3.1 Air Quality

This section identifies and evaluates issues related to air quality to determine whether the PCRP, including its revisions to the 2011 Creek Restoration Plan that is a component of the 2012 Reclamation Plan Amendment, would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. To do this, as explained in Section ES.1, *Introduction*, and in Section 2.3, *Focus of the Supplemental EIR*, including as summarized in Table 2-4, *Specific Areas of Focus for the Supplemental EIR*, this analysis focuses on three things: (1) PCRP areas that are outside of the existing reclamation plan boundary (for which Grading Approval would be required); (2) PCRP areas within the reclamation plan boundary and within the 120-acre PCRA but outside of the PCRA's 49.2-acre disturbance area; and (3) more generally, whether the PCRP would include work at a greater intensity than previously considered in the 2012 EIR. As a result, Reaches 6–13 and Reaches 17 and 18 are key areas for evaluation.[1]

This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR. This analysis is based in part on the Air Quality and Greenhouse Gas Emissions Technical Report provided in **Appendix D**, *Air Quality and Greenhouse Gas Emissions*. This technical report was prepared on the County's behalf.

The County received scoping comments from the Town of Los Altos Hills (Letter C) and a member of the public (Letter A) pertaining to emissions from both trucks serving the Project site and the facility itself contributing to asthma and other health concerns, especially for children. Copies of both letters are provided in **Appendix A**, *Scoping Report*.

3.1.1 Setting

3.1.1.1 Study Area

The study area for this analysis of potential impacts on air quality consists of the Project site located in an unincorporated area of the western foothills of Santa Clara County near the City of Cupertino, as illustrated in Chapter 2, *Project Description*, Figure 2-3, as well as the greater San Francisco Bay Area Air Basin (SFBAAB), which encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties.

3.1.1.2 Environmental Setting

Section 4.3.1 of the Draft 2012 EIR described the environmental setting for the 2012 EIR's consideration of air quality, including the general climate and meteorology (Section 4.3.1.1, page 4.3-1 et seq.); existing air quality (Section 4.3.1.1, page 4.3-2 et seq.), and sensitive uses

[1] See Section 2.4, *Correlation between 2012 EIR PCRA and the PCRP*, for a cross reference between the restoration activities described and analyzed in the 2012 EIR and the restoration activities described in the PCRP and analyzed in this SEIR. Section 2.5, *Permanente Creek Restoration Plan*, details the PCRP's proposed activities on a reach-by-reach basis.

(Section 4.3.1.1, page 4.3-4 et seq.). These descriptions remain accurate for purposes of this analysis of the PCRP, except as supplemented or emphasized below.

Geography and Climate

The *General Climate and Meteorology* discussion presented in Section 4.3.1.1 of the 2012 EIR remains relevant and accurate; nonetheless, additional details are provided herein. The PCRP would occur in the western foothills of Santa Clara County near the southern end of Santa Clara Valley (Valley), which is oriented northwest-southeast and bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, the San Francisco Bay to the north, and the convergence of the Gabilan Range and the Diablo Range to the south. The climate includes warm, dry summers and cool winters with modest rainfall (Bay Area Air Quality Management District [BAAQMD] 2019). Approximately 10 miles to the east-northeast of the Project area is the City of San Jose, where average maximum and minimum winter (i.e., January) temperatures are 58 degrees Fahrenheit (°F) and 41 °F, respectively, while average summer (i.e., July) maximum and minimum temperatures are 82 °F and 56 °F, respectively. Total precipitation in the area averages 15 inches per year, with most precipitation occurring from November through April (Western Regional Climate Center [WRCC] 2021).

As a result of the Valley's northwest-southeast axis, wind patterns in the Valley include north-northwesterly sea breeze typically developing during the daytime with stronger winds in the spring and summer (BAAQMD 2019). Based on data from January 2015 through December 2015 from the San Jose Station, winds blow from the southwest most of the time. Specifically, the winds from the southwest direction comprise about 36 percent of all hourly wind directions. The station rarely experienced winds at speeds greater than 13 miles per hour (mph) (WRCC 2016).

Air pollution in Santa Clara County can be high because of the large population base and extent of mobile sources in the area. Ozone is the primary pollutant of concern in the summer and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) is the primary pollutant of concern in the winter. Ozone frequently forms on hot summer days when the prevailing seasonal northerly winds carry ozone precursors southward across the county, causing health standards to be exceeded. The high population density, wood smoke, industrial and freeway traffic, and poor wintertime air circulation caused by extensive hills to the east and west that block wind flow into the region can cause many exceedances of $PM_{2.5}$ during the winter months.

Criteria Air Pollutants

The U.S. Environmental Protection Agency (U.S. EPA) has identified certain air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria (see Section 3.1.1.3, *Regulatory Setting*, below). The criteria air pollutants were described in Section 4.3 of the Draft 2012 EIR and are supplemented with the health-related information provided below.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections in humans. It can also cause substantial damage to vegetation and other materials, when present in sufficiently high atmospheric concentrations. Ozone is not emitted directly into the atmosphere. Instead, it is a secondary air pollutant that is produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_X). ROG and NO_X are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind from sources of ROG and NO_X under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds like ozone.

Ozone can cause the muscles in the airways to constrict, potentially leading to wheezing and shortness of breath (U.S. EPA 2021a). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema, and chronic bronchitis; increase the frequency of asthma attacks; and make the lungs more susceptible to infection (U.S. EPA 2021a). Long-term exposure to ozone is linked to aggravation of asthma and is likely to be one of many causes of asthma development, and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (U.S. EPA 2021a). Inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms, and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath (California Air Resources Board [CARB] 2021).

People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (U.S. EPA 2022). Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (U.S. EPA 2021a).

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_X. A precursor to ozone formation, NO_X is produced by fuel combustion in motor vehicles, industrial stationary sources (such as refineries, power plants, and chemical manufacturing facilities), ships, aircraft, and rail transit. Typically, NO_X emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2, with the vast majority (95 percent) of the NO_X emissions being comprised of NO. NO is converted to NO_2 in the atmosphere when it reacts with ozone or undergoes photochemical reactions. Short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as

coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms, while longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (U.S. EPA 2021b).

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion; it is mostly associated with emissions from motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the 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. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced levels of oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

Particulate matter less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, wildfire smoke, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. According to a study prepared by CARB, exposure to ambient $PM_{2.5}$, particularly diesel particulate matter (DPM), is associated with approximately 14,000 to 24,000 premature annual deaths per year statewide (CARB 2010). Particulate matter also can damage materials and reduce visibility.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes over 200 compounds, including DPM emissions from diesel-fueled engines (CARB 2021). The main TAC of concern for the PCRP is DPM from off-road diesel equipment and on-road diesel vehicles, in addition to some trace metals found in fugitive dust in disturbance areas and on paved and unpaved roads.

Existing Air Quality

BAAQMD's regional monitoring network measures the ambient concentrations of criteria air pollutants. Monitoring on the Project site has not been completed; however, existing levels of air quality at the Project site can be inferred from ambient air quality measurements conducted by

BAAQMD at its closest air quality monitoring stations to the Project site, which are the Jackson Street San Jose monitoring station (approximately 11 miles to the east-northeast) and the University Avenue Los Gatos monitoring station (approximately 9 miles southeast). The San Jose station monitors ozone, PM_{10}, $PM_{2.5}$, and NO_2, and the Los Gatos station monitors ozone. **Table 3.1-1** shows a 3-year (2019 through 2021) summary of the most up-to-date available data monitored at the San Jose monitoring station. The data are compared to the California Ambient Air Quality Standards (state standards) and National Ambient Air Quality Standards (national standards). The data are similar to those disclosed in the 2012 EIR, with the exception of relatively high PM_{10} and $PM_{2.5}$ concentrations experienced in 2020, which were likely a result of the large wildfires in northern California that year (BAAQMD 2020a).

TABLE 3.1-1
AIR QUALITY DATA SUMMARY (2019–2021) FOR THE PROJECT AREA

Pollutant	Standard	Monitoring Data by Year		
		2019	2020	2021
Ozone				
Highest State 1-Hour Average (ppm)	0.09 ppm	0.095	0.106	0.098
Days over State Standard		1	1	3
Highest National 8-Hour Average (ppm)	0.070 ppm	0.081	0.085	0.084
Days over National Standard		2	2	4
Respirable Particulate Matter (PM_{10})				
Highest State 24-Hour Average (µg/m^3) Highest 24-hour average, µg/m^3	50 µg/m^3	77.1	137.1	45.1
Measured Days over State Standard		4	10	0
Measured Days over National Standard	150 µg/m^3	0	0	0
State Annual Average (µg/m^3)	20 µg/m^3	19.1	*	20.1
Fine Particulate Matter ($PM_{2.5}$)				
Highest National 24-Hour Average (µg/m^3) Highest 24-hour average, µg/m^3	35 µg/m^3	27.6	120.5	38.1
Measured Days over National Standard		0	12	1
State Annual Average (µg/m^3)	12 µg/m^3	9.1	11.5	8.9
Nitrogen Dioxide (NO_2)				
Highest National Hourly Average (ppm) Highest 24-hour average, µg/m^3	0.100 ppm	0.060	0.052	0.048
Measured Days over National Standard		0	0	0

NOTES:

Measurements are from the Jackson Street monitoring station in San Jose.

ppm = Parts per million
µg/m^3 = Micrograms per cubic meter
* = Insufficient data available to determine the value.

SOURCE: CARB 2022

As shown in Table 3.1-1, the state 1-hour ozone and federal 8-hour ozone standards were exceeded one to four times each year during the 3-year study period. The 24-hour state PM_{10} standard was exceeded four times in 2019 and ten times in 2020, with no exceedances in 2021. There were no exceedances of the national 24-hour or state annual average PM_{10} standards recorded during the 3-year study period, but insufficient data were available for 2020 relative to state annual average. The $PM_{2.5}$ 24-hour national standard was exceeded 12 times in 2020 and once in 2021, with no exceedances in 2019. The $PM_{2.5}$ annual average concentration did not exceed the state standard during the 3-year study period. There were no exceedances of the NO_2 standards during the 3-year study period.

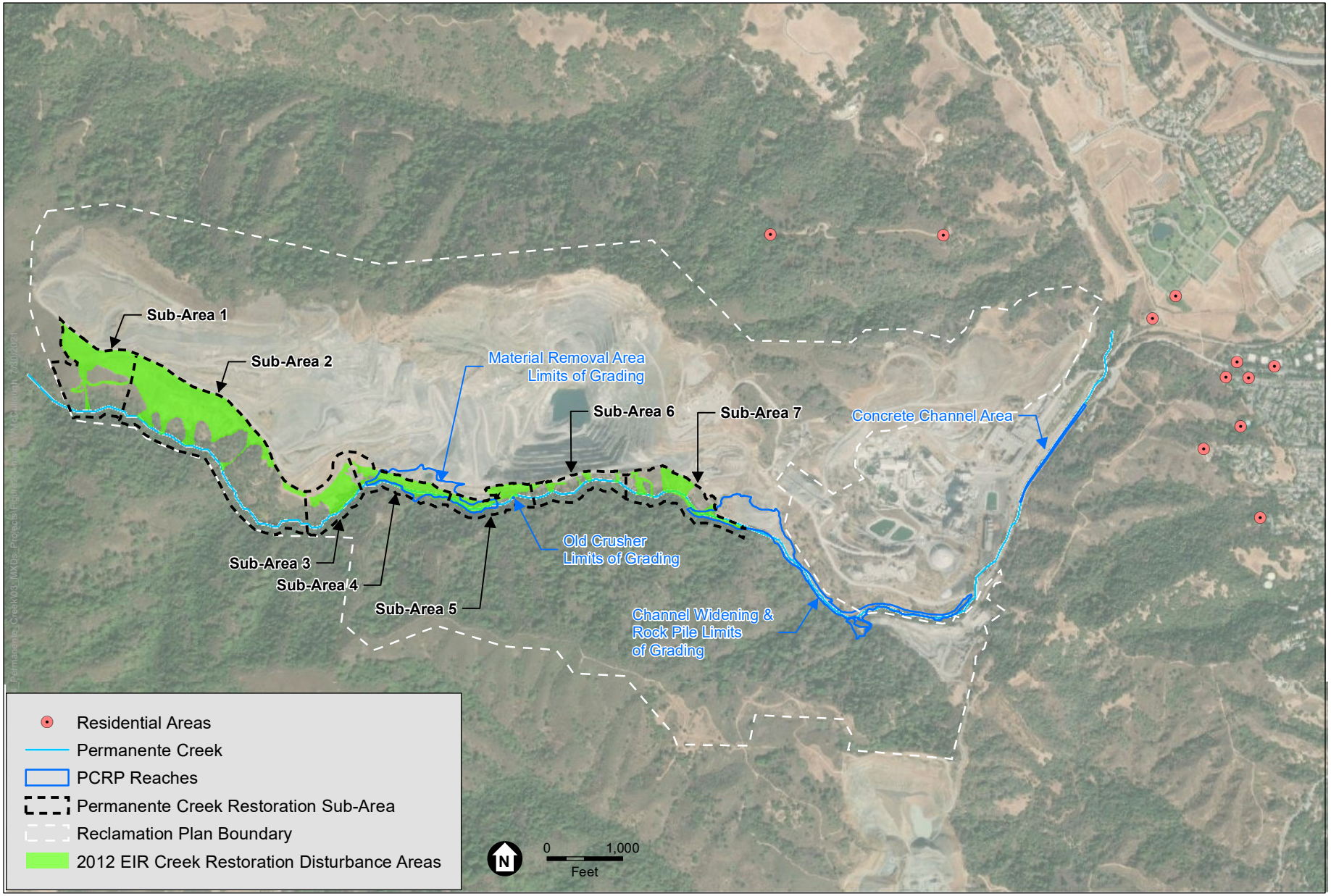
Sensitive Receptors

For the purposes of this air quality analysis, sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. The reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emissions sources, and/or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are sensitive to poor air quality because these sensitive individuals may be present at a residence. In addition, the majority of each 24-hour period tends to be spent by individuals in and around the residence, leading to greater exposure durations of the location's ambient air quality concentrations.

The description of sensitive residential land uses in the vicinity of the Project site presented in Draft 2012 EIR Section 4.3.1.1 remains accurate, with one exception. The 2012 EIR identified the caretaker's residence associated with the Historical Society that is located approximately 700 feet east of the East Materials Storage Area (EMSA) on the north side of Permanente Road as the closest residence. Lehigh has since confirmed that this residence would not serve as a dwelling during implementation of the PCRP. The next closest residences are approximately 2,000 feet to the east, south of Permanente Road. Residences in the vicinity of the Project site are shown in **Figure 3.1-1**.

3.1.1.3 Regulatory Setting

Section 4.3.1.2 of the Draft 2012 EIR (page 4.3-4 et seq.) described the regulatory setting for the analysis of potential impacts on air quality, including federal, state and local laws, regulations, plans and policies applicable to the analysis of the proposed creek restoration, and other Project components that were evaluated in the 2012 EIR. The section summarized federal and state ambient air quality standards and attainment status for criteria pollutants, BAAQMD plans and regulations, regulatory setting for odors and nuisances, regulatory setting for TACs, and the Santa Clara County General Plan. The description of the regulatory setting remains accurate for purposes of this analysis of the PCRP, except as supplemented or emphasized below.



SOURCE: Benchmark Resources, 2021

Permanente Creek Restoration Plan Draft Supplemental Environmental Impact Report

Figure 3.1-1
Residential Areas in the Vicinity of the Project Site

ESA

Established federal, state, and regional regulations provide the framework for analyzing and controlling air pollutant emissions and thus general air quality. The U.S. EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the federal ambient air quality standards and reviewing State Implementation Plans (SIPs), described further below. However, the U.S. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. In California, CARB is responsible for establishing and reviewing the state ambient air quality standards, developing and managing the California SIP, securing approval of this plan from the U.S. EPA, and identifying TACs. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. An air quality management district is primarily responsible for regulating stationary emission sources at facilities within its geographic areas, and for preparing the air quality plans that are required under the federal Clean Air Act and the 1988 California Clean Air Act. The BAAQMD is the regional agency with regulatory authority over emissions sources in the nine-county San Francisco Bay Area.

Federal and State Ambient Air Quality Standards

Criteria air pollutants are regulated through both national and state ambient air quality standards and emissions limits for individual sources. Regulations implementing the federal Clean Air Act and its subsequent amendments established national ambient air quality standards (national standards) for six criteria pollutants: ozone, NO_2, sulfur dioxide (SO_2), particulate matter (including PM_{10}, $PM_{2.5}$), CO, and lead. California has adopted more stringent state standards for most of the criteria air pollutants. In addition, California has established state ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Because of the meteorological conditions in the state, there is considerable difference between some of the state and federal standards in California, as shown in **Table 3.1-2**. As noted in the table, the federal primary standard for 8-hour ozone is now 0.070 parts per million (ppm), which is a reduction from the 0.075 ppm standard that was in place at the time of the 2012 EIR. All other ambient air quality standards are essentially the same as they were at the time of the 2012 EIR.

The ambient air quality standards are established to protect public health and welfare, and they incorporate a margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including people with asthma, the very young, elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Attainment Status

Under amendments to the federal Clean Air Act, U.S. EPA has classified air basins or portions thereof as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether the national standards have been achieved. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have two sets of attainment / non-attainment

TABLE 3.1-2
AMBIENT AIR QUALITY STANDARDS AND SAN FRANCISCO BAY AREA AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard	SF Air Basin Attainment Status for State Standard	National Primary Standard	SF Air Basin Attainment Status for National Standard
Ozone	8 hour	0.070 ppm	Non-Attainment	0.070 ppm	Non-Attainment
	1 hour	0.090 ppm	Non-Attainment	---	---
Carbon Monoxide	8 hour	9.0 ppm	Attainment	9 ppm	Attainment
	1 Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide	Annual Average	0.030 ppm	---	0.053 ppm	Attainment
	1 Hour	0.18 ppm	Attainment	0.100 ppm	Unclassified
Sulfur Dioxide	Annual Average	---	---	0.030 ppm	Attainment
	24 Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1 Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
Respirable Particulate Matter (PM10)	Annual Arithmetic Mean	20 μg/m3	Non-Attainment	---	---
	24 hour	50 μg/m3	Non-Attainment	150 μg/m3	Unclassified
Fine Particulate Matter (PM2.5)	Annual Arithmetic Mean	12 μg/m3	Non-Attainment	15 μg/m3	Unclassified/Attainment
	24 hour	---	---	35 μg/m3	Non-Attainment
Sulfates	24 hour	25 μg/m3	Attainment	---	---
Lead	Calendar Quarter	---	---	1.5 μg/m3	Attainment
	30 Day Average	1.5 μg/m3	---	---	Attainment
	3-month Rolling Average	---	---	0.15 μg/m3	Attainment
Hydrogen Sulfide	1 hour	0.03 ppm	Unclassified	---	---
Vinyl Chloride	24 hour	0.010 ppm	No information available	---	---
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	Unclassified	---	---

NOTES: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

SOURCE: BAAQMD 2017a.

designations: one set with respect to the national standards and one set with respect to the state standards. Table 3.1-2 shows the attainment status of the SFBAAB with respect to the national and state ambient air quality standards for different criteria pollutants. The attainment statuses relative to the state and federal ambient air quality standards are essentially the same as they were at the time of the 2012 EIR.

Federal

The U.S. EPA is responsible for implementing programs established by the federal Clean Air Act, such as establishing and reviewing the national standards for the following air pollutants: CO, ozone, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The federal CAA also requires the U.S. EPA to designate areas (counties or air basins) as attainment or non-attainment with respect to each criteria air pollutant, depending on whether the area meets the national standards. If an area is designated as non-attainment, it does not meet the national standards and is required to create and maintain a SIP for achieving compliance with the national standards. Conformity to the SIP is defined under the 1990 Clean Air Act Amendments as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the national standards and achieving expeditious attainment of these standards. Air quality within the SFBAAB is classified as nonattainment for the federal 8-hour ozone and 24-hour $PM_{2.5}$ standards.

The U.S. EPA has identified emissions standards for nonroad diesel engines and vehicles including four categories referred to as Tier 1, Tier 2, Tier 3, and Tier 4. The standards have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Tier 1 is the least restrictive, and Tier 4 is the most restrictive.

State

CARB is the agency delegated responsibility for preparing and submitting the SIP to the U.S. EPA. CARB also oversees air quality policies in California and has established state standards for NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, ozone, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The state standards are at least as stringent (and typically more stringent) than the national standards.

The California Clean Air Act was approved in 1988. It requires each local air district in the state to prepare an air quality plan to achieve compliance with the state standards. Similar to the U.S. EPA, CARB designates counties or air basins in California as attainment or non-attainment with respect to the state standards. Air quality within the SFBAAB does not attain the state standards for ozone, PM_{10}, and $PM_{2.5}$.

Toxic Air Contaminants

TACs are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. TACs include both organic and inorganic chemical substances. They may be emitted by a variety of common sources: gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated differently than criteria air pollutants at both the federal and state levels. At the federal level, these pollutants are called "hazardous air pollutants." California's list of TACs identifies 243 substances, and the federal list of hazardous air pollutants identifies 189 substances.

CARB identified DPM as a TAC in 1998, based primarily on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic and carcinogenic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and DPM concentrations are higher near heavily traveled highways and rail lines with diesel locomotive operations. The risk from DPM, as determined by CARB, declined from 750 in one million in 1990 to 540 in one million in 2000, but remains the highest risk TAC to California's ambient air quality. In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Further regulations of diesel emissions by CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-road Diesel Vehicle Regulation, and the New Off-road Compression Ignition Diesel Engines and Equipment Program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Because new cleaner vehicles and equipment are put into service every year and older less-clean vehicles and equipment are retired every year, current diesel-powered vehicles and equipment result in fewer DPM exhaust emissions on average compared to those that were active in 2012.

In 2004, CARB adopted a measure to limit idling of diesel-fueled commercial motor vehicles. Heavy-duty diesel vehicles with a Gross Vehicle Weight Rating of 10,000 pounds or heavier are prohibited from idling for more than 5 minutes within California's borders. Exceptions to the rule apply for certain circumstances.

Local

Bay Area Air Quality Management District

The Project site is located within the jurisdiction of the BAAQMD, the local agency responsible for preparing, adopting, and implementing stationary and area air emissions control measures and standards. Specifically, BAAQMD conducts monitoring, evaluation, and education programs; implements control measures to reduce emissions from stationary sources; issues permits to operate for stationary sources and inspects emissions sources; and enforces air quality regulations.

BAAQMD Air Quality Plans

The 1977 Clean Air Act amendments require that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled to achieve all standards specified in the Clean Air Act. The California Clean Air Act also requires development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (except for areas designated as non-attainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment to ensure continued attainment of the standards. As indicated above, air quality plans developed to meet federal requirements are referred to as SIPs.

For state air quality planning purposes, the SFBAAB is classified as a serious non-attainment area for the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the

BAAQMD update the Clean Air Plan every 3 years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. BAAQMD also must review the Bay Area's record of progress in implementing previous measures. The plans for the SFBAAB are prepared with the cooperation of the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). After the certification of the 2012 EIR, the BAAQMD adopted the most recent revision to the Clean Air Plan—the 2017 Bay Area Clean Air Plan (2017 CAP) (BAAQMD 2017b). The 2017 CAP serves to:

- Protect the environment and offer a long-range vision of how the Bay Area could function in a year 2050 post-carbon economy and describe a control strategy that the BAAQMD will implement over the next 3 to 5 years.
- Update the most recent BAAQMD ozone plan, the 2010 Clean Air Plan, to fulfill state ozone planning requirements. The 2017 control strategy includes all feasible measures to reduce emissions of ROG and NO_x and reduce the transport of ozone and its precursors to neighboring air basins.
- Build upon and enhance the BAAQMD's efforts to reduce emissions of fine particulate matter and TACs.

Under the California Clean Air Act, the BAAQMD is required to develop an air quality attainment plan for non-attainment criteria pollutants within the air district.

Santa Clara County General Plan

The 2012 EIR identifies air quality policies associated with the Health and Safety Chapter of the Santa Clara County General Plan, 1995-2010 (Santa Clara County 1994) that apply to the 2012 Reclamation Plan Amendment. The Santa Clara County General Plan, 1995-2010 remains current.

3.1.2 Significance Criteria

Consistent with the County of Santa Clara Environmental Checklist and the version of the CEQA Guidelines Appendix G Environmental Checklist that was in effect at the time, Section 4.3 of the 2012 EIR determined that the proposed Reclamation Plan Amendment, including creek restoration work within the PCRA, would have a significant impact if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any nonattainment pollutant (including releasing emissions that exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

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

Updates to the CEQA Guidelines Appendix G Environmental Checklist that were finalized in December 2018 made only non-substantive revisions to these significance criteria. Specifically, the content of criteria b) and c) have been combined and are now reflected as criterion b), and the odors criterion has been refined to include reference to "other emissions." The 2018 revised criteria b) and d) are shown below.

A project would result in a significant impact to air quality if it would:

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard;

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The 2018 revised criteria address the same types of impacts that are addressed in the 2012 EIR. Accordingly, the significance criteria used in the 2012 EIR remain relevant to this SEIR's consideration of whether the PCRP would cause any new significant impacts or a substantial increase in the severity of previously identified significant impacts than were disclosed in the 2012 EIR.

3.1.3 Direct and Indirect Effects

3.1.3.1 Methodology

Emissions Applicability Factors

The 2012 EIR evaluated impacts of Permanente Creek restoration within the PCRA. The PCRP area overlaps the PCRA in many respects (see Figure 2-3, *PCRA Subareas and PCRP Reaches*). Given that substantially similar restoration activities would be implemented in the areas of overlap, the emissions resulting from those activities have not been reevaluated as part of this assessment.

Emissions are estimated for the activities of each proposed PCRP phase and then scaled based on the percentage of PCRA area overlap associated with the 2012 EIR's assessed regions. These scaling values, referred to as Emissions Applicability Factors, have been determined for each PCRP phase. All emissions associated with PCRP components outside of the existing reclamation plan boundary are evaluated in this SEIR. See **Appendix D,** Table 1-1 for the percent of emissions by phase determined to be evaluated in the 2012 EIR and the Emissions Applicability Factors used to estimate emissions for evaluation in this SEIR.

Air Quality Plans

Before approving a project where an air quality plan consistency determination is required, BAAQMD recommends that the lead agency analyze the project with respect to the following questions:

(1) Does the project support the primary goals of the 2017 CAP?

(2) Does the project include applicable control measures from the 2017 CAP?

(3) Does the project disrupt or hinder implementation of any 2017 CAP control measures?

If the first two questions are concluded in the affirmative and the third question is concluded in the negative, then the BAAQMD considers the project consistent with the 2017 Clean Air Plan.

Any project that would not support the 2017 CAP goals would not be considered consistent with the 2017 CAP. Whether the PCRP supports these goals has been determined based on its consistency with CEQA thresholds of significance. If the CEQA thresholds of significance are exceeded, then the Project would not be considered to support the 2017 CAP goals, and the associated impact would be significant.

Criteria Pollutant Emissions

The analysis of criteria pollutants considers the impacts related to emissions of non-attainment pollutants and their precursors. Although ozone would not be directly emitted by PCRP-related construction equipment, the ozone precursors ROG and NO_x would be emitted and are therefore, along with particulate matter, the focus of the impact assessment. Given that ozone formation occurs through a complex photo-chemical reaction between NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The ambient air quality standards for ozone are concentration-based; they are not based on the mass of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the mass of precursor pollutants that causes human health effects, as opposed to the concentration of resulting ozone or particulate matter. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases and given the state of environmental science modeling in use at this time, it is infeasible to convert specific emissions levels of NO_x or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone (South Coast Air Quality Management District [SCAQMD] 2014, San Joaquin Valley Air Pollution Control District [SJVAPCD] 2014).

Significance Thresholds

The 2012 EIR relied on the methods and significance thresholds identified in the BAAQMD's 2010 CEQA Guidelines as supported by Appendix D of the BAAQMD Guidelines and BAAQMD's Revised Draft Options and Justification Report. After certification of the 2012 EIR, the BAAQMD updated its CEQA Guidelines in 2017 to address the California Supreme Court's opinion in *California Building Industry Association v. BAAQMD* (2015) 62 Cal.4th 369. However, as it pertains to projects such as the PCRP that do not include proposed residences, the methods and significance criteria identified in the 2017 BAAQMD CEQA Guidelines are essentially the same as those identified in the 2010 BAAQMD CEQA Guidelines. The analysis presented in this SEIR uses the same general methodologies as those used for the 2012 EIR for ease in comparison.

Project-related air quality impacts typically fall into two categories: short-term impacts due to construction or decommissioning, and long-term impacts due to project operations. The PCRP would

generate air pollutant emissions on a short-term basis during construction over a period of approximately 6 years; there would be no long-term sustained operational impacts. Impacts related to the PCRP contributing to an existing or projected air quality violation and whether the PCRP would result in a cumulatively considerable net increase of any criteria pollutant or associated precursors are judged by comparing estimated direct and indirect PCRP exhaust emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_x, and $PM_{2.5}$; and 82 pounds per day for PM_{10}. Only the exhaust portion of $PM_{2.5}$ and PM_{10} emissions are compared against the construction thresholds. The BAAQMD considers implementation of its recommended mitigation measures for fugitive dust (BAAQMD 2017c) sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. Therefore, the BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. For long-term operations, the BAAQMD has two sets of significance thresholds, including daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_x, and $PM_{2.5}$; and 15 tons per year for PM_{10}. These significance thresholds are the same as those used in the 2012 EIR to evaluate impacts associated with criteria pollutants. Although emissions resulting from implementation of the PCRP would be considered short-term construction emissions and appropriately evaluated with respect to the BAAQMD construction significance thresholds, for purposes of continuity with the 2012 EIR, this analysis compares the PCRP emissions to both the average daily significance thresholds (i.e., the construction significance thresholds) as well as the annual significance thresholds.

Emissions Estimates

During construction (short-term), the PCRP would generate ozone precursors and affect local particulate concentrations primarily due to fugitive dust and diesel exhaust emissions from construction equipment.

Lehigh provided the County with scheduling assumptions for five main activity types that would be associated with the PCRP that would occur over eight phases (Lehigh 2023). The Project is proposed to occur 5 days a week, approximately 132 workdays per year during the dry seasons (i.e., April 15 through October 15) of 2024 through 2029. Below is a list of the PCRP phases by anticipated year of construction:

- 2024: Concrete Channel/Channel Widening (Phase 1).
- 2025: Rock Pile Area (Phase 1).
- 2026: Rock Pile Area (Phase 2).
- 2027: Channel Widening (Phase 2) and Old Crusher Foundation.
- 2028: Material Removal Area (Phase 1).
- 2029: Material Removal Area (Phase 2).

Lehigh provided a list of off-road construction equipment that would be used during each PCRP construction phase and indicated that each piece of equipment would comply with U.S. EPA Tier 4

non-road engine standards and would operate between 4 and 8 hours each workday for a specified number of days based on the applicable construction phase (Lehigh 2021, 2023). The average hours per day each equipment type would operate for a given construction phase were estimated by dividing the total operation hours per year by the estimated number of workdays for that phase. Engine horsepower ratings for the equipment types were estimated by Environmental Science Associates based on specification sheets found online for the provided equipment types, or California Emissions Estimator Model (CalEEMod) defaults were used. For the assumed engine horsepower ratings, amounts, and types of construction equipment that would be required to complete each phase of the PCRP, refer to Appendix D.

For on-road vehicle trips that would be associated with the PCRP, Lehigh has indicated that each construction phase would require between 8 and 16 worker one-way daily trips, 216 vendor truck one-way daily trips (except for the Concrete Channel and Older Crusher Foundation phases, which would require 25 vendor truck one-way daily trips), and 2 to 1,418 haul truck one-way total trips (Lehigh 2023). For the purposes of the on-road emissions estimates, it is assumed that worker vehicles would be light duty trucks (i.e., LDT1), vendor trucks would be a mix of heavy-duty trucks (i.e., LHDT1, LHDT2, and MHDT), and haul trucks would be heavy-heavy duty trucks (i.e., HHDT).

Construction-related on-site exhaust emissions were estimated based on the assumptions described above using the CalEEMod version 2020.4.0. On-road vehicle exhaust emissions, on the other hand, were estimated outside of CalEEMod. This is because CalEEMod version 2020.4.0 uses vehicle emission factors from CARB's EMFAC2017 model to estimate on-road mobile exhaust emissions, whereas CARB and U.S. EPA have adopted the EMFAC2021 version of the model. The PCRP's on-road vehicle exhaust emissions were estimated outside of CalEEMod using emissions factors for the vehicle types described above obtained from the EMFAC2021 model. BAAQMD currently recommends use of these models to estimate project emissions subject to CEQA; however, these emissions models were not available when the 2012 EIR was certified. Therefore, the emissions presented in the 2012 EIR were estimated using currently outdated emissions models. The comparison of the 2012 EIR emissions with the emissions estimated for the PCRP is valid for this SEIR because only the changes associated with the PCRP are subject to this CEQA review.

In addition, fugitive dust from bulldozing on the disturbance areas and travel on paved and unpaved roads were calculated using factors from U.S. EPA's AP-42, which is a compilation of emissions factors for various industries and activities. Emissions factors for grading equipment passes from AP-42, Chapter 11, were used to estimate fugitive PM_{10} and $PM_{2.5}$ bulldozing emissions, and factors from Chapter 13 were used to estimate paved and unpaved road re-suspended PM_{10} and $PM_{2.5}$ (U.S. EPA 1998, 2006, 2011). The 2012 EIR also reported metals sampled from overburden and road dust, which were speciated from the PM_{10} fugitive calculations. This information was also used in the health risk assessment (HRA) for the PCRP, as discussed below.

The modeled emissions for each construction phase of the PCRP were multiplied by the percent of emissions to be evaluated for the given construction phase based on the proposed creek reach area outside of the previously evaluated 2012 EIR disturbance areas to allow for evaluation of the

applicable emissions in this SEIR (see *Emissions Applicability Factors* discussion above). Calculated emissions for this SEIR were then summed and added to the baseline emissions (see Section 3.1.3.2) for comparison to BAAQMD's applicable regional significance thresholds and to determine if the PCRP could cause any new significant impact or any substantial increase in the severity of previously identified significant direct, indirect, and/or cumulative environmental effects compared with the Project analyzed in the 2012 EIR. Detailed emissions assumptions and summaries, including the CalEEMod and EMFAC2021 assumptions and output, are included in Appendix D, Exhibit A. For information about the 2012 Reclamation Plan Amendment emissions estimates, see Section 3.1.3.2, below. For all assumptions associated with the 2012 EIR emissions estimates, see 2012 EIR Appendix B.

Lehigh has committed to the following fugitive dust emission reduction measures, which for purposes of this analysis are considered equivalent to the BAAQMD's basic measures for dust control:

- Water unpaved roads (BMP-3, *Dust Control*, as set forth in Section 2.5.9.1, *Best Management Practices)*; and
- Water active areas consistent with a dust mitigation plan submitted by Lehigh to the BAAQMD in 2010 (Draft 2012 EIR, at page 4.3-19).

Therefore, due to BAAQMD guidance, PCRP fugitive dust-related PM_{10} emissions have been estimated mainly for disclosure, but also for the purpose of estimating, for the HRA, metals that could be entrained in the atmosphere with dust during construction (see below).

Health Impacts

After certification of the 2012 EIR, the California Supreme Court published its decision in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (known as the "Friant Ranch" case), which held that CEQA requires that a connection be drawn between potential project emissions and human health impacts. The Court found that while there will be some scientific limits to the analytical tools available to draw and quantify these connections, the EIR "must adequately explain what the agency does know and why, given existing scientific constraints, it cannot translate potential health impacts further." The Court faulted the EIR in that case for "fail[ing] to indicate the concentrations at which [certain] pollutants would trigger identified symptoms." The Court concluded that "the public would have no idea of the health consequences that result when more pollutants are added to a nonattainment basin." The Court found that even if it were impossible to do more, the Friant Ranch EIR would have been found insufficient "because it failed to explain why it was not feasible to provide an analysis that connected the air quality effects to human health consequences."

The BAAQMD significance thresholds described above were set at emissions levels tied to the region's attainment status relative to the national and state ambient air quality standards designed to protect public health. They are emissions levels at which stationary pollution sources permitted by the BAAQMD must offset their emissions and CEQA projects must use feasible mitigations; they are not intended to be indicative of any localized human health impact that a project may have. Therefore, a PCRP-related exceedance of the mass regional emissions threshold (e.g.,

pounds per day or tons per year NO_x thresholds) prior to mitigation from construction-related activities could indicate that the PCRP could cause or contribute to the exposure of sensitive receptors to ground-level concentrations greater than health-protective levels.

Furthermore, models available today are designed to determine regional, population-wide health impacts, and cannot necessarily accurately quantify ozone-related health impacts caused by PCRP-related NO_x or VOCs emissions. Therefore, it is currently infeasible to connect NO_x emissions associated with a project of limited scope, such as the short-term PCRP, to ozone-related health impacts.

The primary health concern with exposure to NO_x emissions is the secondary formation of ozone. Given the complexity of ozone formation, and the state of environmental science modeling in use at this time, it is infeasible and would be speculative to determine whether, or the extent to which, a single project's precursor (i.e., NO_x and ROG) emissions would result in the formation of secondary ground-level ozone and the geographic and temporal distribution of such secondary formed emissions (SCAQMD 2014, SJVAPCD 2014). Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone. Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_x or ROG emissions from a local-level project of limited scope.

Community Health Risk Due to Toxic Air Contaminants

Impacts associated with the Project exposing sensitive receptors or the general public to substantial pollutant concentrations are evaluated by assessing the health risks posed by the placement of new sources of TAC emissions near existing sensitive receptors. Specifically, according to the BAAQMD, the Project would have a significant air quality impact if the construction phase would expose persons to substantial levels of TACs, such that the probability of contracting cancer exceeds 10 in one million, or if it would expose persons to pollutants such that a chronic Hazard Index of 1.0 would be exceeded. In addition, a significant impact would occur if the Project would result in an incremental increase in annual average concentrations of $PM_{2.5}$ of more than 0.3 microgram per cubic meter ($\mu g/m^3$) at a sensitive receptor location (BAAQMD 2017c).

In addition, for assessing community risks and hazards relative to the criteria discussed above, the BAAQMD recommends use of a 1,000-foot radius around the project property boundary where the siting of a new source or receptor should be quantitatively assessed, considering both individual and nearby cumulative sources (i.e., proposed project plus existing and foreseeable future projects). For this analysis, the closest sensitive receptors were evaluated, even though they are located farther than 1,000 feet from where PCRP activities would occur on site. Haul trucks and vendor trucks arriving and departing from the site are a source of TACs and would travel closer than 1,000 feet from sensitive receptors for brief periods of time along the truck route.

An HRA was conducted to evaluate the cancer risks and non-cancer health effects associated with exposure to TACs that would be emitted because of the PCRP. TACs associated with the Project include various metals within fugitive dust (such as mercury and chromium), crystalline silica, and DPM. Cancer risks are evaluated based on assumed lifetime exposure to TACs over the

expected lifespan of the Project. Non-cancer health risks evaluated include adverse health effects from both acute (highest 1-hour exposure) and chronic (average annual exposure). As recommended by BAAQMD, the HRA also calculated the annual average $PM_{2.5}$ concentrations.

The HRA follows the protocols outlined by the BAAQMD, CARB, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA), and U.S. EPA. Consistent with guidelines and recommendations from these agencies, the HRA evaluated the incremental increase in lifetime cancer risks and non-cancer chronic and acute health risk from exposure to TAC emissions. At the time of the 2012 EIR, the OEHHA *2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* was the applicable guidance document for conducting HRAs (OEHHA 2003). Consistent with the 2012 EIR, the HRA conducted for this SEIR assesses impacts from the PCRP based on the 2003 OEHHA guidance. After the 2012 EIR was certified, OEHHA released the *2015 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, which revised some of the exposure parameters, such as breathing rates and age sensitivity factors. The 2015 OEHHA guidance was not available nor was its release reasonably foreseeable at the time the 2012 EIR was certified. For information and disclosure purposes, the HRA also presents the health risk values using the 2015 OEHHA Guidance.

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed in the HRA as the chances in one million of contracting cancer (for example, 10 cancer cases among one million people exposed). Non-cancer adverse health risks are measured against a Hazard Index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the Project to published reference exposure levels (RELs) that can cause adverse chronic (long-term) and acute (short-term) health effects.

For additional information related to the emissions sources, sensitive receptors, and the details regarding the HRA methodology, refer to Appendix D and its Exhibit B.

Odors

Impacts related to the PCRP creating or exposing a substantial number of people to objectionable odors is evaluated based on the potential for the PCRP to generate odors that could affect nearby sensitive receptors.

3.1.3.2 Baseline

Section 3.0.1, *Environmental Baseline*, explains that, in the context of an SEIR, the CEQA baseline is adjusted such that the originally approved Project is assumed. Therefore, the baseline used in this analysis to evaluate the impacts of the PCRP and alternatives consists of existing environmental conditions plus the 2012 Reclamation Plan Amendment and 2012 EIR, and the creek restoration plans evaluated therein. For purposes of this analysis of potential impacts on air quality, the baseline is described below.

2012 EIR Baseline

The baseline for the 2012 EIR reflects the physical environmental conditions in the vicinity of the PCRP area as they existed on June 29, 2007, when the County published the NOP in connection with Lehigh's amendment of the 1985 Reclamation Plan. As described in Draft 2012 EIR Section 4.3.2, documentation pertinent to the air quality analysis establishes that, by 2007, some materials storage already had occurred in the EMSA. The 2012 Reclamation Plan Amendment involved an existing quarry operation characterized by fluctuating production and associated air emissions, in response to continually changing market demands. The baseline air pollutant emissions identified in the 2012 EIR air quality analysis are based on an average over the 11-year period from January 1, 2000, to December 31, 2010, which includes periods of relatively high production as well as relatively low production at the Permanente Quarry in response to changing market demands. The daily and annual 2012 EIR baseline criteria pollutant emissions are shown in **Tables 3.1-3** and **3.1-4**.

The 2012 EIR included a health risk assessment and modeling of $PM_{2.5}$ concentrations. The 2012 EIR baseline health risk impacts are shown in **Tables 3.1-5** and **3.1-6**. The 2012 EIR baseline $PM_{2.5}$ concentrations are shown in **Table 3.1-7**.

2012 Emissions and Analysis

Criteria Pollutants

Baseline and maximum daily 2012 Reclamation Plan Amendment emissions and the net change in emissions compared to the BAAQMD daily thresholds (as disclosed in the 2012 EIR) are summarized in **Table 3.1-3**. Baseline and maximum annual 2012 Reclamation Plan Amendment emissions and the net change in emissions compared to the BAAQMD annual thresholds are summarized in **Table 3.1-4**. The 2012 Reclamation Plan Amendment emissions identified in the tables below include emissions associated with creek restoration activities proposed within the disturbance areas of the PCRA. As shown in Tables 3.1-3 and 3.1-4, the Reclamation Plan Amendment (including the proposed creek restoration work) was found to result in net emissions reductions for all nonattainment air pollutants (PM_{10}, $PM_{2.5}$, and the ozone precursors NO_x and ROG) due to its decreased emissions relative to the baseline emissions, and therefore was disclosed to not exceed the BAAQMD daily or annual thresholds of significance. The net emissions reductions were due to additional emission reduction measures associated with the Reclamation Plan Amendment that were not part of the baseline emissions scenario for the 2012 EIR. The additional emission reduction measures include: watering active areas consistent with a dust mitigation plan submitted to the BAAQMD in 2010; use of an overland conveyor system, powered by electric motors; and watering conveyor transfer points and screens associated with the overland conveyor system. Reclamation Plan Amendment-related criteria pollutant emissions were found to result in a less-than-significant impact.

TABLE 3.1-3
2012 RECLAMATION PLAN AMENDMENT MAXIMUM DAILY CRITERIA AIR POLLUTANT EMISSIONS (POUNDS/DAY)

Scenario	PM_{10}	$PM_{2.5}$	NO_x	ROG	CO	SO_2
Baseline Emissions	5,411	893	2,440	167	2,641	27
Reclamation Plan Amendment Emissions	1,970	311	2,124	123	1,891	32
Maximum Daily Incremental Change	(3,441)	(582)	(316)	(44)	(750)	5
BAAQMD Threshold	82	54	54	54	None	None
Significant Impact (Yes or No)?	No	No	No	No	--	--

SOURCE: Draft 2012 EIR Section 4.3.5.1, Table 4.3-3.

TABLE 3.1-4
2012 RECLAMATION PLAN AMENDMENT MAXIMUM ANNUAL CRITERIA AIR POLLUTANT EMISSIONS (TONS/YEAR)

Scenario	PM_{10}	$PM_{2.5}$	NO_x	ROG	CO	SO_2
Baseline Emissions	754	122	324	24	288	1
Reclamation Plan Amendment Emissions	291	45	301	18	222	3
Maximum Annual Incremental Change	(463)	(77)	(23)	(6)	(66)	2
BAAQMD Threshold	15	10	10	10	None	None
Significant Impact (Yes or No)?	No	No	No	No	--	--

SOURCE: Draft 2012 EIR Section 4.3.5.1, Table 4.3-4.

Toxic Air Contaminants

An HRA was conducted to analyze potential health risks from emissions associated with the 2012 Reclamation Plan Amendment. That HRA was part of the impact analysis in the 2012 EIR. The HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including U.S. EPA *Haul Road Workgroup Recommendations Final Report* (U.S. EPA 2011), OEHHA *Air Toxics Hot Spots Program Guidance* (OEHHA 2003), and the BAAQMD's *Health Risk Screening Analysis Guidelines* (BAAQMD 2005).

The reported health risks for that analysis were associated with off-road equipment used for the quarrying and overburden activities. On-road haul truck activity included in the HRA analysis consists of trucks hauling material to customers from the rock plant and trucks associated with importing mulched green waste to mix with the West Materials Storage Area (WMSA) material as it is used to backfill the quarry pit in Phase 2. A summary of the 2012 EIR HRA impacts are shown in **Tables 3.1-5** and **3.1-6**.

TABLE 3.1-5
2012 RECLAMATION PLAN AMENDMENT HEALTH RISK SUMMARY

Risk	MEIR - Child Resident South of Stevens Creek Blvd. (per million)	Caretaker's Residence (per million)
Cancer – Draft 2012 EIR	8.98	8.61
BAAQMD significance thresholds	10	10
Exceeds threshold?	No	No

NOTE: MEIR: maximally exposed individual receptor.

SOURCE: Draft 2012 EIR Section 4.3.5.1, Tables 4.3-8 and 4.3-11.

TABLE 3.1-6
2012 RECLAMATION PLAN AMENDMENT ESTIMATED CHRONIC AND ACUTE HAZARD IMPACTS

Health Risk	Location	2012 EIR Value[a]
Chronic	MEIR	0.13
Acute	MEIR	0.52

NOTE:
a The chronic and acute risk values from the 2012 EIR were reported for the caretaker's residence.

SOURCE: Draft 2012 EIR Section 4.3.5.1, Tables 4.3-10 and 4.3-13.

$PM_{2.5}$ Concentrations

As shown in **Table 3.1-7**, the 2012 EIR determined that the maximum incremental annual $PM_{2.5}$ exhaust concentration at the maximally exposed individual receptor (MEIR) at the caretaker's residence would be 0.40 µg/m^3 without mitigation, which would exceed the BAAQMD threshold of 0.3 µg/m^3. The 2012 EIR identified Mitigation Measures 4.3-3a and 4.3-3b to reduce $PM_{2.5}$ concentrations to below the threshold. These mitigation measures would be implemented as part of the baseline condition, and compliance with the requirement to implement them would be an independently enforceable obligation of the 2012 approvals.

TABLE 3.1-7
ESTIMATED $PM_{2.5}$ CONCENTRATION IMPACTS (µG/M^3)

Location	Annual Average Concentration
2012 EIR Value[a] (Unmitigated)	0.40
2012 EIR Value[a] (Mitigated)	0.29

NOTE:
a The $PM_{2.5}$ concentration from the Draft 2012 EIR is reported for the caretaker's residence.

SOURCE: Draft 2012 EIR. Section 4.3.5.1, Table 4.3-15.

3.1.3.3 Discussion of Criteria with No Air Quality Impact

Criteria a) and e) as set forth in Section 3.1.2 were eliminated from more detailed consideration in the 2012 EIR for the reasons explained on Draft 2012 EIR pages 4.3-16 and 4.3-17. For similar reasons as explained there, the PCRP would not have the potential to cause a significant impact related to these criteria. The discussion associated with criterion a) has been revised as shown below to reflect the new applicable air quality plan, but there are no changes to the odors discussion of criterion e); therefore, this criterion is not considered further in this SEIR.

a) Whether the Project would conflict with or obstruct implementation of the applicable air quality plan.

The most recently adopted air quality plan for the PCRP area is the 2017 CAP. The 2017 CAP focuses on two closely related goals: protecting public health and protecting the climate. The 2017 CAP is an update to the BAAQMD's 2010 Ozone Strategy to comply with state air quality planning requirements. The 2017 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The 2017 CAP control strategy includes revised, updated, and new measures in the three control measure categories: stationary sources, transportation, and buildings and energy.

Any project that would not support the 2017 Clean Air Plan goals would not be considered consistent with the 2017 CAP. The BAAQMD-recommended measure for determining PCRP support of these goals is consistency with CEQA thresholds of significance. If the CEQA thresholds of significance are exceeded, then the PCRP would not be considered to support the 2017 CAP goals, and the associated impact would be significant. As presented in the Impact 3.1-1 discussion below, the PCRP would not exceed the BAAQMD significance thresholds; therefore, the PCRP would be considered to support the primary goals of the 2017 CAP, and would have no significant impact.

2017 CAP Transportation Control Measure TR22, *Construction, Freight, and Farming Equipment*, would be the only measure applicable to the PCRP. It provides incentives for the early deployment of electric, Tier 3, and Tier 4 off-road engines used in construction, freight, and framing equipment. Lack of consistency with these incentives could be considered a significant impact associated with conflict with or obstruction of implementation of the applicable air quality plan. Lehigh has committed to using off-road diesel construction equipment compliant with U.S. EPA Tier 4 Final engine standards. Therefore, the PCRP would be consistent with the intent of Transportation Control Measure TR22, and there would be no significant impact.

In summary, the PCRP would support the primary goals of the 2017 CAP, it would include all applicable 2017 CAP control measures, and it would not disrupt or hinder implementation of any 2017 CAP control measures. Therefore, the PCRP would not conflict with or obstruct implementation of the 2017 CAP and there would be **no new significant impact and no substantial increase in the severity of the significant impact** than was identified in the 2012 EIR.

3.1.3.4 Direct and Indirect Effects of the Project

The analysis in this section evaluates the potential significance of the change in the physical environment that would be caused by implementation of the PCRP relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the PCRP would cause one or more new significant impacts or more severe significant impacts than were disclosed in the 2012 EIR. For the reasons discussed below, implementation of the PCRP would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

Impact 3.1-1: The PCRP would generate emissions of criteria air pollutants that could contribute to existing nonattainment conditions and further degrade air quality.

This impact analysis corresponds to 2012 EIR significance criteria b) and c) as set forth in Section 3.1.2 and addresses PCRP-related emissions of criteria air pollutants that could contribute to cumulative adverse air quality conditions and further degrade air quality. In the context of Impact 4.3-1 (page 4.3-18 et seq.), the 2012 EIR concluded that interim reclamation activities, including those proposed within the PCRA, would be less than significant because net emissions reductions would result for all nonattainment air pollutants (PM_{10}, $PM_{2.5}$, and the ozone precursors NO_x and ROG), and therefore would not exceed the BAAQMD daily or annual thresholds of significance. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** than was disclosed in the 2012 EIR for significance criterion b) or c).

As presented in the *Emissions Estimates* discussion under *Criteria Pollutants*, in Section 3.1.3.1, *Methodology*, the criteria pollutant emissions that would be generated associated with the PCRP would be short term and periodic in nature and would occur during the dry seasons of years 2024 through 2029. Below are summaries of the PCRP criteria pollutant and ozone precursor emissions estimate results in terms of applicable PCRP emission estimates compared to the CEQA baseline. For summaries of the total PCRP emissions estimates by phase prior to and after the use of applicability factors to remove the emissions considered to have already been evaluated in the 2012 EIR, see Appendix D.

PCRP Emissions Estimates Compared to CEQA Baseline

Table 3.1-8 presents the net maximum pounds per day emissions relative to the PCRP emissions that were not evaluated in the 2012 EIR combined with the 2012 Reclamation Plan Amendment maximum daily incremental change emissions disclosed in 2012 EIR. As shown in the table, the PCRP maximum daily emissions reflect a slight increase in emissions for PM_{10}, $PM_{2.5}$, NO_x and ROG (but still an overall net emissions reduction in the context of the 2012 EIR) and no change for SO_2 compared to the maximum daily incremental change emissions disclosed in the 2012 EIR.

TABLE 3.1-8
MAXIMUM DAILY NET CRITERIA POLLUTANT EMISSIONS (POUNDS/DAY)

Scenario	PM_{10}	$PM_{2.5}$	NO_x	ROG	CO	SO_2
Reclamation Plan Amendment Maximum Daily Incremental Change Disclosed in 2012 EIR[a]	(3,441)	(582)	(316)	(44)	(750)	5
PCRP Maximum Daily Emissions (2023) not Evaluated in the 2012 EIR[b]	196.20	26.62	8.51	1.13	27.90	0.08
Net Emissions	(3,245)	(555)	(307)	(43)	(722)	5
BAAQMD Threshold	82	54	54	54	None	None
Significant Impact (Yes or No)?	No	No	No	No	--[c]	--[d]

NOTES:
a Reclamation Plan Amendment maximum daily incremental change emissions were estimated using AP-42, Offroad2007, and EMFAC2007, Version 2.3. Values in (parentheses) are net reductions for Reclamation Plan Amendment Project presented in the 2012 EIR minus baseline emissions.
b PCRP maximum daily emissions were estimated using CalEEMod version 2020.4.0, EMFAC2021, and U.S. EPA's AP-42.
c See Impact 3.1-2 for a discussion of CO significance.
d The Bay Area is in attainment for SO_2 standards so a CEQA threshold of significance has not been established by the BAAQMD.

SOURCE: Draft 2012 EIR Section 4.3.5.1, Table 4.3-3; Appendix D, Exhibit A.

Table 3.1-9 presents the net maximum tons per year emissions relative to the PCRP emissions that were not evaluated in the 2012 EIR combined with the 2012 Reclamation Plan Amendment maximum annual incremental change emissions disclosed in 2012 EIR. As shown in the table, the PCRP maximum annual emissions are not substantial and reflect only a slight increase in net emissions compared to the maximum annual incremental change emissions disclosed in the 2012 EIR.

TABLE 3.1-9
MAXIMUM ANNUAL NET CRITERIA POLLUTANT EMISSIONS (TONS/YEAR)

Scenario	PM10	PM2.5	NO_x	ROG	CO	SO_2
Reclamation Plan Amendment Maximum Daily Incremental Change Disclosed in 2012 EIR[a]	(463)	(77)	(23)	(6)	(66)	2
PCRP Maximum Annual Emissions (2023) not Evaluated in the 2012 EIR	11.45	1.71	0.56	0.07	1.84	0.01
Maximum Annual Incremental Change	(452)	(75)	(22)	(6)	(64)	2
BAAQMD Threshold	15	10	10	10	None	None
Significant Impact (Yes or No)?	No	No	No	No	--[c]	--[d]

NOTES:
a Reclamation Plan Amendment maximum daily incremental change emissions were estimated using AP-42, Offroad2007, and EMFAC2007, Version 2.3. Values in (parentheses) are net reductions for Reclamation Plan Amendment Project presented in the 2012 EIR minus baseline emissions.
b PCRP maximum daily emissions were estimated using CalEEMod version 2020.4.0, EMFAC2021, and U.S. EPA's AP-42.
c See Impact 3.1-2 for a discussion of CO significance.
d The Bay Area is in attainment for SO_2 standards so a CEQA threshold of significance has not been established by the BAAQMD.

SOURCE: Draft 2012 EIR Section 4.3.5.1, Table 4.3-4; Appendix D, Exhibit A.

Impact Conclusion

As can be seen from the data in Tables 3.1-8 and 3.1-9, implementation of the PCRP would continue to result in net emissions reductions when combined with the 2012 Reclamation Plan Amendment maximum daily incremental change emissions disclosed in 2012 EIR for all nonattainment air pollutants (PM_{10}, $PM_{2.5}$, and the ozone precursors NOx and ROG), and therefore would not exceed the BAAQMD daily or annual thresholds of significance.

As identified in the County's 2012 EIR, this would be a less-than-significant impact. Accordingly, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** than was disclosed in the 2012 EIR relating to a contribution to existing nonattainment conditions. The significance of CO emissions from the Project is addressed in Impact 3.1-2, below.

Baseline Mitigation from 2012 EIR: None required.

Additional Mitigation: None required.

Impact 3.1-2: PCRP-related traffic would generate localized CO emissions on roadways and at intersections in the PCRP vicinity.

This impact analysis corresponds to 2012 EIR significance criterion d) as set forth in Section 3.1.2 and addresses PCRP-generated localized CO emissions. In the context of Impact 4.3-2 (page 4.3-21 et seq.), the 2012 EIR concluded that interim reclamation activities, including restoration activities within the PCRA, would result in a less-than-significant impact because traffic emissions would not lead to violations of the CO standards. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** than was disclosed in the 2012 EIR for significance criterion d).

The 2017 BAAQMD CEQA Air Quality Guidelines recommend use of the same screening criteria for the evaluation of CO emissions on roadways and intersections as recommended in the 2012 Guidelines that were used in the 2012 EIR analysis. Under the recommended criteria, a project would result in a less-than-significant impact on localized CO concentrations if the following screening criteria are met:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The PCRP would result in the temporary generation of vehicle trips but would not exceed the standards included in the Santa Clara County Congestion Management Plan established by the Santa Clara Valley Transportation Authority. Regarding the second and third criteria, intersection traffic volumes (including external PCRP traffic) would be substantially less than 44,000 and 24,000 vehicles per hour, respectively. The estimated increase in traffic volumes caused by reclamation-related traffic (a maximum of approximately 127 round trips per day) would not be substantial, nor would PCRP traffic significantly disrupt daily traffic flow on area roadways.

Based on the BAAQMD's criteria, PCRP-related traffic would not lead to violations of the CO standards and, therefore, no further analysis is required for CO impacts of the PCRP; as disclosed in the 2012 EIR, the impact continues to be less than significant.

Baseline Mitigation from 2012 EIR: None required.

Additional Mitigation: None required.

Impact 3.1-3: The PCRP would expose sensitive receptors to increased levels of toxic air contaminants, which could lead to an increase in the risk of cancer.

This impact analysis corresponds to 2012 EIR significance criterion d) as set forth in Section 3.1.2 and addresses exposure to TACs that would be generated by the PCRP that could lead to an increase in the risk of cancer. In the context of Impact 4.3-3 (page 4.3-26 et seq.), the 2012 EIR concluded that interim reclamation activities, including the restoration activities proposed within the PCRA, would result in total cancer risks that would be above the BAAQMD CEQA threshold of 10 in one million for the residence-adult but below the threshold for residence-child and school children; however, the significant impact was found to be reduced to a less-than-significant level with implementation of Mitigation Measures 4.3-3a and 4.3-3b (or, alternatively, Mitigation Measure 4.3-3c). As previously noted, all mitigation measures identified in the 2012 EIR and adopted as conditions of approval for the 2012 Project would be implemented as part of the baseline condition for the PCRP. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** related to cancer risk than was disclosed in the 2012 EIR related to significance criterion d).

Cancer risks were modeled for activities that would emit DPM and metals, which include diesel equipment and fugitive dust containing metals at the PCRP disturbance areas, as well as diesel trucks and fugitive dust containing metals on paved and unpaved roads. Cancer risk was calculated using the resulting DPM and metals concentrations modeled with AERMOD, along with equations and factors from the OEHHA 2003 *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003; BAAQMD 2016). Cancer risk represents a cumulative exposure over the duration of the Project.

Table 3.1-10 presents the modeled cancer risk of 0.51 in one million at the MEIR location, which is a residence just south of Stevens Creek Boulevard, approximately 2,500 feet east of the Permanente Quarry entrance. This represents the cancer risk for the PCRP duration from 2024 through 2029, as cancer risk is cumulative over the exposure duration.

The MEIR identified in the 2012 EIR was modeled at the caretaker's residence, and the second-highest cancer risk was modeled at a residence near Stevens Creek Boulevard. For the purposes of this analysis, this is assumed to be the same residence as this HRA's MEIR. Cancer risk values for the 2012 EIR and this HRA are shown for the caretaker's residence and the residence just south of Stevens Creek Boulevard.

TABLE 3.1-10
ESTIMATED CANCER RISK AT THE MEIR AND CARETAKER'S RESIDENCE

Risk	MEIR - Child Resident South of Stevens Creek Blvd. (per million)	Caretaker's Residence (per million)
Cancer - PCRP	0.51	0.03
Cancer – Draft 2012 EIR	8.98	8.66
Combined Total	9.49	8.70
BAAQMD significance thresholds	10	10
Exceeds threshold?	No	No

SOURCE: 2012 EIR Section 4.3.5.1, Tables 4.3-11 and 4.3-12; Appendix D, Exhibit B.

As shown in Table 3.1-10, the incremental risk at the MEIR, when added to the value from the 2012 EIR, is below the BAAQMD CEQA threshold of 10 in one million. This also is true for the value at the caretaker's residence. Most of the cancer risk is due to DPM that would be generated from on-road diesel trucks traveling past neighborhoods close to Stevens Creek Boulevard.

When the 2012 EIR was certified, the 2015 OEHHA guidance was not available nor was its release reasonably foreseeable. The impact conclusion in that certified EIR remains valid, as it was based on the latest analysis methodology at that time. However, since the updated guidance from OEHHA was used for this SEIR, the risk results from the 2012 EIR have been adjusted to illustrate what the risks would be using the most recent OEHHA guidance. This was done for information and disclosure purposes only and does not change the conclusion of the less-than-significant impact in the 2012 EIR.

Based on research conducted by OEHHA after the 2003 *Air Toxics Hot Spots Program* (used in the 2012 EIR) was promulgated, OEHHA found that children are more susceptible to the effects of carcinogens, in part due to their higher breathing rates resulting in increased intake of these compounds. Thus, the 2015 OEHHA guidance methods reflect this updated approach. The health risk values based on the exposure parameters from the OEHHA 2015 *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) are provided herein. Using the exposure parameters from the 2015 OEHHA guidance, the cancer risk value for the 2012 EIR would be approximately 12.34 in one million, and the cancer risk value for the PCRP would be approximately 0.78 in one million, for a total risk of approximately 13.12 in one million. The 2012 EIR risk was multiplied by a factor of 1.37 to adjust it to 2015 OEHHA exposure parameters (the 2012 OEHHA result multiplied by the factor equals the 2015 OEHHA result or [8.98 per million] x 1.37 = [12.34 per million]). This factor was derived from breathing rate ratios from the 2015 OEHHA guidance to the 2003 OEHHA guidance. Based on the

exposure parameters from the 2015 OEHHA guidance, the risk from the PCRP on its own would neither cause a new significant impact nor result in a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

> **Baseline Mitigation from 2012 EIR:** Mitigation Measure 4.3-3a and either Mitigation Measure 4.3-3b or Mitigation Measure 4.3-3c. The full text of each measure is provided in Draft SEIR Table H1, *Impacts and Mitigation Measures for the 2012 Permanente Quarry Reclamation Plan Amendment*.
>
> **Additional Mitigation:** None required.

Impact 3.1-4: The PCRP would expose sensitive receptors to increased levels of toxic air contaminants, which could increase chronic and acute health risks.

This impact analysis corresponds to 2012 EIR significance criterion d) as set forth in Section 3.1.2 and addresses exposure to TACs that would be generated by the PCRP that could increase chronic and acute health risks. In the context of Impact 4.3-4 (page 4.3-31 et seq.), the 2012 EIR concluded that interim reclamation activities, including those within the PCRA, would result in a less-than-significant impact because the chronic hazard would be below the significance threshold of 1.0. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** than was disclosed in the 2012 EIR for significance criterion d) relating to chronic hazard.

Chronic and acute, non-cancer health risks were evaluated based on emissions of pollutants with such health effects. DPM and some of the metals found in the fugitive dust at the PCRP disturbance areas and in road dust result in chronic health effects. In addition, some of the metals result in acute (short-term) health effects, but DPM does not have a short-term, acute health risk effect. Acute impacts were modeled at residential receptors and at locations where the public could have access on a short-term basis. As discussed in Draft 2012 EIR Section 4.3.1.1, these receptors include the trails north of the Project site and the Gate of Heaven cemetery to the northeast of the Project site.

Non-cancer adverse health risks, both for acute (short-term) and chronic (long-term) timeframes, are measured against a Hazard Index, which is defined as the ratio of the incremental exposure concentrations of the various non-carcinogens from the project to published RELs that can cause adverse health effects. OEHHA establishes the RELs based on epidemiological evidence. The ratio (referred to as the Hazard Quotient) of each substance with a non-carcinogenic effect that affects a certain organ system is added to produce an overall Hazard Index for that organ system. As a worst case, it was assumed that all of the toxic substances with established RELs would affect the same organ and the individual Hazard Quotients were summed to calculate an overall Hazard Index. If the Hazard Index exceeds 1.0, the potential health impact would be significant.

Table 3.1-11 presents the maximum chronic Hazard Index, plus the maximum acute Hazard Index. The maximum impact location for both the chronic and acute Hazard Indices is the MEIR located just south of Stevens Creek Boulevard. The maximum chronic and acute Hazard Index

values would occur based on activities in the years 2025 and 2029, respectively. As shown in Table 3.1-11, the maximum chronic and acute Hazard Indices for the PCRP combined with the 2012 EIR index values indicates that the impacts associated with the 2012 Reclamation Plan Amendment would continue to be less than significant, and there would be no new significant impact and no substantial increase in the severity of a previously-identified significant impact. The maximum acute Hazard Index would be due primarily to nickel (as a component in fugitive dust from the roadway).

TABLE 3.1-11
ESTIMATED CHRONIC AND ACUTE HAZARD IMPACTS

Health Risk	PCRP Hazard Index	Location	Year	2012 EIR Value[a]
Chronic	0.01	MEIR	2025	0.13
Acute	0.06	MEIR	2029	0.52

NOTE:
a The chronic and acute risk values from the 2012 EIR were reported for the caretaker's residence.

SOURCE: Draft 2012 EIR Section 4.3.5.1, Tables 4.3-13 and 4.3-14; Appendix D, Exhibit B.

Baseline Mitigation from 2012 EIR: None required.

Additional Mitigation: None required.

Impact 3.1-5: The PCRP would increase exhaust emissions of $PM_{2.5}$, which could adversely affect human health.

This impact analysis corresponds to 2012 EIR significance criterion d) as set forth in Section 3.1.2 and addresses exposure to $PM_{2.5}$ exhaust emissions that would be generated by the PCRP that could affect human health. In the context of Impact 4.3-5 (page 4.3-32 et seq.), the 2012 EIR concluded that interim reclamation activities, including those proposed within the PCRA, would result in $PM_{2.5}$ exhaust concentrations that would be above the BAAQMD CEQA threshold of 0.3 $\mu g/m^3$; however, the significant impact was found to be reduced to a less-than-significant level with implementation of Mitigation Measures 4.3-3a and 4.3-3b (or, alternatively, Mitigation Measure 4.3-3c). These mitigation measures would continue to be implemented as an ongoing, independently enforceable obligation of the 2012 approvals. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** than was disclosed in the 2012 EIR for significance criterion d) relating to $PM_{2.5}$ exhaust-related impacts on human health.

An analysis was conducted to determine the maximum annual increase in $PM_{2.5}$ exhaust concentrations for sensitive receptors in the vicinity of the PCRP. BAAQMD policy is to conduct this analysis for exhaust emissions only. Under the PCRP, Lehigh would continue to comply with its existing Fugitive Dust Control Plan (dated January 21, 2011).

As shown in **Table 3.1-12**, the maximum incremental annual $PM_{2.5}$ concentration at the MEIR south of Stevens Creek Boulevard would be 0.001 µg/m^3, which would be below the BAAQMD threshold of 0.3 µg/m^3 and would therefore result in a less-than-significant impact. Therefore, implementation of the PCRP would not result in a new significant and no substantial increase in the severity of a significant $PM_{2.5}$ concentration impact than was disclosed in the 2012 EIR.

TABLE 3.1-12
ESTIMATED PM2.5 CONCENTRATION IMPACTS (µG/M^3)

Location	Annual Average Concentration
PCRP MEIR – South of Stevens Creek Boulevard	0.001
2012 EIR Value – South of Stevens Creek Boulevard	Not Reported
PCRP MEIR – Caretaker's Residence	<0.001
2012 EIR Value – Caretaker's Residence	0.29
Total at Caretaker's Residence	0.29

SOURCE: See Appendix D, Exhibit B.

Baseline Mitigation from 2012 EIR: Mitigation Measure 4.3-3a and either Mitigation Measure 4.3-3b or Mitigation Measure 4.3-3c. The full text of each measure is provided in Draft SEIR Table H1, *Impacts and Mitigation Measures for the 2012 Permanente Quarry Reclamation Plan Amendment*.

Additional Mitigation: None required.

3.1.4 Cumulative Analysis

The Draft 2012 EIR analyzed potential cumulative effects in Section 6.2.3, *Air Quality* (pages 6-15 and 6-16), concluding that the 2012 Reclamation Plan Amendment, including the creek restoration activities that would occur within the PCRA, would not result in a cumulatively considerable contribution to any significant cumulative effect. For the reasons discussed below, the PCRP would cause **no new significant impact** and **no substantial increase in the severity of a significant impact** in the cumulative context than was disclosed in the 2012 EIR.

3.1.4.1 Criteria Pollutants

The geographic scope of potential cumulative criteria air pollutant impacts encompasses the Project vicinity, Project site, areas along the access and hauls routes to the Project site, and the SFBAAB. The temporal scope includes construction, operation, and maintenance of the Project. The past, present, and reasonably foreseeable future projects described as part of the cumulative scenario include transportation demand management strategies at Rancho San Antonio Open Space Preserve, improvements to Permanente Creek Trail, a baseball park, and a creek widening project that could increase the criteria air pollutant emissions within the Project vicinity and SFBAAB. According to the BAAQMD, no single project is sufficient in size to, by itself, result in nonattainment of ambient

air quality standards within the regional air basin. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the BAAQMD *CEQA Air Quality Guidelines*, if a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts on the region's existing air quality conditions (BAAQMD 2017c). Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts.

As described in Section 3.1.3, *Direct and Indirect Effects*, in the context of Impact 3.1-1, Project emissions of ROG, NO_x, PM_{10}, $PM_{2.5}$, and CO would not exceed the applicable BAAQMD thresholds; therefore, the PCRP would not be cumulatively considerable, and the cumulative impact regarding criteria pollutants would be less than significant.

Baseline Mitigation from 2012 EIR: None required.

Additional Mitigation: None required.

3.1.4.2 Toxic Air Contaminants

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts for individual projects (BAAQMD 2017b). The method for determining health risk requires the tallying of health risk from permitted sources and major roadways in the vicinity of a project, then adding the project impacts to determine whether the cumulative health risk thresholds are exceeded. Cumulative health impacts of cancer risks, chronic impacts, and $PM_{2.5}$ concentrations are analyzed.

BAAQMD has developed a geo-referenced database of permitted TAC emissions sources throughout the San Francisco Bay Area and has developed the *Stationary Source Risk & Hazard Analysis Tool* (2020b) for estimating health risks from permitted sources. The risk and $PM_{2.5}$ values for the two stationary sources closest to the PCRP are shown in **Table 3.1-13**. Based on the BAAQMD stationary source risk tool, these sources contribute negligible cancer, chronic, and $PM_{2.5}$ risks to the closest receptor (BAAQMD 2020b). BAAQMD also has developed a geo-referenced database of mobile sources and has estimated risk and $PM_{2.5}$ values from highways, major streets, and rail throughout the SFBAAB. Risk and $PM_{2.5}$ values provided by BAAQMD in a geographic information system (GIS) database are shown in a screenshot at the end of Appendix D, Exhibit B. These values are shown for the MEIR location in Table 3.1-13. In addition, the values disclosed in the 2012 EIR for the 2012 Reclamation Plan Amendment cement trucks on Stevens Creek Boulevard are also included in the table to show the health impacts resulting from ongoing truck traffic on Stevens Creek Boulevard associated with the hauling of cement and aggregate from the Lehigh Quarry site.

TABLE 3.1-13
CUMULATIVE HEALTH IMPACTS

Facility/Source Type	Address	Cancer Risk (per million)	Acute Hazard Index[a]	Chronic Hazard Index[a]	PM2.5 (µg/m^3)[a]
Reclamation Plan Amendment Cement Trucks Disclosed in 2012 EIR	Stevens Creek Boulevard east of Ridgeway Drive	8.98	0.52	0.13	0.29
Nearby Major Streets	N/A	0.15	N/A	N/A	0.003
Rail	N/A	1.01	N/A	N/A	0.002
Nearby Highways	N/A	3.85	N/A	N/A	0.108
Santa Clara Co. Fire Dept.	22620 Stevens Creek Blvd	1.32	0	0	0
Sunny View Retirement Community	22445 Cupertino Road	2.92	0	0	0
PCRP MEIR	South of Stevens Creek Boulevard	0.51	0.06	0.01	0.001
Total: PCRP + Cumulative		18.74	0.58	0.14	0.404
BAAQMD Cumulative Significance Criteria		**100**	**10**	**10**	**0.8**
Significant Cumulative Impact?		**No**	**No**	**No**	**No**

NOTES:
a The locations of maximum impact disclosed in the 2012 EIR are reported at the caretaker's residence, so adding the maximum impacts together is an overestimate of what the actual maximum cumulative impact would be at the MEIR sensitive receptor for the PCRP (located adjacent to Stevens Creek Boulevard).

SOURCES: Draft 2012 EIR Section 4.3.5.1, Table 4.3-11; Appendix D, Exhibit B; BAAQMD, 2020b, Permitted Stationary Source Risks and Hazards map.

Table 3.1-13 shows the cumulative cancer risk, chronic hazard, and $PM_{2.5}$ concentrations (in µg/m^3) associated with trucks on Stevens Creek Boulevard and the PCRP. As indicated in Table 3.1-13, the cumulative total cancer risk, acute and chronic hazard, and $PM_{2.5}$ concentrations would be below the respective BAAQMD significance thresholds; therefore, the proposed PCRP would not be cumulatively considerable, and the cumulative health risk impact would be less than significant.

Baseline Mitigation from 2012 EIR: None required.

Additional Mitigation: None required.

3.1.5 References

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