2) reduce the carbon content of fuels and provide market support to encourage the use of these fuels; (3) plan for and develop communities that would minimize vehicular GHG emissions and provide more transportation options; and (4) improve the efficiency and throughput of existing transportation systems. Reasonably foreseeable compliance responses evaluated in the 2014 Scoping Plan

Update EA consisted of an increased demand for, and associated manufacturing of, a variety of alternative fuel and/or low- and zero-emission technologies and related fueling infrastructure. Increased demand for products, such as standard hybrid, plug-in hybrid electric, battery electric, and fuel-cell vehicles and trucks, were determined to require development of new and/or modified manufacturing plants. In addition, installation of fixed-guideway systems to transport shipment containers, installed at marine ports and near dock rail yards, was evaluated.

A separate EA was prepared to evaluate the environmental effects of implementing the proposed Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation, which was certified in 2015. The EA is available online at http://www.arb.ca.gov/regact/2015/lcfs2015/lcfs2015.htm.

c) Agriculture Sector under the 2014 Scoping Plan Update

The types of recommended actions for the Agriculture Sector involve GHG emission reduction and carbon sequestration opportunities. Reasonably foreseeable compliance responses evaluated in the 2014 Scoping Plan Update consisted of nitrogen management, manure management, soil management practices, water and fuel technologies, and land use planning to enhance, protect, and conserve lands in California.

d) Water Sector under the 2014 Scoping Plan Update

The 2014 Scoping Plan Update contains three types of recommended actions to reduce water-related energy use: (1) prioritizing investments in conservation; (2) adopting rate structures and pricing that maximize conservation; and (3) promoting less-energy intensive water management, such as a comprehensive groundwater policy. Reasonably foreseeable compliance responses evaluated under the Water Sector in the 2014 Scoping Plan Update EA are primarily related to the development of policies, guidance, and funding plans. These plans generally aim to provide energy conservation and efficiency measures associated with water supply, conservation, water recycling, stormwater reuse, and wastewater-to-energy goals. These actions could result in the reasonably foreseeable compliance responses of increased development of water resource facilities, such as water recycling facilities, detention structures for reuse of stormwater, and wastewater treatment-related capture of biogas for energy use. Development of new and/or modified recycled water and wastewater plants could also occur.

e) Waste Management Sector under the 2014 Scoping Plan Update

The 2014 Scoping Plan Update contains programs that would eliminate disposal of organic materials at landfills. Options considered included: legislation, direct regulation, and inclusion of landfills in Cap-and-Trade. Implementation of the recommended actions in the Waste Management sector were determined to result in construction of new, or expansion of existing, composting and anaerobic digestion facilities. These facilities would be necessary to accommodate actions such as increased recycling, development of biomass facilities, and anaerobic digestion facilities. In addition, reasonably

foreseeable compliance responses may include installation of methane control devices at existing landfills. While some of these activities could occur within existing landfills, construction of new facilities may be necessary to accommodate increased demand of organic waste diversion.

f) Natural and Working Lands Sector under the 2014 Scoping Plan Update

The 2014 Scoping Plan Update addressed planning efforts aimed at urban, natural and working lands, and agricultural croplands within and across jurisdictions, which all are considered to create interconnected land areas and ecosystems. Reasonably foreseeable compliance responses involve coordination between state agencies including: California Natural Resources Agency, California Environmental Protection Agency, California Department of Food and Agriculture, California Department of Forestry and Fire Protection, California Department of Fish and Wildlife, and CARB to develop land use programs. These programs generally aim to increase urban forest canopy cover and limit the conversion of croplands, forests, rangeland, and wetlands to urban uses. In addition, increased use of green infrastructure was evaluated, such as vegetation and soils to manage stormwater runoff, rainwater harvesting, bioswales, permeable pavement, and green (e.g., growing media and vegetation) roofs. In addition to land use planning efforts, the Natural and Working Land Sector included encouragement of the use of urban, agricultural, and forest wastes to produce electricity and transportation fuels (e.g., biomass facilities).

g) Short-Lived Climate Pollutants Sector under the 2014 Scoping Plan Update

Under the 2014 Scoping Plan Update, the short-lived climate pollutant sector addressed ozone depleting substances (ODS), a large group of chemicals known to destroy the stratospheric ozone layer when released into the atmosphere. ODS were historically used in a wide variety of applications, including refrigerants, foam blowing agents, solvents, and fire suppressants. Four general concepts were associated with the Short-Lived Climate Pollutants Sector within the 2014 Scoping Plan Update: high-global warming potential (GWP) fluorinated gas phasedown, low-GWP requirements, ODS recovery and destruction, and high-GWP fees. Reasonably foreseeable compliance responses consisted of replacement of high-GWP compounds with low-GWP compounds, which was considered to require construction of new manufacturing facilities or modification of existing manufacturing facilities.

CARB staff presented an informational update on the Proposed Short-Lived Climate Pollutant (SLCP) Reduction Strategy, and associated EA, to the Board on May 19, 2016. Public comment on both documents closed on May 26, 2016. The Board approved the Final Proposed SLCP Reduction Strategy in March 2017. More information can be found at: https://www.arb.ca.gov/cc/shortlived/shortlived.htm

h) Green Buildings Sector under the 2014 Scoping Plan Update

The 2014 Scoping Plan Update evaluated development of a comprehensive GHG emission reduction program for new construction, existing building retrofits, and operation and maintenance of certified green buildings. This program would include an integrated approach to development of zero-net-carbon buildings (i.e., net zero carbon emissions over a period of a year). Reasonably foreseeable compliance responses associated with these recommended actions could consist of new requirements that result in an increase in zero net energy and zero-net-carbon buildings. This could be accomplished through increased carbon sequestering features (e.g., urban forestry), onsite renewable energy supplies (e.g., solar, wind turbines, waste digesters), fuel cells, and construction of carbon offset technologies, including solar PV or wind turbine farms.

i) Cap-and-Trade Regulation Sector under the 2014 Scoping Plan Update

Under the 2014 Scoping Plan Update, the Cap-and-Trade Regulation was considered to be a vital component for achieving California's longer-term, emission-reduction goals. The Cap-and-Trade Regulation creates a gradually declining limit on the sources responsible for 85 percent of California's GHG emissions, establishes the price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy, and affords covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions. The Cap-and-Trade Regulation places an aggregated emissions cap on the total emissions generated by all covered facilities in the program. Over time, the cap will steadily decline. Reasonably foreseeable compliance responses evaluated under the 2014 Scoping Plan Update EA include the existing Cap-and-Trade Regulation's provision allowing for additional offset protocols: U.S. Forest Projects, Urban Forest Projects, Livestock Projects, and ODS Compliance, as well as the provisions regarding sector-based offset crediting programs. In addition, compliance responses related to covered entities under the Cap-and-Trade Regulation consist of upgrading equipment, switching to lower intensity carbon fuels, and implementing maintenance and process changes at existing facilities.

CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The development of this program included a multi-year stakeholder process and consideration of potential impacts on disproportionately impacted communities. The program began on January 1, 2012, with an enforceable compliance obligation starting with 2013 GHG emissions. CARB is currently administering a public process to develop potential 2016 amendments to the Cap-and-Trade Regulation. The public process will help inform potential changes effective for the post-2020 program.

2. Summary of the 2017 Scoping Plan Update Compliance Responses

Since the release of the Draft EA, in June 2017, the 2017 Scoping Plan Update was adopted by the Board on December 14, 2017. Therefore, the analysis from the 2017

Scoping Plan Update EA is also being included in the cumulative analysis for this Final EA. The 2017 Scoping Plan Update EA provided a program-level review of potential significant adverse impacts associated with the reasonably foreseeable compliance responses that appeared most likely to occur because of implementing the recommended measures. The impact discussion includes, where relevant, construction-related effects, operational effects of new or modified facilities, and influences of the recommended measures on GHG and air pollutant emissions. The 2017 Scoping Plan Update EA, certified by the Board in December 2017, was prepared as a program environmental document for the entire statewide plan of GHG reductions projects, including the Target Update. The EA is available online at https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

The 2017 Scoping Plan Update recommended six measures to achieve the 2030 target: renewable energy and energy efficiency, including Senate Bill (SB) 350; increased stringency of LCFS to reflect at least an 18 percent carbon intensity (CI) reduction by 2030; Mobile Source Strategies and Sustainable Freight Strategy, Short-Lived Climate Pollutant (SLCP) Reduction Strategy, increased stringency of SB 375 2035 targets for Sustainable Communities Strategies, and post-2020 Cap-and-Trade Programs with declining caps and linkage to Ontario, Canada. The compliance responses associated with these sectors measures are described as follows.

a) Renewable Energy and Energy Efficiency

The reasonably foreseeable compliance responses associated with implementation of proposed measures for renewable energy and energy efficiency, including SB 350, would range from minor modifications to existing buildings to large-scale construction projects that would allow for increased use of renewable energy and storage of produced renewable energy. Additional renewable energy supplies would be produced from new wind, solar thermal, solar photovoltaic, geothermal, solid-fuel biomass, biogas, and small hydroelectric facilities. These may require new and upgraded transmission lines to move the electricity from the source of generation to substations near population centers. Individual energy projects augment electrical grids by capturing excess electrical energy during periods of low demand and storing it in other forms until needed on an electrical grid. This energy storage may be procured from buildings, such as solar panels, and from large-scale renewable energy facilities. Energy storage systems are expected to consist of lithium battery-based systems. These systems are likely to be in industrial areas and cover large areas of land (i.e., more than one acre). In addition, regionalization of the grid may result in increased construction and operation of renewable energy projects. Expansion of the energy grid would require upgraded and new transmission lines.

Doubling of energy efficiency at existing buildings would include modifications to buildings, such as replacement of heating, ventilation, and air conditioning (HVAC) systems with heat pumps and installation of more efficient water heaters. Other

upgrades, such as installation of more efficient insulation, window replacements, and whole house or whole-building retrofits could occur as well, with the overall goals of creating zero net energy buildings. These activities would occur over a long period, such that the existing production rate of equipment would be sufficient to meet demand. That is, there would be no new manufacturing facilities needed or other earth-moving activities.

b) Carbon Intensity Levels under the Low Carbon Fuel Standard

As discussed in the 2017 Scoping Plan Update EA, reasonably foreseeable compliance responses to a carbon intensity (CI) reduction of at least 18 percent in the LCFS regulation could include incentives for various projects, such as processing plants for agriculture-based ethanol, cellulosic ethanol, and biomethane. Such incentives could result in minor expansions to existing operations, such as collection of natural gas from landfills, dairies, and wastewater treatment plants, modifications to crude production facilities (e.g., onsite solar, wind, heat, and/or steam generation electricity), and installation of energy management systems at refineries. It is also reasonably foreseeable that some existing fossil refiners my start to produce biofuels. This may require some minor modifications to existing sites to retrofit onsite technologies and equipment.

c) Mobile Source Strategy (Clean Technology and Fuels Scenario) and Sustainable Freight Strategy

The 2017 Scoping Plan Update contains recommended measures for on-road light duty vehicles, on-road heavy-duty vehicles, off-road federal and international sources, and off-road equipment. Reasonably foreseeable compliance responses evaluated in the 2017 Scoping Plan Update EA associated with the strategy included increased infrastructure for natural gas and hydrogen refueling stations, increased demand for lithium battery manufacturing and associated increases in lithium mining and exports, increased recycling or refurbishment of lithium batteries, and increased emission testing of vehicles which may cause construction of new testing centers to monitor vehicle emissions throughout the State. The replacement rate of on-road light-duty and heavy-duty vehicles, as well as off-road equipment and engines is anticipated to increase requiring older models to be sold outside of California, scrapped, or recycled. Compliance responses could also include construction or operation of new manufacturing facilities to support zero and near-zero emission technologies and increased manufacturing of low-nitrogen oxide (NO_x) engines.

d) Short-Lived Climate Pollutant Reduction Strategy

In the 2017 Scoping Plan Update, the SLCP sector addressed ozone depleting substances (ODS), a large group of chemicals known to destroy the stratospheric ozone

layer when released into the atmosphere. ODS were historically used in a wide variety of applications, including refrigerants, foam blowing agents, solvents, and fire suppressants. Four general concepts were associated with the Short-Lived Climate Pollutants Sector within the 2017 Scoping Plan Update: high-global warming potential (GWP) fluorinated gas phasedown, low-GWP requirements, ODS recovery and destruction, and high-GWP fees. Reasonably foreseeable compliance responses consisted of replacement of high-GWP compounds with low-GWP compounds, which was considered to require construction of new manufacturing facilities or modification of existing manufacturing facilities.

CARB staff presented the Final Short-Lived Climate Pollutant Reduction Strategy, and associated Final EA, to the Board on March 23, 2017. At this hearing the Board certified the Final EA, (including the response to environmental comments document and the CEQA findings and statement of override) and approved the Final Short-Lived Climate Pollutant Reduction Strategy. More information can be found at: http://www.arb.ca.gov/cc/shortlived/shortlived/shortlived.htm

e) Increased Stringency of Senate Bill 375 2035 Targets for Sustainable Communities Strategies

In the 2017 Scoping Plan Update, SB 375 supported the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. This specifically refers to the proposed project, which proposes to update the regional per capita GHG emissions reduction targets for passenger vehicles that apply to Regional Transportation Plans prepared by the State's 18 Metropolitan Planning Organizations. Reasonably foreseeable compliance responses evaluated in the 2017 Scoping Plan Update included planning and construction responses from new housing, commercial and industrial development, preservation of open space, and roadway and infrastructure improvements, and are the same compliance responses evaluated in the Draft and Final EAs. New infrastructure associated with SB 375 and Sustainable community Strategies (SCSs) could include commuter rail lines, electric charging and hydrogen fueling infrastructure, and new manufacturing or modified facilities to accommodate the increased use of zero emission vehicles (ZEVs) and plug-in hybrid electric vehicles (PHEVs).

f) Post-2020 Cap-and-Trade Program with Declining Caps and Linkage to Ontario, Canada

In the 2017 Scoping Plan Update, the Cap-and-Trade Regulation was updated to include declining caps for the post-2020 program and declining caps and linkage to Ontario, Canada. Anticipated compliance responses include construction activities, infrastructure and equipment installations, and significant operational changes to facilities. An EA was prepared for the post-2020 Cap-and-Trade program, titled Final Environmental Analysis prepared for the Proposed Amendments to the California Cap

on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, certified by the Board on July 27, 2017. Refer to that document for a more thorough description of the measures, potential compliance responses, and potential impacts: https://www.arb.ca.gov/regact/2016/capandtrade16/capandtrade16.htm

3. Summary of the 2014 and 2017 Scoping Plan Update Environmental Impacts

The 2014 and 2017 Scoping Plan Update EAs evaluated the environmental impacts related to the reasonably foreseeable compliance responses described above. Tables 5-1 and 5-2 provides a summary of the conclusions of these impacts.

Table 5-1
Summary of Scoping Plan Update EA Impacts by Sector

	Energy Sector	Transportation Sector	Agriculture Sector	Water Sector	Waste Management Sector	Natural and Working Lands Sector	Short-Lived Climate Pollutants Sector	Green Buildings	Cap-and-Trade Regulation 2
Aesthetics									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	LTS
Long-Term Operational Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	
Agriculture and Forest Resources									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	SU	SU	B	SU	SU	SU	SU	SU	
Air Quality									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	LTS
Long-Term Operational Impacts	LTS	SU	B	LTS	LTS/ SU[1]	SU	LTS	B	
Biological Resources									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU

Table 5-1
Summary of Scoping Plan Update EA Impacts by Sector

	Energy Sector	Transportation Sector	Agriculture Sector	Water Sector	Waste Management Sector	Natural and Working Lands Sector	Short-Lived Climate Pollutants Sector	Green Buildings	Cap-and-Trade Regulation 2
Long-Term Operational Impacts	SU	SU	B	SU	SU	LTS	SU	SU	
Cultural Resources									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	NA	NA	NA	NA	NA	NA	NA	NA	
Energy Demand									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	B
Long-Term Operational Impacts	B	B	B	LTS	B	B	LTS	B	
Geology and Soils									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	
Greenhouse Gas									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Long-Term Operational Impacts	B	B	B	B	B	LTS	B	B	B
Hazards and Hazardous Materials									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	LTS
Long-Term Operational Impacts	SU	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Hydrology and Water Quality									
Short-Term Construction Impacts	SU	SU	B	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	SU	SU	B	SU	SU	B	SU	SU	

Table 5-1
Summary of Scoping Plan Update EA Impacts by Sector

	Energy Sector	Transportation Sector	Agriculture Sector	Water Sector	Waste Management Sector	Natural and Working Lands Sector	Short-Lived Climate Pollutants Sector	Green Buildings	Cap-and-Trade Regulation 2
Land Use Planning									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	PSU
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Mineral Resources									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Noise									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	SU	LTS	LTS	LTS	LTS	SU	LTS	SU	
Population and Housing									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Public Services									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Recreation									
Short-Term Construction Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	

Table 5-1
Summary of Scoping Plan Update EA Impacts by Sector

	Energy Sector	Transportation Sector	Agriculture Sector	Water Sector	Waste Management Sector	Natural and Working Lands Sector	Short-Lived Climate Pollutants Sector	Green Buildings	Cap-and-Trade Regulation 2
Transportation/Traffic									
Short-Term Construction Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	PSU
Long-Term Operational Impacts	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	
Utilities and Service Systems									
Short-Term Construction Impacts	NA	NA	NA	NA	NA	NA	NA	NA	LTS
Long-Term Operational Impacts	SU	SU	LTS	SU	SU	SU	SU	SU	

Notes: B = Beneficial; LTS = Less-than-significant; NA = Not Applicable; SU = Potentially Significant and Unavoidable After Mitigation.
[1]Long-term operational impacts were identified as LTS, but odor-related impacts were identified as significant and unavoidable in the Waste Management sector.
[2] Impacts related to the Cap-and-Trade regulation include the effects associated with offset protocol adopted after the adoption of the Cap-and-Trade regulation

Table 5-2
Summary of California's 2017 Climate Change Scoping Plan Update Environmental Analysis Impacts by Sector

Resource Areas and Impact Categories	Significance Determination
Aesthetics	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Agriculture and Forest Resources	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Air Quality	

Table 5-2 **Summary of California's 2017 Climate Change Scoping Plan Update Environmental Analysis Impacts by Sector**	
Resource Areas and Impact Categories	**Significance Determination**
Construction-Related Impacts	PSU
Operational Impacts	LTS
Construction-Related and Operational Odors Impacts	PSU
Biological Resources	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Cultural Resources	
Construction-Related and Operational Impacts	PSU
Energy Demand	
Construction-Related Impacts	LTS
Operational Impacts	B
Geology and Soils	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Greenhouse Gas	
Construction-Related and Operational Impacts	B
Hazards and Hazardous Materials	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Hydrology and Water Quality	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Land Use Planning	
Construction-Related Impacts	LTS
Operational Impacts	PSU

Table 5-2 Summary of California's 2017 Climate Change Scoping Plan Update Environmental Analysis Impacts by Sector	
Resource Areas and Impact Categories	**Significance Determination**
Mineral Resources	
Construction-Related Impacts	LTS
Operational Impacts	LTS
Noise	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Population and Housing	
Construction-Related Impacts	LTS
Operational Impacts	LTS
Public Services	
Construction-Related Impacts	LTS
Operational Impacts	LTS
Recreation	
Construction-Related Impacts	LTS
Operational Impacts	PSU
Transportation/Traffic	
Construction-Related Impacts	PSU
Operational Impacts	PSU
Utilities and Service Systems	
Operational Impacts	PSU
Notes: B = Beneficial; LTS = Less-than-significant; PSU = Potentially Significant and Unavoidable After Mitigation.	

~~The proposed 2017 Scoping Plan Update was released on January 20, 2017. The proposed 2017 Scoping Plan Update builds upon the successful framework established by the Initial Scoping Plan and the 2014 Update to the Scoping Plan, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. More~~

~~information on the 2017 Scoping Plan Update can be found here: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.~~

B. Significance Determinations and Mitigation

Implementation of the Target Update was determined to potentially result in cumulatively considerable contributions to significant cumulative impacts in certain resource areas, as discussed below. While suggested mitigation is provided for each potentially cumulatively considerable impact, the mitigation needs to be implemented by other agencies. Where impacts cannot be feasibly mitigated, the ~~Draft~~ Final EA recognizes the impact as significant and unavoidable. The Board would need to adopt Findings and a Statement of Overriding Considerations for any significant and unavoidable environmental effects of the project as part of the approval process.

C. Cumulative Impacts by Resource Area

1. Aesthetics

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. The 2014 and 2017 Scoping Plan Update EA found that implementation of the recommended actions within the various sectors discussed in the Plan could result in a significant cumulative impact to aesthetic resources. As discussed in the 2014 and 2017 Scoping Plan Update EA, there is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction and operation of these facilities (although likely to occur in areas zoned or used for manufacturing or industrial purposes), could conceivably introduce or increase the presence of artificial elements (e.g., heavy-duty equipment, removal of existing vegetation, buildings) in areas of scenic importance, such as visibility from a State scenic highway. The visual impact of such development would depend on several variables, including the type and size of facilities, distance and angle of view, visual absorption and placement in the landscape. In addition, facility operation may introduce substantial sources of glare, exhaust plumes, and nighttime glare from lighting for safety and security purposes. Implementation of mitigation measures would not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on aesthetic resources.

Reasonably foreseeable compliance responses associated with the Target Update include construction and operation of infill, high-density residential, mixed-use; focused growth within Transportation Priority Areas (TPAs); and expansion of associated infrastructure and facilities, which could require the demolition of existing structures. Compliance responses could also include construction of new infrastructure, such as transit (e.g., light-rail) routes and stations, roadway meters, traffic-calming devices (e.g.,

roundabouts), park-and-ride lots, and modifications to existing roadways. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction and operation of these facilities (although likely to occur in areas zoned or used for commercial or industrial purposes), could conceivably introduce or increase the presence of artificial elements (e.g., heavy-duty equipment, removal of existing vegetation, buildings) in areas of scenic importance, such as visibility from a State scenic highways. The visual impact of such development would depend on several variables, including the type and size of facilities, distance and angle of view, visual absorption and placement in the landscape. In addition, facility operation may introduce substantial sources of glare, exhaust plumes, and nighttime glare from lighting for safety and security purposes. Implementation of mitigation measures might not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, implementation of Target Update **could result in a considerable contribution to a cumulative aesthetics-related impact**.

2. Agricultural and Forest Resources

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. The 2014 and 2017 Scoping Plan Update EA found that implementation of the recommended actions within the various sectors discussed in the Plan could result in a significant cumulative impact to agricultural and forest resources. As discussed in the 2014 and 2017 Scoping Plan Update EA, there is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction of new facilities could result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, Williamson Act conservation contracts, or forest land or timberland, resulting in the loss of these resources. Because CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels. Compliance with existing land use policies, ordinances, and regulations would serve to minimize this impact. Land use impacts would be further addressed for individual projects through the local development review process. Mitigation measures that would be applied through the development review process were identified that could reduce these impacts. However, because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and because of the programmatic nature of this EA, impacts were determined to be potentially significant and unavoidable. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on agricultural and forest resources.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use development; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of Transportation Demand Management

(TDM) and Transit Systems Management (TSM) strategies. Where there would be new facilities (e.g., transit corridors) constructed outside of urbanized areas, undisturbed and vacant land could be used for transportation purposes. Additionally, new development approved by local agencies associated with land use measures in future RTP/SCS updates could also be located on agricultural or forest lands. These lands could have been historically or currently farmed for agriculture, been under a Williamson Act contract, or be considered forest or timber lands. While there is uncertainty as to the exact location of these new facilities or the modification of existing facilities, construction of new facilities could result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, Williamson Act conservation contracts, or forest land or timberland, resulting in the loss of these resources. Because CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels. Compliance with existing land use policies, ordinances, and regulations would serve to minimize this impact. Land use impacts would be further addressed for individual projects through the local development review process. Mitigation measures were identified that could reduce these impacts that would be applied through the development review process. However, because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and because of the programmatic nature of this ~~Draft~~ Final EA, impacts were determined to be potentially significant and unavoidable. Thus, the Target Update **could result in a considerable contribution to a cumulative impact to agricultural and forest resources**.

3. Air Quality

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. The 2014 and 2017 Scoping Plan Update EA found that implementation of the recommended actions within the various sectors discussed in the Plan, which included the recommendation for the Proposed Regulation under the Energy Sector, could result in a significant cumulative impact to air quality. As discussed in the 2014 and 2017 Scoping Plan Update EA, reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could result in an increase in criteria air pollutants and toxic air contaminants, as well as generate unpleasant odors that could affect sensitive receptors. These would be generated by the use of heavy-duty construction equipment on a short-term basis, as well as longer-term operational impacts associated with biomass, anaerobic digestion and composting facilities; and LCFS. Therefore, the 2014 and 2017 Scoping Plan Update could generate emission levels that conflict with applicable air quality plans, violate or contribute substantially to an existing or projected ambient air quality standard violation, result in a cumulatively considerable net increase in non-attainment areas, or expose sensitive receptors to substantial pollutant concentrations or odors. However, all projects, no matter their size or type would be required to seek local or State land use approvals prior to their implementation. Part of the land use entitlement process requires that each of these projects undergo environmental review consistent with California environmental review requirements (e.g., CEQA) and other applicable local requirements (e.g., local air district rules and regulations). This environmental review process would assess

whether project implementation would result in short-term construction and long-term operational air quality impacts.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and development and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Demolition of existing structures and construction of new structures and infrastructure would result in short-term construction-related effects on air quality.

With regards to long-term operational air quality impacts, denser land use strategies would lead to overall statewide and regional reductions in per capita VMT by concentrating development in urban areas, thereby reducing the distances between vehicular trip origins and destinations. A reduction in per capita VMT would consequently reduce overall fuel use and criteria and toxic air pollutants from vehicles. However, concentrating land use development in urban areas could result in localized increases in vehicle activity and thereby increase the concentration of air pollutants in areas with higher population densities and a greater number of sensitive receptors. These increases could also exceed local thresholds for carbon monoxide, TACs, and other pollutants.

Part of the land use entitlement process requires that each of these projects undergo environmental review consistent with California environmental review requirements (e.g., CEQA) and other applicable local requirements (e.g., local air district rules and regulations). Implementation of mitigation measures could potentially reduce construction-related air quality impacts; however, because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, and the programmatic level of analysis associated with the Target Update does not attempt to address project-specific details of mitigation. There is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts.

Consequently, this ~~Draft~~ Final EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related air quality impacts and long-term operational air quality impacts resulting from the development of new facilities or modification of existing facilities could be potentially significant and unavoidable. Thus, the Target Update **could result in a considerable contribution to a cumulative air quality impact.**

4. Biological Resources

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operational

activities associated with new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. These activities would have the potential to adversely affect biological resources (e.g., species, habitat) that may reside or be present in those areas. Because there are biological species that occur, or even thrive, in developed settings, resources could also be adversely affected by construction and operations within disturbed areas at existing manufacturing facilities or at other sites in areas with zoning that would permit the development of manufacturing or industrial uses. Implementation of mitigation measures would not reduce these impacts to a less-than-significant level. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on biological resources.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction could require disturbance of undeveloped areas, which could include clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. These activities would have the potential to adversely affect biological resources (e.g., species, habitat) that may reside or be present in those areas. Because there are biological species that occur, or even thrive, in developed settings, resources could also be adversely affected by construction and operations within disturbed areas at existing manufacturing facilities or at other sites in areas with zoning that would permit the development of manufacturing or industrial uses. In addition, new regulations implemented in response to the Target Update could affect biological resources depending on the type of crop, location, and need to convert lands, habitat destruction could occur, resulting in the loss of biodiversity. The location of new crop lands may affect conservation plans or disrupt important migratory routes. Indirect effects could occur as well, such as increased pesticide and nutrient use, the runoff of which could be detrimental to individual species.

The biological resources that could be affected by construction and operation associated with implementation of reasonably foreseeable compliance responses to the Target Update would depend on the specific location of any necessary construction and its environmental setting. Harmful impacts could include modifications to existing habitat; including removal, degradation, and fragmentation of riparian systems, wetlands, or other sensitive natural wildlife habitat and plan communities; interference with wildlife movement or wildlife nursery sites; loss of special-status species; and/or conflicts with the provisions of adopted habitat conservation plans, natural community conservation plans, or other conservation plans or policies to protect natural resources.

Implementation of mitigation measures would not reduce these impacts to a less-than-significant level. Thus, the Target Update **could result in a considerable contribution to a cumulative impact on biological resources**.

5. Cultural Resources

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction activities associated with new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction activities could require disturbance of undeveloped area, such as clearing of vegetation, earth movement and grading, trenching for utility lines, erection of new buildings, and paving of parking lots, delivery areas, and roadways. Demolition of existing structures may also occur before the construction of new buildings and structures. The cultural resources that could potentially be affected by ground disturbance activities could include, but are not limited to, prehistoric and historical archaeological sites, paleontological resources, historic buildings, structures, or archaeological sites associated with agriculture and mining, and heritage landscapes. Properties important to Native American communities and other ethnic groups, including tangible properties possessing intangible traditional cultural values, also may exist. Historic buildings and structures may also be adversely affected by demolition-related activities. Such resources may occur individually, in groupings of modest size, or in districts. Because culturally sensitive resources can also be located in developed settings, historic, archeological, and paleontological resources, and places important to Native American communities, could also be adversely affected by construction of new facilities. Implementation of mitigation measures could reduce these impacts, however because the authority to determine specific project-level impacts and mitigation is outside the purview of CARB, any mitigation identified would not reduce these impacts to a less-than-significant level. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on cultural resources.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Demolition and construction activities would include ground disturbance, which could include disturbance of known or previously unknown resources. The cultural resources that could potentially be affected by ground disturbance activities could include, but are not limited to, prehistoric and historical archaeological sites, paleontological resources, historic buildings, structures, or archaeological sites associated with agriculture and mining, and heritage landscapes. Properties important to Native American communities and other ethnic groups, including tangible properties possessing intangible traditional cultural

values, also may exist. Historic buildings and structures may also be adversely affected by demolition-related activities. Such resources may occur individually, in groupings of modest size, or in districts. Because culturally sensitive resources can also be located in developed settings, historic, archeological, and paleontological resources, and places important to Native American communities, could also be adversely affected by construction of new facilities. Implementation of mitigation measures could reduce these impacts, however because the authority to determine specific project-level impacts and mitigation is outside the purview of CARB, any mitigation identified would not reduce these impacts to a less-than-significant level. Thus, the Target Update **could result in a considerable contribution to a cumulative impact on cultural resources**.

6. Energy Conservation

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operational activities associated with new or modified facilities or infrastructure. Temporary increases in energy demand associated with new facilities would include fuels used during construction, and gas and electric operational demands. Typical earth-moving equipment that may be necessary for construction includes: graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. While energy would be required to complete construction for any new or modified facilities or infrastructure projects, it would be temporary and limited in magnitude and would not result in sustained increases in demand that would adversely affect energy supplies. Therefore, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a cumulative impact relative to construction-related energy demand. However, the 2014 and 2017 Scoping Plan Update EA found that long-term operational energy demand impacts associated with the recommended actions under the 2014 and 2017 Scoping Plan Update would be primarily beneficial, and thus no cumulative impact on long-term operational energy demand would occur.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies.

Construction of new infrastructure, transportation facilities, and alternative fueling stations would require the use of motor vehicle fuels, natural gas, and electricity. Typical earth-moving equipment would be necessary for construction of infrastructure, including: graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. While various forms of energy would be required for construction of new or modified facilities, specific project details are not currently known; however, the use of energy for construction would be temporary and limited in magnitude and would

not be expected to result in energy demand beyond existing available supplies. Additionally, existing statewide measures to reduce electricity and natural gas consumption in stationary facilities and equipment, reduce motor vehicle emissions through improved fuel efficiency, and other measures designed to decrease emissions and improve energy reliability could contribute to reductions in construction-related energy demands over the long term. Overall, while there would be some use of non-renewable resources for construction projects, the Target Update would reduce energy demands, decrease reliance on fossil fuels and increase reliance on renewable energy sources. Implementation of the Target Update would contribute to decreased energy consumption per capita, increased demand for alternative fuel supplies, and decrease the use of fossil fuels through increased use of electric and other alternative fuel vehicles. Thus, the Target Update would support wise and efficient uses of energy, and there would be **no contributions to a cumulative impact on energy conservation**.

7. Geology, Seismicity, and Soils

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operational activities associated with new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction and operation could be located in a variety of relatively high-risk geologic and soil conditions that are considered to be potentially hazardous. For instance, the seismic conditions at the site of a new facility may have high to extremely high seismic-related fault rupture and ground shaking potential associated with earthquake activity. New facilities could also be subject to seismic-related ground failure, including liquefaction and landslides. Construction and operational activities could be located in a variety of geologic, soil, and slope conditions with varying amounts of vegetation that would be susceptible to soil erosion. Strong ground shaking could also trigger landslides in areas where the natural slope is naturally unstable or is over-steepened by the construction of access roads and structures. Construction and operation could also occur in locations that would expose facilities and structures to expansive soil conditions. Development of new facilities could be susceptible to the presence of expansive soils particularly in areas of fine-grained sediment accumulation typically associated with playas, valley bottoms, and local low-lying areas. These geologic, seismic, and soil-related conditions could result in damage to structures, related utility lines, and access roads, blocking access and posing safety hazards to people. Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and since the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on geology and soils.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Operation of new facilities and structures constructed as potential compliance responses to the Target Update could expose additional people to areas of strong seismic shaking, liquefaction, and landslide. Further, in coastal areas, seismically induced tsunami and seiche waves could damage high-density development and transportation infrastructure associated with the Target Update.

Road cutting associated with the development of new transportation corridors could occur following implementation of the Target Update. This could expose soils to long-term erosion over the life of a roadway or rail, creating potential landslide and falling rock hazards. Further, engineered roadways could be undercut over time by uncontrolled stormwater drainage. Road cutting on steep grades or roads requiring substantial amount of cut and fill would pose the greatest potential for landslides and erosion impacts. Poorly executed construction methods or lack of maintenance could increase the likelihood of erosion-related effects to occur.

Given the uncertainty as to the exact location of new facilities or the modification of existing facilities, construction and operation could be located in a variety of relatively high-risk geologic and soil conditions that are considered to be potentially hazardous. For instance, the seismic conditions at the site of a new facility may have high to extremely high seismic-related fault rupture and ground shaking potential associated with earthquake activity. New facilities could also be subject to seismic-related ground failure, including liquefaction and landslides. Construction and operational activities could be located in a variety of geologic, soil, and slope conditions with varying amounts of vegetation that would be susceptible to soil erosion. Strong ground shaking could also trigger landslides in areas where the natural slope is naturally unstable or is over-steepened by the construction of access roads and structures. Construction and operation could also occur in locations that would expose facilities and structures to expansive soil conditions. Development of new facilities could be susceptible to the presence of expansive soils particularly in areas of fine-grained sediment accumulation typically associated with playas, valley bottoms, and local low-lying areas.

The specific design details, siting locations, seismic hazards, and geologic, slope, and soil conditions for any particular facilities that could occur as a result of reasonably foreseeable compliance responses are not known at this time and would be analyzed on a site-specific basis at the project level. Therefore, for purposes of this analysis, development of these facilities could expose people and structures to relatively high levels of risk associated with strong seismic ground shaking, including liquefaction and landslides, and instability. These geologic, seismic, and soil-related conditions could result in damage to structures, related utility lines, and access roads, blocking access and posing safety hazards to people.

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use approval and/or permitting agency for individual projects, and since the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. However, geologic impacts are site-specific by nature, and do not combine with other projects to exacerbate the level or the impact.

Thus, the Target Update would not result in a considerable contribution to a cumulative geologic impact.

8. Greenhouse Gases

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction activities associated with new or modified facilities or infrastructure. Specific, project-related construction activities could result in increased generation of short-term GHG emissions in limited amounts associated with the use of heavy-duty off-road equipment, materials transport, and worker commutes. A majority of local agencies (e.g., air pollution control districts) do not recommend or require the quantification of short-term construction-generated GHGs for typical construction projects because these only occur for a finite period of time (e.g., during periods of construction) that is typically much shorter than the operational phase, and agencies generally recommended that GHG analyses focus on operational phase emissions, unless the project is of a unique nature requiring atypical (e.g., large scale, long-term) activity levels (e.g., construction of a new dam or levee) for which quantification and consideration (e.g., amortization of construction emissions over the lifetime of the project) may be recommended. Thus, the 2014 and 2017 Scoping Plan Update EA found that short-term construction related GHG emission impacts associated with reasonably-foreseeable compliance responses for the recommended actions in the 2014 and 2017 Scoping Plan Update are considered less-than-significant when considered in comparison to the overall GHG reduction associated with implementation of the 2014 and 2017 Scoping Plan Update.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. As described in Chapter 4, construction activities associated with accommodating growth under the Target Update would not be greater than statewide growth projections, so although construction emissions could exceed applicable local thresholds for construction-generated GHGs, these emissions would be similar to emissions occurring without the Target Update. Thus, short-term construction related GHG emissions impacts

associated with reasonably-foreseeable compliance responses to the Target Update are considered less than significant.

Also as described in Chapter 4, the long-term operational impacts to GHG emissions from the recommended actions are beneficial, consistent with the Target Update and the goals and objectives of SB 375 to reduce emissions to achieve 2020 and 2035 emission reduction goals, and as a recommended measure in the 2017 Scoping Plan.

Thus, the Target Update **would not result in a considerable contribution to a cumulative GHG emissions impact**.

9. Hazards and Hazardous Materials

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Construction activities may require the transport, use, and disposal of hazardous materials. Construction activities generally use heavy-duty equipment requiring periodic refueling and lubricating. Large pieces of construction equipment (e.g., backhoes, graders) are typically fueled and maintained at the construction site. However, the transport, use, and disposal of hazardous materials would be required to comply with all applicable federal, State and local laws (see Attachment 1 of this ~~Draft~~ Final EA). In addition, although there is uncertainty as to the exact locations where new facilities could be constructed or where existing facilities could be reconstructed, these would likely occur within footprints of existing manufacturing facilities, or in areas with zoning that would permit the development of manufacturing or industrial uses. As a result, construction-related impacts associated with hazards and hazardous materials would be less-than-significant.

In addition, because potential facilities would likely occur within footprints of existing manufacturing facilities, the recommended actions in the 2014 and 2017 Scoping Plan Update would not be expected to result in locating new facilities near schools, public (or public use) airports, private airstrips, or wildlands; or on sites included on a list of hazardous materials sites or impair implementation of or physically interfere with an adopted emergency response or evacuation plan. In addition, as noted above, the handling of hazardous materials would be required to comply with all applicable federal, State and local laws. As a result, operational impacts associated with hazards and hazardous materials would be less-than-significant. Therefore, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in cumulative hazards or hazardous materials impacts.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies.

These construction activities may require the transport, use, and disposal of hazardous materials. Construction activities generally use heavy-duty equipment requiring periodic refueling and lubricating fluids. Large pieces of construction equipment (e.g., backhoes, graders) are typically fueled and maintained at the construction site as they are not designed for use on public roadways. Thus, such maintenance uses a service vehicle that mobilizes to the location of the construction equipment. It is during the transfer of fuel that the potential for an accidental release is most likely. Although precautions would be taken to ensure that any spilled fuel is properly contained and disposed, and such spills are typically minor and localized to the immediate area of the fueling (or maintenance), the potential still remains for a substantial release of hazardous materials into the environment. Consequently, construction activities could 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.

Maintenance of transportation facilities (e.g., light rail) could also entail the use of hazardous materials such as fuels, solvents, paints, and other architectural coatings. It would be expected that implementation of tolls or fees for dedicated truck lane facilities could induce transfer of goods movement to the freight sector, including movement of hazardous materials. Increased transport and handling of hazardous materials via freight could increase the risk of accidental release near neighborhoods and communities adjacent to freight facilities.

Further, there in uncertainty surrounding the exact locations of new high-density development, transit networks, and low-emission vehicle-related infrastructure; therefore, it would be expected that construction and maintenance activities associated with reasonably foreseeable compliance responses to the Target Update could occur near a school, hospital, or nursing center resulting in the possible release of hazardous materials within a quarter mile of a sensitive receptor.

As noted in Chapter 4, the handling of hazards materials would be required to comply with all applicable federal, State and local laws. The short-term construction-related and long-term operational-related impact associated with the Target Update on hazards and hazardous materials would be potentially significant.

Mitigation measures are available that would reduce these impacts to a less-than-significant level; however, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts and the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. However, hazards and hazardous materials impacts are site-specific by nature and do not combine with other projects to exacerbate the level or the impact.

Thus, the Target Update would not result in a considerable contribution to a cumulative hazard and hazardous impact.

10. Hydrology and Water Quality

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Construction activities and long-term operations associated with reasonably foreseeable compliance responses to the recommended actions in the 2014 and 2017 Scoping Plan Update could be located in a variety of conditions with regards to altering drainage patterns, flooding, and inundation by seiche, tsunami, or mudflow. The level of susceptibility varies by location. The specific design details, siting locations, and associated hydrology and water quality issues are not known at this time and would be analyzed on a site-specific basis at the project level. Therefore, for purposes of CEQA disclosure, these potential hydrology and water quality-related impacts could be significant. Implementation of mitigation measures to reduce these impacts would not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact to hydrology and water quality.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Construction activities and long-term operations associated with reasonably foreseeable compliance responses could be located in a variety of conditions with regards to altering drainage patterns, flooding, and inundation by seiche, tsunami, or mudflow. The level of susceptibility varies by location. Furthermore, fuels regulations could alter agricultural practices, resulting in discharges to waterways of sediment, nutrients, pathogens, pesticides, metals, and salts. The specific design details, siting locations, and associated hydrology and water quality issues are not known at this time and would be analyzed on a site-specific basis at the project level. Therefore, for purposes of CEQA disclosure, these potential hydrology and water quality-related impacts could be significant. Implementation of mitigation measures to reduce these impacts would not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the Target Update **could result in a considerable contribution to a cumulative impact to hydrology and water quality**.

11. Land Use and Planning

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require both construction and long-term operation of new or modified facilities or infrastructure. There is uncertainty as

to the exact location of these new facilities or the modification of existing facilities. However, facilities would likely occur within the footprints of existing manufacturing facilities, or in areas with zoning that would permit the development of these facilities. Thus, implementation of the recommended actions would not be anticipated to divide an established community or conflict with a land use or conservation plan. Therefore, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a significant cumulative land use planning-related impact.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities.

MPOs are required to update their RTP/SCS every four years in consultation with local governments within each MPO region. Local governments maintain land use authority and are responsible for implementing and updating local general plans, community plans, conservation plans, zoning ordinances, and other applicable plans that address land use. While MPOs are required to update RTP/SCSs in response to the Target Update, they do not have the authority to carry out or approve local land use plans or development projects that are under the jurisdiction of local agencies, nor do they have the authority to require changes or updates to local land use plans. Local governments may amend or update local plans in response to RTP/SCS updates, and thus changes in land use or the approval of amendments or updates to existing general plans or other land use plans in response future to RTP/SCS updates are reasonably foreseeable. However, the precise nature and timing of any future plan updates or proposed land use changes is uncertain. MPOs typically consult with local agencies during development of RTP/SCS updates, including consideration of permitted or planned land uses and associated standards in existing local land use plans, along with potential changes that could occur in the future, in order to avoid conflicts with existing local plans. Thus, reasonably foreseeable compliance responses would not be expected to divide an established community or conflict with a land use or conservation plan.

Localized implementation of specific land use and transportation projects or programs included in future RTP/SCSs under the Target Update could result in variety of localized adverse effects, such as the conversion or modification of natural and working lands, adverse effects on sensitive species or habitat, long-term erosion effects, adverse effects on local or regional water resources, long-term water quality deterioration associated with erosion and run-off, and, other effects. The specific environmental effects associated with land use changes are considered in their respective sections of this ~~Draft~~ Final EA. Thus, because the Target Update would inform development of future land use plans and policies, **there would be no contributions to a cumulative impact related to land use incompatibility**.

12. Mineral Resources

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require both the construction and operation of new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. New facilities would likely occur within existing footprints or in areas with consistent zoning, where original permitting and analyses considered these issues. In addition, some of the recommended actions in the 2014 and 2017 Scoping Plan Update and associated compliance responses could require the extraction of minerals (i.e., lithium or platinum) used to manufacture fuel cell and battery technologies. However, implementation of these measures would not substantially deplete the supply of lithium or platinum and both are currently used in auto manufacturing processes. Therefore, the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a significant cumulative impact to mineral resources.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Construction of new infill, high-density residential, TPA, and mixed-use development, and new transportation, EV charging, and hydrogen fueling infrastructure could conceivably result in the loss of available land containing known mineral resources, or loss of an available locally important mineral resource recovery site. Although it is reasonably foreseeable that construction activities could occur following implementation of the Target Update, the location and extent of construction activities related to new development cannot be determined at this time. However, new development, facilities, and infrastructure would likely occur within areas of consistent zoning where original permitting and analyses considered these issues. Local agencies designate land with known mineral resources through the general plan and typically include policies on the use, management and protection of these resources in the conservation element, consistent with the requirements of the Surface Mining and Reclamation Act (SMARA) and sections 2762-2763 of the Public Resources Code. Further, pursuant to SB 375, RTP/SCSs focus growth within or near existing urban centers to reduce transportation-related emissions. As such, TPA, infill, high-density residential, and mixed-use development would be concentrated within appropriate zoning as identified in applicable general plans. Therefore, construction and operation of new development and transportation-related infrastructure would not affect the availability of a known mineral resource or recovery site.

Therefore, the Target Update **would not result in a considerable contribution to a cumulative impact to mineral resources**.

13. Noise

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operation of new or modified facilities or infrastructure. These activities could result in the generation of short-term construction noise in excess of applicable standards or that result in a substantial increase in ambient levels at nearby sensitive receptors, and exposure to excessive vibration levels, which would be potentially significant. Operational noise impacts would not typically be expected due to the fact that typical compliance response activities would likely occur within footprints of existing facilities, or in areas with zoning that would permit the development of these facilities. However, operational effects of equipment constructed as a result of implementation of recommended actions associated with the 2014 and 2017 Scoping Plan Update could result in potentially significant impacts. Implementation of mitigation measures could reduce potential construction-related or operational noise impacts to a less-than-significant level; however, the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative construction-related and operational noise impacts.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. These activities could result in the generation of short-term construction noise in excess of applicable standards or that result in a substantial increase in ambient levels at nearby sensitive receptors, and exposure to excessive vibration levels, which would be potentially significant. In addition, operational noise related to new facilities could emit excessive levels of noise near sensitive receptors. Thus, operational effects of facilities and infrastructure constructed as a result of implementation the Target Update could result in potentially significant impacts. Implementation of mitigation measures could reduce potential construction-related or operational noise impacts to a less-than-significant level; however, the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the Target Update **could result in a considerable contribution to a cumulative noise impact**.

14. Population and Housing

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and

operation of new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. These would likely occur within footprints of existing facilities, or in areas with zoning that would permit the development of such facilities. Construction of these facilities would require relatively small crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project). Therefore, a substantial amount of construction worker migration would not be likely to occur, and a sufficient construction employment base would likely be available. Construction activities would not require new additional housing or generate changes in land use. Therefore, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a significant cumulative impact related to population and housing growth.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction of these facilities would require work crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project). Therefore, a substantial amount of construction worker migration would not be likely to occur, and a sufficient construction employment base would likely be available.

Regional and local planning documents could include goals for increased residential densities in urban areas to accommodate population projections. Additionally, existing housing supply may be displaced to make room for higher-density housing or transit or transportation facilities. Thus, displacement could occur. While displacement itself is not a direct environmental impact, a project that would displace a substantial number of people and/or require the construction of new housing elsewhere could result in indirect adverse effects on the environment. Therefore, the Target Update **could result in a considerable contribution to a cumulative impact related to population and housing growth**.

15. Public Services

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could include construction and operation of new or modified facilities or infrastructure. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. These would likely occur within footprints of existing facilities, or in areas with zoning that would permit the development of these facilities. Construction activities would be anticipated to require relatively small crews, and demand for these crews would be temporary (e.g., 6 – 12 months per project). Therefore, it would be anticipated that the need for a substantial amount of

construction worker migration would not occur and that a sufficient construction employment base would likely be available. Construction activities would not require new additional housing to accommodate or generate changes in land use and, therefore, would not affect the provision of public services. Therefore, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a significant cumulative impact related to public services.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. There is uncertainty as to the exact location of these new facilities or the modification of existing facilities. Construction associated with the Target Update would occur over the course of an RTP/SCS projected horizon. This would result in a steady amount of construction-related work such that communities would be have adequate population to support these activities as well as public services. Additional public service resources would not be required to meet construction-related demands.

To reduce automobile-generated sources of GHGs, growth is often focused within or near existing urban centers and uses mixed-use, TPA, high-density residential, and infill development to keep growth localized. Population growth would increase demand for schools; fire, police, and emergency services; and other general government services (e.g., libraries). Depending on growth and housing patterns, these public services could exceed their capacity and thus **could result in a considerable contribution to a cumulative impact related to public services**.

16. Recreation

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operations of new or modified facilities or infrastructure. There is uncertainty as to the exact locations of potential new or modified facilities. These activities would likely occur within footprints of existing facilities, or in areas with zoning that would permit their development. In addition, demand for construction of these crews would be temporary (e.g., 6 – 12 months per project). Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available. Thus, construction activities associated with reasonably foreseeable compliance responses would not be anticipated to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration would occur. In addition, the demand for new (or expansion of) recreational-related facilities would not occur as a result of construction activities. Therefore, the 2014 and 2017 Scoping Plan

Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update would not result in a significant cumulative impact related to recreational facilities.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. There is uncertainty as to the exact locations of potential new or modified facilities. Demand for construction crews would be temporary (e.g., 6 – 12 months per project). Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available. Thus, construction activities associated with reasonably foreseeable compliance responses would not be anticipated to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration would occur. In addition, the demand for new (or expansion of) recreational-related facilities would not occur as a result of new development because of Quimby Act requirements for dedication of parkland to meet these needs. Therefore, the 2030 Target Scoping Plan **would not result in a considerable contribution to a cumulative impact related to recreational facilities**.

17. Transportation and Traffic

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operations of new or modified facilities or infrastructure. Although detailed information about potential specific construction activities is not currently available, some of the potential compliance responses could result in short-term construction traffic (primarily motorized) from worker commute- and material delivery-related trips. The amount of construction activity would vary depending on the particular type, number, and duration of usage for the varying equipment, and the phase of construction. These variations would affect the amount of project-generated traffic for both worker commute trips and material deliveries. Depending on the amount of trip generation and the location of new facilities, implementation could conflict with applicable programs, plans, ordinances, or policies (e.g., performance standards, congestion management); and/or result in hazardous design features and emergency access issues from road closures, detours, and obstruction of emergency vehicle movement, especially due to project-generated heavy-duty truck trips. Implementation of mitigation measures could reduce short-term construction related impacts to a less-than-significant level, but because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, the impacts are considered potentially significant and unavoidable. Thus, the 2014 and 2017 Scoping Plan Update EA found that the recommended actions in the 2014 and 2017 Scoping Plan Update could result

in a cumulative short-term transportation and traffic-related impact. However, the 2014 and 2017 Scoping Plan Update EA found that implementation of the reasonably foreseeable compliance responses under the 2014 and 2017 Scoping Plan Update would not result in cumulative impacts associated with long-term operational changes in traffic patterns or vehicle trips, or conflict with existing circulation plans.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Although detailed information about potential specific construction activities is not currently available, some of the potential compliance responses could result in short-term construction traffic (primarily motorized) from worker commute- and material delivery-related trips. The amount of construction activity would vary depending on the type, number, and duration of usage for the construction equipment, and the phase of construction. These variations would affect the amount of project-generated traffic for both worker commute trips and material deliveries. Depending on the amount of trip generation and the location of new facilities, implementation could conflict with applicable programs, plans, ordinances, or policies (e.g., performance standards, congestion management); and/or result in hazardous design features and emergency access issues from road closures, detours, and obstruction of emergency vehicle movement, especially due to project-generated heavy-duty truck trips. As a result, transportation and traffic impacts during construction projects associated with the Target Update would be potentially significant.

Land use strategies to increase infill development, and higher-density residential and mixed-use development and TPA projects, would lead to overall statewide and regional reductions in VMT per capita by concentrating development in urban areas and reducing the distance between trip origins and destinations. Transportation infrastructure strategies, such as new transit routes and stations, traffic calming, express lanes, and other roadway reconfigurations, could increase or decrease the number of lanes on roadways and freeways depending on the project. These strategies would affect roadway volumes by changing roadway capacity and result in either higher or lower levels of service. Localized increases in vehicle trips and roadway volumes could result in increases in congestion and automobile delay. Thus, long-term operational traffic impacts as a result of the Target Update would be potentially significant impacts on.

Implementation of mitigation measures could reduce short-term construction and long-term operational impacts to a less-than-significant level, but because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, the impacts are considered potentially significant and unavoidable. Thus, the Target Update **could result in a considerable contribution to a cumulative transportation and traffic-related impact**.

18. Utility Service Systems

The 2014 and 2017 Scoping Plan Update includes the reasonably foreseeable compliance responses discussed above under section 5.A.1 and 5.A.2. Implementation of reasonably foreseeable compliance responses associated with the recommended actions in the 2014 and 2017 Scoping Plan Update could require construction and operations of new or modified facilities or infrastructure. Newly constructed or modified facilities could generate substantial increases in the demand for water supply, wastewater treatment, storm water drainage, and solid waste services in their local areas. Any new or modified facilities, no matter their size and location would be required to seek local or State land use approvals prior to their development. Part of the land use entitlement process for facilities proposed in California requires that each of these projects undergo environmental review consistent with the requirements of CEQA and the CEQA Guidelines. It is assumed that facilities proposed in other states would be subject to comparable federal, state, and/or local environmental review requirements (e.g., CEQA) and that the environmental review process would assess whether adequate utilities and services (i.e., wastewater services, water supply services, solid waste facilities) would be available and whether the project would result in the need to expand or construct new facilities to serve the project. Implementation of mitigation measures could reduce potential impacts to a less-than-significant level; however, the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the recommended actions in the 2014 and 2017 Scoping Plan Update could result in a significant cumulative impact on utility service systems.

Reasonably foreseeable compliance responses associated with the Target Update include demolition of existing structures and construction and operation of infill, high-density residential, mixed-use; focused growth within TPAs; and expansion of associated infrastructure and facilities. Compliance responses could also include transportation strategies such as development of complete streets, new or improved transit infrastructure and facilities, and use of TDM and TSM strategies. Newly constructed or modified facilities could generate substantial increases in the demand for water supply, wastewater treatment, storm water drainage, and solid waste services in their local areas. Any new or modified facilities, no matter their size and location would be required to seek local or State land use approvals prior to their development. Part of the land use entitlement process for facilities proposed in California requires that each of these projects undergo environmental review consistent with the requirements of CEQA and the State CEQA Guidelines.

At this time, the specific location and type of construction needs is not known and would be dependent upon a variety of factors that are not within the control of CARB including: economic costs, product demands, environmental constraints, and other market constraints. Thus, the specific impacts from construction on utility and service systems cannot be identified with any certainty, and individual compliance responses could potentially result in significant environmental impacts.

Implementation of mitigation measures would not reduce these impacts to a less-than-significant level because the authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects. Thus, the Target Update **could result in a considerable contribution to a cumulative impact with respect to utilities and service systems**.

D. Growth-Inducing Impacts

Growth inducement occurs when an activity removes an obstacle to growth or accelerates normal rates of growth. The Target Update will not have a growth inducing impact because it will not influence the amount or rate of population growth in the State. SB 375 anticipates that the State's population will grow and encourages regions to develop plans for accommodating that growth. The Target Update will have no effect on demographics, population growth rates, or external factors such as immigration policy that might influence the rate of growth in the State. Population projections used for SCS planning will be based on regional forecasts and state projections.

SB 375 is intended to reduce GHG emissions as a result of better coordinated transportation and land use planning that generally commits fewer petroleum and other resources to accommodate a given level of population growth. There would be no net increase or decrease in overall growth resulting from the Target Update; instead the project calls for a decrease in per capita GHG emissions, even as the State's population increases.

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6. MANDATORY FINDINGS OF SIGNIFICANCE

Consistent with the requirements of the California Environmental Quality Act (CEQA) Guidelines § 15065 and section 18 of the Environmental Checklist, this ~~Draft~~ Final Environmental Analysis (~~Draft~~ Final EA) addresses the mandatory findings of significance for the proposed Target Update.

A. Mandatory Findings of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat for 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, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

CEQA requires a finding of significance if a project "has the potential to substantially degrade the quality of the environment." (Cal. Code Regs. tit 14, § 15065, subd. (a).) In practice, this is the same standard as a significant impact on the environment, defined 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." (Cal. Code Regs. tit 14, § 15382.)

As with all environmental impacts and issue areas, the precise nature, location and magnitude of impacts would be highly variable, and would depend on a range of reasonably foreseeable compliance responses that could occur with implementation of the Target Update. The specific location, extent, and a variety of other site-specific factors related to future projects that could be undertaken as a result compliance responses are not known at this time but would be addressed by environmental reviews to be conducted by local or regional agencies with regulatory authority at the project-specific level.

This ~~Draft~~ Final EA, in its entirety, addresses and discloses potential environmental impacts associated with the recommended actions with the proposed regulations, including direct, indirect, and cumulative impacts in the following resource areas:

Aesthetics
Agricultural and Forest Resources
Air Quality
Biological Resources
Cultural Resources
Energy Demand
Geology, Seismicity, and Soils
Greenhouse Gases
Hazards and Hazardous Materials
Hydrology and Water Quality
Land Use and Planning
Mineral Resources
Noise
Population and Housing
Public Services
Recreation
Transportation and Traffic
Utilities and Service Systems

As described in Chapter 4, this ~~Draft~~ Final EA discloses potential environmental impacts, the level of significance prior to mitigation, proposed mitigation measures, and the level of significance after the incorporation of mitigation measures.

a) Impacts on Species

CEQA requires a lead agency to find that a project may have a significant impact on the environment where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. (Cal. Code Regs. tit. 14, §15065, subd. (a)(1).) Chapter 4 of this ~~Draft~~ Final EA addresses impacts that could occur to biological resources, including the reduction of fish or wildlife habitat, the reduction of fish or wildlife populations, and the reduction or restriction of the range of special-status species.

b) Impacts on Historical Resources

CEQA states that a lead agency shall find that a project may have a significant impact on the environment where there is substantial evidence that the project has the potential to eliminate important examples of a major period of California history or prehistory. (Cal. Code Regs. tit. 14, § 15065, subd. (a)(1).) This incorporates the requirement that major periods of California history are preserved for future generations and a finding of significance for substantial adverse changes to historical resources. (Pub. Resources Code § 21001, subd. (c), 21084.1.) CEQA establishes standards for determining the significance of impacts to historical resources and archaeological sites that are a historical resource. (Cal. Code Regs. tit. 14, § 15064.5.) Chapter 4 of this ~~Draft~~ Final EA addresses impacts that could occur related to California history and prehistory, historic resources, archaeological resources, and paleontological resources.

2. Does the project have impacts that are individually limited, but cumulatively considerable?

CEQA Guidelines requires a lead agency shall find that a project may have a significant impact on the environment where there is substantial evidence that the project has potential environmental impacts that are individually limited, but cumulatively considerable. (Cal. Code Regs. tit. 14, § 15065.) Cumulatively considerable means “that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” (Cal. Code Regs. tit. 14, § 15065, subd. (a)(3).) Cumulative impacts are addressed for each of the environmental topics listed above and are provided in Chapter 5, “Cumulative and Growth-Inducing Impacts,” in this ~~Draft~~ Final EA.

3. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

CEQA requires a lead agency to find that a project may have a significant impact on the environment where there is substantial evidence that the project has the potential to

cause substantial adverse impacts on human beings, either directly or indirectly (Cal. Code Regs. tit. 14, § 15065, subd. (a)(4)). Under this standard, a change to the physical environment that might otherwise be minor must be treated as significant if people would be significantly affected. This factor relates to adverse changes to the environment of human beings generally, and not to impacts on certain individuals. While changes to the environment that could indirectly affect human beings would be represented by all the designated CEQA issue areas, those that could directly affect human beings include air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, transportation/traffic, and utilities, which are addressed in Chapter 4 of this ~~Draft~~ Final EA.

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7. ALTERNATIVES ANALYSIS

This section provides an overview of the regulatory requirements and guidance for alternatives analyses under the California Environmental Quality Act (CEQA), a description of each of the alternatives to the Proposed Update to the SB 375 GHG Emissions Reduction Targets (Target Update), a discussion of whether and how each alternative meets the project's objectives, and an analysis of each alternative's environmental impacts.

A. Approach to Alternatives Analysis

The California Air Resources Board's (CARB or Board) certified regulatory program (Cal. Code Regs. tit. 17, § 60000 – 60008) requires that where a contemplated action may have a significant effect on the environment, a staff report shall be prepared in a manner consistent with the environmental protection purposes of CARB's certified regulatory program and with the goals and policies of CEQA. Among other things, the staff reports must address feasible alternatives to the proposed action that would substantially reduce any significant adverse impact identified.

The certified regulatory program provides general guidance that any action or proposal for which significant adverse environmental impacts have been identified during the review process shall not be approved or adopted as proposed if there are feasible mitigation measures or feasible alternatives available which would substantially reduce these adverse impacts. For purposes of this section, "feasible" means capable of being accomplished in a successful manner within a reasonable period, considering economic, environmental, social, and technological factors, and consistent with the CARB's legislatively mandated responsibilities and duties. (Cal. Code Regs. tit. 17, § 60006.)

While CARB, by its certified regulatory program, is exempt from Chapters 3 and 4 of CEQA and corresponding sections of the State CEQA Guidelines, the Guidelines nevertheless contain useful information for preparation of a thorough and meaningful alternatives analysis. CEQA Guidelines § 15126.6(a) speaks to evaluation of "a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives." The purpose of the alternatives analysis is to determine whether different approaches to or variations of the project would reduce or eliminate significant project impacts, within the basic framework of the objectives, a principle that is consistent with CARB's certified regulatory program requirements. Alternatives considered in an environmental document should be potentially feasible and should attain most of the basic project objectives. It is, therefore, critical that the alternatives analysis define the project's objectives. The range of alternatives is governed by the "rule of reason," which requires evaluation of only those alternatives "necessary to permit a reasoned choice." (Cal. Code Regs. tit. 14, § 15126.6, subd. (f).) Further, an agency "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." (Cal. Code Regs. tit. 14, § 15126.6, subd. (f)(3).) The analysis should focus on alternatives that are feasible and that take economic, environmental,

social, and technological factors into account. Alternatives that are remote or speculative need not be discussed. Furthermore, the alternatives analyzed for a project should focus on reducing or avoiding significant environmental impacts associated with the project as proposed.

B. Selection of Range of Alternatives

This chapter evaluates a reasonable range of alternatives to the Target Update that could reduce or eliminate the project's significant effects on the environment, while meeting most of the basic project objectives. (Cal. Code Regs. tit. 14, § 15126.6, subd. (a).) Pursuant to CARB's certified regulatory program, this chapter also contains an analysis of each alternative's feasibility and the likelihood that it will substantially reduce any significant adverse environmental impacts identified in the impact analysis contained in Chapter 4 of this ~~Draft~~ Final EA. (Cal. Code Regs. tit. 17, § 60005(b), 60006.)

As described earlier, the Target Update builds upon previous approaches used in establishing the initial SB 375 Targets. The initial SB 375 Targets were established as per capita passenger vehicle greenhouse gas (GHG) emissions reductions targets for each Metropolitan Planning Organization (MPO) for the years 2020 and 2035, relative to a 2005 emissions baseline. The Target Update recommends new targets for each MPO for both 2020 and 2035 goals. Reasonably foreseeable compliance responses to the Target Update include a broad, comprehensive range of land use and transportation strategies that include both expanded use of existing strategies and new approaches, with considerable variability in the mix of strategies and local implementation actions that could occur across all 18 MPO regions. Likewise, suitable alternatives considered in this ~~Draft~~ Final EA need also to be broad-based, comprehensive approaches that could meet the basic project objectives, while reducing or eliminating the project's significant effects on the environment.

While the Target Update recognizes the need for overall emissions reductions, the needs and abilities to reduce emissions vary for each MPO. Therefore, specific actions are not yet fully defined at this stage of planning. The level of detail for each alternative must reflect that the Target Update is a broad action and, accordingly, the analysis cannot provide the level of detail that would be contained in subsequent environmental review when MPOs act to update their RTP/SCS, or when local agencies adopt and implement specific programs or projects in response to RTP/SCS updates. (See Cal. Code Regs. tit. 14, §15168.)

CARB has identified four alternatives, which is considered a reasonable range in the context of the project, that allow the public and Board to understand differences in potential approaches to the Target Update. Various land use and transportation strategies in RTP/SCSs that were adopted and are in various stages of implementation per the initial 2010 reduction targets are considered a part of the No-Project Alternative. Since these programs are already planned, they are reasonably expected to continue. In addition to the No Project Alternative, CARB made a good faith effort to identify other potentially feasible project alternatives. This included examining comments received at

the public workshops held in Los Angeles, Sacramento, and Fresno during March 2017 to determine if any commenters suggested potentially feasible alternatives. While commenters made suggestions for particular components of recommended targets, no comments suggested an alternative, broad-based comprehensive approach to the project itself. CARB staff found no comments suggesting an alternative comprehensive approach to meet the State's long-term goals.

Despite the challenge of identifying alternative approaches to the project as a whole, rather than just alternatives to components within the project, CARB staff identified three potentially feasible action alternatives, in addition to the No-Project Alternative. These include a Re-Adoption of Existing Targets Alternative, a Substantially More Stringent Targets Alternative, and an Adoption of MPO Target Recommendations Alternative. These are described more fully below. These alternatives to the project do not alter the basic nature of the project, while providing sufficient information to allow a comparison with the proposed project.

C. Project Objectives

The project objectives described in Chapter 2, Project Description, are provided below. These objectives are derived from the requirements of SB 375 and the 2017 Climate Change Scoping Plan Update. The analysis that follows in section E of this chapter includes a discussion of the degree to which each alternative meets these basic project objectives:

1. Update the regional GHG emission reduction targets at least every eight years and take into account:

    a) GHG emissions reductions that will be achieved by improved vehicle emission standards, changes in fuel composition, and other measures CARB has approved that will reduce GHG emissions in the affected regions, and prospective measures CARB plans to adopt to reduce GHG emissions from other sources as that term is defined in subd. (i) of § 38505 of the Health and Safety Code and consistent with the regulations promulgated pursuant to the California Global Warming Solutions Act of 2006 (Division 12.5 (commencing with § 38500) of the Health and Safety Code).

    b) Updated technical data, forecasts, and other information provided by the Department of Transportation, MPOs, local governments, affected air districts, and public and private stakeholders.

    c) Advancement of technical tools and methods, such as consistent standards for data and modeling assumptions, model improvements, and measures of achievement of emission reductions.

2. Update regional GHG emissions reduction targets to continue to achieve a balance between goals that motivate further positive planning and action toward more sustainable communities that foster co-benefits such as improved public health outcomes, more mobility choices, more housing choices, and resource and land conservation; but are not out of reach for regions and local governments.

3. Update regional GHG emissions reduction targets to further the objectives set forth in SB 32 and Executive Order B-30-15, specifically that would, if implemented, result in greater GHG emission reductions directly from ~~the~~ transportation and land use strategies ~~sector~~ compared to reductions that would be achieved under currently adopted SCSs. Targets would contribute to achieving the overall statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030, as well as support achievement of our statewide public health and air quality objectives. (CARB 2017a)

D. Description of Alternatives

Detailed descriptions of each alternative are presented below. The analysis that follows the descriptions of the alternatives includes a discussion of the degree to which each alternative meets the basic project objectives, and the degree to which each alternative avoids potentially significant impacts identified in Chapter 4.

E. Evaluation of Target Update Alternatives

Alternative 1: No-Project Alternative

Alternative 1 Description

CARB is including Alternative 1, the No-Project Alternative, to provide a good faith effort to disclose environmental information that is important for considering the Target Update. CARB's certified regulatory program does not mandate consideration of a "No-Project Alternative." (Cal. Code Regs. tit. 17, § 60006.) Under CARB's certified regulatory program, the alternatives considered, among other things, must be "consistent with the state board's legislatively mandated responsibilities and duties." (Cal. Code Regs. tit. 17, § 60006.)

Under Alternative 1, CARB would not take action to update the existing targets. It is not clear that it would be legally feasible for CARB to implement the No-Project Alternative. First, SB 375 requires that CARB take action to update the targets every 8 years. Further, in April 2015, Governor Brown issued Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. In doing so, the Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In order to develop a clear plan of action to achieve the State's goals, the Executive Order called

on CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. In summer 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32 (Pavley, Chapter 249, Statutes of 2016), which codified into statute the 2030 GHG reduction target contained in Executive Order B-30-15. The proposed 2017 Climate Change Scoping Plan Update reflects the 2030 target and would serve as the framework to define the State's climate change priorities for the next 13 years and beyond. The proposed 2017 Climate Change Scoping Plan Update includes a reduction of vehicle miles traveled (VMT) that is to be achieved at least in part by increasing the stringency of the regional per capita GHG targets for SCSs for 2035 as part of the statewide strategy to achieve the 2030 statewide emissions target.

The No-Project Alternative is included only to assist in the analysis and consideration of this portion of the Target Update and the action alternatives. It is useful to include a "No-Project Alternative" in this analysis for the same reasons that this type of alternative is called for in the State CEQA Guidelines. As noted in the CEQA Guidelines, "the purpose of describing and analyzing a no-project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (Cal. Code Regs. tit. 14, § 15126.6, subd. (e)(1).) The No-Project Alternative also provides an important point of comparison to understand the potential environmental benefits and impacts of the other alternatives.

The No-Project Alternative does not contemplate that there would be no further action by CARB or other state agencies related to SB 375. As part of the MPOs' regular SCS reevaluation and update processes, they may find that implementing the existing targets may involve implementing or expanding existing strategies discussed in Table 2-2 and including some of the potential new GHG reduction strategies identified in Table 2-3. Therefore, it is foreseeable that impacts discussed in Chapter 4 could occur even under the No Project Alternative. Further, implementation of some of those strategies could occur as a result of requirements required by other statutes or because of commitments in existing plans or ones under development for other purposes.

Alternative 1 Discussion

i) Objectives

The No-Project Alternative would not meet the project's objectives of updating targets to reflect the latest information on State GHG-reduction measures and technical data, tools, and methods (Objective 1), would not foster increased co-benefits relative to existing conditions, and would not encourage further innovation, action, and planning toward more sustainable communities compared to existing conditions (Objective 2). Most importantly, considering more stringent VMT per capita reductions needed to achieve the 2030 GHG emissions limit as codified in SB 32 and detailed in the 2017 Scoping Plan Update, the No-Project Alternative would not be consistent with Objective 3 (helping to attain SB 32 GHG targets).

ii) Environmental Impacts

The No-Project Alternative would result in compliance responses carried out in existing SCSs developed to achieve the existing regional GHG targets that are ongoing or already implemented. Direct and indirect environmental impacts associated with implementation of these measures were analyzed in the 2010 Functional Equivalent Document (FED). Further, the No-Project Alternative would result in potential adverse environmental impacts that are similar to those described in Chapter 4 of the ~~Draft~~ Final EA, but to a lesser degree because emissions reduction targets and actions needed to achieve them would not be as stringent as proposed for the Target Update. Potential impacts include those resulting from short-term construction and long-term operational impacts that may occur because of activities carried out in response to regulations or programs enacted to implement the recommended targets. As described in Chapter 4, the resource areas affected include: aesthetics; agricultural and forest resources; air quality; biological resources; cultural resources; geology, seismicity, and soils; greenhouse gases; hazards and hazardous materials; hydrology and water quality; noise; population and housing; public services; transportation and traffic; and utilities and service systems.

Alternative 2: Re-Adoption of Existing Targets Alternative

Alternative 2 Description

Under Alternative 2, CARB would consider all information and conclude that no changes should be made to the existing targets for each MPO, and take action to re-adopt the existing targets that were established in 2010 for each MPO for 2020 and 2035, as shown below in Table 7-1.

Table 7-1 Existing SB 375 GHG Emission Reduction Targets

	Existing GHG Targets[1] (adopted in 2010)	
MPO	**2020**	**2035**
SANDAG	-7%	-13%
SCAG	-8%	-13%
SACOG	-7%	-16%
MTC/ABAG	-7%	-15%
Butte CAG	1%	1%
Tahoe MPO	-7%	-5%
Santa Barbara	0%	0%
Monterey Bay	0%	-5%
San Luis Obispo COG	-8%	-8%
Shasta RTA	0%	0%
Stanislaus COG	-5%	-10%
Kern COG	-5%	-10%
San Joaquin COG	-5%	-10%
Fresno COG	-5%	-10%

Table 7-1 Existing SB 375 GHG Emission Reduction Targets

	Existing GHG Targets[1] (adopted in 2010)	
MPO	**2020**	**2035**
Tulare COG	-5%	-10%
Madera CTC	-5%	-10%
Kings CAG	-5%	-10%
Merced CAG	-5%	-10%

Notes: CAG = County Association of Governments; COG = Council of Governments; CTC = County Transportation Commission; GHG = greenhouse gas; MTC/ABAG = Metropolitan Transportation Commission/Association of Bay Area Governments; MPO = Metropolitan Planning Organization; SACOG = Sacramento Area Council of Governments; SANDAG = San Diego Association of Governments; SCAG = Southern California Association of Governments; RTA = Regional Transportation Agency.
[1]Targets are expressed as percent change in per capita GHG emissions relative to 2005 levels for each region.

Alternative 2 Discussion

i) Objectives

Alternative 2 would not meet the project's objectives of updating targets to reflect the latest information on State GHG-reduction measures and technical data, tools, and methods (Objective 1), would not foster increased co-benefits relative to existing conditions, and would not encourage further innovation, action, and planning toward more sustainable communities compared to existing conditions (Objective 2). Most importantly, considering more stringent VMT per capita reductions needed to achieve the 2030 GHG emissions limit as codified in SB 32 and detailed in the 2017 Scoping Plan Update, Alternative 2 would not be consistent with Objective 3 (helping to attain SB 32 GHG targets).

ii) Environmental Impacts

Alternative 2 would result in compliance responses to achieve the existing regional GHG targets that are ongoing or already implemented. Direct and indirect environmental impacts associated with implementation of these measures were analyzed in the 2010 Functional Equivalent Document (FED). Further, Alternative 2 would result in potential adverse environmental impacts that are similar to those described in Chapter 4 of the ~~Draft~~ Final EA, but to a lesser degree because emissions reduction targets and actions needed to achieve them would not be as stringent as proposed for the Target Update. Potential impacts include those resulting from short-term construction and long-term operational impacts that may occur as a result of activities carried out in response to regulations or programs enacted to implement the recommended targets. As described in Chapter 4, the resource areas affected include: aesthetics; agricultural and forest resources; air quality; biological resources; cultural resources; geology, seismicity, and soils; greenhouse gases; hazards and hazardous materials; hydrology and water quality; noise; population and housing; public services; transportation and traffic; and utilities and service systems.

Alternative 3: Adoption of MPO Target Recommendations Alternative

Alternative 3 Description

Alternative 3 includes accepting the MPO's target recommendations, which in aggregate are less stringent than the proposed Updated Targets. SB 375 allows each MPO to provide a target recommendation to CARB based on region-specific technical information. Each MPO's target recommendation is described in detail in Appendices A and B of the Draft and Final Staff Report. CARB staff have been engaged in a multi-year dialogue with each of the 18 MPOs to understand what GHG emissions reduction strategies their regions are undertaking. According to the information submitted by the MPOs, many MPOs would look to pursue additional strategies, such as increased funding for transit and active transportation, that foster additional co-benefits; they would pursue cutting-edge strategies not included in prior SCSs, such as funding for innovative mobility solutions like on-demand ride sourcing services for rural areas; and the recommended targets could be achieved through financially constrained, enforceable SCSs.

Alternative 3 Discussion

i. Objectives

Alternative 3 would meet the project's objectives of updating targets to reflect the latest information on State GHG-reduction measures and technical data, tools, and methods (Objective 1)~~,~~. Alternative 3 ~~and~~ would also help foster increased co-benefits relative to existing conditions, as well as encourage further innovation, action, and planning toward more sustainable communities compared to existing conditions (Objective 2), but not to the same extent as the proposed project, which includes the provision that MPOs verify that their next SCS contain new or enhanced land use and transportation strategies compared to the previous SCS. Most importantly, considering more stringent VMT per capita reductions needed to achieve the 2030 GHG emissions limit as codified in SB 32 and detailed in the 2017 Scoping Plan Update, Alternative 3 does not ~~provide~~ promote appreciable change in GHG emission reductions directly from new or enhanced transportation and land use strategies compared to commitments under currently adopted SCSs and the ~~proposed~~ 2017 Scoping Plan Update baseline, and does not meet Objective 3 (helping to attain SB 32 GHG targets) to the same extent as the proposed targets.

ii. Environmental Impacts

Alternative 3 would result in potential adverse environmental impacts that are similar to those described in Chapter 4 of the ~~Draft~~ Final EA, but possibly to a lesser degree because emissions reduction targets and actions needed to achieve them would not be as stringent as proposed for the Target Update. Potential impacts include those resulting from short-term construction and long-term operational impacts that may occur as a result of activities carried out in response to regulations or programs enacted to

implement the recommended targets. As described in Chapter 4, the resource areas affected include: aesthetics; agricultural and forest resources; air quality; biological resources; cultural resources; geology, seismicity, and soils; greenhouse gases; hazards and hazardous materials; hydrology and water quality; noise; population and housing; public services; transportation and traffic; and utilities and service systems.

Alternative 4: Substantially More Stringent Targets Alternative

Alternative 4 Description

Alternative 4 includes a substantial increase in reduction targets for each MPO that would require further GHG emissions reductions beyond the proposed targets shown in Table 2-1 of this ~~Draft~~ Final EA. An example of substantially more stringent targets would include setting MPO 2035 targets to a level that would meet the full VMT reduction needs assumed in the 2017 Scoping Plan Update. If distributed equally by regional population, this would mean increasing staff's proposed targets by two to three percentage points for the largest four MPOs in the State, up to six percentage point increases for the eight MPOs in the Valley, and up to nine percentage point increases for the remaining MPOs. This alternative would rely on either additional new strategies, or an increase in the intensity or extent of expanded or new strategies already described under the reasonably foreseeable compliance responses discussed in this ~~Draft~~ Final EA, to meet the increased targets if feasible, or the development of an alternative planning strategy (APS).

Alternative 4 Discussion

i) Objectives

Under Alternative 4, MPOs would be required to update their RTP/SCS in a manner that would achieve more stringent targets than currently proposed under the Target Update. However, SB 375 provides that if an MPO determines that it is not feasible to achieve its target through a sustainable communities strategy (SCS), then the MPO must prepare an alternative planning strategy (APS), which is independent of the RTP. The APS must show how the targets would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies not included in the RTP.

Under Alternative 4, CARB anticipates many MPOs will prepare an APS. To date, no MPO has prepared and relied on an APS, so the impacts are unknown. By using an APS rather than an RTP/SCS, however, it would be less certain that actual gains of target increases would ever come to fruition considering:

- APSs do not appear to be subject to the same extensive and comprehensive environmental review that RTP/SCSs are, which makes it less certain that local governments and developers will be able to access the CEQA streamlining incentives created as part of SB 375 law; and

- Some new and existing incentive funding programs that support implementation of land use and transportation strategies include consistency with an RTP/SCS in their evaluation criteria, which makes it less certain that regional and local governments relying upon an APS will be able to successfully compete and implement projects.

There are many valid reasons an MPO may need to temporarily rely on an APS for one planning cycle, for example a short-term decrease in funding. This is, however, different than setting targets that ensure the majority of MPOs must rely on an APS over the long term to meet targets. If MPOs are unable to utilize RTP/SCSs, this alternative would not be consistent with Objective 2.

For these reasons, if targets were substantially more stringent than proposed levels under the Target Update, the actual gains of that increase would be less likely to ever come to fruition. In a situation where most MPOs adopt APSs, status quo development patterns could continue for the foreseeable future because the incentives designed to support SB 375 would no longer be attainable. While Alternative ~~3~~4 could appear to be consistent with ~~the requirement~~ the more ambitious VMT per capita reductions expected to be needed to achieve the 2030 GHG emissions limit as codified in SB 32 and detailed in the 2017 Scoping Plan Update ~~for more stringent reduction targets~~, the inability to utilize RTP/SCSs could hinder achievement of GHG emissions reduction goals stated in Objective 3.

It is foreseeable that CARB would engage in the exchange of information with various agencies (Objective 1) while determining the reduction targets under Alternative 4. Thus, Alternative 4 would be expected to meet this objective.

ii) Environmental Impacts

Under Alternative 4, for MPOs that would be able to achieve substantially more stringent GHG targets, there could be more individual construction projects than anticipated for the Target Update in order to meet substantially GHG emissions reductions targets. For example, substantial construction of new infrastructure could be required to support new alternative fuel technologies, increased density of infill development could bring substantial building construction, and new or expanded transit options could require construction of infrastructure and facilities. This would result in a greater magnitude to impacts such as aesthetics, air quality, biological resources, and transportation and traffic as compared to the Target Update. For instance, substantially increased reduction targets could incent suburban residents to move to urban areas to take advantage of transit opportunities and avoid extended commutes. Thus, increased density of residential dwelling units within urban areas would contribute to a greater demand on public services and would likely cause substantially worse effects on transportation and traffic. Additionally, while a substantial increase in urban densities could result in increased air emissions as vehicles (e.g., delivery trucks and transit vehicles) experience greater traffic congestion, leading to increase emissions from idling vehicles, overall per capita VMT could decrease.

For MPOs that would not be able to achieve the substantially-increased targets under Alternative 4 through preparation of an RTP/SCS, preparation of an APS could result in status quo development patterns that rely less on the mix of sustainable land use and transportation strategies than would have come to fruition under an RTP/SCS. This could result in increased land use development and transportation investments in greenfield areas or areas outside transit priority areas. Such actions could result in potentially greater magnitude of adverse environmental impacts to agriculture and forest resources, biological resources, cultural resources, air quality, hydrology and water quality, public services, utility and service systems, and traffic and transportation.

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ATTACHMENT 1: ENVIRONMENTAL AND REGULATORY SETTING

1. AESTHETICS

A. Existing Conditions

The visual character of California varies greatly related to topography and climate. The foothills form a transitional landform from the valley floor to the higher Sierra Nevada, Cascade, and Coast Ranges. The valley floor is cut by two rivers that flow west out of the Sierra Nevada and east out of the Coast Ranges. Irrigated agriculture land is the primary landscape in the Sacramento and San Joaquin Valleys, and the foothill landscape has been altered by grazing, mining, reservoir development, and residential and commercial development. The visual character of the state also varies dramatically from the north, which is dominated by forest lands, and the south, which is primarily residential and commercial development.

B. Regulatory Setting

Applicable laws and regulations associated with aesthetics and scenic resources are discussed in Table 1.

Table 1: Applicable Laws and Regulations for Aesthetic Resources

Applicable Regulations	Description
Federal	
Federal Land Policy and Management Act of 1976 (FLPMA)	FLPMA is the enabling legislation establishing the Bureau of Land Management's (BLM's) responsibilities for lands under its jurisdiction. Section 102 (a) of the FLPMA states that "…the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values…" Section 103(c) identifies "scenic values" as one of the resources for which public land should be managed.
BLM Contrast Rating System	The contrast rating system is a systematic process used by BLM to analyze visual impacts of proposed projects and activities. It is primarily intended to assist BLM personnel in the resolution of visual impact assessment.
Natural Historic Preservation Act (NHPA)	Under regulations of the NHPA, visual impacts to a listed or eligible National Register property that may diminish the integrity of the property's "setting … [or] … feeling" in a way that affects the property's eligibility for listing may result in a potentially significant adverse effect. "Examples of adverse effects … include…: Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features." (Title 36 Code of Federal Regulations (CFR) Part 800.5)
National Scenic Byways Program	Title 23, Sec 162 outlines the National Scenic Byways Program. This program is used to recognize roads having

Table 1: Applicable Laws and Regulations for Aesthetic Resources	
Applicable Regulations	**Description**
	outstanding scenic, historic, cultural, natural, recreational, and archaeological qualities through designation of road as: National Scenic Byways; All-American Roads; or America's Byways. Designation of the byways provides eligibility for Federal assistance for safety improvement, corridor management plans, recreation access, or other project that protect scenic, historical, recreational, cultural, natural, and archaeological resources.
State	
Ambient Air Quality Standard for Visibility-Reducing Particles	Extinction coefficient (measure of absorption of light in a medium) of 0.23 per kilometer — visibility of 10 miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.
California Public Resources Code, Section 21099(d)	Aesthetics and parking impacts of certain projects on infill sites within a transit priority area are not considered significant environmental impacts.
California Streets and Highway Code, Section 260 through 263 – Scenic Highways	The State Scenic Highway Program promotes protection of designated State scenic highways through certification and adoption of local scenic corridor protection programs that conform to requirements of the California Scenic Highway Program.
Local	
County and City Controls	Most local planning guidelines to preserve and enhance the visual quality and aesthetic resources of urban and natural areas are established in the jurisdiction's general plan. The value attributed to a visual resource generally 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. In addition to federal and State designations, counties and cities have their own scenic highway designations, which are intended to preserve and enhance existing scenic resources. Criteria for designation are commonly included in the conservation/open space element of the city or county general plan.

2. AGRICULTURAL AND FOREST RESOURCES

A. Existing Conditions

1. Agricultural Resources

The State of California maps and classifies farmland through the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). Classifications are based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. The classifications under the FMMP are as follows:

- Prime Farmland—land that has the best combination of features for the production of agricultural crops;
- Farmland of Statewide Importance—land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops, but that has more limitations than Prime Farmland, such as greater slopes or less ability to store soil moisture;
- Unique Farmland—land of lesser quality soils used for the production of the state's leading agricultural cash crops;
- Farmland of Local Importance—land of importance to the local agricultural economy;
- Grazing Land—existing vegetation that is suitable for grazing;
- Urban and Built-Up Land—land occupied by structures in density of at least one dwelling unit per 1.5 acres;
- Land Committed to Nonagricultural Use—vacant areas; existing land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands; and
- Other Land— land not included in any other mapping category, common examples of which include low-density rural developments, brush, timber, wetland, and vacant and nonagricultural land surrounded on all sides by urban development.

CEQA § 21095 and CEQA Guidelines Appendix G, together, define Prime, Unique, and Farmland of Statewide Importance as "Important Farmland," whose conversion may be considered significant. Local jurisdictions can further consider other classifications of farmland as important, and can also utilize an agricultural land evaluation and site assessment (LESA) model to determine farmland importance and impacts from conversion.

As of 2012, California contained 41,570 acres of Prime Farmland; 33,337 acres of Farmland of Statewide Importance; 28,725 acres of Unique Farmland; 15,168 acres of Farmland of Local Importance; and 197,866 acres of grazing land (FMMP 2012).

Williamson Act

The California Land Conservation Act of 1965--commonly referred to as the Williamson Act--enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. The Open Space Subvention Act of 1971 provided local governments an annual subvention of forgone property tax revenues from the state through the year 2009; these payments have been suspended in more recent years due to revenue shortfalls.

Of California's 58 counties, 52 have executed contracts under the Land Conservation Act Program. The 15.4 million acres reported as enrolled in Land Conservation Act contracts statewide in 2013, represents approximately 50 percent of California's farmland total of about 30 million acres, or about 31 percent of the State's privately owned land (California Department of Conservation [DOC] 2015).

2. Forestry Resources

Forestland is defined as land that can support 10 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 (Public Resources Code [PRC] 12220[g]). There are 40,233,000 acres of forested land within California including oak woodlands and conifer forests (California Department of Fish and Wildlife [CDFW] 2014a).

Timberland is privately-owned land, or land acquired for state forest purposes, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses of, at minimum, 15 cubic feet per acre (PRC 51104[g]). Forest managed for harvest is called timberland, and includes 2,932,000 acres in private ownership, 146,000 acres in State ownership, 10,130,000 acres in federal ownership, and 4,551,000 acres of non-industrial timberland in private ownership (CDFW 2014a).

B. Regulatory Setting

Table 2 below provides a general description of applicable laws and regulations that may pertain to agriculture and forest resources.

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources

Applicable Regulations	Description
Federal	
Farmland Protection Policy Act (FPPA)	FPPA directs federal agencies to consider the effects of federal programs or activities on farmland, and ensure that such programs, to the extent practicable, are compatible with state, local, and private farmland protection programs, and

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources	
Applicable Regulations	**Description**
	policies. The rating process established under the FPPA was developed to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.
National Forest Management Act (NFMA) of 1976	NFMA is the primary statute governing the administration of national forests. The act requires the Secretary of Agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System. Goal 4 of the U.S. Forest Service's (USFS) National Strategic Plan for the National Forests states that the nation's forests and grasslands play a significant role in meeting America's need for producing and transmitting energy. Unless otherwise restricted, National Forest Service lands are available for energy exploration, development, and infrastructure (e.g., well sites, pipelines, and transmission lines). However, the emphasis on non-recreational special uses, such as utility corridors, is to authorize the special uses only when they cannot be reasonably accommodated on non-National Forest Service lands.
State	
The California Land Conservation Act, also known as the Williamson Act (Government Code Section 51200)	The DOC's Division of Land Resource Protection administers the Williamson Act program, which 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 10 years. Williamson Act contracts are renewed annually for 10 years unless a party to the contract files for nonrenewal. The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a 9-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 9-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning. The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the agricultural preserve to be compatible with the agricultural, recreational, or open space use of land within the

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources	
Applicable Regulations	**Description**
	preserve and subject to contract (Government 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 Section 51238.1. Approximately 16 million acres of farmland (about 50 percent of the State's total farmland) are enrolled in the program.
California Farmland Conservancy Program (CFCP) (PRC Section 10200)	The program provides grant funding for agricultural conservation easements. Although the easements are always written to reflect the benefits of multiple resource values, there is a provision in the CFCP statute that prevents easements funded under the program from restricting husbandry practices. This provision could prevent restricting those practices to benefit other natural resources.
FMMP (Government Code Section 65570, PRC Section 612)	Under the FMMP, DOC assesses the location, quality, and quantity of agricultural lands and conversion of these lands over time. Agricultural designations include the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, and Other Land. The FMMP uses the following definitions to describe farmland types. • Prime Farmland is defined by DOC as "Land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the past four years." • Farmland of Statewide Importance is defined by DOC as "Land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops at some time during the past four years." • Unique Farmland is defined by DOC as "Lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyard as found in some climatic zones in California."
State Lands Commission Significant Land 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. These lands total more than 4 million acres and include tide and submerged lands,

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources	
Applicable Regulations	**Description**
	swamp and overflow lands, the beds of navigable waterways, and State School Lands. 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. Target Update projects located within these lands would be subject to the State Lands Commission permitting process.
Local	
Open Space Element	State law requires each city and county to adopt a general plan containing at least seven mandatory elements including an open space element. The open space element identifies open space resources in the community and strategies for protection and preservation of these resources. Agricultural and forested lands are among the land use types identified as open space in general plans.
Zoning	The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different land uses and identifies which land uses (e.g., agriculture, residential, commercial, industrial) are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities.

3. AIR QUALITY

A. Existing Conditions

Federal, State, and local governments all share responsibility for reducing air pollution. The California Air Resources Board (CARB) is California's lead air agency and controls emissions from mobile sources, fuels, and consumer products, as well as air toxics. CARB also coordinates local and regional emission reduction measures and plans that meet federal and State air quality limits. At the federal level, the U.S. Environmental Protection Agency (U.S. EPA) has oversight of State programs. In addition, U.S. EPA alone has jurisdiction to establish emission standards for certain mobile sources such as ships, trains, and airplanes.

1. Criteria Air Pollutants

Concentrations of emissions of criteria air pollutants (CAPs) are used to indicate the quality of the ambient air because these are the most prevalent air pollutants known to

be deleterious to human health. A brief description of emission sources and acute and chronic health effects associated with each CAP is provided in Table 3.

Table 3: Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO_2)	Combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/ developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at relatively high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, even at relatively low concentrations.

Sources: U.S. EPA 2011.

2. Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Anthropogenic emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. During the last 20 years, the maximum amount of ROG and NO_X over an 8-hour period decreased by 17 percent. However, most counties in California are still in nonattainment for ozone.

3. Nitrogen Dioxide

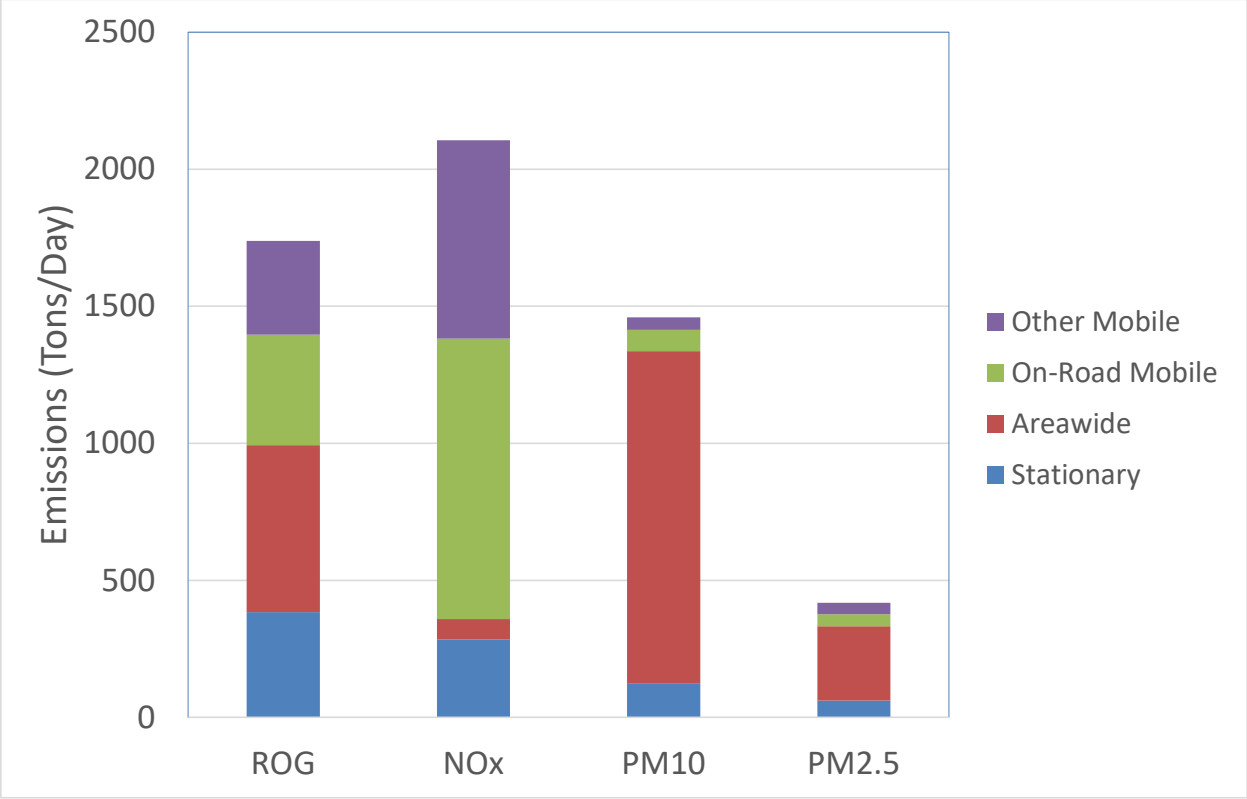
NO_2 is a brownish, highly-reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (U.S. EPA 2011).

4. Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction equipment, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2009). $PM_{2.5}$ includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in California are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} have increased slightly in California over the last 20 years, and are projected to continue to increase. $PM_{2.5}$ emissions have remained relatively steady over the last 20 years and are projected to increase slightly through 2020. Emissions of $PM_{2.5}$ are dominated by the same sources as emissions of PM_{10} (CARB 2009).

5. Emission Inventory

Exhibit 1 summarizes emissions of CAPs within California for various source categories. According to California's emission inventory, mobile sources are the largest contributor to the estimated annual average for air pollutant levels of ROG and NO_X accounting for approximately 43 percent and 83 percent, respectively, of the total emissions. Area wide sources account for approximately 83 percent and 65 percent of California's PM_{10} and $PM_{2.5}$ emissions, respectively (CARB 2013).



Source: CARB 2013

Exhibit 1 California 2012 Emission Inventory

6. Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. 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.

According to the *California Almanac of Emissions and Air Quality* (CARB 2009), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most predominant being particulate-exhaust emissions from

diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike some TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists; however, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Since 1990, the health risk associated with diesel PM has been in California has reduced by 52 percent. Overall, levels of most TACs, except paradichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2009: Chapter 5).

B. Regulatory Setting

Applicable laws and regulations associated with air quality are discussed in Table 4.

Table 4: Applicable Laws and Regulations for Air Quality

Regulation	Description
Federal	
Clean Air Act (CAA) (40 CFR)	The CAA, which was last amended in 1990, requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of NAAQS: primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly; and secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The U.S. EPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants, which are called "criteria" pollutants. Title III of the CAA directed U.S. EPA to promulgate national emissions standards for Hazardous Air Pollutants. The CAA also required U.S. EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe

Table 4: Applicable Laws and Regulations for Air Quality	
Regulation	**Description**
	ozone nonattainment conditions to further reduce mobile source emissions.
SmartWay	SmartWay is a U.S. EPA program that reduces transportation-related emissions by creating incentives to improve supply chain fuel efficiency. It aims to increase the availability and market penetration of fuel efficient technologies and strategies that help freight companies save money while also reducing adverse environmental impacts.
State	
California Clean Air Act (CCAA) CCR (Titles 13 and 17)	CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA, which was adopted in 1988, required the CARB to establish California ambient air quality standards (CAAQS).
Local	
Air Districts	Air Districts have primary responsibility for preparation, adoption, and implementation of mobile, stationary, and area emission control measures and for the preparation of state implementation plans (SIPs) and any amendments.

4. BIOLOGICAL RESOURCES

A. Existing Conditions

The state's geography and topography have created distinct local climates ranging from high rainfall in northwestern mountains to the driest place in North America, Death Valley. North to south, the state extends for almost 800 miles, bridging the temperate rainforests in the Pacific Northwest and the subtropical arid deserts of Mexico. Many parts of the state experience Mediterranean weather patterns, with cool, wet winters and hot, dry summers. Summer rain is indicative of the eastern mountains and deserts, driven by the western margin of the North American monsoon. Along the northern coast, abundant precipitation and ocean air produces foggy, moist conditions. High mountains have cooler conditions, with a deep winter snow pack in normal climate years. Desert conditions exist in the rain shadow of the mountain ranges (CDFW 2015).

While the state is largely considered to have a Mediterranean climate, it can be further subdivided into six major climate types: Desert, Marine, Cool Interior, Highland, Steppe, and Mediterranean. California deserts, such as the Mojave, are typified by a wide range of elevation with more rain and snow in the high ranges, and hot, dry conditions in valleys. Cool Interior and Highland climates can be found on the Modoc Plateau, Klamath, Cascade, and Sierra ranges. Variations in slope, elevation, and aspect of valleys and mountains result in a range of microclimates for habitats and wildlife. For example, the San Joaquin Valley, exhibiting a Mediterranean climate, receives sufficient

springtime rain to support grassland habitats, while still remaining hot and relatively dry in summer. Steppe climates include arid, shrub-dominated habitats that can be found in the Owens Valley, east of the Sierra Nevada, and San Diego, located in coastal southern California (CDFW 2015).

The Marine climate has profound influence over terrestrial climates, particularly near the coast. Additionally, the state is known for variability in precipitation because of the El Niño-Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO). Oscillations are the cyclical shifting of high and low pressure systems, as evidenced by the wave pattern of the jet stream in the northern hemisphere. The ENSO is the cycle of air pressure systems influenced by the location of warm and cold sea temperatures. El Niño events occur when waters are warmer in the eastern Pacific Ocean, typically resulting in greater precipitation in southern California and less precipitation in northern California. La Niña events occur when waters are colder in the eastern Pacific resulting in drier than normal conditions in southern California and wetter conditions in northern California during late summer and winter. The warmer ocean temperatures associated with El Niño conditions also result in decreased upwelling in the Pacific Ocean (CDFW 2015).

a) Plant Diversity

California has the highest numbers of native and endemic plant species of any state, with approximately 6,500 species, subspecies, and varieties of plants, representing 32 percent of all vascular plants in the United States. Nearly one-third of the state's plant species are endemic, and California has been recognized as one of 34 global hotspots for plant diversity. Within the California Floristic Province, which encompasses the Mediterranean area of Oregon, California, and northwestern Baja, 2,124 of the 3,488 species are endemic, representing a 61 percent rate of endemism. Over 200 species, subspecies, and varieties of native plants are designated as rare, threatened, or endangered by state law, and over 2,000 more plant taxa are considered to be of conservation concern (CDFW 2015).

b) Wildlife Diversity

California has a large number of animal species, representing a substantial proportion of the wildlife species nationwide. The state's diverse natural communities provide a wide variety of habitat conditions for wildlife. The state's wildlife species include approximately 100 reptile species, 75 amphibian species, 650 bird species, and 220 mammal species. Additionally, 48 mammals, 64 birds, 72 amphibians and reptiles, and 20 freshwater fish live in California and nowhere else (CDFW 2015).

California exhibits a wide range of aquatic habitats from the Pacific Ocean to isolated hillside seeps, to desert oases that support both water-dependent species and provide essential seasonal habitat for terrestrial species. Perennial and ephemeral rivers and streams, riparian areas, vernal pools, and coastal wetlands support a diverse array of flora and fauna, including 150 animal and 52 plant species that are designated special status species. The California Natural Diversity Database identifies 123 different aquatic habitat-types in California based on fauna. Of these, 78 are stream habitat-types located in seven major drainage systems: Klamath, Sacramento-San Joaquin, North/Central Coast, Lahontan, Death Valley, South Coast, and Colorado River. These drainage

systems are geologically separated and contain distinctive fishes and invertebrates. California has approximately 70 native resident and anadromous fish species, and 72 percent of the native freshwater fishes in California are either listed, or possible candidates for listing as threatened or endangered, or are extinct (CDFW 2015).

B. Regulatory Setting

Applicable laws and regulations associated with biological resources are discussed in Table 5.

Table 5: Applicable Laws and Regulations for Biological Resources

Applicable Law	Description
Federal	
Federal Endangered Species Act (ESA)	Designates and provides for protection of threatened and endangered plant and animal species, and their critical habitat. Two sections of the ESA address take of threatened and endangered species. Section 7 covers actions that would result in take of a federally-listed species and have a federal discretionary action. Section 10 regulates actions that would result in take of threatened or endangered species and a non-federal agency is the lead agency for the action. Section 10 of the ESA requires preparation of a habitat conservation plan (HCP). More than 430 HCPs have been approved nation-wide.
Migratory Bird Treaty Act (MBTA)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the MBTA.
Clean Water Act (CWA)	Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge from dredged or fill materials into Waters of the U.S., including wetlands. Section 401 requires a permit from a regional water quality control board (RWQCB) for the discharge of pollutants. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request State certification that the proposed activity would not violate State and federal water quality standards.
Rivers and Harbors Act of 1899	Requires permit or letter of permission from USACE prior to any work being completed within navigable waters.
U.S. EPA Section 404 (b)(1) Guidelines	Requires USACE to analyze alternatives in a sequential approach such that USACE must first consider avoidance and minimization of impacts to the extent practicable to determine whether a proposed discharge can be authorized.

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
California Desert Conservation Area Plan (CDCA)	Comprises one of two national conservation areas established by Congress in 1976. The FLPMA outlines how BLM would manage public lands. Congress specifically provided guidance for the management of the CDCA and directed the development of the 1980 CDCA Plan.
Federal Noxious Weed Act of 1974 (P.L. 93-629) (7 U.S. Code [USC]. 2801 et seq.; 88 Stat. 2148)	Establishes a federal program to control the spread of noxious weeds. Authority is given to the Secretary of Agriculture to designate plants as noxious weeds by regulation, and the movement of all such weeds in interstate or foreign commerce was prohibited except under permit.
Executive Order (EO) 13112, "Invasive Species," February 3, 1999	Federal agencies are mandated to take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause.
EO 11988, "Floodplain Management," May 24, 1977	Requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.
EO 11990, "Protection of Wetlands," May 24, 1977	Requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," January 10, 2001	Requires that each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations develop and implement a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) that shall promote the conservation of migratory bird populations.
Bald and Golden Eagle Protection Act	Declares it is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export or import a bald or golden eagle, alive or dead, or any part, nest or egg of these eagles unless authorized. Active nest sites are also protected from disturbance during the breeding season.
BLM Manual 6840 — Special Status Species Management	Establishes special status species policy on BLM land for plant and animal species and the habitats on which they depend. The policy refers to species designated by the BLM State Director as sensitive.
Listed Species Recovery Plans and Ecosystem Management Strategies	Provides guidance for the conservation and management of sufficient habitat to maintain viable populations of listed species and ecosystems. Relevant examples include, but are not limited to, the Desert Tortoise Recovery Plan,

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
	Flat-tailed Horned Lizard Rangewide Management Strategy; Amargosa Vole Recovery Plan; and Recovery Plan for Upland Species of the San Joaquin Valley.
State	
California Endangered Species Act of 1984 (Fish and Game Code sections 2050 through 2098)	Protects California's rare, threatened, and endangered species.
Natural Community Conservation Planning (NCCP) Act 1991	The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. An NCCP identifies and provides for the regional or areawide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. There are currently 23 NCCPs that have been adopted or are in progress in California (CDFW 2014b).
Porter-Cologne Water Quality Control Act	Requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards.
Wetlands Preservation (Keene-Nejedly California Wetlands Preservation Act) (PRC Section 5810 et seq.)	California has established a successful program of regional, cooperative efforts to protect, acquire, restore, preserve, and manage wetlands. These programs include, but are not limited to, the Central Valley Habitat Joint Venture, the San Francisco Bay Joint Venture, the Southern California Wetlands Recovery Project, and the Inter-Mountain West Joint Venture.
California Wilderness Preservation System (PRC Section 5093.30 et seq.)	Establishes a California wilderness preservation system that consists of State-owned areas to be administered for the use and enjoyment of the people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, provide for the protection of such areas, preserve their wilderness character, and provide for the gathering and dissemination of information regarding their use and enjoyment as wilderness.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
Protection of Birds and Nests (Fish and Game Code sections 3503 and 3503.5)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Raptors (e.g., hawks and owls) are specifically protected.
Migratory Birds (Fish and Game Code section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame birds.
Fur-bearing Mammals (Fish and Game Code sections 4000 and 4002)	Lists fur-bearing mammals which require a permit for take.
Fully Protected Species (Fish and Game Code sections 3511,4700, 5050, and 5515)	Identifies several amphibian, reptile, fish, bird, and mammal species that are Fully Protected. CDFW cannot issue a take permit for these species, except for take related to scientific research.
California Environmental Quality Act (CEQA Guidelines 15380)	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFW's Special Animals List.
Oak Woodlands (PRC Section 21083.4)	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.
Lake and Streambed Alteration Agreement (Fish and Game Code section 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFW in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.
California Desert Native Plants Act of 1981 (Food and Agricultural Code [FAC] section 80001 et seq. and Fish and Game	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
Code sections 1925-1926)	commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.
FAC Section 403	The California Department of Food and Agriculture is designated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds.
Noxious Weeds (Title 3, California Code of Regulations, Section 4500)	List of plant species that are considered noxious weeds.
Local	
Various City and County General Plans	General plans typically designate areas for land uses, guiding where new growth and development should occur while providing a plan for the comprehensive and long-range management, preservation, and conservation of and natural resources and open-space lands.
Various Local Ordinances	Local ordinances provide regulations for proposed projects for activities such as grading plans, erosion control, tree removal, protection of sensitive biological resources and open space.

5. CULTURAL RESOURCES

A. Existing Conditions

a) Prehistoric Overview

California was occupied by different prehistoric cultures dating to at least 12,000 to 13,000 years ago. Evidence for the presence of humans during the Paleoindian Period prior to about 8,000 years ago is relatively sparse and scattered throughout the State; most surface finds of fluted Clovis or Folsom projectile points or archaeological sites left by these highly mobile hunter-gatherers are associated with Pleistocene lakeshores, the Channel Islands, or the central and southern California coast (Rondeau et al. 2007). Archaeological evidence from two of the Northern Channel Islands located off the coast from Santa Barbara indicates the islands were colonized by Paleoindian peoples at least 12,000 years ago, likely via seaworthy boats (Erlandson et al. 2007). By 10,000 years ago, inhabitants of this coastal area were using fishhooks, weaving cordage and basketry, hunting marine mammals and sea birds, and producing ornamental shell beads for exchange with people living in the interior of the State (Erlandson et al. 2007). This is the best record of early maritime activity in the Americas, and combined with the fluted points, indicates California was colonized by both land and sea during the Paleoindian period (Jones and Klar 2007).

With climate changes between 10,000 and 7,000 years ago at the end of the Pleistocene and into the early Holocene, Lower Archaic peoples adjusted to the drying of pluvial lakes, rise in sea level, and substantial alterations in vegetation communities. Approximately 6,000 years ago, vegetation communities similar to those of the present were established in the majority of the state, while the changes in sea level also affected the availability of estuarine resources (Jones and Klar 2007). The archaeological record indicates subsistence patterns during the Lower Archaic and subsequent Middle Archaic Period shifted to an increased emphasis on plant resources, as evidenced by an abundance of milling implements in archaeological sites dating between 8,000 and 3,000 years ago.

Approximately 3,000 years ago, during the Upper Archaic and Late Prehistoric Periods, the complexity of the prehistoric archaeological record reflects increases in specialized adaptations to locally available resources such as acorns and salmon, in permanently occupied settlements, and in the expansion of regional populations and trade networks (Moratto 1984; Jones and Klar 2007). During the Upper Archaic, marine shell beads and obsidian continue to be the hallmark of long-distance trade and exchange networks developed during the preceding period (Hughes and Milliken 2007). Large shell middens/mounds at coastal and inland sites in central and southern California, for example, attest to the regular refuse of these locales over hundreds of years or more from the Upper Archaic into the Late Prehistoric period. In the San Francisco Bay region alone, over 500 shell mounds were documented in the early 1900s (Moratto 1984).

Changes in the technology used to pursue and process resources are some of the hallmarks of the Late Prehistoric period. These include an increase in the prevalence of mortars and pestles, a diversification in types of watercraft and fishhooks, and the earliest record for the bow and arrow in the State that occurs in both the Mojave Desert and northeast California nearly 2,000 years ago (Jones and Klar 2007). The period also witnessed the beginning of ceramic manufacture in the southeast desert region, southwest Great Basin, and parts of the Central Valley.

During the Late Prehistoric period, the development of social stratification and craft specialization accompanied the increase in sedentism, as indicated by the variety of artifacts, including bone tools, coiled and twined basketry, obsidian tools, marine shell beads, personal ornaments, pipes, and rattles, by the use of clamshell disk beads and strings of dentalium shell as a form of currency, and by variation in burial types and associated grave goods (Moratto 1984; Jones and Klar 2007). Pictographs, painted designs that are likely less than 1,000 years old, and other non-portable rock art created during this period likely had a religious or ceremonial function (Gilreath 2007). Osteological evidence points to intergroup conflict and warfare in some regions during this period (Jones and Klar 2007), and there also appears to have been a decline or disruption in the long-distance trade of obsidian and shell beads approximately 1,200 years ago in parts of the State (Hughes and Milliken 2007).

b) Ethnographic Overview

At the time of European contact, California was the home of approximately 310,000 indigenous peoples with a complex of cultures distinguished by linguistic affiliation and

territorial boundaries (Kroeber 1925; Cook 1978; Heizer 1978; Ortiz 1983; d'Azevedo 1986). At least 70 distinct native Californian cultural groups, with even more subgroups, inhabited the vast lands within the State. The groups and subgroups spoke between 74 and 90 languages, plus a large number of dialects (Shipley 1978: p. 80; University of California at Berkeley 2009-2010).

In general, these mainly sedentary, complex hunter-gatherer groups of indigenous Californians shared similar subsistence practices (hunting, fishing, and collecting plant foods), settlement patterns, technology, material culture, social organization, and religious beliefs (Kroeber 1925; Heizer 1978; Ortiz 1983; d'Azevedo 1986). Permanent villages were situated along the coast, interior waterways, and near lakes and wetlands. Population density among these groups varied, depending mainly on availability and dependability of local resources, with the highest density of people in the northwest coast and Santa Barbara Channel areas and the least in the State's desert region (Cook 1976). Networks of foot trails were used to connect groups to hunting or plant gathering areas, rock quarries, springs or other water sources, villages, ceremonial places, or distant trade networks (Heizer 1978).

The social organization of California's native peoples varied throughout the State, with villages or political units generally organized under a headman who was also the head of a lineage or extended family or achieved the position through wealth (Bean 1978). For some groups, the headman also functioned as the religious ceremonial leader. Influenced by their Northwest Coast neighbors, the differential wealth and power of individuals was the basis of social stratification and prestige between elites and commoners for the Chilula, Hupa, Karok, Tolowa, Wiyot, and Yurok in the northwest corner of the State. Socially complex groups were also located along the southern California coast where differential wealth resulted in hierarchical classes and hereditary village chiefs among the Chumash, Gabrielino, Juaneño, and Luiseño (Bean and Smith 1978; Arnold and Graesch 2004).

At the time of Spanish contact, religious practices among native Californian groups varied, but ethnographers have recognized several major religious systems (Bean and Vane 1978). Many of the groups in the north-central part of the State practiced the *Kuksu* cult, primarily a ceremonial and dance organization, with a powerful shaman as the leader. Log drums, flutes, rattles, and whistles accompanied the elaborate ceremonial dances. The World Renewal cult in the northwestern corner of the State extended as far north as Alaska and entailed a variety of annual rites to prevent natural disasters, maintained natural resources and individual health, and were funded by the wealthy class. The *Toloache* cult was widespread in central and southern California and involved the use of narcotic plant (commonly known as datura or jimsonweed) materials to facilitate the acquisition of power. On the southern coast among Takic-speaking groups, the basis of Gabrielino, Juaneño, and Luiseño religious life was the *Chinigchinich* cult, which appeared to have developed from the Toloache cult. Chinigchinich, the last of a series of heroic mythological figures, gave instruction on laws and institutions, taught people how to dance, and later withdrew into heaven where he rewarded the faithful and punished those who disobeyed his laws. The Chinigchinich

religion seems to have been relatively new when the Spanish arrived, and could have been influenced by Christianity.

Trade and exchange networks were a significant part of the economy and social organization among California's Native American groups (Heizer 1978). Obsidian, steatite, beads, acorns, baskets, animal skins, and dried fish were among the variety of traded commodities. Inland groups supplied obsidian from sources along the Sierra Nevada Mountains, in Napa Valley, and in the northeast corner of the State. Coastal groups supplied marine shell beads, ornaments, and marine mammal skins. In addition to trading specific items, clamshell disk beads made from two clam species available on the Pacific coast were widely used as a form of currency (Kroeber 1922). In northwestern California, groups used strings of dentalium shell as currency.

The effect of Spanish settlement and missionization in California marks the beginning of a devastating disruption of native culture and life ways, with forced population movements, loss of land and territory (including traditional hunting and gathering locales), enslavement, and decline in population numbers from disease, malnutrition, starvation, and violence during the historic period (Castillo 1978). In the 1830s, foreign disease epidemics swept through the densely populated Central Valley, adjacent foothills, and North Coast Ranges decimating indigenous population numbers (Cook 1978). By 1850, with their lands, resources, and way of life being overrun by the steady influx of non-native people during the Gold Rush, California's native population was reduced to about 100,000. By 1900, there were only 20,000 or less than seven percent of the pre-contact number. Existing reservations were created in California by the federal government beginning in 1858 but encompass only a fraction of native lands.

In 2004, the Native American population in California was estimated at over 383,000 (Office of Planning and Research [OPR] 2005). Although acknowledged as non-federally recognized California Native American tribes on the contact list maintained by the Native American Heritage Commission (NAHC), many groups continue to await federal tribal status recognition. As of 2005, there were 109 federally recognized tribes within the state, along with dozens of non-federally recognized tribes. Members of these tribes have specific cultural beliefs and traditions with unique connections to areas of California that are their ancestral homelands.

c) Historic Overview

Post-contact history for the State is generally divided into the Spanish period (1769–1822), Mexican period (1822–1848), and American period (1848–present). The establishment of Fort Ross by Alaska-based Russian traders also influenced post-contact history for a short period (1809–1841) in the region north of San Francisco Bay. Although there were brief visits along the Pacific coast by European explorers (Spanish, Russian, and British) between 1529 and 1769 of the territory claimed by Spain, the expeditions did not journey inland.

i) Spanish Period (1769–1822)

Spain's colonization of California began in 1769 with the overland expeditions from San Diego to San Francisco Bay by Lt. Colonel Gaspar de Portolá, and the establishment of

a mission and settlement at San Diego. Between 1769 and 1823, the Spanish and the Franciscan Order established a series of 21 missions paralleling the coast along El Camino Real between San Diego and Sonoma (Rolle 1969). Between 1769 and 1782, Spain built four presidios (San Diego, Monterey, San Francisco, and Santa Barbara) to protect the missions, and by 1871 had established two additional pueblos at Los Angeles and San José.

Under Spanish law, large tracts of land, including cattle ranches and farms, fell under the jurisdiction of the missions. Native Americans were removed from their traditional lands, converted to Christianity, concentrated at the missions, and used as labor on the mission farms and ranches (Castillo 1978). Since the mission friars had civil as well as religious authority over their converts, they held title to lands in trust for indigenous groups. The lands were to be repatriated once the native peoples learned Spanish laws and culture.

ii) Russian Period (1809–1841)

In 1809, Alaska-based Russians started exploring the northern California coast with the goal of hunting otter and seal, and feeding their Alaskan colonies. The first Russian settlement was established in 1811–1812 by the Russian–American Fur Company to protect the lucrative marine fur trade and to grow produce for their Alaskan colonies. In 1841, as a result of the decline in local sea otter population and the failure of their agricultural colony, combined with a change in international politics, the Russians withdrew from California (Schuyler 1978).

iii) Mexican Period (1822–1848)

Following independence from Spain in 1822, the economy during the Mexican period depended on the extensive rancho system, carved from the former Franciscan missions and at least 500 land grants awarded in the State's interior to Mexican citizens (Beck and Haase 1974; Staniford 1975). Captain John Sutter, who became a Mexican citizen, received the two largest land grants in the Sacramento Valley. In 1839, Sutter founded the trading and agricultural empire named New Helvetia that was headquartered at Sutter's Fort, near the confluence of the Sacramento and American Rivers in today's City of Sacramento (Hoover et al. 2002).

Following adoption of the Secularization Act of 1833, the Mexican government privatized most Franciscan lands, including holdings of their California missions. Although secularization schemes had called for redistribution of lands to Native American neophytes who were responsible for construction of the mission empire, the vast mission lands and livestock holdings were instead redistributed by the Mexican government through several hundred land grants to private, non-indigenous ranchers (Castillo 1978, Hoover et al. 2002). Most Native American converts returned to traditional lands that had not yet been colonized or found work with the large cattle ranchos being carved out of the mission lands.

iv) American Period (1848–present)

In 1848, shortly after California became a territory of the U.S. with the signing of the Treaty of Guadalupe Hidalgo ending Mexican rule, gold was discovered on the

American River at Sutter's Mill in Coloma. The resulting Gold Rush era influenced the history of the State, the nation, and the world. Thousands of people flocked to the gold fields in the Mother Lode region that stretches along the western foothills of the Sierra Nevada Mountains, and to the areas where gold was also discovered in other parts of the State, such as the Klamath and Trinity River basins (California Department of Transportation [Caltrans] 2008). In 1850, California became the 31st state, largely as a result of the Gold Rush.

d) Paleontological Setting

California's fossil record is exceptionally prolific with abundant specimens representing a diverse range of marine, lacustrine, and terrestrial organisms recovered from Precambrian rocks as old as 1 billion years to as recent as 6,000-year old Holocene deposits (refer to geologic timescale in Table 6). These fossils provide key data for charting the course of the evolution or extinction of a variety of life on the planet, both locally and internationally. Paleontological specimens also provide key evidence for interpreting paleoenvironmental conditions, sequences and timing of sedimentary deposition, and other critical components of the earth's geologic history. Fossils are considered our most significant link to the biological prehistory of the earth (Jefferson 2004).

Table 6: 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			

Because the majority of the State was underwater until the Tertiary period, marine fossils older than 65 million years are not common and are exposed mainly in the mountains along the border with Nevada and the Klamath Mountains, and Jurassic shales, sandstones, and limestones are exposed along the edges of the Central Valley, portions of the Coast, Transverse, and Peninsular Ranges, and the Mojave and Colorado deserts. Some of the oldest fossils in the State, extinct marine vertebrates called conodonts, have been identified at Anza-Borrego Desert SP in Ordovician sediments dating to circa 450 million years ago. Limestone outcrops of Pennsylvanian and Permian in the Providence Mountains SRA contain a variety of marine life, including brachiopods, fusulinids, crinoids, that lived some 300 to 250 million years ago.

Fossils from the Jurassic sedimentary layers in San Joaquin, San Luis Obispo, and Stanislaus counties include ammonites, bivalves, echinoderms, and marine reptiles, all of which were common in the coastal waters. Gymnosperms (seed-bearing plants) such as cycads, conifers, and ginkgoes are preserved in terrestrial sediments from this period, evidence that the Jurassic climate was warm and moderately wet. In the great Central Valley, marine rocks record the position of the Cretaceous shoreline as the eroded ancestral Sierra Nevada sediments were deposited east of the rising Coast Ranges and became the rock layers of the Sacramento and San Joaquin valleys. These Cretaceous sedimentary deposits have yielded abundant fossilized remains of plants, bivalves, ammonites, and marine reptiles (Paleontology Portal 2003).

Along coastal southern California where steep coastal mountains plunged into the warm Pacific Ocean an abundance of fossil marine invertebrates, such as ammonites, nautilus, and tropical snails and sea stars, have been found in today's coastal and near-coastal deposits from the Cretaceous Period. A rare armored dinosaur fossil dated to about 75 million years ago during the Cretaceous was discovered in San Diego County during a highway project. It is the most complete dinosaur skeleton ever found in California (San Diego Natural History Museum 2010). The lack of fossil remains of the majority of earth's large vertebrates, particularly terrestrial, marine, and flying reptiles (dinosaurs, ichthyosaurs, mosasaurs, pleisosaurs, and pterosaurs), as well as many species of terrestrial plants, after the end of the Cretaceous and the start of the Tertiary periods 65 million years ago (the K-T boundary) attests to their abrupt extinction.

B. Regulatory Setting

Applicable laws and regulations associated with cultural resources are discussed in Table 7.

Table 7: Applicable Laws and Regulations for Cultural Resources

Applicable Regulation	Description
Federal	
NHPA of 1966	The NHPA requires federal agencies to consider the preservation of historic and prehistoric resources. The Act authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places (NRHP), and it establishes an Advisory Council on Historic Preservation

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	(ACHP) as an independent federal entity. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the ACHP a reasonable opportunity to comment on the undertaking prior to licensing or approving the expenditure of funds on any undertaking that may affect properties listed, or eligible for listing, in the NRHP.
National Environmental Policy Act (NEPA) of 1969	NEPA requires federal agencies to foster environmental quality and preservation. Section 101(b)(4) declares that one objective of the national environmental policy is to "preserve important historic, cultural, and natural aspects of our national heritage." For major federal actions significantly affecting environmental quality, federal agencies must prepare, and make available for public comment, an environmental impact statement.
Archaeological Resources Protection Act of 1979 (NRPA)(16 USC 470aa-470II)	The NRPA requires a permit for any excavation or removal of archaeological resources from public lands or Indian lands. The statute provides both civil and criminal penalties for violation of permit requirements and for excavation or removal of protected resources without a permit.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (PL 101–601)	The NAGPRA vests ownership or control of certain human remains and cultural items excavated or discovered on federal or tribal lands, in designated Native American tribes, organizations, or groups. The NAGPRA further requires notification of the appropriate Secretary or other head of any federal agency upon the discovery of Native American cultural items on federal or tribal lands; proscribes trafficking in Native American human remains and cultural items; requires federal agencies and museums to compile an inventory of Native American human remains and associated funerary objects, and to notify affected Indian tribes of this inventory; and provides for the repatriation of Native American human remains and specified objects possessed or controlled by federal agencies or museums.
Advisory Council Regulation, Protection of Historic Properties (36 CFR 800)	Establishes procedures for compliance with Section 106 of the NHPA. These regulations define the Criteria of Adverse Effect, define the role of State Historic Preservation Officer (SHPO) in the Section 106 review process, set forth documentation requirements, and describe procedures to be followed if significant historic properties are discovered during implementation of an undertaking. Prehistoric and historic resources deemed significant (i.e., eligible for listing in the NRHP, per 36 CFR 60.4) must be considered in project planning and construction. The responsible federal agency must submit any proposed undertaking that may affect NRHP-eligible

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	properties to the SHPO for review and comment prior to project approval.
National Park Service Regulations, NRHP (36 CFR 60)	Sets forth procedures for nominating properties to the NRHP, and present the criteria to be applied in evaluating the eligibility of historic and prehistoric resources for listing in the NRHP.
Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (Federal Register [FR] 190:44716–44742)	Non-regulatory technical advice about the identification, evaluation, documentation, study, and other treatment of cultural resources. Notable in these Guidelines are the "Standards for Archaeological Documentation" (pp. 44734) and "Professional Qualifications Standards for Archaeology" (pp. 44740–44741).
American Indian Religious Freedom Act of 1978	The American Indian Religious Freedom Act pledges to protect and preserve the traditional religious rights of American Indians, Aleuts, Eskimos, and Native Hawaiians. Before the act was passed, certain federal laws interfered with the traditional religious practices of many American Indians. The Act 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.
Department of Transportation Act of 1966, Section 4(f)	Section 4(f) of the Act requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Aviation Administration (FAA) that involve the use—or interference with use—of several types of land: public park lands, recreation areas, and publicly or privately owned historic properties of federal, state, or local significance. The Section 4(f) 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, in which case the project must include all possible planning to minimize harm to any park, recreation, wildlife and waterfowl refuge, or historic site that would result from the use of such lands. If there is a feasible and prudent alternative, a proposed project using Section 4(f) lands cannot be approved by the Secretary. 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.
State	
California Health and Safety Code and California PRC	Disturbance of human remains without the authority of law is a felony (California Health and Safety Code Section 7052). According to State law (California Health and Safety Code

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	Section 7050.5, California 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 1) the coroner of the county has been informed and has determined that no investigation of the cause of death is required; 2) and if the remains are of Native American origin, and if 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 3) the Native American Heritage Commission was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the Commission. According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (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 Native American Heritage Commission, who has jurisdiction over Native American remains (California Health and Safety Code, 7052.5c; PRC, Section 5097.98).
CEQA (Guidelines Sections 15064.5 and 15380)	CEQA requires that public agencies financing or approving public or private projects must assess the effects of the project on cultural resources. Furthermore, it requires that, if a project results in significant impacts on important cultural resources, alternative plans or mitigation measures must be considered; only significant cultural resources, however, need to be addressed. Thus, prior to the development of mitigation measures, the importance of cultural resources must be determined. CEQA defines historical resources and provides guidance for determining whether a substantial adverse change in the significance of a resource. The regulations also provide guidance should any previously undiscovered archaeological resources be discovered on the project site.

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
Assembly Bill (AB) 52 (Statutes of 2014)	AB 52 recognizes that tribal sovereignty and the unique relationship of California local governments and public agencies with California Native American tribal governments, while respecting the interests and roles of project proponents. This requires specific consultation processes for project review and approval.
Local	
City/County General Plans	Policies, goals, and implementation measures in county or city general plans may contain measures applicable to cultural and paleontological resources. In addition to the enactment of local and regional preservation ordinances, CEQA requires that resources included in local registers be considered (pursuant to section 5020.1(k) of the PRC). Therefore, local county and municipal policies, procedures, and zoning ordinances must be considered in the context of project-specific undertakings. Cultural resources are generally discussed in either the open space element or the conservation element of the general plan. Many local municipalities include cultural resources preservation elements in their general plans that include some mechanism pertaining to cultural resources in those communities. In general, the sections pertaining to archaeological and historical properties are put in place to afford the cultural resources a measure of local protection. The policies outlined in the individual general plans should be consulted prior to any undertaking or project.
Cooperative Agreements Among Agencies	Cooperative agreements among land managing agencies (BLM, National Park Service [NPS], USFS, California Department of Parks and Recreation [CDPR], Bureau of Indian Affairs, Department of Defense, to name a few) the SHPO and ACHP may exist and will need to be complied with on specific projects. In addition, certain agencies have existing Programmatic Agreements requiring permits (California Public Utilities Commission [CPUC], BLM) to complete archaeological investigations and employ the Secretary of Interior's Professional Qualification Standards and Guidelines (36 CFR 61).

6. ENERGY DEMAND

A. Existing Conditions

Excluding Federal offshore areas, California ranks third in the Nation in crude oil production in 2014. California ranks third in the Nation in conventional hydroelectric

generation, second in net electricity generation from other renewable energy resources, and first as a producer of electricity from geothermal energy (in 2012). In 2012, California, left with one remaining nuclear power plant (the Diablo Canyon Nuclear Power Plant) after the San Onofre Nuclear Generating Station was permanently shut down in 2012, ranked fourteenth in net electricity generation from nuclear power plants and eighth in nuclear net summer capacity. Average site electricity consumption in California homes is among the lowest in the nation (6.9 megawatt hours per year), according to the Energy Information Administration's (U.S. EIA's) Residential Energy Consumption Survey last conducted in 2009. In 2012, California's per capita energy consumption ranked 49th in the Nation, due in part to its mild climate and energy efficiency programs (U.S. EIA 2013b).

In 2013, California's in-state electricity generation sources consisted of: 44.3 percent natural gas, 18.8 percent renewable sources, 8.8 percent nuclear, 7.8 percent large hydropower, and 7.8 percent from coal. Approximately 63 percent of total electricity generation was from in-state sources, with the remaining electricity coming from out-of-state imports from the Pacific Northwest (12 percent) and the Southwest (21 percent) (CEC 2014a).

In 2012, Californians consumed 274,449 gigawatt hours (GWh) of electricity and 12,897 million therms of natural gas, primarily in the commercial, residential, and industrial sectors. A CEC staff forecast of future energy demand shows that electricity consumption will grow by between 0.79 and 1.56 percent per year between 2014 and 2024, and natural gas consumption is expected to reach up to 12,801 million therms by 2024 for an annual average growth rate of up to 0.02 percent (CEC 2014b).

CEC is the State's primary energy policy and planning agency. Created by the Legislature in 1974, and located in Sacramento, six basic responsibilities guide CEC as it sets state energy policy: forecasting future energy needs; promoting energy efficiency and conservation by setting the State's appliance and building efficiency standards; supporting public interest energy research that advances energy science and technology through research, development and demonstration programs; developing renewable energy resources and alternative renewable energy technologies for buildings, industry and transportation; licensing thermal power plants 50 megawatts (MW) or larger; and planning for and directing state response to energy emergencies.

CPUC also plays a key role in regulating investor-owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. CPUC regulates investor-owned electric and natural gas utilities operating in California, including Pacific Gas and Electric Company, Southern California Edison, San Diego Gas and Electric Company, and Southern California Gas Company.

B. Regulatory Setting

Applicable laws and regulations associated with energy resources are discussed in Table 8.

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
Federal	
Energy Policy and Conservation Act of 1975	The Energy Policy and Conservation Act sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. From 1986 to 2012, fuel economy standards for passenger vehicles remained nearly stagnant at between 20.7 miles per gallon (mpg) for trucks and 27.5 mpg for light-duty cars. In 2010, U.S. EPA adopted new passenger vehicle standards starting with the 2012 model year that incorporates greenhouse gas (GHG) emissions standards on a vehicle-footprint basis and to accommodate the efficiencies of electric and other alternatively fueled vehicles. Additional standards for models years through 2025 were adopted in 2012. Translating the GHG standards to mpg equivalents, the projected fuel economy standard for new passenger cars and light trucks combined would increase from 30.1 to 54.5 between 2012 and 2025 model years. Until 2010, heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds [lbs] gross vehicle weight) were not subject to fuel economy standards. In 2011, NHTSA and U.S. EPA released fuel economy standards for medium- and heavy-duty vehicles (over 8,500 lbs gross vehicle weight) for 2014 through 2018 model years. Fuel economy standards for these vehicles vary by vehicle profession and include explicit mpg goals as well as percent reduction targets. Stricter fuel economy standards for medium- and heavy-duty vehicles are expected in 2015. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, administered by U.S. EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. U.S. EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, USDOT is authorized to assess penalties for noncompliance.

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
Energy Policy Act (EPAct) of 1992	The EPAct was passed to reduce the country's dependence on foreign petroleum and improve air quality. The EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. The 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 included in the EPAct. Federal tax deductions will be 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.
EPAct of 2005	The EPAct of 2005 was signed into law on August 8, 2005. Generally, the act provides for 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 a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.
State	
Warren-Alquist State Energy Resources Conservation and Development Act of 1974	The Warren-Alquist Act is the legislation that created and gives statutory authority to CEC (formally called the State Energy Resources Conservation and Development Commission).
Integrated Energy Policy Reports (Senate Bill [SB] 1389)	SB 1389 (Bowen, Chapter 568, Statutes of 2002) requires CEC to prepare a biennial integrated energy policy report that contains an assessment of major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (PRC Section 25301[a]). CEC prepares these assessments and associated policy recommendations every 2 years, with updates in alternate years, as part of the Integrated Energy Policy Report (IEPR). Preparation of the IEPR involves close collaboration with federal, State, and local agencies and a wide variety of stakeholders in an extensive public process to identify critical energy issues and develop strategies to address those issues.
California Long-Term Energy	On September 18, 2008, CPUC adopted California's first Long Term Energy Efficiency Strategic Plan, presenting a single roadmap to achieve maximum energy savings across all major

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
Efficiency Strategic Plan	groups and sectors in California. This comprehensive plan for 2009 to 2020 is the State's first integrated framework of goals and strategies for saving energy, covering government, utility, and private sector actions, and holds energy efficiency to its role as the highest priority resource in meeting California's energy needs. The plan was updated in January 2011 to include a lighting chapter.
California Building Energy Efficiency Standards (24 CCR Part 6)	California's Building Energy Efficiency Standards conserve electricity and natural gas in new building construction and are administered by CEC. Local governments enforce the standards through local building permitting and inspections. CEC has updated these standards on a periodic basis. The new 2016 Building Energy Efficiency Standards, which take effect on January 1, 2017, are approximately 28 percent more efficient than previous standards for residential construction and 5 percent more efficient for nonresidential construction as compared to the 2013 standards.
Comprehensive Energy Efficiency Plan for Existing Buildings (AB 758)	AB 758 (Skinner, Chapter 470, Statutes 2009) requires CEC, in collaboration with CPUC and stakeholders, to develop a comprehensive program to achieve greater energy efficiency in the State's existing buildings.
California Renewable Energy Portfolio Standard (RPS) (SB X1-2 and SB 350)	In 2011, Governor Brown signed SB X1-2, which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 33 percent of their electricity supply (portfolio) from renewable sources by 2020. CPUC and CEC jointly implement the Statewide RPS program through rulemakings and monitoring the activities of electric energy utilities in the state. SB 350 (De Leon, Chapter 547, Statues of 2015) extends the RPS to 50 percent by 2030.
California Qualifying Facility and Combined Heat and Power Program Settlement	In December 2010, CPUC approved California's Qualifying Facility and Combined Heat and Power Program Settlement, which established a CHP framework for the State's investor-owned utilities. The settlement established a near-term target of 3,000 MW of CHP for entities under the jurisdiction of CPUC, although this target includes not just new CHP, but capacity from renewal of contracts due to expire in the next 3 years. CPUC has also adopted a settlement agreement that includes reforms to the Rule 21 interconnection process to provide a clear, predictable path to interconnection of distributed generation while maintaining the safety and reliability of the grid (CEC 2012).
California Strategy to Reduce Petroleum	AB 2076 (Chapter 936, Statutes of 2000) requires CEC and CARB to develop and submit to the Legislature a strategy to reduce petroleum dependence in California. The statute

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
Dependence (AB 2076)	requires the strategy to include goals for reducing the rate of growth in the demand for petroleum fuels. In addition, the strategy is required to include recommendations to increase transportation energy efficiency as well as the use of non-petroleum fuels and advanced transportation technologies including AFVs, hybrid vehicles, and high-fuel efficiency vehicles. The strategy, *Reducing California's Petroleum Dependence*, was adopted by CEC and CARB in 2003. The strategy recommends that California reduce inroad gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light-duty trucks, and sport utility vehicles; and increase the use of nonpetroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.
Alternative and Renewable Fuel and Vehicle Technology Program (AB 118)	AB 118 (Statues of 2007) created the CEC's Alternative and Renewable Fuel and Vehicle Technology Program. The statute, subsequently amended by AB 109 (Statues of 2008), authorizes CEC to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the State's climate change policies.
Alternative Fuels Plan (AB 1007)	AB 1007 requires CEC to prepare a state plan to increase the use of alternative fuels in California. Any environmental document prepared for a strategic growth plan, regional blueprint general plan, and metropolitan planning or transportation plan should include an evaluation of alternative fuels for emissions or CAPs, TACs, GHGs, water pollutants, and other harmful substances, and their impacts on petroleum consumption; set goals for increased alternative fuel use in the state for the next decades; and recommend policies to ensure the alternative fuel goals are attained, including standards on transportation fuels and vehicles, and policy mechanisms to ensure vehicles operating on alternative fuels use those fuels to the maximum extent feasible.
Bioenergy Action Plan (EO S-06-06)	EO S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. This executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
	75 percent by 2050. The Executive Order also calls for the state to meet a target for use of biomass electricity.
Governor's Low Carbon Fuel Standard (LCFS) (EO S-01-07)	EO S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of the LCFS. The EO requires LCFS to be incorporated into the State Alternative Fuels Plan required by AB 1007 and is one of the proposed discrete early action GHG reduction measures identified by CARB pursuant to the Global Warming Solutions Act (AB 32). In January 2010, the Office of Administrative Law approved the LCFS regulation.
The Sustainable Communities and Climate Protection Act of 2008 (SB 375)	SB 375 augments the existing federal requirement for metropolitan planning organizations (MPOs) to prepare regional transportation plans (RTPs) by requiring RTPs to include sustainable community strategies (SCSs). SCSs contain land use, transportation, and housing strategies to reduce vehicle miles traveled (VMT)-related GHG emissions from the automobile and light-duty truck sector. In 2010, CARB released the first round of GHG reduction targets for each of California's 18 MPOs. Strategies to reduce GHGs include incentive programs for the use of zero emission vehicles (ZEVs) and plug-in hybrid electric vehicles (PHEVs) and the construction of ZEV and PHEV infrastructure.
Local	
City/County General Plans	Many cities and counties have general plan elements and policies that specifically address energy use and conservation. Those energy conservation measures outlined in the various county and city general plans contain goals, objectives, and policies aimed at reducing energy consumption. Proponents of specific projects would be required to consult the applicable general plans and design the projects consistent with the guidelines of those general plans in which the projects are located.

7. GEOLOGY AND SOILS

A. Existing Conditions

The state's topography is highly varied and includes 1,340 miles of seacoast, as well as high mountains, inland flat valleys, and deserts. Elevations in California range from 282 feet below sea level in Death Valley to 14,494 feet at the peak of Mount Whitney. The mean elevation of California is approximately 2,900 feet. The climate of California is as highly varied as its topography. Depending on elevation, proximity to the coast, and altitude, climate types include temperate oceanic, highland, sub-arctic, Mediterranean,

steppe, and desert (U.S. Geological Survey [USGS] 1995). The average annual precipitation across all California climate types is approximately 23 inches and approximately 75 percent of the state's annual precipitation falls between November and March, primarily in the form of rain, with the exception of high mountain elevations (California Department of Water Resources [DWR] 2003). Average annual precipitation ranges from more than 100 inches in the mountainous areas within the Smith River in Del Norte County to less than 2 inches in Death Valley, illustrating the extreme differences in precipitation levels within the State (Mount 1995). Overall, northern California is wetter than southern California with the majority of the State's annual precipitation occurring in the northern coastal region.

a) Geology

Plate tectonics and climate have played major roles in forming California's dramatic landscape. California is located on the active western boundary of the North American continental plate in contact with the oceanic Pacific Plate and the Gorda Plate north of the Mendocino Triple Junction. The dynamic interactions between these three plates and California's climate are responsible for the unique topographic characteristics of California, including rugged mountain ranges, long and wide flat valleys, and dramatic coastlines. Tectonics and climate also have a large effect on the occurrence natural environmental hazards, such as earthquakes, landslides, and volcanic formations.

b) Landslides

Landsliding or mass wasting is a common erosional process in California and has played an integral part in shaping the State's landscape. Typically, landslides occur in mountainous regions of the State, but they can also occur in areas of low relief, including coastal bluffs, along river and stream banks, and inland desert areas. Landsliding is the gravity-driven downhill mass movement of soil, rock, or both and can vary considerably in size, style and rate of movement, and type depending on the climate of a region, the steepness of slopes, rock type and soil depth, and moisture regime (Harden 1997).

c) Earthquakes

Earthquakes are a common and unpredictable occurrence in California. The tectonic development of California began millions of years ago by a shift in plate tectonics that converted the passive margin of the North American plate into an active margin of compressional and translational tectonic regimes. This shift in plate tectonics continues to make California one of the most geomorphically diverse, active, and picturesque locations in the U.S. While some areas of California are more prone to earthquakes, such as northern, central, and southern coastal areas of California, all areas of California are prone to the effects of ground shaking due to earthquakes. While scientists have made substantial progress in mapping earthquake faults where earthquakes are likely to occur, and predicting the potential magnitude of an earthquake in any particular region, they have been unable to precisely predict where or when an earthquake will occur and what its magnitude will be.

d) Tsunamis

Coastal communities around the circum Pacific have long been prone to the destructive effects of tsunamis. Tsunamis are a series of long-period, high-magnitude ocean waves that are created when an outside force displaces large volumes of water. Throughout time, major subduction zone earthquakes in both the Northern and Southern Hemispheres have moved the Earth's crust at the ocean bottom sending vast amounts of waters into motion and spreading tsunami waves throughout the Pacific Ocean.

Tsunamis can also occur from subareal and submarine landslides that displace large volumes of water. Subaeral landslide-generated tsunamis can be caused by seismically generated landslides, rock falls, rock avalanches, and eruption or collapse of island or coastal volcanoes. Submarine landslide-generated tsunamis are typically caused by major earthquakes or coastal volcanic activity. In contrast to a seismically generated tsunami, seismic seiches are standing waves that are caused by seismic waves traveling through a closed (lake) or semi-enclosed (bay) body of water. Due to the long-period seismic waves that originate after an earthquake, seiches can be observed several thousand miles away from the origin of the earthquakes. Small bodies of water, including lakes and ponds, are especially vulnerable to seismic seiches.

e) Volcanoes

A volcano is an opening in the Earth's crust through which magma escapes to the surface where it is extruded as lava. Volcanism may be spectacular, involving great fountains of molten rock, or tremendous explosions that are caused by the build-up of gases within the volcano (Ritchie and Gates 2001). Some of the most active volcanic areas in California are located within the Cascade Range - a volcanic chain that is a result of compressional tectonics along the Cascadia subduction zone.

f) Active Faults

A fault is defined as a fracture or zone of closely associated fractures along rocks that on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly or by slow creep. A fault is distinguished from fractures or shears caused by landsliding or other gravity-induced surficial failures. A fault zone is a zone of related faults that commonly are braided and subparallel, but may be branching and divergent. A fault zone has significant width (with respect to the scale of the fault being considered, portrayed, or investigated), ranging from a few feet to several miles (Bryant and Hart 2007).

In the State of California, earthquake faults have been designated as being active through a process that has been described by the 1972 Alquist-Priolo Earthquake Fault Zoning Act. An active fault is defined by the State as one that has "had surface displacement within Holocene time (about the last 11,000 years)." This definition does not, of course, mean that faults lacking evidence for surface displacement within Holocene time are necessarily inactive. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity sometimes is difficult to obtain and locally may not exist.

B. Regulatory Setting

Applicable laws and regulations associated with geology and soils are discussed in Table 9.

Table 9: Applicable Laws and Regulations for Geology and Soils

Regulation	Description
Federal	
Clean Water Act (CWA) of 1972	The CWA was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters by regulating point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. This includes the creation of a system that requires states to establish discharge standards specific to water bodies (National Pollution Discharge Elimination System [NPDES]), which regulates storm water discharge from construction sites through the implementation of a Storm Water Pollution Prevention Plan (SWPPP). In California, the State's NPDES permit program is implemented and administered by the local RWCQBs.
Earthquake Hazards Reduction Act and National Earthquake Hazards Reduction Program Act	This Act established the National Earthquake Hazards Reduction Program to reduce the risks to life and property from future earthquakes. This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act by refining the description of agency responsibilities, program goals, and objectives.
State	
Seismic Hazards Mapping Act, PRC Section 2690–2699.	The Seismic Hazards Mapping Act of 1990 (PRC, Chapter 7.8, Division 2) directs the DOC Division of Mines and Geology (now called California Geological Survey [CGS]) to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. These include areas identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.
Alquist-Priolo Earthquake Fault Zoning Act	California's Alquist-Priolo Act (PRC 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The

Table 9: Applicable Laws and Regulations for Geology and Soils	
Regulation	**Description**
	Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones. 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.
California Division of Oil, Gas, and Geothermal Resources (DOGGR), PRC Section 3106.	PRC Section 3106 mandates the supervision of drilling, operation, maintenance, and abandonment of oil wells for the purpose of preventing: damage to life, health, property, and natural resources; damage to underground and surface waters suitable for irrigation or domestic use; loss of oil, gas, or reservoir energy; and damage to oil and gas deposits by infiltrating water and other causes. In addition, the DOGGR regulates drilling, production, injection, and gas storage operations in accordance with 14 CCR Chapter 4, Subchapter 1.
Landslide Hazard Identification Program, PRC Section 2687(a)	The Landslide Hazard Identification Program requires the State Geologist to prepare maps of landslide hazards within urbanizing areas. According to PRC Section 2687(a), public agencies are encouraged to use these maps for land use planning and for decisions regarding building, grading, and development permits.
California Building Standards Code (CBSC) (24 CCR)	California's minimum standards for structural design and construction are given in the CBSC (24 CCR). The CBSC is based on the Uniform Building Code (International Code Council 1997), which is used widely throughout U.S. (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC provides standards for various aspects of construction, including, but not limited to: excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance

Table 9: Applicable Laws and Regulations for Geology and Soils	
Regulation	**Description**
	with California law, proponents of specific projects would be required to comply with all provisions of the CBSC for certain aspects of design and construction.
Local	
Geotechnical Investigation	Local jurisdictions typically regulate construction activities through a process that may require the preparation of a site-specific geotechnical investigation. 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 that require design of earthworks and foundations for proposed structures will need to prepare geotechnical investigations on the physical properties of soil and rock at the site prior to project design.
Local Grading and Erosion Control Ordinances	Many counties and cities have grading and erosion control ordinances. These ordinances 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 Best Management Practices similar to those contained in a SWPPP.
City/County General Plans	Most city and county general plans include an element that covers geology and soil resources within that jurisdiction.

8. GREENHOUSE GASES

A. Existing Conditions

1. The Physical Scientific Basis of 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 earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This 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 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 (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed 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 and other anthropogenic causes of climate change together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Climate change is a global problem. GHGs are global pollutants, unlike CAPs and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent 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, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere that ultimately result in climate change is not precisely known, but is enormous; no single project alone would measurably contribute to an incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

2. Greenhouse Gas Emission Sources

GHG emissions are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural emissions sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CARB 2015b). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4 is a highly potent GHG that primarily results from escaped emissions of natural gas and from anaerobic decomposition of organic substances in agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

The potency of a GHG is defined by its global warming potential (GWP). GWP is a metric used to compare the heat-trapping abilities and atmospheric lifetimes of GHGs. GHG GWPs are expressed relative to CO_2, which has a GWP of 1.0. According to the IPPC Fifth Assessment Report, CH_4 and N_20 have a GWP of 28 and 265, respectively. HFCs and PFCs have GWPs ranging from 4 to 23,500 with SF_6 having the highest GWP.

3. Effects of Climate Change on the Environment

The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to provide the world with a scientific view on climate change and its potential effects. According to the IPCC, global average temperature is expected to increase relative to the 1986-2005 period by 0.3 to 4.8 degrees Celsius (°C) (0.5-8.6 degrees Fahrenheit [°F]) by the end of the 21st century (2081-2100), depending on future GHG emission scenarios (IPCC 2014). According to the California Natural Resources Agency (CNRA), temperatures in California are projected to increase 2.7°F above 2000 averages by 2050 and, depending on emission levels, 4.1 to 8.6°F by 2100 (CNRA 2012).

Physical conditions beyond average temperatures could be affected by the accumulation of GHG emissions. For example, changes in weather patterns resulting from increases in global average temperature are expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Based upon historical data and modeling, the DWR projects that the Sierra snowpack will decrease by 25 to 40 percent from its historic average by 2050 (DWR 2008). An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events (CNRA 2012). This scenario would place more pressure on California's levee/flood control system.

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and, assuming that sea-level changes along the California coast continue to reflect global trends, sea level along the state's coastline in 2050 could be 10-18 inches higher than in 2000, and 31-55 inches higher by the end of this century (CNRA 2012).

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2012).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also expected. These changes are expected to lead to increased frequency and intensity of large wildfires (CNRA 2012).

B. Regulatory Setting

Applicable laws and regulations specific to the reduction of GHG emissions are listed in Table 10 below. It should be noted that other laws and regulations described under Energy Demand in this Environmental Setting would also reduce GHG emissions.

Table 10: Applicable Laws and Regulations for Greenhouse Gases

Regulation	Description
Federal	
Mandatory Greenhouse Gas Reporting Rule	On September 22, 2009, U.S. EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the U.S. In general, this national reporting requirement will provide U.S. EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.
National Program to Cut Greenhouse Gas Emissions and Improve Fuel Economy for Cars and Trucks	On September 15, 2009, U.S. EPA and NHTSA proposed a new national program that would reduce GHG emissions and improve fuel efficiency for all new cars and trucks sold in the U.S. U.S. EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed CAFE standards under the Energy Policy and Conservation Act. This proposed national program would allow automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both Federal programs and the standards of California and other states. The President requested that U.S. EPA and NHTSA, on behalf of USDOT, develop, through notice and comment rulemaking, a coordinated National Program under the CAA and the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA), to reduce fuel consumption by and GHG emissions of light-duty vehicles for model years 2017-2025. U.S. EPA and NHTSA are developing the proposal based on extensive technical analyses, an examination of the factors required under the respective statutes and on discussions with individual motor vehicle manufacturers and other stakeholders. The National Program would apply to passenger cars, light-duty

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	trucks, and medium-duty passenger vehicles (light-duty vehicles) built in those model years (76 FR 48758). The first part of this program (i.e., 2012-2016) is implemented. The next part (i.e., 2017-2025) is currently in process for which CARB is proposed to accept compliance thereof as also being acceptable for California compliance, similar to what was done for the first part.
Endangerment and Cause or Contribute Findings	On December 7, 2009, U.S. EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of U.S. EPA) should regulate and develop standards for "emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change. The Administrator found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, and higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations. The Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	findings do not in and of themselves impose any emission reduction requirements but rather allow U.S. EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the USDOT.
Significant New Alternatives Policy (SNAP)	EPA's SNAP program provides an evolving list of alternatives (i.e., chemicals that may replace one that is currently in use for a specific purpose). U.S. EPA makes decisions informed by the overall understanding of the environmental and human health impacts as well as the current knowledge regarding available substitutes. Where U.S. EPA is determining whether to add a new substitute to the list, U.S. EPA compares the risk posed by the new substitute to the risks posed by other alternatives on the list and determines whether that specific new substitutes poses more risk than already-listed alternatives for the same use. Section 612 of the CAA provides that U.S. EPA must prohibit the use of a substitute where it has determined that there are other available substitutes that pose less overall risk to human health and the environment.
State	
AB 32, the California Global Warming Solutions Act, Statutes of 2006	In September 2006, former Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Reductions are being accomplished through an enforceable statewide cap on GHG emissions that began in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from substantial stationary and mobile source categories. AB 32 requires CARB to produce a Scoping Plan by January 1, 2009 and at least every 5 years afterwards that details how the state

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	will meet its GHG reduction targets. CARB adopted the first Scoping Plan in 2008, and an update to the Scoping Plan was adopted in 2013.
SB 32 and AB 197, Statutes of 2016	Governor Brown signed SB 32 (Pavley, Chapter 249, Statutes of 2016) and AB 197 (Garcia, Chapter 250, Statutes of 2016) on September 8, 2016. SB 32 establishes a statewide target of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030. This is the same target as Executive Order B-30-15 (2015). SB 32 authorizes CARB to adopt regulations to achieve the maximum technologically-feasible and cost-effective GHG reductions. AB 197 creates a legislative committee to oversee CARB and requires CARB to take specific actions when adopting plans and regulations pursuant to SB 32 related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing greenhouse gases at the local level. CARB ~~is currently preparing~~ adopted a second update to the Scoping Plan that ~~will identify~~ identified GHG reduction measures necessary to achieve the statewide 2030 target established by SB 32 on December 14, 2017.
SB 375, Statutes of 2008	SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires MPOs to adopt a SCS or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's RTP. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light-duty trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012. This bill also extends the minimum time period for the Regional Housing Needs Allocation (RHNA) cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the RTP (and associated SCS or APS); however, provisions of SB 375 would incent qualified projects that are consistent with an approved SCS

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	or APS, categorized as “transit priority projects,” by allowing projects to be streamlined under CEQA.
EO S-3-05	EO S-3-05, which was signed by former Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra’s snowpack, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing: progress made toward reaching the emission targets, impacts of global warming on California’s resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created the Climate Action Team (CAT) made up of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through state incentive and regulatory programs.
EO B-30-15	EO B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030. To accomplish this goal, State agencies are directed to take measures consistent with their existing authority to reduce GHG emissions. In addition, CARB will initiate a public process in the summer of 2015 and work closely with other state agencies to update the State’s climate change Scoping Plan. The updated Scoping Plan will provide a framework for achieving the 2030 target and will be completed and adopted by CARB in 2016. Concurrent planning efforts related to energy efficiency in existing buildings (AB 758), short-lived climate pollutants (SLCPs), sustainable freight, Greenhouse Gas Reduction Fund Investments, forest health, and others will be coordinated with, and feed into, the updated Scoping Plan.
Senate Bill 350, Clean Energy and Pollution Reduction	The Clean Energy and Pollution Reduction Act of 2015 (De León, Chapter 547, Statutes of 2015) requires the amount of electricity generated and sold to retail customers per year from eligible

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
Act of 2015, Statues of 2015	renewable energy resources be increased to 50 percent by December 31, 2030. This act also requires doubling of the energy efficiency savings in electricity and natural gas for retail customers, through energy efficiency and conservation, by December 31, 2030.
SB 605, SLCPs	SB 605 directs CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state through the following actions: (1) Complete an inventory of sources and emissions of SLCPs in the state based on available data. (2) Identify research needs to address any data gaps. (3) Identify existing and potential new control measures to reduce emissions. (4) Prioritize the development of new measures for SLCPs that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities, as identified pursuant to Section 39711. (5) Coordinate with other state agencies and districts to develop measures identified as part of the comprehensive strategy.
AB 1493, Statutes of 2002	In September 2004, CARB approved regulations to reduce GHG emissions from new motor vehicles. The Board took this action pursuant to Chapter 200, Statutes of 2002 (AB 1493, Pavley) which directed the Board to adopt regulations that achieve the maximum feasible and cost effective reduction in GHG emissions from motor vehicles. The regulations, which took effect in 2006 following an opportunity for legislative review, apply to new passenger vehicles and light-duty trucks beginning with the 2009 model year.
EO S-1-07	EO S-1-07, which was signed by former Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. It establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. This order also directed CARB to determine if this LCFS could be adopted as a discrete early action measure after meeting the mandates in AB 32. CARB adopted the LCFS on April 23, 2009.
SB 1368, Statutes of 2006	SB 1368 is the companion bill of AB 32 and was signed by former Governor Schwarzenegger in September 2006. SB 1368 requires

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	CPUC to establish a GHG emission performance standard for baseload generation from investor owned utilities by February 1, 2007. CEC must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by CPUC and CEC.
SB 1078, Statutes of 2002, SB 107, Statutes of 2006, and SBx1 2	SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In 2010, SBx1 2 was chaptered, which expanded the State's RPS to 33 percent renewable power by 2020.
SB 97, Statutes of 2007	As directed by SB 97, CNRA adopted Amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the CCR. The Amendments became effective on March 18, 2010.
EO S-13-08	Sea level rise is a foreseeable indirect environmental impact associated with climate change, largely attributable to thermal expansion of the oceans and melting polar ice. As discussed above in the environmental setting (subheading "Adaptation to Climate Change"), sea level rise presents impacts to California associated with coastal erosion, water supply, water quality, saline-sensitive species and habitat, land use compatibility, and flooding. Former Governor Arnold Schwarzenegger signed EO S-13-08 on November 14, 2008. This executive order directed the CNRA to develop the 2009 California Climate Adaptation Strategy (CNRA 2009), which summarizes the best-known science on climate change impacts in seven distinct sectors—public health, biodiversity and habitat, ocean and coastal resources, water management, agriculture, forest resources, and transportation and energy infrastructure—and provides recommendations on how to manage against those threats. This executive order also directed the OPR, in cooperation with CNRA, to provide land use planning guidance related to sea level rise and other climate change impacts by May 30, 2009, which is also provided in the 2009 California Climate Adaptation Strategy (CNRA 2009) and

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	OPR continues to further refine land use planning guidance related to climate change impacts. EO S-13-08 also directed CNRA to convene an independent panel to complete the first California Sea Level Rise Assessment Report. This report is to be completed no later than December 1, 2010. The report is intended to provide information on the following: • Relative sea level rise projections specific to California, taking into account issues such as coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; • The range of uncertainty in selected sea level rise projections; • A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and • Discussion of future research needs regarding sea level rise for California.
CARB's Landfill Methane Control Measure	The regulation requires owners and operators of certain uncontrolled municipal solid waste landfills to install gas collection and control systems, and requires existing and newly installed gas and control systems to operate in an optimal manner. The regulation allows local air districts to voluntarily enter into agreements with CARB to implement and enforce the regulation and to assess fees to cover costs. Some local air districts have also adopted rules to implement federal standards for the installation of gas collection and control systems.
AB 341, Statutes of 2011	AB 341 (Chesbro, Chapter 476, Statutes of 2011) established a State target to reduce the amount of solid waste sent to landfills by 2020 by 75 percent through recycling, composting, and source reduction practices.
AB 1826, Statutes of 2014	AB 1826 (Chesbro, Chapter 727, Statutes of 2014) requires businesses generating specified amounts of organic wastes to begin arranging for the recycling and diversion of those wastes from landfill disposal beginning in 2016.

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
Refrigerant Management Program	CARB's Refrigerant Management Program requires facilities with refrigeration systems with more than 50 lbs of high-GWP refrigerant to: conduct and report periodic leak inspections, promptly repair leaks, and keep service records on site.
Compliance Offset Protocols under the State's Cap-and-Trade Program	Compliance Offset Protocols under the State's Cap-and-Trade Program include a livestock protocol, rice cultivation protocol, and mine methane capture protocol. The protocols provide methods to quantify, report, and credit GHG emission reductions from sectors not covered by the Cap-and-Trade Program.
AB 1257, Statutes of 2013	AB 1257 directs CEC to assemble a report by November 2015 (and every four years after), in consultation with other State agencies, to identify strategies for maximizing the benefits obtained from natural gas as an energy source.
AB 1900, Statutes of 2012	AB 1900 directed CPUC to adopt natural gas constituent standards (in consultation with CARB and the Office of Environmental Health and Hazard Assessment). The legislation is also designed to streamline and standardize customer pipeline access rules, and encourage the development of statewide policies and programs to promote all sources of biomethane production and distribution.
LCFS	The LCFS requires transportation fuel providers to procure clean fuels to reduce the carbon intensity of California's fuel mix. The LCFS provides a market signal to incentivize using captured methane as a transportation fuel, among other clean fuel options.
SB 1122, Statutes 2012	SB 1122 directed CPUC to require the State's investor-owned utilities to develop and offer 10- to 20-year market-price contracts to procure an additional 250 MW of cumulative electricity generation from biogas facilities that commence operating on or after June of 2013.

9. HAZARDS AND HAZARDOUS MATERIALS

A. Existing Conditions

California Health and Safety Code (Section 25501) defines "hazardous materials" as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety

or to the environment if released into the workplace or the environment. Hazardous materials are grouped into four categories based on their characteristics: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases). A hazardous waste is any hazardous material that is finished with its intended use and is discarded. This may include items, such as spent fuels, industrial solvents and chemicals, process water, and other spent materials (i.e., some types of batteries and fuel cells). California's hazardous waste regulations provides the following means to determine whether or not a waste is hazardous: (1) a list of criteria (toxic, ignitable, corrosive, and reactive) that a waste may exhibit; (2) a list of those wastes that are subject to regulation; and (3) a list of chemical names and common names that are presumed to be hazardous in California. The California Hazardous Waste Control Law recognizes more than 780 hazardous chemicals and nearly 30 additional common materials that may be hazardous. Naturally occurring asbestos (NOA) is also often found in a type of rock (serpentine) located in the California Coast Ranges and Sierra foothills.

B. Regulatory Setting

Applicable laws and regulations associated with hazards and hazardous materials are discussed in Table 11.

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials

Regulations	Description
Federal	
CWA (40 CFR 112)	The 1972 amendments to the CWA provide the statutory basis for the NPDES permit program and the basic structure for regulating the discharge of pollutants from point sources to waters of the U.S. Section 402 of the CWA specifically required U.S. EPA to develop and implement the NPDES program.
The Safe Drinking Water Act (SDWA) of 1974	The SDWA is the main federal law that ensures the quality of Americans' drinking water. Under the SDWA, U.S. EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The SDWA was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. The SDWA does not regulate private wells which serve fewer than 25 individuals.
Federal Hazardous Materials Regulations (FHMR) Title 49, Code of Federal	The regulations establish criteria for the safe transport of hazardous materials. Compliance is mandatory for intrastate and interstate transportation.

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
Regulations, Parts 100-180	
Toxic Substances Control Act (TSCA) 15 USC Section 2601 et seq.	TSCA provides U.S. EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint.
Resource Conservation and Recovery Act (RCRA) 42 USC Section 6901 et seq. (40 CFR)	The RCRA of 1976 gives U.S. EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to the RCRA enabled U.S. EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The Federal Hazardous and Solid Waste Amendments (HSWA) are the 1984 amendments to the RCRA that focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for U.S. EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program. Federal regulations adopted by U.S. EPA are found in 40 CFR.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	CERCLA, commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List (NPL). The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities. Also, Title III of SARA authorized the Emergency Planning and Community Right-to-Know Act (EPCRA).

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
EPCRA (42 USC Section 9601 et seq.)	The SARA of 1986 created EPCRA (40 CFR Parts 350-372), also known as SARA Title III, a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by state/tribe and local governments. EPCRA required the establishment of state/tribe emergency response commissions (State Emergency Response Commissions/Tribal Emergency Response Commissions [SERCs/TERCs]), responsible for coordinating certain emergency response activities and for appointing local emergency planning committees.
State	
Hazardous Materials Transportation California Vehicle Code Sections 31301-31309	Regulations pertaining to the safe transport of hazardous materials are in California Vehicle Code Sections 31301-31309. All motor carriers and drivers involved in transportation of hazardous materials must comply with the requirements contained in federal and State regulations, and must apply for and obtain a hazardous materials transportation license from the California Highway Patrol. A driver is required to obtain a hazardous materials endorsement issued by the driver's country or state of domicile to operate any commercial vehicle carrying hazardous materials. The driver is required to display placards or markings while hauling hazardous waste, unless the driver is exempt from the endorsement requirements. A driver who is a California resident is required to obtain an endorsement from the California Highway Patrol.
Hazardous Waste Control Law California Health & Safety Code, Division 20, Chapter 6.5, 22 CCR, Division 4.5	California requirements and statutory responsibilities in managing hazardous waste in California – this includes the generation, transportation, storage, treatment, recycling, and disposal of hazardous waste. The statute and regulation are implemented by CalEPA Department of Toxic Substances Control (DTSC).
California Accidental Release Prevention (CalARP) Program 19 CCR Division 2, Chapter 4.5, Sections 2735-2785	The purpose of the CalARP program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
	factors present at a business and the mitigation measures that can be implemented to reduce this accident potential.
Hazardous Material Business Plan & Area Plan Program Health and Safety Code Sections 25500 – 25520 19 CCR, Division 2, Chapter 4, Article 3 & 4	The business and area plans program, relating to the handling and release or threatened release of hazardous materials, was established in California to protect the public health and safety and the environment. Basic information on the location, type, quantity, and the health risks of hazardous materials handled, used, stored, or disposed of in the state, which could be accidently released into the environment, is now available to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, and other interested persons. The information provided by business and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the workplace and environment. Certified Unified Program Agencies (CUPAs) use information collected from the Business Plan and CalARP programs to identify hazardous materials in their communities. This information provides the basis for the Area Plan and is used to determine the appropriate level of emergency planning necessary to respond to a release.
Unified Program Administration Health and Safety Code, Chapter 6.11, Sections 25404-25404.8 27 CCR, Division 1, Subdivision 4, Chapter 1, Sections 15100-15620	A CUPA, which is authorized by the Secretary of CalEPA to carry out several of the hazardous waste/hazardous materials regulatory programs administered by the State in a coordinated and consistent manner. The six hazardous waste and materials program elements covered by the CUPA include: 1) Hazardous Waste Generators 2) Underground Tanks 3) Above Ground Tanks 4) Accidental Release Program 5) Hazardous Material Release Response Plans & Spill Notification 6) Hazardous Materials Management Plans & Inventory Reporting The intent of the CUPA is to simplify the hazardous materials regulatory environment and provide a single point of contact for businesses to address inspection, permitting, billing, and enforcement issues.
Fuels and Fuel Additive Program (40 CFR 79)	U.S. EPA regulates diesel fuels under two programs; one is administered under the Office of Pollution Prevention and Toxic Substances (OPPTS) and the other is administered under the Transportation and Air Quality group. The OPPTS requires that

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
	all chemicals produced in the U.S. are registered with the TSCA. The Transportation and Air Quality group requires that any fuels sold for ground transportation purposes must be registered with U.S. EPA and the volumes reported on a quarterly basis.
Local	
Various Local Ordinances	Various ordinances and codes may be adopted at the local level to provide stricter requirements in the management of hazardous materials and waste activities within the jurisdiction.

10. HYDROLOGY AND WATER QUALITY

A. Existing Conditions

1. Surface Waters

Surface waters occur as streams, lakes, ponds, coastal waters, lagoons, estuaries, floodplains, dry lakes, desert washes, wetlands, and other collection sites. Water bodies modified or developed by man, including reservoirs and aqueducts, are also considered surface waters. Surface water resources are very diverse throughout the state, due to the high variance in tectonics, topography, geology/soils, climate, precipitation, and hydrologic conditions. Overall, California has the most diverse range of watershed conditions in the U.S., with varied climatic regimes ranging from Mediterranean climates with temperate rainforests in the north coast region to desert climates containing dry desert washes and dry lakes in the southern central region.

The average annual runoff for the State is 71 million acre-feet (DWR 2003). The state has more than 60 major stream drainages and more than 1,000 smaller, but significant drainages that drain coastal mountains and inland mountainous areas. High snowpack levels and resultant spring snowmelt yield high surface runoff and peak discharge in the Sierra Nevada and Cascade Mountains that feeds surface flows, fills reservoirs, and recharges groundwater. Federal, State, and local engineered water projects, aqueducts, canals, and reservoirs serve as the primary conduits of surface water sources to areas that have limited surface water resources. Most of the surface water storage is transported for agricultural, urban, and rural residential needs to the San Francisco Bay Area and to cities and areas extending to southern coastal California. Surface water is also transported to southern inland areas, including Owens Valley, Imperial Valley, and Central Valley areas.

2. Groundwater

The majority of runoff from snowmelt and rainfall flows down mountain streams into low gradient valleys and either percolates into the ground or is discharged to the sea. This percolating flow is stored in alluvial groundwater basins that cover approximately 40 percent of the geographic extent of the state (DWR 2003). Groundwater recharge occurs more readily in areas underlain by coarse sediments, primarily in mountain base alluvial fan settings. As a result, the majority of California's groundwater basins are located in broad alluvial valleys flanking mountain ranges, such as the Cascade Range, Coast Ranges, Transverse Ranges, and the Sierra Nevada.

There are 250 major groundwater basins that serve approximately 30 percent of California's urban, agricultural, and industrial water needs, especially in southern portion of San Francisco Bay, the Central Valley, greater Los Angeles area, and inland desert areas where surface water is limited. On average, more than 15 million acre-feet of groundwater is extracted each year in the State, of which more than 50 percent is extracted from 36 groundwater basins in the Central Valley.

3. Water Quality

Land uses have a great effect on surface water and groundwater water quality in the State of California. Water quality degradation of surface waters occurs through nonpoint- and point-source discharges of pollutants. Nonpoint-source pollution is defined as not having a discrete or discernible source and is generated from land runoff, precipitation, atmospheric deposition, seepage, and/or hydrologic modification (U.S. EPA 1993). Nonpoint-source pollution includes runoff containing pesticides, insecticides, and herbicides from agricultural areas and residential areas; acid drainage from inactive mines; bacteria and nutrients from septic systems and livestock; volatile organic compounds (VOCs) and toxic chemicals from urban runoff and industrial discharges; sediment from timber harvesting, poor road construction, improperly managed construction sites, and agricultural areas; and atmospheric deposition and hydromodification. In comparison, point-source pollution is generated from identifiable, confined, and discrete sources, such as a smokestack, sewer, pipe or culvert, or ditch. These pollutant sources are regulated by U.S. EPA and the State Water Resources Control Board (SWRCB) through RWQCBs. Many of the pollutants discharged from point-sources are the same as for nonpoint-sources, including municipal (bacteria and nutrients), agricultural (pesticides, herbicides, and insecticides), and industrial pollutants (VOCs and other toxic effluent).

B. Regulatory Setting

Applicable laws and regulations associated with hydrology, water quality, and water supply are discussed in Table 12.

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply

Regulation	Description
Federal	
National Flood Insurance Program (NFIP)	Designated floodplain mapping program, flooding and flood hazard reduction implementation, and federal subsidized flood insurance for residential and commercial property are components of the NFIP which is administered by the Federal Emergency Management Agency (FEMA).
EO 11988	Requires actions to be taken for federal activities to reduce the risks of flood losses, restore and preserve floodplains, and minimize flooding impacts to human health and safety.
CWA	Administered primarily by the EPA. Pertains to water quality standards, state responsibilities, and discharges of waste to waters of the U.S. Sections 303, 401, 402, and 404.
CWA Section 303	Defines water quality standards consisting of: 1) designated beneficial uses of a water, 2) the water quality criteria (or “objectives” in California) necessary to support the uses, and 3) an antidegradation policy that protects existing uses and high water quality. Section 303(d) requires states to identify water quality impairments where conventional control methods

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
	will not achieve compliance with the standards, and establish Total Maximum Daily Load (TMDL) programs to achieve compliance.
CWA Section 401	State certification system for federal actions which may impose conditions on a project to ensure compliance with water quality standards.
CWA Section 402	Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4) (MS4 Permit). Several of the cities and counties issue their own NPDES municipal stormwater permits for the regulations of stormwater discharges. These permits require that controls are implemented to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible, including management practices, control techniques, system design and engineering methods, and other measures as appropriate. As part of permit compliance, these permit holders have created Stormwater Management Plans for their respective locations. These plans outline the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. These requirements may include multiple measures to control pollutants in stormwater discharge. During implementation of specific projects, applicants will be required to follow the guidance contained in the Stormwater Management Plans as defined by the permit holder in that location.
CWA Section 404	Permit system for dredging or filling activity in waters of the U.S., including wetlands, and administered by USACE.
National Toxics Rule and California Toxics Rule	Applicable receiving water quality criteria promulgated by U.S. EPA for priority toxic pollutants consisting generally of trace metals, synthetic organic compounds, and pesticides.
State	
California Water Rights	The SWRCB administers review, assessment, and approval of appropriative (or priority) surface water rights permits/licenses for diversion and storage for beneficial use. Riparian water rights apply to the land and allow diversion of natural flows for beneficial uses without a permit, but users must share the resources equitably during drought. Groundwater management planning is a function of local government. Groundwater use by overlying property owners is not formally regulated, except in cases where the groundwater basin supplies are limited and uses have been adjudicated, or through appropriative procedures for groundwater transfers.

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
Public Trust Doctrine	Body of common law that requires the state to consider additional terms and conditions when issuing or reconsidering appropriative water rights to balance the use of the water for many beneficial uses irrespective of the water rights that have been established. Public trust resources have traditionally included navigation, commerce, and fishing, and have expanded over the years to include protection of fish and wildlife, and preservation goals for scientific study, scenic qualities, and open-space uses.
Porter-Cologne Water Quality Control Act and California Water Code (Title 23)	SWRCB is responsible for statewide water quality policy development and exercises the powers delegated to the State by the federal government under the CWA. Nine RWQCBs adopt and implement water quality control plans (Basin Plans) which designate beneficial uses of surface waters and groundwater aquifers, and establish numeric and narrative water quality objectives for beneficial use protection. RWQCBs issue waste discharge requirements for discharge activities to water and land, require monitoring and maintain reporting programs, and implement enforcement and compliance policies and procedures. Other state agencies with jurisdiction in water quality regulation in California include the Department of Public Health (drinking water regulations), Department of Pesticide Regulation, DTSC, CDFW, and the Office of Environmental Health and Hazard Assessment (OEHHA).
Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California	Commonly referred to as the State Implementation Policy, which provides implementation procedures for discharges of toxic pollutants to receiving waters.
Thermal Plan	The Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California was adopted by SWRCB in 1972 and amended in 1975. The Thermal Plan restricts discharges of thermal waste or elevated temperature waste to waters of the state. Generally, the Thermal Plan prohibits discharges from increasing ambient temperatures by more than 1ºF over more than 25 percent of a stream cross section, increasing ambient temperatures by more than 4ºF in any location, and prohibits discharge of waste that exceeds more than 20ºF above the ambient temperature.

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
Statewide NPDES General Permit for Stormwater Associated with Land Disturbance and Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002)	NPDES permit for stormwater and non-storm discharges from construction activity that disturbs greater than 1 acre. The general construction permit requires the preparation of a SWPPP that identifies Best Management Practices (BMPs) to be implemented to control pollution of storm water runoff. The permit specifies minimum construction BMPs based on a risk-level determination of the potential of the project site to contribute to erosion and sediment transport and sensitivity of receiving waters to sediment. While small amounts of construction-related dewatering are covered under the General Construction Permit, the RWQCB has also adopted a General Order for Dewatering and Other Low Threat Discharges to Surface Waters (General Dewatering Permit). This permit applies to various categories of dewatering activities and may apply to some construction sites, if construction of specific projects required dewatering in greater quantities than that allowed by the General Construction Permit and discharged the effluent to surface waters. The General Dewatering Permit contains waste discharge limitations and prohibitions similar to those in the General Construction Permit.
Statewide NPDES General Permit for Discharges of Stormwater Associated with Industrial Facilities (Order No. 97-003-DWQ, NPDES No. CAS000001)	NPDES permit for stormwater and non-storm discharges from types of industrial sites based on the Standard Industrial Classification. The general industrial permit requires the preparation of a SWPPP that identifies potential onsite pollutants, BMPs to be implemented, and inspection/monitoring.
SB 1168, Statutes of 2014	SB 1168 requires all groundwater basins designated as high- or medium-priority basins by DWR that are designated as basins subject to critical conditions of overdraft to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020, and requires all other groundwater basins designated as high- or medium-priority basins to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2022. This bill would require a groundwater sustainability plan to be developed and implemented to meet the sustainability goal, established as prescribed, and would require the plan to include prescribed components.
AB 1739, Statutes of 2014	AB 1739 establishes groundwater reporting requirements for a person extracting groundwater in an area within a basin that is

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
	not within the management area of a groundwater sustainability agency or a probationary basin. The bill requires the reports to be submitted to SWRCB or, in certain areas, to an entity designated as a local agency by SWRCB.
SB 1319, Statutes of 2014	SB 1319 allows SWRCB to designate a groundwater basin as a probationary basin subject to sustainable groundwater management requirements. This bill also authorizes SWRCB to develop an interim management plan in consultation with the DWR under specified conditions.
Local	
Water Agencies	Water agencies enter into contracts or agreements with the federal and state governments to protect the water supply and to ensure the lands within the agency have a dependable supply of suitable quality water to meet present and future needs.
Floodplain Management	General plans guide county land use decisions, and require the identification of water resource protection goals, objectives, and policies. Floodplain management is addressed through ordinances, land use planning, and development design review and approval. Local actions may be coordinated with FEMA for the NFIP. Typical provisions address floodplain use restrictions, flood protection requirements, allowable alteration of floodplains and stream channels, control of fill and grading activities in floodplains, and prevention of flood diversions where flows would increase flood hazards in other areas.
Drainage, Grading, and Erosion Control Ordinances	Counties regulate building activity under the federal Uniform Building Code, local ordinances, and related development design review, approval, and permitting. Local ordinances are common for water quality protection addressing drainage, stormwater management, land grading, and erosion and sedimentation control.
Environmental Health	RWQCBs generally delegate permit authority to county health departments to regulate the construction and operation/maintenance of on-site sewage disposal systems (e.g., septic systems and leach fields, cesspools).

11. LAND USE AND PLANNING

A. Existing Conditions

In California, the State Planning and Zoning Law (California Government Code section 65000 et seq.) provides the primary legal framework that cities and counties must follow in land use planning and controls. Planned land uses are designated in the city or county general plan, which serves as the comprehensive master plan for the community. Also, city and county land use and other related resource policies are defined in the General Plan. The primary land use regulatory tool provided by the California Planning and Zoning Law is the zoning ordinance adopted by each city and county. Planning and Zoning Law requirements are discussed in the regulatory setting below.

When approving land use development, cities and counties must comply with CEQA, which requires that they consider the significant environmental impacts of their actions and the adoption of all feasible mitigation measures to substantially reduce significant impacts, in the event a project causes significant or potentially significant effects on the environment. In some cases, building permits may be ministerial, and therefore exempt from CEQA, but most land use development approval actions by cities and counties require CEQA compliance.

Land use decisions in California are also be governed by state agencies such as the California Coastal Commission, California State Lands Commission, California Department of Parks and Recreation, and others, where the state has land ownership or permitting authority with respect to natural resources or other state interests.

1. RTP/SCSs

MPOs representing local and regional urban entities were established following the passage of the Federal-Aid Highway Act of 1956. The Act created the requirement for MPOs to develop RTPs to demonstrate a regional blueprint for transportation planning. In 2008, SB 375 was passed in California as a means to contribute to the goals of AB 32. To reduce VMT-related emissions of GHGs from the automobile and light-duty truck sector, SB 375 established a State requirement for federally prepared RTPs to include SCSs. CARB, the agency charged with developing reduction goals for each MPO, released the first round of targets in 2010. RTP/SCSs prepared pursuant to SB 375 contain an array of GHG-reducing land use, transportation, and housing measures to meet the targets set forth by CARB.

Examples of land use strategies include focusing urban development within the sphere of influence (SOI) through infill, multi-use, high-density residential, and transportation oriented development (TOD). MPOs develop RTP/SCSs through coordination with local jurisdictions and public outreach and input. Following the adoption of an RTP/SCS, local land use agencies have the responsibility to apply land use strategies contained in the plan; however, MPOs may direct compliance with an RTP/SCS through the allocation of federal and State transportation funding. RTP/SCSs must be updated every four years.

B. Regulatory Setting

Applicable laws and regulations associated with land use and planning are discussed in Table 13.

Table 13: Applicable Laws and Regulations for Land Use and Planning

Regulation	Description
Federal	
FLPMA	FLPMA is the principal law governing how the BLM manages public lands. FLPMA requires the BLM to manage public land resources for multiple use and sustained yield for both present and future generations. Under FLPMA, the BLM is authorized to grant rights-of-ways for generation, transmission, and distribution of electrical energy. Although local agencies do not have jurisdiction over the federal lands managed by BLM, under FLPMA and the BLM regulations at 43 CFR Part 1600, BLM must coordinate its planning efforts with state and local planning initiatives. FLPMA defines an Area of Critical Environmental Concern (ACEC) as an area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. BLM identifies, evaluates, and designates ACECs through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document and the concurrent or subsequent ACEC Management Plan. ACECs are considered land use authorization avoidance areas because they are known to contain resource values that could result in denial of applications for land uses that cannot be designed to be compatible with management objectives and prescriptions for the ACEC.
BLM Resource Management Plans	Established by FLPMA, Resource Management Plans are designed to protect present and future land uses and to identify management practices needed to achieve desired conditions within the management area covered by the Resource Management Plans. Management direction is set forth in the Resource Management Plans in the form of goals, objectives, standards, and guidelines. These, in turn, direct management actions, activities, and uses that affect land management, and water, recreation, visual, natural, and cultural resources.
NFMA	NFMA is the primary statute governing the administration of national forests. The act requires the Secretary of Agriculture to

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
	assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System. Goal 4 of the USFS's National Strategic Plan for the National Forests states that the nation's forests and grasslands play a significant role in meeting America's need for producing and transmitting energy. Unless otherwise restricted, National Forest Service lands are available for energy exploration, development, and infrastructure (e.g., well sites, pipelines, and transmission lines). However, the emphasis on non-recreational special uses, such as utility corridors, is to authorize the special uses only when they cannot be reasonably accommodated on non-National Forest Service lands.
State	
State Planning and Zoning Law	California Government Code section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of the city or county. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city or county's vision for the area. The general plan is also a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.
Subdivision Map Act (Government Code section 66410 et seq.)	In general, land cannot be divided in California without local government approval. The primary goals of the Subdivision Map Act are: (a) to encourage orderly community development by providing for the regulation and control of the design and improvements of the subdivision with a proper consideration of its relation to adjoining areas; (b) to ensure that the areas within the subdivision that are dedicated for public purposes will be properly improved by the subdivider so that they will not become an undue burden on the community; and (c) to protect the public and individual transferees from fraud and exploitation. (61 Ops. Cal.Atty. Gen. 299, 301 [1978]; 77 Ops. Cal.Atty. Gen. 185 [1994]). Dividing land for sale, lease or financing is regulated by local ordinances based on the state Subdivision Map Act (Government Code section 66410 et seq.).

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
SB 375	SB 375 augments the existing federal requirement for MPOs to develop RTPs for their respective regions. Under SB 375, MPOs must prepare an SCS to supplement their RTPs. RTP/SCSs contain land use strategies to reduce VMT-related emissions of GHGs. Following the adoption of an RTP/SCSs, land use strategies must be implemented at the local level by land use agencies.
Local	
General Plans	The most comprehensive land use planning 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 plan contains goals and policies concerning topics that are mandated by State law or which the jurisdiction has chosen to include. Required topics are: land use, circulation, housing, conservation, open space, noise, and safety. Other topics that local governments frequently choose to address are public facilities, parks and recreation, community design, or growth management, among others. City and county general plans must be consistent with each other. County general plans must cover areas not included by city general plans (i.e., unincorporated areas).
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 or county's general plan.
Zoning	The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities.
CEQA Guidelines 15332	CEQA guidelines 15332 provides for certain types of infill projects that may be determined to be categorically exempt from CEQA review by local lead agencies. Infill projects that may be exempt from environmental review under this class of categorical exemption must: be consistent with the applicable general plan and zoning designations; be within city limits and on a parcel no greater than five acres; not contain valuable

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
	habitat for any federal or state listed species; not contribute to any significant effects to traffic, noise, or air and water quality; and be adequately served by existing utilities and public services.

12. MINERAL RESOURCES

A. Existing Conditions

The CGS classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975 and assists in the designation of land containing significant aggregate resources. Mineral Resources Zones (MRZs) have been designated to indicate the significance of mineral deposits. The MRZ categories follow:

> **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 significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
>
> **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 to any other MRZ.

California ranks as 7th in the U.S. for non-fuel mineral production, accounting for approximately 3.9 percent of the nation's total. In 2011, there were approximately 700 active mineral mines that produced: sand and gravel, boron, Portland cement, crushed stone, gold, masonry cement, clays, gemstones, gypsum, salt, silver, and other minerals (Clinkenbeard and Smith 2013).

B. Regulatory Setting

Applicable laws and regulations associated with mineral resources are discussed in Table 14.

Table 14: Applicable Laws and Regulations for Mineral Resources	
Regulation	**Description**
Federal	
Mining and Mineral Policy Act	The Mining and Mineral Act of 1970 declared that the Federal Government policy is to encourage private enterprise in the

Table 14: Applicable Laws and Regulations for Mineral Resources	
Regulation	**Description**
	development of a sound and stable domestic mineral industry, domestic mineral deposits, minerals research, and methods for reclamation in the minerals industry.
State	
Surface Mining and Reclamation Act (SMARA)	The intent of SMARA of 1975 is to promote production and conservation of mineral resources, minimize environmental effects of mining, and to assure that mined lands will be reclaimed to conditions suitable for alternative uses. An important part of the SMARA legislation requires the State Geologist to classify land according to the presence or absence of significant mineral deposits. Local jurisdictions are given the authority to permit or restrict mining operations, adhering to the SMARA legislation. Classification of an area using MRZs to designate lands that contain mineral deposits are designed to protect mineral deposits from encroaching urbanization and land uses that are incompatible with mining. The MRZ classifications reflect varying degrees of mineral significance, determined by available knowledge of the presence or absence of mineral deposits as well as the economic potential of the deposits.
CBSC (24 CCR)	California's minimum standards for structural design and construction are given in the CBSC (24 CCR). CBSC is based on the Uniform Building Code (International Code Council 1997), which is used widely throughout the U.S. (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous, more detailed or more stringent regulations. CBSC provides standards for various aspects of construction, including, but not limited to, excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, proponents of specific projects would be required to comply with all provisions of CBSC for certain aspects of design and construction.
Public Resources Code Sections 2762-3	Public Resources Code Section 2762 states that the general plan must establish mineral resource management policies if the State Geologist has identified resources of statewide or regional significance within the city or county. Public Resources Code Section 2763 requires that city and county land use decisions affecting areas with minerals of regional or statewide significance be consistent with mineral

Table 14: Applicable Laws and Regulations for Mineral Resources	
Regulation	**Description**
	resource management policies in the general plan, including protection of known mineral resources.
Local	
Local Grading and Erosion Control Ordinances	Many counties and cities have grading and erosion control ordinances. These ordinances 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.
City/County General Plans	Most city and county general plans have an element that addresses management of mineral resources within that jurisdiction, in conformance with SMARA and Sections 2762-3 of the Public Resources Code.

13. NOISE

A. Existing Conditions

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Common sources of environmental noise and noise levels measured in A-weighted decibels (dBA) are presented in Table 15.

Table 15: Typical Noise Levels		
Common Outdoor Activities	**Noise Level (dBA)**	**Common Indoor Activities**
	110	Rock band
Jet flyover at 1,000 ft	100	--
Gas lawnmower at 3 ft	90	--
Diesel truck moving at 50 mph at 50 ft	80	Food blender at 3 ft, Garbage disposal at 3 ft
Noisy urban area, Gas lawnmower at 100 ft	70	Vacuum cleaner at 10 ft, Normal speech at 3 ft
Commercial area, Heavy traffic at 300 ft	60	

Table 15: Typical Noise Levels		
Common Outdoor Activities	**Noise Level (dBA)**	**Common Indoor Activities**
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large conference room (background)
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall (background)
Quiet rural nighttime	20	Broadcast/Recording Studio
	10	--
Threshold of Human Hearing	0	Threshold of Human Hearing
Notes: dBA=A-weighted decibels; ft=feet, mph=miles per hour Source: Caltrans 2009: p.2-21		

1. Sound Properties

A sound wave is initiated in a medium by a vibrating object (e.g., vocal chords, the string of a guitar, the diaphragm of a radio speaker). The wave consists of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variation cycles occurring per second is referred to as the frequency of the sound wave and is expressed in hertz.

Directly measuring sound pressure fluctuations would require the use of a very large and cumbersome range of numbers. To avoid this and have a more useable numbering system, the decibel (dB) scale was introduced. A sound level expressed in decibels is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure. For sound pressure in air, the standard reference quantity is generally considered to be 20 micropascals, which directly corresponds to the threshold of human hearing. The use of the dB is a convenient way to handle the million-fold range of sound pressures to which the human ear is sensitive. A dB is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy.

The loudness of sound perceived by the human ear depends primarily on the overall sound pressure level and frequency content of the sound source. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. The standard weighting networks are identified as A through

E. There is a strong correlation between the way humans perceive sound and dBA. For this reason, the dBA can be used to predict community response to noise from the environment, including noise from transportation and stationary sources. Sound levels expressed as dB in this section are dBA, unless noted otherwise.

Noise can be generated by a number of sources, including mobile sources (i.e., transportation) such as automobiles, trucks, and airplanes and stationary sources (i.e., non-transportation) such as construction sites, machinery, and commercial and industrial operations. As acoustic energy spreads through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Noise generated from mobile sources generally attenuate at a rate of 4.5 dB per doubling of distance. Stationary noise sources spread with more spherical dispersion patterns that attenuate at a rate of 6 to 7.5 dB per doubling of distance.

Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may additionally alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a large object (e.g., barrier, topographic features, and intervening building façades) between the source and the receptor can provide significant attenuation of noise levels at the receiver. The amount of noise level reduction (i.e., shielding) provided by a barrier primarily depends on the size of the barrier, the location of the barrier in relation to the source and receivers, and the frequency spectra of the noise. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may be used as noise barriers.

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dB with its windows closed, whereas a building constructed of a steel or concrete frame, a curtain wall or masonry exterior wall, and fixed plate glass windows of one-quarter-inch thickness typically provides an exterior-to-interior noise reduction of 30–40 dB with its windows closed (Paul S. Veneklasen & Associates 1973, cited in Caltrans 2002: pp. 7-37).

2. Common Noise Descriptors

The intensity of environmental noise fluctuates over time, and several different descriptors of time-averaged noise levels are used. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors most often in relation to the environment are defined below (Caltrans 2009).

Equivalent Noise Level (L_{eq}): The equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level).

Maximum Noise Level (L_{max}): The highest instantaneous noise level during a specified time period.

Minimum Noise Level (L_{min}): The lowest instantaneous noise level during a specified time period.

Day-Night Noise Level (L_{dn}): The 24-hour L_{eq} with a 10-dB penalty applied during the noise-sensitive hours from 10 p.m. to 7 a.m., which are typically reserved for sleeping.

Community Noise Equivalent Level (CNEL): Similar to the L_{dn} described above with an additional 5-dB penalty applied during the noise-sensitive hours from 7 p.m. to 10 p.m., which are typically reserved for relaxation, conversation, reading, and watching television.

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. A common statistical tool to measure the ambient noise level is the L_{eq} descriptor listed above, which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptors such as L_{dn} and CNEL, as defined above, and shows very good correlation with community response to noise.

3. Effects of Noise on Humans

Excessive and chronic exposure to elevated noise levels can result in auditory and non-auditory effects on humans. Auditory effects of noise on people are those related to temporary or permanent hearing loss caused by loud noises. Non-auditory effects of exposure to elevated noise levels are those related to behavioral and physiological effects. The non-auditory behavioral effects of noise on humans are associated primarily with the subjective effects of annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning. The non-auditory physiological health effects of noise on humans have been the subject of considerable research attempting to discover correlations between exposure to elevated noise levels and health problems, such as hypertension and cardiovascular disease. The mass of research infers that noise-related health issues are predominantly the result of behavioral stressors and not a direct noise-induced response. The extent to which noise contributes to non-auditory health effects remains a subject of considerable research, with no definitive conclusions.

The degree to which noise results in annoyance and interference is highly subjective and may be influenced by several non-acoustic factors. The number and effect of these non-acoustic environmental and physical factors vary depending on individual characteristics of the noise environment such as sensitivity, level of activity, location, time of day, and length of exposure. One key aspect in the prediction of human response to new noise environments is the individual level of adaptation to an existing noise environment. The greater the change in the noise levels that are attributed to a new noise source, relative to the environment an individual has become accustom to, the less tolerable the new noise source will be perceived.

With respect to how humans perceive and react to changes in noise levels, a 1-dB increase is imperceptible, a 3-dB increase is barely perceptible, a 6-dB increase is clearly noticeable, and a 10-dB increase is subjectively perceived as approximately twice as loud (Egan 2007: pp. 21). These subjective reactions to changes in noise levels was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dB, as this is the usual range of voice and interior noise levels. For these reasons, a noise level increase of 3 dB or more is typically considered substantial in terms of the degradation of the existing noise environment.

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise, and the exposure time (Caltrans 2009).

4. Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery or transient in nature, explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006; Caltrans 2004). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS

velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006). This is based on a reference value of 1micro (μ) inch/second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities could generate groundborne vibrations that potentially pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006).

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 16 describes the general human response to different levels of groundborne vibration-velocity levels.

Table 16: Human Response to Different Levels of Groundborne Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.
Source: FTA 2006: p. 7-8

5. Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to

both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship and transit lodging, and other places where low interior noise levels are essential are also considered noise-sensitive. These types of receptors are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

B. Regulatory Setting

Applicable laws and regulations associated with noise are discussed in Table 17.

Table 17: Applicable Laws and Regulations for Noise

Regulation	Description
Federal	
Federal Noise Control Act (1972) U.S. EPA (40 CFR 201-211)	This act established a requirement that all federal agencies administer their programs to promote an environment free of noise that jeopardizes public health or welfare. U.S. EPA was given the responsibility for providing information to the public regarding identifiable effects of noise on public health or 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. This act also directed that all federal agencies comply with applicable federal, state, interstate, and local noise control regulations.
Quiet Communities Act (1978)	This act promotes the development of effective state and local noise control programs, to provide funds for noise research, and to produce and disseminate educational materials to the public on the harmful effects of noise and ways to effectively control it.
14 CFR, Part 150 (FAA)	These address airport noise compatibility planning and include a system for measuring airport noise impacts and present guidelines for identifying incompatible land uses. All land uses are considered compatible with noise levels of less than 65 dBA L_{dn}. At higher noise levels, selected land uses are also deemed acceptable, depending on the nature of the use and the degree of structural noise attenuation provided.
International Standards and Recommended Practices (International Civil	This contains policies and procedures for considering environmental impacts (e.g., aircraft noise emission standards and atmospheric sound attenuation factors).

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
Aviation Organization)	
32 CFR, Part 256 (Department of Defense Air Installations Compatible Use Zones [AICUZ] Program)	AICUZ plans prepared for individual airfields are primarily intended as recommendations to local communities regarding the importance of maintaining land uses which are compatible with the noise and safety impacts of military aircraft operations.
23 CFR, Part 772, FHWA standards, policies, and procedures	FHWA standards, policies, and procedures provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways.
29 CFR, Part 1910, Section 1910.95 (U.S. Department of Labor Occupational Safety and Health Administration [OSHA])	This regulation established a standard for noise exposure in the workplace and is enforced by OSHA.
FTA Guidance	This guidance presents procedures for predicting and assessing noise and vibration impacts of proposed mass transit projects. All types of bus and rail projects are covered. Procedures for assessing noise and vibration impacts are provided for different stages of project development, from early planning before mode and alignment have been selected through preliminary engineering and final design. Both for noise and vibration, there are three levels of analysis described. The framework acts as a screening process, reserving detailed analysis for projects with the greatest potential for impacts while allowing a simpler process for projects with little or no effects. This guidance contains noise and vibration impact criteria that are used to assess the magnitude of predicted impacts. A range of mitigation is described for dealing with adverse noise and vibration impacts.
49 CFR 210 (Federal Rail Administration [FRA] Railroad Noise Emission Compliance	This section and guidance provides criteria and procedures for use in analyzing the potential noise and vibration impacts of various types of high-speed fixed guideway transportation systems.

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
Standards) and FRA Guidance (2005)	
State	
CPUC Section 21670	The State Aeronautics Act of CPUC establishes statewide requirements for airport land use compatibility planning and requires nearly every county to create an Airport Land Use Commission or other alternative.
Section 5000 et seq. (21 CCR Division 2.5, Chapter 6), California Airport Noise Regulations promulgated in accordance with the State Aeronautics Act	In Section 5006, the regulations state that: "The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a CNEL value of 65 dBA for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep, and community reaction.
24 CCR, Part 2	These establish standards governing interior noise levels that apply to all new single-family and multi-family residential units in California. These standards require that acoustical studies be performed before construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation that will limit maximum Ldn levels to 45 dBA in any habitable room.
Local	
City/County General Plan Noise Elements	Local general plans in California must include a noise element per CA Government Code Section 65302(f). The General Plan Guidelines maintained and published by OPR provide detailed guidance to local agencies on standards and methods of analysis that should be used when developing or updating a noise element. Local governments must "analyze and quantify" noise levels and the extent of noise exposure through actual measurement or the use of noise modeling. Technical data relating to mobile and point sources must be collected and synthesized into a set of noise control policies and programs that "minimizes the exposure of community residents to excessive noise." Noise level contours must be mapped and the conclusions of the element used as a basis for land use decisions. The noise element must include implementation measures and possible solutions to existing and foreseeable noise problems. Furthermore, the policies and standards must be sufficient to

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
	serve as a guideline for compliance with sound transmission control requirements. The noise element directly correlates to the land use, circulation, and housing elements. A noise element is to be used as "a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise." (OPR 2003)
City/County Noise Regulations	Most local governments in California maintain and enforce noise regulations contained in local codes and ordinances that apply to diverse types of activities in the community. These regulations may include noise standards that apply to construction activities associated with new development projects, as well as ongoing operational activities associated with existing or future land uses.

14. EMPLOYMENT, POPULATION, AND HOUSING

A. Existing Conditions

a) Population

The estimated population of California in 2016 was estimated to be approximately 39,226,000 (Department of Finance [DOF] 2016). Since California became a state in 1850, the population has been increasing rapidly. Within the first 150 years of California's statehood, the population increased from fewer than 100,000 citizens to approximately 37 million in 2000 (DOF 2013). It is expected that the population of California will reach approximately 44 million in 2030 and approximately 50 million in 2050 (DOF 2013).

b) Housing

As population within the state increases, housing distribution and household conditions are expected to evolve. Estimated housing units, households, and vacancy rates for the State of California in 2013 are shown below in Table 18. Data was derived from the 2010 Census (U.S. Census Bureau 2014).

Table 18: California Housing Profile	
Housing units, 2014	13,900,766
Homeownership rate, 2009-2013	55.3 percent
Households, 2009-2013	12,542,460
Persons per Household, 2009-2013	2.94
Housing units in Multi-units structures, 2009-2013	31 percent
Source: U.S. Census Bureau 2014	

c) Employment

In mid-2015, the civilian labor force in California was approximately 19,043,000. Of this labor force, approximately 17,484,000 people were employed and 1,195,000 were considered unemployed. The number of and the unemployment rate decreased steadily decreased in 2015 from 7.0 percent in January to 6.3 percent in June (DOF 2015).

B. Regulatory Setting

See land use planning and housing-related regulations in Section 11.0, Land Use and Planning.

15. PUBLIC SERVICES

A. Existing Conditions

1. Law Enforcement

Enforcement of environmental laws in California is the responsibility of the Attorney General's Office and the CalEPA. The Attorney General represents the people of California in civil and criminal matters before trial courts, appellate courts and the supreme courts of California and the U.S. In regards to environmental issues, the Attorney General enforces laws that safeguard the environment and natural resources in the state. Recent actions by the Attorney General related to air quality and climate change issues include: legally defending the state's clean cars law against multiple challenges, filing numerous actions against the Bush Administration regarding regulation of global warming pollution, working with local governments to ensure that land use planning processes take account of global warming, promoting renewable energy and enhanced energy efficiency in California, and working with other state leaders and agencies to implement AB 32, the Global Warming Solutions Act of 2006.

CalEPA was created in 1991 by EO. CalEPA's mission is to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality. The CalEPA is comprised of various boards, departments and offices, including: CARB, Department of Pesticide Regulation, DTSC, OEHHA, and SWRCB (including the nine RWQCBs).

California's environmental laws are enforced by State and local agencies, each charged with enforcing the laws governing a specific media such as air, water, hazardous waste, solid waste, and pesticides. Enforcement agencies for these media are as follows:

- Air: CARB (part of CalEPA) and Local Air Districts.
- Water: SWRCB (part of CalEPA), RWQCBs (part of CalEPA), local waste water officials, and the California Department of Public Health.
- Hazardous Waste: DTSC (part of CalEPA) and CUPA.
- Carcinogens/Reproductive Toxins: Prop. 65 through the OEHHA (part of CalEPA).

- Pesticides: Department of Pesticide Regulation (part of CalEPA) and County Agricultural Commissioners.

Statewide law enforcement service is provided by the California Highway Patrol, which is responsible for protecting State resources and providing crime prevention services and traffic enforcement along the State's highways and byways.

Community law enforcement service is provided by local police and sheriff agencies (i.e., cities and counties, respectively) to prevent crime, respond to emergency incidents, and provide traffic enforcement on local roadways.

2. Fire Protection and Emergency Medical Response Services

State-level fire protection and emergency response service is provided by the California Department of Forestry and Fire Protection (CAL FIRE), primarily in rural areas of the State. CAL FIRE is an emergency response and resource protection department. CAL FIRE protects lives, property and natural resources from fire, responds to emergencies of all types, and protects and preserves timberlands, wildlands, and urban forests.

Local and urban fire protection service is provided by local fire districts and/or local agencies (e.g., fire departments of cities and counties). In addition to providing fire response services most fire agencies also provide emergency medical response services (i.e., ambulance services) within their service areas.

3. Schools

Statewide, the regulation of education for youth is provided by the California Department of Education. The State Board of Education (SBE) is the governing and policy-making body of the California Department of Education. The SBE sets K-12 education policy in the areas of standards, instructional materials, assessment, and accountability. Locally, school districts are responsible for the management and development of elementary, middle, and high-school facilities.

B. Regulatory Setting

Applicable laws and regulations associated with public services are discussed in Table 19.

Table 19: Applicable Laws and Regulations for Public Services

Regulation	Description
Federal	
American with Disabilities Act	Guidelines to ensure that facilities are accessible to individuals with disabilities. Implements requirements for the design and construction of buildings.
State	

Table 19: Applicable Laws and Regulations for Public Services	
Regulation	**Description**
State Fire Responsibility Areas	Areas delineated by CAL FIRE for which the State assumes primary financial responsibility for protecting natural resources from damages of fire. Local jurisdictions are required to adopt minimum recommended requirements for road design, road identification, emergency fire suppression and fuel breaks and greenbelts. All projects within or adjacent to a State Fire Responsibility Area must meet these requirements.
State School Funding	Education Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement for any development project for the construction or reconstruction of school facilities.

16. RECREATION

A. Existing Conditions

California contains 118 state parks, nine state recreation areas, eight state forests, as well as numerous reserve, wildlife areas, and fish hatcheries. General plans for State Parks, recreation areas, and beaches are publicly available. The California Outdoor Recreation Plan and associated research provide policy guidance to all public agencies – federal, State, local, and special districts that oversee outdoor recreation on lands, facilities, and services throughout California. Agencies and departments that have involvement in recreational activities include Boating and Waterways, Fish and Wildlife, Tahoe Regional Planning Association, various conservancies, and others (California State Parks [CSP] 2008).

Recreational lands and facilities are also managed by regional and local park and recreation agencies and open space districts. City and county general plans contain recreation elements that provide framework for planning agencies to consider when projects are developed and implemented.

B. Regulatory Setting

Applicable laws and regulations associated with recreation are discussed in Table 20.

Table 20: Applicable Laws and Regulations for Recreation	
Regulation	**Description**
Federal	
FLPMA, 1976 – 43 CFR 1600	Establishes public land policy; guidelines for administration; and provides for the “multiple use” management, protection, development, and enhancement of public lands. Multiple use management, defined as “management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of

Table 20: Applicable Laws and Regulations for Recreation	
Regulation	**Description**
	the American people" with recreation identified as one of the resource values.
State	
Quimby Act	The 1975 Quimby Act authorizes cities and counties to adopt ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements.
Local	
General Plans	General plans for cities and counties contain designations for recreational areas. These are policy documents with planned land use maps and related information that are designed to give long-range guidance to those local officials making decisions affecting the growth and resources of their jurisdictions. Because of the number and variety of general plans and related local plans, they are not listed individually.

17. TRANSPORTATION, TRAFFIC, AND SHIPPING

A. Existing Conditions

Existing roadway systems in the U.S. and California generally consist of highways, freeways, arterials, local streets, and intersections/ramps. The existing average annual daily traffic (AADT) volumes on the roadway segments that comprise these systems vary considerably (i.e., from hundreds to hundreds of thousands). The level of service (LOS), a scale used to determine the operating quality of a roadway segment or intersection based on volume-to-capacity ratio (V/C) or average delay, also vary from LOS A, the best and smoothest operating conditions, to LOS F, most congested operating conditions. Other roadway and traffic volume characteristics such as roadway length, number of lanes and facility type (e.g., two-lane freeway), right-of-way width and pavement width, terrain classification (e.g., flat), percent of heavy-duty truck traffic, and accident rates (e.g., number of accidents per million vehicle miles traveled) also vary substantially depending on the location. In addition to the roadway systems, circulation networks provide additional transportation opportunities and include mass transit, airports, and non-motorized travel (e.g., pedestrian and bicycle paths).

1. RTP/SCSs

Following the passage of the Federal-Aid Highway Act, MPOs were established as collaborative agency composed of urban regional and local entities. Under the Act, MPOs must develop comprehensive RTPs that demonstrate how federal and State transportation funding will be applied to an urban region. In 2008, the State adopted SB 375, which serves to further the State GHG reduction goals of AB 32. Pursuant to SB 375, MPOs must supplement their RTPs with SCSs that address VMT-related emissions of GHGs from the automobile and light-duty truck sector. In 2008, CARB released the first round of GHG reduction targets for each MPO. Through a collaborative process with local jurisdictions and private and public stakeholders, MPOs have developed RTP/SCSs with an amalgamation of land use, transportation, and housing strategies designed to reduce GHGs associated with VMT.

Transportation strategies to reduce VMT-related GHG emissions include allocating funding for more efficient transit and roadway systems, use of Transportation Demand Management (TDM) and Transportation Systems Management (TSM), development of clean streets, and low-emission vehicle rebate programs. MPOs can directly affect transportation-related GHG emissions through funding projects based on region-specific needs. RTP/SCSs must be updated every four years.

B. Regulatory Setting

Applicable laws and regulations associated with transportation and traffic are discussed in Table 21.

Table 21: Applicable Laws and Regulations for Transportation and Traffic

Regulation	Description
Federal	
Federal-Aid Highway Act of 1962	Signed by Dwight D. Eisenhower, the Federal-Aid Highway Act granted federal funding for a national highway network. The Act resulted in the established of MPOs made up of representatives of regional and local entities. Under the Act, MPOs must develop RTPs, which allocate federal funding for transportation projects. Pursuant to the Act, RTPs must be updated every four to five years.
40 CFR, Part 77 (FAA)	Requires a determination of no hazard to air navigation for structures that will be more than 200 feet above ground level.
State	
SB 375	SB 375 supplements the requirements under the Federal-Aid Highway Act. In addition to preparing RTPs, under SB 375, MPOs must develop SCSs that address VMT-related GHG emissions and include strategies to reduce emissions. Through the RTP/SCSs, MPOs

Table 21: Applicable Laws and Regulations for Transportation and Traffic	
Regulation	**Description**
	allocate federal and State transportation funding to local and regional projects that would reduce VMT-related emissions.
California Vehicle Code (VC) Sections 353; 2500-2505; 31303-31309; 32000-32053; 32100-32109; 31600-31620; California Health and Safety Code Section 25160 et seq.	Regulates the highway transport of hazardous materials.
VC Sections 13369; 15275 and 15278	Addresses the licensing of drivers and the classification of licenses required for the operation of particular types of vehicles and also requires certificates permitting operation of vehicles transporting hazardous materials.
VC Sections 35100 et seq.; 35250 et seq.; 35400 et seq.	Specifies limits for vehicle width, height, and length.
VC Section 35780	Requires permits for any load exceeding Caltrans weight, length, or width standards on public roadways.
California Streets and Highways Code Section 117, 660-672	Requires permits for any load exceeding Caltrans weight, length, or width standards on County roads.
California Streets and Highways Code Sections 117, 660-670, 1450, 1460 et seq., and 1480 et seq.	Regulate permits from Caltrans for any roadway encroachment from facilities that require construction, maintenance, or repairs on or across State highways and County roads.
SB 1298	Signed into law on September 25, 2012 by Governor Brown, SB 1298 establishes safety and performance standards for autonomous vehicles (AVs). The bill states that operation of an AV may only occur if a licensed driver is seated in the driver's seat in case of technology failure or other emergency. The bill also contains language that ensures that AVs meet Federal Motor Vehicle Safety Standards.
CEQA [Public Resources Code CEQA Sections 21099(b)(2) and (c)(1)]	CEQA Section 21099(b)(2) states that automobile delay, as described solely by level of service or similar measures of traffic congestion are not a significant environmental impact except in certain specified locations. Section 21099(c)(1) permits OPR to establish alternative metrics for assessing traffic impacts outside transit priority areas.
Local	

Table 21: Applicable Laws and Regulations for Transportation and Traffic	
Regulation	**Description**
City/County Local General Plan Circulation Element	Local general plans in California must include a circulation element per CA Government Code Section 65302(b) that addresses the location and extent of existing or future transportation routes, terminals, major thoroughfares, and airports and ports as they relate to the land use element of a general plan. The General Plan Guidelines maintained and published by OPR provide detailed guidance to local agencies on standards and methods of analysis that should be used when developing or updating a circulation element. Local governments must coordinate with state transportation agencies to successfully integrate land use and transportation systems. During the general plan planning process, local governments must assess existing and future levels of service and develop strategies to improve or mitigate adverse conditions within a transportation system (OPR 2003).
City/County Codes	Many local governments in California maintain and enforce local codes that apply standards to transportation facilities and services.

18. UTILITIES AND SERVICE SYSTEMS

A. Existing Conditions

a) Water Supply and Distribution

The principal water supply facilities in California are operated by the USBR and DWR. In California, the Mid-Pacific Region of the U.S. Bureau of Reclamation (USBR) is responsible for the management of the Central Valley Project (CVP). The CVP serves farms, homes, and industry in California's Central Valley as well as the major urban centers in the San Francisco Bay Area. The CVP consists of 20 dams and reservoirs, 11 power plants, and 500 miles of major canals and reaches from the Cascade Mountains near Redding in the north to the Tehachapi Mountains near Bakersfield in the south. In addition to delivering water for municipal and industrial uses and the environment, the CVP produces electric power and provides flood protection, navigation, recreation, and water quality benefits (USBR 2011).

DWR is a State agency that is responsible for managing and implementing the State Water Project (SWP). The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San

Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California (DWR 2010).

Local water districts, irrigation districts, special districts, and jurisdictions (e.g., cities and counties) manage and regulate the availability of water supplies and the treatment and delivery of water to individual projects. Depending on their location and the source of their supplies, these agencies may use groundwater, surface water through specific water entitlements, or surface water delivered through the CVP or SWP. In some remote areas not served by a water supply agency, individual developments may need to rely upon the underlying groundwater basin for their water supply. In these cases, the project would be required to secure a permit from the local or State land use authority and seek approval for development of the groundwater well(s).

b) Wastewater Collection and Treatment

SWRCB is the state agency responsible for the regulation of wastewater discharges to surface waters and groundwater via land discharge. SWRCB and nine RWQCBs are responsible for development and enforcement of water quality objectives and implementation plans that protect the beneficial uses of the federal and State waters. SWRCB also administers water rights in California. RWQCBs are responsible for issuing permits or other discharge requirements to individual wastewater dischargers and for ensuring that they are meeting the requirements of the permit through monitoring and other controls.

Wastewater collection, treatment, and discharge service for developed and metropolitan areas is typically provided by local wastewater service districts or agencies that may or may not be operated by the local jurisdiction (e.g., city or county). These agencies are required to secure treatment and discharge permits for the operation of a wastewater facility from the RWQCB. Wastewater is typically collected from a specific development and conveyed through a series of large pipelines to the treatment facility where it is treated to permitted levels and discharged to surface waters or the land.

In areas that are remote or that are not served by an individual wastewater service provider, developments would be required to install an individual septic tank or other on-site wastewater treatment system. These facilities would need to be approved by the local or state land use authority and the RWQCB.

c) Electricity and Natural Gas

CPUC regulates investor-owned electric and natural gas companies located within California. The CPUC's Energy Division develops and administers energy policy and programs and monitors compliance with the adopted regulations. One-third of California's electricity and natural gas is provided by one of three companies: Pacific Gas and Electric Company, Southern California Edison, San Diego Gas and Electric Company (CPUC 2010).

Locally, energy service is provided by a public or private utility. New development projects would need to coordinate with the local service provider to ensure adequate capacity is available to serve the development.

d) Solid Waste Collection and Disposal

Statewide, the California Department of Resources Recycling and Recovery (CalRecycle), which is a department of the CNRA, is responsible for the regulation of the disposal and recycling of all solid waste generated in California. CalRecycle acts as an enforcement agency in the approval and regulation of solid waste disposal and recycling facilities. Local agencies can create local enforcement agencies and, once approved by CalRecycle, they can serve as the enforcement agency for landfills and recycling facilities with their jurisdictions.

Local agencies or private companies own and operate landfill facilities and solid waste is typically hauled to these facilities by private or public haulers. Individual projects would need to coordinate with the local service provider and landfill to determine if adequate capacity exists to serve the project.

B. Regulatory Setting

Applicable laws and regulations associated with utilities are discussed in Table 22.

Table 22: Applicable Laws and Regulations for Utilities

Regulation	Description
Federal	
Federal Power Act of 1935	In the Federal Power Act of 1935 (49 Stat. 803), created the Federal Power Commission, 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 of 1935 also amended the criteria that the commission must apply in deciding whether to license the construction and operation of new hydroelectric facilities.
Natural Gas Act (NGA) of 1938	Together with the Federal Power Act of 1935, the NGA (P.L. 75-688, 52 Stat. 821) was an essential piece of energy legislation in the first half of the 20th century. These statutes regulated interstate activities of the electric and natural gas industries, respectively. The acts are similarly structured and constitute the classic form of command-and-control regulation authorizing the federal government to enter into a regulatory compact with utilities. In short, the NGA enabled federal regulators to set prices for gas sold in interstate commerce in exchange for exclusive rights to transport the gas.
Natural Gas Policy Act (NGPA) of 1978	The NGPA granted the Federal Energy Regulatory Commission (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.
State	

Table 22: Applicable Laws and Regulations for Utilities	
Regulation	**Description**
Waste Heat and Carbon Emissions Reduction Act of 2007	The Waste Heat and Carbon Emissions Reduction Act of 2007 (AB 1613), placed requirements on CPUC, CEC, and local electric utilities to develop incentive programs and technical efficiency guidelines to encourage the installation of small CHP systems. CEC approved efficiency and certification guidelines for eligible systems under AB 1613 in January 2010, and CPUC approved standardized contracting and pricing provisions between CHP operators and the Investor Owned Utilities in November 2012.
Section 21151.9 of the PRC Section 10910 et seq. of the Water Code	Required the preparation of a water supply assessment (WSA) for large developments. These assessments are prepared by public water agencies responsible for providing service and address whether there are adequate existing and projected future water supplies to serve the proposed project. All projects that meet the qualifications for preparing a WSA must identify the water supplies and quantities that would serve the project as well as project the total water demand for the service area (including the project's water demands) by source in 5-year increments over a 20-year period. This information must include data for a normal, single-dry, and multiple-dry years. A WSA is required to be approved by the water service agency before the project can be implemented.
Local	
City/County General Plan	Local general plans in California must include a circulation element per CA Government Code Section 65302(b), which includes identification of the locations and extent of existing and proposed public utilities and facilities. The circulation element of a general plan should assess the adequacy and availability of community water, sewer, and drainage facilities and the need for expansion and improvements; trends in peak and average daily flows; the number and location of existing and proposed power plants, oil and gas pipelines, and major electric transmission lines and corridors; existing and projected capacity of treatment plants and trunk lines; and potential future development of power plants (OPR 2003).
City/County Codes and Ordinances	Most cities and counties have adopted municipal codes and ordinances that pertain to utilities and service systems. Local codes and ordinances include, but not limited to, limitations on the locations of wells, sewers, and other water-related facilities; and development standards for future utility land use projects.

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ATTACHMENT 2: IMPACTS SUMMARY TABLE

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Table 1: Summary of Impacts	
	Target Update
Aesthetics	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Agriculture & Forest Resources	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Air Quality	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Short-Term and Long-Term Odor Impacts	PSU
Biological Resources	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Cultural Resources	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Energy Demand	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	LTS
Geology and Soils	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU

Table 1: Summary of Impacts	
	Target Update
Greenhouse Gas	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	B
Hazards & Hazardous Materials	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Hydrology and Water Quality	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Land Use Planning	
Short-Term Construction-Related Impacts	May not be consistent
Long-Term Operational-Related Impacts	May not be consistent
Mineral Resources	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	LTS
Noise	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Population and Housing	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	PSU
Public Services	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	PSU

Table 1: Summary of Impacts	
	Target Update
Recreation	
Short-Term Construction-Related Impacts	LTS
Long-Term Operational-Related Impacts	LTS
Transportation/Traffic	
Short-Term Construction-Related Impacts	PSU
Long-Term Operational-Related Impacts	PSU
Utilities and Service Systems	
Short-Term Construction-Related Impacts	NA
Long-Term Operational-Related Impacts	PSU
Notes: B = Beneficial; LTS = Less than Significant; NA = Not Applicable; PSU = Potentially Significant and Unavoidable After Mitigation.	