APPENDIX G

DRAFT ENVIRONMENTAL ANALYSIS

PREPARED FOR THE PROPOSED

DRAFT COMMUNITY AIR PROTECTION BLUEPRINT

California Air Resources Board
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Attachments

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LIST OF ABBREVIATIONS

AB	Assembly Bill
ATCM	Airborne Toxic Control Measure
BACT	best available control technology
BARCT	best available retrofit control technology
BLM	U.S. Bureau of Land Management
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAPCOA	California Air Pollution Control Officers Association
CARB or Board	California Air Resources Board
Carl Moyer Program	Carl Moyer Memorial Air Quality Standards Attainment Program
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CO_2	carbon dioxide
dBA	A-weighted decibel
EA	Environmental Analysis
EMFAC	Emission FACtor
EV	electric vehicle
FCEV	fuel-cell electric vehicles
First Update	First Update to the Climate Change Scoping Plan
FTA	Federal Transit Administration
GHG	greenhouse gas
HEV	hybrid electric vehicles
ICE	internal combustion engine
in/sec	inch per second
L_{eq}	equivalent level measurements
L_{max}	maximum sound level
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_X	oxides of nitrogen

OEHHA	Office of Environmental Health Hazard Assessment
PHEV	plug-in hybrid electric vehicles
PM	fugitive particulate matter
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
Program	Community Air Protection Program
Draft Blueprint	Draft Community Air Protection Blueprint
ROG	reactive organic gases
SAE	Society of Automotive Engineers
Scoping Plan	2030 Climate Change Scoping Plan
State SIP Strategy	2016 State Strategy for the State Implementation Plan
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminants
T-BACT	best available control technology for toxic air contaminants
U.S. EPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VINs	Vehicle Identification Numbers
VMT	vehicle miles traveled
VOC	volatile organic compound

1.0 INTRODUCTION AND BACKGROUND

A. Introduction

This Draft Environmental Analysis (Draft EA) is Appendix G of the California Air Resources Board (CARB or Board) proposed Draft Community Air Protection Blueprint, also known as Draft Blueprint (i.e., the proposed project under the California Environmental Quality Act (CEQA)). The Final EA will be presented to the Board for consideration in September 2018. A detailed description of the proposal is in the "Draft Community Air Protection Blueprint", released for public comment on June 7, 2018 available at https://www.arb.ca.gov/our-work/programs/community-air-protection-program-ab617. A summary of pertinent text of the proposed Draft Blueprint is provided in Chapter 2, Project Description, of the Draft EA.

This Draft EA is intended to disclose potential environmental impacts and identify potential mitigation measures specific to the proposed Draft Blueprint. The proposed Draft Blueprint is designed to meet the requirements of Assembly Bill (AB) 617 (Statutes of 2017, Chapter 136), to serve as the structure for the Community Air Protection Program (Program), and provides a process for identifying communities with a high cumulative exposure burden, statewide strategies to reduce emissions of criteria air pollutants and toxic air contaminants (TACs), as well as criteria for development and implementation of community emission reduction programs and community air monitoring systems. These elements are designed to meet AB 617's requirements in developing a statewide strategy and air monitoring plan. As described in Chapter 4, Environmental Impacts and Mitigation Measures, of the Draft EA, potentially significant environmental effects may occur because of compliance actions taken in response to elements of the proposed Draft Blueprint. Mitigation measures are described in this Draft EA that could reduce potentially significant impacts to less-than-significant levels for individual projects, if agencies with discretionary authority adopt the mitigation measures identified to reduce proposed Draft Blueprint-related impacts. The Draft EA takes a reasonably 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, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable.

B. Background

AB 617 provides a new community-focused action framework to improve air quality, reduce exposure to criteria air pollutants and toxic air contaminants, and improve public health in communities with high cumulative exposure burden. This first-of-its-kind statewide effort includes community air monitoring and local emission reduction programs. The bill also includes new requirements for accelerated retrofit of pollution controls on industrial sources, increased penalty fees, and greater transparency and availability of community-scale air quality and emissions data that would help advance air pollution control efforts throughout the State. This new authority enhances and strengthens existing clean air programs and improves our ability to achieve equity in the delivery of clean air benefits to all Californians. In addition, the Legislature appropriated

incentive funding in 2017 to clean up mobile sources such as trucks and buses in pollution-burdened communities, as well as grants to support community participation in this process.

AB 617 includes near-term deadlines to ensure expeditious action to reduce exposure to criteria air pollutants and TACs. By October 1, 2018, CARB must work with stakeholders to prepare a statewide monitoring plan and statewide strategy, as well as identify communities with high cumulative exposure burden for deployment of community air monitoring and/or development of community emission reduction programs. These elements and/or processes are described in the proposed Draft Blueprint.

C. Environmental Review Process

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

CARB is the lead agency for the proposed Draft Blueprint and has prepared this Draft EA pursuant to its CEQA certified regulatory program. Public Resources Code (PRC) Section 21080.5 allows public agencies with regulatory programs to prepare a "functionally equivalent" or substitute document in lieu of an environmental impact report or negative declaration, once the program has been certified by the Secretary for the Resources Agency as meeting the requirements of CEQA. CARB's regulatory program was certified by the Secretary of the Resources Agency in 1978 (14 California Code of Regulations [CCR] Section 15251(d)). As required by CARB's certified regulatory program, and the policy and substantive requirements of CEQA, CARB prepared this Draft EA to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed actions and to provide a succinct analysis of those impacts (17 CCR Section 60005(a) and (b)). The resource areas from the CEQA Guidelines (14 CCR Section 15000 et. seq) Environmental Checklist (Appendix G of that document) were used as the basis for assessing potentially significant impacts.

CARB has determined that approval of the proposed Draft Blueprint is a "project" under CEQA. CEQA defines 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 (14 CCR Section15378(a))." Although the policy aspects of the proposed Draft Blueprint do not directly change the physical environment, indirect physical changes to the environment could result from reasonably foreseeable compliance responses taken in response to implementation actions identified in the proposed Draft Blueprint.

As required by CEQA, this Draft EA contains "an environmental analysis of the reasonably foreseeable methods by which compliance with that rule or regulation will be achieved (14 CCR Section 15378)." The analysis shall include reasonably foreseeable environmental impacts of the methods of compliance, reasonably foreseeable feasible

mitigation measures related to significant impacts, and reasonably foreseeable alternative means of compliance that would avoid or eliminate significant impacts.

D. 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 cannot be as detailed as for specific projects (14 CCR Section 15146). For example, the assessment of a construction project would be naturally more detailed than one concerning the adoption of a local general plan because construction-related effects can be predicted with more accuracy (14 CCR Section 15146(a)). Because this analysis addresses a broad program, a general level of detail is appropriate. However, this Draft EA makes a rigorous effort to evaluate significant adverse impacts and beneficial impacts of the reasonably foreseeable compliance responses that could result from implementation of the proposed Draft Blueprint and contains as much information about those impacts as is currently available, without being unduly speculative.

The scope of analysis in this Draft EA is intended to help focus public review and comments on the proposed Draft Blueprint, and ultimately to inform the Board of the environmental benefits and adverse impacts of the proposal. This analysis specifically focuses on potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses taken in response to implementation of the actions within the proposed Draft Blueprint.

The analysis of potentially significant adverse environmental impacts of the proposed Draft Blueprint is based on the following assumptions:

1. This analysis addresses the potentially significant adverse environmental impacts resulting from implementing the proposed Draft Blueprint compared to existing conditions.

2. The analysis of environmental impacts and determinations of significance are based on reasonably foreseeable compliance responses taken in response to implementation of the proposed Draft Blueprint.

3. The analysis in this Draft EA addresses environmental impacts both within California and outside the State 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 proposed Draft Blueprint is programmatic. Decisions by the regulated entities regarding compliance options and the precise location of the many components covered in the proposed Draft Blueprint are unknown. Furthermore, attempting to predict decisions by entities regarding the specific location and design of infrastructure undertaken in response to implementation of the proposed Draft Blueprint would be speculative (if not impossible) at this stage, given the influence of other business and market considerations in those decisions. As a result, there is some inherent uncertainty in the degree of

mitigation that would ultimately need to be implemented to reduce any potentially significant impacts identified in this Draft EA. Consequently, this Draft EA takes a reasonably conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be implemented by the agency with authority to do so, or may not be sufficient) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable, where appropriate. It is also possible that the amount of mitigation necessary to reduce environmental impacts to below a significant level may be less than disclosed in this Draft EA on a case-by-case basis. Specific actions undertaken to implement the proposed Draft Blueprint would undergo project-level environmental review as required and compliance processes at the time they are proposed. It is expected that many individual development projects would be able to feasibly avoid or mitigate potentially significant impacts to a less-than-significant level.

5. This Draft EA generally does not analyze site-specific impacts when the location of future facilities or other infrastructure changes are speculative. However, the Draft EA does examine regional (e.g., air district and/or 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 proposed Draft Blueprint.

E. Organization of the Draft EA

The Draft EA is organized into the following chapters to assist the reader in obtaining information about the proposed Draft Blueprint and its specific environmental issues.

Chapter 1, Introduction and Background, provides a project overview and background information, and other introductory material.

Chapter 2, Project Description, summarizes the proposed Draft Blueprint, the potential reasonably foreseeable compliance responses, and implementation assumptions.

Chapter 3, Environmental and Regulatory Setting, contains the environmental setting and regulatory framework relevant to the environmental analysis of the proposed Draft Blueprint.

Chapter 4, Impact Analysis and Mitigation, identifies the potential environmental impacts associated with the proposed Draft Blueprint and mitigation measures for each resource impact area.

Chapter 5, Cumulative and Growth-Inducing Impacts, analyzes the potential for cumulative effects of implementing the proposed Draft Blueprint against a backdrop of past, present, and reasonably foreseeable future projects.

Chapter 6, Mandatory Findings of Significance, discusses the potential for adverse impacts on human beings, cumulatively considerable environmental impacts, and whether the proposed Draft Blueprint would have the potential to degrade the quality of the environment.

Chapter 7, Alternatives Analysis, discusses a reasonable range of potentially feasible alternatives that could reduce or eliminate adverse environmental impacts associated with the proposed Draft Blueprint.

Chapter 8, References, identifies sources of information used in this Draft EA.

F. Public Review Process for the Draft EA

At public workshops held on February 22, 27, and 28, 2018, in Oakland, Bakersfield, and Riverside, California, respectively, CARB staff discussed proposed activities associated with the proposed Draft Blueprint. Staff also described plans to prepare a Draft EA and invited public feedback on the scope of analysis.

In accordance with CARB's certified regulatory program, and consistent with CARB's commitment to public review and input, this Draft EA is subject to a public review process through the posting of the proposed Draft Blueprint. The proposed Draft Blueprint, which includes this Draft EA, is posted for a public review period that begins on June 7, 2018 and ends on July 23, 2018. This period complies with CEQA requirements for a minimum of 45 days of public review.

At the conclusion of the public review period, staff will compile public comments and responses, including comments on the Draft EA. The Final Draft Blueprint, which includes the Final EA and response to environmental comments, will be considered by the Board at a public hearing currently planned for September 2018. If the Final Draft Blueprint is adopted by the Board at that time, a Notice of Decision will be filed with the Secretary of the Natural Resources Agency, and transmitted to the State Clearinghouse.

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2.0 PROJECT DESCRIPTION

A. Introduction

For the purposes of this Draft Environmental Analysis (EA), the "project" is defined as the measures described in the proposed Draft Community Air Protection Blueprint, which is designed to meet the requirements of Assembly Bill (AB) 617 (Statutes of 2017, Chapter 136), and provide the structure for the Community Air Protection Program (Program). The proposed Draft Blueprint would lead to a reduction of emissions and exposures in California communities with high cumulative exposure burdens for criteria air pollutants and toxic air contaminants (TACs). While the proposed Draft Blueprint itself is not a regulation, it does provide commitments from the California Air Resources Board (CARB or Board), lays the foundation for the Program, and serves as a guidance document for local air districts, the public, and other stakeholders. The proposed Draft Blueprint would:

- establish core elements for the Program, which are rooted in community engagement and science-based concepts;
- identify strategies that would reduce emissions and exposure of TACs in pollution-burdened communities;
- provide the process and criteria for identifying and selecting communities for emission reduction programs and air monitoring;
- provide the process and criteria for the development and implementation of community emissions reduction programs and community air monitoring plans; and
- establish the basis for Program transparency and effective implementation through the technology clearinghouse and other online data sources (e.g., online Resource Center).

The measures contained in the proposed Draft Blueprint, at minimum, encompass the necessary elements to meet the statutory requirements of the Program (AB 617, Statutes of 2017, Chapter 136).

B. Project Objectives

The primary objectives of the proposed Draft Blueprint are listed below. These objectives are derived from the Program, public outreach efforts, and statutory authority under the Health and Safety Code. The objectives of the proposed Draft Blueprint are to:

1. provide core elements for the Program;
2. provide a process and criteria for the identification, assessment and selection of communities for community emissions reduction programs and air monitoring;

3. describe the tools and resources to be used in future planning to identify strategies to reduce exposure and emissions in pollution-burdened communities;

4. provide the criteria necessary for community air monitoring;

5. provide the criteria necessary for community emissions reduction programs to achieve the requirements of AB 617 as set out in the Health and Safety Code (*See* Health & Saf. Code Section 44391.2);

6. provide other measures to ensure the success of the Program, which include regulatory measures that CARB could undertake using its authorities, funding programs, a statewide emission reporting system, a technology clearinghouse, and other resources as described in Section C below;

7. further the objectives set forth in AB 617 to support a reduction of emissions of TACs and criteria air pollutants in communities affected by a high cumulative exposure burden; and

8. develop a strategy that is consistent with and meets the goals of AB 617.

C. Draft Blueprint Concepts and Reasonably Foreseeable Compliance Responses

A summary is provided below of the measures in the proposed Draft Blueprint and the associated reasonably foreseeable compliance responses. Table 2-1 provides a list of each measure, the implementing agency, and the proposed implementation schedule. CARB will also be working with other governmental agencies to identify future actions that are outside of CARB's authority in order to improve data collection and the ability to understand air quality/public health relationships at the community level, promote greater consideration of air quality for transportation projects, and address issues in selected communities associated with non-air quality environmental concerns.

The anticipated compliance responses to various measures discussed in this section focus on those activities under CARB's control with the potential to result in either a direct or indirect physical change in the environment. These include such things as construction activities, infrastructure and equipment installations, and substantial operational changes to facilities. Some potential compliance responses are activities that would not result in environmental effects (e.g., recordkeeping and reporting). Such activities are noted in the discussion below, but otherwise include no further analysis. The environmental impacts of the reasonably foreseeable compliance responses are discussed in Chapter 4, Impact Analysis and Mitigation.

Table 2-1 Summary of Proposed Measures			
Proposed Measures	**Agency**	**Action**	**Implementation Begins**
Emission Reduction Strategies			
Evaluation and Potential Development of Regulation to Reduce Idling for All Railyard Sources	CARB	2020	2023+
Evaluation and Potential Development of Regulation to Reduce Emissions from Locomotives not Preempted Under the Clean Air Act	CARB	2022	2025+
Drayage Trucks at Seaports and Rail Yards Amendment	CARB	2022	2026–2028+
Commercial Harbor Craft Amendment	CARB	2020	2023+
Cargo Handling Equipment Amendment	CARB	2022	2026
Catalytic Converter Theft Reduction	CARB	2020	2020
Chrome Plating Control Measures Amendment	CARB	TBD	TBD
Composite Wood Products Control Measure Amendments	CARB	TBD	TBD
Commercial Cooking Suggested Control Measure	CARB	TBD	TBD
Heavy-Duty On-Road and Off-Road Engine In-use Testing	CARB	2019	2019+
Incentive Funding to Support Immediate Emission Reductions	CARB	2018	2018+
Supporting Tools and Resources			
Develop and Maintain the Online Resource Center	CARB	2018	2018+
Expand and Maintain the Technology Clearinghouse	CARB	2018	2018+
Develop and Maintain Community Air Monitoring Online Resources	CARB	2018	2018+
Compile and Develop Best Practices Guidance on Outreach, Land Use, and Transportation	CARB	2018	2018+
Provide Community Enforcement Program	CARB	2018	2018+
Provide Enforcement Staff Cross-Training for Multi-media Violations	CARB	2018	2018+
Conduct Periodic Supplemental Environmental Projects Outreach	CARB	2018	2018+
Assess Current Air Monitoring Technologies and Provide Information	CARB	2018	2018+

Table 2-1 Summary of Proposed Measures			
Proposed Measures	**Agency**	**Action**	**Implementation Begins**
Assess Current Air Monitoring Systems and Provide Information	CARB	2018	2018+
Industry Guidance to Gasoline Dispensing Facilities	CARB	2018	2018
Develop and Maintain an Annual Emissions Reporting System	CARB	2018	2018+
Funding for Community Assistance Grants	CARB	2018	2018+
Develop and Maintain Community Air Monitoring Data Portal	CARB	2018	2019+
Explore Community Health Indicators	CARB	2018	2018+
Identification and Recommendation of Communities			
Identification and Recommendation of Communities	CARB	2018	2018
Criteria for Community Air Monitoring			
Criteria for Community Air Monitoring	CARB / Air Districts	2018	2018
Criteria for Community Emissions Reduction Programs			
Criteria for Community Emissions Reduction Programs	CARB / Air Districts	2018	2018

Below is a summary of the measures under each topic area along with the reasonably foreseeable compliance responses, which are used to evaluate the environmental impacts. Please refer to the proposed Draft Blueprint and associated appendices for a more detailed description of each measure.

The Draft EA focuses on impacts from conceptual emission reduction strategies that CARB would directly implement, because these strategies are directly in CARB's control. Although a more detailed CEQA analysis for each measure will follow, as appropriate, as measures are developed, some of these measures could be analyzed programmatically now with a reasonable degree of detail to inform the public. Other measures in the Strategy, such as identifying communities for future development of community emission reduction programs, either have no reasonably foreseeable environmental impacts themselves, or, like the programs developed by local air districts or activities approved by other State agencies or local jurisdictions in response to CARB's criteria, involve extensive decision-making processes that cannot be forecasted at this time with reasonable specificity.

A brief overall summary of the compliance responses is provided in Section D.

1. Emission Reduction Strategies

Existing air quality planning efforts such as the California State Implementation Plan Strategy,[1] Mobile Source Strategy,[2] California Sustainable Freight Action Plan,[3] Short-Lived Climate Pollutant Reduction Strategy,[4] and Climate Change Scoping Plan,[5] include a suite of emission reduction strategies covering multiple sectors and pollutants. Together they provide a comprehensive foundation for additional emission reductions needed to deliver healthful air within the State's most heavily pollution-burdened communities. Additional community-level strategies to reduce emissions and exposure, beyond the existing efforts, focuses on amending current State measures and implementing new State measures. This section provides guidance on various regulatory strategies to reduce emissions and exposure rates within pollution-burdened communities. Regulatory strategies include CARB Airborne Toxic Control Measures (ATCMs) and mobile source technology.

a) Evaluation and Potential Development of Regulation to Reduce Idling from All Railyard Sources

i. Strategy Summary

This strategy would evaluate and potentially develop a regulation that requires operators to limit idling of all combustion-powered vehicles and mobile equipment operating at rail yards and other locations, as well as reducing emissions from stationary locomotive operations (e.g., maintenance and testing). The scope could include both freight and passenger rail activities, in and around intermodal, classification, and maintenance railyards; at seaports, at warehouses, on sidings, at passenger rail stations; and at maintenance and service locations. Locomotives with zero-emission capability could be exempt, if operators show that zero-emission operation is maximized. The possibility to target implementation of this strategy in communities most burdened by air pollution would be considered as well.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy would include changing operational practices at the facilities, installation of idle-limiting devices or idle-restricting devices, installation of emission capture and control technology, and replacing equipment with near-zero or zero-emission technology. It is also reasonable to foresee temporary increased demand for associated equipment and incentives funds for equipment updates.

In cases where operators choose to comply by replacing equipment with near-zero or zero-emission technology, construction and operation of infrastructure, such as new hydrogen fueling stations and electric vehicle (EV) charging stations would occur. To further near-zero and zero emission-technology, there would also be an increase in

[1] The California State Implementation Plan Strategy is available at: www.arb.ca.gov/planning/sip/sip.htm.

[2] The Mobile Source Strategy is available at: www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm.

[3] The California Sustainable Freight Action Plan is available at: casustainablefreight.org.

[4] The Short-Lived Climate Pollutant Reduction Strategy is available at: www.arb.ca.gov/cc/shortlived/shortlived.htm.

[5] The Climate Change Scoping Plan is available at: www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

demand for lead acid and lithium ion batteries, which could require an increase in manufacturing and recycling facilities and associated increases in lithium mining and exports from countries with raw mineral supplies (e.g., Chile, Argentina, and China). The U.S. is also a source for lithium (e.g., a mining operation currently exists in Nevada). Disposal of batteries would be subject to, and comply with, existing laws and regulations governing solid waste and hazardous waste, such as California's Universal Waste Rule (22 CCR Chapter 23). That is, disposal of used batteries into solid waste landfills is prohibited; however, batteries could be refurbished or re-used, recycled or disposed of as hazardous waste. To meet an increased demand of refurbishing or reusing batteries, new facilities, or modifications to existing facilities, are anticipated to accommodate battery recycling activities.

b) Evaluation and Potential Development of Regulation to Reduce Emissions from Locomotives not Preempted under the Clean Air Act

i. Strategy Summary

This strategy would evaluate and potentially develop a regulation that requires the retrofit, repower, remanufacture, or replacement of freight and passenger locomotives not preempted under the Clean Air Act, beginning in 2025. CARB staff estimates that there are 200-300 of these units in California. Locomotives in operation beyond their useful life are typically operated by Class 3 freight railroads, industrial facilities, and passenger railroads, as well as a smaller number run by Class I railroads that could readily transfer those units to other states. Although the activity levels on these locomotives are lower than interstate line-haul and passenger locomotives, locomotives past their useful lives are the oldest and highest emitting (per unit of work performed) in the State. The rule could be implemented first in communities most burdened by air pollution.

As an alternative, CARB could also consider a voluntary agreement with the major railroads to secure greater community health benefits by reducing emissions from interstate locomotives (the dominant source of emissions and community health risk at rail yards), if that agreement was developed in a transparent public process and included clear enforcement provisions.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy would include a temporary increase in the replacement rate of locomotives and locomotive engines, requiring that older models are sold outside of California, scrapped, or recycled. This would require construction of new or modifications to existing manufacturing facilities. It is also reasonable to foresee temporary increased demand for incentive funds to assist in replacement, repower, or retrofit of associated equipment.

c) Drayage Trucks at Seaports and Railyards Amendment

i. Strategy Summary

This strategy would amend the existing Drayage Truck Regulation, or adopt a new regulation, to direct a transition to zero-emission operations, beginning 2026–2028. The

new regulation would establish a schedule for phasing in the use of zero-emission technology. Options to be considered include, but are not limited to, requirements for full zero-emission technology (e.g., a battery or fuel-cell electric short-haul truck) and zero-emission mile capability (e.g., a natural gas-electric hybrid that could drive interstate, but switch to zero emission electric mode while operating near pollution-burdened communities). CARB staff would also consider the opportunities to prioritize the earliest implementation in the communities most burdened by air pollution.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy would include construction and operation of equipment to support zero and near-zero emission technologies, such as, new hydrogen fueling stations and electric vehicle charging stations, as well as new or modified roadway infrastructure. To further near-zero and zero emission-technology, there would also be an increase in demand for lithium ion batteries. To meet an increased demand of refurbishing or reusing batteries, new facilities, or modifications to existing facilities, are anticipated to accommodate battery recycling activities. Additionally, compliance responses include disposing of non-compliant equipment, or selling equipment to areas outside of California.

d) Commercial Harbor Craft Amendment

i. Strategy Summary

This strategy would amend the existing Commercial Harbor Craft regulation to include more stringent in-use and new vessel requirements for both freight-related and passenger vessels. The amendments would take into consideration the feasibility of Tier 4 engine technology in Commercial Harbor Craft applications, the performance of advanced retrofit emission control devices, and the availability of zero and near-zero emission technologies for the sector. Additionally, the strategy would also consider prioritizing implementation in or near communities most burdened by air pollution.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy may include an increase in manufacturing and use of Tier 4 engine technology, advanced retrofit emission control devices, and new vessels containing such technologies. While a certain level of vessel and engine turnover would occur irrespective of the strategy, the strategy may accelerate turnover of engines, vessels, and their components, which may increase recycling, scrapping, and/or disposing of these materials within or outside of California or selling these materials outside of California.

The strategy may also accelerate adoption of zero and near-zero emission technologies, for which reasonably foreseeable compliance responses would include construction and operation of equipment to support zero and near-zero emission technologies, such as new hydrogen fueling stations and electric vehicle charging stations. To further the deployment of near-zero and zero emission-technology, there would likely be an increase in demand for lithium-ion batteries. To meet an increased demand of refurbishing or reusing batteries, new facilities, or modifications to existing facilities, would be anticipated to accommodate battery-recycling activities.

Finally, the deployment of zero-emission technology may affect electricity demand; however, the effect on the electric grid would depend on factors including timing of charging demand, and diurnal supply patterns associated with new renewable electricity sources.

e) Cargo Handling Equipment Amendment

i. Strategy Summary

This strategy would amend the existing Cargo Handling Equipment regulation. This regulation applies to equipment including yard trucks, rubber-tired gantry cranes, container handlers, and forklifts. The strategy would propose an implementation schedule for new equipment and infrastructure requirements, with a focus on the transition to zero-emission operation, and may include provisions for efficiency improvements. Additionally, the strategy would also consider prioritizing implementation in or adjacent to the communities most burdened by air pollution.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses would require the manufacturing and use of zero and near-zero emission cargo handling equipment for use within seaports and railyards, and construction and operation of infrastructure such as new hydrogen fueling stations and electric vehicle charging stations. To further the deployment of near-zero and zero emission-technology, there would likely be an increase in demand for lithium-ion batteries. To meet an increased demand of refurbishing or reusing batteries, new facilities, or modifications to existing facilities, would be anticipated to accommodate battery-recycling activities. Additionally, compliance responses may include recycling, scrapping, and/or disposing of non-compliant equipment, or selling equipment to areas outside of California.

f) Catalytic Converter Theft Reduction

i. Strategy Summary

This strategy would include a regulation and/or compliance assistance to reduce theft of catalytic converters in communities selected through the community identification and selection process. A regulation would require manufacturers to stamp catalytic converters with a vehicle identification number. Compliance assistance would offer free vehicle identification number stamping on converters in communities selected through the community identification and selection process. The strategy would make it easier for the recycler to identify stolen catalytic converters.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy would require auto manufacturers to update the car manufacturing process to etch Vehicle Identification Numbers (VINs) into catalytic converters and/or install VIN etching equipment at local automotive facilities within communities selected through the community assessment process. This strategy would not result in a physical change in the environment and is not evaluated further in the EA.

g) Chrome Plating Control Measure Amendments

i. Strategy Summary

This strategy would amend the existing chrome plating regulation to incorporate provisions to align with the federal chrome plating regulation and consider additional measures to further reduce emissions from chrome plating operations. The amendments would include the prohibition of perfluorooctane sulfonate containing fume suppressants (as required by federal regulation), changes to the surface tension requirements, and other actions to reduce uncontrolled emissions. Additionally, staff would evaluate less toxic alternatives to hexavalent chromium and options to phase out perfluorinated chemicals used in fume suppressants.

In December 2006, CARB approved the Proposed Amendments to the Hexavalent Chromium ATCM for Chrome Plating and Chromic Acid Anodizing Operations (Chrome Plating ATCM). The Chrome Plating ATCM requires the use of control technologies and operational practices that reduce hexavalent chromium emissions to their lowest levels. Facilities are subject to hexavalent chromium emission limits based on throughput and distance to sensitive receptors. Certain facilities are required to install add-on air pollution control devices and other facilities could meet the emissions limit using chemical fume suppressants.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy could include add-on control equipment for hexavalent chromium containing tanks currently unregulated in the Chrome Plating ATCM, installation of building enclosures and associated ventilation systems, enhanced housekeeping and best management practices, periodic source testing, parametric monitoring to test the performance of add-on control equipment, and a change to alternative less hazardous chemical fume suppressants. Some smaller decorative platers may switch to less toxic alternatives such as trivalent chromium plating.

Installation and operation of add-on control equipment and building enclosures and added ventilation requirements could result in construction activities.

h) Composite Wood Products Control Measure Amendments

i. Strategy Summary

This strategy would amend the existing ATCM to Reduce Formaldehyde Emissions from Composite Wood Products (Composite Wood Products ATCM), to obtain additional formaldehyde emission reductions, clarify requirements and applicability, improve enforceability, and align with the United States Environmental Protection Agency (U.S. EPA) formaldehyde regulation, where appropriate. The U.S. EPA adopted the formaldehyde in composite wood regulation under the Toxic Substances Control Act (TSCA), which is enforced by U.S. EPA.

The Composite Wood Products ATCM, approved in 2007, established formaldehyde emission standards for three types of composite wood products (e.g., hardwood

plywood, particleboard, and medium density fiberboard) and requires that all consumer goods that contain such materials (e.g., flooring, cabinets, furniture) destined for sale in California must comply with the Composite Wood Products ATCM.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses resulting could include the need by the composite wood industry to develop manufacturing systems or alternative, lower-emitting glues that achieve the same curing rates and strength characteristics as current urea formaldehyde glues, in order to avoid a decrease in production. Installation of new manufacturing systems may result in construction activities.

j) Commercial Cooking Suggested Control Measure

i. Strategy Summary

This strategy consists of a two-phase process to evaluate California's current emission reduction requirements for commercial cooking operations that prepare food for human consumption, and if necessary, make improvements to achieve additional reductions in respirable and fine particulate matter (PM_{10} and $PM_{2.5}$, respectively) and volatile organic compound (VOC) emissions that contribute to ozone formation. In the first phase, CARB would conduct a technical assessment to evaluate the stringency of existing local air district (e.g., air pollution control and air quality management districts) commercial cooking rules and assess the commercial availability, effectiveness, and cost of more advanced emission control devices or methods, to determine the potential for additional PM_{10}/$PM_{2.5}$ and VOC emission reductions. In the second phase, CARB would use the results of the technical assessment to develop a path forward for additional emission reductions from commercial cooking operations that could include adoption of a Suggested Control Measure, or a combination of up-front incentives to install advanced emission controls with a recommended regulatory backstop. A Suggested Control Measure is a model rule that could be adopted by the air districts that need to reduce PM_{10}/$PM_{2.5}$ or VOC emissions to improve air quality. Co-pollutant reductions in black carbon, a short-lived climate pollutant, would also occur as a co-benefit.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses associated with a Suggested Control Measure could include installation of proven control technologies and technologies applied in other industry sectors that are transferable. Typical emission controls applied to reduce PM and/or VOCs include catalytic oxidizers, self-cleaning ceramic filters, fiber-bed filters, thermal incinerators, electrostatic precipitators, wet scrubbers, and carbon absorbers. Compliance responses could also include improved maintenance and control device certification requirements.

k) Heavy-Duty On-Road and Off-Road Engine Testing

i. Strategy Summary

This strategy involves real world screening of heavy-duty trucks and off-road engines operating in selected communities to target heavy-duty in-use compliance testing. Engines that are found to be emitting above expected levels would be brought into CARB's in-use compliance program. Engines found to be in noncompliance would be

recalled and emission mitigation projects could include deployment of zero-emission technology in selected communities.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy would include real world testing of heavy-duty and off-road engines. Additionally, the deployment in zero-emission technology would create a need for the construction and operation of equipment to support zero and near-zero emission technologies, such as, new hydrogen fueling stations and electric vehicle charging stations. To further near-zero and zero emission-technology, there would also be an increase in demand for lithium ion batteries. To meet an increased demand of refurbishing or reusing batteries, new facilities, or modifications to existing facilities, are anticipated to accommodate battery recycling activities.

k) Incentive Funding to Support Immediate Emission Reductions

i. Strategy Summary

This strategy involves using incentive funding for projects to support early action to reduce emissions through the deployment of cleaner mobile source technologies in pollution-burdened communities. The Governor's Fiscal Year 2017-2018 budget included $250 million for this purpose. As directed by the Legislature, these funds are being administered through the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), except that at its discretion, an air district may allocate up to 40 percent of the funds it receives to incentivize clean trucks in accordance with CARB's Proposition 1B Goods Movement Emission Reduction Program Guidelines.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this strategy include CARB and air districts holding community and stakeholder meetings to determine funding needs, CARB updating or creating funding program guidelines, and CARB interfacing with community groups to provide community funding. All requirements of CEQA would be completed by the appropriate lead agency prior to disbursement of funds for specific projects.

2. Supporting Tools and Resources

In addition to regulatory and targeted strategies, CARB has identified additional tools and resources that would support emission reductions in pollution-burdened communities.

a) Develop and Maintain the Online Resource Center

i. Measure Summary

An online Resource Center would complement requirements for community air monitoring and emission reduction programs. Establishing a Resource Center allows the Program to evolve by adding new features and materials as they become available over time, outside of the statutorily required Board-approved program revisions. CARB

would develop and maintain an online resource center, serving as a centralized repository of strategies for use by community members, air districts, and the public. CARB would compile a list of existing documents, tools, and information to support effective implementation of the Program and make them readily available as an online resource center. Additionally, the Resource Center would continuously be updated as new documents, materials and data become available.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the creation of an online database. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

b) Expand and Maintain the Technology Clearinghouse

i. Measure Summary

Statute requires CARB to establish and maintain a statewide clearinghouse of criteria air pollutant and TAC emissions performance levels for stationary sources, such as refineries and power plants. This information is currently available at the air district level, and the statewide clearinghouse would consolidate and expand this information. Staff would develop the Technology Clearinghouse in two phases. In Phase Ia, CARB staff would develop an Interim Technology Clearinghouse to meet the AB 617 requirement for a statewide clearinghouse that identifies the BACT, BARCT, and T-BACT for stationary sources. This includes updating the existing BACT Clearinghouse to include BARCT and T-BACT, and populating the database. After updating the existing system, staff would expand the Interim Technology Clearinghouse to include information on mobile and area-wide source rules and ATCMs (Phase Ib).

Phase II of the Technology Clearinghouse would enhance functionality and allow users to compare the most stringent technologies achieved in practice for each equipment or vehicle type with technologically feasible or next generation technologies. Identifying zero and near-zero technologies such as fuel cells, solar, and battery backup systems in the Technology Clearinghouse, would allow users to identify prospective long-term technology solutions. Once completed, Phase II would promote the identification of technology gaps and facilitate technological advancement. Phase II would also expand on the transparency provided by the Interim Technology Clearinghouse developed under Phase I. CARB would expand the Technology Clearinghouse functionality and features. Ultimately, when Phase II is completed in 2020, users would be able to compare the level of controls deployed across similar facilities and specific equipment statewide.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the creation of an online database. This measure would not result in a physical change in the environment is not evaluated further in the EA.

c) Develop and Maintain Community Air Monitoring Online Resources

i. Measure Summary

This measure consists of an online database that serves as a repository of community air monitoring information such as reviews of advanced air monitoring technologies, reviews of existing community air monitoring networks, supporting material for the development of community air monitoring plans, and resources for community scientists. The air monitoring technology review will cover techniques ranging from deploying dense systems of small air sensors to utilizing advanced remote sensing systems, and best practices gleaned from existing systems will be documented to inform future air monitoring activities. Furthermore, this measure commits CARB staff to performing air sensor evaluations and supporting the advancement and utility of air monitoring technologies. For example, CARB staff will conduct laboratory and field-based air sensor evaluations alongside partner programs at the South Coast Air Quality Management District (which operates the AQ-SPEC program), the U.S. EPA, and others who have experience conducting sensor evaluations.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the creation of an online database and real world air sensor testing. This measure would not result in a physical change in the environment is not evaluated further in the EA.

d) Compile and Develop Best Practices Guidance on Outreach, Land Use, and Transportation Strategies

i. Measure Summary

This measure outlines the development of a dedicated online resource devoted to aiding air districts and community members in the development of community emission reduction programs. The resource would contain a list of existing documents, tools, and information on legal authorities, for best practices related to outreach, land use, and transportation. After October 2018, CARB staff expect to expand the existing resources and preliminary list of best practices and strategies to provide updated and more detailed materials, which will support implementation of the suggested strategies and practices. This can include updating existing handbooks and guidance, developing new best practices documents and model ordinances, creating the tools necessary to support implementation of best practices, and ultimately incorporating best practices and strategies into the Technology Clearinghouse.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the development of an online resource center to house the various documents. Additionally, CARB staff may develop new documents or update existing documents. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

e) Provide Community Enforcement Program

i. Measure Summary

This measure would develop and implement a new program that would be offered to communities across the State. Information will cover topics like the fundamentals of enforcement, how the enforcement process works, instruction on filing a thorough complaint, and what to expect from the enforcement process after filing a complaint.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would include creating a complaint reporting tool and database, conducting community meetings, and providing training at facilities within selected communities. Visible emission evaluation training would require the use of a smoke emitting machine during training exercises.

f) Provide Enforcement Staff Cross-Training for Multi-Media Violations

i. Measure Summary

This measure would provide training on multimedia sampling techniques for Enforcement division staff.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would include providing training for enforcement staff. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

g) Conduct Periodic Supplemental Environmental Projects Outreach

i. Measure Summary

Supplemental Environmental Projects allows penalties collected from settlements to be used for projects that provide air quality benefits within communities throughout the State. This measure would commit CARB to conducting outreach to pollution-burdened communities so CARB staff could identify where funds from Supplemental Environmental Projects could best be applied. CARB staff would conduct periodic meetings throughout the State. CARB staff would use the ideas received from community members to determine what needs could be met through Supplemental Environmental Projects.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would include holding meetings throughout the State within selected communities. This measure would not result in a physical change in the environment is not evaluated further in the EA.

h) Assess Current Air Monitoring Technologies and Provide Information

i. Measure Summary

This measure would evaluate current technology for air monitoring and provide information on those technologies as well as an assessment of their feasibility for community air monitoring. CARB staff would identify appropriate applications for each air monitoring technology with consideration of the types of air pollutants measured, data quality, data reporting timeframe, equipment and supporting resource cost, and other factors such as logistical and staffing needs. CARB staff would complete the initial review of existing technologies by October 1, 2018. This information would be made available in the online resource center.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure consist of CARB staff compiling information and making them available in the online resource center. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

i) Assess Current Community Air Monitoring Systems and Provide Information

i. Measure Summary

This measure would evaluate and provide information on current community air monitoring systems. CARB staff would review existing community air monitoring systems throughout the State to determine what elements could help serve as models for future community air monitoring activities. CARB staff would complete the initial review of existing systems by October 1, 2018. This information would be made available in the online resource center.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure consist of CARB staff compiling information and making them available in the online resource center. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

j) Industry Guidance to Gasoline Dispensing Facilities

i. Measure Summary

In 1997, a joint working group of the California Air Pollution Control Officers Association (CAPCOA) and CARB developed the Gasoline Service Station Industrywide Risk Assessment Guidelines. These guidelines help districts and industrywide sources implement the AB 2588 Air Toxics “Hot Spots” program risk assessment requirements. Local air districts may use this document for permitting new and existing gasoline service stations. Statewide, for thousands of gasoline stations, this document provided a cost-effective and uniform method for calculating gasoline station emissions inventories and risk assessments.

In 2015, the CARB/CAPCOA Risk Management Guidance Document identified these guidelines for update. CARB and CAPCOA are updating the original document to address changes since 1997. Changes include new risk assessment methodology from the Office of Environmental Health Hazard Assessment (OEHHA), dispersion models, speciation profiles for fuel, and emission factors addressing improved control technology. CARB anticipates completion of the updated Gasoline Service Station Industrywide Risk Assessment Guidelines in late 2018.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses include local air districts updating their gasoline service station risk assessment results for permitting or their Hot Spots program and implementing Hot Spots notification or risk reduction procedures. Existing facilities may need to limit or relocate operations or install additional control equipment to minimize potential health risk from station operations. Depending on the approach chosen by the facility, some construction activities to install or relocate services (such as electrical) may be necessary.

k) Develop and Maintain an Annual Emission Reporting System

i. Measure Summary

This measure details the approach to developing a statewide system to report emissions on an annual basis. As required by AB 617, reporting would include criteria air pollutants and TACs emission levels for specified stationary sources, complementing efforts already underway as part of Assembly Bill 197. The first phase of this measure would include development of a regulation to establish the criteria to determine which facilities must report emissions data under the Program, as well as establish the annual reporting requirements for emissions of criteria air pollutants, criteria air pollutant precursors, and toxic air contaminants. For the second phase of this measure CARB staff will work with the air districts to collaboratively develop a more consistent and transparent approach for the quantification of emissions. The second phase will also include development and deployment of an improved database for reporting, storing, and retrieving emissions data.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be emission reporting by facilities subject to the regulation. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

l) Funding for Community Assistance Grants

i. Measure Summary

This measure would provide funding for community assistance grants. As an initial step toward building the capacity of California communities to participate, CARB has created the Community Air Grants Program. The grants are designed to help local organizations engage closely in the AB 617 process and build capacity to become active partners in identifying, evaluating, and ultimately reducing exposure to harmful air emissions. Eligible entities include: community-based non-profit groups; California

Native American- and Federal-recognized tribal entities; and faith-based organizations, with proposed projects exclusively for the purposes of community participation for the Program.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure include CARB and air districts holding community and stakeholder meetings to determine funding needs, CARB updating or creating funding program guidelines, and CARB interfacing with community groups to provide community funding. This measure would not result in a physical change in the environment and is not evaluated further in the EA

While the proposed Draft Blueprint provides specific criteria, the specific actions taken under this measure involves local activities that are not subject to CARB consideration. Therefore, it would be speculative for this EA to attempt to analyze the impacts of potential compliance responses associated with the later development of community emission reduction programs by local air districts. Note that appropriate environmental documentation would be prepared and considered, as necessary, by the relevant decision-making body.

m) Develop and Maintain Community Air Monitoring Data Portal

i. Measure Summary

This measure consists of an online database that lets the public access data from community air monitoring systems throughout California. Through previous engagement with communities, CARB has identified four key objectives for the data portal that staff are trying to address: data availability, timeliness of data, flexibility, and data transparency.

The data portal will be a comprehensive data repository and web tool that allows for meaningful and easy interpretation of data, so that the user can determine what the data mean at a glance. CARB staff vision for the data portal also involves displaying data in a variety of ways through features that are tailored to communities' unique needs. With the diverse nature of communities and their specific air quality issues, the portal must accommodate many different audiences and end users. At its core, the data portal has four key components: data storage, data accessibility, data visualization, and data resources.

Due to the varying scope and nature of air quality data, CARB will take a phased approach when it comes to the development and implementation of the data portal. Initially, features available through the data portal may be constrained by the types of instruments used and pollutants measured in the first year; however, it is anticipated that the portal will continue to grow incrementally over time. As the program continues to develop and more communities begin air monitoring, staff will make adjustments to the data portal so that it continues to improve over time. As previously mentioned, CARB wants to leverage existing resources, so there will be more engagement with external organizations, including communities, air districts, and others, to determine

essential user interface and visualization features, address challenges, utilize existing knowledge and lessons learned, and ensure that the data portal complements existing local efforts to display meaningful data.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the creation of an online database providing public access to data generated from community air monitoring systems in California. This measure would not result in a physical change in the environment is not evaluated further in the EA.

n) Explore Community Health Indicators

i. Measure Summary

Many of the California Health and Human Services Agency's departments, the Office of Environmental Health Hazard Assessment, and local health departments, collect and analyze health data. CARB will continue to work closely with these health agencies as they continue to lead efforts to collect and analyze statewide health data.

This measure consists of developing a searchable section of the Community Air Protection Program's online Resource Center, providing links to publicly available community health data, as well as index past, current, and proposed community health projects. Staff will also provide information on local community health efforts. These resources will help communities assess their current health burden. They will also provide examples and results of community-oriented research on the health impacts of air pollution that have been performed across the State, helping residents when advocating for their community.

ii. Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure would be the creation of a centrally located searchable online database providing public access to community health data and health projects. This measure would not result in a physical change in the environment is not evaluated further in the EA.

3. Identification and Selection of Communities

The first step in implementing the Program is to identify communities with high cumulative exposure burdens for toxic air contaminants and criteria air pollutants for air monitoring and/or emission reduction programs. Statute requires that CARB select communities for the first year by October 1, 2018, with review and identification of additional communities annually.

a) Measure Summary

This measure details the process and criteria for identifying, assessing, recommending, and selecting communities for which air districts would deploy community air monitoring and/or develop and implement community emission reduction programs. To ensure drawing on existing resources and knowledge in selecting communities occurs, CARB would seek recommendations from community members and air districts directly. Community members and organizations have first-hand knowledge of local air quality

impacts and concerns. In addition, as air districts are tasked with developing and implementing the community emission reduction programs and community air monitoring, they need to be engaged in the process of working with local communities in the community selection process. CARB staff will also review information available at the statewide level to identify any gaps and supplement the lists received from community members and air districts as appropriate to ensure a comprehensive, statewide list is developed. This will provide an inclusive, publicly posted master list of communities to support each year's selection process. This master list will continue to evolve over time as additional recommendations are received and new data becomes available.

b) Potential Compliance Responses

This measure is administrative in nature and involves the identification and selection of communities for emission reduction programs and/or community air monitoring. This measure would not result in a physical change in the environment and is not evaluated further in this EA.

4. Criteria for Community Air Monitoring

Community air monitoring is a core element of AB 617. This measure would tie into the State strategies along with community level emission reduction programs to support effective action to reduce emissions and exposure within pollution-burdened communities.

a) Measure Summary

This measure details criteria for air districts to include when planning community air monitoring within communities with a high cumulative exposure burden. The measure describes 14 community air monitoring plan elements to guide the process of developing scientifically sound community air monitoring plans. Among the elements, this measure includes: form community partnerships, state the community-specific purpose for air monitoring, identify the scope of actions, define air monitoring objectives, establish roles and responsibilities, define data quality objectives, select monitoring methods and equipment, determine monitoring areas, develop quality control procedures, describe data management, provide a work plan for conducting field measurements, specify the process for evaluating effectiveness, analyze and interpret data, and communicate results to support action. The measure places special emphasis on community engagement and making data accessible and understandable.

b) Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure consist of CARB staff providing a criteria document for the development of community air monitoring plans. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

While the proposed Draft Blueprint provides specific criteria, the specific actions taken involve local air district rulemaking and programmatic activities that are not known at this stage and will be developed later by local air districts. At this stage, communities

have not been selected, and potential community-specific monitoring campaigns have not been developed in any detail. . It would therefore be speculative for this EA to attempt to analyze the impacts of potential compliance responses associated with the later development of community air monitoring campaigns by local air districts. Note that if a local air district undertakes new rulemaking, it would complete the appropriate CEQA processes as needed.

5. Criteria for Community Emission Reduction Programs

Community emission reduction programs are core elements of AB 617. These measures would tie into the State strategies along with community level air monitoring to produce measurable results of emission and exposure reduction.

a) Measure Summary

This measure details the overarching goals for all community emission reduction programs and details the minimum criteria for air districts to develop and implement emission reduction programs. The elements of community emission reduction programs entail community engagement, technical assessments, targets for emission reduction, strategies to reduce emissions, a defined implementation schedule for emission reduction strategies, defined metrics to track progress, a strong enforcement plan, CARB review of air district community emission reduction programs, annual reporting requirements, and compliance with CEQA as applicable, for strategies included in air district plans. Community engagement entails regional workshops, formation of a community steering committee, and public hearings at air districts. Technical assessments entail assessing contributing sources of emissions, developing a community-level inventory, evaluating compliance with existing rules, and assessing of sensitive receptor locations and land use issues.

b) Potential Compliance Responses

Reasonably foreseeable compliance responses under this measure consist of CARB staff providing a criteria document for the development of community emission reduction programs. This measure would not result in a physical change in the environment and is not evaluated further in the EA.

While the proposed Draft Blueprint provides specific criteria, the specific actions taken involve local air district rulemaking and programmatic activities that are not known at this stage and will be developed later by local air districts. At this stage, communities have not been selected, and potential community-specific measures have not been explored in any detail. Therefore, it would be speculative for this EA to attempt to analyze the impacts of potential compliance responses associated with the later development of community emission reduction programs by local air districts. Note that the local air districts, as lead agency, will be required to complete all appropriate CEQA processes as needed when developing community emission reduction programs. CARB will also complete appropriate CEQA processes as needed during its review and approval of submitted community emission reduction programs. If a local air district undertakes new rulemakings or programmatic activities, as a result of its community

emission reduction program, it would complete the appropriate CEQA processes as needed for those rulemakings or programmatic activities.

D. Summary of Compliance Responses

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased demand for lithium battery manufacturing and increased recycling, refurbishment, or disposal of lithium batteries. It is anticipated that the replacement rate vehicles, equipment and engines, would be increased, requiring that older models are sold outside of California, scrapped, disposed, or recycled. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission equipment and vehicles.

Other reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: construction of new, or modification of existing, facilities to add on control equipment; changes to manufacturing processes; and the disposal of spent materials. Additionally, catalytic converter theft reduction would include changes in the automobile manufacturing process for VIN etching and the construction or modification of facilities to support aftermarket VIN etching.

No changes to the physical environment, which could result in adverse environmental effects, would be anticipated to occur due to compliance responses associated with: incentive funding to support immediate emission reductions;; developing and maintaining the online resource center; expanding and maintaining the technology clearinghouse; developing and maintaining community air monitoring online resources; compiling and developing best practices guidance on outreach, land use, and transportation; providing community enforcement program; providing enforcement staff cross-training for multi-media violations; conducting periodic supplemental environmental projects outreach; assessing current air monitoring technologies and providing information; assessing current air monitoring systems and providing information; statewide system of annual emissions reporting; funding for community assistance grants; developing and maintaining a community air monitoring data portal; exploring community health indicators; identification and recommendation of communities; criteria for community air monitoring; and, criteria for community emission reduction programs. Therefore, these measures are not analyzed further in this EA.

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3.0 ENVIRONMENTAL AND REGULATORY SETTING

The California Environmental Quality Act (CEQA) Guidelines require an environmental impact report (EIR) to include an environmental setting section, which discusses the current environmental conditions near the project. This environmental setting normally constitutes the baseline physical conditions against which an impact is compared to determine whether it is significant (California Code of Regulations, Title 14, Section 15125). As discussed in Chapter 1 of this Draft Environmental Analysis (EA), the California Air Resources Board (CARB or Board) has a CEQA certified regulatory program and prepares an EA in lieu of an EIR. This Draft EA is a functional equivalent to an EIR under CEQA. Therefore, to comply with the policy objectives of CEQA, an environmental setting and a regulatory setting with environmental laws and regulations relevant to the proposed Draft Community Air Protection Blueprint has been included as Attachment A to this Draft EA.

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4.0 IMPACT ANALYSIS AND MITIGATION MEASURES

A. Approach to the Environmental Impacts Analysis and Mitigation Measures

This chapter contains an analysis of environmental impacts and mitigation measures associated with the proposed Draft Community Air Protection Blueprint (Draft Blueprint). The California Environmental Quality Act (CEQA) states the baseline for determining the significance of environmental impacts would normally be the existing conditions at the time the environmental review is initiated (14 California Code of Regulations [CCR] Section 15125(a)). Therefore, significance determinations reflected in this Draft Environmental Analysis (EA) are based on a comparison of the potential environmental consequences of the proposed Draft Blueprint with the regulatory setting and physical conditions in 2018 (see Attachment 1). For determining whether the proposed Draft Blueprint 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 responses described in further detail in Chapter 2 of this Draft EA. A table summarizing all the potential impacts and proposed mitigation for each resource area discussed below is included as Attachment 2 to this document.

The reasonably foreseeable compliance responses associated with the proposed Draft Blueprint are analyzed in a programmatic manner for several reasons: (1) any individual action or activity would be carried out under the same authorizing regulatory authority; (2) the reasonably foreseeable compliance responses would result in generally similar environmental effects that can be mitigated in similar ways (14 CCR Section 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 Draft 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 law.

The analysis is based on reasonably foreseeable compliance responses that are based on a set of reasonable assumptions. While the compliance responses described in this Draft EA are not the only conceivable ones, they provide a credible basis for impact conclusions that is consistent with available evidence. The analysis also includes actions that could likely occur under a broad range of the potential scenarios. The impact discussions reflect a conservative assessment to describe the type and magnitude of effects that may occur (i.e., in that the conclusions tend to overstate adverse effects) because the specific location, extent, and design of potential new and/or modified facilities cannot be known at this time.

1. Significant Adverse Environmental Impacts and Mitigation Measures

The analysis of potentially significant adverse impacts on the environment, and significance determinations for those effects, reflect the programmatic nature of the analysis of the reasonably foreseeable compliance responses of the regulated entities. These reasonably foreseeable compliance responses are described in more detail in Chapter 2 of this Draft EA. The Draft EA analysis addresses broadly defined types of impacts or actions that may be taken by others in the future because of implementation of the proposed Draft Blueprint.

This Draft EA takes a conservative approach and considers some environmental impacts as potentially significant because of the inherent uncertainties in the relationship between physical actions that are reasonably foreseeable under the proposed Draft Blueprint and environmentally sensitive resources or conditions that may be affected. This conservative approach tends to overstate environmental impacts considering these uncertainties and is intended to satisfy the good-faith, full-disclosure intention of CEQA. If and when specific projects are proposed and subjected to project-level environmental review, it is expected that many of the impacts recognized as potentially significant in this Draft EA can later be avoided or reduced to a less-than-significant level.

The Draft EA contains a degree of uncertainty regarding implementation of mitigation for potentially significant impacts. This programmatic level of review in this Draft EA does not allow for a precise description of the details of project-specific mitigation because CARB cannot predict the location, design, or setting of specific compliance responses that may result, and does not have authority over implementation of specific infrastructure projects that may occur. As a result, there is inherent uncertainty in the degree of mitigation that would ultimately need to be implemented to reduce any potentially significant impacts identified in this Draft EA. Consequently, this Draft EA takes a reasonably conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be sufficient) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable, where appropriate. It is also possible that the amount of mitigation necessary to reduce environmental impacts to below a significant level may be less than disclosed in this Draft EA on a case-by-case basis. It is expected that many individual development projects would be able to feasibly avoid or mitigate impacts to a less-than-significant level. If a potentially significant environmental effect cannot be feasibly mitigated with certainty, this Draft EA identifies it as potentially significant and unavoidable.

Where applicable, consistent with CARB's certified regulatory program requirements (17 CCR Section 60005(b)), this Draft EA also acknowledges potential beneficial effects on the environment in each resource area that may result from implementation of the proposed Draft Blueprint. Any beneficial impacts associated with the proposed Draft Blueprint are included in the impact analysis for each resource area listed below.

B. Resource Area Impacts and Mitigation Measures of the Draft Community Air Protection Blueprint

The following discussion provides a programmatic analysis of the reasonably foreseeable compliance responses that could result from implementation of the proposed Draft Blueprint, described in Chapter 2 of this Draft EA. The impact analysis is organized by environmental resource areas in accordance with the topics presented in the Environmental Checklist in Appendix G of the CEQA Guidelines (14 CCR Section 15000 et. seq). These impact discussions are followed by the types of mitigation measures that could be required to reduce potentially significant environmental impacts.

1. Aesthetics

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Landscape character can be defined as the visual and cultural image of a geographic area. It consists of the combination of physical, biological, and cultural attributes that make each landscape identifiable or unique. Visual character may range from predominately natural to heavily influenced by human development. Its value is related, in part, to the importance of a site to those who view it. Viewer groups typically include: residents, motorists, and recreation users.

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.

Although it is reasonably foreseeable that activities associated with new or modified facilities could occur, there is uncertainty as to the exact location or character of any

new facilities or modification of existing facilities. Some of the reasonably foreseeable compliance responses could be accomplished with minimal ground-disturbing activity. For instance, increased recycling and refurbishment of lithium batteries could be performed within existing recycling centers that undergo internal retrofitting. The outward appearance of such facilities would not require physical modifications that could degrade the visual character or quality of the surrounding area. Thus, visual impacts would not be substantial in these cases.

Development of new facilities for the manufacture of zero- and near-zero emission vehicle-related equipment and infrastructure would be expected to occur in areas appropriately zoned; however, such facilities could conceivably introduce or increase the presence of visible artificial elements (e.g., heavy-duty equipment, new or expanded buildings, electric charging and hydrogen fueling stations) in areas of scenic importance, such as visibility from 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 prominence, and placement in the landscape. In addition, facility operation may introduce substantial sources of glare, exhaust plumes, and nighttime lighting for safety and security purposes. These types of impacts could result in significant effects on aesthetic resources.

Increased use of zero- and near-zero emission vehicles and technology could produce additional demand for lithium-ion batteries, resulting in increased demand for lithium. Worldwide, the majority (80 to 90 percent) of raw lithium is currently mined and exported from Australia, Chile, Argentina, and Bolivia[6]. Lithium is typically derived from hard rock mining practices or from brine extraction. Hard rock mining, which is typical in Australia, requires the use of heavy-duty equipment (e.g., crushers, rigs, loaders, cutting equipment, cranes) and could result in harmful visual changes to the natural environment such as hillside erosion, contamination of surface waters, artificial drainage patterns, subsidence, night-time lighting, and deforestation. In contrast, brine extract, which occurs in Chile, Argentina, and Bolivia, involves vertical pumping of brine, which evaporates to form brown and white cones of salt minerals. It is reasonably foreseeable that increased lithium could cause additional these types of adverse visual effects in areas where hard rock mining (Australia) and brine extraction activities (Chile, Argentina, and Bolivia) occur.

The reasonably foreseeable compliance responses could also result in accelerated turnover of lithium-ion batteries, locomotive, water vessel, drayage trucks, and cargo handling equipment, which could place additional demand such that existing recycling facilities would need to be expanded or modified. 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

[6] U.S. Geological Survey [USGS] 2017a

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.

Therefore, short-term construction-related long-term operational-related effects to aesthetics associated with implementation of the proposed Draft Blueprint could be potentially significant.

Potential scenic, glare, and lighting impacts could be reduced to a less-than-significant level by mitigation measures prescribed by local, State, federal, or other land use or permitting agencies (either in the U.S. or abroad) with approval authority over the 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 measures 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 will 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 will 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 shall 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 shall 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 shall be avoided to the greatest extent feasible.
- The project proponent shall 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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses that short-term construction-related and long-term operational-related scenic and nighttime lighting effects resulting from reasonably foreseeable compliance responses to the proposed Draft Blueprint 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 proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

New facilities associated with the proposed Draft Blueprint could be located on Important Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance), land subject to Williamson Act conservation contracts, or forest land or timberland. Such facilities would be reviewed by local or State lead agencies in the context of future project approvals. Many local governments have adopted land use policies to protect Important Farmland and forest land from conversion to urban development, including industrial facilities. While it is reasonable to anticipate that land

use policies controlling the location of new industrial facilities would generally avoid conversion of agricultural and forest lands, the potential cannot be entirely dismissed.

Increased demand for lithium associated with elevated use of zero- and near-zero emission vehicles could place additional demand on lithium ore extraction internationally. Lithium ore derived from brines typically occurs within desert areas, which would not be considered valuable land for agricultural or forestry practices; however, lithium ore extracted from hard rock mining could result in the loss of agricultural and forest lands of importance depending on where new facilities are located.

Therefore, impacts associated with implementation of the proposed Draft Blueprint on agricultural and forest resources could be potentially significant.

Potential agricultural and forest resource impacts could be reduced to a less-than-significant level by mitigation measures prescribed by local, State, federal, or other land use or permitting agencies (either in the U.S. or abroad) with approval authority over the development projects.

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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance response to new regulations would coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents will implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. Because CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels. 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 shall 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 shall 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 shall consider mitigation for the loss of such farmland. Any such mitigation shall 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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related and long-term operational-related effects to agriculture and forest resources associated with reasonably foreseeable compliance responses to the proposed Draft Blueprint would be **potentially significant and unavoidable**.

3. Air Quality

Impact 3-1: Short-Term Construction-Related Air Quality Impacts

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Implementation of the proposed Draft Blueprint could include construction of new zero- and near-zero emission infrastructure or modifications to existing facilities. Any proposed modifications to facilities resulting from any of the proposed Draft Blueprint measures would require approvals from the applicable local or State land use authority prior to 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 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, and number of construction activities is not known and would be dependent upon a variety of factors that are not within the control or authority of CARB and not within its purview. Thus, CARB has not quantified the potential construction-related emission impacts as these would be too speculative to provide a meaningful evaluation. 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, it is expected that during the construction phase for any facilities, criteria air pollutants and toxic air contaminants (TACs) could be generated from a variety of activities and emission sources. 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. It is probable that transport of light equipment and personnel for construction activities would take place using light duty trucks, while transport of heavy equipment or bulk materials would be hauled in heavy-duty trucks. Exhaust emissions from construction-related mobile sources also include reactive organic gases (ROG) and oxides of nitrogen (NO_X). These emission types and associated levels fluctuate greatly depending on the type, number, and duration of usage for the varying equipment. CARB implements several regulations with the purpose of reducing NO_X, PM, and imposing limits on idling from in-use vehicles and equipment - the Truck and Bus Regulation, the Regulation for In-Use Off-Road Diesel Fueled Fleets, and the Portable Engine Airborne Toxic Control Measure. Much of the equipment used during the construction phase would be subject to these regulations.

The site preparation phase of construction 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 hundreds of pounds of daily NO_X and PM emissions (amount generated from two to four pieces of heavy-duty equipment working eight hours per day), which may exceed general mass emissions limits of a local or regional air quality management district depending on the location of the emissions. Thus, implementation of new, or amended, regulations and/or incentives could generate levels 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 some of the proposed Draft Blueprint measures would be potentially significant.

These short-term construction-related air quality effects 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 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 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 the State 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 measures 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 or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses would coordinate with 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 will implement all feasible mitigation to reduce or substantially lessen the potentially significant air quality impacts of the project.
- Project proponents will 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 will comply with the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) (e.g., New Source Review and Best Available Control Technology criteria), if applicable.
- Project proponents will 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 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, though not likely, could still exceed local air district threshold levels of significance depending on the magnitude of construction.

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

conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related air quality effects resulting from compliance responses associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

Impact 3-2: Long-Term Operational-Related Air Quality Impacts

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

The purpose of the proposed Draft Blueprint is to improve air quality conditions in pollution-burdened communities, thus decreasing adverse air quality-related health effects. The proposed Draft Blueprint contains various measures aimed to produce localized air quality improvements through reducing emissions of criteria air pollutants and TACs from vehicles, freight activity, heavy-duty equipment, watercrafts, commercial cooking, composite-wood products, chrome plating, and high-emission glues.

AB 617 requires CARB to select, based on the monitoring plan, the highest priority locations in the State for the deployment of community air monitoring systems. Because specific locations and their related emission reduction strategies have not yet been determined, the effects to air quality as a result of the deployment of community air monitoring equipment cannot be quantified. However, as stated above, the reasonably foreseeable compliance responses associated with the proposed Draft Blueprint would not be anticipated to contribute to a worsening of existing air quality in pollution-burdened communities or elsewhere.

For instance, several emission reduction strategies address equipment such as rail yard-related combustion-powered vehicles, stationary locomotives, and watercrafts, which often contribute to levels of air pollution that may exceed the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). Implementing emission reduction strategies would initiate turnover of inefficient, high-emission equipment to zero- and near-zero emission technologies, which would reduce criteria air pollutant and TAC emissions and improve ambient air quality.

Additional details specific to the proposed measures are provided in Chapter 2, “Project Description,” of this Draft EA.

The measures within the proposed Draft Blueprint are designed to result in substantial long-term reductions in criteria air pollutants and TACs. Although it is possible that

certain aspects of the proposed Draft Blueprint may cause comparatively small emission increases, these potential incremental increases would be offset by the overall substantial long-term reductions in criteria air pollutants and TACs. As a result, long-term operational impacts related to air quality would be **beneficial**.

Impact 3-3: Short-Term Construction-Related and Long-Term Operational-Related Impacts from Odors

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that construction activities could occur, there is uncertainty as to the exact location of any new facilities or modification of existing facilities. Typically, such facilities would be in industrial or rural areas with appropriate zoning to accommodate these specific activities. Short-term construction activities could generate short-term odors associated with 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.

Further, increased demand for lithium-ion batteries could result in expanded lithium ion mining and exportation internationally. Operation of lithium mining equipment, particularly those used in hard rock mining, would produce sources of odors such as diesel PM; oxides of carbon, nitrogen, and sulfur; and a wide range of odiferous volatile organic compounds. Mining activities could also result in disturbance of pockets of odiferous compounds (e.g., sulfur). However, it would be expected that mining operations would be appropriately cited in areas of consistent zoning and would not be anticipated to subject existing sensitive receptors to mining-related sources of adverse odors.

Thus, short-term construction-related and long-term operational-related odor effects associated with the proposed Draft Blueprint would be **less than significant**.

4. Biological Resources

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the

replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

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 facilities or modification made to existing facilities. 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 paving of parking lots, delivery areas, and roadways.

The biological resources that could be affected by the construction and operation of new or modified manufacturing plants would depend on the specific location of any necessary construction and its existing resources. Adverse effects 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 effects to biological resources associated with the proposed Draft Blueprint would be potentially significant.

Potential construction-related biological resources impacts 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 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance response to new regulations will coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents will implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the potentially significant impacts to biological resources. The definition of actions required to mitigate potentially significant biological 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 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 3030(d) 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 (NPDES) construction permit may be required from the California State Water Resources Control Board (SWRCB).
    - 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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction- related effects to biological resources associated with the proposed Draft Blueprint would be **potentially significant and unavoidable.**

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Implementation of the proposed Draft Blueprint could result in increased mining-related activities, including hard rock and continental brines for the procurement of lithium ore. Mining of hard rock would require the use of conventional mining practices including the creation of underground mines and open pits, which would result in the removal of organic material (e.g., bedrock, vegetation). Lithium may also be collected from lake brines and clays. This process involves the pumping of salty groundwater into lagoons where it undergoes evaporation producing salts containing lithium compounds. Such activities could result in substantial disturbances to biological resources and could cause a reduction in sensitive habitat, interference with a wildlife corridor, loss of special-status species, or conflict with a habitat conservation plan or natural community conservation plan.

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.

Potential operational-related biological resources impacts 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 4-2: 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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational impacts on biological resources associated with the proposed Draft Blueprint 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 proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

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 disturbing 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 may also be 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.

New facilities constructed as a potential compliance response may be 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 may include former privies or refuse pits[7].

Additionally, implementation of the proposed Draft Blueprint could result in increased lithium mining activity due to additional demand for lithium-ion batteries for zero and near-zero emission vehicles and technology. Ground disturbing activities from hard rock and continual brine mining activities could affect areas and artifacts of cultural, historical, and/or paleontological significance.

Due to the possible presence of undocumented cultural resources and paleontological resources, short-term construction-related and long-term operational effects to cultural resources associated with the proposed Draft Blueprint would be potentially significant.

Potential construction-related and operational-related cultural resources impacts 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 5-1

The Regulatory Setting in Attachment 1 includes, but is not limited to, applicable laws and regulations that provide protection of cultural resources. 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 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 measures 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:

[7] middens

- Proponents of new or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all 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 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 (36 CFR 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.
    - 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 (APE) 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 APE 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[8].
    - Conduct initial scoping assessments to determine whether proposed construction activities would disturb formations that may contain important paleontological resources. Whenever possible potential impacts to

[8] **Society of Vertebrate Paleontology 2010**

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 based on 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 this programmatic level of review does not allow project-specific consideration of feasible 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potentially significant short-term construction-related and long-term operational-related effects to cultural resources associated with the proposed Draft Blueprint 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 proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric

charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Temporary increases in energy demand associated with new facilities would include fuels used during construction, and gas and electric 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 such that a reasonable amount of energy would be expended.

Short-term construction-related effects on energy demand associated with the proposed Draft Blueprint, would be **less than significant.**

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

According to Appendix F of the CEQA Guidelines, 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.

Over the long term, implementation of the reasonably foreseeable compliance responses under the proposed Draft Blueprint would result in a statewide reduction in fossil fuel use from increased availability of zero and near-zero emission vehicles and technology, and associated infrastructure (e.g., EV charging stations, hydrogen fueling stations). These reduction in fossil fuel consumption would complement other statewide measures intended to improve vehicle fuel efficiency and shift from petroleum-based

energy sources towards toward renewable electricity, hydrogen fuel cells, and other alternative fuels in passenger vehicles.

Increases in the capacity of the electrical grid could be required because 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., Senate Bill 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 because 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 to reduce GHG emissions would reduce fossil fuel usage, but would potentially increase demand for these alternate fuel sources.

The reasonably foreseeable compliance responses to the proposed Draft Blueprint 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.

Implementation of the proposed Draft Blueprint would contribute to decreased energy consumption per capita, increased demand for alternative fuel supplies, and decreased use of fossil fuels through increased use of electric and other alternative fuel vehicles and equipment. Thus, the proposed Draft Blueprint 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 and Soils

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that construction and operational activities could occur, there is uncertainty as to the exact location of any new facilities or modification of existing facilities. 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. Additional disturbance could result from the increased mineral ore extraction activities which would provide raw materials to these manufacturing facilities and energy projects. These activities would have the potential to adversely affect soil and geologic resources in construction or mineral ore extraction areas.

New facilities could be 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 manufacturing facilities are not known at this time and would be analyzed on a site-specific basis at the project level.

Short-term construction-related and long-term operational-related effects to geology and soils associated with the proposed Draft Blueprint would be potentially significant.

Potential construction-related and operational-related geologic resources impacts 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 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 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.

- Based on the results of the environmental review, proponents would implement all mitigation measures identified in the environmental document to reduce or substantially lessen the environmental impacts on soil erosion and the loss of topsoil. 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 will 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 will provide a complete site grading plan, and drainage, erosion, and sediment control plan with applications to applicable lead agencies. Proponents will 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 will 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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction and long-term operational-related effects to geology, seismicity, and soils associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

8. Greenhouse Gases

Impact 8-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Greenhouse Gases

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed,

or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

It is reasonably foreseeable that construction activities associated with new or modified facilities could occur, resulting in short-term increases in greenhouse gas (GHG) emissions. Typical earth-moving equipment that may be necessary for this type of construction activities includes: 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. Therefore, construction-related GHG emissions are expected to be short-term and limited in amount.

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 ($MTCO_2e$/year). Quantification of short-term construction-related GHG emissions is generally based on a combination of methods, including the use of exhaust emission rates from emissions models, such as OFFROAD and Emission FACtor (EMFAC). These models require consideration of assumptions, including construction timelines and energy demands (e.g., fuel and electricity). However, most 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 (e.g., during periods of construction) that is typically much shorter than the operational phase. Thus, local agencies generally recommended that GHG analyses focus on operational phase emissions, as discussed below, 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.

When these short-term construction-related GHG emissions associated with construction activities related to the proposed Draft Blueprint are considered in relation to the overall long-term operational GHG benefits discussed below, they are not considered substantial.

The purpose of the proposed Draft Blueprint is to improve air quality conditions in pollution-burdened communities, which would simultaneously reduce emission of GHGs such as carbon dioxide (CO_2), methane, nitrous oxide (N_2O), and black carbon (PM). The proposed Draft Blueprint contains various measures aimed to reduce emissions of criteria air pollutants and TACs from existing high-emission sources. Replacing high-emission equipment with zero- and near-zero emission technology would serve to improve air quality, but also reduce the level of GHG emissions associated with use of such equipment.

Because implementation of the measures contained in the proposed Draft Blueprint would be implemented at the local level, the effects to GHG emissions would be related to community-specific needs to meet their goals for various pollutants. However, as stated above, the reasonably foreseeable compliance responses to the measures enumerated in the proposed Draft Blueprint would be anticipated to produce beneficial reductions in GHG emissions in pollution-burdened communities as compared to baseline conditions.

Therefore, as several of the proposed Draft Blueprint measures include plans to further deploy near-zero and zero-emission technologies, implementation is anticipated to result in a reduction in GHG emissions from transportation fuels used in California. These benefits would be greater than a comparatively small level of short-term GHG emissions related to construction and operation of facilities associated with the compliance responses described above. As a result, implementation of the proposed Draft Blueprint would result in a **beneficial** impact to GHG emissions.

9. Hazards and Hazardous Materials

Impact 9-1: Short-Term Construction-Related Effects to Hazards and Hazardous Materials

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, recycled or disposed, which could require new or expanded recycling and disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

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 remains for a substantial release of hazardous materials into the environment.

The short-term construction-related effects associated with the proposed Draft Blueprint to hazards and hazardous materials would be potentially significant.

Potential construction-related hazards and hazardous materials impacts 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 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 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 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 measures 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 or modified facilities constructed as a compliance response will coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body will certify that the environmental document was prepared in compliance with applicable regulations and will approve the project for development.
- Based on the results of the environmental review, proponents will implement all 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 upset and accident-related hazard impacts may include the following; however, any mitigation specifically required for a new or modified facility will be determined by the local lead agency.
    - Handling of potentially hazardous materials/wastes shall 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 the project. As wastes are generated, they will be placed, at the direction of the licensed professional, in designated areas that offer secure, secondary containment and/or protection from stormwater runoff. Forms of containment may include placing waste in steel bins or other suitable containers pending profiling and disposal or recycling.
    - The temporary storage and handling of potentially hazardous materials/wastes shall be in areas away from sensitive receptors such as schools or residential areas. These areas shall 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 contact 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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related effects related to hazards and hazardous material associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

Impact 9-2: Long-Term Operational-Related Effects to Hazards and Hazardous Materials

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Harmful substances can enter the environment in several ways throughout the entire cycle of fuel production, manufacturing, transportation, storage, distribution, and usage. Most commonly, they come out the tailpipes of vehicles as exhaust or unburned fuel. Fuel vapors escape directly from automobile engines and gas tanks. They can also escape into the air during refueling, or when liquid fuel evaporates from a spill. Fuels can enter lakes and reservoirs through accidental spills or from motorized boats and personal watercraft. Fuels spilled on the ground or leaking from fuel storage tanks can contaminate groundwater. Substances in airborne engine exhaust settle directly onto water, soil and vegetation, or they can be washed down onto these surfaces when it rains. Also, fuel components can be released into the environment during oil drilling, refining and transportation.

Batteries used in zero- and near-zero emission vehicles are generally lithium-based. Lithium is currently sourced in two ways: from hardrock, and from the evaporation of salt

brines. Lithium from rock sources is primarily produced from spodumene, a lithium/aluminum/silicate mineral. Salt brine sources include salt lakes, which are currently the main source of lithium, and geothermal brines and salt brines associated with oil deposits.

The primary hazard posed by lithium batteries is their ability to overheat and ignite, and once ignited the resulting fires can be especially difficult to extinguish. In cases where lithium-ion EV batteries ignite, the highly energetic active materials and flammable organic electrolytes may contribute to the exacerbation of a fire; however, when compared to the combustion of an internal combustion engine (ICE), the general behavior of an EV and ICE exposed to the same parameters of combustion demonstrate similar characteristics. For instance, both categories of vehicle exhibit similar degrees of external heat and emissions of several gases (i.e., CO_2, carbon monoxide, hydrocarbons, nitric oxide, nitrogen dioxide, hydrogen chloride, and hydrogen cyanide). However, due to components of lithium-ion batteries, emissions of hydrogen fluoride are substantially higher during EV combustion comparatively[9].

Notably, the likelihood to overheat or ignite is increased if the batteries are poorly packaged, damaged, or exposed to a fire or a heat source. When packaged and handled properly, lithium batteries pose no environmental hazard[10]. Further, disposal of lithium-ion batteries, as well as lead acid batteries, within the State is required to comply with California's Hazardous Waste Control Law (Health and Safety Code, Division 20, Chapter 6.5), which contains regulations to prohibit the disposal of used batteries to solid waste landfills. Batteries must be reused and recycled in compliance with existing laws and regulations.

Implementation of the proposed Draft Blueprint could also result in increased installation of hydrogen fueling stations. Most new hydrogen fueling stations would be located at existing gasoline stations, adjacent to or on the same island as the gasoline dispenser. Although the gasoline and hydrogen dispensers look very similar, the nozzle and hose for the hydrogen dispenser are different. The hydrogen nozzles form an airtight connection with the fuel-cell electric vehicles (FCEV) fuel tank and are not physically like gasoline nozzles[11]. Thus, the release of hydrogen during fueling would not be expected to occur.

FCEV manufacturers developed and extensively safety-tested carbon-fiber hydrogen tanks, which can withstand environmental and man-made damage, including crash testing and ballistics. Hydrogen tanks are designed with multiple safety enhancements to prevent leaks in both routine use and extreme circumstances. Should a leak and subsequent ignition happen, the low radiant heat of a hydrogen fire and high diffusivity of hydrogen would reduce any potential damage, especially when compared to a gasoline fire.

[9] **Lecocq et al. 2012**
[10] **Pipeline and Hazardous Materials Safety Administration 2014**
[11] **CARB 2015**

However, design, construction, operational, and maintenance requirements for hydrogen fuel storage and handling systems in on-road vehicles are guided by standards prepared by the Society of Automotive Engineers (SAE). These standards provide performance-based requirements for verification of design prototype and production hydrogen storage and handling systems are also defined in this document. Complementary test protocols (for use in type approval or self-certification) to qualify designs (and/or production) as meeting the specified performance requirements are described. In addition, SAE provides requirements related to crashworthiness of hydrogen storage and handling systems. These requirements define recommended practices related to the integration of hydrogen storage and handling systems, fuel cell system, and electrical systems into the overall Fuel Cell Vehicle[12].

Thus, because lithium-batteries and hydrogen fuel cell systems are designed to reduce the potential for hazardous conditions associated with transport and use, and because regulations exist to ensure that lithium-ion batteries are disposed of appropriately, operational-related effects to hazards and hazardous materials associated with the proposed Draft Blueprint would be **less than significant**.

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 proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

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., NPDES, Stormwater Pollution Prevention Plan).

Short-term construction-related effects to hydrologic resources associated with the proposed Draft Blueprint would be potentially significant.

[12] **SAE 2013**

Potential construction-related hydrology and water quality impacts 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 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 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the potentially significant impacts associated with altering drainage patters, flooding, and inundation by seiche, tsunami, or mudflow. 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 the proposed project will prepare a stormwater drainage and flood control analysis and management plan. The plans will be prepared by a qualified professional and will summarize existing conditions and the effects of project improvements, and will 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 will be designed to protect existing downstream flow conditions that will 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 will design and construct new facilities to provide appropriate flood protection such that operations are not adversely affected by flooding and inundation. These designs will be approved by the local or State land use agency. The project proponent will 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 coordinate with 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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related effects to hydrology and water quality associated with the proposed Draft Blueprint 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 proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric

charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Implementation of the proposed Draft Blueprint would result in increased demand for lithium-ion batteries, which would accelerate the market for mined lithium. Mining of hard rock would require the use of conventional mining practices including the creation of underground mines and open pits, which would result in the removal of organic material (e.g., bedrock, vegetation). Additionally, lithium can be collected from continental brines found in basins. Salty groundwater is pumped into lagoons where it undergoes evaporation producing salts containing lithium compounds. This process could result in overdrafting of groundwater.

Mineral extraction and mining activities within the U.S. would be required to comply with the provisions of the Clean Water Act and the natural resource protection and land reclamation requirements of the appropriate State and federal land managers. For instance, the U.S. Bureau of Land Management and U.S. Forest Service mining permit conditions contain protections for hydrologic resources and require mining reclamation standards. However, lithium is obtained from areas outside of the U.S., where State and U.S. laws and regulation are not enforced. Thus, water quality impacts related to mining could occur because of implementation of the reasonably foreseeable compliance responses associated with the proposed Draft Blueprint.

As such, long-term operational-related effects to hydrology and water quality 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 10-2: Implement Mitigation Measure 10-1

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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational-related impacts to hydrology and water

quality under the proposed Draft Blueprint would be **potentially significant and unavoidable**.

11. Land Use and Planning

Impact 11-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Land Use and Planning

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Short-term construction-related effects on land use and planning associated with implementation of the proposed Draft Blueprint may not be consistent with existing and planned land uses. The environmental consequences of land use changes are considered in their respective sections of the EA.

Construction and operation of new manufacturing, disposal, and recycling facilities may require the conversion of non-industrial land uses to industrial land uses. Potential 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 in their respective section of this Draft EA.

12. Mineral Resources

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that construction activities could occur, the location and extent of construction activities related to new or modified facilities and infrastructure cannot be determined at this time. Construction associated with new or

modified facilities would likely occur within existing footprints or in areas with consistent zoning, where original permitting and analyses considered mineral resource issues. Although construction of new infrastructure could occur in areas outside the footprints of existing facilities, short-term construction impacts would only temporarily affect the availability of known mineral resources. As a result, construction of new facilities under the proposed Draft Blueprint would not affect the availability of a known mineral resource or recovery site. Thus, short-term construction-related mineral resources effects associated with the proposed Draft Blueprint would be **less than significant**.

Impact 12-2: Long-Term Operational-Related Effects to Mineral Resources

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Long-term operational compliance responses associated with the proposed Draft Blueprint include increased mining and processing of rare materials (e.g., lithium, nickel, cobalt, aluminum) used in fuel cells and EV batteries. Depending on the magnitude of required materials, implementation of the proposed Draft Blueprint could affect the availability of known minerals.

The demand for additional mining to meet increased use of batteries could result in the development of new mines and mining of lithium. For the purposes of this document it would be too speculative to determine if, when, and where a new mine may be located. In the case that new mines are required, they would go through independent environmental review at the appropriate federal, State, or local level (see Attachment 1 for more information). It is assumed, for the purposes of this analysis that any new mines would be in areas with appropriate zoning, and subject to Federal, State, and/or local requirements.

Batteries associated with zero and near-zero emission vehicles are primarily lithium-based. Generally, other types of hybrid electric vehicles, plug-in hybrid electric vehicles, and electric vehicle battery options, such as nickel-metal hydride are not as favorable due to challenges related to high cost, high self-discharge, and heat generation at high temperatures[13]. Thus, it is assumed that mineral resource requirements associated with implementation of recommended measures in proposed Draft Blueprint would be tied to lithium resources and other lithium-ion battery-related metals (i.e., cobalt).

[13] **U.S. Department of Energy 2016**

As of April 2018, the only two domestic lithium mines are in operation in the U.S. are brine operations in Nevada and rural California; however, in recent years, 6.9 million tons of new lithium resources have been identified in the U.S. in the form of continental brines, geothermal brines, hectorite, oilfield brines, and pegmatites. Two companies produced a large array of downstream lithium compounds in the U.S. from domestic or South American lithium carbonate, lithium chloride, and lithium hydroxide. Lithium consumption for batteries has increased substantially in recent years due to increased demand for rechargeable lithium batteries. Currently the U.S. imports most lithium from Chile (57 percent), Argentina (40 percent); China (2 percent); and others (1 percent). Worldwide mine production and reserves are provided in Table 4-1[14].

Table 4-1
Lithium Mine Production and Reserves

Country	2015 (metric tons)	2016 (metric tons)	Reserves (metric tons)
U.S.	N/A	N/A	38,000
Argentina	3,600	5,700	2,000,000
Australia	14,100	14,300	1,600,000
Brazil	200	200	48,000
Chile	10,500	12,000	7,500,000
China	2,000	2,000	3,200,000
Portugal	20	200	60,000
Zimbabwe	1900	900	23,000
World total (rounded)	31,500	35,000	14,000,000

Note: Reserves data are dynamic. They may be considered a working inventory of mining companies' supply of an economically extractable mineral commodity. Inventory is limited by many considerations, including cost of drilling, taxes, price of the mineral commodity being mined, and the demand for it.
Source: USGS 2017a.

The magnitude of reserves, shown above, is necessarily limited by many considerations, including cost of drilling, taxes, price of the mineral commodity being mined and the associated demand. In addition to the reserves described above, deposits of mineral resources are also important to consider in assessing future supplies. Furthermore, owing to continuing exploration, identified lithium resources have increased substantially worldwide. For instance, lithium resources in the U.S. grew from 5.5 million metric tons in 2014 to 6.9 million metric tons in 2016. Worldwide, lithium resources are currently estimated to be approximately 40 million tons, including 9 million metric tons in Bolivia and Argentina, 7.5 million metric tons in Chile, 2 million metric tons in Australia, 7 million metric tons in China, and 2 million metric tons in Canada. In addition, Congo (Kinshasa), Russia, and Serbia have resources of

[14] **USGS 2017a**

approximately 1 million metric tons each. Further, due to steadily increasing demand for lithium, domestic recycling of lithium has also increased[15].

Additionally, cobalt, a bluish-gray metal found in the Earth's crust, is a preferred component used in the production of lithium-ion batteries used for zero- and near-zero emission vehicles and technology. The U.S. currently imports cobalt from China (18 percent), Norway (14 percent), Finland (10 percent), Japan (9 percent), and other (49 percent). Worldwide mine production and reserves for cobalt are provided in Table 4-2[16].

Table 4-2
Cobalt Mine Production and Reserves

Country	2015 (metric tons)	2016 (metric tons)	Reserves (metric tons)
U.S.	760	690	21,000
Australia	6,000	5,100	1,000,000
Canada	6,900	7,300	270,000
China	7,700	7,700	80,000
Democratic Republic of the Congo	63,000	66,000	3,400,000
Cuba	4,300	4,200	500,000
Madagascar	3,700	3,300	130,000
New Caledonia	3,680	3,300	64,000
Philippines	4,300	3,500	290,000
Russia	6,200	6,200	250,000
South Africa	3,000	3,000	29,000
Zambia	4,600	4,600	270,000
Other Countries	11,600	8,300	690,000
World Total (rounded)	126,000	123,000	7,000,000

Note: Reserves data are dynamic. They may be considered a working inventory of mining companies' supply of an economically extractable mineral commodity. Inventory is limited by many considerations, including cost of drilling, taxes, price of the mineral commodity being mined, and the demand for it.
Source: USGS 2017b.

The Democratic Republic of the Congo continues to be the world's leading source of mined cobalt, supplying more than one-half of the world cobalt production. Identified cobalt resources in the U.S. are estimated to be about 1 million metric tons, most of which are found in Minnesota; however, other deposits are found in Alaska, California, Idaho, Michigan, Missouri, Montana, Oregon, and Pennsylvania. Identified world terrestrial cobalt resources are about 25 million metric tons. The clear majority (over 50 percent) of cobalt is found in sediment-hosted stratiform copper deposits in the Democratic Republic of the Congo and Zambia; nickel-bearing laterite deposits in

[15] **USGS 2017a**
[16] **USGS 2017b**

Australia and nearby island countries and Cuba; and magmatic nickel-copper sulfide deposits hosted in mafic and ultramafic rocks in Australia, Canada, Russia, and the U.S. More than 120 million tons of cobalt resources have been identified in manganese nodules and crusts on the floor of the Atlantic, Indian, and Pacific Oceans as well. In 2016, 30 percent of cobalt was obtained from recycled cobalt scrap[17].

Appendix G of the CEQA Guidelines considers an impact on mineral resources to be the loss of availability of a known mineral resource that would be of value to a local entity, a region, or the state. This type of impact could result from actions such as building a structure over an area that contains mineral resources, thereby prohibiting access to mining activities. Implementation of the proposed Draft Blueprint and associated compliance responses could result in an increased development where mining for lithium and cobalt is feasible, which could conceivably affect the availability of these mineral resources if access to resources becomes impeded.

Thus, long-term operational-related mineral resources effects associated with the proposed Draft Blueprint would be potentially significant.

Potential long-term operational mineral impacts 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 12-2

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of mineral resources. 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 under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would most likely 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 measures 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 mineral resources include:

- Proponents of construction activities implemented because of reasonably foreseeable compliance responses associated with the proposed Draft Blueprint would coordinate with 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.

[17] **USGS 2017b**

- Based on the results of the environmental review, proponents will implement all feasible mitigation to reduce or substantially lessen the potentially significant impacts on mineral resources associated with the project.
- Actions required to mitigate potentially significant mineral resource 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 will prepare an investigation/study, which will include an evaluation of the development's impact on the availability of mineral resources valuable to the region and residents of the state or delineated on a local general plan, specific plan, or other land use plan.
    - Proponents of new or modified facilities or infrastructure will provide a complete site plan showing any overlapping areas between the proposed plan and locally-important mineral resources delineated on a local general plan, specific plan, or other land use plan. Proponents will avoid locating facilities that would result in the loss of availability of locally-important mineral resources, as much as possible.

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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational-related effects to mineral resources associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

13. Noise

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Construction noise levels that could result from the implementation of new manufacturing facilities and zero and near-zero emissions-related infrastructure would fluctuate depending on the type, number, size, 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 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 equivalent level measurements (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 inch per second (in/sec) peak particle velocity (PPV) at 25 feet. Like 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 Administration (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 effects on noise associated with the proposed Draft Blueprint would be potentially significant.

Potential construction-related noise impacts 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 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 measures 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 or modified facilities constructed under the 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 requirements (e.g., CEQA). The local or State land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.
- Based on the results of the environmental review, proponents would implement all 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-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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the short-term construction-related effect regarding noise resulting from the construction of new facilities or reconstruction of existing facilities associated with the proposed Draft Blueprint could be **potentially significant and unavoidable**.

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Operational-related activities associated with lithium mining could produce substantial stationary sources of noise. Mechanical equipment (e.g., dozers) required to excavate bedrock and vegetation would generate noise that could be considered adverse to sensitive receptors; however, it would be expected that expansion of existing mines would not involve sensitive receptors given that mines typically are in areas zoned industrial. Also, it would be anticipated that new lithium mines constructed as a compliance response to the proposed Draft Blueprint would be in areas of consistent zoning and therefore not in close proximity to sensitive receptors.

New sources of noise associated with implementation of proposed Draft Blueprint could include operation of manufacturing plants. Manufacturing activity could include on-site noise sources, including fuel-delivery and other hauling-related activities (e.g., truck unloading), fuel-handling and processing activities (e.g., conveyor system, wheeled loader, dozer), and mechanical equipment (e.g., boiler, turbine, fans, pumps). Depending on the proximity to existing noise-sensitive receptors, stationary source noise levels could exceed applicable noise standards and result in a substantial increase in ambient noise levels.

Long-term operational noise effects associated with the proposed Draft Blueprint could be potentially significant.

Potential long-term operational noise impacts 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 13-2: Implement Mitigation Measure 13-1

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 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational noise effects associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

14. Population and Housing

Impact 14-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Population, Employment, and Housing

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that activities associated with new or modified facilities 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, a substantial amount of construction worker migration would not be likely to occur, and a sufficient construction employment base would likely be available.

Operation of new or modified manufacturing plants, recycling centers, and lithium mines would generate varying levels of employment opportunity. The number of jobs produced would be directly related to the size, capacity, and, in some cases, commodity manufactured. This range could be between twenty (e.g., slightly modified recycling

centers) to several thousand (e.g., the Tesla Gigafactory); however, it would be expected that locations of these facilities would be selected such that an appropriate employment base existed to support operation or where local jurisdictions have planned for increase population and employment growth.

Therefore, short-term construction- and long-term operational effects on population growth, and displacement of housing or people associated with the proposed Draft Blueprint would be **less than significant**.

15. Public Services

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that activities associated with new or modified facilities could occur, there is uncertainty as to the exact location or character of any new facilities or modification of existing facilities. However, these would likely occur within footprints of existing facilities, or in areas with zoning that would permit the development of manufacturing or industrial uses. 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.

Increased population levels may result in greater demand on the provision of public services. As discussed in Impact 14-1, “Short-Term Construction-Related and Long-Term Operational Effects to Population and Housing,” operation of plants, mines, and facilities would provide a range of employment opportunity depending on the size and capacity of such plants, mines, and facilities. While implementation of the proposed Draft Blueprint would produce long-term employment opportunities, it would be anticipated that a sufficient employment base would exist in areas where new facilities are constructed. Thus, the provision of public services would be sufficient because the proposed Draft Blueprint is not anticipated to result in unplanned increases to population levels.

As a result, short-term construction-related and long-term operational-related effects, associated with the proposed Draft Blueprint, on response time for fire protection, police protection, schools, parks, and other facilities would be **less than significant**.

16. Recreation

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although it is reasonably foreseeable that activities associated with new or modified facilities could occur, there is uncertainty as to the exact location or character of any new facilities. These activities would likely occur within footprints of existing manufacturing facilities, or in areas with appropriate zoning. In addition, demand for these crews would be temporary (e.g., 6–12 months per project) and would not be anticipated to substantially increase regional population levels. Construction and operational activities associated with reasonably foreseeable compliance responses would not be anticipated to result in increased use of regional parks and other recreational facilities, such that existing neighborhood and regional parks or other recreational facilities would be substantially deteriorated.

Increased population levels may result in greater demand on recreational resources. As discussed in Impact 14-1, “Short-Term Construction-Related and Long-Term Operational Effects to Population and Housing,” operation of plants, mines, and facilities would provide a range of employment opportunity depending on the size and capacity of such plants, mines, and facilities. While implementation of the proposed Draft Blueprint would produce long-term employment opportunities, it would be anticipated that a sufficient employment base would exist in areas where new facilities are constructed. Thus, the recreational resources would be sufficient because the proposed Draft Blueprint is not anticipated to result in unplanned increases to population levels.

Therefore, short-term construction-related and long-term operational-related effects to regional parks or other recreational facilities associated with the proposed Draft Blueprint would be **less than significant**.

17. Transportation and Traffic

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Although detailed information about potential specific construction activities is not currently available, it would be anticipated to 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 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. This effect would be potentially significant.

Potential construction-related traffic and transportation impacts 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 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 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 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 measures 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 or modified facilities constructed will coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and will approve the project for development.
- Based on the results of the environmental review, proponents will implement all mitigation identified in the environmental document to reduce or substantially lessen potentially significant impacts on traffic and transportation. The definition of actions required to mitigate potentially significant traffic impacts may include the following; however, any mitigation specifically required for a new or modified facility will 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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that short-term construction-related effects to transportation and traffic associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

These compliance responses could include construction and operation of new or modified manufacturing plants to support zero- and near-zero emission technologies, recycling centers for disposal or repurposing of high-emission equipment and spent batteries, and new or expanded mining operations. With respect to operational activities, it would not be anticipated that substantial amount of new personnel would be needed to operate new facilities such that a sufficient employment base would be available because these facilities would occur within areas of consistent zoning. In addition, deliveries associated with long-term operational-related activities would not be anticipated to result in a substantial number of new trips, such that roadway service levels would be substantially affected.

However, construction of new facilities may affect local roadways. It is conceivable that the operation of new or modified manufacturing facilities could result in expanded supply and transport of zero- and near-zero emission vehicles and technologies beyond existing baseline levels. For instance, workers and businesses associated with expanded or new recycling centers and battery manufacturing facilities could increase vehicle miles traveled (VMT) levels on nearby roadways. In addition, new or expanded mining operations, both within the U.S. and internationally, could generated additional VMT, or increase cargo ship activity, as lithium ore is traded and distributed on a global scale.

As such, long-term operational-related effects to transportation and traffic would be potentially significant.

Potential long-term operational-related transportation and traffic impacts 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 17-2

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 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 or State 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 operational impacts and require operational mitigation lies with land use and/or permitting agencies for individual projects, and this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that long-term operational-related effects to transportation and traffic associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

18. Utilities and Service Systems

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

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint include: increased infrastructure for hydrogen refueling stations and electric charging stations; increased mining and exports of lithium; and increased recycling, refurbishment, or disposal of lead acid and lithium batteries. It is anticipated that the replacement rate for high-emission vehicles, watercrafts, equipment, and engines would increase, requiring that older models are sold outside of California, scrapped, disposed, or recycled, which could require new or expanded recycling or disposal facilities. Compliance responses could also include construction and operation of new manufacturing facilities, or, the modification of existing facilities to support zero and near-zero emission technologies and other emission controls equipment.

Implementation of the proposed Draft Blueprint could result in an increased rate of turnover of vehicle fleets to increase the use of zero- and near-zero emission technologies. Generally, cars, trucks, buses, cargo-handling equipment, watercrafts, and locomotives would be recycled for shipped for use outside of California. Vehicles that are recycled, rather than reused, would be subject to existing laws and regulations governing solid waste handling requirements. Disposal of any portion of vehicles would be subject to, and comply with, existing law and regulations regarding solid waste and hazardous waste, such as California's Hazardous Waste Control Law. There may be an increase in the amount of solid waste diverted to landfills as a result of increased fleet turnover; however, it would not be substantial enough to result in closure of an existing landfill or development of a new landfill as much of the vehicles and equipment would be recycled.

Reasonably foreseeable compliance responses to the proposed Draft Blueprint could result in increased demand for lead acid and lithium-ion batteries for zero- and near-zero emission technologies. This may result in reuse and/or disposal of vehicles outside of California. Lithium-ion batteries may be recycled, and due to increasing demand for zero- and near-zero emission vehicles and technologies, rates of lithium-ion battery recycling have increased[18]. In the U.S. overall, there are limited regulations for the disposal of lithium-ion batteries; however, due to value of recovered metals (e.g., cobalt, nickel, lithium), there is incentive to collect and recycle batteries. According to current practice, typical recycling procedures (i.e., hydrometallurgical recovery, high-temperature or pyrometallurgical, and direct recycling) recover and average of approximately 97 percent of the materials, redirecting about 3 percent of waste to landfills[19].

Currently, lead acid batteries comprise approximately 20 million of the registered vehicles in use within the state. While deployment of the proposed Draft Blueprint may result in the increased use for zero and near-zero emission lead acid batteries production, use, and disposal, such levels would not generate notable strain on existing manufacturing, disposal and recycling facilities such that additional adverse effects to utilities would occur.

Reasonably foreseeable compliance responses associated with the proposed Draft Blueprint could result in new demand for water, wastewater, electricity, and gas services for new or modified facilities. Generally, facilities would be cited in areas with existing utility infrastructure—or areas where existing utility infrastructure is easily assessable. New or modified utility installation, connections, and expansion would be subject to the requirements of the applicable utility providers.

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. In addition, 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

[18] **USGS 2017a**
[19] **U.S. EPA 2013**

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. 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 waste water 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.

At this time, the specific location and type of construction needed is not known and would be dependent upon a variety of market 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 for which it is unknown whether mitigation would be available to reduce the impacts.

Thus, long-term operational-related effects to utilities and services systems, associated with the proposed Draft Blueprint would be potentially significant.

Potential long-term operational-related utilities and service systems impacts 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

The Regulatory Setting in Attachment 1 includes applicable laws and regulations that relate to utilities and service systems. 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 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 measures would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize utility and service-related impacts include:

- Proponents of new or modified facilities constructed because 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 requirements (e.g., CEQA). The local

or State land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.

- Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen potentially significant impacts on utilities and service systems. 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 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.
  - Where appropriate, prepare a Water Supply Assessment (WSA) consistent with the requirements of Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code. The WSA would be approved by the local water agency/purveyor prior to construction of the project.
  - 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 this programmatic level of review 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 EA takes the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, long-term operational-related effect to utilities and service systems associated with the proposed Draft Blueprint would be **potentially significant and unavoidable**.

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5.0 CUMULATIVE AND GROWTH-INDUCING IMPACTS

A. Introduction

This cumulative impact analysis is conducted in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15130. This guideline section identifies two basic methods for establishing the cumulative context within which a project is considered: (1) the use of a list of past, present, and probable future projects; or (2) the use of adopted projections from a general plan, other regional planning document, or a certified Environmental Impact Report (EIR) for such a planning document. A combination of these approaches may also be used. The following provides a discussion of cumulative impacts using these approaches. The effects of past and present projects on the environment are reflected by the existing conditions described in this Draft Environmental Analysis (Draft EA).

Because of the statewide reach of the proposed Draft Community Air Protection Blueprint (Draft Blueprint) and the longer-term future horizon for achievement of emission reductions, the impact analyses for the resource topics in Chapter 4 are programmatic, rather than site or project specific, to address the statewide context. The document contains a description and analysis of a series of actions that are part of one large program. Recommended mitigation measures in Chapter 4 provide a series of generally recognized methods to reduce potentially significant impacts, but cannot offer details related to specific project locations. As a result, the impact conclusions and mitigation measures in the resource-oriented sections of Chapter 4 are cumulative by nature, because they describe the potential impacts associated collectively with the full range of reasonably foreseeable compliance responses.

Additional community-level strategies to reduce emissions and exposure, beyond the existing efforts, focuses on amending current State measures and implementing new State measures. For purposes of disclosure and broad consideration of the potential actions that address air quality, the California Air Resources Board (CARB or Board) has identified relevant projects that would result in related impacts. Related projects consist of the 2030 Climate Change Scoping Plan (Scoping Plan) and the 2016 State Strategy for the State Implementation Plan (State SIP Strategy), both of which contain measures that reduce air pollutant and greenhouse gas (GHG) emissions and exposure within communities across the State.

Like the analysis presented in Chapter 4 of this Draft EA, the cumulative impacts analysis is described at a necessarily general level of detail, because information related to specific actions is not known at this time. This approach to a cumulative impacts analysis is "guided by the standards of practicality and reasonableness" (14 California Code of Regulations (CCR) Section 15130 (b)) and serves the 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." (*Communities for a Better Environment (CBE) v. the California Resources Agency* (2002) 103 Cal.App.4th 98, 119.)

B. Significance Determinations and Mitigation

Implementation of the proposed Draft Blueprint would potentially result in cumulatively considerable contributions to significant cumulative impacts related to certain resource areas, as discussed below. While recommended mitigation is provided for each potential cumulatively considerable contribution to a significant impact, other agencies would be responsible for implementing the mitigation measures. Consequently, it is uncertain whether those other agencies would implement the mitigation measures, which precludes assurance that significant impacts would be avoided or reduced to a less-than-significant level. Where impacts cannot feasibly be mitigated or where there is uncertainty about implementation of mitigation, the Draft EA recognizes the impact as significant and unavoidable. The Board will need to adopt Findings and a Statement of Overriding Considerations for any significant and unavoidable environmental effects of the proposed Draft Blueprint as part of the approval process.

C. Projects Resulting in Related Effects

CEQA Guidelines (14 CCR Section 15000 et. seq.) state that a previously approved plan may be used in cumulative impacts analysis; the pertinent discussion of cumulative impacts contained in one or more previously certified EIR(s) may be incorporated by reference; and in certain circumstances, no further cumulative impact analysis is required for a project that is consistent with a plan that has a certified EIR (14 CCR Section 15130 (d)). The related plans and programs considered for cumulative impacts of the proposed Draft Blueprint include the State SIP Strategy and the Scoping Plan.

CEQA Guidelines allow for incorporating by reference all or portions of other documents. Incorporation by reference is useful for including long, descriptive, or technical materials that provide general background but do not contribute directly to the pertinent analysis (14 CCR Section 15150). Therefore, the following documents are incorporated by reference.

- Final EA for the 2030 Target Scoping Plan Update (CARB 2017b)
- Final EA for the State SIP Strategy (CARB 2017a)

The portions of these documents relevant to this discussion are summarized below and within the respective resource area analyses. These documents are available upon request from CARB.

1. 2030 Target Scoping Plan Update

Assembly Bill (AB) 32 requires CARB to update the State's Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions of GHG emissions at least once every five years. (Health and Safety Code Section 38561 (h).) The Scoping Plan was first approved by the Board in 2008 and was re-approved in 2011. The First Update to the Climate Change Scoping Plan (First Update) was approved by the Board in 2014.

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. 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 the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of Senate Bill (SB) 32 (Pavley, Chapter 249, Statutes of 2016), which codified into statute the 2030 reduction target of 40 percent below 1990 levels by 2030 contained in the Governor's Executive Order. The update to the AB 32 Climate Change Scoping Plan to reflect the 2030 target serves as the framework to define the State's climate change priorities to 2030 and beyond. California's 2017 Climate Change Scoping Plan, reflecting the 2030 target, was adopted in December 2017.

Implementation of the measures to achieve the 2030 target in the Scoping Plan would result in two main types of reasonably foreseeable compliance responses: 1) construction of, or modifications to buildings, infrastructure, and industrial facilities; and, 2) new operations or changes to existing operational processes. These compliance responses are discussed in more detail below.

2. Construction of, or Modifications to, Buildings, Infrastructure, and Industrial Facilities

Implementation of the Scoping Plan would result in various construction projects. These projects would include infrastructure projects, such as natural gas and hydrogen refueling stations; collection, processing, and distribution of biomethane; wind, solar thermal, solar photovoltaic, geothermal, solid-fuel biomass, biogas, and small hydroelectric to generate electricity (i.e., renewable energy projects); collection of natural gas from landfills, dairies, and wastewater treatment plants; modifications to crude production facilities (onsite solar, wind, heat, and/or steam generation electricity); organic material composting and/or digesting facilities that would convert organic wastes diverted from landfills (e.g., yard waste, green wastes, food); vehicle fueling (e.g. renewable natural gas); vehicle charging stations; and upgraded and new transmission lines. Modifications may also be necessary at: industrial sources in compliance with the Cap-and-Trade Program; roadways and urban areas to reduce overall vehicle miles traveled (VMT); and oil and gas facilities (which may include modifications to existing facilities, pipeline replacement or reconstruction activities, inspection and monitoring, and disposal of methane vapors). In addition, manufacturing facilities may be necessary to produce lithium-ion batteries. Large-scale energy storage systems would also be installed throughout California, which would reduce energy production demands.

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. Construction activities can be short-term and long-term. That is, after construction of a building is completed, it will stay on a project site until demolished or otherwise removed.

a) New Operations and Changes to Existing Operational Processes

Under the Scoping Plan there would be various methods to reduce GHG emissions that would result in new operations or changes to existing operational processes. New operations could include increased mining for lithium and increased recycling or refurbishment of batteries for on-road light-duty and heavy-duty vehicles. New operations would also include changes to methods of manure management at dairies, alterations to crop cultivation to meet feedstock demands related to fuels regulations, and improvements to transportation systems to reduce reliance on personal vehicles. In addition, offset protocols related to the Cap-and Trade Program would alter activities at mines, agricultural operations, landfills, and U.S. forests. Linkage to Ontario and extension of the Cap-and-Trade Program could increase demand for offsets and increased compliance response activities for covered entities in Canada and the U.S. New operations and changes to existing operational processes are considered to occur over a long period of time (i.e., for the foreseeable future).

Potential environmental impacts associated with the Scoping Plan are summarized below in Table 5-1.

Table 5-1
Summary of Environmental Impacts for the Scoping Plan

Resource Areas and Impact Categories	Significance Determination
Aesthetics	
Impact 1-1: Short-Term Construction-Related Impacts	PSU
Impact 1-2: Long-Term Operational-Related Impacts	PSU
Agriculture and Forest Resources	
Impact 2-1: Short-Term Construction-Related Impacts	PSU
Impact 2-1: Long-Term Operational-Related Impacts	PSU
Air Quality	
Impact 3-1: Short-Term Construction-Related Impacts	PSU
Impact 3-2: Long-Term Operational-Related Impacts	LTS
Impact 3-3: Short-Term, Construction-Related and Long-Term Operational-Related Odors Impacts	PSU
Biological Resources	
Impact 4-1: Short-Term Construction-Related Impacts	PSU
Impact 4-2: Long-Term Operational-Related Impacts	PSU
Cultural Resources	

Table 5-1
Summary of Environmental Impacts for the Scoping Plan

Resource Areas and Impact Categories	Significance Determination
Impact 5-1: Short-Term Construction-Related and Long-Term Operational-Related Impacts	PSU
Energy Demand	
Impact 6-1: Short-Term Construction-Related Impacts	LTS
Impact 6-2: Long-Term Operational-Related Impacts	B
Geology and Soils	
Impact 7-1: Short-Term Construction-Related Impacts	PSU
Impact 7-2: Long-Term Operational-Related Impacts	PSU
Greenhouse Gas	
Impact 8-1: Short-Term Construction-Related and Long-Term Operational-Related Impacts	B
Hazards and Hazardous Materials	
Impact 9-1: Short-Term Construction-Related Impacts	PSU
Impact 9-2: Long-Term Operational-Related Impacts	PSU
Hydrology and Water Quality	
Impact 10-1: Short-Term Construction-Related Impacts	PSU
Impact 10-2: Long-Term Operational-Related Impacts	PSU
Land Use Planning	
Impact 11-1: Short-Term Construction-Related Impacts	LTS
Impact 11-2: Long-Term Operational-Related Impacts	PSU
Mineral Resources	
Impact 12-1: Short-Term Construction-Related Impacts	LTS
Impact 12-2: Long-Term Operational-Related Impacts	LTS
Noise	
Impact 13-1: Short-Term Construction-Related Impacts	PSU
Impact 13-2: Long-Term Operational-Related Impacts	PSU
Population and Housing	
Impact 14-1: Short-Term Construction-Related Impacts	LTS
Impact 14-2: Long-Term Operational-Related Impacts	LTS
Public Services	
Impact 15-1: Short-Term Construction-Related Impacts	LTS
Impact 15-2: Long-Term Operational-Related Impacts	LTS
Recreation	
Impact 16-1: Short-Term Construction-Related Impacts	LTS

Table 5-1
Summary of Environmental Impacts for the Scoping Plan

Resource Areas and Impact Categories	Significance Determination
Impact 16-2: Long-Term Operational-Related Impacts	PSU
Transportation/Traffic	
Impact 17-1: Short-Term Construction-Related Impacts	PSU
Impact 17-2: Long-Term Operational-Related Impacts	PSU
Utilities and Service Systems	
Impact 18-1: Long-Term Operational-Related Impacts	PSU
Notes: B = Beneficial; LTS = Less Than Significant; NA = Not Applicable; PSU = Potentially Significant and Unavoidable Source: CARB 2017b.	

3. State SIP Strategy

Under the federal Clean Air Act (CAA), CARB and local air districts are responsible for developing and submitting to the U.S. Environmental Protection Agency (U.S. EPA) clean air plans, known as SIPs. (See CAA, Section 110; 42 U.S.C. Section 7410.) SIPs are comprehensive plans that demonstrate how and when nonattainment areas within California would reach attainment of air quality standards. SIPs must identify both the magnitude of emission reductions needed and the actions necessary to achieve those reductions by the required attainment deadline.

Developing the SIPs is an immediate focus of CARB's planning efforts, with regional plans for ozone nonattainment areas due in July 2016 and fine particulate matter ($PM_{2.5}$) nonattainment areas in October 2016. Substantial emission reductions beyond those being achieved with current programs are needed to meet these standards. In addition to the most recent air quality standards, the South Coast and San Joaquin Valley must also continue to progress towards attaining earlier standards, which they have not yet achieved, including the 8-hour ozone standard of 80 parts per billion (ppb), and the 24-hour $PM_{2.5}$ standard of 35 micrograms per cubic meter.

CARB released the draft State SIP Strategy and Draft EA for public review on May 17, 2016. The public comment period for the draft State SIP Strategy and Draft EA was from May 17, 2016 through July 18, 2016. CARB prepared written responses to comments received on the Draft EA and made revisions as necessary. On March 7, 2017, CARB released the Revised Proposed 2016 State SIP Strategy and in March 2017, the Board adopted the State SIP Strategy. As such, reasonably foreseeable future projects under the State SIP Strategy will be used in relation to the proposed Draft Blueprint.

Reasonably foreseeable compliance responses associated with the State SIP Strategy include construction and operation of new manufacturing facilities to support increased

market penetration of plug-in hybrid electric vehicles (PHEV), non-combustion zero emission vehicles (ZEV) including battery electric vehicles (BEVs) and hydrogen fuel cell electric vehicles (FCEV) zero-emission technologies, and electric-powered equipment (e.g., forklifts). Increased use of zero- and near-zero emission technologies may result in increased infrastructure for natural gas and hydrogen refueling and charging stations, and increased demand for lithium-ion battery manufacturing and associated increases in lithium mining and exports. New testing centers to monitor vehicle emissions may be constructed throughout the state. In addition, increased low-emission diesel (LED) demand may increase cultivation or imports of LED feedstocks, processing of LED fuels, and shipment of finished LED fuels and/or their feedstocks. Infrastructure to support collection, processing, and distribution of LED fuels and feedstock may also increase.

Potential environmental impacts associated with the State SIP Strategy are summarized below in Table 5-2.

Table 5-2
Summary of Environmental Impacts for the State SIP Strategy

Resource Area Impact Significance Before Mitigation	Significance After Mitigation
Aesthetics	
Impact 1-1: Short-Term Construction-Related and Long-Term Operational Impacts on Aesthetics	PSU
Agriculture Resources	
Impact 2-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Agricultural and Forest Resources	PSU
Air Quality	
Impact 3-1: Short-Term Construction-Related Effects to Air Quality	PSU
Impact 3-2: Long-Term Operational-Related Effects to Air Quality	B
Biological Resources	
Impact 4-1: Short-Term Construction-Related Effects to Biological Resources	PSU
Impact 4-2: Long-Term Operational-Related Effects to Biological Resources	PSU
Cultural Resources	
Impact 5-1: Short-Term Construction-Related and Long-Term Operational Effects to Cultural Resources	PSU
Energy Demand	
Impact 6-1: Short Term Construction-Related Impacts on Energy Demand	LTS
Impact 6-2: Long-Term Operational Impacts on Energy Demand	B
Geology, Soils and Minerals	
Impact 7-1: Short-Term Construction-Related and Long-Term Operational Effects on Geology, Seismicity, and Soils	PSU

Table 5-2
Summary of Environmental Impacts for the State SIP Strategy

Resource Area Impact Significance Before Mitigation	Significance After Mitigation
Greenhouse Gas Emissions	
Impact 8-1: Short-Term Construction-Related and Long-Term Operational Greenhouse Gas Impacts	B
Hazards and Hazardous Materials	
Impact 9-1: Short-Term Construction-Related Hazard Impacts	PSU
Impact 9-2: Long-Term Increased Transport, Use, and Disposal of Hazardous Materials	LTS
Hydrology and Water Quality	
Impact 10-1: Short-Term Construction-Related Hydrologic Resource Impacts	PSU
Impact 10-2: Long-Term Effects on Hydrology and Water Quality Related to Changes in Land Use	PSU
Land Use and Planning	
Short-Term Construction-Related and Long-Term Operational Impacts on Land Use and Planning	LTS
Mineral Resources	
Impact 12-1: Short-Term Construction-Related Impacts on Mineral Resource	LTS
Impact 12-2: Long-Term Operational Impacts on Mineral Resources	LTS
Noise	
Impact 13-1: Short-Term Construction-Related Noise Impacts	PSU
Impact 13-2: Long-Term Operational Noise Impacts	PSU
Impact 14-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Population and Housing	LTS
Impact 15-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Public Services	LTS
Impact 16-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Recreation	LTS
Transportation and Traffic	
Impact 17-1: Short-Term Construction-Related Impacts on Traffic and Transportation	PSU
Impact 17-2: Long-Term Operational Impacts on Traffic and Transportation	PSU
Utilities and Service Systems	
Impact 18-1: Short-Term Construction Related and Long-Term Operational Impacts on Utilities and Service Systems	PSU

Notes: B = beneficial, LTS = less-than-significant, PSU = potentially significant and unavoidable after mitigation
Source: CARB 2017a.

D. Cumulative Impacts

1. Aesthetics

Table 5-3
Summary of Aesthetic Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses could result in significant and unavoidable aesthetics impacts.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-3, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on aesthetics due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential aesthetics impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, aesthetic impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on aesthetic resources.

2. Agricultural and Forest Resources

Table 5-4
Summary of Agricultural and Forest Resources Impacts under Related Projects and Proposed Project

	Scoping Plan[1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan First Update column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses could result in significant and unavoidable impacts.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-4, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on agricultural and forest resources due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential agricultural and forest resources impacts associated with implementation of measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, agricultural and forest resources impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on agricultural and forest resources.

3. Air Quality

Table 5-5
Summary of Air Quality Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU[2]	PSU[3]	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.
[2] Scoping Plan significance finding due to short-term construction-related and odor related impacts
[3] State SIP Strategy significance finding due to short-term construction-related impacts

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Such activities could result in potentially significant and unavoidable short-term impacts to air quality; however, due to improved localized air quality through implementation of Control Measures under the proposed Draft Blueprint, long-term operational air quality impacts would be beneficial.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-5, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on air quality due to construction activities associated with individual projects. In addition the Scoping Plan also identified potentially significant and unavoidable impacts odor impacts as a result of construction and operation of certain individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential air quality impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, air quality impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on air quality.

4. Biological Resources

Table 5-6
Summary of Biological Resources Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan First Update column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could result in potentially significant and unavoidable impacts to biological resources such that the take of a listed or protection species could occur, habitat could be degraded, and a natural communities conservation plan or habitat conservation plan could be violated. These compliance responses could result in significant and unavoidable impacts.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-6, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on biological resources due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact could be cumulatively considerable due to potential biological resources impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, air quality impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on biological resources.

5. Cultural Resources

Table 5-7
Summary of Cultural Resources Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could result in ground-disturbing activities that could disturb cultural, historical, paleontological, or tribal resources of significance resulting in a potentially significant and unavoidable impacts to cultural resources.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-7, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on cultural resources due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact could be cumulatively considerable due to potential cultural resources impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, cultural resources impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on cultural resources.

6. Energy Demand

Table 5-8
Summary of Energy Demand Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	LTS	LTS	LTS

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Impacts to energy demand associated with the proposed Draft Blueprint would be less-than-significant.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-8, the related projects would not result in significant impacts on energy demand. Thus, there would not be a significant cumulative effect resulting from the combination of related projects.

The proposed Draft Blueprint would result in less-than-significant effects on energy demand related to implementation of compliance responses by covered entities. Thus, the proposed Draft Blueprint would **not result in a significant cumulative impact** on energy demand.

7. Geology and Soils

Table 5-9
Summary of Geology and Soils Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended measures in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could in potentially significant and unavoidable impacts to geology and soils.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-9, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on geology and soils due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential geology and soils impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, geology and soils impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on geology and soils.

8. Greenhouse Gases

Table 5-10
Summary of Greenhouse Gases Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	B	B	B

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Short-term construction-related impacts to GHG emissions associated with compliance responses under the proposed Draft Blueprint would be

less than significant and operational-related impacts associated with use of zero- and near-zero emission technology would produce beneficial impacts to climate change.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-10, the related projects would not result in significant impacts on GHG emissions. Thus, there would not be a significant cumulative effect resulting from the combination of related projects.

The proposed Draft Blueprint would result in less-than-significant effects on GHG emissions related to implementation of compliance responses by covered entities. Thus, the proposed Draft Blueprint would **not result in a significant cumulative impact** on GHG emission impacts.

9. Hazards and Hazardous Materials

Table 5-11
Summary of Hazards and Hazardous Materials Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could in potentially significant and unavoidable impacts to hazards and hazardous materials.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-11, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on hazards and hazardous materials due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential hazards and hazardous materials impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as

increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, hazards and hazardous materials impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on hazards and hazardous materials.

10. Hydrology and Water Quality

Table 5-12
Summary of Hydrology and Water Quality Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could in potentially significant and unavoidable impacts to hydrology and water quality.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-12, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on water quality and hydrology due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Blueprint's contribution to this significant impact would be cumulatively considerable due to potential water quality and hydrology impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, water quality and hydrology impacts may be substantial. Thus, the proposed Blueprint could result in

a **cumulatively considerable contribution to a significant cumulative impact** on hydrology and water quality.

11. Land Use and Planning

Table 5-13
Summary of Land Use and Planning Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	LTS	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. Both construction and operational activities associated with these compliance responses could in potentially significant and unavoidable impacts to land use and planning.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-13, the Scoping Plan environmental document identified potentially significant and unavoidable impacts on land use and planning due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential land use and planning impacts associated with construction activities to implement compliance responses by covered entities under the proposed Draft Blueprint. Implementation of mitigation measures have the potential to reduce these 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. As a result, land use and planning impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on land use and planning.

12. Mineral Resources

Table 5-14
Summary of Mineral Resource Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	LTS	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in potentially significant and unavoidable impacts to mineral resources.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-14, the SIP environmental document identified potentially significant and unavoidable impacts on mineral resources. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential mineral resources impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, mineral resources impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on mineral resources.

13. Noise

Table 5-15
Summary of Noise Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in potentially significant and unavoidable impacts to noise.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-15, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on noise due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential noise impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, noise impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on noise.

14. Population and Housing

Table 5-16
Summary of Population and Housing Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	LTS	LTS	LTS

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in less-than-significant construction and operational impacts to population and housing.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-16, the Scoping Plan and State SIP Strategy environmental documents identified less-than-significant impacts population and housing. Thus, there would not be a significant cumulative effect resulting from the combination of related projects.

The proposed Draft Blueprint would not combine with other related projects to result in a cumulatively significant impact because individual projects would not be expected to result in substantial increases in population or housing compared to the existing conditions. The proposed Draft Blueprint would result in less-than-significant effects on population and housing related to implementation of compliance responses by covered entities. Thus, the proposed Draft Blueprint would **not result in a cumulatively considerable contribution to significant cumulative impact** on population and housing.

15. Public Services

Table 5-17
Summary of Public Services Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	LTS	LTS	LTS

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in less-than-significant construction and operational impacts to public services.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-17, the Scoping Plan and State SIP Strategy environmental documents identified less-than-significant impacts on public services. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint would not combine with other related projects to result in a cumulatively significant impact because individual projects would not be expected to demand additional public services compared to the existing conditions. Thus, the proposed Draft Blueprint **would not result in a cumulatively considerable contribution to a significant cumulative impact** on public services.

16. Recreation

Table 5-18
Summary of Recreation Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	LTS	LTS	LTS

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in less-than-significant construction and operational impacts to recreation.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-18, the Scoping Plan and State SIP Strategy environmental documents identified less-than-significant impacts to recreation resources. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint would not combine with other related projects to result in a cumulatively significant impact because individual projects would not be expected to demand additional recreation resources compared to the existing conditions. Thus, the proposed Draft Blueprint **would not result in a cumulatively considerable contribution to a significant cumulative impact** on recreation.

17. Transportation and Traffic

Table 5-19
Summary of Transportation and Traffic Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in potentially significant and unavoidable impacts to transportation and traffic.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-19, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on traffic and transportation due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to potential transportation and traffic impacts associated

with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, transportation and traffic impacts may be substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on transportation and traffic.

18. Utilities and Service System

Table 5-20
Summary of Utilities and Service System Impacts under Related Projects and Proposed Project

	Scoping Plan [1]	State SIP Strategy	Proposed Draft Blueprint
Significance Conclusion	PSU	PSU	PSU

Notes: SIP=State Implementation Plan; LTS=less-than-significant; PSU=potentially significant and unavoidable.
[1] Significance conclusions under the Scoping Plan column indicate the greatest level of impacts (e.g., potentially significant and unavoidable) reported under the nine sectors, see Table 5-1 for more detailed information.

Implementation of the reasonably foreseeable compliance responses associated with the recommended actions in the proposed Draft Blueprint could require construction and operational activities associated with new or modified facilities or infrastructure and increased mining activities. These compliance responses would result in potentially significant and unavoidable impacts to utilities and service systems.

Implementation of the Scoping Plan and State SIP Strategy would include the reasonably foreseeable compliance responses described above under Section 5.C. As summarized in Table 5-20, the Scoping Plan and State SIP Strategy environmental documents identified potentially significant and unavoidable impacts on utilities and service systems due to construction and operation of individual projects. Thus, implementation of these programs could result in a significant cumulative effect.

The proposed Draft Blueprint's contribution to this significant impact would be cumulatively considerable due to utilities impacts associated with implementation of Control Measures which would cause additional demand for zero- and near-zero emission technology, resulting in the construction and operation of new or expanded manufacturing and recycling facilities as well as increased mining of lithium for zero- and near-zero emission batteries. Implementation of mitigation measures have the potential to reduce these 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. As a result, utilities impacts may be

substantial. Thus, the proposed Draft Blueprint could result in a **cumulatively considerable contribution to a significant cumulative impact** on utilities and service systems.

E. Growth-Inducing Impacts

The proposed Draft Blueprint would not directly result in any growth in population or housing, as discussed above. Measures discussed in the proposed Draft Blueprint are intended to improve community health within the State and improve air quality conditions for residents. Due to the changes in technology and development necessary for this effort, growth may be indirectly encouraged in response to growth in green jobs and innovative green technologies. However, the degree to which that may occur and result in new residents within California would likely be minimal and accommodated by existing growth projections of local jurisdictions. Depending on the implementation locations for many of the measures outlined in the proposed Draft Blueprint, employment growth may be accommodated by the existing population in that location. The proposed Draft Blueprint would contribute to California's effort to improve public health, contribute towards healthy lifestyles, and improved quality of life.

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6.0 MANDATORY FINDINGS OF SIGNIFICANCE

Consistent with the requirements of the California Environmental Quality Act (CEQA) Guidelines Section 15065 and Section 18 of the Environmental Checklist, this Draft Environmental Analysis (EA) addresses the mandatory findings of significance for the near-term measures included in the Draft Community Air Protection Blueprint (Draft Blueprint).

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?

Under CEQA Guidelines Section 15065(a), a finding of significance is required if a project "has the potential to substantially degrade the quality of the environment." In practice, this is the same standard as a significant impact on the environment, which is defined in CEQA Guidelines Section 15382 as "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

As with all of the environmental impacts and issue areas, the precise nature 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 near-term measures in the proposed Draft Blueprint. The locations of compliance responses, their spatial or aerial extent, and a variety of site-specific factors are not known at this time but would be addressed by environmental reviews to be conducted when specific regulations are proposed by statewide regulatory agencies, or by local or regional agencies with regulatory authority at the project-specific level.

This Draft EA, in its entirety, addresses and discloses potential environmental impacts (mainly due to short-term construction-related activities and out of state mining activities) associated with the measures in the proposed Draft Blueprint, including direct, indirect, and cumulative impacts in the following resource areas:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy Demand

- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems

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

a) Impacts on Species

Under CEQA Guidelines Section 15065(a)(1), 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 (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. Chapter 4 of this Draft EA addresses typical construction 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 Guidelines Section 15065(a)(1) 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. CEQA Guidelines Section 15065(a)(1) amplifies Public Resources Code (PRC) Section 21001(c) requiring that major periods of California history are preserved for future generations. It also reflects the provisions of PRC Section 21084.1 requiring a finding of significance for substantial adverse changes to historical resources. CEQA Guidelines Section 15064.5 establishes standards for determining the significance of impacts to historical resources and archaeological sites that are a historical resource. Chapter 4 of this Draft EA addresses typical construction 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?

As required by CEQA Guidelines Section 15065, 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. As defined in CEQA Guidelines Section 15065(a)(3), 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." Cumulative impacts (construction-related) are addressed for each of the environmental topics listed above and are provided in Chapter 5, "Cumulative and Growth-Inducing Impacts," in this Draft EA.

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

Consistent with CEQA Guidelines Section 15065(a)(4), 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 cause substantial adverse impacts on human beings, either directly or indirectly. 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 particular individuals. While changes to the environment that could indirectly affect human beings would be represented by all of 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 EA.

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7.0 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 project, a discussion of whether and how each alternative meets the project's objectives, and an analysis of each alternative's environmental impacts.

The California Air Resources Board's (CARB's) certified regulatory program (17 California Code of Regulations (CCR) Sections 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 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 regulation 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 such adverse impact. For purposes of this section, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors, and consistent with the state board's legislatively mandated responsibilities and duties. (17 CCR Section 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 Section 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.

The range of alternatives is governed by the "rule of reason," which requires evaluation of only those alternatives "necessary to permit a reasoned choice" (14 CCR Section 15126.6(f)). Further, an agency "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (17 CCR Section 15126.6(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.

CARB has identified three alternatives that represent a reasonable range of alternatives that will allow the public and Board to understand the differences between different types or combinations of approaches.

The objectives of the proposed Draft Community Air Protection Blueprint (Draft Blueprint) are listed below. These objectives are derived from the Community Air Protection Program (Program), public outreach efforts, and statutory authority under the Health and Safety Code.

The objectives of the proposed Draft Blueprint are to:

1. provide core elements for the Program;

2. provide a process and criteria for the identification, assessment and selection of communities for community emissions reduction programs and air monitoring;

3. describe the tools and resources to be used in future planning to identify strategies to reduce exposure and emissions in pollution-burdened communities;

4. provide the criteria necessary for community air monitoring;

5.. provide the criteria necessary for community emissions reduction programs to achieve the requirements of AB 617 as set out in the Health and Safety Code (*See* Health & Saf. Code Section 44391.2);

6. provide other measures to ensure the success of the Program, which include regulatory measures that CARB could undertake using its authorities, funding programs, a statewide emission reporting system, a technology clearinghouse, and other resources as described in Chapter 2, Section C of this Draft EA;

7. further the objectives set forth in AB 617 to support a reduction of emissions of Toxic Air Contaminates (TACs) and criteria air pollutants in communities affected by a high cumulative exposure burden; and

8. develop a strategy that is consistent with and meets the goals of AB 617.

A. 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.

1. Alternative 1: No-Project Alternative

a) Alternative 1 Description

CARB is including the No-Project Alternative for the sake of completeness. CARB's certified regulatory program does not mandate consideration of a "No-Project Alternative" (17 CCR Section 60006). Under CARB's certified program, the alternatives considered, among other things, must be "consistent with the state board's legislatively mandated responsibilities and duties" (18 CCR Section 60006).

The No-Project Alternative is included only to assist in the analysis and consideration of this portion of the proposed Draft Blueprint 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" (14 CCR Section 15126.6(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.

Alternative 1 in this analysis describes a reasonably foreseeable scenario if CARB did not approve the project – namely, the measures identified in the proposed Draft Blueprint.

b) Alternative 1 Impact Discussion

i. Objectives

The No-Project Alternative would fail to meet many of the project objectives described in Chapter 2 and reiterated above. In addition, Alternative 1 would fail to meet statutory requirements of AB 617, such as the requirement to develop a process and criteria for the identification, assessment and selection of communities for community emission reduction programs and air monitoring. The overall goal of the proposed Draft Blueprint is to improve local air quality in pollution-burden communities. To achieve this objective, the proposed Draft Blueprint includes policies and measures that would be implemented at the local level by affected air districts throughout the state. Notably, there would be no process and criteria for the identification of pollution-burdened communities, and there would be no community emission reduction programs implemented. Air quality emissions in pollution-burdened communities would be expected to decrease through implementation of other programs included within California's 2017 Climate Change 2030 Target Scoping Plan (Scoping Plan). However, under the No-Project Alternative, a strategy and blueprint that is consistent with AB 617 would not be developed. Thus Alternative 1 would not meet most of the project objectives.

ii. Environmental Impacts

Implementation of the No-Project Alternative would avoid the additional environmental impacts described in Chapter 4 of this Draft EA, which are primarily associated with

construction and operation of facilities related to the implementation of specific compliance responses or projects to improve air quality within pollution-burdened communities within the State. Given the assumption that compliance responses associated with the proposed Draft Blueprint would not occur, the environmental impacts relevant to implementation of air pollution reduction measures would also not occur.

Thus, potentially significant impacts related to compliance response that could result in changes to infrastructure and increased mining, manufacture, and recycling of zero- and near-zero emission-related technologies would not be driven by the proposed Draft Blueprint. Without implementation of the proposed Draft Blueprint, the beneficial environmental impacts of reduced air pollution and greenhouse gas (GHG) emissions in pollution-burdened communities would not be realized. The State's ability to combat the adverse health effects and environmental impacts related to air quality in addition to climate change would be limited to benefits achieved from other programs.

2. Alternative 2: Remove Regulatory-Based Measures

a) Alternative 2 Description

This alternative would remove measures that are based on regulatory actions which are the proposed measures that would result in potentially significant and unavoidable impacts as described in Chapter 4 above. This alternative would therefore result in fewer adverse environmental impacts as a result of implementation of the proposed Draft Blueprint. The proposed measures to be removed the proposed Draft Blueprint are listed as follows.

- Evaluation and Potential Development of Regulation to reduce Idling for All Railyard Sources,
- Evaluation and Potential Development of Regulation to Reduce Emissions from Locomotives not Preempted Under the Clean Air Act,
- Drayage Trucks at Seaports and Rail Yards Amendment,
- Commercial Harbor Craft Amendment,
- Cargo Handling Equipment Amendment,
- Catalytic Converter Theft Reduction,
- Chrome Plating Control Measures Amendment,
- Composite Wood Products Control Measure Amendments,
- Commercial Cooking Suggested Control Measure, and
- Heavy Duty On-Road and Off-Road Engine Testing.

Under this alternative, the following measures would be implemented (see Chapter 2, Project Description for details related to each measure):

- Supporting Tools and Resources:
  - Develop and Maintain the Online Resource Center
  - Maintain and Expand the Technology Clearinghouse
  - Develop and Maintain Community Air Monitoring Online Resource Center
  - Compile and Develop Best Practices Guidance on Outreach, Land Use, and Transportation
  - Provide Community Enforcement Program
  - Provide Enforcement Staff Cross-Training for Multimedia Violation
  - Conduct Periodic Supplemental Environmental Projects Outreach
  - Assess Current Air Monitoring Technologies and Provide Information
  - Assess Current Air Monitoring Systems and Provide Information
  - Industry Guidance to Gasoline Dispensing Facilities
  - Develop and Maintain an Annual Emissions Reporting System
  - Funding for Community Assistance Grants
  - Develop and Maintain Community Air Monitoring Data Portal
  - Explore Community Health Indicators
- Identification and Recommendation of Communities
- Criteria for Community Air Monitoring
- Criteria for Community Emission Reduction Programs
- Incentive Funding to Support Immediate Emission Reductions

The reasonably foreseeable compliance responses associated with the measures described above are provided in detail in Chapter 2, Project Description, of this Draft EA. In general, the reasonably foreseeable compliance responses associated with this alternative would consist of activities such as monitoring, reporting, and documentation. Alternative 2 would generally be limited to activities carried out within existing businesses and would not be expected to require construction-related or other earth-moving activities.

b) Alternative 2 Impact Discussion

i. Objectives

Under Alternative 2, measures would include a process and criteria for the identification and selection of communities for community emission reduction programs and air monitoring; tools and resources to identify strategies to reduce exposure and emissions in pollution-burdened communities; incentive funding to support immediate emission reductions; and, an approach to develop and maintain an annual emissions reporting

system. This alternative would be expected to result in a reduction of emissions of TACs and criteria air pollutants in communities affected by a high cumulative exposure burden; however, the level of reduction would likely be less than optimal since the regulatory based measures, as proposed, would provide additional long-term benefits to air quality, as described in Chapter 4.

ii. Environmental Impacts

Under Alternative 2, the reasonably foreseeable compliance responses would not result in a physical change in the environment. Thus, there would be no significant environmental effects. However, without implementation of the proposed measures under the proposed Draft Blueprint, the beneficial environmental impacts of reduced air pollution and GHG emissions would not be realized to the extent that they would occur under the proposed Draft Blueprint because the emission reduction strategies listed above would not be included.

3. Alternative 3: Remove Port-Related Regulatory-Based Measures

a) Alternative 3 Description

This alternative would remove all regulatory-based measures related to port activities. The specific Emission Reduction Measures that would be omitted from the proposed Draft Blueprint include:

- Commercial Harbor Craft Amendment, and
- Cargo Handling Equipment Amendment.

All other measures described in Chapter 2, Project Description, would be implemented including: the Emission Reduction Strategies (except those listed above), Supporting Tools and Resources, Identification and Recommendation of Communities, Criteria for Community Air Monitoring, and Criteria for Community Emission Reduction Programs. This alternative was selected based on the fact that removing the measures related to port activities would result in a decrease of potentially significant adverse impacts to the resource areas analyzed above in Chapter 4, but would provide more benefit to pollution-burdened communities than removing any other regulatory-based measures as the majority of these communities are not located near ports.

b) Alternative 3 Impact Discussion

i. Objectives

Under Alternative 3, measures would include a process and criteria for the identification and selection of communities for community emission reduction programs and air monitoring; non port-related emission reduction strategies, tools and resources to identify strategies to reduce exposure and emissions in pollution-burdened communities; incentive funding to support immediate emission reductions; and, an approach to develop and maintain and annual emissions reporting system. Overall, this alternative would meet the goals, objectives, and requirements set forth under AB 617.

Thus, this alternative would meet most of the project objectives related to the proposed Draft Blueprint.

ii. Environmental Impacts

Alternative 3 would result in similar compliance responses and subsequent ground disturbing activity as the proposed Draft Blueprint, except that there would be no State regulatory activities at ports. Under Alternative 3, the environmental effects associated with new infrastructure and increased mining, manufacturing, and recycling of zero- and near-zero emission technologies would be similar as described for the proposed Draft Blueprint in Chapter 4, Impacts and Mitigation Measures in this Draft EA. As such, this alternative would have potentially significant and unavoidable impacts to aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, and utility and service systems due to short-term construction-related and long-term operational-related activities associated with similar compliance responses to the proposed Draft Blueprint. However, Alternative 3 would reduce demand for lithium-ion batteries relative to the proposed Draft Blueprint. Thus, impacts associated with mining activities (e.g., hydrology and water quality, mineral resources, traffic and transportation) would be of lesser magnitude under Alternative 3 compared to the proposed Draft Blueprint. In addition, because measures related to ports would not be included, there would be no new strategies to reduce air quality and GHG emissions at ports. Thus, beneficial impacts on air quality and GHG emissions would be of a lesser magnitude under Alternative 3 compared to the proposed Draft Blueprint.

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8.0 REFERENCES

1. California Air Resources Board. 2015. Drive Clean. Hydrogen Fuel Cells. Available: https://www.driveclean.ca.gov/Search_and_Explore/Technologies_and_Fuel_Types/Hydrogen_Fuel_Cell.php. Accessed: April 2018.

2. Commission for Environmental Cooperation. 2015 (December). *Environmentally Sound Management of End-of-Life Batteries from Electric-Drive Vehicles in North America*. Available: http://www3.cec.org/islandora/en/item/11637-environmentally-sound-management-end-life-batteries-from-electric-drive-vehicles-en.pdf. Accessed: April 2018.

3. Edmunds. 2014. *What Happens to EV and Hybrid Batteries?* Available: http://www.edmunds.com/fuel-economy/what-happens-to-ev-and-hybrid-batteries.html. Accessed: April 2018.

4. Gruber, Paul W., Pablo A. Medina, Gregory A. Keoleian, Stephen E. Kesler, Mark P. Everson and Timothy J. Wallington. 2011. Global Lithium Availability. A Constraint for Electric Vehicles? *Journal of Industrial Ecology*. Volume 15, Issue 5, pages 760-775, October 2011.

5. Lecocq, Amandine, Marie Bertana, Benjamin Truchot, and Guy Marlair. 2012. Comparison of the Fire Consequences of an Electric Vehicle and an Internal Combustion Engine Vehicle. *Technical Research Institute of Sweden*. Available: https://hal-ineris.archives-ouvertes.fr/ineris-00973680/document. Accessed: April 2018.

6. National Renewable Energy Laboratory. 2011. Available: The Impact of Lithium Availability on Vehicle Electrification. Available: https://www.nrel.gov/docs/fy11osti/52393.pdf. Accessed: April 2018

7. Pipeline and Hazardous Materials Safety Administration. 2014. Hazards Materials: Revisions to Requirements for the Transportation of Lithium Batteries. Available: https://www.federalregister.gov/articles/2014/08/06/2014-18146/hazardous-materials-transportation-of-lithium-batteries. Accessed: April 2018.

8. Shi, Yang, Gen Chen, and Zheng Chen. 2018. Effective Regeneration of LiCoO¬2¬ from Spent Lithium-Ion Batteries: a Direct Approach Towards High-Performance Active Particles. Green Chemistry, 20:851. Available: http://pubs.rsc.org/en/content/articlelanding/2018/gc/c7gc02831h#!divAbstract

9. Society of Automotive Engineers. 2013. Standard for Fuel Systems in Fuel Cell and Other Hydrogen Vehicles. Available: http://standards.sae.org/j2579_201303. Accessed: April 2018.

10. Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources. Electronic document, http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx. Accessed April 2018.

11. United States Geological Survey. 2017a. Mineral Resources Profile: Lithium. Available: https://minerals.usgs.gov/minerals/pubs/commodity/lithium/mcs-2017-lithi.pdf. Accessed: April 2018.

12. United States Geological Survey. 2017b. Mineral Resources Profile: Cobalt. Available: https://minerals.usgs.gov/minerals/pubs/commodity/cobalt/mcs-2017-cobal.pdf. Accessed: April 2018.

13. Vidal, Oliver, Brun Goffe, and Nicholas Arndt. 2013. Metals for a low-carbon society. Nature-Geoscience, Volume 6, 894-896.

ATTACHMENT 1: ENVIRONMENTAL AND REGULATORY SETTING

1. AESTHETICS

A. Existing Conditions

1. U.S.

The U.S., by its size, setting, and topographic and climate variation, exhibits tremendous scenic diversity. The varied landscape ranges from coastal to desert and valley to mountain. Innumerable natural features and settings combine to produce scenic resources that are treasured by residents and visitors alike.

Aesthetic value can be affected by visibility, which is directly related to the presence of airborne particles. Visibility-reducing particles consist of suspended particulate matter, a complex mixture of tiny particles consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. Particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt (California Air Resources Board [CARB] 2009).

2. California

Like the U.S., 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 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 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

Table 1: Applicable Laws and Regulations for Aesthetic Resources	
Applicable Regulations	**Description**
	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. U.S.

Forests in the U.S. are very diverse in composition and distribution, including oak-hickory and maple-beech-birch forests, as well as fir, pine, and redwood forests. It is estimated that, at the beginning of European settlement (circa 1630), the area of forest land in the current boundaries of the U.S. was approximately 423 million hectares, or about 46 percent of the total land area. By 1907, the area of forest land had declined to an estimated 307 million hectares or 34 percent of the total land area. Forest area has been relatively stable since 1907. In 1997, 302 million hectares or 33 percent of the total land area of the U.S. was in forest land. As of 2000, forest land area amount to approximately 70 percent of the area that was forested in 1630. Since 1630, approximately 120 million hectares of forest land have been converted to other uses, primarily agriculture (U.S. Forest Service [USFS] 2000).

U.S. land area amounts to nearly 2.3 billion acres, with nearly 1.2 billion acres in agricultural lands. The proportion of the land base in agricultural uses declined from 63 percent in 1949 to 51 percent in 2007, the latest year for which data are available. Gradual declines have occurred in cropland and pasture/range, while grazed forestland has decreased more rapidly. In 2007, 408 million acres of agricultural land were in cropland (-17 percent from 1949), 614 million acres were in pasture and range (-3 percent), 127 million acres were in grazed forestland (-52 percent), and 12 million acres were in farmsteads and farm roads (-19 percent) (U.S. Department of Agriculture [USDA] 2016).

The 2012 Census of Agriculture recorded 2,109,303 farms in the U.S. The top five states, based on the value of agricultural products sold and on their percentage of the total value are: California (10.8 percent), Iowa (7.8 percent), Texas (6.4 percent), Nebraska (5.8 percent) and Minnesota (5.4 percent). Most states have laws in place to support agriculture and protect agricultural land.

2. California

The State 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 to produce agricultural crops;
- Farmland of Statewide Importance—land other than Prime Farmland that has a good combination of physical and chemical features to produce 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 to produce 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.

California Environmental Quality Act (CEQA) Section 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 approximately 5 million acres of Prime Farmland; approximately 2.6 million acres of Farmland of Statewide Important; approximately 1.3 million acres of Unique Farmland; approximately 3.2 million acres of Farmland of Local Importance; and approximately 19.2 million acres of grazing land (FMMP 2015).

California produces over a third of the vegetables and two thirds of the fruits and nuts in the U.S. California's agricultural abundance includes more than 400 commodities, and supplies 99 percent or more of the following to the U.S.: almonds, artichokes, dates, dried plums, figs, garlic, kiwifruit, olives and olive oil, pistachios, raisins, table grapes, and walnuts. In 2016, 76,700 farms operated in California, which is less than 1 percent fewer than in 2015. Over 27 percent of California farms generated commodity sales over $100,000, greater than the national average of 20 percent. The amount of land devoted to farming and ranching in California decreased slightly to 25.4 million acres in 2016. The average farm size was 331 acres in 2016, up from the 2015 farm size, but still below the national average of 442 acres (CDFA 2018).

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).

a) 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] Section 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] 2014).

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 (Government Code Section 51104[f]). 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 2017).

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 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 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

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources	
Applicable Regulations	**Description**
	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 et seq.)	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 preserve and subject to contract (Government Code, Section 51201 (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 et seq.)	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.

Table 2: Applicable Laws and Regulations for Agriculture and Forest Resources	
Applicable Regulations	**Description**
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.
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, 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. Projects located within these lands would be subject to the State Lands Commission permitting process.
Local	
Open Space Element (Government Code Section 65300 et seq.)	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

1. U.S.

At the federal level, U.S. Environmental Protection Agency (U.S. EPA) has oversight of state programs. In addition, U.S. EPA established emission standards for mobile sources such as ships, trains, and airplanes. U.S. EPA has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called criteria air pollutants. Periodically, the standards are reviewed and may be revised. The current standards are listed below in Table A1-1. Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$).

2. California

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, 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.

a) Criteria Air Pollutants

Concentrations of emissions of criteria air pollutants 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 each criteria air pollutant is provided below. Emission source types and health effects are summarized 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

Table 3: Sources and Health Effects of Criteria Air Pollutants			
Pollutant	**Sources**	**Acute[1] Health Effects**	**Chronic[2] Health Effects**
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, cough, 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 2017

b) Ozone

Ozone is a gas composed of three atoms of oxygen (O3). Ozone occurs both in the Earth's upper atmosphere (stratospheric) and at ground level (tropospheric). Stratospheric ozone occurs naturally in the upper atmosphere, where it forms a protective layer that shields us from the sun's harmful ultraviolet rays. Tropospheric, or

ground level ozone, is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC). This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant, because of its effects on people and the environment, and it is the main ingredient in “smog (U.S. EPA 2018).”

Nitrogen Dioxide

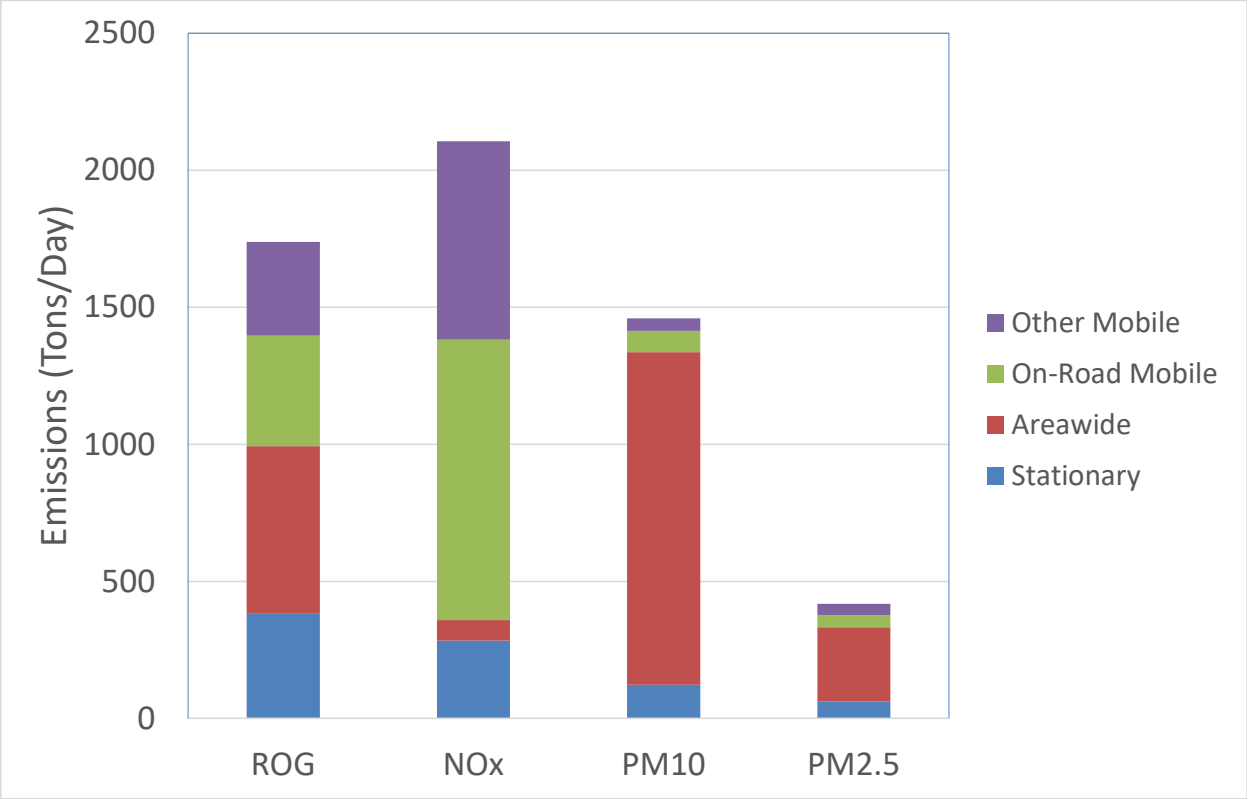
NO_2 is a brownish, highly-reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which 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 geographical area may not be representative of the local sources of NO_X emissions (U.S EPA 2017).

c) 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. $PM_{2.5}$ 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).

d) Emissions Inventory

Exhibit 1 summarizes emissions of criteria air pollutants within California for various source categories. According to California’s emissions 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 Emissions Inventory

e) 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.

Today, the emissions from combustion of fuel in motor vehicles and off-road equipment are the primary source of air toxics risk in California. Particulate matter (PM) from diesel-fueled engines is a toxic air contaminant and diesel PM accounts for approximately 60 percent of the current estimated inhalation cancer risk for background ambient air. Some examples of sources that contribute to higher potential health impacts from mobile diesel PM include freight hubs, like ports, rail yards and distribution centers. Because diesel PM cannot be directly measured in the ambient air, we use surrogate compounds and the emission inventory to estimate the ambient concentration. Both the combustion and evaporation of gasoline used in vehicles, lawn and garden equipment, recreational watercraft, etc. produce other prevalent air toxics. Examples of stationary sources that also contribute to increased health risks to nearby residents include: metal finishing/manufacturing, chrome plating facilities, various product manufacturing (e.g., food, chemical, material, and etc.), stationary diesel

engines (e.g., emergency backup generators), and refineries (CARB and CAPCOA 2015).

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) (42 U.S.C. Section 7401 et seq.; 40 CFR (e.g., Subchapter C- Air Programs, Subpart U- Air Emission Controls).)	CAA, which was last amended in 1990, requires the U.S. EPA to set 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. U.S. EPA Office of Air Quality Planning and Standards has set NAAQS for criteria air 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 ozone nonattainment conditions to further reduce mobile-source emissions.
SmartWay	SmartWay is an 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) (Health and Safety Code, e.g., Division 26, (commencing with section 39000 et seq.); California Code of	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).

Table 4: Applicable Laws and Regulations for Air Quality	
Regulation	**Description**
Regulations (CCR) (Title 13, Division 3 (commencing with Section 1900 et seq.) and Title 17, Division 3 (commencing with Section 60000 et seq.)	
Waste Heat and Carbon Emissions Reduction Act (Public Utilities Code section 2840 et seq.)	This Act is designed to encourage the development of new combined heat and power (CHP) systems in California with a generating capacity of not more than 20 megawatts (MW). Section 2843 of the Act provides that the California Energy Commission's (CEC's) guidelines require that CHP systems: be designed to reduce waste energy; have a minimum efficiency of 60 percent; have NO_X emissions of no more than 0.07 pounds per megawatt-hour (MWh); be sized to meet the eligible customer generation thermal load; operate continuously in a manner that meets the expected thermal load and optimizes the efficient use of waste heat; be cost effective, technologically feasible, and environmentally beneficial.
Other Applicable State-Level Regulations	This includes all other applicable regulations at the State level for portions of the project area that are outside of California (e.g., Toxic Air Contaminant Identification and Control Act ((AB 1807) Tanner, Ch. 1047, Stats.of 1983 and Air Toxics "Hot Spots" Information and Assessment ((AB 2588), Connelly, Ch.1252, Stats. of 1987.).
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 the SIP and any amendments.

4. BIOLOGICAL RESOURCES

A. Existing Conditions

1. U.S.

The U.S. is comprised of many different biological provinces, or biomes, including tundra, coniferous and deciduous forest, grassland, and desert. Each biome provides a sanctuary to a diverse variety of biological species. Scientists have documented more

than 200,000 species in the U.S., representing more than 10 percent of the species worldwide (The Nature Conservancy 2002).

2. California

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, and 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).

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).

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 systems. 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) (16 U.S.C. § 1531 et seq.)	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

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
	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 (U.S. Fish and Wildlife Service [USFWS] 2005).
Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act.
Clean Water Act (CWA) (33 U.S.C. §1251 et seq.)	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.
California Desert Conservation Area Plan (CDCA)	Comprises one of two national conservation areas established by Congress in 1976. 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.C. 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 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.
Executive Order 11988, “Floodplain	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

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
Management," May 24, 1977	direct and indirect support of floodplain development wherever there is a practicable alternative.
Executive Order 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.
Executive Order 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 USFWS that shall promote the conservation of migratory bird populations.
Bald and Golden Eagle Protection Act (16 U.S.C. § 668 et seq.)	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, 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, section 2050 et seq.)	Protects California's rare, threatened, and endangered species.
Natural Community Conservation Planning (NCCP) Act 1991 (Fish and Game Code, section 2800 et seq.)	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 area-wide 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 2017).

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.)	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 Act (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.
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 Migratory Bird Treaty Act 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

Table 5: Applicable Laws and Regulations for Biological Resources	
Applicable Law	**Description**
	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 Section 80001 et seq. and California Fish and Game Code sections 1925-1926)	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 commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.
Food and Agriculture Code, Section 403	CDFA is designated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds.
Noxious Weeds (Title 3, CCR 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

1. U.S.

Cultural resources include archaeological sites of prehistoric or historic origin, built or architectural resources older than 50 years, traditional or ethnographic resources, and fossil deposits of paleontological importance. America has a cultural heritage that dates to some 25,000–60,000 years ago, when the first known inhabitants of the land that would eventually become the U.S. crossed the Bering land bridge into Alaska.

All areas within the U.S. have the potential for yielding yet undiscovered archaeological and paleontological resources and undocumented human remains not interred in cemeteries or marked formal burials. These resources have the potential to contribute to our knowledge of the fossil record or local, regional, or national prehistory or history.

Archaeological resources include both prehistoric and historic remains of human activity. Built environment resources include an array of historic buildings, structures, and objects serving as a physical connection to America's past. Traditional or ethnographic cultural resources may include Native American sacred sites and traditional resources of any ethnic community that are important for maintaining the cultural traditions of any group. "Historical resources" is a term with defined statutory meaning and includes any prehistoric or historic archaeological site, district, built environment resource, or traditional cultural resource recognized as historically or culturally significant (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). Paleontological resources, including mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains, are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units.

2. California

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 like 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; Chartkoff and Chartkoff 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 midden/mounds at coastal and inland sites in central and southern California, for example, attest to the regular reuse 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; Chartkoff and Chartkoff 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).

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:pp. 662-669). 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, entailed a variety of annual rites to prevent natural disasters, maintain 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 (i.e., 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, because 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	

Table 6: Divisions of Geologic Time			
Era	**Period**	**Time in Millions of Years Ago (approximately)**	**Epoch**
Paleozoic	Permian	299	
	Carboniferous	359	
	Devonian	416	
	Silurian	444	
	Ordovician	488	
	Cambrian	542	
Precambrian		2,500	
Source: U.S. Geological Survey 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 State Park in Ordovician sediments dating to circa 450 million years ago. Limestone outcrops of Pennsylvanian and Permian in the Providence Mountains State Recreation Area 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, 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 NHPA 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 (ACHP) as an independent federal entity. Section 106 of the NHPA requires federal agencies to consider 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 U.S.C. §§ 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) (25 U.S.C. § 3001 et seq.)	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

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	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 Part 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 properties to the SHPO for review and comment prior to project approval.
National Park Service Regulations, NRHP (36 CFR Part 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 (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" (p. 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 Housing Administration (FHA), 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

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	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	
Health and Safety Code Sections 7052 and 7050.5 and PRC, Section 5097.98	Disturbance of human remains without the authority of law is a felony (Health and Safety Code Section 7052). According to State law (Health and Safety Code Section 7050.5; PRC Section 5097.98), if human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until 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 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 Health and Safety Code, six or more human burials at one location constitute a cemetery (Health and Safety Code Sections 8100 and 7003), and disturbance of Native American cemeteries is a felony (Health and Safety Code Section 7052). Section 7050.5 requires that construction or excavation be stopped near 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 (Health and Safety Code 7050.5(c); PRC Section 5097.98).

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
CEQA (Guidelines Section 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.
Assembly Bill (AB) 52 (Statues of 2014)	AB 52 (Gatto, Chapter 532, Statutes of 2014) 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 (local register of historical resources is defined in PRC section 5020.1(k)). 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 State Parks (CSP), 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

Table 7: Applicable Laws and Regulations for Cultural Resources	
Applicable Regulation	**Description**
	Secretary of Interior's Professional Qualification Standards and Guidelines (36 CFR Part 61).

6. ENERGY DEMAND

A. Existing Conditions

1. U.S.

Petroleum, natural gas, coal, renewable energy, and nuclear electric power are primary energy sources. Electricity is a secondary energy source that is generated from primary energy sources. In 2016, U.S. energy mix comprised of (U.S. Energy Information Administration 2017a):

- Petroleum 37 percent,
- Natural Gas 29 percent,
- Coal 15 percent,
- Renewable Energy 10 percent, and
- Nuclear Electric Power 9 percent.

Energy sources are measured in different physical units: liquid fuels in barrels or gallons, natural gas in cubic feet, coal in short tons, and electricity in kilowatts and kilowatt-hours. In the United States, British thermal units (Btu), a measure of heat energy, is commonly used for comparing different types of energy to each other. In 2016, total U.S. primary energy consumption was about 97.4 quadrillion (1015, or one thousand trillion) Btu (U.S. Energy Information Administration 2017a).

In 2016, the shares of total primary energy consumption for the five energy-consuming sectors were (U.S. Energy Information Administration 2017a):

Electric power—39%

Transportation—29%

Industrial—22%

Residential—6%

Commercial—4%

The three major fossil fuels—petroleum, natural gas, and coal—have dominated the U.S. energy mix for more than 100 years. Several recent changes in U.S. energy production have occurred (U.S. Energy Information Administration 2017a):

- Coal production peaked in 2008 and trended down through 2016. Coal production in 2016 was about the same as production was in 1977. The primary reason for the general decline in coal production in recent years is the decrease in coal consumption for electricity generation.
- Natural gas production in 2016 was the second largest amount after the record high production in 2015. More efficient and cost-effective drilling and production techniques have resulted in increased production of natural gas from shale formations.
- Crude oil production generally decreased each year between 1970 and 2008. In 2009, the trend reversed, and production began to rise. More cost-effective drilling and production technologies helped to boost production, especially in Texas and North Dakota. In 2016, crude oil production was lower than production in 2015, mainly because of lower global crude oil prices.
- Natural gas plant liquids (NGPL) are hydrocarbon gas liquids that are extracted from natural gas before the natural gas is put into pipelines for transmission to consumers. NGPL production has increased alongside increases in natural gas production. In 2016, NGPL production reached a record high.
- Total renewable energy production and consumption both reached record highs of about 10 quadrillion Btu in 2016. Hydroelectric power production in 2016 was about 12% below the 50-year average, but increases in energy production from wind and solar helped to increase the overall energy production from renewable sources. Energy production from wind and solar were at record highs in 2016.

2. California

California's total energy consumption ranks among the highest in the nation, but, in 2015, the state's per capita energy consumption ranked 49th, due in part to its mild climate and its energy efficiency programs. Excluding federal offshore areas, California was the third-largest producer of petroleum among the 50 states in 2016, after Texas and North Dakota, and, as of January 2017, third in oil refining capacity, with a combined capacity of almost 2 million barrels per calendar day at the state's 18 operable refineries. In 2016, California ranked third in the nation in conventional hydroelectric generation, second in net electricity generation from all other renewable energy resources combined, and first as a producer of electricity from solar, geothermal, and biomass resources. California leads the nation in solar thermal electricity capacity and generation. In 2016, California had 73% of the nation's capacity and produced 71% of the nation's utility-scale electricity generation from solar thermal resources (U.S. Energy Information Administration 2017a).

In 2016, California's in-state electricity generation sources consisted of: 44.3 percent natural gas, 26.2 percent renewable sources, 9.5 percent nuclear, 12.3 percent large

hydropower, and 0.2 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 2017).

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 of 1975 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, which is part of the U.S. Department of Transportation (DOT), 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 model 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 gross vehicle weight) were not subject to fuel economy standards. In 2011, the National Highway and Traffic Safety Administration (NHTSA) and U.S. EPA released fuel economy standards for medium- and heavy-duty vehicles (over 8,500 pounds 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.

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
	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, DOT is authorized to assess penalties for noncompliance.
Energy Policy Act (EPAct) of 1992	EPAct was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in 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.
Energy Policy Act of 2005	The Energy Policy Act 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 (PRC section 25000 et seq.)	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 the 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

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
	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 (CEC 2012).
California Long-Term Energy Efficiency Strategic Plan	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 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.
Energy Action Plan	The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.
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 land uses and 5 percent more efficient for nonresidential land uses.

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
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)	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.
California Qualifying Facility and CHP Program Settlement	In December 2010, CPUC approved California's Qualifying Facility and CHP 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 three 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 Dependence (AB 2076)	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 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 alternative fuel vehicles, 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 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	AB 118 (Statues of 2007) created the CEC's Alternative and Renewable Fuel and Vehicle Technology Program. The

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
and Vehicle Technology Program (AB 118)	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 metropolitan planning or transportation plan should include an evaluation of alternative fuels for emissions or criteria pollutants, TACs, GHGs, water pollutants, and other harmful substances, and their impacts on petroleum consumption, and 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 vehicle and policy mechanisms to ensure vehicles operating on alternative fuels use those fuels to the maximum extent feasible.
Bioenergy Action Plan (Executive Order [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 75 percent by 2050. The EO 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 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

Table 8: Applicable Laws and Regulations for Energy Resources	
Regulation	**Description**
	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.
Clean Energy and Pollution Reduction Act of 2015 (SB 350)	The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to 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.
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

1. U.S.

The U.S. has a diverse, complex, and seismically active geology that includes a vast array of landforms. Soils are as diverse as America's geology, and are described and characterized individually and collectively with other soils, and their various compatible uses in soil surveys published by USDA. Soils are fundamental and largely non-renewable resources that are the basis for high-level sustained yields of agricultural commodities, forest products, and provide support to the wide variety of ecological communities throughout the state.

The geology of the U.S. is very complex and can be divided into roughly five physiographic provinces: the American cordillera, the Canadian shield, the stable platform, the coastal plain, and the Appalachian orogenic belt. In Alaska, the geology is typical of the cordillera, whereas in Hawaii the major islands consist of Neogene volcanic erupted over a hotspot.

2. California

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, except for high mountain elevations (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 most 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 (Harden 1997). 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	
Safe Drinking Water Act (SDWA) - Federal Underground Injection Control (UIC) Class VI Program for Carbon Dioxide Geology Sequestration Wells	Under the SDWA, the UIC Class VI Program for Carbon Dioxide Geologic Sequestration Wells requires states and owners or operators to submit all permit applications to the appropriate U.S. EPA Region for a Class VI permit to be issued. These requirements, also known as the Class VI rule, are designed to protect underground sources of drinking water. The Class VI rule builds on existing UIC Program requirements, with extensive tailored requirements that address carbon dioxide (CO_2) injection for long-term storage to ensure that wells used for geologic sequestration are appropriately sited, constructed, tested, monitored, funded, and closed. The rule also affords owners or operators injection depth flexibility to address injection in various geologic settings in the U.S. in which geologic sequestration may occur, including very deep formations and oil and gas fields that are transitioned for use as CO_2 storage sites.
SDWA - Federal UIC Class II Program for Oil and Gas Related Injection Wells	The Class II Program for Oil and Gas Related Injection Wells requires states to meet U.S. EPA's minimum requirements for UIC programs including strict construction and conversion standards and regular testing and inspection. Enhanced oil and gas recovery wells may either be issued permits or be authorized by rule. Disposal wells are issued permits.
CWA	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, helping publicly owned treatment works for the improvement of wastewater

Table 9: Applicable Laws and Regulations for Geology and Soils	
Regulation	**Description**
	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 RWQCBs.
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.
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 development of a sound and stable domestic mineral industry, domestic mineral deposits, minerals research, and methods for reclamation in the minerals industry.
State	
Seismic Hazards Mapping Act (PRC Section 2690 et seq.)	The Seismic Hazards Mapping Act (the Act) of 1990 (PRC, Chapter 7.8, Division 2) directs the California 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 (PRC Section 2621 et seq.)	California's Alquist-Priolo Act (PRC Section 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 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

Table 9: Applicable Laws and Regulations for Geology and Soils	
Regulation	**Description**
	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 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 (commencing with Section 1710 et seq.).
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 (i.e., 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

Table 9: Applicable Laws and Regulations for Geology and Soils	
Regulation	**Description**
	required to comply with all provisions of the CBSC for certain aspects of design and construction.
Surface Mining and Reclamation Act (SMARA) (PRC Section 2710 et seq.)	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 Mineral Resource Zones (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.
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. U.S. and California

a) Existing Climate

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens 2003). Like its topography, California's climate is varied and tends toward extremes. Generally, there are two seasons in California: 1) a long, dry summer, with low humidity and cool evenings and 2) a mild, rainy winter, except in the high mountains, where four seasons prevail, and snow lasts from November to April. The one climatic constant for the State is summer drought.

California has four main climatic regions. Mild summers and winters prevail in central coastal areas, where temperatures are more equable than virtually anywhere else in the U.S. For example, differences between average summer and winter temperatures between San Francisco and Monterey for example are seldom more than 10 degrees Fahrenheit (°F) (6 degrees Celsius [6°C]). During the summer, there are heavy fogs in San Francisco and all along the coast. Mountainous regions are characterized by milder summers and colder winters, with markedly low temperatures at high elevations. The Central Valley has hot summers and cool winters, while the Imperial Valley and eastern deserts are marked by very hot, dry summers, with temperatures frequently exceeding 100°F (38°C).

Average annual temperatures for the State range from 47°F (8°C) in the Sierra Nevada to 73°F (23°C) in the Imperial Valley. The highest temperature ever recorded in the U.S. was 134°F (57°C), registered in Death Valley on 10 July 1913. Death Valley has the hottest average summer temperature in the Western Hemisphere, at 98°F (37°C). The state's lowest temperature was -45°F (-43°C), recorded on 20 January 1937 at Boca, near the Nevada border.

Among the major population centers, Los Angeles has an average annual temperature of 63°F (17°C), with an average January minimum of 48°F (9°C) and an average July maximum of 75°F (24°C). San Francisco has an annual average of 57°F (14°C), with a January average minimum of 42°F (6°C) and a July average maximum of 72°F (22°C). The annual average in San Diego is 64°F (18°C), the January average minimum 49°F (9°C), and the July average maximum 76°F (24°C). Sacramento's annual average temperature is 61°F (16°C), with January minimums averaging 38°F (3°C) and July maximums of 93°F (34°C).

Annual precipitation varies from only 2 inches (5 centimeters [cm]) in the Imperial Valley to 68 inches (173 cm) at Blue Canyon, near Lake Tahoe. San Francisco had an average annual precipitation (1971–2000) of 20 inches (51 cm), Sacramento 17.9 inches (45.5 cm), Los Angeles 13.2 inches (33.5 cm), and San Diego 10.8 inches (27.4

cm). The largest one-month snowfall ever recorded in the U.S., 390 inches (991 cm), fell in Alpine County in January 1911. Snow averages between 300 and 400 inches (760 to 1,020 cm) annually in the high elevations of the Sierra Nevada, but is rare in the Central Valley and coastal lowlands.

Sacramento has the greatest percentage (73 percent) of possible annual sunshine among the state's largest cities; Los Angeles has 72 percent and San Francisco 71 percent. San Francisco is the windiest, with an average annual wind speed of 11 miles per hour (mph) (18 kilometers per hour [km/hr]). Tropical rainstorms occur often in California during the winter.

b) Attributing Climate Change—The Physical Scientific Basis

Climate change is a long-term shift in the climate of a specific location, region or planet. The shift is measured by changes in features associated with average weather, such as temperature, wind patterns, and precipitation. According to the Intergovernmental Panel on Climate Change (IPCC), the scientific body established by the World Meteorological Organization (WMO) and by the United Nations Environment Programme (UNEP), available scientific evidence supports the conclusion that most of the increased average global temperatures since the mid-20th century is very likely due to human-induced increases in GHG concentrations. GHGs, which are emitted from both natural and anthropogenic sources, include water vapor, CO_2, methane, nitrous oxide (N_2O), halocarbons, and ozone. These gases play a role in the "greenhouse effect" that helps regulate the temperature of the earth.

The current post-industrial warming trend differs alarmingly from past changes in the Earth's climate because GHG emissions are higher and warming is occurring faster than at any other time on record within the past 650,000 years. Historical long-term as well as decadal and inter-annual fluctuations in the Earth's climate resulted from natural processes such as plate tectonics, the Earth's rotational orbit in space, solar radiation variability, and volcanism. The current trend derives from an added factor: human activities, which have greatly intensified the natural greenhouse effect, causing global warming. GHG emissions from human activities that contribute to climate change include the burning of fossil fuels (such as coal, oil, and natural gas), cutting down trees (deforestation) and developing land (land-use changes). The burning of fossil fuels emits GHGs into the atmosphere, while deforestation and land-use changes remove trees and other kinds of vegetation that store ("sequester") CO_2. Emissions of GHGs due to human activities have increased globally since pre-industrial times, with an increase of 70 percent between 1970 and 2004 (IPCC 2007).

A growing recognition of the wide-ranging impacts of climate change has fueled efforts over the past several years to reduce GHG emissions. In 1997, the Kyoto Protocol set legally binding emissions targets for industrialized countries and created innovative mechanisms to assist these countries in meeting these targets. The Kyoto Protocol took effect in 2004, after 55 parties to the Convention had ratified it (The UN Climate Change Convention and the Kyoto Protocol). Six major GHGs have been the focus of

efforts to reduce emissions and are included in the California Global Warming Solutions Act (AB 32): CO_2, methane, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). They are regulated under the Kyoto Protocol. Nitrogen trifluoride (NF_3) was later added to the list of important GHGs to reduce and codified in California statute.

The "global warming potential" (GWP) metric is used to convert all GHGs into "CO_2-equivalent" (CO_2e) units. Importantly, metrics such as GWP have been used as an exchange rate in multi-gas emissions policies and frameworks. Each gas's GWP is defined relative to CO_2. For example, using values from the IPCC's Fourth Assessment Report, N_2O's GWP is 298, meaning a unit mass of N_2O warms the atmosphere 298 times more than a unit mass of CO_2. SF_6 and PFCs have extremely long atmospheric lifetimes, resulting in their essentially irreversible accumulation in the atmosphere once emitted. However, in terms of quantity of emissions, CO_2 dominates world and U.S. GHG emissions.

Because the major GHGs have longer lives, they build up in the atmosphere so that past, present, and future emissions ultimately contribute to total atmospheric concentrations. Thus, while reducing emissions of conventional air pollutants decreases their concentrations in the atmosphere in a relatively short time, atmospheric concentrations of the major GHGs can only be gradually reduced over years and decades. More specifically, the rate of emission of CO_2 currently greatly exceeds its rate of removal, and the slow and incomplete removal implies that small to moderate reductions in its emissions would not result in stabilization of CO_2 concentrations, but rather would only reduce the rate of its growth in coming decades. Many of the same activities that emit conventional air pollutants also emit GHGs (e.g., the burning of fossil fuels to produce electricity, heat or drive engines and the burning of biomass). Some conventional air pollutants also have greenhouse effects; for example, soot/black carbon and tropospheric ozone (see Short-Lived Climate Pollutants below).

c) Attributing Climate Change—Greenhouse Gas Emission Sources

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Anthropogenic emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a potent GHG, resulting primarily from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions), is largely associated with fugitive emissions from oil and gas operations, natural gas transmission, agricultural practices, and landfills. N_2O is also largely attributable to agricultural practices nitrogen-based fertilizers) and soil management. CO_2 sinks, or reservoirs, include vegetation, soils, and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect (i.e., GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, "Calculation References," of the General Reporting Protocol of the California Climate Action Registry (CCAR) 1 ton of methane has the same contribution to the greenhouse effect as approximately 34 tons of CO_2 (IPCC 2013; CCAR 2008). Therefore, methane is a much more potent GHG than CO_2. Expressing emissions in CO_2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The California GHG inventory compiles statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, methane, N_2O, SF_6, NF_3, HFCs, and PFCs. The current inventory covers years 2000 to 2015 (available at https://www.arb.ca.gov/cc/inventory/data/data.htm).

California's gross emissions of greenhouse gases decreased by 9 percent from 478.4 million metric tons of CO_2e ($MMTCO_2e$) in 2001 to 440.4 $MMTCO_2e$ in 2015, with a maximum of 489.2 $MMTCO_2e$ in 2004. During the same period, California's population grew by 9 percent from 34.5 to 37.6 million people. As a result, California's per capita GHG emissions have decreased over the last 11 years from 13.9 to 11.9 metric tons (MT) CO_2e per person. In 2015, emissions continued to decrease for the transportation, electric power, and commercial and residential sectors. Emissions from the other sectors (i.e., agriculture, high GWP, and recycling and waste) remained relatively flat or increased slightly from 2010 (CARB 2017a).

d) Short-Lived Climate Pollutants

Climate policy and research have mainly concentrated on long-term climate change and controlling the long-lived GHGs. However, there is growing recognition within the scientific community that efforts to address climate change should also focus on near-term actions to reduce climate-warming substances with much shorter atmospheric lifetimes. These non-CO_2 pollutants, known as short-lived climate pollutants (SLCP), include methane, fluorinated gases including HFCs, and black carbon.

From a global perspective, SLCPs represent nearly 40 percent of the total climate pollutant emissions. In California, their contribution is smaller at around 30 percent. SLCPs have relatively short lifetimes in the atmosphere, but have significant GWP, which represent the ability to trap heat relative to CO_2. Since SLCPs remain in the atmosphere for periods of only a few days to a few decades, reducing their emissions results in immediate benefits. Thus, controlling sources of SLCPs is a critical climate strategy for reducing the near-term rate of global warming, particularly in regions most vulnerable to climate change.

California has established a strong track record with significant SLCP reductions as a co-benefit to its long-standing programs to clean up the air and protect public health. These include diesel engine controls, advanced clean cars, restrictions on burning,

development of a refrigerant management program, and landfill controls. In March 2017, CARB adopted the SLCP Reduction Strategy to further reduce SLCP emissions as a component of achieving statewide GHG reduction goals. The SLCP Reduction Strategy aims to reduce emissions of methane from the solid waste, agricultural, wastewater, and oil and gas sectors; reduce emissions of carbon dioxide through forest management practices; and reduce emissions of fluorinated gases through more stringent protocols regarding the use and manufacturing of refrigerants (CARB 2017b).

i) Tropospheric Ozone

Ozone is a highly reactive and unstable gas. Stratospheric ozone, a layer of ozone high up in the atmosphere, is beneficial and absorbs ultraviolet radiation. Tropospheric (ground-level) ozone is a major air and climate pollutant. Tropospheric ozone is the main component of smog and causes serious health effects such as asthma and lung disease. Tropospheric ozone also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas. Tropospheric ozone can act as a direct GHG and as an indirect controller of GHG lifetimes. As a strong oxidant, it affects the lifetimes and concentrations of atmospheric trace gases, including methane and HFCs.

Tropospheric ozone is not emitted directly into the air. It is created by photochemical reactions between NO_X and volatile organic compound (VOC) emissions from vehicles, industrial facilities, consumer products and many other sources.

Ozone has long been recognized as a significant local and regional air quality issue due to its impacts on human health and the environment. Federal clean air laws require areas with unhealthy levels of ozone to develop plans, known as State Implementation Plans (SIP). These plans include measures that describe how an area will attain federal ozone air quality standards. In addition to measures included in the SIP, the State has adopted several regulatory programs focused on controlling ozone forming compounds (NO_X and VOCs). These include the Low Emission Vehicle Programs, Off-Road Engine Standards, On-Road Heavy-Duty Diesel Vehicles Regulation, and Consumer Products Regulations.

ii) Methane

Methane is a potent and short-lived GHG. It is the second most prevalent GHG emitted in the U.S. from human activities. In addition to its climate forcing properties, methane also has several indirect effects including its role in contributing to global background ozone. As air quality standards tighten, reducing background ozone becomes more critical.

Enteric fermentation, manure management, landfills, natural gas transmission (methane is a significant constituent of natural gas), and wastewater treatment are the state's largest anthropogenic methane-producing sources.

Methane concentrations have been increasing due to human activities related to fossil fuel extraction and distribution, agriculture, and waste handling. Methane emissions are

also contributed by non-anthropogenic or “natural” sources such as wetlands, oceans, forests, fires, terrestrial arthropods (such as termites) and geological sources (such as submarine gas seepage, micro seepage over dry lands and geothermal seeps).

iii) Hydrofluorocarbons

HFCs are synthetic gases that are the fastest growing climate forcers in the U.S. as well as in many other countries. HFCs represent just three percent of all GHG emissions in California, but their warming effect is hundreds to thousands of times that of CO_2. HFCs are primarily produced for use as substitutes for ozone-depleting substances (ODS) in refrigeration, air conditioning, insulating foams, solvents, aerosol products, and fire protection.

vi) Black Carbon

Black carbon is a subset of PM emissions and consists of small dark particles that result from incomplete combustion of fossil fuels, bio-fuels, and biomass. It contributes to climate change both directly by absorbing sunlight, and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation.

Unlike other GHGs, black carbon has a very short atmospheric lifetime (an average of about a week), resulting in a strong correlation to regional emission sources. As a result, emission reductions have immediate benefits for climate and health.

The main sources of black carbon in California are wildfires, off-road vehicles (e.g., locomotives, marine vessels, tractors, excavators, dozers), on-road vehicles (e.g., cars, trucks, and buses), fireplaces, agricultural burning (burning agricultural waste), and prescribed burning (planned burns of forest or wildlands). California has been an international leader in reducing black carbon, with 90 percent control since the early 1960s and close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities.

Recent CARB estimates suggest that the annual black carbon emissions in California decreased about 70 percent between 1990 and 2010, in direct proportion to declining diesel PM emissions – a co-benefit of CARB’s regulations on diesel engines. Other categories of diesel engines, such as off-road diesels (e.g., agricultural and construction equipment), building equipment and diesel generators, are also projected to have major declines in diesel PM emissions. Efforts to manage agricultural, forest, and range land management burning operations are expected to continue reducing black carbon emissions.

e) Adaptation to Climate Change

According to IPCC global average temperature is expected to increase by 3–7°F by the end of the century, depending on future GHG emission scenarios (IPCC 2013). Resource areas other than air quality and global average temperature could be indirectly affected by the accumulation of GHG emissions. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the

Sierra Nevada. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state.

According to CEC, statewide average temperatures increased by about 1.7 degrees Fahrenheit from 1895 to 2011 (CEC 2012). Throughout the past century precipitation (i.e., rain and snow) has followed the expected pattern of a largely Mediterranean climate with wet winters and dry summers, and considerable variability from year to year. No consistent trend in the overall amount of precipitation has been detected, except that a larger proportion of total precipitation is falling as rain instead of snow. In addition, during the last 35 years, the Sierra Nevada range has witnessed both the wettest and the driest years on record of more than 100 years. While intermittent droughts have been a common feature of the state's climate, evidence from tree rings and other indicators reveal that over the past 1,500 years, California has experienced dry spells that persisted for several years or even decades (CEC 2012).

The effects of global climate change could lead to a variety of secondary effects to public health, water supply, energy supply, sea level, wildfire risks, and ecosystems. Recent data, climate projections, topographic, demographic, and land use information have led to the findings that:

- The state's electricity system is more vulnerable than was previously understood.
- The Sacramento-San Joaquin Delta is sinking, putting levees at growing risk.
- Wind and waves, in addition to faster rising seas, will worsen coastal flooding.
- Animals and plants need connected "migration corridors" to allow them to move to more suitable habitats to avoid serious impacts.
- Native freshwater fish are particularly threatened by climate change.
- Minority and low-income communities face the greatest risks from climate change.
- There are effective ways to prepare for and manage climate change risks, but local governments face many barriers to adapting to climate change; these can be addressed so that California can continue to prosper.

At the same time, the State has recognized the need to adapt to climate change impacts that can no longer be avoided. In 2014, the CA Natural Resources Agency released the Safeguarding California Plan, which serves as an update to the 2009 California Climate Adaptation Strategy. The many adaptation planning efforts underway in virtually every State agency, in regional and local communities such as Chula Vista, San Diego, Los Angeles, Santa Barbara, Santa Cruz, San Francisco, Hayward, Marin County, Sacramento, and others, as well as in private businesses suggest that CEOs, elected officials, planners, and resource managers understand the reality that California and the world is facing.

In fact, the latest climate science makes clear that State, national, and global efforts to mitigate climate change must be accelerated to limit global warming to levels that do not endanger basic life-support systems and human well-being. Success in mitigation will

keep climate change within the bounds that allow ecosystems and society to adapt without major disruptions. Further advances in integrated climate change science can inform California's and the world's climate choices and help ensure a resilient future (CEC 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 MT CO_2e 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 greenhouse gases 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. EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed CAFE standards under the Energy Policy and Conservation Act (EPCA). 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 the DOT, develop, through notice and comment rulemaking, a coordinated National Program under the CAA and the 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.

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	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 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 the concentrations of the six key GHGs (i.e., CO_2, methane, 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

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	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. U.S EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The 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 DOT.
Significant New Alternatives Policy (SNAP)	U.S. 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	
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 greenhouse gas 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 greenhouse gas emissions to the target

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	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.
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. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting 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. Requires CARB to produce a Scoping Plan by 1/1/2009 and at least every 5 years afterwards that details how the State will meet its GHG reduction targets. 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.
EO B-30-15	EO B-30-15 (2015) established a California GHG reduction target of 40 percent below 1990 levels by 2030. To accomplish this goal, directs State agencies to take measures consistent with their existing authority to reduce GHG emissions. CARB initiated a public process in the summer of 2015 and worked closely with other State agencies to update the state's Climate Change

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	Scoping Plan. The 2017 Scoping Plan, released and adopted in December 2017, provides the framework for achieving the 2030 target. Concurrent planning efforts related to energy efficiency in existing buildings (AB 758), SLCPs, sustainable freight, Greenhouse Gas Reduction Fund Investments, forest health, and others will be coordinated with, and feed into, the 2017 Scoping Plan.
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.
Senate Bill 350, Clean Energy and Pollution Reduction Act of 2015 (Statues of 2015)	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 renewable energy resources be increased to 50percent 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.
Senate Bill 605, SLCPs (Statutes of 2014)	SB 605 (Lara, Chapter 605, Statutes of 2014) directs CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the State through the following actions: (1) Complete an inventory of sources and emissions of short-lived climate pollutants 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 short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	benefit disadvantaged communities, as identified pursuant to Section 39711 of the Health and Safety Code. (5) Coordinate with other State agencies and districts to develop measures identified as part of the comprehensive strategy. In 2017, CARB published and adopted the SLCP Reduction Strategy, which serves as one of five pillars identified by Governor Jerry Brown to achieve the state's GHG reduction goals for 2030 and 2050.
Assembly Bill 1493, Statutes of 2002	In September 2004, CARB approved regulations to reduce GHG emissions from new motor vehicles. CARB took this action pursuant to Chapter 200, Statutes of 2002 (AB 1493, Pavley) which directed CARB 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 the LCFS could be adopted as a discrete early action measure after meeting the mandates in AB 32. CARB adopted the original LCFS regulation 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 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.

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
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, the California Natural Resources Agency (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 California Code of Regulations. The Amendments became effective on March 18, 2010.
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 an 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 eight years but can be updated every four 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 (RNHA) cycle from five years to eight 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, new provisions of CEQA would incent qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."
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

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	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 EO directed the CNRA to develop the 2009 California Climate Adaptation Strategy, 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 (CNRA 2009). This EO also directed OPR, in cooperation with the 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 and OPR continues to further refine land use planning guidance related to climate change impacts (CNRA 2009). 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, considering 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

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	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 (Statues of 2011)	AB 341 (Chesbro, Chapter 476, Statutes of 2011) established a State target to reduce by 75 percent the amount of solid waste sent to landfills by 2020 through recycling, composting, and source reduction practices.
AB 1826 (Statues 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.
Refrigerant Management Plan	The Refrigerant Management Plan requires facilities with refrigeration systems with more than 50 pounds 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 (Statues of 2013)	AB 1257 (Bocanegra, Chapter 749, Statutes of 2013) 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 (Statues of 2012)	AB 1900 (Gatto, Chapter 602, Statutes of 2012) directed CPUC to adopt natural gas constituent standards (in consultation with CARB and the Office of Environmental Health and Hazard Assessment [OEHHA]). 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.
SB 1122 (Statues of 2012)	SB 1122 (Rubio, Chapter 612, Statutes 2012) 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

Table 10: Applicable Laws and Regulations for Greenhouse Gases	
Regulation	**Description**
	megawatts of cumulative electricity generation from biogas facilities that commence operating on or after June of 2013.

9. HAZARDS AND HAZARDOUS MATERIALS

A. Existing Conditions

1. U.S.

Hazardous materials are substances with physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. A number of properties may cause a substance to be considered hazardous, including toxicity (causes human health effects), ignitibility (can burn), corrosivity (causes severe burns or damage to materials), and reactivity (causes explosions or generates toxic gases). The term “hazardous material” refers to both hazardous substances and hazardous wastes. A hazardous waste is a waste with a chemical composition or other properties that make it capable of causing illness, death, or some other harm to humans and other life forms when mismanaged or released into the environment. This includes items, such as fuels, industrial solvents and chemicals, process water, and spent materials (e.g., pozzolans, foams).

Naturally occurring hazardous materials in the U.S. include asbestos, radon, and mercury. Asbestos is a naturally occurring mineral composed of long, thin, fibrous crystals. Asbestos is found in 20 of the U.S. states and has been mined in 17 of these states, including the Appalachian region, California, and Oregon. Mercury is a chemical element that comes from both natural sources and human activities. Natural sources of mercury include volcanoes, hot springs, and natural mercury deposits. Sources related to human activities include coal combustion and certain industrial and mining activities. Radon is a gas that forms during the decay of uranium that is naturally found in rock, water, and soil. It migrates to the surface through cracks or fractures in the Earth’s crust.

2. California

Health and Safety Code Section 25501 defines “hazardous materials,” in part, as amaterial identified in statute 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 include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering

regulatory agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. A number of properties may cause a substance to be considered hazardous, including toxicity (causes human health effects), ignitibility (can burn), corrosivity (causes severe burns or damage to materials), and reactivity (causes explosions or generates toxic gases). A hazardous waste is a waste with a chemical composition or other properties that make it capable of causing illness, death, or some other harm to humans and other life forms when mismanaged or released into the environment. 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 provide criteria to use to determine whether a waste is hazardous, including the following: 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 hazardous materials are also found in California, including asbestos. Naturally occurring asbestos 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.
SDWA	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

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
	SDWA does not regulate private wells which serve fewer than 25 individuals.
Federal Hazardous Materials Regulations (FHMR) (Title 49, CFR, Parts 100-180)	The regulations establish criteria for the safe transport of hazardous materials. Compliance is mandatory for intrastate and interstate transportation.
Toxic Substances Control Act (TSCA) 15 USC Section 2601 et seq.	The TSCA provides U.S. EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. The 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 Parts 260-273)	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)	The 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. The 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. The Superfund Amendments and

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
	Reauthorization Act (SARA) of 1986 reauthorized the 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 the SARA authorized the Emergency Planning and Community Right-to-Know Act (EPCRA).
EPCRA (42 USC Section 9601 et seq.)	The SARA of 1986 created the EPCRA (40 CFR Parts 350-372), also known as the 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. The EPCRA required the establishment of state/tribe emergency response commissions (SERCs/TERCs), responsible for coordinating certain emergency response activities and for appointing local emergency planning committees.
Fuels and Fuel Additive Program (40 CFR Part 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. OPPTS requires that 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.
State	
Hazardous Materials Transportation (Vehicle Code Sections 353; 2500-2505; 31303-31309; 32000-32053; 32100-32109; 31600-31620)	Regulations pertaining to the safe transport of hazardous materials are in 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 California Highway Patrol.
Hazardous Waste Control Law	California requirements and statutory responsibilities in managing hazardous waste in California – this includes the

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
(Health and Safety Code, Division 20, Chapter 6.5, 22 CCR, Division 4.5)	generation, transportation, storage, treatment, recycling, and disposal of hazardous waste, including batteries. The Hazardous Waste Control Law and implementing regulations are administered and enforced by 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 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 not 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,	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

Table 11: Applicable Laws and Regulations for Hazards and Hazardous Materials	
Regulations	**Description**
Chapter 1, Sections 15100-15620)	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.
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. U.S.

The U.S. has a very diverse climate due to its wide range of geographic features. The climate is temperate in most of the U.S., subtropical in the southern region, tropical in Hawaii and in Florida, polar in Alaska, semi-arid in the Great Plains, arid in the Great Basin, and Mediterranean in California. Weather in the U.S. is influenced by the polar jet stream. The Great Basin and Columbia Plateau are arid and semi-arid, with annual precipitation averaging less than 15 inches. From July to September monsoons and thunderstorms affect the southwest and Great Basin region. The Cascades region is one of the snowiest places in the world, with some spots averaging over 600 inches of snow annually.

About 90 percent of public water systems in the U.S. obtain their water from groundwater. However, because systems served by groundwater tend to be much smaller than systems served by surface water, only 34 percent of Americans (101 million) are supplied with treated groundwater, while 66 percent (195 million) are supplied with surface water.

2. California

a) 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 feed surface flows, fill reservoirs, and recharge 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.

b) 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, most 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 are extracted each year in the state, of which more than 50 percent is extracted from 36 groundwater basins in the Central Valley.

c) 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 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; 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 (FEMA)	Designated floodplain mapping program, flooding and flood hazard reduction implementation, and federal subsidized flood insurance for residential and commercial property. Administered by 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 U.S. EPA, the CWA 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 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

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
	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	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.
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.

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq. and 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 Pesticide Regulation, DTSC, CDFW, and 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 (or SIP), the SIP 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.
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

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
	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 Chapter 346, Pavely	This bill 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, Statues of 2014, Dickinson, Chapter 347	This bill establishes groundwater reporting requirements for a person extracting groundwater in an area within a basin that is 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, Chapter 348, Pavely	This bill 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 DWR under specified conditions.

Table 12: Applicable Laws and Regulations for Hydrology, Water Quality, and Water Supply	
Regulation	**Description**
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 development of a sound and stable domestic mineral industry, domestic mineral deposits, minerals research, and methods for reclamation in the minerals industry.
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 National Flood Insurance Program. Typical provisions address floodplain use restrictions, flood protection requirement, 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

1. U.S.

The way physical landscapes are used or developed is commonly referred to as land use. Public agencies are the primary entities that determine the types of land use changes that can occur for specific purposes within their authority or jurisdiction. In

most states, land uses decisions are made by local governments. In incorporated areas, land use decisions are typically made by the city. In unincorporated areas, land use decisions are typically made by the county. Sometimes state, regional or federal land management agencies also make land use decisions. Generally, State law establishes the framework for local planning procedures, which local governments follow in adopting their own set of land use policies and regulations in response to the unique issues they face.

2. California

In California, the State Planning and Zoning Law (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.

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 BLM manages public lands. FLPMA requires BLM to manage public land resources for multiple use and sustained yield for both present and future generations. Under FLPMA, BLM is authorized to grant rights-of-way for generation, transmission, and distribution of electrical energy. Although local agencies do not have jurisdiction over the

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
	federal lands managed by BLM, under FLPMA and 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 (RMPs)	Established by FLPMA, RMPs 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 RMPs. Management direction is set forth in the RMPs 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.
National Forest Management Act (NFMA)	The 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 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.

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
State	
State Planning and Zoning Law (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.).
SB 375, Statues of 2008	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.

Table 13: Applicable Laws and Regulations for Land Use and Planning	
Regulation	**Description**
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 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

1. International

Various countries export the mineral resources used in the production of lithium-ion batteries (e.g. lithium, cobalt) to international manufacturers. In 2016, Australia exported 14,300 tons of lithium, Chile exported 12,000 tons, Argentina exported 5,700 tons, and China exported 2,000. The U.S. currently imports lithium from Chile (57 percent), Argentina (40 percent), China (2 percent), and others (1 percent) (USGS 2017a). Major suppliers of cobalt, a precious metal used in the manufacturing of batteries, include the Democratic Republic of the Congo, which exported 66,000 tons of cobalt in 2016; over half of the world's total supply of cobalt. Other countries include China (7,700 tons), Russia (6,200 tons), Canada (7,300 tons), and Australia (5,100 tons) (USGS 2017b).

2. U.S.

Mineral resources are all the physical materials that are extracted from the earth for use. Modern society is dependent on a huge amount and variety of mineral resources. Mineral resources are classified as metallic or non-metallic. As measured by consumption, the most important metallic resources are iron aluminum, copper, zinc, and lead. The most important nonmetallic resources include crushed stone, sand and gravel, cement, clays, salt, and phosphate. Mineral reserves are known deposits of minerals that can be legally mined economically using existing technology.

3. California

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. 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 development of a sound and stable domestic mineral industry, domestic mineral deposits, minerals research, and methods for reclamation in the minerals industry.
State	
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). 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 (i.e., not limited to) excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and

Table 14: Applicable Laws and Regulations for Mineral Resources	
Regulation	**Description**
	liquefaction potential and soil strength loss. In accordance 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.
PRC Sections 2762-2763	PRC 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. PRC Section 2763 requires that city and county land use decisions affecting areas with minerals of regional or statewide significance be consistent with mineral 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 mineral resources within that jurisdiction.

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 decibels (dB) are presented in Table 15.

Table 15: Typical Noise Levels		
Common Outdoor Activities	**Noise Level (dB)**	**Common Indoor Activities**
	110	Rock band

Table 15: Typical Noise Levels		
Common Outdoor Activities	**Noise Level (dB)**	**Common Indoor Activities**
Jet flyover at 1,000 feet	100	--
Gas lawnmower at 3 feet	90	--
Diesel truck moving at 50 mph at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	60	
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: dB=A-weighted decibels; mph=miles per hour Source: Caltrans 2013a: p.2-20		

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 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 decibel is a convenient way to handle the million-fold range of sound pressures to which the human ear is sensitive. A decibel 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 A-weighted sound levels (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 A-weighted sound levels, unless noted otherwise.

Noise can be generated by many 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 (Caltrans 2011).

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 2013a).

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.

Minimum Noise Level (L_{min}): The lowest instantaneous noise level during a specified time.

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): Like 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: p. 21). These subjective reactions to changes in noise levels was developed based on 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 2013b). 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.

Table 16: Human Response to Different Levels of Groundborne Noise and Vibration	
Vibration-Velocity Level	**Human Reaction**
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 µin/sec and based on the 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

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
	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 Aviation Organization)	This contains policies and procedures for considering environmental impacts (e.g., aircraft noise emission standards and atmospheric sound attenuation factors).
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, Federal Highway Administration (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.
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

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
	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 Standards) and FRA Guidance (2005)	This section and guidance provides contains criteria and procedures for use in analyzing the potential noise and vibration impacts of various types of high-speed fixed guideway transportation systems.
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.
California Airport Noise Regulations promulgated in accordance with the State Aeronautics Act (21 CCR Section 5000 et seq.)	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.

Table 17: Applicable Laws and Regulations for Noise	
Regulation	**Description**
Local	
City/County General Plan Noise Elements	Local general plans in California must include a noise element per 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 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

1. U.S.

The employed civilian labor force, unemployment rates, employment opportunities, and population estimates and projections for cities, counties, and states are collected every

10 years by the U.S. Census Bureau (Census). The estimated population in 2017 for the U.S., was approximately 325,719,178 and the estimated number of housing units was 135,697,926 (Census 2018). The estimated average number of persons per household in 2017 was 2.64 in the U.S. in 2017 (Census 2018). In February 2018, the unemployment rate in the U.S. declined from 5.0 percent in February 2016 to 4.1 (Bureau of Labor Statistics [BLS] 2018a).

2. California

a) Population

According to the Census data, the estimated population of California in 2017 was 39,536,563 (Census 2018). 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 almost 34 million in 2000 (Census 2001). It is expected that the population of California will reach and surpass the 50-million mark sometime between 2040 and 2050 if the current growth rates persist (University of Southern California 2012).

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 (Census 2014).

Table 18: California Housing Profile	
Total Housing Units	13,680,081
Total households	12,577,498
Vacant housing units	1,102,583
Owner-occupied	7,035,371
Renter-occupied	15,691,211
Homeowner vacancy rate	2.1
Rental vacancy rate	6.3
Source: Census 2014	

c) Employment

In 2018, the civilian labor force in California was approximately 19,393,000, and the unemployment rate decreased from 4.5 percent in September 2017 to 4.3 percent in February 2018 (BLS 2018b).

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. U.S.

U.S. EPA is charged with protecting human health and the environment, by writing and enforcing regulations based on laws passed by Congress. U.S. EPA Criminal Investigation Division's primary mission is the enforcement of U.S. environmental laws as well as any other federal law in accordance with the guidelines established by the Attorney General of the U.S. (18 U.S.C. 3063). These environmental laws include those specifically related to air, water, and land resources. USFS is an agency of USDA that administers the nation's 155 national forests and 20 national grasslands, including fire protection and response services. Major divisions of the agency include the National Forest System, State and Private Forestry, and the Research and Development branch. The Fire and Aviation Management part of USFS works to advance technologies in fire management and suppression, maintain and improve the extremely efficient mobilization and tracking systems in place, and reach out in support of federal, state, and international fire partners.

Education is primarily a State and local responsibility in the U.S. Communities, as well as public and private organizations, establish schools, develop curricula, and determine requirements for enrollment and graduation.

2. California

a) Law Enforcement

California's environmental laws are enforced by a matrix of State and local agencies, some at CalEPA, each charged with enforcing the laws governing a specific media such as air, water, hazardous waste, solid waste, and pesticide laws, the Attorney General's Office, local District Attorneys and City Attorneys,. 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. Regarding 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 filing numerous actions against the Trump Administration opposing federal rollbacks of environmental protection regulations and requiring implementation of existing rules. These actions involve a range of regulations, including those concerning greenhouse gas emissions from stationary sources and vehicles, regulations of toxic air pollution, and planning requirements for criteria pollution planning. The Attorney General also continues to work broadly to support CARB

actions, including 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 Governor's Executive Order. CalEPA's mission is to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality. CalEPA is composed 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 CUPAs.
- Carcinogens/Reproductive Toxins: Prop. 65 through 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.

b) 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. 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	**None applicable.**
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	
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

1. U.S.

Recreational resources and facilities are provided and managed at federal, state, and local levels. The federal government manages a diverse array of recreational facilities and resources that include national parks and monuments, national forests and grasslands, wildlife refuges, wilderness areas, lakes and lands managed by different agencies in the federal government, wild and scenic rivers, and back country byways, national trials, and marine reserves and estuaries. Each federal agency's programs include recreation components.

2. California

California contain approximately 14,000 parks, managed by nearly 1,000 agencies (CSP 2018). 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 are involved in recreational activities include Boating and Waterways, Fish and Wildlife, Tahoe Regional Planning Association, various conservancies, and others.

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 the American people" with recreation identified as one of the resource values.
State	
	None applicable
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 AND TRAFFIC

A. Existing Conditions

1. U.S. and California

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).

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	
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, Statutes of 2008	The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) 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 allocate federal and State transportation funding to local and regional projects that would reduce VMT-related emissions.
SB 743, Statutes of 2013, Chapter 386	SB 743, passed in 2013, requires OPR to develop new CEQA guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, “automobile delay, as described solely by level

Table 21: Applicable Laws and Regulations for Transportation and Traffic	
Regulation	**Description**
	of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any." CNRA is currently in the process of reviewing the updates to the CEQA Guidelines proposed by OPR.
Vehicle Code Sections 353; 2500-2505; 31303-31309; 32000-32053; 32100-32109; 31600-31620; Health and Safety Code Section 25160 et seq.	Regulates the highway transport of hazardous materials.
Vehicle Code 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.
Vehicle Code Sections 35100 et seq.; 35250 et seq.; 35400 et seq.	Specifies limits for vehicle width, height, and length.
Vehicle Code 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.
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	
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

1. U.S.

The U.S. Bureau of Reclamation (USBR) is a federal agency and it is the largest wholesaler of water in the U.S. and the second largest producer of hydroelectric power (USBR 2017). The Federal Power Commission regulates both the interstate transmission of electricity and the sale of hydroelectric power at the wholesale level in the U.S., and the Federal Energy Regulatory Commission (FERC) has authority over intrastate as well as interstate natural gas production.

2. California

a) Water Supply and Distribution

The principal water supply facilities in California are operated by USBR and DWR. In California, the Mid-Pacific Region of 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 2017).

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 2018).

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. The RWQCB's 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.

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), 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 of 1938	Together with the Federal Power Act of 1935, the Natural Gas Act of 1938 (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 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	
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.

Table 22: Applicable Laws and Regulations for Utilities	
Regulation	**Description**
AB 1900 (Statues of 2012)	AB 1900 (Gatto, Chapter 602, Statutes of 2012) directed CPUC to adopt natural gas constituent standards (in consultation with CARB and OEHHA). 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.
Section 21151.9 of the PRC/ Water Code Section 10910 et seq.	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. The 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 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.

ATTACHMENT 1 REFERENCES

Ahrens, C. Donald. 2003. Meteorology Today: An Introduction to Weather, Climate and the Environment. Seventh Edition. Published by Thomson Brooks/Cole.

Arnold, Jeanne E., and Anthony P. Graesch. 2004. The Later Evolution of the Island Chumash. In *Foundations of Chumash Complexity*, edited by Jeanne E. Arnold, pp. 1-16. Costen Institute of Archaeology, University of California, Los Angeles, CA.

Bean, Lowell J., 1978. Social organization. In California, edited by Robert F. Heizer, pp. 673–682. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and Charles R. Smith. 1978. Gabrielino. In California, edited by Robert F. Heizer, pp. 538-549. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and Sylvia Brakke Vane. 1978. Cults and their Transformations. In California, edited by Robert F. Heizer, pp. 662-672. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Beck, Warren A., and Ynez D. Haase. 1974. *Historical Atlas of California*. University of Oklahoma Press, Norman, Oklahoma.

BLS. *See* Bureau of Labor Statistics.

Bryant, W.A. and Hart, E.W. 2007. Fault rupture hazard zones in California, Alquist-Priolo earthquake fault zoning act with index into earthquake fault zone maps, Special Publication 42, California Geological Survey, 42 p, accessed on 11/15/2011 at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/SP42.pdf. Accessed: March 2018.

Bureau of Labor Statistics. 2018a. Databases, Tables & Calculations by Subject: Labor Force Statistics from the Current Population Survey. Available: Bureau of Labor Statistics. Accessed: March 2018.

_____. 2018b. Economy at a Glance: California. Available: https://www.bls.gov/eag/eag.ca.htm. Accessed: March 2018.

California Air Resources Board. 2009. California Almanac of Emissions and Air Quality. Available: https://www.arb.ca.gov/aqd/almanac/almanac.htm. Accessed: March 2018.

_____. 2010. 2010 Cap-and-Trade FED. Functional Equivalent Document prepared for the California Cap on GHG Emissions and Market-Based Compliance

Mechanisms. Available: http://www.arb.ca.gov/regact/2010/capandtrade10/capv5appo.pdf. Accessed: March 2018.

_____. 2013. Estimated Annual Average Emissions Statewide. Available: https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA. Accessed: March 2018.

_____. 2017a. California Greenhouse Gas Emissions for 2000 to 2015 – Trends of Emissions and Other Indicators. Available: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2015/ghg_inventory_trends_00-15.pdf. Accessed: March 2018.

_____. 2017b (March). Short-Lived Climate Pollutant Reduction Strategy. Available: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf. Accessed: March 2018.

California Air Resources Board and California Air Pollution Control Officers Association. 2015. Risk Management Guidance for Stationary Sources of Air Toxics. Available: https://www.arb.ca.gov/toxics/rma/rmgssat.pdf. Accessed: April 2018

California Climate Action Registry. 2008 (April). California Climate Action Registry General Reporting Protocol. Available: www.climateactionreserve.org/wp-content/.../GRP_V3_April%202008_FINAL.pdf. Accessed: March 2018.

California Department of Conservation. 2015. The California Land Conservation Act 2014 Status Report: The Williamson Act. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2014%20LCA%20Status%20Report_March_2015.pdf. Accessed: March 2018.

California Department of Fish and Wildlife (CDFW). 2015. State Wildlife Action Plan. 2015 Update. Volume 1: Plan Update. Available: https://www.wildlife.ca.gov/SWAP. Accessed: February 2016.

California Department of Fish and Wildlife. 2017 (October). Summary of Natural Community Conservation Plans. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=15329&inline. Accessed: March 2018.

California Department of Food and Agriculture. 2018. California Agricultural Statistics Review 2016-2017. Available: https://www.cdfa.ca.gov/Statistics/PDFs/2016-17AgReport.pdf. Accessed: April 2018.

California Department of Transportation. 2008. *A Historical Context and Archaeological Research Design for Mining Properties in California*. Division of Environmental Analysis, Department of Transportation, Sacramento, CA.

Available: http://www.dot.ca.gov/ser/downloads/cultural/mining_study.pdf. Accessed: March 2018.

_____. 2011. *California Airport Land Use Planning Handbook*. Available: http://dot.ca.gov/hq/planning/aeronaut/documents/alucp/AirportLandUsePlanningHandbook.pdf. Accessed: March 2018.

_____. 2013a. Technical Noise Supplement to the Traffic Noise Analysis Protocol. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf. Accessed: March 2018.

_____. 2013b. (September.) Transportation- and Construction-Induced Vibration Guidance Manual. Available: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed: March 2018.

California Department of Water Resources. 2003. California's Groundwater: Bulletin 118 Update 2003 Report. Available: https://www.water.ca.gov/LegacyFiles/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf. Accessed: March 2018.

_____. 2018. California State Water Project Overview. Available: http://wdl.water.ca.gov/swp/. Accessed: March 2018.

California Energy Commission. 2012 (February). Combined Heat and Power: Policy Analysis and 2011-2030 Market Assessment. Prepared by ICF International, Inc.

_____. 2014. California Energy Demand 2014-2024 Final Forecast, Volume 1: Statewide Electricity Demand, End-User Natural Gas Demand, and Energy Efficiency. Available: http://www.energy.ca.gov/2013publications/CEC-200-2013-004/CEC-200-2013-004-V1-CMF.pdf. Accessed: March 2018.

_____. 2017. Electric Generation Capacity & Energy. Available: http://www.energy.ca.gov/almanac/electricity_data/electric_generation_capacity.html. Accessed: March 2018.

California Natural Resources Agency. 2009. California Climate Adaptation Strategy – A Report to the Governor of California. Available: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf /. Accessed: March 2018.

California Public Utility Commission. 2010. California's Electricity Options and Challenges Report to Governor Gray Davis. http://docs.cpuc.ca.gov/published/report/gov_report.htm: Accessed: March 2018.

California State Parks. 2018. Parks for All Californians. Available: http://www.parksforcalifornia.org/. Accessed: April 2018.

Caltrans. *See* California Department of Transportation.

CARB. *See* California Air Resources Board.

Castillo, Edward D. 1978. The Impact of Euro-American Exploration and Settlement. In California, edited by Robert F. Heizer, pp. 99–127. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

CCAR. *See* California Climate Action Registry.

CDFG. *See* California Department of Fish and Game.

CDFW. *See* California Department of Fish and Wildlife.

CEC. *See* California Energy Commission.

Census. *See* U.S. Census Bureau.

Chartkoff, Joseph L., and Kerry K. Chartkoff. 1984. The Archaeology of California. Stanford University Press, Palo Alto, CA.

Clinkenbeard and Smith. 2013. California Non-Fuel Minerals 2011. Available: http://www.conservation.ca.gov/cgs/minerals/min_prod/Documents/non_fuel_2011.pdf. Accessed: March 2018.

CNRA. *See* California Natural Resources Agency.

Cook, Sherburne A., 1976. The Population of California Indians: 1769–1970. University of California Press, Berkeley, CA.

_____. 1978. Historical Demography. In California, edited by Robert F. Heizer, pp. 91–98. *Handbook of North American Indians*, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

d'Azevedo, Warren (editor). 1986. Handbook of North American Indians, Vol. 11: Great Basin. William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

DOC. *See* California Department of Conservation.

DWR. *See* California Department of Water Resources.

Egan, M. David. 2007. Architectural Acoustics. J. Ross Publishing. Fort Lauderdale, FL.

Erlandson, Jon M., Torben C. Rick, Terry L. Jones, and Judith F. Porcasi. 2007. One if by Land, Two if by Sea: Who Were the First Californians? In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 53–62. AltaMira Press, Lanham, Maryland.

Farmland Mapping and Monitoring Program. 2015. California Farmland Conversion Summary: 2010-2012 Land Use Conversion.

Federal Transit Administration. 2006. Transit Noise and Vibration Impact Assessment. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed: March 2018.

FMMP. *See* Farmland Mapping and Monitoring Program.

FTA. *See* Federal Transit Administration.

Gilreath, Amy J. 2007. Rock Art in the Golden State: Pictographs and Petroglyphs, Portable and Panoramic. In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 73–290. AltaMira Press, Lanham, Maryland.

Harden, D. 1997. California Geology, Prentice Hall Inc.: New Jersey, 477 p.

Heizer, Robert F. 1978. Trade and Trails. In California, edited by Robert F. Heizer, pp. 690–693. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe. 2002. Historic Spots in California. 5th ed. Revised by Douglas E. Kyle. Stanford University Press, Palo Alto, CA.

Hughes, Richard E., and Randall Milliken. 2007. Prehistoric Material Conveyance. In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 259–271. AltaMira Press, Lanham, Maryland.

Intergovernmental Panel on Climate Change. 2007. Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D.W. Fahey, J. Haywood, J. Lean, D.C. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz and R. Van Dorland, *2007: Changes in Atmospheric Constituents and in Radiative Forcing*. *In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Table 2.14, pp. 212-213. Available: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.htm. Accessed: March 2018.

_____. 2013. Climate Change 2013: The Physical Science Basis. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed: March 2018.

IPCC. *See* Intergovernmental Panel on Climate Change.

Jefferson, George T. 2004. Colorado Desert District Paleontologic Resources and Collections Management Policy. State of California Department of Parks and Recreation.

Jones, Terry L., and Kathryn A. Klar (editors). 2007. *California Prehistory: Colonization, Culture, and Complexity*. AltaMira Press, Lanham, Maryland.

Kroeber, Alfred L. 1922. Elements of Culture in Native California. University of California Publications in American Archaeology and Ethnology 13(8):259-328.

Kroeber, Alfred J. 1925. *Handbook of the Indians of California*. Bulletin 78, Bureau of American Ethnology, Smithsonian Institution. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, New York.

Mount, J.F. 1995. *California Rivers and Streams: The Conflict between Fluvial Process and Land Use*. University of California Press: Berkeley, CA, p. 359.

Office of Planning and Research. 2003. State of California General Plan Guidelines. Available: http://opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf. Accessed: March 2018.

Ortiz, Alfonso. 1983. Handbook of North American Indians. Southwest, Vol. 10, Smithsonian Institution, Washington, D.C.

OPR. *See* Office of Planning and Research.

Paleontology Portal. 2003. California, US. Available: http://www.paleoportal.org/index.php?globalnav=time_space&sectionnav=state&state_id=10. Accessed: March 2018.

Ritchie, D. and Gates, A.G. 2001. Encyclopedia of Earthquakes and Volcanoes, Checkmark Books: New York, pp. 249-250.

Rolle, W.F. 1969. California A History. Thomas Y. Crowell Company, Inc. U.S. pp. 74, 218-220, 352-253, 358-359.

Rondeau, Michael F., Jim Cassidy, and Terry L. Jones. 2007. Colonization Technologies: Fluted Projectile Points and the San Clemente Island Woodworking/Microblade Complex. In California Prehistory: Colonization,

Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 63–70. AltaMira Press, Lanham, Maryland.

San Diego Natural History Museum. 2010. Fossil Mysteries: Fossil Field Guide. Available: http://www.sdnhm.org/exhibitions/fossil-mysteries/fossil-field-guide-a-z/. Accessed: March 2018.

Schuyler, Robert L. 1978. Indian-Euro-American Interaction: Archeological Evidence from Non-Indian Sites. pp. 69-75. California, Vol. 8, Robert F. Heizer, Smithsonian Institution, Washington, D.C.

Shipley, William F. 1978. Native Languages of California. In California, edited by Robert F. Heizer, pp. 80–90. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Staniford, Edward F. 1975. *The Pattern of California History*. Canfield Press, San Francisco, CA.

The Nature Conservancy. 2002 (April). State of the Union Ranking America's Biodiversity. Available: http://www.natureserve.org/library/stateofunions.pdf. Accessed March 2018.

University of Southern California. 2012 (April). New California Population Projection Shows Massive Slowdown. *Science News*. Available: https://www.sciencedaily.com/releases/2012/04/120424142117.htm. Accessed: March 2018.

U.S. Bureau of Reclamation. 2017. Central Valley Project – General Description. Available: https://www.usbr.gov/mp/cvp/about-cvp.html. Last updated: April 19, 2017. Accessed: March 2018.

U.S. Census Bureau. 2001. Census: Population and Foreign-Born. Available: https://migration.ucdavis.edu/mn/more.php?id=2302. Accessed: March 2018.

_____. 2014. State and County Quickfacts. Available: http://quickfacts.census.gov/qfd/states/06000.html. Accessed: March 2018.

_____. 2018. Quickfacts: California; United States. Available: https://www.census.gov/quickfacts/fact/table/CA,US/RHI825216. Accessed: March 2018.

U.S. Department of Agriculture. 2016. Ag and Food Statistics: Charting the Essentials. Available: https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/. Accessed: March 2018.

U.S. EIA. *See* U.S. Energy Information Association.

U.S. Energy Information Association. 2017a. U.S. Energy Facts Explained. Available: https://www.eia.gov/energyexplained/?page=us_energy_home. Accessed: April 2018.

_____. 2017b. California. State Profile and Energy Estimates. Available: https://www.eia.gov/state/?sid=CA. Accessed: April 2018

U.S. Environmental Protection Agency. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, EPA 840-B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC, Available: http://www.epa.gov/owow/nps/MMGI/index.html. Accessed: March 2018.

_____. 2017. Criteria Air Pollutants. Last updated January 19, 2017. Available: https://19january2017snapshot.epa.gov/criteria-air-pollutants_.html. Accessed: March 2018.

_____. 2018. Basic Information about Ozone. Available: https://www.epa.gov/ozone-pollution/basic-information-about-ozone#main-content. Accessed: April 2018.

U.S. EPA. *See* U.S. Environmental Protection Agency.

U.S. Fish and Wildlife Service. 2005. Habitat Conservation Plans. Section 10 of the Endangered Species Act. Arlington, VA.

U.S. Forest Service. 2000. U.S. Forest Resource Facts and Historical Trends.

U.S. Geological Survey. 1995. Groundwater Atlas of the United States: California, Nevada, HA 730-B, U.S. Geological Survey: Denver Colorado. Available: http://pubs.usgs.gov/ha/ha730/ch_b/index.html. Accessed: March 2018.

_____. 2010. Divisions of Geologic Time—Major Chronostratigraphic and Geochronologic Units. Available: https://pubs.usgs.gov/fs/2010/3059/pdf/FS10-3059.pdf. Accessed: March 2018.

_____. 2017a. Mineral Resource Summaries: Lithium. Available: https://minerals.usgs.gov/minerals/pubs/commodity/lithium/mcs-2017-lithi.pdf. Accessed: March 2018.

_____. 2017b. Mineral Resource Summaries: Cobalt. Available: https://minerals.usgs.gov/minerals/pubs/commodity/cobalt/mcs-2017-cobal.pdf. Accessed: March 2018.

USBR. *See* U.S. Bureau of Reclamation.

USDA. *See* U.S. Department of Agriculture.

USFS. *See* U.S. Forest Service.

USFWS. *See* U.S. Fish and Wildlife Service.

USGS. *See* U.S. Geological Survey.

ATTACHMENT 2: SUMMARY OF IMPACTS

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Aesthetics		
Impact 1-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Aesthetics Potentially Significant	***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 measures 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 will 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 will 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 shall 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 shall be kept clean and tidy, including the re-vegetation of disturbed soil and storage of construction	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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 shall be avoided to the greatest extent feasible. • The project proponent shall 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.	
Agriculture Resources		
Impact 2-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Agricultural and Forest Resources Potentially Significant	***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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance response to new regulations would coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development.	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	• Based on the results of the environmental review, proponents will implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the project. Because CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels. 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 shall 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 shall 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 shall consider mitigation for the loss of such farmland. Any such mitigation shall 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	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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.	
Air Quality		
Impact 3-1: Short-Term Construction-Related Air Quality Impacts 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 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 the State 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 measures 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 or modified facilities or infrastructure constructed as a result of reasonably foreseeable compliance responses would coordinate with 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.	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	• Based on the results of the environmental review, proponents will implement all feasible mitigation to reduce or substantially lessen the potentially significant air quality impacts of the project. • Project proponents will 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 will comply with the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) (e.g., New Source Review and Best Available Control Technology criteria), if applicable. • Project proponents will 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.	
Impact 3-2: Long-Term Operational-Related Air Quality Impacts Beneficial	No Mitigation Required	Not Applicable
Impact 3-3: Short-Term Construction-Related and Long-Term Operational-Related Impacts from Odors Less Than Significant	No Mitigation Required	Not Applicable
Biological Resources		
Impact 4-1: Short-Term Construction-Related Effects to Biological Resources	***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	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Potentially Significant	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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance response to new regulations will coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents will implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the potentially significant impacts to biological resources. The definition of actions required to mitigate potentially significant biological 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 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	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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 3030(d) 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 (NPDES) construction permit may be required from the California State Water Resources Control Board (SWRCB). ■ 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.	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Impact 4-2: Long-Term Operational-Related Effects to Biological Resources Potentially Significant	Implement Mitigation Measure 4-1	Potentially Significant and Unavoidable
Cultural Resources		
Impact 5-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Cultural Resources Potentially Significant	***Mitigation Measure 5-1*** The Regulatory Setting in Attachment 1 includes, but is not limited to, applicable laws and regulations that provide protection of cultural resources. 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen the environmental impacts of the	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	project. The definition of 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 (36 CFR 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. ■ 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 (APE) 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 APE 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	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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 based on 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;	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	- identification, cataloging, curation and storage; and - a final report of the findings and their significance.	
Energy Demand		
Impact 6-1: Short-Term Construction-Related Effects on Energy Demand Less Than Significant	No Mitigation Required	Not Applicable
Impact 6-2: Long-Term Operational-Related Effects to Energy Demand Beneficial	No Mitigation Required	Not Applicable
Geology, Soils and Minerals		
Impact 7-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Geology, Seismicity, and Soils Potentially Significant	***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 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with local or State land use agencies to seek entitlements for development including the completion of all	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	necessary environmental review requirements (e.g., CEQA). The local or State land use agency or governing body would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents would implement all mitigation measures identified in the environmental document to reduce or substantially lessen the environmental impacts on soil erosion and the loss of topsoil. 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 will 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 will provide a complete site grading plan, and drainage, erosion, and sediment control plan with applications to applicable lead agencies. Proponents will 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 will be stabilized or restored using techniques such as soil loosening, topsoil replacement, revegetation, and surface protection (i.e., mulching).	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Greenhouse Gas Emissions		
Impact 8-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Greenhouse Gases Beneficial	No Mitigation Required	Not Applicable
Hazards and Hazardous Materials		
Impact 9-1: Short-Term Construction-Related Effects to Hazards and Hazardous Materials Potentially Significant	***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 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 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 measures 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 or modified facilities constructed as a compliance response will coordinate with local land use agencies to seek entitlements for development including the completion of all necessary environmental review requirements (e.g., CEQA). The local land use agency or governing body will certify that the environmental document was prepared in compliance with applicable regulations and will approve the project for development. • Based on the results of the environmental review, proponents will implement all 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	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	significant upset and accident-related hazard impacts may include the following; however, any mitigation specifically required for a new or modified facility will be determined by the local lead agency. ■ Handling of potentially hazardous materials/wastes shall 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 the project. As wastes are generated, they will be placed, at the direction of the licensed professional, in designated areas that offer secure, secondary containment and/or protection from stormwater runoff. Forms of containment may include placing waste in steel bins or other suitable containers pending profiling and disposal or recycling. ■ The temporary storage and handling of potentially hazardous materials/wastes shall be in areas away from sensitive receptors such as schools or residential areas. These areas shall 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 contact potentially hazardous materials/wastes will have the appropriate health and safety training commensurate with the anticipated level of exposure.	
Impact 9-2: Long-Term Operational-Related Effects to Hazards and Hazardous Materials Less Than Significant	No Mitigation Required	Not Applicable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Hydrology and Water Quality		
Impact 10-1: Short-Term Construction-Related Effects to Hydrology and Water Quality Potentially Significant	***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 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 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 measures 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 or modified facilities constructed because of reasonably foreseeable compliance responses to new regulations would coordinate with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents would implement all feasible mitigation identified in the environmental document to reduce or substantially lessen the potentially significant impacts associated with altering drainage patters, flooding, and inundation by seiche, tsunami, or mudflow. The definition of actions required to mitigate potentially significant hydrology and water quality impacts may include the following; however, any mitigation	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After 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 the proposed project will prepare a stormwater drainage and flood control analysis and management plan. The plans will be prepared by a qualified professional and will summarize existing conditions and the effects of project improvements, and will 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 will be designed to protect existing downstream flow conditions that will 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 will design and construct new facilities to provide appropriate flood protection such that operations are not adversely affected by flooding and inundation. These designs will be approved by the local or State land use agency. The project proponent will 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	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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 coordinate with 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.	
Impact 10-2: Long-Term Operational-Related Effects to Hydrology and Water Quality Potentially Significant	Implement Mitigation Measure 10-1	Potentially Significant and Unavoidable
Land Use and Planning		
Impact 11-1: Short-Term Construction-Related and Long-Term Operation-Related Effects to Land Use and Planning	*Potential 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 in their respective section.*	
Mineral Resources		
Impact 12-1: Short-Term Construction-Related Effects to Mineral Resources Less Than Significant	No Mitigation Required	Not Applicable
Impact 12-2: Long-Term Operational-Related Effects to Mineral Resources	***Mitigation Measure 12-2*** The Regulatory Setting in Attachment 1 includes applicable laws and regulations that provide protection of mineral resources. CARB does not have the authority	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Potentially Significant	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 under the purview of jurisdictions with local or State land use approval and/or permitting authority. New or modified facilities in California would most likely 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 measures 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 mineral resources include: • Proponents of construction activities implemented because of reasonably foreseeable compliance responses associated with the proposed Draft Blueprint would coordinate with 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 will implement all feasible mitigation to reduce or substantially lessen the potentially significant impacts on mineral resources associated with the project. • Actions required to mitigate potentially significant mineral resource 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 will prepare an investigation/study, which will include an evaluation of the development's impact on the availability of mineral resources valuable to the region and residents of	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	the state or delineated on a local general plan, specific plan, or other land use plan. ■ Proponents of new or modified facilities or infrastructure will provide a complete site plan showing any overlapping areas between the proposed plan and locally-important mineral resources delineated on a local general plan, specific plan, or other land use plan. Proponents will avoid locating facilities that would result in the loss of availability of locally-important mineral resources, as much as possible.	
Noise		
Impact 13-1: Short-Term Construction-Related Effects on Noise Potentially Significant	***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 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 measures 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 or modified facilities constructed under the 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 requirements (e.g., CEQA). The local or State land use agency or governing body would certify that the environmental document was prepared in compliance with	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents would implement all 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-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.	

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	• 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.	
Impact 13-2: Long-Term Operational-Related Effects on Noise Potentially Significant	Implement Mitigation Measure 13-1	Potentially Significant and Unavoidable
Population and Housing		
Impact 14-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Population, Employment, and Housing Less Than Significant	No Mitigation Required	Not Applicable
Public Services		
Impact 15-1: Short-Term Construction-Related and Long-Term Operational-Related Effects to Public Services Less Than Significant	No Mitigation Required	Not Applicable
Recreation		
Impact 16-1: Short-Term Construction-Related and Long-	No Mitigation Required	Not Applicable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
Term Operational-Related Effects to Recreation Less Than Significant		
Transportation and Traffic		
Impact 17-1: Short-Term Construction-Related Effects to Transportation and Traffic Potentially Significant	***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 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 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 measures 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 or modified facilities constructed will coordinate with 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 will certify that the environmental document was prepared in compliance with applicable regulations and will approve the project for development. • Based on the results of the environmental review, proponents will implement all mitigation identified in the environmental document to reduce or substantially lessen potentially significant impacts on traffic and transportation. The definition of actions required to mitigate potentially significant traffic impacts may include the	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	following; however, any mitigation specifically required for a new or modified facility will 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.	
Impact 17-2: Long-Term Operational-Related Effects to Transportation and Traffic Potentially Significant	***Mitigation Measure 17-2*** 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 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 or State 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	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	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.	
Utilities and Service Systems		
Impact 18-1: Long-Term Operational-Related Impacts to Utilities and Service Systems Potentially Significant	***Mitigation Measure 18-1*** The Regulatory Setting in Attachment 1 includes applicable laws and regulations that relate to utilities and service systems. 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 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 measures would be identified during the environmental review by agencies with project-approval authority. Recognized practices that are routinely required to avoid and/or minimize utility and service-related impacts include: • Proponents of new or modified facilities constructed because of reasonably foreseeable compliance responses would coordinate	Potentially Significant and Unavoidable

Attachment 2: Summary of Impacts		
Resource Area Impact **Significance Before Mitigation**	**Potential Mitigation**	**Significance After Mitigation**
	with 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 would certify that the environmental document was prepared in compliance with applicable regulations and would approve the project for development. • Based on the results of the environmental review, proponents would implement all mitigation identified in the environmental document to reduce or substantially lessen potentially significant impacts on utilities and service systems. 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 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. ■ Where appropriate, prepare a Water Supply Assessment (WSA) consistent with the requirements of Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code. The WSA would be approved by the local water agency/purveyor prior to construction of the project. ■ Comply with local plans and policies regarding the provision of wastewater treatment services.	