3.6 Air Quality

3.6.1 Introduction

This section analyzes the proposed project's potential impacts related to air quality. It describes existing conditions in the project area and summarizes the overall Federal, state, and local regulatory framework for air quality, and it analyzes the potential for the proposed project to affect these resources.

3.6.2 Existing Conditions

This section discusses the existing conditions related to air quality in the project area.

3.6.2.1 Climate and Meteorology

The project area is in Butte County, which is in the Sacramento Valley Air Basin (SVAB). The SVAB is bounded on the north by the Cascade Range, on the south by the San Joaquin Valley Air Basin, on the east by the Sierra Nevada, and on the west by the Coast Ranges.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During winter, the North Pacific storm track intermittently dominates Sacramento Valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Periods of dense and persistent low-level fog, which are most prevalent between storms, are also characteristic of winter weather in the valley. The frequency and persistence of heavy fog in the valley diminish with the approach of spring. The average yearly temperature range for the Sacramento Valley is 20°F to 115°F, with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

In general, the prevailing winds are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north. The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduce the influx of outside air and allow air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with temperature inversions that trap pollutants near the ground.

The Ozone (O_3) season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds; the Delta sea breeze arrives in the afternoon out of the southwest. The evening breeze usually transports the airborne pollutants to the north out of the Sacramento Valley. During roughly half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this removal. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back to the south, effectively causing the air pollutants to be blown toward the Sacramento area. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of violating Federal or state standards. The eddy normally dissipates around noon, when the Delta sea breeze arrives.

3.6.2.2 Background Information on Air Pollutants

Air quality studies generally focus on five pollutants most commonly measured and regulated, and referred to as criteria air pollutants: O_3, carbon monoxide (CO), inhalable particulate matter (PM) (PM10 and PM2.5), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Because O_3, a photochemical oxidant, is not emitted into the air directly from sources, emissions of O_3 precursors, including NO_X and ROG, are regulated with the aim of reducing O_3 formation in the lowermost region of the troposphere.

O_3 and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale: NO_2 reacts photochemically with ROG to form O_3, and this reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, PM10, and PM2.5 are considered to be local pollutants because they tend to disperse rapidly with distance from the source.

The principal characteristics surrounding these pollutants are discussed below. Toxic Air Contaminants (TACs) are also discussed below, although no air quality standards exist for these pollutants.

Ozone

O_3 is an oxidant that attacks synthetic rubber, textiles, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. It is also a severe eye, nose, and throat irritant and increases susceptibility to respiratory infections. O_3 is not emitted directly into the air; it forms from a photochemical reaction in the atmosphere. O_3 precursors, including ROG and NO_X, are emitted by mobile sources and stationary combustion equipment and react in the presence of sunlight to form O_3. Because reaction rates depend on the intensity of ultraviolet light and air temperature, O_3 is primarily a summertime problem.

Carbon Monoxide

CO is essentially inert to most materials and to plants but can significantly affect human health because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea and death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light wind combine with the formation of ground-level temperature inversions, typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Particulate Matter

PM refers to finely divided solids or liquids, such as soot, dust, aerosols, and mists. Coarse PM with an aerodynamic diameter of 10 microns or less is referred to as PM10. A subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less is referred to as PM2.5. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. They also absorb sunlight, producing haze and reducing visibility.

PM10 and PM2.5 in Butte County is caused primarily by dust from grading and excavation activities, agricultural uses, and motor vehicles, particularly diesel-powered vehicles. These particles pose a

greater health risk than larger particles because these fine particles can more easily penetrate the defenses of the human respiratory system. Chronic exposure to PM10 and PM2.5 can lead to respiratory disease and cause lung damage and cancer.

Nitrogen Dioxide

NO_2 is a brownish gas that contributes to the formation of ground-level O_3 pollution. NO_2 increases respiratory disease and irritation and may reduce resistance to certain infections. The majority of ambient NO_2 is not directly emitted but is formed rather quickly from the reaction of nitric oxide (NO) and oxygen in the atmosphere. NO and NO_2 are the primary pollutants that make up the group of pollutants referred to as NO_X. In the presence of sunlight, complex reactions of NO_X with O_3 and other air pollutants produce the majority of NO_2 in the atmosphere. NO_2 is one of the NO_X emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Indoors, home heaters and gas stoves also produce substantial amounts of NO_2.

Sulfur Dioxide

SO_2 is a colorless, irritating gas with a "rotten egg" smell, formed primarily by the combustion of sulfur-containing fossil fuels. SO_2 is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives and off-road diesel equipment. SO_2 also is emitted from several industrial processes, such as petroleum refining and metal processing.

Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, California Air Resources Board (ARB) identified PM from diesel-fueled engines—commonly called diesel particulate matter (DPM)—as a TAC. Compared to other air toxics ARB has identified, DPM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000:1).

3.6.2.3 Local Air Quality Conditions

The existing air quality conditions in the project area can be characterized by monitoring data collected in the region. There are a number of air quality monitoring stations in Butte County, and the closest station with up-to-date data is the Paradise 4405 Airport Road Station that is 17 miles north of the project area. This station does not collect data for carbon monoxide, PM10, or PM2.5; the nearest stations that monitor for these pollutants are the Chico Manzanita Avenue Station and Chico East Avenue Station, which are both located approximately 24 miles north of the project area.

Table 3.6-1 summarizes air quality monitoring data from the Paradise, Chico Manzanita, and Chico East Avenue monitoring stations for the last 3 years for which complete data are available (2012–2014). As shown in Table 3.6-1, these stations have experienced occasional violations of the state 1-hour O_3 PM10, and national PM2.5 standards, and more frequent violations of the state and Federal 8-hour O_3 standards.

Table 3.6-1. Ambient Air Quality Monitoring Data Measured in Butte County

	2012	2013	2014
1-hour O_3 (ppm)	Paradise 4405 Airport Road Station		
Maximum 1-hour concentration	0.088	0.100	0.116
1-hour California designation value	0.09	0.09	0.09
1-hour expected peak day concentration	0.088	0.088	0.089
Number of days standard exceeded:[a]			
CAAQS 1-hour (>0.09 ppm)	0	1	1
8-hour O_3 (ppm)	Paradise 4405 Airport Road Station		
National maximum 8-hour concentration	0.080	0.093	0.088
National second-highest 8-hour concentration	0.080	0.080	0.081
State maximum 8-hour concentration	0.081	0.094	0.085
State second-highest 8-hour concentration	0.080	0.080	0.082
8-hour national designation value	0.077	0.076	0.075
8-hour California designation value	0.081	0.081	0.082
8-hour expected peak day concentration	0.085	0.084	0.084
Number of days standard exceeded:[a]			
NAAQS 8-hour (>0.075 ppm)	5	2	2
CAAQS 8-hour (>0.070 ppm)	25	8	14
CO (ppm)	Chico Manzanita Avenue Station		
National[b] maximum 8-hour concentration	1.71	–	–
National[b] second-highest 8-hour concentration	1.70	–	–
California[c] maximum 8-hour concentration	1.71	–	–
California[c] second-highest 8-hour concentration	1.71	–	–
Maximum 1-hour concentration	2.7	–	–
Second-highest 1-hour concentration	2.1	–	–
Number of days standard exceeded:[a]			
NAAQS 8-hour (≥9.0 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35.0 ppm)	0	–	–
CAAQS 1-hour (≥20.0 ppm)	–	–	–
Particulate matter (PM10)[d] (μg/m^3)	Chico East Avenue Station		
National[b] maximum 24-hour concentration	55.6	59.0	40.1
National[b] second-highest 24-hour concentration	45.5	51.4	38.8
State[c] maximum 24-hour concentration	55.4	61.4	47.6
State[c] second-highest 24-hour concentration	45.2	50.1	43.9
State annual average concentration[e]	-	24.8	-
National annual average concentration	16.8	24.3	19.4
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]	1	1	0

	2012	2013	2014
Particulate matter (PM2.5) ($\mu g/m^3$)	Chico East Avenue Station		
National[b] maximum 24-hour concentration	22.5	38.8	58.6
National[b] second-highest 24-hour concentration	20.7	35.6	32.5
State[c] maximum 24-hour concentration	29.2	38.8	62.8
State[c] second-highest 24-hour concentration	27.6	37.5	35.1
National annual designation value	-	-	-
National annual average concentration	-	10.0	8.8
State annual designation value	-	-	9
State annual average concentration [e]	-	-	8.8
Number of days standard exceeded:[a]			
NAAQS 24-hour (>35 $\mu g/m^3$)[f]	0	2	1

Sources: California Air Resources Board 2016; U.S. Environmental Protection Agency 2016.
$\mu g/m^3$ = micrograms per cubic meter.
CAAQS = California Ambient Air Quality Standards.
NAAQS = National Ambient Air Quality Standards.
ppm = parts per million.
– = 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 rounded.

3.6.2.4 Air Quality Attainment Status

Local monitoring data (Table 3.6-1) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (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 3.6-2 summarizes the attainment status of Butte County with regard to the NAAQS and CAAQS.

Table 3.6-2. Federal and State Attainment Status of Butte County

Pollutant	NAAQS	CAAQS
8-hour O_3	Marginal Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
PM2.5	Attainment	Nonattainment
PM10	Attainment	Nonattainment

Sources: California Air Resources Board 2014; U.S. Environmental Protection Agency 2015.

3.6.2.5 Sensitive Receptors

Sensitive receptors are frequently occupied locations where people who might be especially sensitive to air pollution are expected to live, work, or recreate. These types of receptors include schools, churches, health care facilities, convalescent homes, and daycare centers. The project is located in a rural area, with considerable distances between the areas of the project site where construction will occur and the nearest receptors. Table 3.6-3 lists sensitive receptors that were identified adjacent to the project area that could be affected by the proposed project and the distances between the receptors and the nearest construction area.

Table 3.6-3. Sensitive Receptors Adjacent to the Project Area

Sensitive Receptor	Nearest Construction Area	Distance from Project Area to Receptor (feet)
Houses at the end of Gold Run Ct	Construction limits in Field 6	1,300 east
Houses at the end of Bob Way	Construction limits in Field 6	1,500 east
Dingerville USA Golf Club & RV Resort	Construction limits in Field 1	1,700 south

Note: Sensitive receptors and distances in this table were determined using Google Earth imagery.

3.6.3 Regulatory Setting

At the Federal level, air quality in the United States and California is governed by the Clean Air Act, which is administered by the U.S. Environmental Protection Agency (EPA). Air quality in the State of California also is governed by more stringent regulations in the California Clean Air Act (CCAA), administered by ARB and the local air quality management districts. ARB and local air districts have primary implementation responsibility for both the Federal and state air quality standards. This section summarizes key Federal, state, and local regulatory information that applies to air quality.

3.6.3.1 Federal

The following Federal policies related to air quality may apply to implementation of the proposed project.

Clean Air Act and National Ambient Air Quality Standards

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 the EPA to establish NAAQS for the six criteria pollutants: O_3, CO, lead (Pb), NO_2, SO_2, PM,

which consists of PM 10 microns in diameter or less (PM10) and PM 2.5 microns in diameter or less (PM2.5). 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 3.6-4 summarizes the NAAQS.

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 could 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.

Table 3.6-4. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (ppm)[a]		Standard (µg/m³)[b]		Violation Criteria	
			California	National	California	National	California	National
Ozone[c]	O_3	1 hour	0.09	–	180	–	If exceeded	–
		8 hours	0.070	0.070	137	137	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor in an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	–	7,000	–	If equaled or exceeded	–
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	–
Sulfur dioxide	SO_2	24 hours	0.04	–	105	–	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	0.075	655	196	If exceeded	–
		3 hour	-	0.5[c]	-	1300[c]		
Hydrogen sulfide	H_2S	1 hour	0.03	–	42	–	If equaled or exceeded	–
Vinyl chloride	C_2H_3Cl	24 hours	0.01	–	26	–	If equaled or exceeded	–
Inhalable particulate matter	PM10	Annual arithmetic mean	–	–	20	–	–	–
		24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	–	–	12	12.0	–	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	–	–	–	35	–	If 3-year average of 98th percentile at each population-oriented monitor in an area is exceeded
Sulfate particles	SO_4	24 hours	–	–	25	–	If equaled or exceeded	–
Lead particles	Pb	Calendar quarter	–	–	–	1.5	–	If exceeded no more than 1 day per year
		30-day average	–	–	1.5	–	If equaled or exceeded	–
		Rolling 3-month average	–	–	–	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2015.

[a] ppm = parts per million

[b] µg/m³= micrograms per cubic meter

[c] secondary standard

3.6.3.2 State

The following state policies related to air quality may apply to implementation of the proposed project.

In 1988, the state legislature adopted the CCAA, which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. Unlike the Federal CAA, the CAAQS do not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that would require more time to achieve the standards. The 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 3.6-1.

ARB and local air districts bear responsibility for achieving the CAAQS, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. ARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds 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).

Idling Limit Regulation

On June 15, 2008, the ARB adopted a regulation for off-road diesel vehicles. The regulation is designed to reduce TACs from diesel-powered construction and mining vehicles operating in California. Fleet owners are subject to retrofit or accelerated replacement/repower requirements for which ARB must obtain authorization from EPA prior to enforcement.

The regulation also imposes idling limitations on owners, operators, and renters or lessees of off-road diesel vehicles. The idling limits became effective on June 15, 2008 and require an operator of applicable off-road vehicles (self-propelled diesel-fueled vehicles of 25 horsepower and greater that were not designed for on-road driving) to limit idling to no more than 5 minutes. These requirements are specified in 13 CCR 2449(d)(3).

State Tailpipe Emission Standards

To reduce emissions from offroad diesel equipment, on-road diesel trucks, and harbor craft, the ARB established a series of increasingly strict emission standards for new engines. New construction equipment used for the project, including heavy duty trucks, off-road construction equipment, tugboats, and barges, would be required to comply with the standards.

3.6.3.3 Local

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The following local policies related to air quality may apply to implementation of the proposed project.

Butte County Air Quality Management District

BCAQMD has jurisdiction over local air quality in Butte County. Counties in the Sacramento area (i.e., Sacramento, Yolo, Placer, El Dorado, Solano, Sutter, and Butte Counties) have adopted the Northern Sacramento Valley Planning Area 2012 Triennial Air Quality Attainment Plan (2012 Plan) (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2013). This plan outlines strategies to achieve the health-based O_3 standard. The Sacramento region is also in the process of developing a plan to address PM. BCAQMD updated their *CEQA Air Quality Handbook* in 2014 (Butte County Air Quality Management District 2014), which specifies significance thresholds to determine air quality effects of projects located within district boundaries. These thresholds are shown in Table 3.6-5.

3.6.4 Environmental Effects

This section describes the assessment methods and environmental effects determination for the potential impacts of the proposed project on air quality.

3.6.4.1 Assessment Methods

Quantitative estimates of criteria pollutant emissions for the project were forecast using construction activity data provided by HDR, Sutter Butte Flood Control Agency's professional engineering firm, and using default emission factors from CalEEMod (Version 2013.2.2). CalEEMod is currently the accepted model used in the industry. Detailed information on the emission calculation methods is provided in Appendix 3.6-A. The following types of project-specific information were used.

- Duration of each type of construction activity in the project area. This information was provided by HDR (see Chapter 2, *Project Description*).
- Type of each construction equipment, number of pieces of each type, and the duration of each type of construction activity. This information was provided by HDR (see Chapter 2, *Project Description*). Appendix 3.6-A provides a list of the equipment to be used at the proposed project site and a forecast of equipment usage. As previously mentioned, the proposed project site is within the jurisdiction of BCAQMD.
- Equipment usage at the proposed project site was assumed to be a maximum of 10 hours per day (see Chapter 2, *Project Description*). Equipment usage as a percentage of maximum hours of daily usage is presented in Table 2-2 of Chapter 2.

- Quantities of borrow material, spoil material, and supplies to be delivered to the proposed project site. This information was provided by HDR (see Chapter 2, *Project Description*).
- Number of employees for the Vegetation Management component was based on data provided by HDR, see Appendix 3.6-A.
- Default operating parameters for each type of construction equipment (horsepower and load factor) were set by CalEEMod.
- Default number of employees per phase of Hydraulic Improvements/Recreation Features components were set by CalEEMod.
- Default emission factors for fuel consumption and criteria pollutant emission rates for non-road construction equipment, on-road delivery trucks, and on-road commute vehicles were set by CalEEMod.

3.6.4.2 Determination of Effects

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. As discussed above, the BCAQMD is responsible for ensuring that state and Federal ambient air quality standards are not violated within Butte County. Analysis requirements for construction- and operational-related pollutant emissions are contained in BCAQMD's *CEQA Air Quality Handbook* (Butte County Air Quality Management District 2014). The handbook also contains thresholds of significance for construction-related and operational-related ROG, NOx and PM10; these thresholds are presented in Table 3.6-5. Because the project would not have an operational component, only the construction-related thresholds were considered in this analysis.

Table 3.6-5. BCAQMD Criteria Pollutant Emissions Thresholds

Pollutant	Construction-Related	Operational-Related
ROG	137 lbs/day, not to exceed 4.5 tons/year	25 lbs/day
NOx	137 lbs/day, not to exceed 4.5 tons/year	25 lbs/day
PM < 10 microns (PM 10 or smaller)	80 lbs/day	80 lbs/day

Source: Butte County Air Quality Management District 2014.

3.6.4.3 CEQA Checklist

Potential impacts of the proposed project on air quality are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. Conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (less than significant for all components)

Vegetation Management: A project is deemed inconsistent with an air quality plan if it would result in population or employment growth that exceeds the growth estimates in the applicable air quality plan (i.e., generating emissions not accounted for in the applicable air quality plan emissions budget). Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rate included in the applicable air quality plan.

The applicable air quality plan is the 2012 Plan (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2013). In adopting this plan, BCAQMD assumes that growth within their jurisdiction will be in accordance with city and county general plans that have analyzed air quality effects associated with build-out. Vegetation management activities would result in temporary emissions of criteria pollutants (See Impact AQ-2 for the discussion of these emissions) but would not result in any population or employment growth, because it would be a temporary set of activities. The nature of the activities (i.e., removal of invasive species and restoration plantings) would have no appreciable effect on growth in the County. Therefore, the project would not conflict with, or obstruct, the implementation of the applicable air quality plan, and this impact would be less than significant. No mitigation is required.

Hydraulic Improvements: Similar to the evaluation above for vegetation management activities, the hydraulic improvements would also not result in any permanent population or employment growth and therefore would not conflict with, or obstruct, the implementation of the applicable air quality plan. This impact would be less than significant. No mitigation is required.

Recreation Features: Similar to the evaluation above for vegetation management activities, the recreation features would also not result in any permanent population or employment growth and thus would not conflict with, or obstruct, the implementation of the applicable air quality plan. This impact would be less than significant. No mitigation is required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact AQ-2: Violate an air quality standard or contribute substantially to an existing or projected air quality violation (less than significant for all components)

Vegetation Management: The vegetation management activities would involve the use of a number of off-road and on-road equipment items. The equipment would generate emissions of criteria pollutants that could result in potential exceedances of the thresholds established by BCAQMD. The current schedule indicates that vegetation management activities would occur in the first and second years, and hydraulic improvements and recreation enhancements would occur in the first year only. Because emission-generating activities associated with implementation of the three project components would overlap in the first year of construction, it is necessary to combine the maximum daily emissions from all of the activities and compare those emissions to the BCAQMD thresholds to assess the significance of the proposed project as a whole. The first year of construction would be the worst-case scenario in terms of criteria pollutant emissions.

The maximum daily emissions that are anticipated to occur for each of the three project components are shown in Table 3.6-6; the table also provides the total project emissions, because of the overlap in the project activities that would occur in the first year of construction. Emissions for all pollutants during the vegetation management activities and the total combined project activities, as shown in Table 3.6-6, would be below the BCAQMD daily construction thresholds. Therefore, the project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation, and this impact would be less than significant. No mitigation is required.

Table 3.6-6. Project Construction Emissions for the Worst Case Scenario Year

	Maximum Daily Emissions, lbs/day				
Construction Phase	ROG	NO_X	CO	PM10	PM2.5
2017					
Vegetation Management Activities	2	15	16	2	1
Hydraulic Improvements and Recreation Enhancements	9	99	63	9	5
2018					
Hydraulic Improvements and Recreation Enhancements	9	99	63	9	5
Maximum Daily Emissions from the Project	11	114	79	11	6
BCAQMD CEQA Threshold	137	137	NA	80	NA
Exceeds Threshold?	No	No	NA	No	NA

Source: CalEEMod emissions modeling
Notes:
NA = not applicable.

Hydraulic Improvements: The impact discussion above for vegetation management also applies to hydraulic improvements because the emission-generating activities associated with the three project components would occur concurrently during the first year of construction. Therefore, the emissions that would result from each of the project components, and the combined total, are shown in Table 3.6-6. Because emissions would be below the BCAQMD thresholds for all pollutants, this impact would be less than significant. No mitigation is required.

Recreation Features: The impact discussion above for vegetation management also applies to recreation features because the emission-generating activities associated with the three project components would occur concurrently during the first year of construction. Therefore, the emissions that would result from each of the project components, and the combined total, are shown in Table 3.6-6. Because emissions would be below the BCAQMD thresholds for all pollutants, this impact would be less than significant. No mitigation is required.

c. 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)?

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) (less than significant for all components)

Vegetation Management: BCAQMD has identified project-level thresholds to evaluate criteria pollutant impacts (see Table 3.6-5). In developing these thresholds, BCAQMD considered levels at which project emissions would be cumulatively considerable. As noted in the BCAQMD *CEQA Guidelines* (Butte County Air Quality Management District 2014),

> Projects that do not exceed the Table ES-2 significance thresholds (shown in this analysis in Table 3.6-5) may be assumed to have a less than significant impact in regards to a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.

The criteria pollutant thresholds presented in Table 3.6-5 therefore represent the maximum emissions the project may generate before contributing to a cumulative impact on regional air quality; exceedances of the project-level thresholds would be cumulatively considerable. However, as discussed in Impact AQ-2, construction emissions associated with the proposed project would not exceed BCAQMD's quantitative thresholds. Therefore, this impact is considered less than significant. No mitigation is required.

Hydraulic Improvements: For the reasons discussed above for vegetation management activities, the hydraulic improvements would also not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area. This impact would be less than significant. No mitigation is required.

Recreation Features: For the reasons discussed above for vegetation management activities, the recreation features would also not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area. This impact would be less than significant. No mitigation is required.

d. Expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (less than significant for all components)

Vegetation Management: Construction of the proposed project would result in short-term diesel exhaust emissions from on-site heavy duty equipment. DPM was identified as a TAC by ARB in 1998. Construction of the project would result in the generation of DPM emissions from the use of off-road diesel equipment required for site grading and excavation, and other construction activities.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 70-year exposure period often is assumed. However, while cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e., exposure periods of 1–3 years) to diesel exhaust are not anticipated to result in an increased health risk, as health risks associated with exposure to diesel exhaust typically are seen in exposures periods that are chronic. Construction of the project is expected to take place in two separate years (2017 and 2018), from April 15–November 1 each year. Therefore, during each year, construction activity would occur for less than seven months, which is shorter than the typical acute exposure period of 1-3 years, and substantially less than the 70-year chronic exposure period. In addition, there are no sensitive receptors in the vicinity of construction areas. As shown above in Table 3.6-4, the nearest sensitive receptor is 1,300 feet from a construction area, and analyses performed by the ARB indicate that providing a separation of at least 1,000 feet from diesel sources substantially reduces

exposure to air contaminants and decreases asthma symptoms in children (California Air Resources Board 2005). Furthermore, as required by ARB regulation, no in-use, off-road diesel vehicles may idle for more than 5 consecutive minutes, which would further reduce DPM emissions during construction. Additionally, Table 3.6-6 indicates PM10 emissions (often used as a surrogate for DPM) would be relatively minor and well below BCAQMD thresholds of significance. No heavy-duty construction equipment or other substantial activities would occur after the construction phase is completed. Therefore, the vegetation management activities would not expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant. No mitigation is required.

Hydraulic Improvements: For the reasons discussed above for vegetation management activities, the hydraulic improvements would also not expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant. No mitigation is required.

Recreation Features: For the reasons discussed above for vegetation management activities, the recreation features would also not expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant. No mitigation is required.

e. Create objectionable odors affecting a substantial number of people?

Impact AQ-5: Create objectionable odors affecting a substantial number of people (less than significant for all components)

Vegetation Management: The vegetation management component would not result in any major sources of odor and would not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). In addition, odors associated with diesel exhaust from the use of onsite construction equipment would be intermittent and temporary and would dissipate rapidly from the source with increasing distance.

Furthermore, as required by ARB regulation, no in-use, off-road diesel vehicles may idle for more than 5 consecutive minutes. This impact would be less than significant. No mitigation is required.

Hydraulic Improvements: Similar to the evaluation above for vegetation management activities, the hydraulic improvements would also not result in any odor sources or involve the operation of any of the common types of facilities that are known to produce odors. This impact would be less than significant. No mitigation is required.

Recreation Features: Similar to the evaluation above for vegetation management activities, the recreation features would also not result in any odor sources or involve the operation of any of the common types of facilities that are known to produce odors. This impact would be less than significant. No mitigation is required.