Chapter 5
Air Quality and Climate Change

5.1 Affected Environment

This section describes the regulatory and physical environmental setting for air quality and climate change in the Plan Area.

5.1.1 Regulatory Setting

At the federal level, air quality in the United States and California is governed by the Clean Air Act (CAA), which is administered by EPA. Air quality in California also is governed by more stringent regulations in the California Clean Air Act (CCAA), administered by the California Air Resources Board (ARB) and the local air quality management districts. ARB and the local air districts have primary implementation responsibility for both the federal and state air quality standards. Appendix E also summarizes additional regulations related to air quality.

Federal

The federal CAA, promulgated in 1963 and amended several times thereafter, including the 1990 Clean Air Act amendments (CAAA), establishes the framework for modern air pollution control. The act directs EPA to establish National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants. The NAAQS are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety, and the latter to protect environmental values, such as plant and animal life. Table 5-1 summarizes both the NAAQS and California Ambient Air Quality Standards (CAAQS).

The CAA requires states to submit a state implementation plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval can lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, EPA is directed to prepare a federal implementation plan.

Although there is currently no federal overarching law or policy related to climate change or the regulation of greenhouse gases (GHGs), recent developments suggests that regulation may be forthcoming. Foremost among recent developments has been the U.S. Supreme Court's decision in *Massachusetts v. EPA*, the Endangerment Finding, and Cause or Contribute Finding, which are described below. Despite these findings, the future of GHG regulations at the federal level is still uncertain. Recent legal cases, legislation, and policies related to climate change and GHG regulation at the federal level are summarized in this section.

Table 5-1. National and California Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[a]	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None	None
	8–hour	0.070 ppm	0.075 ppm	0.075 ppm
Particulate Matter (PM10)	24-hour	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	None	None
Fine Particulate Matter (PM2.5)	24-hour	None	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	15 μg/m^3	15 μg/m^3
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur Dioxide	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 μg/m^3	None	None
	Calendar quarter	None	1.5 μg/m^3	1.5 μg/m^3
	3-month average	None	0.15 μg/m^3	0.15 μg/m^3
Sulfates	24-hour	25 μg/m^3	None	None
Hydrogen Sulfide	1-hour	0.03 ppm	None	None
Vinyl Chloride	24-hour	0.01 ppm	None	None

Source: California Air Resources Board 2012a.

Note: National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

μg/m^3 = micrograms per cubic meter.
ppm = parts per million.

General Conformity

The CAAA requires that all federally funded projects conform to the appropriate SIP so that they do not interfere with strategies employed to attain the NAAQS. The rule applies to federal projects in areas designated as nonattainment areas for any of the six criteria pollutants and in some areas designated as maintenance areas. Project level conformance with the SIP is demonstrated through a general conformity analysis.

- A general conformity determination would be required if a proposed project's total direct and indirect emissions for which the region is classified as a maintenance or nonattainment area for the national standards are below the *de minimis* levels established by the conformity rule, indicated in Tables 5-2 and 5-3.

If the above condition is not met, a general conformity determination must be performed to demonstrate that total direct and indirect emissions for each affected pollutant for which the region

is classified as maintenance or nonattainment for the national standards would conform to the applicable SIP.

However, if the above condition is met, then the requirements for general conformity do not apply, as the proposed action is presumed to conform to the applicable SIP for each affected pollutant. As a result, no further analysis or determination would be required.

Table 5-2. Federal *de minimis* Threshold Levels for Criteria Pollutants in Nonattainment Areas

Pollutant	Emission Rate (tons per year)
Ozone (ROG/VOC or NO_X)	
Serious nonattainment areas	50
Severe nonattainment areas	25
Extreme nonattainment areas	10
Other ozone nonattainment areas outside an ozone transport region[a]	100
Other ozone nonattainment areas inside an ozone transport region[a]	
ROG/VOC	50
NO_X	100
CO: All nonattainment areas	100
SO_2 or NO_2: All nonattainment areas	100
PM10	
Moderate nonattainment areas	100
Serious nonattainment areas	70
PM2.5	
Direct emissions	100
SO_2	100
NO_X (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All nonattainment areas	25

Source: 40 CFR 51.853.

Note: *de minimis* threshold levels for conformity applicability analysis.

CO = carbon monoxide.
NO_2 = nitrogen dioxide.
NO_X = oxides of nitrogen.
Pb = lead particles.
PM10 = particulate matter less than 10 microns in diameter.
PM2.5 = particulate matter less than 2.5 microns in diameter.
ROG = reactive organic gases.
SO_2 = sulfur dioxide.
VOC = volatile organic compounds.

[a] Ozone Transport Region is comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

Table 5-3. Federal *de minimis* Threshold Levels for Criteria Pollutants in Maintenance Areas

Pollutant	Emission Rate (tons per year)
Ozone (NO_X, SO_2 or NO_2)	
All maintenance areas	100
Ozone (ROG/VOC)	
Maintenance areas inside an ozone transport region[a]	50
Maintenance areas outside an ozone transport region[a]	100
CO: All maintenance areas	100
PM10: All maintenance areas	100
PM2.5	
Direct emissions	100
SO_2	100
NO_X (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All maintenance areas	25

Source: 40 CFR 51.853.

Note: *de minimis* threshold levels for conformity applicability analysis.

CO = carbon monoxide.
NO_2 = nitrogen dioxide.
NO_X = oxides of nitrogen.
Pb = lead particles.
PM10 = particulate matter less than 10 microns in diameter.
PM2.5 = particulate matter less than 2.5 microns in diameter.
ROG = reactive organic gases.
SO_2 = sulfur dioxide.
VOC = volatile organic compounds.

[a] Ozone Transport Region is comprised of the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

Massachusetts et al. v. U.S. Environmental Protection Agency (2007)

Twelve U.S. states and cities, including California, in conjunction with several environmental organizations, sued to force EPA to regulate GHGs as a pollutant pursuant to the CAA in *Massachusetts et al. v. Environmental Protection Agency 549 US 497* (2007). The court ruled that the plaintiffs had standing to sue, GHGs fit within the CAA's definition of a pollutant, and EPA's reasons for not regulating GHGs were insufficiently grounded in the CAA.

Update to Corporate Average Fuel Economy Standards (2009)

The new Corporate Average Fuel Economy (CAFE) standards incorporate stricter fuel economy standards promulgated by the State of California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25% by 2016. EPA, National Highway Traffic Safety Administration (NHTSA), and ARB are currently working together on a joint rulemaking to establish GHG emissions standards for 2017 to 2025 model year passenger

vehicles, which require an industry-wide average of 54.5 miles per gallon in 2025 (U.S. Environmental Protection Agency et al. 2011a). The official proposal was released by both EPA and NHTSA on December 1, 2011. The public comment period ended on February 13, 2012 (U.S. Environmental Protection Agency et al. 2011b).

EPA Rule: Mandatory Reporting of Greenhouse Gases (2009)

On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), which required EPA to develop "mandatory reporting of greenhouse gasses above appropriate thresholds in all sectors of the economy…" The Reporting Rule would apply to most entities that emit 25,000 metric tons of CO_2e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also would mandate recordkeeping and administrative requirements in order for EPA to verify annual GHG emissions reports.

EPA Endangerment Finding and Cause or Contribute Finding (2009)

On December 7, 2009, EPA signed the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. Under the Endangerment Finding, EPA finds that the current and projected concentrations of the six key well-mixed GHGs—CO_2, CH_4, N_2O, PFCs, SF_6, and HFCs—in the atmosphere threaten the public health and welfare of current and future generations. Under the Cause or Contribute Finding, EPA finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing EPA's proposed new corporate average fuel economy standards for light-duty vehicles, which EPA proposed in a joint proposal including the Department of Transportation's proposed corporate average fuel-economy standards. EPA is still currently in its rule development process for the updated light-duty standards, and the comment period for the updated light-duty standards was recently extended to February 13, 2012.

Council on Environmental Quality Draft NEPA Guidance (2010)

On February 19, 2010, the Council on Environmental Quality (CEQ) issued draft NEPA guidance on the consideration of the effects of climate change and GHG emissions. This guidance advises federal agencies that they should consider opportunities to reduce GHG emissions caused by federal actions, adapt their actions to climate change effects throughout the NEPA process, and address these issues in their agency NEPA procedures. Where applicable, the scope of the NEPA analysis should cover the GHG emissions effects of a proposed action and alternative actions, as well as the relationship of climate change effects on a proposed action or alternatives. The draft guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 tons annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance, but as "a minimum standard for reporting emissions under the CAA." The draft guidance also recommends that the cumulative effects of climate change on the proposed project be evaluated. The CEQ guidance is still considered draft as of the writing of this document and is not an official CEQ policy document (Council on Environmental Quality 2010).

State

ARB is responsible for meeting the state requirements of the federal CAA, administering the CCAA, and establishing the CAAQS. The CCAA require all air districts in the state to endeavor to meet the CAAQS as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The CAAQS and NAAQS are listed together in Table 5-1.

ARB regulates mobile air pollution sources, such as motor vehicles, and is responsible for setting emission standards for vehicles sold in California and other sources, such as consumer products and certain off-road equipment. ARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county levels.

The CCAA of 1988 substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures (TCMs).

The State of California has adopted legislation, and regulatory agencies have enacted policies, addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation and policy activity is not directed at citizens or jurisdictions but rather establishes a broad framework for the state's long-term GHG mitigation and climate change adaptation program. The governor has issued several executive orders (EOs) related to the state's evolving climate change policy.

State CEQA Guidelines (2010)

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. Moreover, the State CEQA Guidelines emphasize the necessity to determine potential climate change effects of the project and propose mitigation as necessary. The State CEQA Guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds, but require the preparation of an EIR if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (§15064.4).

State CEQA Guidelines Section 15126.4 includes considerations for lead agencies related to feasible mitigation measures to reduce GHG emissions, which may include, among others, measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision; implementation of project features, project design, or other measures which are incorporated into the project to substantially reduce energy consumption or GHG emissions; offsite measures, including offsets that are not otherwise required, to mitigate a project's emissions; and measures that sequester carbon or carbon-equivalent emissions.

Local

Butte County

The Butte County Air Quality Management District (BCAQMD), along with ARB, is responsible for implementing NAAQS and CAAQS and for ensuring that these standards are met. The Butte County Association of Governments is coordinating with BCAQMD to implement strategies for air quality improvement through implementation of the Metropolitan Transportation Plan. Because of the regional nature of the O_3 conditions in the Sacramento Valley, BCAQMD is also coordinating efforts with the Sacramento Valley Air Basin Control Council's Technical Advisory Committee, the Sacramento Area Council of Governments, and the Sacramento Metropolitan Air Quality Management District.

The BCAQMD has developed measures to control PM, consistent with SB 656[1] and is in the process of developing a PM2.5 air quality attainment plan. The air district assisted in development of the *2004 Revisions to the California State Implementation Plan for Carbon Monoxide*. This document was prepared by ARB and demonstrates that 10 nonattainment/maintenance areas, including the Chico urbanized area, attained the 8-hour CO standard between 1992 and 1995 and describes how these areas will continue to maintain compliance with the standard (California Air Resources Board 2004).

The BCAQMD has adopted local rules to reduce emissions throughout the district. Portions of the proposed action in the county may be subject to the following, as well as other, rules and regulations. (California Air Resources Board 2013a)

- **Rule 200 (Nuisance)**: Prohibits the discharge of air containments that cause injury, detriment, nuisance, or annoyance.
- **Rule 201 (Visible Emissions)**: Prohibits the discharge of air containments for a period or periods aggregating more than 3 minutes in any 1 hour.
- **Rule 202 (Particulate Matter Concentrations)**: Prohibits the discharge of PM in excess of 0.3 grain per cubic foot of gas at standard conditions.
- **Rule 205 (Fugitive Dust Emissions)**: Limits the quantity of PM through best management practices.
- **Rule 252 (Stationary Internal Combustion Engines)**: Limits emissions of NO_X and CO from stationary internal combustion engines (if construction requires engines rated at more than 50 brake horsepower).
- **Rule 309 (Wildland Vegetation Management Burning)**: Establishes standards for the use of wildland vegetation management burning, range improvement burning, and forest management burning.

The BCAQMD has specified significance thresholds in its *CEQA Air Quality Handbook* to determine air quality impacts for projects located within district boundaries. The BCAQMD has three levels of emission thresholds, and depending on the emissions produced from a proposed project, different mitigation measures would be required. The thresholds are intended for operational emissions, but

[1] Senate Bill 656 was approved on October 8, 2003 and requires ARB and local air districts to identify, develop, and adopt a list of the most readily available, feasible, and cost-effective control measures for PM10 and PM2.5.

can be used to evaluate construction emissions if construction will last longer than 12 months. (Butte County Air Quality Management District 2008:2-2, 2-4.)

The BCAQMD has neither adopted rules nor regulations establishing limits on GHG emissions from specific projects nor thresholds of significance for GHG emissions at the project level. While BCAQMD CEQA Handbook does include a brief discussion about consistency with AB 32, the general impacts of climate change, and the GHG policy guidance from the California Air Pollution Controls Officers Association, the district only recommends that a qualitative discussion of GHGs be included for air quality analyses of "sizable projects"(Butte County Air Quality Management District 2008).

The County addresses GHG emissions and climate change in a variety of policies and programs throughout its General Plan 2030 (Butte County 2012). The County has expressed a commitment toward reducing its impact on climate change. This commitment is extended to the cities under County jurisdiction, including the cities of Biggs, Gridley, Chico, and Oroville, which are located in the Plan Area.

City of Biggs

The BCAQMD has jurisdiction over air quality and GHG emissions in the county, which includes the city of Biggs. See Butte County regulations above for further details on BCAQMD's treatment of GHG emissions.

The City of Biggs has identified several policies that target GHG emissions in the Conservation and Recreation Element of the City's General Plan Update. These policies will help the City minimize criteria pollutant and GHG emissions (City of Biggs 2011).

City of Gridley

The BCAQMD has jurisdiction over air quality and GHG emissions in the county, which includes the city of Gridley. See Butte County regulations, above, for further details on BCAQMD's treatment of GHG emissions.

The City's Code of Ordinances does not contain ordinances directed specifically at GHG emissions; however, Gridley's 2030 General Plan includes an appendix that outlines policies that can be implemented to mitigate GHG emissions or adapt to climate change (City of Gridley 2010). The general plan also considers agriculture and flooding safety concerns in regard to climate change adaptation.

City of Chico

The BCAQMD has jurisdiction over air quality and GHG emissions in the county, which includes the city of Chico. See Butte County regulations, above, for further details on BCAQMD's treatment of GHG emissions.

The City of Chico's 2030 General Plan includes policies that will help the City minimize criteria pollutant and GHG emissions. The Open Space and Environment Element includes a number of policies that seek to improve air quality reduce GHG emissions (City of Chico 2011a).

City of Oroville

The BCAQMD has jurisdiction over air quality and GHG emissions in the county, which includes the city of Oroville. See Butte County regulations, above, for further details on BCAQMD's treatment of GHG emissions.

The Open Space, Natural Resources and Conservation Element in the City's 2030 General Plan identifies a number of strategies aimed at improving air quality and reducing GHG emissions (City of Oroville 2009).

5.1.2 Environmental Setting

This section discusses the existing conditions as of May 2012 related to GHG emissions and, to a lesser extent, climate change in the Plan Area.

Climate and Meteorology

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

Butte County is located in the Sacramento Valley Air Basin (SVAB). The SVAB includes Butte, Sacramento, Sutter, and Yolo Counties and parts of Solano, Placer, and El Dorado Counties. The SVAB is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada. The San Joaquin Valley Air Basin is located to the south. The county, although north of the Sacramento metropolitan area, often suffers from transport of pollutants from the Sacramento area.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During summer, the wide, flat expanse of the Central Valley provides an ideal environment for the formation of photochemical smog. Hot, cloudless days of low-velocity winds allow sunlight to combine with photochemically reactive hydrocarbons, or ozone precursors (reactive organic gases [ROG]) and nitrogen oxides (NO_x), produced throughout the valley, resulting in an increase in ozone, particularly during late afternoons. Winds arising later may help dispel pollutants, but may also transfer it to other areas from Sacramento to Butte County.

During winter, the north Pacific storm track intermittently dominates valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Also characteristic of winter weather in the valley are periods of dense and persistent low-level fog, which is most prevalent between storms. The frequency and persistence of heavy fog in the valley diminishes with the approach of spring. The average yearly temperature range for the Sacramento Valley is 20–115°F, with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

In general, the prevailing wind in the Sacramento Valley is from the southwest because of marine breezes flowing through the Carquinez Strait. The Carquinez Strait is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily with a pronounced diurnal cycle. Influx strength is weakest in the morning and increases in the evening.

The Schultz Eddy, an eddy formed when incoming marine air is diverted by mountains on the valley's western side, is associated with the influx of air through the Carquinez Strait. The eddy contributes to the formation of a low-level southerly jet between 500 and 1,000 feet above the surface that is capable of speeds in excess of 35 mph. This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

The SVAB's climate and topography contribute to the formation and transport of photochemical pollutants throughout the region. The region experiences temperature inversions that limit atmospheric mixing and trap pollutants, resulting in high pollutant concentrations near the ground surface. Generally, the lower the inversion base height from the ground and the greater the temperature increase from base to top, the more pronounced the inhibiting effect of the inversion will be on pollutant dispersion. Consequently, the highest concentrations of photochemical pollutants occur from late spring to early fall, when photochemical reactions are greatest because of more intense sunlight and the lower altitude of daytime inversion layers. Surface inversions (0–500 feet above sea level) are most frequent during winter, and subsidence inversions (1,000–2,000 feet above sea level) are most common in summer.

It is expected that the regional climate will change as a result of increasing GHG concentrations in the atmosphere. These changes are discussed in the following sections.

Criteria Pollutants

Carbon Monoxide

Carbon monoxide (CO), a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhaust and residential wood burning in fireplaces and woodstoves emit most of the CO in the county. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follows the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor-vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. Because motor vehicles are the dominant source of CO emissions, CO hotspots are normally located near roads and freeways with high traffic volume. The highest CO concentrations measured in the county are typically recorded during the winter.

Ozone

Ground-level ozone (O_3) is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of ROG and NO_X, which are known as O_3 precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant.

Motor vehicles create the majority of ROG and NO_X emissions in the county. Exposure to levels of O_3 above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. Outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during smoggy periods are at greatest risk for harmful health effects. Elevated O_3 levels

can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics, and plastics.

Nitrogen Dioxide

NO_2, a reddish-brown gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM10 (see discussion of PM10 below). Levels of NO_2 in the county are relatively low.

Sulfur Oxides

Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating, as well as motor vehicle exhaust and other combustion processes. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children.

Suspended Particulate Matter

Particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter (PM10) are considered respirable particulate matter. Fine particles are 2.5 microns or less in diameter (PM2.5) and can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most PM found in the area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM2.5 is comprised of combustion products such as smoke.

Extensive research reviewed by ARB indicates that exposure to outdoor PM10 and PM2.5 levels exceeding current ambient air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illness, including emergency room visits for asthma. PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory symptoms and illnesses. Besides reducing visibility, the acidic portion of PM (nitrates, sulfates) can harm crops, forests, aquatic and other ecosystems.

Toxic Air Contaminants

Toxic air contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel PM and benzene near freeways). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by ARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program. California adopted a comprehensive diesel risk reduction program. EPA adopted low sulfur diesel fuel standards that went into effect in June 2006 and will reduce diesel PM substantially.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold, stagnant air traps smoke near the ground; with no wind, the pollution can persist for many hours. This occurs in sheltered valleys during the winter. Wood smoke also contains a significant amount of PM10 and PM2.5. Wood smoke is an irritant and can worsen asthma and other chronic lung problems.

Existing Air Quality Conditions

Existing air quality conditions in the Plan Area can be characterized in terms of the federal and state air quality standards and by monitoring data collected in the region. EPA and ARB maintain an extensive network of monitoring stations throughout California. Table 5-4 presents pollutant concentrations for western Butte County measured at the Chico, Manzanita Avenue Monitoring Station for the most recent 3-year period for which there is data (2009–2011). Because the Plan Area includes only western Butte County, monitoring data from the Paradise Fire Station and Paradise Airport monitoring stations were not included. As shown in Table 5-4, the county has experienced violations of the ozone, PM2.5, and PM10 standards.

Table 5-4. Monitored Pollutant Concentrations at the Chico Manzanita Avenue Monitoring Station, 2009–2011

Pollutant Standards	2009	2010	2011
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.080	0.077	0.080
Second-highest 1-hour concentration (ppm)	0.080	0.074	0.078
1-hour California designation value	0.09	0.09	0.08
1-hour expected peak day concentration	0.088	0.085	0.073
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	0	0	0
8-Hour Ozone			
National maximum 8-hour concentration (ppm)	0.073	0.070	0.068
National second-highest 8-hour concentration (ppm)	0.070	0.069	0.068
State maximum 8-hour concentration (ppm)	0.073	0.071	0.068
State second-highest 8-hour concentration (ppm)	0.071	0.069	0.068
8-hour national designation value	0.071	0.069	0.068
8-hour California designation value	0.083	0.081	0.073
8-hour expected peak day concentration	0.083	0.081	0.074

Pollutant Standards	2009	2010	2011
Number of days standard exceeded[a]			
NAAQS 8-hour (>0.075 ppm)	0	0	0
CAAQS 8-hour (>0.070 ppm)	2	1	0
Nitrogen Dioxide (NO_2)			
State maximum 1-hour concentration (ppm)	0.037	0.046	0.041
State second-highest 1-hour concentration (ppm)	0.037	0.040	0.040
Annual average concentration (ppm)	0.008	0.007	0.008
Number of days standard exceeded			
CAAQS 1-hour (0.18 ppm)	0	0	0
Carbon Monoxide (CO)			
National[b] maximum 8-hour concentration (ppm)	2.35	1.80	2.14
National[b] second-highest 8-hour concentration (ppm)	1.99	1.59	1.73
California[c] maximum 8-hour concentration (ppm)	2.35	1.80	2.14
California[c] second-highest 8-hour concentration (ppm)	1.99	1.59	1.73
Maximum 1-hour concentration (ppm)	2.8	2.5	2.6
Second-highest 1-hour concentration (ppm)	2.8	2.3	2.5
Number of days standard exceeded[a]			
NAAQS 8-hour (>9 ppm)	0	0	0
CAAQS 8-hour (>9.0 ppm)	0	0	0
NAAQS 1-hour (>35 ppm)	0	0	0
Particulate Matter (PM10)[d]			
National[b] maximum 24-hour concentration (μg/m^3)	48.2	38.3	58.4
National[b] second-highest 24-hour concentration (μg/m^3)	43.4	32.7	56.6
State[c] maximum 24-hour concentration (μg/m^3)	47.7	40.9	61.9
State[c] second-highest 24-hour concentration (μg/m^3)	45.9	33.8	60.2
State annual average concentration (μg/m^3)[e]	20.1	17.0	22.4
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 μg/m^3)[f]	0	0	0
CAAQS 24-hour (>50 μg/m^3)[f]	0	0	4
Particulate Matter (PM2.5)			
National[b] maximum 24-hour concentration (μg/m^3)	35.1	31.9	51.8
National[b] second-highest 24-hour concentration (μg/m^3)	30.0	29.0	46.2
State[c] maximum 24-hour concentration (μg/m^3)	59.2	39.8	66.0
State[c] second-highest 24-hour concentration (μg/m^3)	54.2	38.6	62.8
National annual designation value (μg/m^3)	12.4	11.5	10.1
National annual average concentration (μg/m^3)	10.0	8.0	12.0
State annual designation value (μg/m^3)	18	18	15
State annual average concentration (μg/m^3)[e]	13.0	10.9	14.6

Pollutant Standards	2009	2010	2011
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 μg/m^3)	0	0	6

Sources: California Air Resources Board 2013b; U.S. Environmental Protection Agency 2013.
CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
NA = insufficient data available to determine the value.
[a] An exceedance is not necessarily a violation.
[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.
[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.
[d] Measurements usually are collected every 6 days.
[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been truncated for presentation.

Attainment Status

Local monitoring data (Table 5-4) is used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas were data are insufficient to determine whether a pollutant is violating the standard in question.

Table 5-5 summarizes the attainment status of the county with regard to the federal and state standards.

Table 5-5. Federal and State Attainment Status for Butte County

	Butte County	
Pollutant	Federal Standard	State Standard
O_3, 1 hour	No Standard	Moderate Nonattainment
O_3, 8-hour	Partial Marginal Nonattainment[a]	Nonattainment
PM10	Attainment	Nonattainment
PM2.5	Partial Nonattainment[a]	Nonattainment
CO	Partial Moderate Maintenance[a]	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Sources: U.S Environmental Protection Agency 2012; California Air Resources Board 2012b.
[a] Designation only applies to the western portion of the County.

Sensitive Receptors

Sensitive receptors are locations where human populations, especially children, seniors, and sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for ambient air quality standards. Typical sensitive receptors include residences, hospitals, and schools. In general, these sensitive receptors are concentrated in the major cities and small towns in Butte County. The cities of Biggs, Gridley, Chico, and Oroville contain concentrations of sensitive receptors. In addition, scattered rural residences are also located throughout the undeveloped or rural lands.

Greenhouse Gas Emissions and Climate Change

GHGs trap infrared radiation emitted from the earth's surface, which otherwise would be reflected into space. Anthropogenic emissions of GHGs, resulting in ambient concentrations outside of what can be considered the natural range, are thought to be responsible for the enhancement of the natural greenhouse effect, or global warming. A warmer lower atmosphere induces changes in weather patterns and increased sea levels as a result of the melting of ice in the polar regions. This phenomenon is often referred to as *climate change*.

The Intergovernmental Panel on Climate Change (IPCC) lists carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) as six of the major GHGs from anthropomorphic sources. These gases are also listed under the CAA and AB 32. A brief description of the sources of each GHG follows.

Carbon Dioxide

CO_2 is the most abundant anthropogenic GHG, accounting for more than 75% of all anthropogenic GHG emissions. Its long atmospheric lifetime (on the order of decades to centuries) ensures that atmospheric concentrations of CO_2 will remain elevated for decades after GHG mitigation efforts are promulgated (Intergovernmental Panel on Climate Change 2007a). Primary sources of anthropogenic CO_2 in the atmosphere include the burning of fossil fuels (including motor vehicles), cement production, and land use changes, including deforestation. Atmospheric CO_2 has increased

from pre-industrial levels of 280 ppm to a concentration of 379 ppm in 2005 (Intergovernmental Panel on Climate Change 2007b).

Methane

CH_4, the main component of natural gas, is the second most abundant GHG and has a global warming potential (GWP), 21 times that of CO_2 (Intergovernmental Panel on Climate Change 1996). Anthropogenic emissions of CH_4 are the result of anaerobic emissions from rice paddies, cattle enteric fermentation, combusting natural gas, landfilled waste, and mining coal (National Oceanic and Atmospheric Administration 2010). Atmospheric CH_4 has increased from pre-industrial levels of 715 ppb to a concentration of 1,774 ppb in 2005 (Intergovernmental Panel on Climate Change 2007b).

Nitrous Oxide

N_2O is a powerful GHG, with a GWP 310 times that of CO_2 (Intergovernmental Panel on Climate Change 2007a). One of the major sources of N_2O is biological decomposition and agriculture, such as from manure and fertilizer application. N_2O is also a by-product of vehicle emissions and fuel-fired power plants. N_2O concentrations in the atmosphere have increased 18% from pre-industrial levels of 270 ppb to 319 ppb in 2005 (Intergovernmental Panel on Climate Change 2007b).

High–Global Warming Potential Gases

High GWP gases, such as HFCs, PFCs, and SF_6, are human-made chemicals used in a variety of industries and applications, such as refrigeration (HFCs), aluminum production (PFCs), and electricity transmission (SF_6). Some of these gases have GWP several orders of magnitude greater than CO_2 and can persist in the atmosphere for millennia. SF_6 is the most powerful of the GHGs listed in the IPCC studies, with a GWP of 23,900 (Intergovernmental Panel on Climate Change 2007a). Table 5-6 summarizes the lifetimes and GWPs of CO_2, CH_4, N_2O, and SF_6.

Table 5-6. Lifetimes and Global Warming Potentials

Greenhouse Gas	Global Warming Potential (100 years)	Lifetime (years)	2005 Atmospheric Abundance
Carbon Dioxide (ppm)	1	50–200	379
Methane (ppt)	21	9–15	1.7
Nitrous oxide (ppt)	310	120	0.32
Sulfur Hexafluoride (ppt)	23,900	3,200	5.6

Sources: Intergovernmental Panel on Climate Change 1996, 2001:388–390, 2007.
ppt = parts per trillion.

Greenhouse Gas Emissions Inventories

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources.

Table 5-7 outlines the most recent global, national, statewide, and local GHG inventories to help contextualize the magnitude of potential proposed action-related emissions.

Table 5-7. Global, National, State, and Local GHG Emissions Inventories

Emissions Inventory	CO_2e (metric tons)
2004 IPCC Global GHG Emissions Inventory	49,000,000,000
2011 EPA National GHG Emissions Inventory	6,708,300,000
2010 ARB State GHG Emissions Inventory	488,600,000
2006 Butte County Unincorporated GHG Emissions Inventory	601,266

Sources: Intergovernmental Panel on Climate Change 2007a; U.S. Environmental Protection Agency 2013; California Air Resources Board 2013c; Butte County 2010.

CO_2e = carbon dioxide equivalent.

Regional Emissions

GHG inventories typically are performed at the city, county or air district level and thus an exact overlap of the Plan Area with an existing GHG inventory is not possible. Sources of GHG emissions in the county include on-road transportation (49.2%), electricity usage (17.8%), agricultural vehicles and equipment (12.8%), natural gas (10.3%), off-road vehicles and equipment (6.8%), landfills (2.4%), and stationary sources (0.7%). Similar to the pattern of emissions at the state level, on-road vehicle travel, building energy use, and agricultural activities are the largest sources of GHG emissions in the Plan Area (Butte County 2010).

GHG emissions from agriculture, especially from rice production, are a unique characteristic of the Plan Area. Agricultural land makes up the vast majority of the Plan Area and is also a significant economic focus in the county. Rice cultivation results in considerably higher levels of GHGs compared to other crops because of the need to fully inundate crops. Perpetually flooded environments allow the anaerobic fermentation of soil organic matter and the release of CH_4. Because of the significant acreage devoted to rice production in the Plan Area and because CH_4 has a GWP 21 times that of CO_2, agriculture likely represents a significant source of emissions in the Plan Area (Butte County 2010).

5.2 Environmental Consequences

This section incorporates by reference the impact determinations presented for air quality and climate change in the Local Agencies' general plan EIRs (as described in more detail in Chapter 3, Section 3.3, *Resource Chapter Organization and NEPA/CEQA Requirements*).[2] The significance findings and mitigation measures of each of the general plan EIRs are compiled in Appendix C. The Lead Agencies have reviewed these analyses and found them to be appropriate for the purposes of this EIS/EIR.

[2] These previous CEQA documents are available collectively for public review at the BCAG offices (2580 Sierra Sunrise Terrace, Suite 100 Chico, CA 95928-8441). Individual general plans and EIRs are also available at each of the respective land use agencies.

5.2.1 Methods for Impact Analysis

The BRCP would not provide individual project approvals or entitlements for any private or public development or infrastructure projects. Accordingly, this EIS/EIR does not provide CEQA or NEPA coverage for individual covered activities and does not function as a *programmatic* or *umbrella* CEQA or NEPA document for regional development and infrastructure projects. The BRCP EIS/EIR evaluates only the adverse and beneficial environmental effects associated with the decisions of the Local Agencies, water and irrigation districts, and Caltrans to approve, permit, and implement the BRCP. Accordingly, the methods for analyzing direct impacts on air quality and climate change are tailored to evaluate the decisions of the Local Agencies, water and irrigation districts, and Caltrans to approve, permit, and implement the BRCP. This EIS/EIR also incorporates the impact determinations of the Local Agencies' general plan EIRs to analyze indirect impacts on air quality and climate change.

In adopting the EIRs for the local general plans, each Local Agency determined that the programmatic impacts on air quality would be mitigated to a less-than-significant level where possible through the implementation of general plan policies and the adoption of identified mitigation measures. For certain impacts, it was determined that there would be significant and unavoidable impacts resulting from air pollutant emissions.

It is assumed that all covered activities approved by the Local Agencies would be consistent with the policies of the respective general plans and would be subject to any mitigation measures identified such that impacts would be adequately mitigated to the extent identified in the general plan EIRs. Water and irrigation district activities have not been analyzed in previous CEQA documents. These activities include: rerouting of existing canals, replacement of water delivery structures, replacement of large weirs, mowing and trimming vegetation along service roads, and removing aquatic vegetation from canals. Potential impacts on air quality could occur primarily during construction or maintenance of these activities. The methodology for evaluating impacts on air quality also incorporates standard best management practices (BMPs) required by Caltrans during construction of transportation projects. These BMPs are summarized in Appendix D. The analysis assumes that Caltrans would implement these BMPs, when appropriate, during transportation projects within the Plan Area.

Air quality impacts associated with the proposed BRCP and alternatives would result in construction, operational, toxic air contaminant, and odor emissions resulting from equipment exhaust and fugitive dust. These potential impacts would occur on a temporary basis during construction and on a limited basis during operation and maintenance. Impacts associated with construction and operational emissions, toxic air contaminants, and odor emissions, were evaluated on a qualitative basis.

5.2.2 Significance Criteria

Federal Criteria

Criteria Pollutants

The air quality Plan Area is in federally classified nonattainment and/or maintenance areas for ozone, CO, and PM2.5 (Table 5-5). Consequently, to fulfill general conformity requirements, a General Conformity evaluation would be required to identify whether the total ozone, CO, and PM2.5

emissions for the action alternatives are subject to the General Conformity rule. The General Conformity evaluation must consider both direct and indirect sources of emissions for all nonattainment and/or maintenance pollutants, which include regulated precursor emissions. Regulated precursor emissions for ozone include ROG and NO_X. Regulated precursor emissions for PM2.5 include SO_2, NO_X, and ROG. Therefore, the General Conformity analysis evaluates each of these direct and indirect (precursor) emissions.

The General Conformity evaluation is made by comparing all emission sources (e.g., haul trucks, off-road equipment) to the applicable General Conformity *de minimis* thresholds. It should be noted that because power plants are subject to New Source Review permitting requirements, which are exempt from the General Conformity rule, emissions associated with electricity generation are not included in the General Conformity evaluation. Table 5-8 summarizes the *de minimis* thresholds applicable to the proposed action, based on the region's attainment status (Table 5-5) and the *de minimis* threshold values presented in Tables 5-2 and 5-3. Any emissions in excess of those indicated in Table 5-8 would have an adverse effect on air quality.

Table 5-8. Federal *de minimis* Thresholds (tons per year)

Pollutant	Northern Sacramento Valley Air Basin
NO_X	100
VOC/ROG	100
CO	100
PM10	–
PM2.5	100
SO_2	–

Greenhouse Gases

CEQ's draft guidance identifies 25,000 metric tons of CO_2e as "a minimum standard for reporting emissions under the Clean Air Act" and "an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public" (Council on Environmental Quality 2010). It is a useful tool to evaluate whether emissions associated with the proposed action may be significant, as CEQ guidance indicates that it is "an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs" (Council on Environmental Quality 2010). In this analysis, emissions in excess of 25,000 metric tons of CO_2e were considered to result in an adverse effect related to climate change.

State Criteria

In accordance with Appendix G of the State CEQA Guidelines, the action alternatives would be considered to have a significant effect if they would result in any of the conditions listed below.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

BCAQMD Thresholds

Criteria Pollutants

According to the State CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make significance determinations for potential impacts on environmental resources. BCAQMD has specified significance thresholds in its *CEQA Air Quality Handbook* to determine air quality effects of projects located within district boundaries. BCAQMD has three levels of emission thresholds, and depending on the emissions produced from a proposed project, different mitigation measures are required (Table 5-9). The thresholds are intended for operational emissions but can be used to evaluate construction emissions if construction lasts longer than 12 months (Butte County Air Quality Management District 2008).

Table 5-9. BCAQMD Significance Thresholds (pounds/day)

Pollutant	Level A	Level B	Level C
NO_x	<= 25	> 25	>137
ROG	<= 25	> 25	>137
PM10	<= 80	> 80	>137
Level of significance	Potentially significant	Potentially significant	Significant
Level of significance after implementation of feasible mitigation	Less than significant	Less than significant	Significant

Source: Butte County Air Quality Management District 2008.

Should a project emit greater than 25 lbs/day of ROG and/or NO_X and greater than 80 lbs/day of PM10, the project would have the potential to cause significant air quality impacts, and all best available mitigation measures (BAMM) and standard mitigation measures (SMM), as necessary, should be implemented. Projects with emissions below these levels would only need to implement SMMs. Should a project emit greater than 137 lbs/day of ROG, NO_X, and PM10, the project would have significant air quality impacts.

Greenhouse Gases

The BCAQMD has not established thresholds to define a “significant amount" of GHGs within the context of CEQA. The Bay Area Air Quality Management District (BAAQMD), South Coast Air Quality

Management District (SCAQMD), and San Joaquin Valley Air Pollution Control District (SJVAPCD)have adopted GHG thresholds (Table 5-10). To evaluate significance, this analysis draws upon the adopted GHG thresholds in Table 5-10 to evaluate GHG emissions. In accordance with the State CEQA guidelines, the analysis includes a cumulative, rather than project-level, evaluation of climate change impacts.

Table 5-10. Adopted and Draft Greenhouse Gas Thresholds

Agency	Threshold	Application
BAAQMD	1,100 (metric tons/year)	Development projects (operational emissions)
	Compliance with GHG reduction strategy	
	4.6 metric tons/service population/year	
	25,000 (metric tons/year)	Stationary source projects (operational emissions)
SJVAPCD	Compliance with GHG reduction strategy	Development and stationary source projects (operational emissions)
	Implementation of best performance standards	
	29% reduction in GHG emissions relative to business-as-usual conditions[a]	
Sacramento County (Draft)	4.56 metric tons per capita[b]	Transportation projects

Sources: Bay Area Air Quality Management District 2010; San Joaquin Valley Air Pollution Control District 2009; Sacramento County 2010.

[a] Defined as emissions that would occur if no GHG mitigation measures were implemented.

[b] This threshold is based on a per capita approach. Consequently, it is difficult to apply this threshold to the proposed project—there is not a means of identifying the population served by the project, particularly since the project is intended to provide a transportation link across the Sacramento and into El Dorado counties.

5.2.3 Impacts and Mitigation Measures

Alternative 1—No Action (No Plan Implementation)

As discussed in Section 2.3.1, *Alternative 1—No-Action Alternative (No Plan Implementation)*, under Alternative 1, project proponents would apply for permits on a project-by-project basis, without a coordinated and comprehensive effort to minimize and mitigate biological impacts through the BRCP. The urban development and other projects described in the Local Agencies' general plans and general plan EIRs would take place under this alternative. This includes construction of residential, commercial, and industrial development; construction, maintenance, and use of urban infrastructure, parks, recreational facilities, public services, and similar types of urban land uses. Other activities that would occur under Alternative 1 are construction and maintenance of public infrastructure projects outside of urban areas, including public infrastructure projects in and over streams (e.g. bridge replacements). No regional conservation strategy or conservation measures would be implemented; therefore, impacts on air quality and climate change associated with the conservation strategy and conservation measures would not occur. In addition, none of the

Avoidance and Minimization Measures included in the BRCP would be implemented under Alternative 1, and thus would not reduce construction air emissions.

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—The County's general plan EIR concluded that implementation of General Plan 2030 would not conflict with or obstruct implementation of the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan (NSVPA Plan) because population and pollutant emissions resulting from implementation of the general plan would not exceed BCAG's growth estimates (Butte County 2010). There are agricultural service project activities and waste activities associated with Butte County that could result in pollutant emissions. However, these activities are discussed in the general plan, and the impacts associated with these activities are analyzed in the general plan EIR. Therefore, implementation of the general plan, including implementation of agricultural service project activities and waste activities, would not conflict with or obstruct implementation of the applicable air quality plan.

City of Chico—The City of Chico's general plan EIR assessed whether land use activities associated with implementation of the City's general plan would conflict with or obstruct implementation of the NSVPA Plan. Wastewater development project activities and maintenance activities associated with the city of Chico could result in pollutant emissions. However, these activities are discussed in the general plan, and the impacts associated with these activities are analyzed in the general plan EIR. The EIR concluded that the general plan was designed so that land use activities would not conflict with the NSVPA Plan (City of Chico 2011b). Therefore, implementation of the general plan, including wastewater development project activities and maintenance activities, would not conflict with or obstruct implementation of the applicable air quality plan.

City of Oroville—The City of Oroville's general plan EIR determined that activities in the general plan would be associated with temporary construction emissions that would generate ROG, NOx, CO, and PM (City of Oroville 2009). These emissions could potentially conflict with the NSVPA Plan. Therefore, implementation of the general plan would conflict with or obstruct implementation of the applicable air quality plan.

City of Gridley—Source emissions from wastewater development project activities and maintenance activities associated with the city of Gridley are discussed in the City's general plan, and the impacts associated with these activities are analyzed in the general plan EIR. The general plan EIR determined that mobile and area source emissions that would result from implementation of the general plan are not taken into account in the existing air quality plan. Consequently, the activities in the general plan would conflict with the NSVPA Plan. Therefore, implementation of the general plan would conflict with or obstruct implementation of the applicable air quality plan.

City of Biggs—The City of Biggs's general plan EIR determined that land use activities associated with implementation of the general plan would conflict with the NSVPA Plan (City of Biggs 2013).Therefore, implementation of the general plan would conflict with or obstruct implementation of the applicable air quality plan.

Transportation Facilities—Transportation facility construction and maintenance activities include capacity enhancing projects; intersection improvements; bridge improvements; and rehabilitation

and minor improvements to existing roadways, bike paths, parking facilities, transit facilities, rail facilities, airports, and other infrastructure. These activities could have an impact on air quality as a result of the substantial amount of heavy-duty diesel-powered construction equipment used that would generate air pollution emissions and earth movement that could generate dust. Projects would be undertaken by Caltrans, BCAG, and the Local Agencies. This impact could be significant if construction activities were such that pollutant emissions would still exceed the general conformity *de minimis* thresholds indicated in Table 5-8 or BCAQMD's thresholds indicated in Table 5-9. Standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from construction equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). In addition all BMPs required by Caltrans to control emissions, as described in Appendix D, would be implemented during their projects. However, emissions may not be reduced below the thresholds in Table 5-8 or 5-9 because of construction duration and number of heavy duty equipment used. Therefore, is anticipated that these activities would conflict with the NSVPA Plan.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—Recurring maintenance activities primarily include those undertaken by the Local Agencies and would include vegetation removal on levees, vegetation clearing using herbicides and potential tree removal. It could also include discing for firebreaks. These activities would not result in substantial air pollutant emissions, as heavy-duty equipment is not anticipated to be regularly used or would be used intermittently and infrequently (i.e., prior to fire season). No emissions or very limited emissions would be emitted and standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from construction equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). Therefore, it is anticipated that implementation of these activities would not conflict with the NSVPA Plan.

Impacts of Water and Irrigation Districts' Activities

Water and Irrigation Districts—Facility upgrades and maintenance would occur within the water and irrigation district service areas and include rerouting and maintaining canals and vegetation maintenance. Some of the activities, such as rerouting existing canals and replacing water delivery structures and other larger structures could require a substantial amount of heavy-duty diesel-powered construction equipment that would result in air pollutant emissions. Mowing and trimming of vegetation along service roads and the removal of aquatic vegetation from canals would likely only require hand operated equipment, but may also require the infrequent use of mowers that would result in minor air pollutant emissions. If emissions from the construction activities using heavy-duty equipment on a more frequent basis exceed BCAQMD's thresholds, the activities could conflict with the NSVPA Plan, and the impact would be significant. Standard construction mitigation measures from BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures would be applied; however, it is anticipated that implementation of these activities could conflict with the NSVPA Plan.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would conflict with the NSVPA Plan. Implementation of the Cities' general plan policies

or mitigation measures and implementation of standard construction mitigation measures from BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Caltrans BMPs would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would conflict with the NSVPA Plan. Implementation of the Cities' general plan policies or mitigation measures and implementation of standard construction mitigation measures from BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures and Caltrans BMPs would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—As discussed in the County's general plan EIR, land use activities associated with implementation of the General Plan 2030, including the covered activities, would result in a potential CO, ROG, NOx, and PM emissions from vehicles and non-vehicle sources. Through quantitative modeling, the EIR determined that CO emissions from vehicles would not violate state or federal CO standards. Decreases in criteria pollutant emissions are expected from vehicle sources due to improvements in engine technology. Other sources of emissions, including mining, agricultural, construction, and residential, commercial, and industrial development, would not contribute or violate any air quality standards due to general plan policies and BCAQMD standard mitigation measures. Therefore, implementation of the general plan would not violate any air quality standard or contribute substantially to an existing air quality violation.

City of Chico—The City of Chico's general plan EIR determined that land use activities that would be implemented as part of the existing general plan could result in short-term construction-related emissions. The general plan could add a substantial amount of development and infrastructure in the city, and construction of this development could result in emissions that exceed BCAQMD thresholds (City of Chico 2011b). Therefore, implementation of the general plan would violate any air quality standard or contribute substantially to an existing air quality violation.

City of Oroville—The City of Oroville's general plan EIR determined that construction activities associated with the implementation of the general plan would generate ROG, NOx, CO, and PM emissions. The general plan includes policies that would reduce construction emissions, but short-term construction emissions could exceed BCAQMD thresholds (City of Oroville 2009). Therefore, implementation of the general plan would violate any air quality standard or contribute substantially to an existing air quality violation.

City of Gridley—The City of Gridley's general plan EIR determined that activities associated with implementation of the general plan would generate short-term construction emissions that could violate an air quality standard or contribute to an existing air quality violation. Construction would follow BCAQMD standard mitigation measures, but emissions would be substantial due to the amount of total development that could occur (City of Gridley 2009). Therefore, implementation of

the general plan would violate any air quality standard or contribute substantially to an existing air quality violation.

City of Biggs—The City of Biggs's general plan EIR determined that land use activities associated with implementation of the general plan would result in long-term emissions that could contribute to a violation of federal and state ozone and PM standards. Additionally, short-term construction emissions associated with the land use activities in the general plan could violate federal and state ozone and PM standards (City of Biggs 2013). Therefore, implementation of the general plan would violate any air quality standard or contribute substantially to an existing air quality violation.

Transportation Facilities—Transportation facility construction and maintenance would occur as described in Impact AQ-1. All BMPs required by Caltrans to control emissions, as described in Appendix D, would be implemented during their projects, and BCAG projects would follow general plan policies and BCAQMD standard mitigation measures. However, it is anticipated these activities would violate air quality standards or contribute to an existing air quality violation due to the substantial amounts of heavy-duty construction equipment expected to be used.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—Recurring maintenance activities primarily include those undertaken by the Local Agencies and are described under Impact AQ-1. It is anticipated these activities would not violate air quality standards or contribute to an existing air quality violation due to their limited duration and frequency.

Impacts of Water and Irrigation Districts' Activities

*Water and Irrigation District*s—Facility upgrades and maintenance would occur within the water and irrigation district service areas as described under Impact AQ-1. Standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from heavy-duty equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). It is anticipated these activities would violate air quality standards or contribute to an existing air quality violation.

NEPA Determination: As a result of construction- and operations- related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would violate air quality standards or contribute to an existing air quality violation. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures, would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations- related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would violate air quality standards or contribute to an existing air quality violation. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—The County's general plan EIR determined that implementation of General Plan 2030 would result in net decreases of criteria pollutants due to improvements in engine technology and the retirement of older vehicles. Non-mobile emissions would occur due to land use development, but this development would follow any applicable general plan policies and air district rules. Therefore, implementation in of the general plan would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.

City of Chico—The City of Chico's general plan EIR determined that the covered activities included in the general plan and development in the region's air basin would cause a cumulatively considerable net increase in ozone and PM (City of Chico 2011b). Therefore, implementation of the general plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.

City of Oroville—The City of Oroville's general plan EIR determined that construction activities would temporarily generate ROG, NO_X, CO, and PM emissions that could impact air quality (City of Oroville 2009). These construction activities in combination with other development in the region could cause a cumulatively considerable net increase in criteria pollutants for which the region is a nonattainment area. Therefore, implementation of the general plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.

City of Gridley—The City of Gridley's general plan EIR determined that long-term operational, regional emissions of criteria pollutants and precursors would be generated by activities that would occur under the general plan. These long-term emissions could result in a cumulatively considerable net increase of criteria pollutants for which the region is a nonattainment area. Therefore, implementation of the general plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.

City of Biggs—The City of Biggs's general plan EIR determined that implementation of the general plan and other development in the region's air basin would cause a net increase of ozone and PM that would be cumulatively considerable (City of Biggs 2013). Therefore, implementation of the general plan would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.

Transportation Facilities—Transportation facility construction and maintenance would occur as described in Impact AQ-1. All BMPs required by Caltrans to control emissions, as described in Appendix D, would be implemented during their projects, and BCAG projects would follow general plan policies and BCAQMD standard mitigation measures. However, since the construction and

maintenance of these facilities would conflict with the NSVPA Plan and violate air quality standards, they would result in a cumulatively considerable net increase of any criteria pollutant.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—Recurring maintenance activities primarily include those undertaken by the Local Agencies and would occur as described under Impact AQ-1. Recurring maintenance activities would not result in a cumulatively considerable net increase of any criteria pollutant.

Impacts of Water and Irrigation Districts' Activities

*Water and Irrigation District*s—Facility upgrades and maintenance would occur within the water and irrigation district service areas as described under AQ-1. Standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from heavy-duty equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). However, since the construction and maintenance of these facilities would conflict with the NSVPA Plan and violate air quality standards, they would also result in a cumulatively considerable net increase of any criteria pollutant.

NEPA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would violate air quality standards or contribute to an existing air quality violation. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, as well as construction activities related to transportation facilities and water and irrigation district activities, Alternative 1 would violate air quality standards or contribute to an existing air quality violation. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—As discussed in the County's general plan EIR, diesel-powered construction equipment, heavy-duty trucks, and new development would create diesel exhaust emissions as a result of implementation of the General Plan 2030. Because policies within the general plan specify distance requirements and control technologies, sensitive receptors would not be exposed to substantial pollutant concentrations (Butte County 2010). Therefore, implementation of the general plan would not expose sensitive receptors to substantial pollutant concentrations.

City of Chico—The City of Chico's general plan EIR determined that projects with sources of toxic air contaminants could affect sensitive receptors in surrounding land uses and that sensitive land uses could be placed near existing sources of toxic air contaminants. Sensitive receptors could also be

exposed to elevated CO concentrations from increased traffic volumes. The general plan EIR concluded that exposure of sensitive receptors and land uses to toxic air contaminants would be addressed by regulations implemented by BCAQMD and the state to prevent sensitive receptors from being exposed to substantial pollutant concentrations and that traffic volumes would not be large enough to create substantial CO emission (City of Chico 2011b). Therefore, implementation of the general plan would not expose sensitive receptors to substantial pollutant concentrations.

City of Oroville—The City of Oroville's general plan EIR determined that construction activities would temporarily generate ROG, NO_X, CO, and PM emissions that could impact air quality (City of Oroville 2009). These construction activities could expose sensitive receptors to substantial pollutant concentrations. If not addressed by BCAQMD or the state, pollutant concentrations, including toxic air contaminants, could affect sensitive receptors. Therefore, implementation of the general plan would expose sensitive receptors to substantial pollutant concentrations.

City of Gridley—The City of Gridley's general plan EIR determined that toxic air contaminants resulting from heavy-duty diesel equipment, stationary, and mobile sources would occur, but the effect of these emissions on sensitive receptors would be minimized. Pursuant to policies in the general plan, land uses and other sources that could produce toxic air contaminants would be sited to minimize exposure to sensitive receptors (City of Gridley 2009). Therefore, implementation of the general plan would not expose sensitive receptors to substantial pollutant concentrations.

City of Biggs—The City of Biggs's general plan EIR determined that the land use activities associated with the general plan could cause sources of toxic air contaminant emissions that would affect the surrounding land uses. In addition, sensitive land uses may be developed near existing sources of toxic air contaminants. Exposure of sensitive receptors to toxic air contaminants would be addressed by existing regulations of BCAQMD and the state (City of Biggs 2013). Therefore, implementation of the general plan would not expose sensitive receptors to substantial pollutant concentrations.

Transportation Facilities—As discussed under Impact AQ-1, activities associated with the development of transportation facilities would require the use of heavy-duty diesel-powered equipment that would generate air pollutant emissions. These emissions are not expected to impact substantial numbers of people, as construction of the transportation facilities would be temporary. Furthermore, Caltrans BMPs would be implemented, as described in Appendix D. Therefore, construction of the transportation facilities would not expose sensitive receptors to substantial pollutants.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—These activities are described under Impact AQ-1 and are not expected to occur within close proximity to sensitive receptors. Furthermore, these activities would be limited in duration and occur relatively infrequently. Therefore, recurring maintenance activities are not expected to impact substantial numbers of people and would not expose sensitive receptors to substantial pollutants.

Impacts of Water and Irrigation Districts' Activities

*Water and Irrigation District*s—As discussed under Impact AQ-1, activities associated with the development of transportation facilities would require the use of heavy-duty diesel-powered equipment that would generate air pollutant emissions. While emissions from construction

equipment could affect sensitive receptors, these activities would generally occur in agricultural and open space areas away from the sensitive receptors, and the activities would be limited in duration. Therefore, it is anticipated the water and irrigation activities would not expose sensitive receptors to substantial pollutants.

NEPA Determination: As a result of construction-related emissions associated with implementation of the general plan for the city of Oroville, sensitive receptors would be exposed to substantial pollutants. All other activities (i.e., implementation of other general plans, transportation facilities, recurring maintenance facilities, and water and irrigation district activities) would not expose sensitive receptors to substantial pollutants. Implementation of the City's general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plan for the city of Oroville sensitive receptors would be exposed to substantial pollutants. All other activities (i.e., implementation of other general plans, transportation facilities, recurring maintenance facilities, and water and irrigation district activities) would not expose sensitive receptors to substantial pollutants. Implementation of the City's general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-5: Create objectionable odors affecting a substantial number of people (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—Construction diesel exhaust, agricultural operations, and other land use activity associated with the covered activities in the County's General Plan 2030 would have the potential to generate odors. However, several policies in the general plan stipulate the establishment of buffer zones around sources of odor, which would reduce the exposure of a substantial number of people to odors (Butte County 2010). Therefore, implementation of the general plan would not create objectionable odors affecting a substantial number of people.

City of Chico—Land use activities associated with the City of Chico's General Plan were found to have the potential to introduce objectionable odors affecting a substantial number of people. Consequently, any odor issues would be lessened by rules and regulations to be implemented by BCAQMD, and policy provisions included in the City's general plan (City of Chico 2011b). Therefore, implementation of the general plan would not create objectionable odors affecting a substantial number of people.

City of Oroville—The City of Oroville's general plan EIR determined that construction activities would temporarily generate ROG, NO_X, CO, and PM emissions that could impact air quality (City of Oroville 2009). These construction activities could also generate objectionable odors. If the rules and regulations implemented by BCAQMD to not address these odor issues, a substantial number of people could be affected. Therefore, implementation of the general plan would create objectionable odors affecting a substantial number of people.

City of Gridley—As discussed in the City of Gridley's general plan EIR, certain receptors could be exposed to excessive odors resulting from implementation of the covered activities in the general plan. Receptors that are onsite at a project could be exposed to odors from project-generated odor sources from existing agricultural other land uses (City of Gridley 2009). Therefore, implementation of the general plan would create objectionable odors affecting a substantial number of people.

City of Biggs—As discussed in the City of Biggs's general plan EIR, the land use activities that would result from implementation of the general plan could create objectionable odors or expose new residents to existing odor sources. Such odor issues would be addressed by BCAQMD regulations. Therefore, implementation of the general plan would not create objectionable odors affecting a substantial number of people.

Transportation Facilities—As discussed under Impact AQ-4, emissions would not likely affect a substantial number of people as construction of the transportation facilities would be temporary. Furthermore, Caltrans BMPs would be implemented, as described in Appendix D. Therefore, construction and maintenance of transportation facilities would not create objectionable odors affecting a substantial number of people.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—As discussed under Impact AQ-4, these activities would likely not occur within close proximity to sensitive receptors and would be temporary. Therefore, recurring maintenance activities would not create objectionable odors affecting a substantial number of people.

Impacts of Water and Irrigation Districts' Activities

*Water and Irrigation District*s—As discussed under Impact AQ-4 these activities would generally occur in agricultural and open space areas away from the sensitive receptors, and the activities would be limited in duration. Therefore, it is anticipated the water and irrigation activities would not create objectionable odors affecting a substantial number of people.

NEPA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Oroville and Gridley, sensitive receptors would be exposed to objectionable odors. All other activities (i.e., implementation of other general plans, transportation facilities, recurring maintenance facilities, and water and irrigation district activities) would not expose sensitive receptors to substantial pollutants. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Oroville and Gridley sensitive receptors would be exposed to objectionable odors. All other activities (i.e., implementation of other general plans, transportation facilities, recurring maintenance facilities, and water and irrigation district activities) would not expose sensitive receptors to substantial pollutants. Implementation of the Cities' general plan policies or mitigation measures and the BCAQMD's fugitive PM10 mitigation measures would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

The County and Cities of Chico, Oroville, Gridley, and Biggs determined that implementation of their general plans would result in significant and unavoidable emissions of GHGs (Butte County 2010; City of Chico 2011b; City of Oroville 2009; City of Gridley 2009; City of Biggs 2013).

Impacts of Transportation Facilities, Recurring Maintenance, and Water and Irrigation Districts' Activities

While BCAQMD has not formally adopted GHG thresholds, Table 5-10 includes adopted GHG thresholds for multiple air districts and counties, and the CEQ threshold is discussed in Section 5.2.2, *Significance Criteria*. The construction and maintenance of facilities and infrastructure under the covered activities would require heavy-duty construction equipment, which would generate direct GHG emissions. It is possible that emissions could exceed some of the referenced thresholds included in Table 5-10, which may have a significant impact on the environment. Implementing construction BMPs for the transportation facilities, identified in Appendix D, would minimize GHG emissions, but not to a less than significant level.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, as well as transportation facilities, recurring maintenance facilities, and water and irrigation district activities, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures and Caltrans BMPs would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, including transportation facilities, recurring maintenance facilities, and water and irrigation district activities, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures and Caltrans BMPs would not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Impact AQ-7: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

In the Plan Area, there are no formally adopted plans or goals with the intent of reducing GHG emissions. As discussed under Impact AQ-6, implementation of the Local Agencies' general plans, including transportation projects, recurring maintenance activities, and water and irrigation districts' activities, could result in exceedance of the reference thresholds in Table 5-10 and conflict with GHG reduction planning efforts.

NEPA Determination: The impact determination would be the same as AQ-6; impacts would be significant and unavoidable.

CEQA Determination: The impact determination would be the same as AQ-6; impacts would be significant and unavoidable.

Alternative 2—Proposed Action

Under Alternative 2, covered activities would include the existing, planned, and proposed land uses over which the Permit Applicants have land use authority; state and local transportation projects; maintenance of water delivery systems (e.g., WCWD canals and similar delivery systems); habitat restoration, enhancement, and management actions (conservation measures); and adaptive management and monitoring activities. Covered activities relevant to air quality and climate change are those that involve construction or those that involve earthmoving activities, as well as those that generate traffic. Covered activities that would involve construction (including earthmoving activities) are all development activities consistent with the Local Agencies' general plans, state and local transportation projects, and water district canal installation. Conservation measures that involve only earthmoving activities are certain restoration actions under the conservation strategy (CM4–CM11, and CM14 and Activities to Improve Urban Stormwater Quality). Most covered activities would require individual permits and approvals pursuant to the Local Agencies' general plans and land use regulations, or the requirements of the implementing agency (such as Caltrans and irrigation districts) and would undergo subsequent project-level CEQA review and relevant NEPA review for construction and operations-related impacts; although some covered activities, however, may be exempted from environmental review requirements due to project characteristics, including small projects or infill projects.

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within Local Agency jurisdiction, refer to the Alternative 1 impact discussion for Impact AQ-1. Implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, which contains wind erosion control measures (applying water or dust palliatives), would reduce impacts, but it may not reduce them to a less-than-significant level given the extent and type of emissions associated with implementation of the City of Biggs' and City of Gridley's general plans.

Transportation Facilities—Covered transportation construction and maintenance activities that could have an impact on air quality under Alternative 2 include capacity enhancing projects; intersection improvements; bridge improvements; and rehabilitation and minor improvements to existing roadways, bike paths, parking facilities, transit facilities, rail facilities, airports, and other infrastructure. These activities would require heavy-duty diesel-powered equipment that would generate air pollutant emissions and earth movement that could generate dust. If construction emissions from implementation of these activities exceed BCAQMD's thresholds, the activities could conflict with the NSVPA Plan, and the impact would be significant. Standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from construction equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). This impact could be significant if construction activities were such that pollutant emissions would still exceed the general conformity *de minimis* thresholds indicated in Table 5-8 or BCAQMD's thresholds indicated in Table 5-9. Implementation of AMMs included in the BRCP, including AMM14: Control Fugitive Dust through Watering, and AMM26: Implement Caltrans Water Quality BMPs, which include wind erosion control measures (applying water or dust palliatives), as well as Caltrans BMPs listed in Appendix D, would reduce these impacts, but may not reduce them to a less-than-significant level.

Implementation of Mitigation Measures AQ-1a and AQ-1b will ensure compliance with the NSVPA Plan.

Impacts of Recurring Maintenance

Flood Control and Stormwater Management and Vegetation Management—Activities associated with flood control and stormwater management include vegetation removal on levees. Vegetation management would typically include vegetation clearing using herbicides and potential tree removal. It could also include discing for firebreaks. These activities would not result in substantial air pollutant emissions, as heavy-duty equipment is not anticipated to be regularly used or would be used intermittently and very infrequently (i.e., prior to fire season). No emissions or very limited emissions would be emitted and, standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from construction equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). Therefore, emissions from these activities would not conflict with the NSVPA Plan. Furthermore, implementation of Mitigation Measures AQ-1a and 1b will further reduce the less-than-significant impacts.

Impacts of Water and Irrigation Districts' Activities

Covered activities within water and irrigation districts that would occur include permanent rerouting of up to 12 miles of existing canals, the replacement of water delivery structures, the replacement of larger structures, mowing and trimming of vegetation along district service roads, and maintenance activities to remove aquatic vegetation from canals. Some of the activities, such as rerouting existing canals and replacing water delivery structures and other larger structures could require a substantial amount of heavy-duty diesel-powered construction equipment that would result in air pollutant emissions. Mowing and trimming of vegetation along service roads and the removal of aquatic vegetation from canals would likely only require hand operated equipment but may also require the infrequent use of mowers that would result in minor air pollutant emissions. As with the construction and maintenance of the transportation facilities and recurring maintenance discussed above, if emissions from these activities exceed BCAQMD's thresholds, the activities could conflict with the NSVPA Plan, and the impact would be significant. Standard construction mitigation measures from BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, implementation of AMMs included in Alternative 2, and Mitigation Measures AQ-1a and AQ-1b will reduce these impacts to a less-than-significant level. Therefore, emissions from these activities would not conflict with the NSVPA Plan.

Impacts of the Conservation Strategy

Covered activities within conservation lands include habitat management and enhancement, habitat restoration, general maintenance, AMMs, and species population and enhancement. Habitat restoration could involve construction activities, earthmoving, and soil hauling, which would require heavy-duty equipment. Implementation of the conservation measures would involve construction and maintenance equipment that would generate air pollutant emissions. The following conservation measures and actions have the potential to generate emissions and conflict with the NSVPA Plan.

- CM4: Develop and Implement Site Specific Wetland and Riparian Restoration Plans
- CM5: Enhance Protected Natural Communities for Covered Species

- CM7: Create and Maintain Greater Sandhill Crane Winter Roosting Habitat
- CM8: Restore Giant Garter Snake Habitat
- CM9: Replenish Spawning Gravels for Salmonids
- CM10: Remove Impediments to Upstream and Downstream Fish Passage
- CM11: Remove, Modify, or Screen Unscreened Diversions
- CM13: Conduct Surveys to Locate and Protect New Occurrences of Butte County Checkerbloom
- CM14: Translocate Conservancy Fairy Shrimp, Hoover's Spurge, Ahart's Dwarf Rush, Hairy Orcutt Grass, Slender Orcutt Grass, and Greene's Tuctoria
- Activities to Improve Urban Stormwater Water Quality

Constructing berms, site clearing, and other activities as part of implementation of the conservation measures would require diesel-powered construction equipment and earth movement. Surveying and monitoring would require light-duty automobiles. If emissions from these activities exceed BCAQMD's thresholds, the activities could conflict with the NSVPA Plan, and the impact would be significant. Standard construction mitigation measures from BCAQMD's CEQA guidelines would reduce the amount of exhaust generated from heavy-duty equipment, while BCAQMD's fugitive PM10 mitigation measures would reduce dust impacts (Butte County Air Quality Management District 2008). This impact could be significant if activities were such that pollutant emissions would still exceed the general conformity *de minimis* thresholds indicated in Table 5-8 or BCAQMD's thresholds indicated in Table 5-9. Implementation of AMMs included in the BRCP, including AMM14: Control Fugitive Dust through Watering, and AMM26: Implement Caltrans Water Quality BMPs, which include wind erosion control measures (applying water or dust palliatives), would reduce these impacts, but may not reduce them to a less-than-significant level. Implementation of Mitigation Measures AQ-1a and AQ-1b will reduce these impacts, and emissions from these activities would not conflict with the NSVPA Plan.

NEPA Determination: As described under Alternative 1, construction- and operations-related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, would conflict with the NSVPA plan. Impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA plan with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with the general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As described under Alternative 1, construction- and operations - related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, would result in a conflict with the NSVPA plan. Impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA plan with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Standard Mitigation Measures For Construction Equipment

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to the extent feasible, the use of diesel construction equipment meeting the ARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.

Discretionary Mitigation Measures for Construction Equipment

- Utilize electric equipment where feasible.
- Substitute gasoline-powered for diesel-powered equipment, where feasible.
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.
- Use equipment that has Caterpillar pre-chamber diesel engines.

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Land Clearing/Earth Moving Measures

- Water shall be applied by means of truck(s), hoses and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emission. Haul vehicles transporting soil into or out of the property shall be covered.
- A water truck shall be on site at all times. Water shall be applied to disturbed areas a minimum of 2 times per day or more as necessary.
- Onsite vehicles limited to a speed which minimizes dust emissions on unpaved roads.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hours.
- The telephone number of the District shall also be visible to ensure compliance with District Rule 200 & 205 in its *CEQA Air Quality Handbook* (Butte County Air Quality Management District 2008:6-3)

Visibly Dry Disturbed Soil Surface Areas

- All visibly dry disturbed soil surface areas of operation shall be watered to minimize dust emission.

Paved Road Track-Out

- Existing roads and streets adjacent to the project will be cleaned at least once per day unless conditions warrant a greater frequency.

Visibly Dry Disturbed Unpaved Roads

- All visibly dry disturbed unpaved roads surface areas of operation shall be watered to minimize dust emission.
- Unpaved roads may be graveled to reduce dust emissions.

- A water truck shall be on site at all times. Water shall be applied to disturbed areas a minimum of 2 times per day or more as necessary.
- Onsite vehicles limited to a speed which minimizes dust emissions on unpaved roads.
- Haul roads shall be sprayed down at the end of the work shift to form a thin crust. This application of water shall be in addition to the minimum rate of application.

Vehicles Entering/Exiting Construction Area

- Vehicles entering or exiting construction area shall travel at a speed which minimizes dust emissions.

Employee Vehicles

- Construction workers shall park in designated parking areas(s) to help reduce dust emissions.

Soil Piles

- Soil pile surfaces shall be moistened if dust is being emitted from the pile(s). Adequately secured tarps, plastic or other material may be required to further reduce dust emissions.

Impact AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within the Local Agencies' jurisdictions, refer to Alternative 1 Impact AQ-2. Implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, which include wind erosion control measures (applying water or dust palliatives), will reduce these impacts, but may not reduce them to a less-than-significant level given the extent and type of emissions associated with implementation of the general plans for the cities of Chico, Oroville, Biggs and Gridley since these agencies determined effects would be significant and unavoidable.

Transportation Facilities—As discussed under Impact AQ-1, the construction and maintenance of covered transportation activities could result in pollutant emissions that would exceed the general conformity *de minimis* thresholds indicated in Table 5-8 or BCAQMD's thresholds indicated in Table 5-9. Implementation of AMMs included in the BRCP, including AMM14: Control Fugitive Dust through Watering, and AMM26: Implement Caltrans Water Quality BMPs, which include wind erosion control measures (applying water or dust palliatives), will reduce these impacts, but may not reduce them to a less-than-significant level. Implementation of Mitigation Measures AQ-1a and AQ-1b will reduce this impact to a less-than-significant level.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—As discussed in Impact AQ-1, these activities would not result in substantial air pollutant emissions, as heavy-duty equipment is not anticipated to be regularly used or would be used intermittently and very infrequently (i.e., prior to fire season). Furthermore, implementation of the AMMs and Mitigation

Measures AQ-1a and 1b will further reduce less-than-significant impacts. Emissions from these activities would not violate an air quality standard or contribute to an existing violation.

Impacts of Water and Irrigation Districts' Activities

As discussed in Impact AQ-1, activities undertaken by the water and irrigation districts could result in emissions. If emissions from these activities exceed BCAQMD's thresholds, the impact would be significant. Implementation of, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, AMMs, and Mitigation Measures AQ-1a and AQ-1b will reduce this impact to a less-than-significant level and air quality standards would not be violated.

Impacts of the Conservation Strategy

As discussed in Impact AQ-1, implementation of the conservation strategy and conservation measures would result in air quality emissions through the use of heavy duty equipment and ground-disturbing activities. These activities could result in significant air quality emissions if the activities were such that pollutant emissions would still exceed the general conformity *de minimis* thresholds indicated in Table 5-8 or BCAQMD's thresholds indicated in Table 5-9. Implementation of BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, AMMs, and Mitigation Measures AQ-1a and AQ-1b will reduce these potentially significant impacts, and these activities would not violate air quality standards.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 2 would violate air quality standards or contribute to an existing air quality violation. Impacts associated with the conservation strategy and other covered activities would not violate air quality standards with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 2 would violate air quality standards or contribute to an existing air quality violation. Impacts associated with the conservation strategy and other covered activities would not violate air quality standards with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within Local Agencies' jurisdictions, refer to Alternative 1 Impact AQ-3. Implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, which contains wind erosion control measures (applying water or dust palliatives), would reduce these impacts, but may not reduce them to a less-than-significant level given the extent and type of emissions associated with implementation of the general plans for the Cities of Chico, Oroville, Biggs and Gridley since these agencies determined effects would be significant and unavoidable.

Transportation Facilities—As discussed under Impact AQ-1, the construction and maintenance of covered transportation activities could require the use of heavy-duty diesel-powered equipment that would generate air pollutant emissions. Emissions would cause a cumulatively considerable net increase in criteria pollutants if emissions from the equipment exceed BCAQMD's thresholds. As discussed under Impact AQ-1, implementation of AMMs included in Alternative 1, including AMM14: Control Fugitive Dust through Watering, and AMM26: implement Caltrans water quality BMPs, which include wind erosion control measures (applying water or dust palliatives), would reduce these impacts but may not reduce them to a less-than-significant level. Implementation of Mitigation Measures AQ-1a and AQ-1b will reduce this impact to a less-than-significant level.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—As discussed in Impact AQ-1, activities associated with flood control and stormwater management are not expected to result in substantial air pollutant emissions as no heavy-duty equipment would be required or emissions would occur intermittently and very infrequently. Therefore, emissions from these activities would not result in a cumulatively considerable net increase of any criteria pollutant.

Impacts of Water and Irrigation Districts' Activities

*Water and Irrigation District*s—As discussed in Impact AQ-1, covered activities within water and irrigation districts would require heavy-duty diesel equipment and earth movement. Emissions from the operation of heavy-duty diesel equipment and earth movement, if above BCAQMD's thresholds, could cause a cumulatively considerable increase in criteria pollutants. As discussed under Impact AQ-1, implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, would reduce these impacts but may not reduce them to a less-than-significant level. Implementation of Mitigation Measures AQ-1a and AQ-1b will reduce this impact to a less-than-significant level and would not result in a cumulatively considerable net increase of any criteria pollutant.

Impacts of the Conservation Strategy

As discussed in Impact AQ-1, implementation of the conservation strategy and conservation measures could result in air quality emissions. These could result in a cumulatively considerable

increase in criteria pollutants. Implementation of BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, AMMs, and Mitigation Measures AQ-1a and AQ-1b will reduce these potentially significant impacts, and these activities are not expected to result in a cumulatively considerable increase in criteria pollutants.

NEPA Determination: As described under Alternative 1, construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, would result in a cumulatively considerable net increase of any criteria pollutant. Impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable net increase with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As described under Alternative 1, construction-and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, would result in a cumulatively considerable net increase of any criteria pollutant. Impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable net increase with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within Local Agency jurisdiction, refer to Alternative 1 Impact AQ-4. Implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, which contains wind erosion control measures (applying water or dust palliatives), would reduce these impacts, but may not reduce them to a less-than-significant level given the extent and type of emissions associated with implementation of the general plan for the city of Oroville, since it determined effects would be significant and unavoidable.

Transportation Facilities—As discussed under Impact AQ-1, construction and maintenance activities associated with the development of transportation facilities would require the use of heavy-duty diesel-powered equipment that would generate air pollutant emissions. These emissions would not likely affect a substantial amount of people, as construction of the transportation facilities would be temporary. In addition, implementation of Mitigation Measure AQ-1a will further reduce exhaust emissions during construction. Therefore, these activities would not expose sensitive receptors to substantial pollutant concentrations.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—As discussed under Impact AQ-1, these activities are not expected to result in substantial air pollutant emissions. Furthermore, these activities are not expected to occur within close proximity to sensitive receptors and would be temporary; therefore, it is not likely these activities would affect a substantial number of people. In addition, implementation of Mitigation Measure AQ-1a will further reduce exhaust emissions. Emissions from these activities would not expose sensitive receptors to substantial pollutant concentrations.

Impacts of Water and Irrigation Districts' Activities

Water and Irrigation Districts—As discussed under Impact AQ-1, covered activities within water and irrigation districts would require heavy-duty diesel equipment and earth movement. While emissions from construction equipment could affect sensitive receptors, these activities would generally occur in agricultural and open space areas and not in close proximity to sensitive receptors. Furthermore, these activities would be short in duration and relatively infrequent. Therefore, it is anticipated the water and irrigation activities would not expose sensitive receptors to substantial pollutants. Implementation of Mitigation Measure AQ-1a will further reduce the less-than-significant exhaust emissions during construction.

Impacts of the Conservation Strategy

As discussed in Impact AQ-1, implementation of the conservation strategy and conservation measures could result in air quality emissions as a result of the use of heavy-duty equipment during construction and maintenance. These activities would occur within the conservation lands and, thus, would likely not occur within close proximity to sensitive receptors. They would be temporary and, therefore, not likely affect a substantial number of people. Furthermore, implementation of Mitigation Measure AQ-1a will reduce exhaust emissions during construction and minimize impacts to sensitive receptors. Therefore, these activities would not expose sensitive receptors to substantial pollutants.

NEPA Determination: As described under Alternative 1, construction-related emissions associated with implementation of the general plan for the city of Gridley would expose sensitive receptors to substantial pollutants. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants. Furthermore, Mitigation Measure AQ-1b will reduce impacts associated with these activities. However, implementation of Gridley's general plan policies or mitigation measures would not reduce the effects associated with the general plan to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As described under Alternative 1, construction-related emissions associated with implementation of the general plan for the city of Gridley would expose sensitive receptors to substantial pollutants. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants. Furthermore, Mitigation Measure AQ-1b will reduce impacts associated with these activities. However, implementation of Gridley's general plan policies or mitigation measures would not reduce the effects associated with the general plan to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-5: Create objectionable odors affecting a substantial number of people (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within the Local Agencies' jurisdictions, refer to Alternative 1 Impact AQ-5. Implementation of AMMs included in Alternative 2, including AMM14: Control Fugitive Dust through Watering, which includes wind erosion control measures (applying water or dust palliatives), would reduce these impacts, but may not reduce them to a less-than-significant level given the extent and type of emissions associated with implementation of the general plan for the city of Oroville, since it determined effects would be significant and unavoidable.

Transportation Facilities—Covered activities associated with the construction and maintenance of transportation facilities would require heavy-duty diesel-powered equipment that could generate objectionable odors. Because construction of the transportation facilities would occur temporarily, odors would not likely affect a substantial number of people. In addition, implementation of Mitigation Measure AQ-1a will further reduce exhaust emissions during construction. Therefore, these activities are not anticipated to produce objectionable odors.

Impacts of Recurring Maintenance Activities

Flood Control and Stormwater Management and Vegetation Management—As discussed under Impact AQ-1, these activities would not result in substantial air pollutant emissions, as no heavy-duty equipment would be required or would be infrequently used. Furthermore, as discussed under Impact AQ-4, sensitive receptors are not expected to be within close proximity to these activities. Therefore, these activities would not create objectionable odors affecting a substantial number of people

Impacts of Water and Irrigation Districts' Activities

Water and Irrigation Districts—As discussed under Impact AQ-1, covered activities within water and irrigation districts would require heavy-duty diesel equipment that could potentially generate objectionable odors. Because of the short-term nature of the activities, odors would not likely affect a substantial number of people. In addition, implementation of Mitigation Measure AQ-1a will further reduce exhaust emissions during construction. Therefore, it is anticipated the water and irrigation activities would not create objectionable odors affecting a substantial number of people.

Impacts of the Conservation Strategy

Implementation of the conservation strategy would require heavy-duty diesel-powered equipment that could potentially create objectionable odors. The use of heavy-duty equipment would be temporary, and sensitive receptors are not likely to be within close proximity because the activities generally would occur in rural, agricultural, open space areas. Therefore, it is anticipated odors would not likely affect a substantial amount of people. Implementation of Mitigation Measure AQ-1a will further reduce exhaust emissions during construction. Therefore, implementation of the conservation strategy would not create objectionable odors affecting a substantial number of people.

NEPA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Oroville and Gridley, sensitive receptors would be exposed to objectionable odors. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of the Cities of Gridley and Oroville would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plans for the cities of Oroville and Gridley sensitive receptors would be exposed to objectionable odors. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of the Cities of Gridley and Oroville would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within the Local Agencies' jurisdictions and transportation facilities, refer to the Alternative 1 impact discussion for Impact AQ-6.

Impacts of Recurring Maintenance, Water and Irrigation Districts' Activities and the Conservation Strategy

While BCAQMD hasn't formally adopted GHG thresholds, Table 5-10 includes adopted GHG thresholds for multiple air districts and counties, and the CEQ threshold is discussed above. The construction and maintenance of facilities and infrastructure under the covered activities would require heavy-duty construction equipment, which would generate direct GHG emissions. It is possible that emissions could exceed some of the reference thresholds included in Table 5-10, which may have a significant impact on the environment. Implementing construction mitigation measures would minimize GHG emissions that would be generated from heavy-duty equipment. This impact would be significant. Implementation of Mitigation Measure AQ-6 will help to reduce GHG emissions; however, greenhouse gas emissions would still be generated that may have a significant effect on the environment.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, other covered activities, and implementation of the conservation strategy, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures,

Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, other covered activities, and implementation of the conservation strategy, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

- Use alternatively fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15% of the fleet.
- Use local building materials of at least 10%.
- Recycle or reuse at least 50% of construction waste or demolition materials.

Impact AQ-7: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

For impacts associated with permanent development within Local Agencies' jurisdictions, including transportation projects, refer to the Alternative 1 impact discussion for Impact AQ-7.

Impacts of Recurring Maintenance, Water and Irrigation Districts' Activities and the Conservation Strategy

In the Plan Area, there are no formally adopted plans or goals with the intent of reducing GHG emissions. As discussed under Impact AQ-6, covered activities and implementation of the conservation strategy could exceed the reference thresholds in Table 5-10 and the activities could conflict with GHG reduction planning efforts.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, other covered activities, and implementation of the conservation strategy, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, other covered activities, and implementation of the conservation strategy, greenhouse gases would be generated that would have a significant effect on the environment. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

Alternative 3—Reduced Development/Reduced Fill

Alternative 3 is similar to Alternative 2 except that it uses the various general plan EIR reduced development alternatives as described in Chapter 2, *Proposed Action and Alternatives*, to create a single reduced development footprint. Covered activities under this alternative would be similar to those described in the BRCP but would be limited to the reduced development footprint for a reduced permit term of 30 years. The reduced footprint and reduced land conservation would result in fewer built structures and less ground disturbance.

It is anticipated that under Alternative 3, fewer acres of natural communities would be conserved because reduced development would provide reduced funding for the conservation strategy. However, it is anticipated that the conservation measures would be the same because the reduction of fill would be achieved through the reduced development footprint of the Local Agencies' general plans rather than through modification of the conservation measures. Consequently, the impacts related to implementation of the conservation strategy and conservation measures would be the same as under Alternative 2.

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—The County's general plan EIR determined that a concentrated growth alternative (Alternative 3 in this analysis) would result in reduced emissions compared to implementation of General Plan 2030. The general plan EIR determined that implementation of the proposed general plan would not obstruct implementation of the NSVPA Plan. Accordingly, it was also determined that Alternative 3 would not obstruct implementation of the attainment plan (Butte County 2010).

City of Chico—The City of Chico's general plan EIR determined that an increased density alternative (Alternative 3 in this analysis) would not conflict with or obstruct the NSVPA Plan (City of Chico 2011b).

City of Oroville—The City of Oroville's general plan EIR determined that an alternative focused on neighborhood growth and increased density (Alternative 3 in this analysis) would result in decreased emissions compared to implementation of the City's general plan. However, the improvement in air quality would be insubstantial, and the significant impacts would not be avoided. Therefore, implementation of the general plan would conflict with the NSVPA Plan.

City of Gridley—The City of Gridley's general plan EIR determined that a centralized development alternative could conflict with or obstruct implementation of the NSVPA Plan through short-term construction related emissions. The centralized development alternative would represent an improvement to air quality over implementation of the general plan, but air quality impacts would not be avoided. Therefore, implementation of the general plan would conflict with the NSVPA Plan.

City of Biggs—The City of Biggs's general plan EIR determined that subsequent land use activities associated with implementation of the general plan would obstruct implementation of the NSVPA Plan.

Impacts of Other Covered Activities and Implementation of the Conservation Strategy

The covered activities and conservation strategy would differ slightly under Alternative 3 compared to Alternative 2 due the reduced footprint and reduced land conservation, which would result in less ground disturbance. Therefore, it is anticipated there may be slightly fewer emissions produced under this alternative. However, impacts would be similar to those discussed in Alternative 2 and would incorporate Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, Alternative 2 AMMs, and Mitigation Measures AQ-1a and AQ-1b.

NEPA Determination: Construction- and operations-related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, would conflict with the NSVPA Plan. Impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA Plan with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects of general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Oroville, Gridley, and Biggs, Alternative 3 would conflict with the NSVPA Plan. Impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA Plan with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects of general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—Alternative 3 represents a more concentrated growth scenario than implementation of the County's General Plan 2030 and would result in decreased vehicle trips and, consequently, air pollutant emissions, according to the County general plan EIR. The County general plan EIR has also determined that the land use activities associated with General Plan would not contribute substantially to an existing or projected air quality violation (Butte County 2010).

City of Chico—The City of Chico's general plan EIR determined that an increased density alternative would represent an improvement in air quality over implementation of the general plan but that impacts on air quality would not be avoided. As a result, the increased density alternative would contribute to existing air quality violations in the region (City of Chico 2011b).

City of Oroville—The City' of Oroville's general plan EIR determined that an alternative focused on neighborhood growth and increased density would result in decreased emissions compared to

implementation of the City's general plan. However, the improvement in air quality would be insubstantial, and the significant impacts would not be avoided. As a result, implementation of the general plan would contribute to existing air quality violations in the region.

City of Gridley—The City of Gridley's general plan EIR determined that a centralized development alternative could violate an air quality standard or contribute to an existing violation through short-term construction related emissions. The centralized development alternative would represent an improvement to air quality over implementation of the general plan, but air quality impacts would not be avoided. As a result, implementation of the general plan would contribute to existing air quality violations in the region.

City of Biggs—The City of Biggs's general plan EIR determined that subsequent land use activities associated with implementation of the City's general plan could result in short-term construction emissions and long-term operational emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter. As a result, implementation of the general plan would contribute to existing air quality violations in the region.

Impacts of Other Covered Activities and Implementation of the Conservation Strategy

As discussed in Impact AQ-1, there may be fewer emissions as a result of less ground disturbed; however, impacts would be the same as those described under Alternative 2. Implementation of Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, Alternative 2 AMMs, and Mitigation Measures AQ-1a and AQ-1b will ensure other covered activities and implementation of the conservation strategy does not violate air quality standards.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 3 would violate air quality standards or contribute to an existing air quality violation. Impacts associated with the conservation strategy and other covered activities would not violate air quality standards with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plans' policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 3 would violate air quality standards or contribute to an existing air quality violation. Impacts associated with the conservation strategy and other covered activities would not violate air quality standards with implementation of AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plans' policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—The County's general plan EIR determined that a concentrated growth alternative would not result in a cumulatively considerable net increase of any criteria pollutants for which the region is a nonattainment area for (Butte County 2010).

City of Chico—The City of Chico's general plan EIR determined that an increased density alternative would represent an improvement in air quality over implementation of the general plan, but that impacts to air quality would not be avoided. As a result, the increased density alternative would result in a cumulatively considerable net increase in criteria pollutants that the region is a nonattainment area for (City of Chico 2011b).

City of Oroville—The City of Oroville's general plan EIR determined that an alternative focused on neighborhood growth and increased density (Alternative 3 in this analysis) would result in decreased emissions compared to build out of the City's general plan. However, the improvement in air quality would be insubstantial, and the significant impacts would not be avoided. Therefore, implementation of the general plan would result in a cumulatively considerable increase in criteria pollutants.

City of Gridley—The City of Gridley's general plan EIR determined that a centralized development alternative could cause a cumulatively considerable net increase of criteria pollutants through short-term construction and long-term operational emissions. The centralized development alternative would represent an improvement to air quality over implementation of the general plan, but air quality impacts would not be avoided. Therefore, implementation of the general plan would result in a cumulatively considerable increase in criteria pollutants.

City of Biggs—The City of Biggs's general plan EIR determined that implementation of the City's general plan, in combination with cumulative development in the SVAB, would result in a cumulatively considerable net increase of ozone and of coarse and fine particulate matter. Therefore, implementation of the general plan would result in a cumulatively considerable increase in criteria pollutants.

Impacts of Other Covered Activities and Implementation of the Conservation Strategy

As discussed in Impact AQ-1, there may be fewer emissions as a result of less ground disturbed; however, impacts would be the same as those described under Alternative 2. Implementation of Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, Alternative 2 AMMs, and Mitigation Measures AQ-1a and AQ-1b will ensure other covered activities, and implementation of the conservation strategy would not result in a cumulatively considerable increase in criteria pollutants.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 3 would result in a cumulatively considerable increase in criteria pollutants. Impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable increase in criteria pollutants with implementation of Alternative 2

AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plans for the cities of Chico, Oroville, Gridley, and Biggs, Alternative 3 would result in a cumulatively considerable increase in criteria pollutants. Impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable increase in criteria pollutants with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the Cities' general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—The County's general plan EIR determined that concentrated growth alternative (Alternative 3 in this analysis) would not expose sensitive receptors to substantial pollutant concentrations (Butte County 2010).

City of Chico—The City of Chico's general plan EIR determined that an increased density development alternative would not expose sensitive receptors to substantial toxic air contaminant concentrations from short-term construction sources, stationary sources, or mobile sources (City of Chico 2011b).

City of Oroville—The City of Oroville's general plan EIR determined that an alternative focused on neighborhood growth and increased density (Alternative 3 in this analysis) would result in decreased emissions compared to implementation of the City's general plan. However, the improvement in air quality would be insubstantial, and the significant impacts would not be avoided.

City of Gridley—The City of Gridley's general plan EIR determined that an alternative with centralized development (Alternative 3 in this analysis), would not expose sensitive receptors to toxic air contaminants.

City of Biggs—The City of Biggs's general plan EIR determined that subsequent land use activities associated with implementation of the general plan could result in projects that would include sources of toxic air contaminants that could affect surrounding land uses. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial pollutant concentrations such as toxic air contaminants. However, the BCAQMD and state regulations would address exposure to toxic air contaminants.

Impacts of Other Covered Activities and Implementation of the Conservation Strategy

As discussed in Impact AQ-1, there may be fewer emissions as a result of less ground disturbed; however, impacts would be the same as those described under Alternative 2. Implementation of Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, Alternative 2 AMMs, and Mitigation Measure AQ-1a will ensure other covered activities and implementation of the conservation strategy would not expose sensitive receptors to substantial pollutant concentrations.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plan for the City of Oroville, Alternative 3 would expose sensitive receptors to substantial pollutant concentrations. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutant concentrations with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1b. Implementation of the city's general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of the general plan for the City of Oroville, Alternative 3 would expose sensitive receptors to substantial pollutant concentrations. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutant concentrations with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1b. Implementation of the city's general plan policies or mitigation measures would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-5: Create objectionable odors affecting a substantial number of people (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development

Butte County—Odor impacts associated with implementation of the general plan were found to be less than significant in the general plan EIR because of general plan policies that would establish land use buffers around potential sources of odor. Alternative 3 would utilize the same general plan policies and would achieve the same significance determination.

City of Chico—The City of Chico's general plan EIR determined that an increased density development alternative (Alternative 3 in this analysis) would not cause odor issues (City of Chico 2011b).

City of Oroville—The City of Oroville's general plan EIR determined that an alternative focused on neighborhood growth and increased density (Alternative 3 in this analysis) would result in decreased emissions compared to implementation of the City's general plan. However, the improvement in air quality would be insubstantial, and the significant impacts would not be avoided.

City of Gridley—The City of Gridley's general plan EIR determined that a centralized development alternative could expose sensitive receptors to excessive odors. The centralized development alternative would represent an improvement to air quality and odor issues over implementation of the general plan, but impacts would not be avoided.

City of Biggs—The City of Biggs's general plan EIR determined that a reduced development would not cause odor issues.

Impacts of Other Covered Activities and Implementation of the Conservation Strategy

As discussed in Impact AQ-1, there may be fewer emissions as a result of less ground disturbed; however impacts would be the same as those described under Alternative 2. Implementation of, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, Alternative 2 AMMs, and Mitigation Measure AQ-1a will ensure other covered activities and implementation of the conservation strategy would not produce objectionable odors.

NEPA Determination: As a result of construction-related emissions associated with implementation of the general plans for the city of Oroville and Gridley sensitive receptors would be exposed to objectionable odors. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to odors with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of the Cities of Gridley and Oroville would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: As a result of construction-related emissions associated with implementation of the general plans for the city of Oroville and Gridley sensitive receptors would be exposed to objectionable odors. Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to odors with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of the Cities of Gridley and Oroville would not reduce the effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts associated with the covered activities and implementation of the conservation strategy would be the same as those for Alternative 2. These activities would generate GHG emissions that may have a significant impact on the environment.

NEPA Determination: The impact determination would be the same as Alternative 2; Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and

Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable

CEQA Determination: The impact determination would be the same as Alternative 2. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

Impact AQ-7: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts associated with the covered activities and implementation of the conservation strategy would be the same as those described under Alternative 2. These activities would conflict with applicable plans and policies adopted for the purpose of reducing the emissions of GHGs.

NEPA Determination: The impact determination would be the same as Alternative 2; implementation of Mitigation Measure AQ-6 for the conservation strategy will reduce impacts, but they would remain significant and unavoidable.

CEQA Determination: The impact determination would be the same as Alternative 2; implementation of Mitigation Measure AQ-6 for the conservation strategy will reduce impacts, but they would remain significant and unavoidable.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

Alternative 4—Greater Conservation

Alternative 4 would be similar to Alternative 2 except that under Alternative 4, the conservation strategy would include the conservation of an additional 9,850 acres of grassland and 35,310 acres of riceland. Alternative 4 would include the same conservation measures as Alternative 2, and all other acreage protection targets for natural communities/land types would be the same as described under Alternative 2. Therefore, impact mechanisms for air quality and climate change would be similar to those described for Alternative 2.

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-1 for Alternative 2.

Impacts of the Conservation Strategy

Alternative 4 entails greater conservation than Alternative 2 and would result in additional land acquisition. The additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts, as there is no physical action associated with acquiring

more land for conservation. Thus, the impacts for Alternative 4 would be to the same as Alternative 2.

NEPA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA plan with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities of Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not conflict with the NSVSPA plan with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-2 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts, thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not conflict violate air quality standards with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities of Chico, Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not conflict violate air quality standards with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA

guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities of Chico, Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-3 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts; thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable net increase of criteria pollutant with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities of Chico, Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not result in a cumulatively considerable net increase of criteria pollutant with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measures AQ-1a and AQ-1b. Implementation of the general plan policies or mitigation measures of the Cities of Chico, Oroville, Gridley, and Biggs would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Mitigation Measure AQ-1b: Implement BCAQMD mitigation measures for fugitive dust

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-4 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts; thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of Gridley would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable

CEQA Determination: The impact determination would be the same as Alternative 2; impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of Gridley would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-5: Create objectionable odors affecting a substantial number of people (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-5 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts; thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10

mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of Gridley and Oroville would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: Impacts associated with the conservation strategy and other covered activities would not expose sensitive receptors to substantial pollutants with implementation of Alternative 2 AMMs, Caltrans BMPs, BCAQMD's CEQA guidelines, BCAQMD's fugitive PM10 mitigation measures, and Mitigation Measure AQ-1a. Implementation of the general plan policies or mitigation measures of Gridley and Oroville would not reduce effects associated with general plan implementation to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-1a: Implement BCAQMD mitigation measures for construction equipment

Impact AQ-6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and other covered activities within the Plan Area would be the same as those identified under Impact AQ-6 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts; thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: The impact determination would be the same as Alternative 2. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

CEQA Determination: The impact determination would be the same as Alternative 2. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels. Consequently, the impact would be significant and unavoidable.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

Impact AQ-7: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (NEPA: significant and unavoidable; CEQA: significant and unavoidable)

Impacts of Permanent Development and Other Covered Activities

Impacts associated with the permanent development within the jurisdictions of the Local Agencies and all other covered activities within the Plan Area would be the same as those identified under Impact AQ-7 for Alternative 2.

Impacts of the Conservation Strategy

As described under Impact AQ-1, the additional conservation component of Alternative 4 (land acquisition) would not present any additional air quality impacts; thus, the impacts for Alternative 4 would be to the same as those of Alternative 2.

NEPA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, as well as transportation facilities, recurring maintenance facilities, water and irrigation district activities, and implementation of the conservation strategy would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels.

CEQA Determination: As a result of construction- and operations-related emissions associated with implementation of all the general plans, as well as transportation facilities, recurring maintenance facilities, water and irrigation district activities, and implementation of the conservation strategy would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Implementation of the Cities' general plan policies or mitigation measures, Caltrans BMPs, and Mitigation Measure AQ-6 will not reduce these effects to less-than-significant levels.

Mitigation Measure AQ-6: Implement best construction practices for minimizing GHGs

5.2.4 Cumulative Analysis

Methods and Approach

According to guidance from BCAQMD, an impact would have a significant cumulative impact if emissions from the project exceed the district's thresholds, or if the project conflicts with the applicable air quality attainment plan. For this analysis, the air district's thresholds were used to assess cumulative impacts.

Cumulative Impacts

Past, present, and reasonably foreseeable future projects are identified in Chapter 3, *Approach to the Analysis*. Overall, these projects have had or are anticipated to have a cumulative impact on air quality as a result of land-disturbing activities such as converting agricultural lands to urban development, including roadway projects, and developing and operating infrastructure projects.

Emissions resulting from construction and operation of the implementation of the Local Agencies' general plans and other covered activities and implementation of the conservation strategy, in combination with other development in the air basin, could result in cumulatively significant levels of emissions under all alternatives As discussed above, some of the covered activities would generate emissions that could exceed BCAQMD's thresholds, which, according BCAQMD guidance, would result in cumulative impacts. Implementation of BCAQMD's standard construction mitigation measures would lessen emissions, however, it is anticipated they would not reduce construction emissions to below BCAQMD's thresholds. As BCAQMD's CEQA Handbook indicates that projects in excess of their numeric thresholds listed in Table 5-9 would result in a significant cumulative impact unless offset, this impact is considered significant and unavoidable.

5.3 References

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