SECTION 11.0

Air Quality

11.1 Introduction

This chapter provides an evaluation of the potential impacts to air resources associated with the Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project), including a brief description of the existing conditions, with an overview of the regulatory setting, climate and meteorology, existing air quality, and operational setting of the Proposed Project. The Proposed Project is expected to generate construction emissions, which would have less-than-significant impacts with implementation of Project Design Measures. The Proposed Project is also expected to generate operation emissions, carbon monoxide (CO) from increased vehicle trips, and odors from operation, which would have less-than-significant impacts with implementation of Project Design Measures based on current land use in the area. The impact assessment methodology, potential impacts of the Proposed Project, and proposed mitigation measures are also presented in this report.

11.2 Methodology

Several methodologies were developed and used to estimate emissions and perform dispersion modeling for the Proposed Project. Emissions were estimated for the incremental increase in activity associated with the Proposed Project, and were not calculated for activity associated with the existing landfill. Methodologies were developed and used for the following:

- Construction Emission Calculations, including construction exhaust and construction fugitive dust.
- Operation Emission Calculations; including operation exhaust, stationary source exhaust, operation fugitive dust, and fugitive landfill gas (LFG).
- Dispersion Modeling.
- Health Risk Assessment (HRA).
- CO Hotspot Analysis.
- Odor Analysis.

Complete methodology details are included in Appendix H.

As part of the methodology, best management practices (BMP) to reduce emissions during construction and operation were developed. These BMPs are listed below and are also incorporated into the Proposed Project as Project Design Measures.

Construction Emissions Reductions BMPs:

- The construction equipment would be equipped with engines meeting California Air Resources Board (CARB) requirements for a large fleet at the time of construction (CARB, 2013a). This would include a combination of Tier 3 and Tier 4 compliant equipment.
- The construction equipment would be equipped with diesel particulate filters (DPF) and lean nitrogen oxides (NOx) catalyst, which would result in an 85 percent reduction for particulate matter and a 40 percent reduction for NOx (United States Environmental Protection Agency [EPA], 2013f).
- Unnecessary truck and equipment idling would be limited to less than 2 minutes, to the extent feasible.
- Use of all construction equipment would be suspended during second stage smog alerts (SCAQMD, 1993).

- Fugitive dust from vehicle travel on paved roads would be controlled using a 25-foot-long gravel trackout apron, which would result in a 46 percent reduction in particulate matter emissions (South Coast Air Quality Management District [SCAQMD], 2013a and 2013b). Paved roads would be cleaned three times daily using a SCAQMD-approved street sweeper, which would result in an additional 45 percent emissions reduction for particulate matter (Western Regional Air Partnership [WRAP], 2006a).
- Fugitive dust from vehicle travel on unpaved roads would be controlled through watering two times daily, the use of dust palliatives, paving as much as possible, and limiting the maximum vehicle speed to 15 miles per hour, which would result in a combined effective control efficiency of 90 percent (SCAQMD, 2013c; WRAP, 2006b).
- Fugitive dust from soil disturbance would be suppressed with hourly watering and dust suppressant application, which would reduce particulate matter emissions by 90 percent (WRAP, 2006c).

Operation Emissions Reductions BMPs:

- The off-road diesel equipment would be equipped with engines meeting Tier 4 emission standards.
- The off-road diesel equipment would be equipped with DPF, which would result in an 85 percent reduction for particulate matter and a 40 percent reduction for NOx (EPA, 2013f).
- Unnecessary truck and equipment idling would be limited to less than 2 minutes, to the extent feasible.
- Use of all off-road diesel equipment would be suspended during second stage smog alerts (SCAQMD, 1993).
- Fugitive dust BMPs for vehicle travel on paved roads, vehicle travel on unpaved roads, and soil disturbance would be the same as described above for construction.

11.3 Regional Setting

11.3.1 Geography and Topography

CCL, located in the northwestern portion of unincorporated Los Angeles County, is approximately 3 miles west of the intersection of Interstate 5 (I-5) and State Route 126 (SR-126). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and -118°39'W, respectively. The landfill is located within a series of canyons that make up the current and future cells containing disposed waste. These canyons are oriented in a north-northeast to south-southwest manner and broaden to form the Santa Clarita River floodplain along the south. CCL is located in Los Angeles County, within the planning area of the City of Santa Clarita, but outside its city limits and sphere of influence. The landfill site is also located in the Santa Clarita Valley Area Plan of the Los Angeles County General Plan and in the Castaic Area Community Standards District.

Access to the site is from SR-126 (Henry Mayo Drive), a four-lane paved highway running east-west along the southern boundary of CCL. Access to CCL at SR-126 includes left-turn and right-turn deceleration lanes for traffic entering the site. A detailed discussion of the traffic conditions and the circulation network that affect air quality conditions is presented in Chapter 10.0, Traffic and Transportation.

Figure 11-1 shows the various land use/land classifications surrounding the landfill. As shown in the figure, low intensity to high intensity developed land is located immediately northwest, northeast, and east of the landfill, indicating residential and commercial use areas.

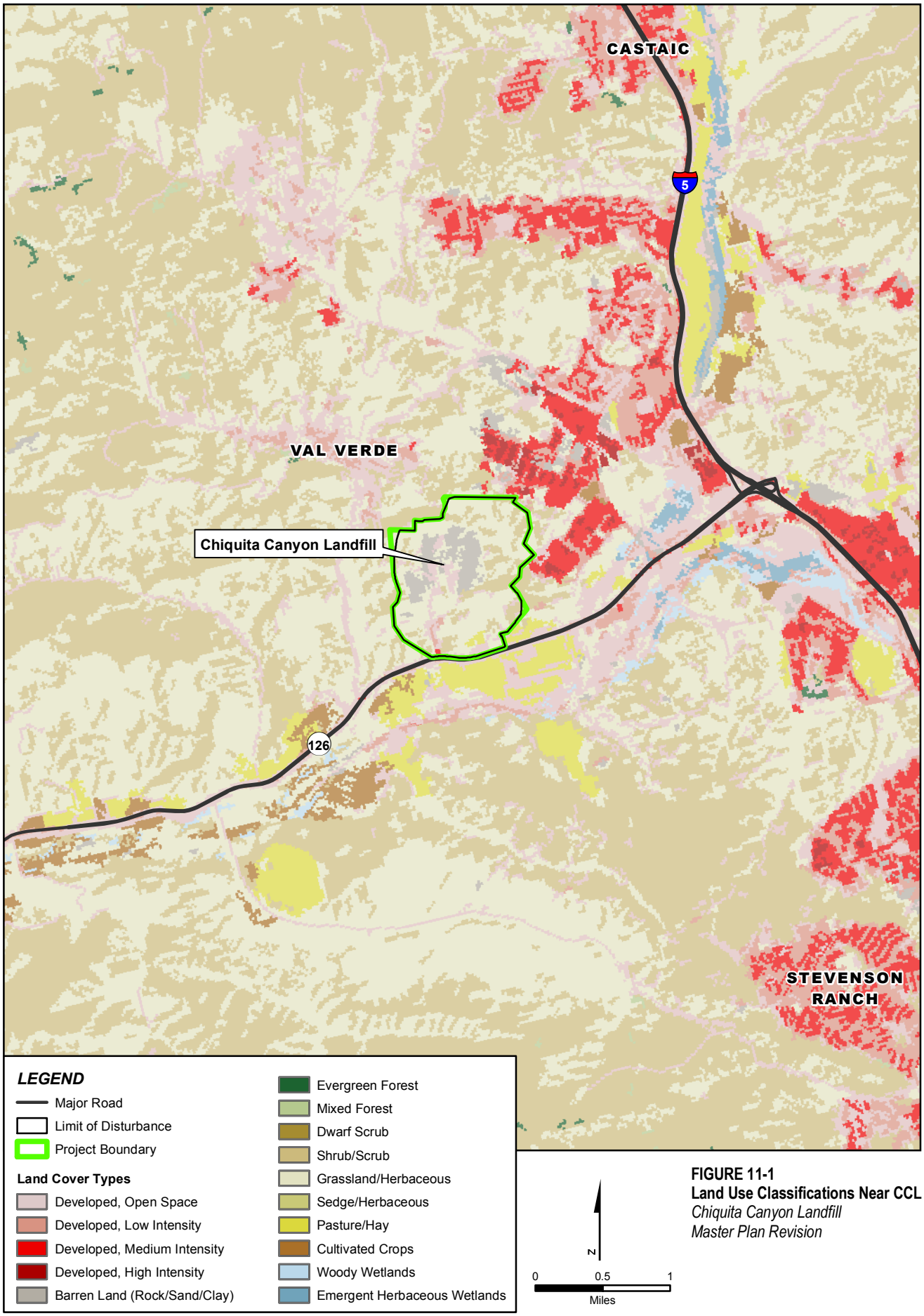

FIGURE 11-1
Land Use Classifications Near CCL
Chiquita Canyon Landfill
Master Plan Revision

Source: U.S. Geological Survey, 2006

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11.3.2 Climate and Meteorology

The climate of the Santa Clarita Valley region is characterized as Mediterranean. Winters are generally cool and moderately wet, while summers tend to be hot and dry, with occasional subtropical moisture entering the area. Extreme temperatures are moderated by the region's proximity to the Pacific Ocean causing small daily and seasonal fluctuations. Poor pollution dispersion conditions result from the persistent temperature inversions found on most days.

Climatological data for CCL were gathered from nearby weather stations located about 6 to 18 miles from the site. The temperature ranges from a minimum of 39 degrees Fahrenheit (°F) in December and January to a maximum of 95°F in July, with an annual mean temperature of 63.5°F. Rainfall averages about 14 inches annually, with approximately 90 percent of the precipitation occurring from November through April. There are only about 40 days out of the year when precipitation is equal to or greater than 0.01 inch (City of Santa Clarita, 1997).

Winds are an important consideration for landfills because they affect the dispersal of contaminants associated with trash disposal. Winds govern the rate and direction of odor diffusion. Winds may blow litter about during high wind conditions, as well as fugitive dust stirred by soil disturbance.

11.3.3 Existing Air Quality

11.3.3.1 Attainment Status

SCAQMD operates a network of ambient air quality monitoring stations located throughout the Basin to characterize the air quality environment. Pollutants monitored include ozone, CO, nitrogen dioxide (NO_2), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and lead. Depending on whether or not the air quality standards are met or exceeded, an area is classified as being in "attainment" or "nonattainment" for each pollutant. The Basin currently exceeds state and federal ambient air quality standards for several pollutants and is required to implement strategies that would reduce the pollutant levels to achieve the recognized standards. The area where the project is located is designated as nonattainment for the state ozone, PM_{10}, $PM_{2.5}$, NO_2, and lead standards. The area is designated as nonattainment for the federal 8-hour ozone, $PM_{2.5}$, and lead standards. Table 11-1 shows the current attainment status for regulated air pollutants in the air basin.

TABLE 11-1
Attainment Designations of the Project Area

Pollutant	State Designation	Federal Designation
Ozone	1-hour: Nonattainment (Extreme) 8-hour: Nonattainment	1-hour: N/A 8-hour: Nonattainment (Extreme)
CO	1-hour: Attainment 8-hour: Attainment	1-hour: Attainment 8-hour: Attainment
NO_2	1-hour: Nonattainment Annual: Nonattainment	1-hour: Attainment Annual: Attainment
SO_2	1-hour: Attainment 24-hour: Attainment	1-hour: Attainment 24-hour: N/A
PM_{10}	24-hour: Nonattainment Annual: Nonattainment	24-hour: Maintenance Annual: N/A
$PM_{2.5}$	24-hour: N/A Annual: Nonattainment	24-hour: Nonattainment Annual: Nonattainment
Lead	Nonattainment	Nonattainment
H_2S, Sulfates	Unclassified, Attainment	No federal standard, No federal standard

Notes:

N/A = not applicable

Sources: CARB, 2013c; EPA, 2013b

11.3.3.2 Air Monitoring Data

Ambient air quality data were taken from data published by CARB (on the Aerometric Data Analysis and Management [ADAM] website) and EPA (on the AirData website). Ambient concentrations of ozone, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ are recorded at monitoring stations located throughout the South Coast Air Basin, in which CCL is located. Three of the nearest monitoring stations were used to gather information regarding the air quality around Chiquita Canyon: Burbank – W Palm Avenue, Reseda, and Santa Clarita stations. The Santa Clarita station is the closest to the project site, approximately 7 miles from the landfill entrance. SO_2 and $PM_{2.5}$ monitoring data are not available at the Santa Clarita station, therefore, the Burbank and Reseda stations were used for SO_2 and $PM_{2.5}$ data, respectively. A summary of the maximum monitored criteria pollutant concentrations is presented in Table 11-2.

TABLE 11-2
Summary of Monitoring Data – Maximum Concentrations

Pollutant	Averaging Time	2009	2010	2011
CO (ppm)	1-hour[a]	1.8	1.5	1.2
	Days of State Exceedances	0	0	0
	Days of Federal Exceedances	0	0	0
	8-hour[b]	1.35	1.15	0.79
	Days of State Exceedances	0	0	0
	Days of Federal Exceedances	0	0	0
O_3 (ppm)	1-hour[b]	0.140	0.126	0.144
	Days of State Exceedances	57	18	31
	8-hour[b]	0.122	0.105	0.122
	Days of State Exceedances	77	41	52
	Days of Federal Exceedances	64	23	31
NO_2 (ppm)	Annual Average[b]	0.015	0.014	0.013
	Federal Exceedances	N	N	N
	1-hour[b]	0.060	0.059	0.060
	Days of State Exceedances	0	0	0
SO_2 (ppm)	Annual Average	0.001	0.001	N/A
	24-hour[b]	0.003	0.004	0.002
	Days of State Exceedances	0	0	0
	3-hour[a]	0.008	0.010	0.0075
	Days of Federal Exceedances	0	0	0
	1-hour[a]	0.013	0.015	0.009
	Days of State Exceedances	0	0	0
PM_{10} (µg/m^3)	Annual Arithmetic Mean[b]	23.9	21.0	20.9
	State Exceedances	Y	N	N
	24-hour[b]	56	40	45
	Days of State Exceedances	1	0	0
	Days of Federal Exceedances	0	0	0

TABLE 11-2
Summary of Monitoring Data – Maximum Concentrations

Pollutant	Averaging Time	2009	2010	2011
$PM_{2.5}$ (µg/m³)	Annual Arithmetic Mean[a]	11.38	10.17	10.2
	State Exceedances	N	N	N
	Federal Exceedances	N	N	N
	24-hour[a]	39.9	40.7	39.8
	Federal Exceedances	N	N	N

[a] Source: EPA, 2013c, http://www.epa.gov/airquality/airdata/ad_rep_mon.html, as of April 2013.

[b] Source: CARB, 2013d, http://www.arb.ca.gov/adam/topfour/topfour1.php, as of April 2013.

Notes:

Monitoring data were taken from the Santa Clarita Monitoring Station monitor, with the exception of SO_2 data, which were taken from the Burbank station, and $PM_{2.5}$ data, which were taken from the Reseda station.

Hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored.

µg/m³ = micrograms per cubic meter

ppm = parts per million (by volume)

Ozone

Ozone is an end product of complex reactions between volatile organic compounds (VOC) and NOx in the presence of intense ultraviolet radiation. VOC and NOx emissions from millions of vehicles and stationary sources, in combination with daytime wind flow patterns, mountain barriers, a persistent temperature inversion, and intense sunlight result in high ozone concentrations.

Short-term and long-term exposure to ozone is a public health concern. Exposure to ozone produces alterations in respiration resulting in shallow, rapid breathing and a decrease in pulmonary performance. Not only does ozone affect breathing patterns, exposure can also result in increased susceptibility to infections, inflammation of lung tissue, and some immunological changes. In addition, ozone can cause substantial damage to leaf tissues of crops and natural vegetation, and damage to many building materials by acting as a chemical-oxidizing agent. For the purpose of state and federal air quality planning, the South Coast Air Basin is designated as a nonattainment area for ozone.

Table 11-2 shows the maximum ozone levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2011, as well as the number of days in which the state and federal standards were exceeded. Both the state and federal ozone standards are based on an 8-hour averaging period with the state limit being 0.07 ppm and the federal limit being 0.075 ppm. State standards also include a 1-hour limit of 0.09 ppm. The data show that the state and federal ozone air quality standards were exceeded in all 3 years. Los Angeles County is considered a nonattainment area for ozone on both the state and federal levels.

Nitrogen Dioxide

Atmospheric NO_2 is formed primarily from reactions between nitric oxide (NO) and oxygen or ozone. NO is formed during high temperature combustion processes (for example, combustion of fuels) when the nitrogen and oxygen in the combustion air combine. Although NO is much less harmful than NO_2, it can be converted to NO_2 in the atmosphere within a matter of hours, or even minutes, under certain conditions.

NO_2 acts as an acute respiratory irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and pulmonary fibrosis. Some increase in bronchitis in young children (2 to 3 years of age) has been observed at concentrations below 0.3 ppm.

Table 11-2 shows the NO_2 levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2011. No exceedances of the state or federal NO_2 standards were recorded during this period.

Carbon Monoxide

CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution. In many areas of California, CO emissions from wood-burning stoves and fireplaces can also be measurable contributors to high ambient levels of CO. Industrial sources typically contribute less than 10 percent of ambient CO levels. Peak CO levels typically occur during winter months, due to a combination of higher emission rates and stagnant weather conditions.

There are no direct toxic effects associated with inhaled CO. However, CO levels are a public health concern because this pollutant competes with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin that results in a reduction in the rate at which oxygen is transported in the blood stream. Both the cardiovascular system and the central nervous system can be affected when 25 to 40 percent of the hemoglobin in the blood stream is bound to CO rather than to oxygen.

Table 11-2 shows the CO levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2011, as well as the number of days in which the state and federal standards were exceeded. Both the state and federal standards include a 1-hour (20 ppm and 35 ppm, respectively) and an 8-hour (9 ppm for both) averaging time. No exceedances occurred between 2009 and 2011 at the Santa Clarita station.

Sulfur Dioxide

SO_2 is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains negligible sulfur, while fuel oils contain much larger amounts. Because of the complexity of the chemical reactions that convert SO_2 to other compounds (such as sulfates), peak concentrations of SO_2 occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography.

Gaseous SO_2 can cause breathing difficulty for people with asthma who are active outdoors, while long-term exposures can cause respiratory illness and aggravate existing heart disease. SO_2 also reacts with other chemicals in the air to form sulfate particles. These particles can gather in the lungs and are associated with increased respiratory symptoms and disease, difficulty in breathing, and premature death. In addition to these physical effects, SO_2 is a contributor to acid rain and accelerates the decay of building materials and paints, including irreplaceable monuments, statues, and sculptures.

Table 11-2 shows the SO_2 levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2011. No exceedances occurred between 2009 and 2011 at the Santa Clarita station.

Coarse Particulates (PM_{10})

Particulates in the air are caused by a combination of wind-blown fugitive dust; particles emitted from combustion sources (usually carbon particles); and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxide (SOx), and NOx. In 1984, CARB adopted standards for PM_{10} and phased out the total suspended particulate (TSP) standards that had previously been in effect. PM_{10} standards were substituted for TSP standards because PM_{10} corresponds to the size range of inhalable particulates related to human health. In 1987, EPA also replaced national TSP standards with PM_{10} standards. PM_{10} are usually found near roadways and dusty industries.

PM_{10} can have damaging effects on health by getting deep into lungs and interfering with the body's mechanism for clearing the respiratory tract; some particles may also get into the bloodstream. Exposure to particulate is linked to a variety of problems including aggravated asthma, increased respiratory symptoms, decreased lung function, chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease. PM_{10} can also be carried over long distances by wind and settle on ground

or water, increasing the acidity of lakes and rivers, changing nutrient balance in coastal waters and river basins, depleting soil nutrients, damaging sensitive forests and farm crops, and impacting ecosystem diversity.

Table 11-2 shows the PM_{10} levels reported at the Santa Clarita monitoring station during the period beginning in 2009 and ending in 2011, as well as the number of days in which the state and federal standards were exceeded. Annual and 24-hour state standards were exceeded in 2009. The federal 24-hour standard was not exceeded between 2009 and 2011.

Fine Particulates ($PM_{2.5}$)

Fine particulates in the air are caused by a combination of particles emitted from combustion sources (usually carbon particles), and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, SOx, and NOx. In 1997, EPA established 24-hour and annual arithmetic mean standards for $PM_{2.5}$. EPA completed its designation of $PM_{2.5}$ attainment and nonattainment areas in 2004. $PM_{2.5}$ requirements are currently in full effect.

$PM_{2.5}$ can have damaging effects on health by getting deep into lungs and interfering with the body's mechanism for clearing the respiratory tract; some particles may also get into the bloodstream. Exposure to particulate is linked to a variety of problems including aggravated asthma, increased respiratory symptoms, decreased lung function, chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease. $PM_{2.5}$ is also a major cause of reduced visibility.

Table 11-2 shows the $PM_{2.5}$ levels reported at the Reseda monitoring station during the period beginning in 2009 and ending in 2011, as well as the number of exceedances of the state and federal standards. The Santa Clarita monitoring station does not monitor for $PM_{2.5}$ levels; therefore, the $PM_{2.5}$ data were from the Reseda station. The $PM_{2.5}$ state and federal standards were not exceeded at this station between 2009 and 2011.

11.4 Regulatory Setting

Air quality management in California is governed by the federal and California Clean Air Acts (CAA) and the California Health and Safety Code. Several levels of government have adopted specific regulations that limit emissions from stationary combustion sources, some of which are applicable to this project. The agencies having authority for this project are shown in Table 11-3. The applicable federal, state, and local laws, ordinances, regulations and standards, and compliance with these requirements are discussed in more detail in the following sections.

TABLE 11-3
Air Quality Agencies

Agency	Authority	Address
EPA Region 9	Regulatory oversight	EPA Region 9 75 Hawthorne Street San Francisco, CA 94105 (415) 744-1259
CARB	Regulatory oversight	California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026
SCAQMD	Permit issuance, enforcement	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765 (909) 396-2664

11.4.1 Federal Regulations and Standards

11.4.1.1 United States Environmental Protection Agency

EPA is responsible for implementing and enforcing, on a national level, the requirements of many of the country's environmental and hazardous waste laws. California is under the jurisdiction of EPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's activities relative to the California air pollution control program focus principally on reviewing California's submittals for the State Implementation Plan (SIP). The SIP is required by the federal CAA to demonstrate how all areas of the state will meet the National Ambient Air Quality Standards (NAAQS) within the federally-specified deadlines (42 *United States Code* §7409, 7411).

11.4.1.2 National Ambient Air Quality Standards

In association with the CAA, EPA has established NAAQS for ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and airborne lead. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment and damage to animals, crops, vegetation, and buildings.

Areas with air pollution levels above these standards can be considered "non-attainment areas" subject to planning and pollution control requirements that are more stringent than standard requirements under the federal New Source Review (NSR) program. In areas that already meet the NAAQS (attainment areas), the federally-regulated Prevention of Significant Deterioration (PSD) program is designed to ensure that air quality is not allowed to significantly deteriorate while still allowing a margin for future industrial growth.

NAAQS consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (1 hour, for instance), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). For some pollutants, there is more than one air quality standard, reflecting both short-term and long-term effects. Table 11-4 presents the NAAQS for selected pollutants.

TABLE 11-4
Ambient Air Quality Standards

			NAAQS[b]	
Pollutant	**Averaging Time**	**CAAQS[a]**	**Primary[c]**	**Secondary[d]**
Ozone	8 hours	0.070 ppm	0.075 ppm	0.075 ppm
	1 hour	0.09 ppm	—	—
PM_{10}	Annual Arithmetic Mean	20 µg/m^3	—	—
	24 hours	50 µg/m^3	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
	24 hours	—	35 µg/m^3	35 µg/m^3
CO	8 hours	9.0 ppm	9 ppm	—
	1 hour	20 ppm	35 ppm	—
NO_2	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm[e]	—
SO_2	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
	24 hours	0.04 ppm	0.14 ppm (for certain areas)	—
	3 hours	—	—	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm[f]	—

TABLE 11-4
Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary[c]	Secondary[d]
Lead[g]	Calendar Quarter	—	1.5 µg/m^3	1.5 µg/m^3
	Rolling 3-month Average	—	0.15 µg/m^3	0.15 µg/m^3
	30-day Average	1.5 µg/m^3	—	—
Visibility-reducing Particles[h]	8 hours	—	—	—
Sulfates	24 hours	25 µg/m^3	—	—
Hydrogen Sulfide	1 hour	0.03 ppm	—	—
Vinyl Chloride[g]	24 hours	0.01 ppm	—	—

[a] California standards for ozone, CO (except 8-hour Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] National standards other than ozone, particulate matter, and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.

[f] Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 parts per billion (ppb).

[g] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. CARB made this determination following the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[h] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

Notes:

CAAQS = California Ambient Air Quality Standards

Sources: CARB, 2013b and EPA, 2013a

The federal CAA, as most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary sources such as CCL. EPA has promulgated the following stationary source regulatory programs to implement the requirements of the 1990 CAA that may be applicable to the proposed landfill operation. Depending on the operation and emissions of the project, one or more of the programs may be applicable:

- Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAPS)
- PSD
- NSR
- Title V: Operating Permits

11.4.1.3 Conformity

Under the 1990 CAA amendments, EPA has issued two types of SIP conformity guidelines—transportation conformity rules that apply to transportation plans and projects, and general conformity rules that apply to

all other federal actions. Under transportation conformity, the United States Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that do not conform to the CAA requirements for a project located in a nonattainment or maintenance area. Under general conformity, EPA requires all federal agencies to ensure that all federal actions must conform to an approved or promulgated state or federal implementation plan if the actions result in criteria pollutant emissions for which the area has been designated as a nonattainment or maintenance area. Though the area is not in attainment of the NAAQS for ozone and $PM_{2.5}$, no federal action is needed for the Proposed Project. Therefore, a general conformity analysis for the Proposed Project is not required.

11.4.2 State Regulations and Standards

CARB oversees California air quality policies. CAAQS were first established in 1969 pursuant to the Mulford-Carrell Act. These standards are generally more stringent than the NAAQS and include four additional pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulates. Relevant CAAQS are listed in Table 11-4.

The California CAA, which was approved in 1988, requires each local air district in the state to prepare an Air Quality Management Plan (AQMP, part of the SIP) that complies with the CAAQS. CARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide additional tailored strategies for sources under their local jurisdiction. The SIPs required by federal law are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to EPA for approval and publication in the *Federal Register*.

11.4.3 Local Regulations and Standards

11.4.3.1 SCAQMD Air Quality Management Plan

SCAQMD is the local agency responsible for ensuring that federal and state ambient air quality standards are attained in the project area. Periodically, SCAQMD prepares an AQMP to be submitted for inclusion in the SIP. The most recent EPA-approved South Coast SIPs are the *Final 1997 Air Quality Management Plan* (SCAQMD, 1997) and the *Final 1999 Amendment to the 1997 Ozone SIP Revision for the South Coast Air Basin* (SCAQMD, 1999).

The most recent AQMP, the Final 2012 AQMP, was adopted by the SCAQMD Board on December 7, 2012 (SCAQMD, 2013d). The Final 2012 AQMP was submitted to EPA for approval on December 20, 2012.

11.4.3.2 SCAQMD Regulations

A project is required to be in compliance with SCAQMD regulations and rules. The Proposed Project construction and operation will be subject to Rule 403 (Fugitive Dust), which requires specific actions or measures to prevent, reduce, or mitigate particulate matter emissions generated from man-made fugitive dust sources. Required actions for each fugitive dust source within the active operation are listed in Rule 403 Table 1, Best Available Control Measures. Additional requirements for large operations with 50 acres or more of disturbed surface area, or with a daily earth-moving or throughput volume of 5,000 cubic yards are listed in Rule 403 Tables 2 and 3. However, the requirements for larger operations do not apply to this project.

Operation of the equipment installed for the Proposed Project will be subject to SCAQMD Rules 201 and 206 permitting requirements and other operational and emission limits in the rules, unless such requirements are exempt by the regulations. Current landfill operations are subject to Rule 206, and a Title V operating permit has been issued for the landfill (facility ID 119219). This permit limits emissions from the existing flares and requires odor mitigation.

SCAQMD regulations that may apply to operation of the Proposed Project include:

Prohibitory Rules (Regulation IV)

SCAQMD Regulation IV contains a number of prohibitory rules that generally apply to facility operations including:

- Rule 401 Visible Emissions
- Rule 402 Nuisance
- Rule 403 Fugitive Dust
- Rule 404 Particulate Matter - Concentration
- Rule 405 Solid Particulate Matter - Weight
- Rule 407 Liquid and Gaseous Air Contaminants
- Rule 408 Circumvention
- Rule 409 Combustion Contaminants
- Rule 430 Breakdown Provisions
- Rule 431.1 Sulfur Content of Gaseous Fuels

New Source Review Rules (Regulation XIII)

Regulation XIII combines the federal and state NSR requirements into a single rule. Regulation XIII establishes pre-construction requirements for new or modified facilities to ensure that operation of such facilities does not interfere with progress towards the attainment of ambient air quality standards without unnecessary restricting economic growth.

New Source Review Rules for Air Toxics (Regulation XIV)

Regulation XIV establishes allowable public health risks for permit units by specifying limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute hazard index (HIA) and chronic hazard index (HIC) from new or modified units which emit TACs.

Source Specific Rules: Landfill Gas Emission Control (Rule 1150.1)

SCAQMD Rule 1150.1 is intended to limit municipal solid waste landfill emissions to prevent public nuisance and possible detriment to public health caused by exposure to such emissions. The primary elements of this rule include the requirement for a LFG collection and control system and a monitoring system to verify the proper operation of the gas collection system.

11.5 Local Setting

11.5.1 Existing Operating Emissions

CCL actively receives waste at a roughly 200-foot by 300-foot working face within the site. Daily operations at the existing landfill consist of typical waste disposal activities and facilities that contribute criteria pollutants to the ambient air in the air basin. The operation of landfills and the associated emission rates are unique in comparison to land development projects because landfill operations require the regular use of heavy-duty construction equipment and collection vehicles, long-term exposure of non-vegetated soil layers, constant movement of soil and refuse, and proper onsite disposal of LFG. An LFG collection system has been installed in both closed and active landfill areas, and a 9.2 megawatt (MW) landfill gas-to-energy (LFGTE) plant and flare stations have been added to combust the collected gases. Air emissions from landfill operations are associated with fugitive LFG emissions, operation of the flare stations and LFGTE plant, construction vehicles and waste transfer trucks at refuse fill areas, construction of additional modules for waste receiving, and closure of modules that have reached capacity.

11.5.1.1 Landfill Gas Surface Emissions

As part of landfill operation, gas wells and pipelines are installed to capture the gas generated by the decaying solid waste. Initially, the LFG is mostly carbon dioxide (CO_2). As the buried waste ages, the available oxygen

decreases and anaerobic conditions are created producing CH_4 and reduced sulfur compounds. CH_4 is a powerful greenhouse gas (GHG) and reduced sulfur compounds have strong odors. Potential GHG impacts from the Proposed Project are discussed in Chapter 12.0, Greenhouse Gas Emissions and Climate Change.

The collected gas is monitored to be sure that the collection system is collecting LFG without drawing in ambient air. The collected gas is combusted in either the LFGTE plant or a flare, converting the CH_4 to CO_2 and reduced sulfur compounds into SO_2. Two LFG flares, each with a capacity of 4,000 cubic feet per minute, are currently in operation.

The gas wells and pipelines collect an average of 85 percent of the LFG produced, and about 15 percent of the gas generated in the landfill escapes as fugitive emissions. Several actions are taken to minimize these emissions:

- Gauge pressure is negative at the gas extraction well
- Nitrogen and oxygen concentrations are monitored to minimize excess air infiltration
- LFG temperatures at the gas extraction wells are monitored to limit the potential for subsurface fires
- CH_4 concentrations across the landfill surface are monitored to prevent seeping of CH_4 gas from the landfill surface.

In addition to the emission sources described above, CCL has underground diesel storage tanks, a material recovery facility, and a truck storage and maintenance facility. Additionally, CCL intends to resume a composting operation, previously active from 1997 to 2009, in the future.

11.5.1.2 Mobile Source Emissions

Fugitive Dust Emissions

Fugitive dust emissions are generated during operation of the landfill by the following activities:

- Heavy equipment operations (scrapers, bulldozers, compactors, graders, and water trucks) that apply daily and intermediate cover to refuse, compact refuse and soil, maintain haul road conditions, and work the face of the landfill
- Excavation and grading activities
- Soil stockpiles
- Landfill liner installation and final cover construction
- Truck travel on paved and unpaved roads

Mobile Tailpipe Exhaust Emissions

Mobile tailpipe exhaust emissions are generated during operation of the landfill by the following activities:

- Onsite service trucks and heavy equipment
- Collection trucks, transfer trucks, and passenger vehicles that deliver solid waste and yard waste
- Passenger vehicles associated with landfill employees

11.6 Potential Impacts

11.6.1 Standards of Significance

11.6.1.1 Criteria under CEQA Context

Pursuant to the *California Environmental Quality Act (CEQA) Guidelines*, air quality impacts related to the Proposed Project would be significant if the project would:

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

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); or
- Create objectionable odors affecting a substantial number of people.

11.6.2 Thresholds of Significance

11.6.2.1 SCAQMD Thresholds

In addition to the above CEQA significance criteria, SCAQMD has developed emission, air dispersion modeling, and health risk thresholds for CEQA analysis. SCAQMD air quality significance thresholds are shown in Table 11-5. Air quality impacts resulting from construction and operation are deemed significant if daily emission estimates, air modeling results, or HRA results are above the following significance thresholds:

TABLE 11-5
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TAC), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO_2e for industrial facilities	
Ambient Air Quality for Criteria Pollutants [b]		
NO_2		
1-hour average	0.18 ppm (state)	
Annual average	0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10}		
24-hour average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation)	
Annual average	1.0 µg/m^3	
$PM_{2.5}$		
24-hour average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation)	
SO_2		
1-hour average	0.25 ppm (state) and 0.075 ppm (federal)	
24-hour average	0.04 ppm (state)	
Sulfate		
24-hour average	25 µg/m^3	
CO	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	20 ppm (state) and 35 ppm (federal)	
8-hour average	9.0 ppm (state/federal)	

TABLE 11-5
SCAQMD Air Quality Significance Thresholds

Source: SCAQMD, 2013e
[a] Source: SCAQMD *CEQA Air Quality Handbook* (SCAQMD, 1993)
[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold based on SCAQMD Rule 403.
Note:
lbs/day = pounds per day

11.6.3 Proposed Project

This section presents the potential construction and operation impacts resulting from implementation of the Proposed Project.

11.6.3.1 Construction Impacts

This section presents an evaluation of the potential impacts resulting from construction of the Proposed Project.

Impact AQ-1: *Implementation of the Proposed Project would generate construction impacts that would not exceed the criteria pollutant significance thresholds used by SCAQMD to determine significance of construction emissions. Construction-related impacts would be less than significant.*

Impact Discussion. Temporary impacts from construction were evaluated for the pollutants NOx, reactive organic gases (ROG), CO, SO_2, PM_{10}, and $PM_{2.5}$. Construction equipment and vehicle exhaust would be the primary sources of NOx, ROG, CO, SO_2, and $PM_{2.5}$ emissions, while excavation and grading activities would be the primary sources of PM_{10} emissions. The estimated maximum daily construction emissions for project years 2016 and 2021 are presented in Tables 11-6a and 11-6b, respectively. No construction activities are expected to occur in 2032; therefore the project would not have any emissions associated with construction in that year.

Emission estimates demonstrate that the Proposed Project would be above the significance thresholds for NOx and ROG for 2016 and for NOx in 2021. All other pollutants were below the SCAQMD emission thresholds.

TABLE 11-6a
2016 Proposed Project Construction Emissions

	Emissions (lbs/day)					
Construction Emission Source	**NO_x**	**CO**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite construction emissions	462.2	312.9	81.6	0.9	66.1	17.8
Offsite construction emissions	0.3	3.3	0.1	0.0	1.6	0.4
TOTAL (lbs/day)	462.5	316.2	81.6	0.9	67.7	18.2
SCAQMD Thresholds* (lbs/day)	100	550	75	150	150	55

*Thresholds taken from SCAQMD Significance Thresholds Table, March 2011 (SCAQMD, 2013e).

TABLE 11-6b
2021 Proposed Project Construction Emissions

	Emissions (lbs/day)					
Construction Emission Source	**NO_x**	**CO**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite construction emissions	453.2	269.5	61.9	0.9	66.0	17.7
Offsite construction emissions	0.2	2.2	0.0	0.0	1.6	0.4
TOTAL (lbs/day)	453.4	271.7	62.0	0.9	67.6	18.1
SCAQMD Thresholds* (lbs/day)	100	550	75	150	150	55

*Thresholds taken from SCAQMD Significance Thresholds Table, March 2011 (SCAQMD, 2013e).

Even though construction emissions of NOx and ROG are above the mass daily emission threshold for 2016 and construction emissions of NOx are above the mass daily emission threshold for 2021, these emission scenarios are anticipated to have a very short duration. The potential impacts from construction emissions were further analyzed using the AERMOD dispersion modeling system and compared to the ambient air thresholds.

Tables 11-7a and 11-7b provide a summary of the dispersion model predicted impacts from construction emissions as compared to the ambient air quality thresholds for criteria pollutants for project years 2016 and 2021, respectively. As mentioned above, dispersion modeling was not conducted for construction activities during project year 2032 because no construction activities are scheduled during that time for the project. All pollutant concentrations associated with construction activities would be below their respective ambient thresholds for each applicable averaging period.

TABLE 11-7a
2016 Construction Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold [a] (µg/m³)	Above Threshold?
SO_2	1-hour	0.4	39	196	No
SO_2	3-hour	0.1	26	1,300	No
SO_2	24-hour	0.02	10	105	No
CO	1-hour	152	2,062	23,000	No
CO	8-hour	19	1,547	10,000	No
NO_2	1-hour	57[b]	113	188	No
NO_2	Annual	0.08	28	57	No
PM_{10}	24-hour	5.0	N/A	10.4	No
PM_{10}	Annual	0.02	N/A	1	No
$PM_{2.5}$	24-hour	1.1	N/A	10.4	No
$PM_{2.5}$	Annual	0.004	N/A	1	No

[a] The more stringent of the NAAQS/CAAQS/Localized Significance Threshold (LST)

[b] NO_2/NOx distance method used

TABLE 11-7b
2021 Construction Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold[a] (µg/m³)	Above Threshold?
SO_2	1-hour	0.4	39	196	No
SO_2	3-hour	0.1	26	1,300	No
SO_2	24-hour	0.02	10	105	No
CO	1-hour	123	2,062	23,000	No
CO	8-hour	17	1,547	10,000	No
NO_2	1-hour	53[b]	113	188	No
NO_2	Annual	0.07	28	57	No
PM_{10}	24-hour	4.6	N/A	10.4	No
PM_{10}	Annual	0.01	N/A	1	No
$PM_{2.5}$	24-hour	1.0	N/A	10.4	No
$PM_{2.5}$	Annual	0.003	N/A	1	No

[a] The more stringent of the NAAQS/CAAQS/LST

[b] NO_2/NOx distance method used

Given the short duration of each construction period, the conservativeness of the emission estimates for determining maximum daily construction emissions, the large size of the Proposed Project site, and characteristics of the construction emission sources, modeled ambient air quality impacts at offsite receptors would be less than significant. Therefore, although the Proposed Project construction periods may temporarily exceed the mass daily emission thresholds, the overall impact from construction activities would be less than significant based on modeled ambient impacts from criteria pollutant emissions.

Project Design Measures

Control measures represent actions implemented by CCL as part of the Proposed Project to control exhaust or fugitive dust emissions.

Construction Equipment Control Measures:

- The construction equipment would be equipped with engines meeting CARB requirements for a large fleet at the time of construction (CARB, 2013a). This would include a combination of Tier 3 and Tier 4 compliant equipment.
- The construction equipment would be equipped DPF and lean NOx catalyst, which would result in an 85 percent reduction for particulate matter and a 40 percent reduction for NOx (EPA, 2013f).
- Unnecessary truck and equipment idling would be limited to less than 2 minutes, to the extent feasible.
- Use of all construction equipment would be suspended during second stage smog alerts (SCAQMD, 1993).

Fugitive Dust Control Measures:

- Fugitive dust from vehicle travel on paved roads would be controlled using a 25-foot-long gravel trackout apron, which would result in a 46 percent reduction in particulate matter emissions (SCAQMD, 2013a and 2013b). Paved roads would be cleaned three times daily using a SCAQMD-approved street sweeper, which would result in an additional 45 percent emissions reduction for particulate matter (Western Regional Air Partnership [WRAP], 2006a).
- Fugitive dust from vehicle travel on unpaved roads would be controlled through watering two times daily, the use of dust palliatives, paving as much as possible, and limiting the maximum vehicle speed to 15 miles per hour, which would result in a combined effective control efficiency of 90 percent (SCAQMD, 2013c; WRAP, 2006b).
- Fugitive dust from soil disturbance would be suppressed with hourly watering and dust suppressant application, which would reduce particulate matter emissions by 90 percent (WRAP, 2006c).

Impact AQ-2: *Construction activities associated with the Proposed Project would result in a net increase in daily mass emission estimates of the nonattainment pollutant ozone precursors (NOx or ROG). Construction-related impacts would be less significant due to implementation of Project Design Measures.*

Impact Discussion. The estimated maximum daily construction emissions of ozone precursors NOx and ROG for project years 2016 and 2021 are presented in Tables 11-7a and 11-7b, respectively. No construction activities are anticipated to occur in 2032; therefore the Proposed Project would not have any emissions associated with construction for that year.

Emission estimates demonstrate that the Proposed Project would be above the mass emission pound per day significance thresholds for NOx and ROG for 2016 and for NOx for 2021. Project Design Measures for reducing NOx and ROG as ozone precursors are described under Impact AQ-1, above. Measures include suspension of all construction equipment use during second stage smog alerts and limitation of unnecessary truck and equipment idling to less than 2 minutes, to the extent feasible. Emissions from construction equipment would account for over 99 percent of NOx and ROG emissions from construction of the Proposed Project; therefore NOx and ROG emissions would be well below the thresholds during second stage smog alerts. Additionally, construction emissions would occur over a very short duration, and emissions were calculated assuming all construction equipment would be used for the maximum number of hours on the same day, which is expected

to occur infrequently. After the implementation of Project Design Measures for NOx and ROG as ozone precursors, the construction-related impacts would be less than significant.

Project Design Measures

Same as described above under Impact AQ-1.

Impact AQ-3: *Construction would not expose sensitive receptors to substantial pollutant concentrations. Construction impacts would be less than significant.*

Impact Discussion. Tables 11-8a and 11-8b present a summary of the maximum health impacts that would occur for construction activities associated with the Proposed Project for project years 2016 and 2021, respectively. The locations of the maximum cancer risk and maximum HIC receptors for construction are shown in Figure 11-2.

The maximum construction impact cancer risk from either 2016 or 2021 at the location of the residential maximally exposed individual (MEIR) is predicted to be 0.912 in 1 million. The MEIR is located approximately340 meters northwest from the facility boundary. The maximum construction impact cancer risk from either 2016 or 2021 at the location of the worker maximally exposed individual (MEIW) is predicted to be 0.728 in 1 million. The MEIW is located approximately 340 meters from the northwest boundary of the facility. The maximum construction impact cancer risk from either 2016 or 2021 at the sensitive receptor location is predicted to be 0.0667 in 1 million. The sensitive receptor is located approximately 1,750 meters from the northeast boundary of the facility. Maximum impacts at the MEIR, MEIW, and sensitive receptor locations would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million.

The HIC non-carcinogenic impacts from construction would be well below the SCAQMD significance threshold of 1.0.

TABLE 11-8a
2016 Construction Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA*
MEIR	0.912 per million	0.0023	N/A
MEIW	0.728 per million	0.0023	N/A
Sensitive Receptor	0.067 per million	0.0002	N/A
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

*Not applicable. Diesel particulate matter does not have an acute health effect. Short-term effects are accounted for in the particulate matter NAAQS.

TABLE 11-8b
2021 Construction Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA*
MEIR	0.695 per million	0.0018	N/A
MEIW	0.561 per million	0.0018	N/A
Sensitive Receptor	0.061 per million	0.0002	N/A
SCAQMD Significance Threshold	10 in one million	1.0	1.0

*Not applicable. Diesel particulate matter does not have an acute health effect. Short-term effects are accounted for in the particulate matter NAAQS.

Based on the predicted public health impacts from construction of the Proposed Project, impacts would be less than significant.

Additionally, the sum of maximum health impacts from construction, shown in Tables 11-8a and 11-8b, and operation, shown in Tables 11-13a, 11-13b, and 11-13c, would be below the SCAQMD thresholds.

Project Design Measures

Same as described above under Impact AQ-1.

11.6.3.2 Operation Impacts

This section presents an evaluation of the potential impacts resulting from operation of the Proposed Project.

Impact AQ-4: *Implementation of the Proposed Project would be consistent with applicable air quality plans, therefore impacts would be less than significant.*

Impact Discussion. SCAQMD air quality plans (SCAQMD, 1997; 1999; 2013d) and the air quality objectives in the City of Santa Clarita Draft General Plan Update (City of Santa Clarita, 2010) were reviewed to determine whether the project would conflict with air quality plans. SCAQMD's plans present the strategies and control measures needed to continue to improve air quality in the SCAB. Upon review, it was determined that implementation of the Proposed Project would be consistent with applicable air quality plans; therefore impacts would be less than significant.

Project Design Measures

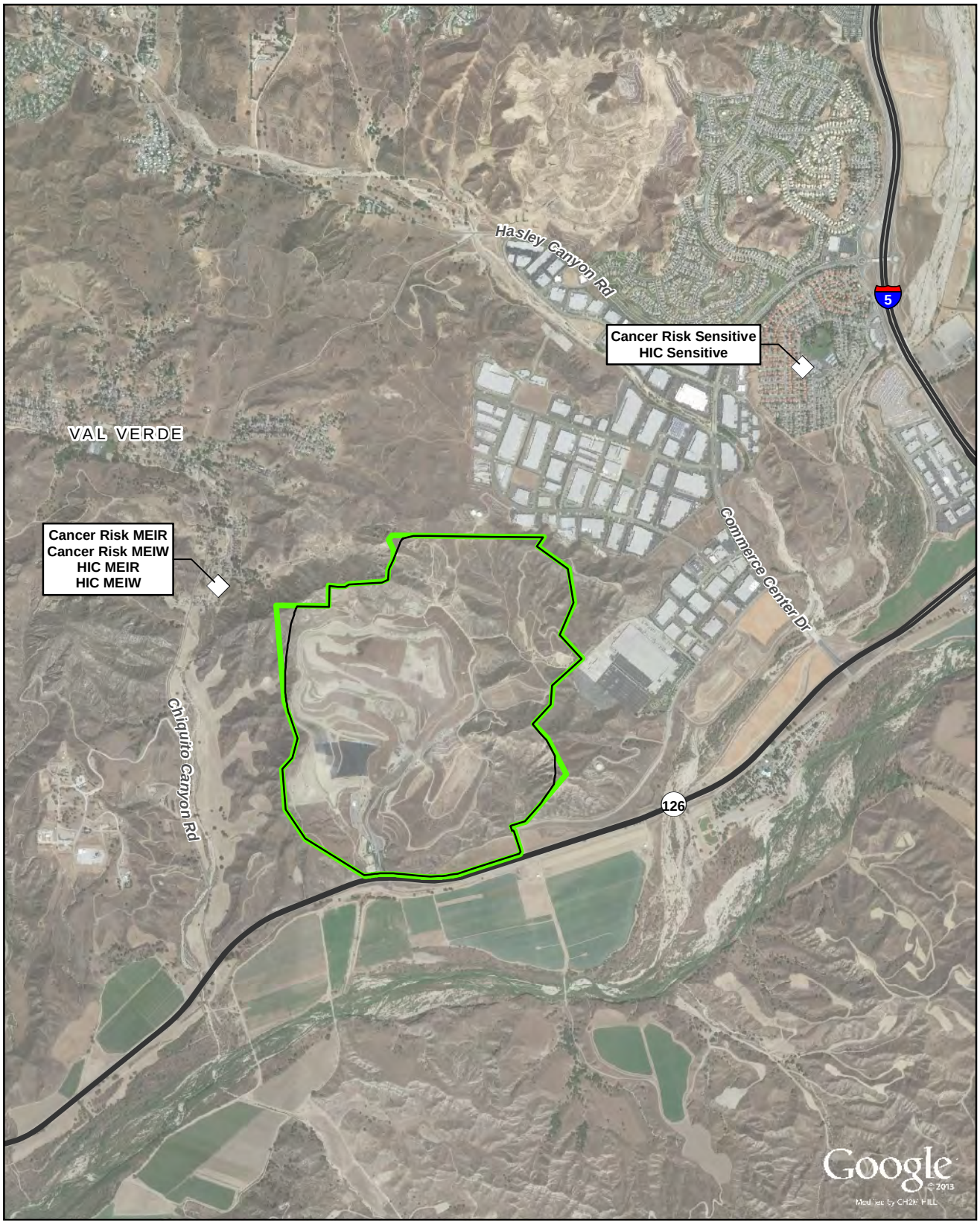
Control measures represent actions implemented by CCL as part of the Proposed Project to control exhaust or fugitive dust emissions.

Off-Road Diesel Equipment Control Measures:

- Additional off-road diesel equipment would be equipped with engines meeting Tier 4 emission standards.
- Additional off-road diesel equipment would be equipped with DPF, which would result in an 85 percent reduction for particulate matter and a 40 percent reduction for NOx (EPA, 2013f).
- Unnecessary truck and equipment idling would be limited to less than 2 minutes, to the extent feasible.
- Use of all construction equipment would be suspended during second stage smog alerts (SCAQMD, 1993).

Fugitive Dust Control Measures:

- Fugitive dust from vehicle travel on paved roads would be controlled through the use of a 25-foot-long gravel trackout apron and three times daily cleaning of the paved roads, which would result in a 90 percent reduction in particulate matter emissions (SCAQMD, 2013a and 2013b; WRAP, 2006a).
- Fugitive dust from vehicle travel on unpaved roads would be controlled through watering two times daily, applying dust palliatives at least twice a year, paving as much as possible, and limiting the maximum vehicle speed to 15 miles per hour, which would result in a combined effective control efficiency of 90 percent (SCAQMD, 2013c; WRAP, 2006b).
- Fugitive dust from soil disturbance would be suppressed with hourly watering and application of dust suppressants, which would reduce particulate matter emissions by 90 percent (SCAQMD, 2013a; WRAP, 2006c).



LEGEND

- Maximum Health Impact Location
- Major Road
- Limit of Disturbance
- Project Boundary

N

0 0.25 0.5

Miles

FIGURE 11-2
Maximum Health Impact Locations from Proposed Project Construction Activities
Chiquita Canyon Landfill
Master Plan Revision

Impact AQ-5: *Operation of the Proposed Project would generate impacts that would not exceed the criteria pollutant significance thresholds used by SCAQMD to determine significance of operational emissions. Therefore, operational-related impacts would be less than significant.*

Impact Discussion. Impacts from operation were evaluated for the pollutants NOx, ROG, CO, SO_2, PM_{10}, and $PM_{2.5}$. Operation-related emissions would result from vehicle exhaust emissions, fugitive dust, flare emissions, and fugitive LFG. Emissions were not calculated for the material recovery facility, the truck storage and maintenance facility, or the LFGTE plant because operations associated with these facilities were assumed to be the included with existing conditions and would not change with the Proposed Project.

As described in Section 11.2 and Appendix F, vehicle exhaust emissions from waste trucks were calculated and included in the air dispersion modeling and HRA, but were not included in the maximum daily operational totals per the SCAQMD *CEQA Air Quality Handbook* (SCAQMD, 1993). The Proposed Project would result in a net reduction in emissions from waste trucks when compared to the No Project Alternative. The estimated operational emissions are presented in Tables 11-9a, 11-9b, and 11-9c for project years 2016, 2021, and 2032, respectively. The Proposed Project operational emissions would exceed the SCAQMD mass daily operational thresholds for NOx for 2032.

Even though operational emissions from NOx are above the mass daily emission threshold for 2032, this emission scenario represents maximum potential daily emissions, which were estimated using conservative assumptions and are not anticipated to occur every day of the year. Due to the flares' location in the middle of the site, a buffer would exist between the emission source and potential offsite receptors.

TABLE 11-9a
2016 Proposed Project Operation Emissions

	Emissions (lbs/day)					
Operation Emission Source	**NO_x**	**CO**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite operation emissions	5.3	20.2	5.4	0.1	7.1	1.4
Offsite operation emissions[a]	0.1	0.9	0.0	0.0	0.4	0.1
TOTAL (lbs/day)	5.4	21.1	5.4	0.1	7.5	1.5
SCAQMD Thresholds (lbs/day)[b]	55	550	55	150	150	55

[a] Does not include offsite vehicle exhaust emissions from waste trucks.

[b] Thresholds taken from SCAQMD Significance Thresholds Table, March 2011 (SCAQMD, 2013e).

TABLE 11-9b
2021 Proposed Project Operation Emissions

	Emissions (lbs/day)					
Operation Emission Source	**NO_x**	**CO**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Onsite operation emissions	46.1	77.4	17.4	43.6	11.5	5.0
Offsite operation emissions[a]	0.1	1.4	0.0	0.0	1.0	0.3
TOTAL (lbs/day)	46.2	78.8	17.4	43.6	12.5	5.2
SCAQMD Thresholds (lbs/day)[b]	55	550	55	150	150	55

[a] Does not include offsite vehicle exhaust emissions from waste trucks.

[b] Thresholds taken from SCAQMD Significance Thresholds Table, March 2011 (SCAQMD, 2013e).

TABLE 11-9c
2032 Proposed Project Operation Emissions

Operation Emission Source[a]	Emissions (lbs/day)					
	NO_x	CO	ROG	SO_2	PM_{10}	$PM_{2.5}$
Onsite operation emissions	79.2	106.7	22.3	87.0	14.8	8.3
Offsite operation emissions	0.1	1.2	0.0	0.0	1.0	0.3
TOTAL (lbs/day)	79.3	107.8	22.3	87.0	15.8	8.6
SCAQMD Thresholds (lbs/day)[b]	55	550	55	150	150	55

[a] Does not include vehicle exhaust emissions from waste trucks.

[b] Thresholds taken from SCAQMD Significance Thresholds Table, March 2011 (SCAQMD, 2013e).

Additionally, the majority of NOx emissions in 2032 come from operation of the flare. As described in Chapter 2.0, Project Description, the majority of the LFG collected would go to the existing, approved LFGTE plant instead of the flares. NOx emissions from combustion of LFG in the LFGTE plant turbines would be lower than NOx emissions from the flare.

The potential impacts from operational emissions were further analyzed using the AERMOD dispersion modeling system and compared to the ambient air thresholds.

Tables 11-10a, 11-10b, and 11-10c provide a summary of the model results from operational impacts as compared to the air quality thresholds for project years 2016, 2021, and 2032, respectively. NO_X, SO_2, CO, $PM_{2.5}$, and PM_{10} concentrations would be below their respective threshold for each applicable averaging period.

TABLE 11-10a
2016 Operation Dispersion Model Results

Pollutant	Averaging Period	Model Result ($\mu g/m^3$)	Background (if applicable) ($\mu g/m^3$)	Threshold* ($\mu g/m^3$)	Above Threshold?
SO_2	1-hour	0.1	39	196	No
SO_2	3-hour	0.1	26	1,300	No
SO_2	24-hour	0.03	10	105	No
CO	1-hour	17	2,062	23,000	No
CO	8-hour	12	1,547	10,000	No
NO_2	1-hour	63	113	188	No
NO_2	Annual	1	28	57	No
PM_{10}	24-hour	1.7	N/A	2.5	No
PM_{10}	Annual	0.4	N/A	1	No
$PM_{2.5}$	24-hour	0.4	N/A	2.5	No
$PM_{2.5}$	Annual	0.1	N/A	1	No

*The more stringent of the NAAQS/CAAQS/LST

TABLE 11-10b
2021 Operation Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold[a] (µg/m³)	Above Threshold?
SO_2	1-hour	3	39	196	No
SO_2	3-hour	3	26	1,300	No
SO_2	24-hour	1	10	105	No
CO	1-hour	37	2,062	23,000	No
CO	8-hour	19	1,547	10,000	No
NO_2	1-hour	29[b]	113	188	No
NO_2	Annual	2	28	57	No
PM_{10}	24-hour	2.2	N/A	2.5	No
PM_{10}	Annual	0.5	N/A	1	No
$PM_{2.5}$	24-hour	0.9	N/A	2.5	No
$PM_{2.5}$	Annual	0.1	N/A	1	No

[a] The more stringent of the NAAQS/CAAQS/LST

[b] NO_2/NOx distance method used

TABLE 11-10c
2032 Operation Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold* (µg/m³)	Above Threshold?
SO_2	1-hour	7	39	196	No
SO_2	3-hour	6	26	1,300	No
SO_2	24-hour	1	10	105	No
CO	1-hour	37	2,062	23,000	No
CO	8-hour	12	1,547	10,000	No
NO_2	1-hour	63	113	188	No
NO_2	Annual	1	28	57	No
PM_{10}	24-hour	2.2	N/A	2.5	No
PM_{10}	Annual	0.5	N/A	1	No
$PM_{2.5}$	24-hour	0.8	N/A	2.5	No
$PM_{2.5}$	Annual	0.1	N/A	1	No

*The more stringent of the NAAQS/CAAQS/LST

Given the conservativeness of the emission estimates for determining maximum daily emissions and the variability of operations of the facility day-to-day, these increases in maximum daily emissions would result in a less-than-significant modeled ambient impact on air quality at offsite receptors. Therefore, although the Proposed Project maximum emissions periods may temporarily exceed the mass daily emission thresholds, the overall impact from operational activities would be less than significant based on modeled ambient impacts from criteria pollutant emissions.

Project Design Measures

Same as described above under Impact AQ-4.

Impact AQ-6: *Operation would not violate any air quality standard or contribute substantially to an existing or projected air quality violation for CO. Operation emissions would be less than significant.*

Impact Discussion. A CO hotspot analysis of the worst intersections and dispersion modeling of emissions from operation activities were conducted to evaluate whether an air quality standard would be violated. The following discussion presents the results of these evaluations.

CO Hotspot Analysis: Tables 11-11 and 11-12 present the peak 1-hour and 8-hour CO concentrations for existing conditions in 2013, 2014 conditions without the Proposed Project, and 2014 conditions with the Proposed Project. The analysis shows that the maximum 1-hour CO concentrations would be well below the national standard of 35 ppm and the state standard of 20 ppm. The maximum 8-hour concentration would also be well below the national and state standards of 9 ppm. The Proposed Project would not cause an exceedance of the CO ambient air standards.

TABLE 11-11
Maximum Predicted 1-hour CO Concentrations

Scenario	Maximum Modeled 1-hour CO Concentration (ppm)	Background CO Concentration (ppm)	Total 1-hour CO Concentration (ppm)
SR-126 and Wolcott Way			
Existing Conditions (2013)	0.3	1.8	2.1
2014 Without Proposed Project	0.2	1.8	2.0
2014 With Proposed Project	0.3	1.8	2.1
SR-126 and Commerce Center Drive			
Existing Conditions (2013)	0.7	1.8	2.5
2014 Without Proposed Project	0.6	1.8	2.4
2014 With Proposed Project	0.6	1.8	2.4
State Threshold			20
National Threshold			35

Note:
Background concentrations are the highest observed 1-hour CO concentrations from 2009 to 2011.

TABLE 11-12
Maximum Predicted 8-hour CO Concentrations

Scenario	Maximum Modeled 8-hour CO Concentration (ppm)	Background CO Concentration (ppm)	Total 8-hour CO Concentration (ppm)
SR-126 and Wolcott Way			
Existing Conditions (2013)	0.21	1.35	1.56
2014 Without Proposed Project	0.14	1.35	1.49
2014 With Proposed Project	0.21	1.35	1.56

TABLE 11-12
Maximum Predicted 8-hour CO Concentrations

Scenario	Maximum Modeled 8-hour CO Concentration (ppm)	Background CO Concentration (ppm)	Total 8-hour CO Concentration (ppm)
SR-126 and Commerce Center Drive			
Existing Conditions (2013)	0.49	1.35	1.84
2014 Without Proposed Project	0.42	1.35	1.77
2014 With Proposed Project	0.42	1.35	1.77
National and State Threshold			9

Notes:
Existing background concentrations are the highest observed 8-hour CO concentrations from 2009 to 2011.
The maximum 8-hour CO concentration is calculated by multiplying the project level 1-hour CO contribution by the 8-hour persistence factor (0.7) and adding the 8-hour CO background concentration.

Based on the CALINE4 modeled results above, the Proposed Project would not cause or significantly contribute to a modeled CO violation. Therefore, operation of the Proposed Project would have a less-than-significant impact for CO at offsite receptors and at hotspots near roadways.

Project Design Measures

Same as previously described under Impact AQ-4.

Impact AQ-7: *Operation of the Proposed Project would result in a net increase in emissions of the nonattainment pollutant, ozone precursors (NOx or ROG). Operation impacts would be less than significant due to implementation of Project Design Measures.*

Impact Discussion. The estimated maximum daily mass emissions from operation of the Proposed Project are presented in Tables 11-9a, 11-9b, and 11-9c for project years 2016, 2021, and 2032, respectively. The Proposed Project operational emissions would exceed the SCAQMD operation mass daily thresholds for ozone precursor NOx for 2032.

Even though operational emissions from NOx are above the mass daily emission threshold for 2032, this emission scenario represents maximum potential daily emissions, which were estimated using conservative assumptions and are not anticipated to occur for every day of the year. Due to the flares' location in the middle of the site, a buffer would exist between the emission source and potential offsite receptors.

Additionally, the majority of NOx emissions in 2032 come from operation of the flare. As described in Chapter 2.0, Project Description, the majority of the LFG collected would go to the existing, approved LFGTE plant instead of the flares as a Project Design Measure. NOx emissions from combustion of LFG in the LFGTE plant turbines would be lower than NOx emissions from the flare.

After the implementation of the Project Design Measures for NOx as an ozone precursor, impacts from operation of the Proposed Project would be less than significant.

Project Design Measures

Same as previously described under Impact AQ-4 with the addition of the following:

- The Proposed Project includes an existing, approved LFGTE plant, to which the majority of the LFG collected would be sent.

Impact AQ-8: *Operation would not expose sensitive receptors to substantial pollutant concentrations. Operation impacts would be less than significant.*

Impact Discussion. Tables 11-13a, 11-13b, and 11-13c present a summary of the maximum health impacts that would occur for operation activities associated with the Proposed Project in the years 2016, 2021, and 2032, respectively. The locations of the maximum cancer risk and maximum HIC receptors for operation are shown in Figure 11-3.

The maximum operational impact cancer risk from 2016, 2021, or 2032 at the location of the MEIR is predicted to be 2.37 in 1 million. The MEIR is located approximately 340 meters northwest from the facility boundary. The maximum operational impact cancer risk from 2016, 2021, or 2032 at the location of the MEIW is predicted to be 0.760 in 1 million. The MEIW is located approximately 960 meters from the facility's southeast boundary. The maximum operational impact cancer risk from 2016, 2021, or 2032 at the location of the sensitive receptor is predicted to be 0.823 in 1 million. The sensitive receptor is located approximately 1,750 meters from the facility's northeast boundary. Maximum impacts at the MEIR, MEIW, and sensitive receptor locations would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million.

The HIC and HIA non-carcinogenic impacts from operation would be well below the SCAQMD significance threshold of 1.0.

TABLE 11-13a
2016 Operation Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA*
MEIR	0.557 per million	0.0006	N/A
MEIW	0.417 per million	0.0013	N/A
Sensitive Receptor	0.279 per million	0.0003	N/A
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

*Not applicable. Diesel particulate matter does not have an acute health effect. Short-term effects are accounted for in the particulate matter NAAQS.

TABLE 11-13b
2021 Operation Risk Summary

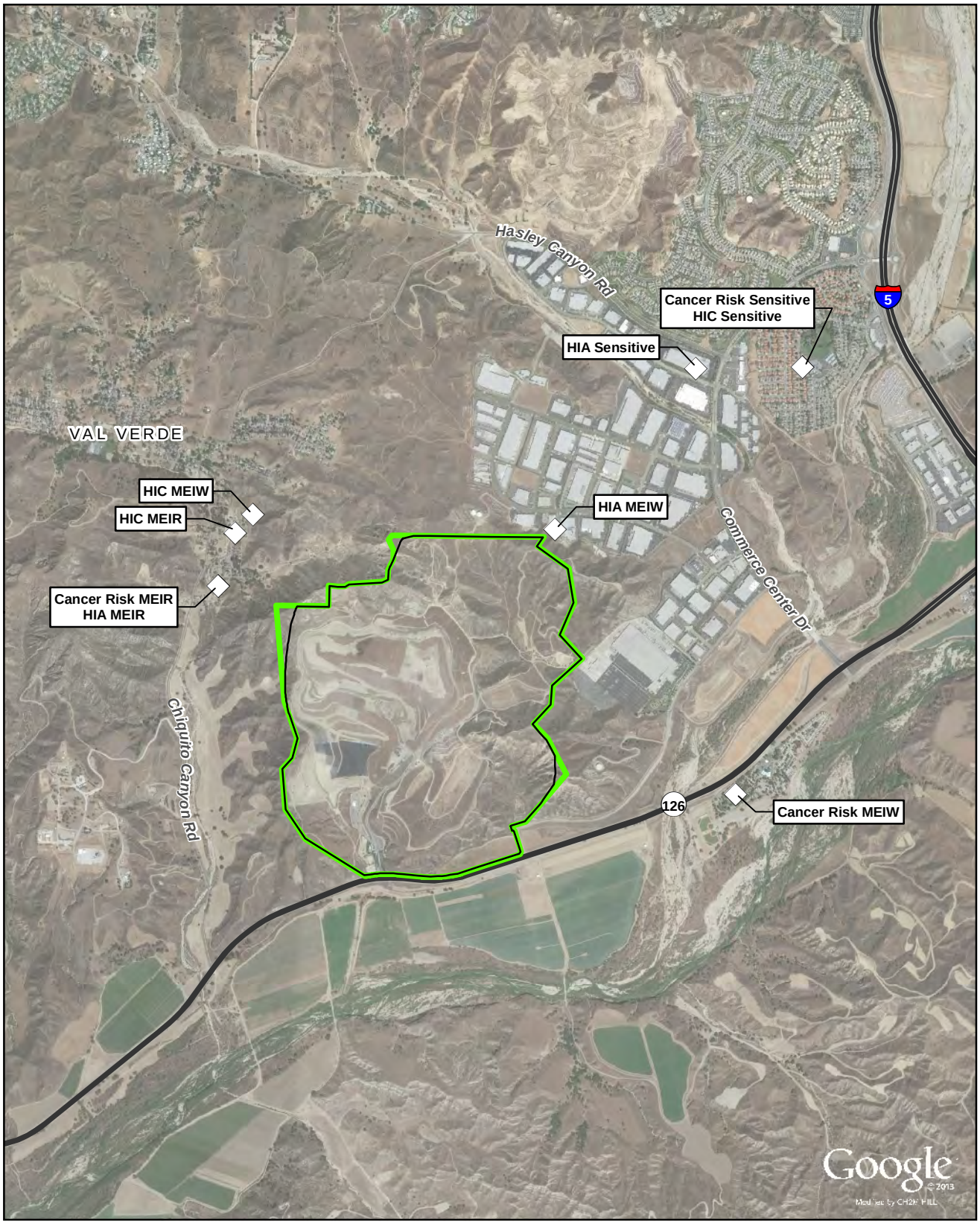
Receptor Location	Max Cancer	Max HIC	Max HIA
MEIR	0.947 per million	0.0026	0.027
MEIW	0.760 per million	0.0028	0.053
Sensitive Receptor	0.510 per million	0.0007	0.016
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

TABLE 11-13c
2032 Operation Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA
MEIR	2.370 per million	0.0163	0.339
MEIW	0.652 per million	0.0182	0.385
Sensitive Receptor	0.823 per million	0.0015	0.163
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

The analysis of operational impacts on public health above demonstrates that the operational impacts would be less than significant.

Additionally, the sum of maximum health impacts from construction, shown in Tables 11-13a, 11-13b, and 11-13c, would be below the SCAQMD thresholds.



LEGEND

- Maximum Health Impact Location
- Major Road
- Limit of Disturbance
- Project Boundary

N

0 0.25 0.5

Miles

FIGURE 11-3
Maximum Health Impact Locations from Proposed Project Operation Activities
Chiquita Canyon Landfill
Master Plan Revision

Project Design Measures

Same as previously described under Impact AQ-1.

Impact AQ-10: *Operation would not create objectionable odors affecting a substantial number of people. Operation impacts would be less than significant.*

Impact Discussion. The Bay Area Air Quality Management District (BAAQMD) recognizes that there is not one piece of information that can solely be used to determine the significance of an odor impact. Therefore, the information provided in Section 11.2 and Appendix F was evaluated collectively to determine the potential for a significant odor impact. The BAAQMD *CEQA Air Quality Guidelines* suggest that it is possible for an existing odor source to have nearby sensitive receptors, but due to existing factors (wind, topography, seasonality of the odor source, etc.) may not discover any odor complaints from all nearby sensitive receptors. This statement holds true for CCL, in that the 13 confirmed complaints discussed above all came from the Val Verde neighborhood located northwest of the landfill. The additional areas of developed land identified in Figure 11-1 do not have any history of confirmed odor complaints on file for the timeframe evaluated. While there are some sensitive receptors/land uses located near the landfill boundaries, CCL is an existing odor source with a less-than-significant complaint history.

Currently, CCL also employs a comprehensive approach to controlling odors by employing several odor control measures. The utilization of LFG collection and control systems, daily cover, water trucks, odor neutralizers, and good housekeeping practices, when applied in concert, can be effective in reducing the creation as well as the transport of offensive odors. CCL also utilizes portable wind fans that can be moved around the landfill boundaries and ridge line based on the immediate wind conditions, supplementing the air flow to dissipate odors. Occasionally, the District Inspectors will visit the landfill when responding to odor complaints. Inspectors have recorded actions used by CCL to mitigate the odors at the time of their visit, including spraying odor neutralizers, utilizing portable wind fans, and delaying future deliveries of alternative daily cover from the supplier to allow for the wind patterns to change, reducing impacts to the neighborhood.

SCAQMD does have conditions in the CCL Title V operating permit requiring the landfill to stop operations if confirmed odors cannot be mitigated. The landfill can be penalized for failing to cease operations or mitigate odors as required in the operating permit. Once the odors are mitigated, the landfill may resume operations.

Additionally, CCL has an Odor Hotline (phone number: 661-253-5155) the public can call to report odor complaints, allowing faster, more direct action to be taken to resolve the complaint. Some SCAQMD odor complaints for CCL included notes from the District Inspector indicating that CCL's Assistant District Manager and Vice President responded to odor complaints by visiting the complainants at their residences to quickly address any issues.

CCL has sensitive receptors near its boundaries, but based on the existing complaint history and current operational practices the odor-related impacts are less than significant.

Project Design Measures

Project Design Measures related to odor impacts are described above as part of the significance determination.

11.7 Mitigation Measures

Impacts have been mitigated to the extent feasible through the implementation of Project Design Measures. Therefore additional mitigation measures have not been identified.

11.8 Significance After Mitigation

Impacts from the Proposed Project have been mitigated to the extent feasible through the implementation of the Project Design Measures described in Section 11.6.3. Implementation of the Project Design Measures would result in less-than-significant impacts associated with air quality.

11.9 Cumulative Impacts

The cumulative impact analysis considers the combined air quality impacts of the Proposed Project with the nearby related projects identified in Chapter 3.0, General Setting and Resource Area Analysis. The cumulative projects discussed in Chapter 3.0 would add a combination of residential, commercial, open space, public, and industrial uses in the vicinity of the Proposed Project. The Newhall Ranch developments, located immediately south, east, and west of the Proposed Project, would be the most likely to experience air quality impacts related to project construction and operation. Specific implementation timelines for the Newhall Ranch developments are not available; however, construction is not expected to be complete until after project year 2016, therefore, potential cumulative impacts were not assessed for that year.

This section presents the potential cumulative construction and operation impacts resulting from implementation of the Proposed Project.

11.9.1 Cumulative Construction Impacts

11.9.1.1 Criteria Pollutant Emission Impacts

Potential cumulative criteria pollutant emission impacts resulting from construction of the Proposed Project were assessed. The estimated maximum daily construction emissions for project year 2021 are presented in Table 11-6b, above. No construction activities are expected to occur in 2032; therefore, the project would not have any emissions associated with construction in that year. The potential cumulative impacts from construction emissions were analyzed using the AERMOD dispersion modeling system and compared to the ambient air thresholds. An enhanced receptor grid was used to capture future land use changes due to cumulative projects.

Table 11-14 provides a summary of the dispersion model predicted cumulative impacts from construction emissions compared to the ambient air quality thresholds for criteria pollutants for project year 2021. As mentioned previously, dispersion modeling was not conducted for construction activities during project year 2032 because no construction activities are scheduled during that time for the project. All pollutant concentrations associated with construction activities would be below their respective ambient thresholds for each applicable averaging period.

TABLE 11-14
2021 Cumulative Construction Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold[a] (µg/m³)	Above Threshold?
SO_2	1-hour	0.5	39	196	No
SO_2	3-hour	0.2	26	1,300	No
SO_2	24-hour	0.04	10	105	No
CO	1-hour	140	2,062	23,000	No
CO	8-hour	31	1,547	10,000	No
NO_2	1-hour	59[b]	113	188	No
NO_2	Annual	0.11	28	57	No
PM_{10}	24-hour	7.9	N/A	10.4	No
PM_{10}	Annual	0.02	N/A	1	No
$PM_{2.5}$	24-hour	1.7	N/A	10.4	No
$PM_{2.5}$	Annual	0.005	N/A	1	No

[a] The more stringent of the NAAQS/CAAQS/LST

[b] NO_2/NOx distance method used

Given the short duration of each construction period, the conservativeness of the emission estimates for determining maximum daily construction emissions, the large size of the Proposed Project site, and characteristics of the construction emission sources, modeled cumulative ambient air quality impacts at offsite receptors would be less than significant. Therefore, although the Proposed Project construction periods may temporarily exceed the mass daily emission thresholds, after the implementation of Project Design Measures the overall cumulative impact from construction activities would be less than significant based on modeled ambient impacts from criteria pollutant emissions.

11.9.1.2 Health Impacts

Table 11-15 presents a summary of the cumulative maximum health impacts that would occur for construction activities associated with the Proposed Project for project year 2021. The locations of the cumulative maximum cancer risk and cumulative maximum HIC receptors for construction are shown in Figure 11-4.

The maximum cumulative construction impact cancer risk for project year 2021 at the location of the residential maximally exposed individual (MEIR) is predicted to be 2.54 in 1 million. The maximum cumulative construction impact cancer risk for project year 2021 at the location of the worker maximally exposed individual (MEIW) is predicted to be 2.03 in 1 million. The maximum cumulative construction impact cancer risk for project year 2021 at the sensitive receptor location is predicted to be 2.54 in 1 million. Because the Newhall Ranch developments include residential, commercial, open space, public, and industrial areas, receptors could not be specified. Therefore, any receptor within the development was conservatively considered either residential, worker, or sensitive. The MEIR, MEIW, and sensitive receptor is located approximately 400 meters west of the facility boundary in the Newhall Ranch development. Maximum cumulative impacts at the MEIR, MEIW, and sensitive receptor locations would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million.

The cumulative HIC non-carcinogenic impacts from construction would be well below the SCAQMD significance threshold of 1.0 (see Table 11-15).

TABLE 11-15
2021 Cumulative Construction Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA*
MEIR	2.54 per million	0.00646	N/A
MEIW	2.03 per million	0.00646	N/A
Sensitive Receptor	2.54 per million	0.00646	N/A
SCAQMD Significance Threshold	10 in one million	1.0	1.0

*Not applicable. Diesel particulate matter does not have an acute health effect. Short-term effects are accounted for in the particulate matter NAAQS.

Based on the predicted cumulative public health impacts from construction of the Proposed Project, cumulative impacts would be less than significant.

Additionally, the sum of cumulative maximum health impacts from construction, shown in Table 11-14, and operation, shown in Tables 11-17a, and 11-17b, would be below the SCAQMD thresholds.

11.9.2 Cumulative Operation Impacts

11.9.2.1 Criteria Pollutant Emission Impacts

Potential cumulative criteria pollutant emission impacts resulting from operation of the Proposed Project were assessed. The estimated operational emissions are presented in Tables 11-9b and 11-9c for project years 2021 and 2032, respectively. The potential cumulative impacts from operational emissions were analyzed using the AERMOD dispersion modeling system and compared to the ambient air thresholds. An enhanced receptor grid was used to capture future land use changes due to cumulative projects.

Tables 11-16a and 11-16b provide a summary of the cumulative model results from operational impacts as compared to the air quality thresholds for project years 2021 and 2032, respectively. NO_X, SO_2, and CO cumulative concentrations would be below their respective threshold for each applicable averaging period. Annual $PM_{2.5}$ cumulative concentrations would be below the threshold. However, the project would exceed the PM_{10} annual and PM_{10} and $PM_{2.5}$ 24-hour thresholds for project years 2021 and 2032 once construction of the Newhall Ranch developments has begun.

TABLE 11-16a
2021 Cumulative Operation Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold[a] (µg/m³)	Above Threshold?
SO_2	1-hour	5	39	196	No
SO_2	3-hour	4	26	1,300	No
SO_2	24-hour	1	10	105	No
CO	1-hour	59	2,062	23,000	No
CO	8-hour	25	1,547	10,000	No
NO_2	1-hour	29[b]	113	188	No
NO_2	Annual	3	28	57	No
PM_{10}	24-hour	17.1	N/A	2.5	Yes
PM_{10}	Annual	2.8	N/A	1	Yes
$PM_{2.5}$	24-hour	4.2	N/A	2.5	Yes
$PM_{2.5}$	Annual	0.7	N/A	1	No

[a] The more stringent of the NAAQS/CAAQS/LST

[b] NO_2/NOx distance method used

TABLE 11-16b
2032 Cumulative Operation Dispersion Model Results

Pollutant	Averaging Period	Model Result (µg/m³)	Background (if applicable) (µg/m³)	Threshold* (µg/m³)	Above Threshold?
SO_2	1-hour	10	39	196	No
SO_2	3-hour	8	26	1,300	No
SO_2	24-hour	3	10	105	No
CO	1-hour	62	2,062	23,000	No
CO	8-hour	24	1,547	10,000	No
NO_2	1-hour	71	113	188	No
NO_2	Annual	2	28	57	No
PM_{10}	24-hour	17.0	N/A	2.5	Yes
PM_{10}	Annual	2.8	N/A	1	Yes
$PM_{2.5}$	24-hour	4.2	N/A	2.5	Yes
$PM_{2.5}$	Annual	0.7	N/A	1	No

*The more stringent of the NAAQS/CAAQS/LST

LEGEND

- Maximum Health Impact Location
- Major Road
- Limit of Disturbance
- Project Boundary

N

0 0.25 0.5

Miles

FIGURE 11-4
Maximum Cumulative Health Impact Locations from Proposed Project Construction Activities
Chiquita Canyon Landfill
Master Plan Revision

Given the conservativeness of the emission estimates for determining maximum daily emissions and the variability of operations of the facility day-to-day, these increases in maximum daily emissions would result in a less-than-significant cumulative modeled ambient impact on air quality at offsite receptors for NOx, SO_2, CO, and annual $PM_{2.5}$. Therefore, although the Proposed Project maximum emissions periods may temporarily exceed the mass daily emission thresholds, after the implementation of Project Design Measures the overall cumulative impact from operational activities would be less than significant for NOx, SO_2, CO, and annual $PM_{2.5}$ based on modeled ambient impacts from criteria pollutant emissions.

PM_{10} annual and PM_{10} and $PM_{2.5}$ 24-hour cumulative concentrations would exceed their respective thresholds for project years 2021 and 2032, primarily due to fugitive dust from travel on onsite paved roads. Continuous watering of onsite paved roads to mitigate PM_{10} and $PM_{2.5}$ cumulative impacts was considered; however, it was determined that mitigation would not be feasible because of water availability concerns in the project area. Therefore, the overall cumulative impact from operational activities would be significant and unavoidable for PM_{10} and $PM_{2.5}$ based on modeled ambient impacts from criteria pollutant emissions. Impacts would not occur until construction of the proposed Newhall Ranch developments.

11.9.2.2 Localized CO Impacts

A CO hotspot analysis of the worst intersections and dispersion modeling of emissions from operation activities were conducted for the Proposed Project to evaluate whether an air quality standard would be violated. Cumulative projects expected to affect traffic conditions in the project area include the Newhall Ranch developments and the SR-126 Improvements Project. The SR-126 Improvements Project would improve traffic conditions at the SR 126/Commerce Center Drive intersection and the project is proposed to accommodate future traffic growth in the area. The Newhall Ranch developments would require detailed CEQA analysis and adequate mitigation measures; therefore, it is reasonable to assume that they would also include mitigation measures (including roadway and intersection improvements) to reduce any cumulative traffic impacts on the surrounding road network to a less-than-significant level. Therefore operation of the Proposed Project would have a less-than-significant cumulative impact for CO at offsite receptors and at hotspots near roadways.

11.9.2.3 Health Impacts

Tables 11-17a and 11-17b present a summary of the maximum cumulative health impacts that would occur for operation activities associated with the Proposed Project in the years 2021 and 2032, respectively. The locations of the maximum cumulative cancer risk and maximum cumulative HIC receptors for operation are shown in Figure 11-5.

The maximum cumulative operational impact cancer risk for project years 2021 or 2032 at the location of the MEIR is predicted to be 5.66 in 1 million. The maximum cumulative operational impact cancer risk for 2021 or 2032 at the location of the MEIW is predicted to be 1.33 in 1 million. The maximum operational impact cancer risk for 2021 or 2032 at the location of the sensitive receptor is predicted to be 5.66 in 1 million. The MEIR, MEIW, and sensitive impacts are located 860 meters east from the facility boundary in the Newhall Ranch development. Maximum cumulative impacts at the MEIR, MEIW, and sensitive receptor locations would not exceed the SCAQMD cancer risk significance threshold of 10 in 1 million.

The HIC and HIA non-carcinogenic cumulative impacts from operation would be well below the SCAQMD significance threshold of 1.0.

TABLE 11-17a
2021 Cumulative Operation Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA
MEIR	3.77 per million	0.00755	0.0764
MEIW	1.33 per million	0.00755	0.0764
Sensitive Receptor	3.77 per million	0.00755	0.0764
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

TABLE 11-17b
2032 Cumulative Operation Risk Summary

Receptor Location	Max Cancer	Max HIC	Max HIA
MEIR	5.66 per million	0.030	0.56
MEIW	1.12 per million	0.030	0.56
Sensitive Receptor	5.66 per million	0.030	0.56
SCAQMD Significance Threshold	10 in 1 million	1.0	1.0

The analysis of cumulative operational impacts on public health above demonstrates that the cumulative operational impacts would be less than significant.

Additionally, the sum of cumulative maximum health impacts from construction, shown in Table 11-14, and operation, shown in Tables 11-17a, and 11-17b, would be below the SCAQMD thresholds.

11.9.2.4 Odor Impacts

As discussed under Impact AQ-10, CCL employs a comprehensive approach to controlling odors by employing numerous odor control measures. When the Newhall Ranch development has been constructed, additional sensitive receptors will be located near the CCL site boundaries. CCL will continue to implement current operational practices associated with odor control; therefore cumulative odor-related impacts are expected to be less then significant.

11.9.3 Mitigation Measures Required for Cumulative Impacts

Impacts have been mitigated to the extent feasible through the implementation of Project Design Measures. Therefore, additional mitigation measures have not been identified.

LEGEND

- Maximum Health Impact Location
- Major Road
- Limit of Disturbance
- Project Boundary

N

0 0.25 0.5

Miles

FIGURE 11-5
Maximum Cumulative Health Impact Locations from Proposed Project Operation Activities
Chiquita Canyon Landfill
Master Plan Revision