6. Air Quality

This chapter describes the existing air quality conditions and odor setting, identifies applicable regulations, and evaluates potential air quality impacts that could result from implementation of the proposed project under Plan Concept 1 and Plan Concept 2 of the Renewable Placer: Waste Action Plan (WPWMA 2020a). Where the analysis indicates that significant air quality impacts would result from project implementation, mitigation measures are recommended to reduce impacts. The environmental and regulatory settings for air quality in the project area have been described previously in the Sunset Area Plan (SAP) Draft Environmental Impact Report (DEIR) and Final Environmental Impact Report (FEIR) (Placer County 2018, 2019) and Placer County Conservation Program (PCCP) Environmental Impact Report (EIR) (Placer County 2020). The descriptions of the environmental and regulatory settings for air quality in this section have been adapted from those references, with updates of pertinent information for the proposed project.

The methods used to conduct this air quality analysis are consistent with guidance from the Placer County Air Pollution Control District (PCAPCD), the California Air Resources Board (CARB), the California Office of Environmental Health Hazard Assessment (OEHHA), and the U.S. Environmental Protection Agency (EPA). The approach was also part of ongoing discussions with the PCAPCD through a technical air group. The analysis addresses pertinent comments from the public and agency scoping period, including general concerns from the County of Placer – Office of the County Executive about air quality, odor, traffic, and cumulative impacts, and specific concerns about impacts associated with odors emitted from the Western Regional Sanitary Landfill (WRSL), composting operations, waste excavation and relocation, and other sources in the project area.

6.1 Methodology

The proposed project, with implementation of project design measures, would generate construction and operational emissions of nitrogen oxides (NOx), reactive organic gases (ROG),[17] 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 ($PM_{2.5}$), carbon monoxide (CO), and sulfur oxides (SOx). The proposed project would also result in toxic air contaminant (TAC) emissions and odors.

The methods used to estimate emissions and assess potential impacts to air quality and human health for the proposed project are consistent with the California Environmental Quality Act (CEQA) Air Quality Handbook (PCAPCD 2017a) and accepted industry standards. The two separate Plan Concepts associated with the proposed project have been analyzed at an equal level. Plan Concept 1 and Plan Concept 2 would include similar project elements, but the locations, timing, and characteristics of the elements would differ. The Methodology for Air Quality and Greenhouse Gas Impact Analysis (Jacobs and WPWMA 2020b), presented in Appendix C.1, provides additional details regarding the PCAPCD-approved methods used to quantify and analyze potential air quality and health impacts associated with emissions from project-related construction and operations, fugitive emissions, air toxics, greenhouse gases (GHGs), and odors. Emission calculations quantifying criteria pollutant, TAC, and GHG emissions estimates for the proposed project are presented in Appendix C.2. LandGEM modeling results showing predicted annual landfill gas generation values for the proposed project are included in Appendix C.3. The Air Dispersion and Health Risk Assessment Modeling Protocol (Jacobs and WPWMA 2020a) detailing the methods used to complete the health risk assessment (HRA) is provided in Appendix C.4. The Health Risk Assessment Modeling Report (Jacobs and WPWMA 2021), which contains the results of the HRA, is presented in Appendix C.5.

[17] Throughout this document, the terms reactive organic gases (ROG) and volatile organic compounds (VOCs) have been used interchangeably.

Emissions have been estimated for the incremental increases in activity over time associated with the proposed project; emissions have not been calculated for the existing facility operations. Baseline activity levels in 2018 and future activity levels forecasted for 2050 have been quantified to assess the changes in activity levels associated with each Plan Concept. Some activities, such as landfilling, are expected to extend beyond the project time frame, but the analysis focuses on impacts through 2050 as the project period due to uncertainty associated with operations occurring more than 30 years in the future.

To answer the CEQA questions and evaluate the significance of impacts, estimates of total project-related construction emissions and estimated net changes in total operational emissions have been compared to the PCAPCD CEQA significance thresholds for construction phase, operational phase, and cumulative-level emissions, as described in the 2017 CEQA Air Quality Handbook (PCAPCD 2017a). In addition, an HRA has been conducted to assess potential impacts to human health associated with TAC emissions from the proposed project, consistent with the OEHHA 2015 *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015).

For air quality impacts identified as significant or potentially significant, mitigation measures have been identified. When feasible, the effectiveness of mitigation measures has been assessed and results compared to applicable air quality thresholds of significance.

Methodologies were developed and used for the following existing and proposed sources of emissions:

- Construction Emissions, including emissions associated with construction-related off-road equipment exhaust, on-road vehicle exhaust, and fugitive dust. Emissions would be generated due to construction of new and updated facilities and infrastructure for solid waste elements, complementary and programmatic elements,[18] and supporting elements.
- Operation Emissions, including operation-related off-road equipment exhaust, on-road vehicle exhaust, stationary-source exhaust, fugitive dust, fugitive landfill gas (LFG), and compost facility process emissions. Operational activities for the proposed project would include incremental increases in the following:
  - Onsite and offsite vehicle trips, including waste haul truck trips and worker commute trips
  - Fugitive LFG
  - Operation of the LFG-to-energy plant and flare(s)
  - Off-road equipment used to place and cover waste in the landfill modules

[18] Complementary and programmatic elements will include proposed compatible manufacturing, pilot study area, university research area, and LFG to compressed natural gas (CNG) area. These are all defined under a variety of light-industrial, laboratory research, and manufacturing land uses. The associated construction emissions were calculated using CalEEMod with the defined manufacturing land use type and building footprint area. Construction of 300,000 square feet (ft^2) of building space and 300,000 ft^2 of parking and roads for complementary elements was analyzed quantitatively. This analysis did not quantitatively evaluate the timing or impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required prior to construction.

- Off-road equipment and processes to operate updated facilities for materials recovery, composting, construction and demolition (C&D) waste management, and the public waste and household hazardous waste drop-off areas
- Operation of complementary and programmatic elements[19]

Additional information regarding current site operations can be found in Chapter 1: Introduction. Detailed descriptions of proposed changes associated with Plan Concept 1 and Plan Concept 2 can be found in Chapter 3: Project Description.

As part of the methodology, current emission reduction measures implemented at the Western Placer Waste Management Authority (WPWMA) facilities were identified, and additional best management practices (BMPs) were developed to reduce emissions during construction and operation. These current emission reduction measures and additional BMPs, listed in Table 6-1, would be incorporated into the proposed project as project design measures. Documented emission reduction benefits are referenced and reflected in the construction and operation emissions calculations provided in Appendix C.2.

Table 6-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures

Current Emission Reduction Measures: The WPWMA currently implements the following emissions reductions measures on an ongoing basis, and these measures would continue to be implemented during construction and operation of the proposed project.
▪ Onsite vehicles are routed along the most direct, feasible routes (while also considering safety).
▪ Electrically powered equipment is used to the extent feasible.
▪ Speed limits of 25 miles per hour (mph) on paved roads and 15 mph on unpaved roads are currently enforced. Speed limits of 15 mph on paved and unpaved roads will be enforced under the proposed project.
▪ Permanent onsite haul roads are paved, to the extent feasible.
▪ Temporary unpaved roads are surfaced with low-dust courses of material.
▪ Unpaved roads are watered 2 times daily, dependent on conditions, including weather.
▪ Soil stabilizers are used in areas with long-term exposure of disturbed or unvegetated surfaces (for example, stockpiles).
▪ Trucks hauling dirt, sand, or other loose materials for onsite construction projects on public roadways are covered or maintain at least 2 feet of free board in accordance with the requirements of *California Vehicle Code* Section 23114.
▪ Disturbed areas are covered with erosion control materials if needed.
▪ Street sweepers are used on paved areas adjacent to Waste Recovery operations as needed during rainy periods to reduce mud, and during dry periods to reduce dust.

[19] Operation of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements was analyzed quantitatively using CalEEMod with the defined manufacturing land use type and building footprint area. This analysis does not provide project-level analysis of the air quality impacts of operation of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required.

Table 6-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures (continued)

Current Odor Management Practices: The WPWMA currently implements the following emissions reductions measures on an ongoing basis, and these measures would continue to be implemented during construction and operation of the proposed project.
▪ Materials recovery facility (MRF) odor management practices focus on timely and consistent processing of the materials and regular housekeeping and cleaning to avoid the accumulation of potentially odiferous materials: – Process waste (sort materials to recover marketable commodities and transport residue to the WRSL for burial) within 48 hours of receipt. – Screen alternative daily cover (ADC) generated from MRF fines to a 0.5-inch minus size to limit food waste presence. – Transport all ADC to the WRSL daily as produced; no overnight storage of ADC at the MRF. – Transport residual wastes to the WRSL daily as produced; limit overnight storage of residue in trailers to situations in which the MRF is operated outside of the landfill waste acceptance hours. – Continuously operate the stormwater pond aeration system to the degree that (1) the aerators are fully submerged and (2) the dissolved oxygen level in the pond is less than 1 milligram per liter. ▪ WRSL odor management practices are implemented to minimize the potential for offsite odors: – Promptly place daily and intermediate cover; minimize open-air exposure time of wastes. – Plan each day's filling operations and when areas of previously buried waste will need to be exposed. – At start of daily filling operations, establish one or more daily active working faces. The daily active working face is the only area(s) where wastes are exposed. – Minimize the size of the working face to that necessary to maintain operator and customer safety. – Bury sludges and other highly odiferous loads immediately upon receipt. – Use soil or "fines" recovered from the MRF or C&D processing as ADC as follows: • A 6-inch minimum layer of onsite, native soil. • A 6-inch layer of MRF fines covered by a 6-inch layer of onsite, native soil. • A 6-inch layer of MRF fines covered by a 6-inch layer of C&D fines. • Restrict use of ADC fines to areas that will receive additional fill within 24 hours. • Exposure of ADC fines more than 24 hours is prohibited. – At the end of each operating day, place a layer of daily cover materials (soil or ADC) over the active working face to completely cover all wastes. – Compact daily cover to minimize odor transmission by track-walking the materials with a Caterpillar D-6 low ground pressure dozer or equivalent, at a minimum. – Daily cover soil may be removed at the start of the operational filling day to minimize overall soil disposal rates. MRF fines and dried sewage sludge used as ADC remain in place once applied. – Place and compact a minimum of 12 inches of intermediate soil cover over areas where landfilling operations will not occur for 180 days or more. ▪ Compost (organics management) odor management practices: – Implement the odor impact minimization plan (OIMP) (WPWMA 2018, 2020c). – Initial processing (grinding) of green materials is performed within 7 calendar days of receipt. – Windrow composting is limited to green waste only unless otherwise approved; all other materials are composted using aerated static pile (ASP) methods. – Maintain materials in the composting windrows for at least 8 weeks. – Continuously operate the compost pond aeration system to the degree that (1) the aerators are fully submerged and (2) the dissolved oxygen level in the pond is less than 1 milligram per liter.

Table 6-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures (continued)

▪ LFG odor management practices implemented at the WRSL to minimize the potential for LFG odors: – Comply with the provisions of 40 *Code of Federal Regulations* (CFR) Part 60 Subpart WWW and Title 17, *California Code of Regulations* (CCR) Section 95460, et seq. – Maximize the recovery of LFG from the WRSL.
Construction Emission Reduction BMPs Incorporated as Project Design Measures:
▪ The WPWMA would require the following Construction BMPs and include them as specifications for project-related construction and building contracts and Standard Notes on Grading/Improvement Plans submitted for construction: – Prior to beginning construction activity, Contractor(s) must submit a Construction Emission/Dust Control Plan to PCAPCD when the project area to be disturbed is greater than one acre. The Dust Control Plan must be submitted to the PCAPCD a minimum of 21 days before construction activity is scheduled to commence. The Dust Control Plan can be submitted online via the fill-in form: http://www.placerair.org/dustcontrolrequirements/dustcontrolform. – Suspend grading during excessive wind speeds (including gusts) or when dust exceeds PCAPCD Rule 228 fugitive dust limits. – Dust cannot exceed 40 percent opacity, or go beyond property boundary at any time (PCAPCD Rule 228). – Limit traffic speeds on unpaved surfaces to 15 mph or less during construction (PCAPCD Rule 228). – Use surface stabilization, vegetative cover, paving, or approved methods to minimize wind-driven dust (PCAPCD Rule 228). – Apply water or use another method to control dust offsite (PCAPCD Rule 228). – Reduce the amount of the disturbed area where possible. – Water all exposed surfaces and disturbed areas within the construction areas at least twice daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads. – Clean vehicles to prevent dirt release/track-out (PCAPCD Rule 228). – Keep adjacent streets clean of all dirt, etc., and "wet broom" any track-out from construction vehicles and equipment (PCAPCD Rule 228). – Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. – Maintain equipment per manufacturer's specifications. – Exhaust emissions cannot exceed PCAPCD Rule 202 visible emissions limits. If exceeded, must cease operations and repair equipment within 72 hours. – Fuel all off-road and portable diesel equipment with CARB-certified diesel fuel. – Minimize idling time to less than 5 minutes for all diesel equipment, either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the CCR]). Signs shall be posted in the designated queuing areas or job sites to remind drivers and operators of the 5-minute idling limit. – No diesel engine idling, or staging or queuing areas, within 1,000 feet of any sensitive receptor. – No use or manufacture of cutback or emulsified asphalts unless compliant with PCAPCD Rule 217.

Table 6-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures (continued)

– Use electrical engines and equipment or clean fuels in generators rather than temporary diesel generators to the degree practical. – Prohibit open burning of removed vegetation (PCAPCD Rule 304). – Obtain air permits for any device or process that emits 2 pounds per day (lb/day) or more of pollutants, prior to construction/building permit issuance (PCAPCD Rule 501). ▪ Contractors must certify compliance with the State Off-Road Diesel Regulation and all diesel construction equipment must meet CARB's Tier 4 standards for off-road heavy-duty diesel engines, if feasible. ▪ Contractors must certify compliance with comply with the State On-Road Diesel Regulation and all on-road heavy-duty diesel trucks must meet CARB's Tier 3 standards for on-road heavy-duty diesel engines, or better, if feasible. ▪ Building contractors must provide the following at truck loading/unloading facilities: – Power outlets (one 110/208-volt power outlet for every two dock doors or truck parking spaces). – Signage to indicate no idling of diesel engines for more than 5 minutes. – Posted instructions for idling trucks to connect to outlets to run auxiliary equipment. ▪ Commercial buildings must be designed to meet Green Building Standards, including the following:[a] – 10 percent or greater reduction in energy use compared with 2016 Title 24 code-compliant building through energy efficiency measures or onsite renewable energy systems. – Cool roofs. – Water efficiency and conservation. – Accessible 100-volt electrical receptacles for powering of landscaping equipment and alternatives to fossil fuel generators. – Energy Star appliances and fixtures. – On-demand hot water heaters. ▪ Buildings must meet 2019 Title 24 energy efficiency standards (effective on January 1, 2020) (CEC 2018).[a] ▪ Contractors must include the following as conditions of building permits:[a] – 10 percent of parking spaces to provide electric vehicle service (charging) equipment (EVSE), or a minimum of 2 EVSE spaces for building with 2 to 10 spaces. – If more than 20 parking spaces, provide 5 percent of spaces as clearly marked, dedicated preferential parking spaces for carpools and zero-emission vehicles. – Bicycle parking areas near entrances.
Operational Emission Reduction BMPs Incorporated as Project Design Measures:
▪ The WPWMA would require the following Operational BMPs and include them as specifications on project-related contracts: – Implement dust and emission reduction BMPs from above list of Construction Emission Reduction BMPs, to the extent appropriate and feasible for solid waste elements. – Design landscaped areas with native drought-resistant plants (ground covers, shrubs, and trees) with particular consideration in plantings that are not reliant on gas-powered landscape maintenance equipment.[a]

Table 6-1. Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures (continued)

▪ Fully transition composting process from windrows to ASP, including the following: – Composting operations shall be performed consistent with the 2020 SWOP (Appendix C.6) based on weather predictions and odor risk management results. – Grinding, management, mixing, pile construction and maintenance, curing of green waste, food waste, and ASP composting materials, and storage of finished product shall be conducted according to required schedules, per the 2020 SWOP (Appendix C.6). – A biofilter cover composed of 12 inches of finished compost shall be applied over ASP piles. – ASP surface areas shall be washed down daily to remove leachate. – Leachate and compost pond aeration systems shall be managed, monitored, and periodically cleaned to maintain proper operating conditions.
▪ Use water suppression during compost screening and grinding and wood chipping and grinding operations for fugitive dust control. ▪ Use water misters and other feasible emission controls during asphalt and concrete crushing and screening operations for fugitive dust control. ▪ Where feasible and practical, perform onsite material management with electronic conveyors or trucks equipped with Tier 4 engines. ▪ Provide or use power outlets (one 110/208-volt power outlet for every two dock doors or truck parking spaces) at truck loading/unloading facilities. ▪ Comply with posted signage indicating no idling of diesel engines for more than 5 minutes. ▪ Comply with posted instructions for idling trucks to connect to outlets to run auxiliary equipment.
▪ Optimize efficiency of LFG collection system. ▪ Optimize use of remaining LFG-to-energy plant capacity to produce electricity from collected LFG and to minimize flaring of collected LFG.

[a] Project design measure for buildings constructed or operated as part of the proposed project or complementary and programmatic elements.

6.2 Environmental Setting

This description of the environmental setting for air quality in the proposed project area has been adapted from descriptions in the SAP DEIR and FEIR (Placer County 2018, 2019), with pertinent updates.

The proposed project area is in west Placer County, in the Sacramento Valley Air Basin (SVAB). The SVAB comprises the western portion of Placer County, the eastern portion of Solano County, and all of Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Yolo, and Sacramento Counties.

Ambient concentrations of air pollutants in the SVAB are affected by the amount and types of pollutants emitted and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Air quality conditions in the SVAB depend on the types and levels of emissions released by air pollutant sources, in combination with natural factors such as climate, meteorology, and topography. The following subsections describe natural conditions and three types of pollutants of concern in the SVAB, including criteria pollutants, toxic air contaminants, and odorous compounds.

6.2.1 Climate, Meteorology, and Topography

The SVAB is a relatively flat area bordered by the Northern Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta (Delta) from the San Francisco Bay Area.

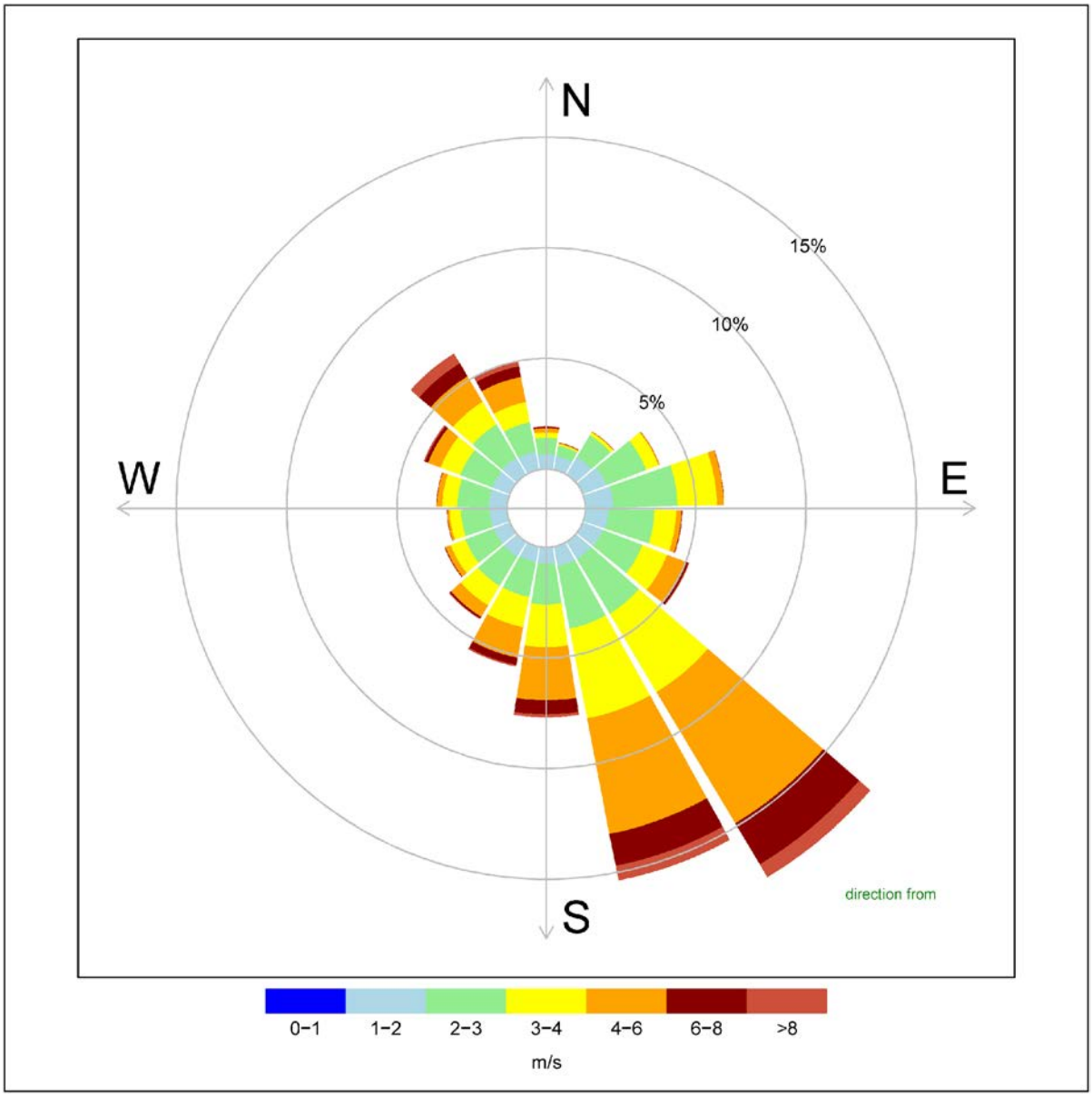
The Mediterranean climate in the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures in the air basin range from 50 degrees Fahrenheit (°F) to more than 100°F. The average winter temperature is a moderate 49°F. The inland location and surrounding mountains tend to shelter the area from the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south/southeast to dry land flows from the north/northwest.

The mountains surrounding the SVAB create a barrier to airflow, entrapping air pollutants when meteorological conditions are unfavorable for transport and dilution. Poor air movement occurs more frequently in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to higher concentrations of air pollutants under stable meteorological conditions. Surface concentrations of air pollutants like particulate matter (PM) are highest when these conditions occur in combination with temperature inversions, which hinder dispersion and trap air pollutants near the ground.

Elevated levels of ozone (O_3) typically occur May through October in the SVAB. This period is characterized by poor air movement in the mornings, relieved by the Delta breeze from the southwest in the afternoons. In addition, longer, sunny daylight hours fuel photochemical reactions between ROG and NOx, which form O_3. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to violations of ambient air quality standards.

The local meteorology in the proposed project area is represented by measurements recorded at the Lincoln Regional Airport (Karl Harder Field) station, approximately 5 miles north of the proposed project area. Figure 6-1 provides a wind rose for wind data collected from 2009 to 2018 at the Lincoln Airport (Nortech Waste LLC 2020, WPWMA 2020b). The predominant wind direction is from the southeast. Based on review of monthly wind roses for the Sacramento region provided in Appendix B of the 2020 WPWMA OIMP, the general direction of wind during winter months is from the south-southeast (to the north-northwest) and from the south-southwest (to the north-northeast) in the summer months. During the fall and early winter, winds trend in both directions, from southeast to northwest and from northwest to southeast (Nortech Waste LLC 2020; WPWMA 2020b).

The National Oceanic and Atmospheric Administration's National Centers for Environmental Information has records for that station dating back to 2009. According to these data, the average annual precipitation in the project area is approximately 20 inches, January temperatures range from a normal minimum of 36°F to a normal maximum of 56°F, and July temperatures range from a normal minimum of 61°F to a normal maximum of 96°F (Placer County 2018).



Location	Average wind speed (m/s)
KARL HARDER FIELD, CA US	2.68
Observation Period	**Number missing**
From 2009–05–10 to 2018–05–10	424
Project	**Total calm**
WPWMA	42624
Comments	**Anemometer threshold (m/s)**
Station ID: 720614–00205 Data is in 15–20 minute intervals	0.44704

Figure 6-1. Wind Rose - Lincoln Regional Airport
Draft Environmental Impact Report
Renewable Placer: Waste Action Plan
Placer County, California

Sources:
NIRS 2020, WPWMA 2020c (Nortech Waste LLC. 2020 (October 15). Nortech Incident Response System (NIRS). Roseville, CA.
WPWMA. 2020c (October). Odor Impact Minimization Plan: Western Placer Waste Management Authority Compost Facility. Revised.)

6.2.2 Criteria Air Pollutants

Ambient Air Quality Standards

The EPA has established National Ambient Air Quality Standards (NAAQS) with defined criteria for six pollutants to protect public health and welfare, with an adequate margin of safety. The NAAQS are the maximum allowable atmospheric concentrations for the six criteria pollutants: O_3, PM_{10}, $PM_{2.5}$, CO, NOx as nitrogen dioxide (NO_2), SO_2, and lead. The NAAQS include primary standards that provide public health protection and secondary standards that protect public welfare.

California's ambient air quality standards (CAAQS) have been established to protect the health of the most sensitive community members. CAAQS define the maximum amount of a pollutant (averaged over time) that can be present in outdoor air without harmful effects on people or the environment. CAAQS are often more stringent than the NAAQS. The current NAAQS and CAAQS are shown in Table 6-2

Air Monitoring Data and Attainment Designations.

Measured concentrations of the criteria air pollutants are used as indicators of ambient air quality. Monitoring data measured from 2017 to 2019 at the air quality monitoring stations closest to the project area are summarized in Table 6-3. Stations in Lincoln provide the closest recent data for O_3 and $PM_{2.5}$. For 2017, data from the station at 1445 First Street in Lincoln (6 miles from the site) have been used. For 2018 and 2019 data, the First Street station was no longer available, and the station at 2885 Moore Road, 2.6 miles from the site, provided monitoring data for O_3 and $PM_{2.5}$. The Lincoln stations do not measure PM_{10} concentrations, so PM_{10} data have been obtained from the next closest station, at 151 North Sunrise Boulevard in Roseville, approximately 12 miles from the proposed project area. CO concentrations have been obtained from the Blackfoot Way station in Antelope, approximately 11 miles from the site. Pollutant measurements taken at these stations over time are used by agencies to designate attainment status; details are provided in Table 6-3 to provide context for the relationship of the reported measurements to the area's attainment designations.

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Table 6-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[b]	NAAQS[a]	
			Primary[c]	Secondary[d]
O_3	8 hours 1 hour	0.070 ppm 0.09 ppm	0.070 ppm –	0.070 ppm –
PM_{10}	Annual arithmetic mean 24 hours	20 µg/m^3 50 µg/m^3	– 150 µg/m^3	– 150 µg/m^3
$PM_{2.5}$	Annual arithmetic mean 24 hours	12 µg/m^3 –	12 µg/m^3 35 µg/m^3	15 µg/m^3 35 µg/m^3
CO	8 hours 1 hour	9.0 ppm 20 ppm	9 ppm 35 ppm	– –
NO_2	Annual arithmetic mean 1 hour	0.03 ppm 0.18 ppm	0.053 ppm 0.100 ppm	0.053 ppm –
SO_2	24 hours 3 hours 1 hour	0.04 ppm – 0.25 ppm	– – 0.075 ppm[e]	– 0.5 ppm –
Lead[f]	Calendar quarter Rolling 3-month average 30-day average	– – 1.5 µg/m^3	1.5 µg/m^3 (certain areas) 0.15 µg/m^3 –	1.5 µg/m^3 – –
Visibility-reducing particles	8 hours	[g]	–	–
Sulfates	24 hours	25 µg/m^3	–	–
Hydrogen sulfide	1 hour	0.03 ppm	–	–
Vinyl chloride[f]	24 hours	0.01 ppm	–	–

Source: CARB 2016.

[a] NAAQS other than ozone, PM, 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, is equal to or less than the standard.

[b] CAAQS for ozone, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, and suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are not to be exceeded. All others are not to be equaled or exceeded.

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

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

[e] 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.

[f] 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.

[g] 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:

µg/m^3 = microgram(s) per cubic meter
CAAQS = California Ambient Air Quality Standards
ppm = parts per million

Table 6-3. Summary of Annual Air Quality Data (2017–2019)

Ozone (O_3)[a]	2017	2018	2019
Maximum concentration (1-hour/8-hour, ppm)	0.117/0.088	0.110/0.083	0.089/0.076
Number of days state standard exceeded (1-hour/8-hour)	4/10	4/11	0/3
Number of days national standard exceeded (1-hour/8-hour)	0/9	0/11	0/1
Ozone (O_3)[b]	2017	2018	2019
Maximum concentration (1-hour/8-hour, ppm)	0.099/0.077	0.070/0.058	0.086/0.075
Number of days state standard exceeded (1-hour/8-hour)	1/11	0/0	0/4
Number of days national standard exceeded (1-hour/8-hour)	0/11	0/0	0/3
Respirable Particulate Matter (PM_{10})[a]	2017	2018	2019
Maximum concentration (24-hour/annual, µg/m3)	66.0/*	211.3/*	63.1/15.4
Number of days state standard exceeded (measured)	*	*	2
Number of days national standard exceeded (measured)	0	2	0
Fine Particulate Matter ($PM_{2.5}$)[b]	2017	2018	2019
Maximum concentration (24-hour, µg/m^3)	31.6	227.5	35.7
Annual average (µg/m^3)	*	*	*
Number of days national standard exceeded (measured)	*	*	*
Carbon Monoxide (CO)[c]	2017	2018	2019
Maximum 8-hour concentration (ppm)	1.3	4.0	1.4
Maximum 1-hour concentration (ppm)	1.6	4.1	1.9
Number of days national standard exceeded (measured)	0	0	0

Sources: CARB, 2021; EPA, 2021.

[a] Ozone and PM_{10} measurements from Roseville-N Sunrise Boulevard station at 151 North Sunrise Boulevard, Roseville, CA. Data from iADAM: Air Quality Data Statistics. *Attainment status: Area is designated as nonattainment for the 8-hour ozone NAAQS and CAAQS (0.070 ppm), and nonattainment for the 1-hour ozone CAAQS (0.09 ppm). Area is designated attainment for 24-hour PM_{10} NAAQS. For the PM_{10} NAAQS, 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. No annual NAAQS. Designated nonattainment for annual (20 µg/m^3) and 24-hour PM_{10} (50 µg/m^3) CAAQS. CAAQS for suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are not to be exceeded.*

[b] Ozone and $PM_{2.5}$ measurements for 2017 from Lincoln station at 1445 First Street; measurements for 2018 and 2019 from Lincoln station at 2885 Moore Road (Station was moved). Data from iADAM: Air Quality Data Statistics. *Attainment status: Area is designated as nonattainment for the 8-hour ozone NAAQS and CAAQS, and nonattainment for the 1-hour ozone CAAQS. Designated nonattainment for 24-hour $PM_{2.5}$ NAAQS (attainment for annual). The 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard of 35 µg/m^3. Designated attainment for annual $PM_{2.5}$ CAAQS of 12 µg/m^3 (no 24-hour standard). CAAQS for suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are not to be exceeded.*

[c] CO measurements from North Highlands-Blackfoot Way station at 7823 Blackfoot Way, Antelope, CA. Data from EPA's Monitor Values Reports.

Note:
* = insufficient data

As indicated previously, the EPA and CARB use monitoring data collected over time to classify or designate air basins (or portions thereof) as either "attainment" or "nonattainment" with respect to the NAAQS and CAAQS. Table 6-4 summarizes the EPA- and CARB-designated attainment status for each of the criteria air pollutants in Placer County. Portions of the County are within the Sacramento nonattainment areas for the O_3 and $PM_{2.5}$ NAAQS, and portions of Placer County are also designated by CARB as nonattainment for the O_3 and PM_{10} CAAQS (EPA 2020; CARB 2020). As a result, in the proposed project area, the criteria pollutants of primary concern are the nonattainment pollutants: O_3, PM_{10}, and $PM_{2.5}$, along with the pollutants known to act as precursors to these nonattainment pollutants. For example, NOx and ROG, also known as volatile organic compounds (VOCs), are precursors to O_3.

Table 6-4. Attainment Status Designations for Placer County

Pollutant	Federal Standard	State Standard
Ozone	No Federal Standard (1-hour)	Nonattainment (1-hour)
	Nonattainment (8-hour)[a]	Nonattainment (8-hour)
PM_{10}	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
$PM_{2.5}$	Nonattainment (24-hour)	No State Standard for 24-Hour
	Attainment (Annual)	Attainment (Annual)
CO	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
NO_2	Unclassified (1-hour)	Attainment (1-hour)
	Attainment (Annual)	Attainment (Annual)
SO_2	Attainment (1-Hour)	Attainment (1-hour)
	Attainment (24-hour)	Attainment (24-hour)
	Attainment (Annual)	No State Standard for Annual
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30-day average)

Source: PCAPCD, 2017a; EPA, 2020; CARB, 2018, 2020.

[a] Effective on July 20, 2012, EPA designated the Sacramento Metropolitan Area (including Placer County) as a nonattainment area with a Severe classification for the 2008 8-hour ozone NAAQS (0.075 ppm). In 2015, EPA promulgated a new 8-hour ozone NAAQS (0.070 ppm), and in 2018, designated the Sacramento Metropolitan Area as moderate nonattainment for the 0.070 ppm standard.

Notes:
CO = carbon monoxide
NO_2 = nitrogen dioxide
PM_{10} = particulate matter with aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with aerodynamic diameter less than or equal to 2.5 microns
SO_2 = sulfur dioxide

Criteria Pollutants and Associated Health Effects.

General information on the key criteria air pollutants in the SVAB, their origins, and the health effects associated with pollutant exposure have been described previously in the SAP DEIR (Placer County 2018). The descriptions in this section have been adapted from that reference, and it is cited here.

Ozone.

Ground-level O_3, the main ingredient in smog, is not emitted directly into the air but is a regional pollutant created when ROG and NOx chemically react in the presence of sunlight. ROG and NOx are emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources. O_3 at ground level is a harmful air pollutant, because of its effects on people and the environment (Placer County 2018).

Acute health effects of O_3 exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment. Emissions of the O_3 precursors ROG and NOx have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (Placer County 2018).

Oxides of Nitrogen as NO_2.

NO_2 is a brownish, highly reactive gas that is present in urban environments. The major human-made sources of NO_2 are fuel combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NOx and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with O_3, the NO_2 concentration in a particular geographical area may not be representative of the local sources of NOx emissions (Placer County 2018).

Acute health effects of exposure to NOx includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (Placer County 2018).

Particulate Matter.

PM_{10} is emitted directly into the air and includes fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust, as well as PM formed in the atmosphere by reaction of gaseous precursors. $PM_{2.5}$ includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, C&D, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are primarily generated by the same sources as emissions of PM_{10} (Placer County 2018).

Acute health effects of PM_{10} exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects include alterations to the immune system and the initiation of cancer formation, or carcinogenesis (Placer County 2018).

Carbon Monoxide.

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily in mobile (transportation) sources. Eighty-six percent of the nationwide CO emissions are from mobile sources. Most of the remaining 14 percent consists of CO emissions from power generation, refineries, and industrial sources. Other sources of areawide CO emissions are residential fuel combustion (including wood), waste burning, and fires. Emissions of CO have been declining statewide since the mid-1970s, when catalytic converters were first required in new vehicles. Despite increases in vehicle miles traveled (VMT), CO emissions are expected to continue to decrease into the future as automotive emission controls continue to improve. The highest concentrations of CO are generally associated with cold, stagnant weather conditions that occur during winter. In contrast to O_3, which tends to be a regional pollutant, CO tends to be localized (Placer County 2018).

CO affects human health by entering the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (Placer County 2018).

6.2.3 Toxic Air Contaminants

In addition to the criteria pollutants, air quality is affected by the presence of TACs, also known as hazardous air pollutants (HAPs). TACs and HAPs are specific airborne pollutants that may pose a present or potential hazard to human health. In California, a TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, for some pollutants, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term or chronic health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or they may cause short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into cancer-causing chemicals (carcinogens) and noncarcinogens based on the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which no health impacts would occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Cancer risks from exposures to TACs are expressed as excess lifetime cancer cases per 1 million exposed individuals.

According to the *California Almanac of Emissions and Air Quality*, most of the estimated health risks from TACs can be attributed to relatively few compounds, one of the most important being diesel PM (PM emitted with exhaust from diesel engines) (Placer County 2018). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration

estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene (Placer County 2018).

Diesel PM poses the greatest health risk among these 10 TACs. Based on receptor modeling techniques, CARB estimated the level of cancer risk associated with the inhalation of diesel PM to be 360 in 1 million in the SVAB in 2000. Overall, statewide emissions of diesel PM are forecasted to decline by 71 percent between 2000 and 2035 (Placer County 2018).

6.2.4 Odorous Compounds

Air quality may also be affected by odorous compounds. Odors are generally regarded as an annoyance or nuisance, rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (for example, irritation, anger, or anxiety) to physiological (for example, circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors is subjective and varies considerably in any given population. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity to odors in general; and still others may have variable sensitivity dependent on specific substances. In addition, people may have different reactions to the same odor: an odor that is offensive to one person may be acceptable to another (for example, fast-food restaurant or coffee roaster). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition occurs only with an alteration in the intensity. Land uses that are major sources of odor typically include landfills, MRFs, composting operations, wastewater treatment and pumping facilities, painting/coating operations, feed lots/dairies, and various industrial uses such as chemical manufacturing and food processing (Placer County 2018).

The meteorological and topographical conditions in the project area described in Section 6.2.1 also affect the concentration and dispersion of odors. The area surrounding WPWMA's facilities generally experiences moderate wind patterns and minimal air movement or temperature inversion conditions most of the year. These factors can result in poor dispersion of odors and result in a greater potential for odors from the WPWMA facility and other regional odor sources to be perceived by nearby receptors, regardless of facility operations or time of day (See Appendix C.6; WPWMA 2020c).

Existing Odor Sources

The SAP DEIR and FEIR described several odor sources in the project area, including the WPWMA landfill (WRSL), landfill gas (LFG), composting operation, and MRF (Placer County 2018, 2019). The *Site Wide Odor Plan for the Western Placer Waste Management Authority's Solid Waste Processing and Disposal Facility* (See Appendix C.6, WPWMA 2020c) describes other non-WPWMA odor sources in the area, including biomass facilities, wastewater treatment plants (WWTPs), a septage management facility, dairy and poultry farms, and a propane dealer. Occasional manure spreading on agricultural fields at and near the project site can also be a source of odors.

There are two potential sources of odor from waste handling, composting, and landfill operations: aerobic (with air) decomposition of the organic components of waste, and gases produced by anaerobic (without air) bacterial digestion. Within the landfill, anaerobic bacterial digestion of buried waste produces LFG, and

only the organic fraction of the landfilled waste will decompose and produce LFG. LFG is composed predominately of equal parts of the odorless gases methane (CH_4) and carbon dioxide (CO_2). LFG also includes trace amounts of VOCs, sulfur-based compounds, and ammonia. It is generally the sulfur-based compounds and ammonia that result in LFG-related odors.

Depending on conditions during composting, odorous compounds may be emitted as products of aerobic and anaerobic degradation of organic materials at any stage of the process, from raw feedstock piles, active composting piles and windrows, curing piles, finished compost piles, grinding areas, biofilters, runoff storage ponds, puddles on the site, and even surfaces where organic materials have been stored. In general, organic materials in the early stages of decomposition present the greatest risk of odors because they generate greater quantities of natural and intermediate volatile compounds, and they need more oxygen to remain aerobic (CIWMB 2007).

An odor study was conducted by Environmental Management Consulting (EMC) for the site (the study references the site as WRSL) in 2015, including the collection of 97 samples from the compost windrows, MRF, landfill face, inactive landfill surfaces, and leachate pond. Samples were analyzed in the field for hydrogen sulfide and then shipped to a laboratory for odor analysis by an odor panel. The EMC study concluded that the composting operation had comparatively low odor emissions for a windrow composting operation; however, the composting windrows made up the largest single source of odor sampled at the facility. The active face of the landfill had odor emissions typical of municipal solid waste (MSW) landfills, but the ADC (nonearthen material used to cover the landfill's active face) had high odor compared to the MSW refuse (EMC 2015).

Existing Odor Controls

Odor management practices at MRFs, landfills, and composting facilities are implemented to prevent public nuisance and excessive odor impacts in nearby neighborhoods. The WPWMA currently implements and monitors BMPs to reduce the potential for odor from the MRF, landfill, LFG, use of ADC materials, the composting facility, and other facility operations. The WPWMA's current odor management practices are listed in Table 6-1. Additional information on odor control measures at the WPWMA facilities is provided in *Review of Odor Management at Western Regional Sanitary Landfill* (SCS Engineers 2017), and in the *Site Wide Odor Plan for the Western Placer Waste Management Authority's Solid Waste Processing and Disposal Facility* (See Appendix C.6, WPWMA 2020c).

At the MRF building, the WPWMA processes, screens, stores, and manages municipal wastes, recyclables, and residues according to required schedules for waste processing from receipt to removal or transfer to another operation. The materials processed at the MRF building are primarily mixed waste that includes organic materials and other putrescible wastes that have the potential to emit odors as they begin to decompose. BMPs for odor management at the MRF focus on timely and consistent processing of the materials and regular housekeeping and cleaning of the facility to avoid the accumulation of potentially odiferous materials. MRF fines are screened to a 0.5-inch minus size to reduce the potential for larger pieces of food waste and odorous compounds to be present in the fines used as ADC. No overnight storage of ADC is allowed, and overnight storage of residue is allowed only when the MRF is operated outside of landfill waste acceptance hours; ADC is transported to the landfill on the same day it is produced. All waste is removed from processing lines, floors, baling area, ADC load-out, and other surfaces under processing equipment. Asphalt areas around the MRF are cleaned with a street sweeper or similar. The stormwater pond aeration system is operated as needed, monitored, and managed to reduce formation of odorous compounds. Good housekeeping and equipment maintenance are key to reducing odors and minimizing system downtimes.

The WPWMA operates the composting operation according to an approved OIMP (WPWMA 2018). Measures for windrow composting include good housekeeping, processing the compostable materials quickly into piles, and monitoring pile temperature and moisture content so rotation and occasional watering of piles occurs at the appropriate time. The facility uses a compost turner or loaders that reach all layers of compost down to the concrete pad. To accommodate the increasing levels of organics diversion underway in California, the WPWMA is generally composting using an open windrowing method. However, the WPWMA recently conducted a pilot-level study to evaluate co-composting of green and food waste using an ASP composting method. The WPWMA worked with the PCAPCD to obtain permits for ASP composting for the entire organics management operation, while retaining approval to use windrow composting for a portion of the feedstock (nonfood feedstock). Grinding, management, mixing, and curing of green waste, food waste, and composting materials are conducted according to required schedules. Liquids from the composting operation are directed to compost leachate ponds, which are aerated, monitored, and managed to reduce formation of odorous compounds. The OIMP mandates schedules for periodic cleaning and removal of sediment, compost, and debris from the compost pads and leachate pond systems.

The WRSL's environmental protection measures include Subtitle D-compliant liners in the active waste disposal modules, leachate and condensate collection and removal systems, and an LFG collection system. One source of odors is the active face of the landfill, where the refuse is actively being placed and covered daily. The WPWMA minimizes open-air exposure time of wastes by applying daily cover using soil or an approved ADC, placing newer wastes over older wastes on a consistent basis, and burying more-odorous loads (e.g., sludge) immediately upon receipt. The WRSL maintains a relatively small active face, with a minimum of 0.25 to 0.5 acre in size and a maximum of 1 acre. Although the WRSL is permitted to operate 7 days per week, it does not typically operate on the weekends or holidays. When the WRSL is not in operation (that is, not actively receiving waste materials for burial), all in-place wastes are covered by soil or an approved ADC. This cover serves to reduce the potential for windblown litter, vectors, and odors.

Processed MRF fines, mechanically screened to a 0.5-inch minus size, are used as ADC. MRF fines are placed on the side slopes of the daily fill area that will receive waste the following day. The landfill operator may reject any load of MRF fines because of excessive amounts of food waste or odors. Rejected loads are buried with the day's waste. When the landfill receives material for use as ADC, it is placed that day (as needed); otherwise it is disposed. The WPWMA is limited to using MRF fines for ADC only in combination with native soil or C&D fines, and only in areas where subsequent waste disposal operations will occur within 24 hours. Daily cover is placed within 4 hours of last waste receipt. A minimum of 12 inches of intermediate soil cover is placed over areas where landfilling operations will not occur for 180 days or more, consistent with the regulatory requirements identified in CCR Title 27, Section 20700. The minimum level of compaction may be achieved via track-walking the intermediate cover soils materials with a Caterpillar D-8 dozer or equivalent over the surface to minimize odor transmission (See Appendix C.6; WPWMA 2020c). PCAPCD is notified if LFG piping must be disconnected or relocated if the WPWMA anticipates the outage will cause an exceedance of the air permit monitoring criteria.

The WPWMA's current LFG management system includes a series of collection wells that remove the LFG from the waste mass (via an applied vacuum) and convey the LFG in an enclosed piping system to a central location (blower/flare station). There, the LFG is either directed to the onsite energy developer to produce electricity or to an enclosed ground flare where it is destroyed through high-temperature combustion. In January 2018, the WPWMA completed upgrades to the landfill gas collection and control system (GCCS) to accommodate LFG flows for 15 years, optimize operational efficiency through redundant system components, and avoid operational interruptions (Placer County 2018). In October 2020, the WPWMA published the Draft *Landfill Gas and Leachate Management Standard Operating Procedures (SOPs)* to document the required procedures for operations and maintenance of the GCCS and

leachate collection and recovery system at the WRSL in compliance with regulatory requirements, including federal requirements in 40 CFR 60 Subpart WWW, New Source Performance Standards for Municipal Solid Waste Landfills, and California requirements in Title 17 CCR Sections 95460 to 95476, Methane Emissions from Municipal Solid Waste Landfills. These system upgrades and SOPs minimize disruptions and reduce fugitive emissions, thereby reducing odors, CH_4 and CO_2 (greenhouse gases), and air toxic emissions associated with fugitive LFG (WPWMA 2020d).

WPWMA Odor Monitoring and Notification History

As part of continuous assessment of odor control measures and community involvement, the WPWMA routinely engages with stakeholders and the public regarding odor emissions from solid waste operations. An odor workshop is held annually to discuss regional odor sources and odor monitoring, odor reduction efforts, and the status of future planning efforts. The WPWMA has implemented many of the recommended odor mitigation measures identified in public workshops and site-specific odor studies.

In addition to implementing odor BMPs, the WPWMA conducts onsite and offsite investigations of odors and operates a sitewide continuous odor monitoring system. As part of the odor monitoring system, WPWMA conducts predictive odor risk modeling, which allows for the development of a daily odor risk forecast. The odor risk forecast allows facility operators and contractors to plan operations and minimize the potential for offsite odors.

The WPWMA uses a continuous odor monitoring system (developed and manufactured by Odotech Inc.)[20] to record the intensity of odors generated at its facility. Results are interpreted through dispersion modeling and evaluation of meteorological conditions. The odor monitoring and dispersion modeling system is used to provide quantifiable, visual representations of the probable offsite odor concentrations over time associated with the WPWMA's operations. Using data from the WPWMA's onsite weather station and dispersion modeling system, the odor monitoring system generates a graphical representation of the potential offsite transport and dispersion of odors. The WPWMA uses this information to evaluate whether its facility may have been the primary or contributing source of the reported odor. Furthermore, in situations where the WPWMA's facility was identified as a likely source of the reported odor, the specific onsite source (e.g., LFG, composting operations, and waste processing operations) is identified. This helps the WPWMA identify possible operational changes or actions at its facility to reduce the intensity or frequency of odors experienced by nearby residents. The information from the onsite weather station may be consulted prior to the scheduling of major material handling activities, and daily records are logged to generate historical site-specific weather records.

The WPWMA actively solicits odor notifications and input from the community to improve odor control over time; community input provides a real-time feedback loop. Online odor notification tools make it easy for members of the public to submit odor notifications. While the total number of odor notifications has gone up over time, this may not indicate that odor has increased, but rather that the online tools and community engagement have made it easier to report odors.

An odor notification is considered valid and attributable to the WPWMA facility if it is not attributable to livestock, the City of Lincoln wastewater treatment and reclamation facility (WWTRF), or the nearby Rio Bravo biomass facility. This methodology may over-attribute odor notifications to the facility, but the notifications should be consistently over-attributed for the years evaluated. The number of notifications does not show a significant trend and varies from year to year. The data indicate that the landfill and the composting operations are the two sources most likely to result in odor notifications when compared to the

[20] In 2018, the assets of Odotech Inc. were acquired by Envirosuite Limited, a technology company listed on the Australian Stock Exchange (Edgehill 2018).

MRF, offsite sources, and other sources. Most complaints/notifications received since 2015 are clustered in residential areas of north Roseville south of the WRSL (WPWMA 2021).

The WPWMA generates an odor investigation report for odor notifications filed using the online system. The report provides (1) a 1-page summary of the odor notification and WPWMA's analysis of reported event and (2) a short video clip from WPWMA's odor monitoring and reporting system. These files are sent to the PCAPCD and can be provided to the public via email if an email address is included when the odor notification is filed.

Table 6-5 summarizes the total number of odor notifications and the number of notifications attributed in part or solely to WPWMA facilities from 2015 through 2020 and reported to WPWMA.

Table 6-5. Odor Notifications by Year Attributed to the WPWMA Facility

Year	Total Number of Notifications[a]	Number of Notifications Attributed to WPWMA
2015	327	123
2016	113	84
2017	290	193
2018	382	331
2019	185	115
2020	283	177

Source: Oddo, pers. comm. 2020

[a] The number of notifications includes odors associated with the landfill and sources co-located with the landfill including the composting operation and MRF.

PCAPCD Odor Monitoring and Complaint Reporting System

PCAPCD staff automatically receive an email from the WPWMA's online odor notification system whenever a notification is filed that summarizes the details of the notification. The PCAPCD is therefore made aware of every odor notification received by WPWMA and has their own website and telephone reporting system for odors and other air-related complaints. PCAPCD staff have an internal procedure for responding to the odor notifications and complaints, and they assign their resources and priorities to conduct independent odor investigations based on the information provided by the complainant. If an odor complainant reports an odor that is 4 or 5 on a 1 (low) to 5 (high) intensity rating scale and provides a phone number, PCAPCD staff will call to confirm the complaint, investigate, and take enforcement or corrective action if appropriate. PCAPCD responds to all complaints reported from 8 a.m. to midnight. PCAPCD has a wide range of options to address odor complaints and typically resolves any compliance issues or violations with no monetary penalty (Springsteen, pers. comm., 2021).

PCAPCD also keeps records of odor complaints submitted to them directly (Springsteen, pers. comm., 2021). In 2011, PCAPCD received one odor complaint for the Rio Bravo Rocklin wood-waste-to-energy power plant, located approximately 1.5 miles east of the project site. A neighbor claimed offensive odors from the "smoking boiler exhaust stack," but PCAPCD was unable to confirm this was the source of the complaint. PCAPCD staff have observed "very mild odor" from fuel pile wood chips during field inspection visits to the biomass facility.

Approximately 10 years ago, PCAPCD received some odor complaints about the City of Lincoln WWTRF, which is located approximately 2 miles north of the project site. The odors were attributed to the solar drying of waste sludge in a greenhouse-like structure at the plant. Complaints were no longer received after the wastewater treatment plant stopped this practice. Since that time, PCAPCD has received additional complaints from the same complainant but has not been able to verify that the wastewater treatment plant was the source of the complaint. PCAPCD staff have observed "very mild odor" during frequent patrols at the perimeter and during annual field inspection visits to the WWTRF.

Similarly, PCAPCD occasionally receives complaints about odors from the City of Roseville Pleasant Grove WWTP, which is located approximately 7 miles from the project site. PCAPCD staff that followed up on the complaints reported a mild odor issue, likely associated with sludge management and disposal.

PCAPCD has not received any odor complaints for the following facilities located on or near the project site:

- Energy 2001, which produces electricity using LFG onsite at 3195 Athens Avenue
- Green Solutions and More, a green waste acceptance service located at 2915 Lesvos Court, approximately 1 mile east of the project site
- Wastewater treatment plant at Thunder Valley Casino Resort at 1200 Athens Avenue, approximately 2 miles east of the project site
- Inviro-Tec Disposal LLC, a freight shipping and trucking company at 2480 Athens Avenue that accepts septage and separates the liquids from the solids (with liquids discharged to the sanitary sewer and solids typically transported to the WRSL for disposal), approximately 1.5 miles northeast of the project site
- Poultry farm on the southern side of East Catlett Road, approximately 0.8 mile west of Fiddyment Road
- Mallard Creek Inc., at 4095 Duluth Avenue in Rocklin, which accepts and processes wood waste for livestock bedding material, fuel pellets, industrial fibers, and landscaping applications, approximately 2 miles southeast of the project site
- Fg Dairy, a dairy farm at 6241 East Catlett Road, approximately 3 miles west of the project site
- Roseville Energy Park Power Plant, which uses natural gas to generate electricity, approximately 4 miles southwest of the project site

PCAPCD reports that the number of odor complaints in the area have generally been reduced in the past few years, likely due to favorable weather and the WPWMA's improvements in odor-related communication and management. In November 2020, over Thanksgiving weekend, PCAPCD received hundreds of complaints for odors in the area directly west of the landfill. Upon investigation, it was determined that the source of the odors was a farmer's application of chicken manure on the farm fields west of Fiddyment Road to prepare for winter planting. Implementation of the Sitewide Odor Program (SWOP), which PCAPCD intends to add to the operating permit for the WPWMA facility, should also reduce odors and the related notifications in the future (Springsteen, pers. comm., 2021).

Sensitive Land Uses

Sensitive receptors for air quality and odor-related impacts are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, daycare facilities, playgrounds, hospitals, residential care facilities, and similar facilities are of primary concern because of the presence of individuals

particularly sensitive to pollutants or the potential for increased and prolonged exposure of individuals to pollutants.

6.3 Regulatory Setting

The description of the regulatory setting for air quality in the proposed project area in this section has been adapted from descriptions in the SAP DEIR and FEIR (Placer County 2018, 2019) and PCCP EIR (Placer County 2020), with updates of pertinent information for the proposed project.

Air quality management in California is governed by the federal and California Clean Air Acts and the California *Health and Safety Code*. Several levels of government have adopted specific regulations that limit emissions from stationary and mobile sources, some of which would be applicable to the proposed project. The agencies having authority for air quality regulation are shown in Table 6-6. The applicable federal, state, and local laws, ordinances, regulations, plans, and standards, and compliance with these requirements is discussed in more detail in the following sections.

Table 6-6. Air Quality and Permitting 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
PCAPCD	Air quality permit issuance, enforcement	Placer County Air Pollution Control District 110 Maple Street Auburn, CA 95603 (530) 745-2330
Placer County Environmental Health	Solid waste facility permit, inspections, and enforcement	The Placer County Environmental Health and Human Services Department 3091 County Center Drive Suite 180 Auburn, CA 95603 (530) 745-2300

6.3.1 Federal

EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970 and most recently amended by Congress in 1990.

Criteria Air Pollutants

EPA has established primary and secondary NAAQS for the following criteria air pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, and the secondary standards protect public welfare. NAAQS are presented in Table 6-3.

The CAA requires each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin. In California, EPA has delegated authority to manage air quality and prepare SIPs to CARB, which in turn has delegated that authority to the individual air districts.

Hazardous Air Pollutants and Toxic Air Contaminants

HAPs are hazardous or toxic air pollutants that are known carcinogens or can cause other serious health impacts. Currently, 187 air pollutants are listed as HAPs by EPA, for example, benzene, which is found in gasoline, perchloroethylene emitted from some dry cleaners, asbestos which may occur naturally, solvents like methylene chloride, and metals such as mercury, chromium, and lead compounds. EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology (MACT) standards. These standards are authorized by Section 112 of the 1970 CAA, and the regulations are published in 40 *Code of Federal Regulations* (CFR) Parts 61 and 63.

6.3.2 State

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish CAAQS (listed in Table 6-3).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing PM, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources. It provides air districts with the authority to regulate indirect sources and to establish traffic control measures.

Toxic Air Contaminants

TACs are defined as airborne pollutants that "may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health" per the *California Health and Safety Code* §39655 (PCAPCD 2017a). TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a

formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, PM exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts airborne toxics control measures for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If no safe threshold exists, the measure must incorporate Best Available Control Technology (BACT) or Best Available Control Technology for Toxics (TBACT) to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including heavy-duty trucks and buses, and off-road diesel equipment (for example, tractors, dozers, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (for example, benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (for example, Low Emission Vehicle/Clean Fuels and Phase 2 reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (Placer County 2018). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

Sierra Club v. County of Fresno

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (2018) (6 Cal. 5th 502). The case reviewed the regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The project is in unincorporated Fresno County within the San Joaquin Valley Air Basin, an area currently designated as nonattainment for multiple NAAQS and CAAQS, including O_3 and PM. The Court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality impacts from project-related emissions of criteria pollutants and precursors "in sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises." The Court noted that the air quality analysis did not provide a discussion of the foreseeable adverse effects of project-generated emissions on Fresno County's likelihood of exceeding the NAAQS and CAAQS for criteria air pollutants, nor did it explain why it was not "scientifically possible" to determine such a connection. The Court concluded that "because the EIR as written makes it impossible for the public to translate the bare numbers provided into adverse health impacts or to understand why such translation is not possible at this time," the EIR's discussion of air quality impacts was inadequate (Placer County 2019).

Odorous Compounds.

The California Department of Resources Recycling and Recovery (CalRecycle) oversees programs to manage solid wastes, promote recycling, and reduce the amount of waste sent to landfills. The CalRecycle minimum standards for odor are codified in the CCR: "All handling activities shall be conducted in a

manner that minimizes vectors, odor impacts, litter, hazards, nuisances, and noise impacts; and minimizes human contact with, inhalation, ingestion, and transportation of dust, particulates, and pathogenic organisms" (14 CCR 17867(a)(2)). These standards apply to waste collection, transport, processing, and disposal.

Requirements for statewide organic waste diversion from disposal have been increased with passage of SB 1383 (Chapter 395, Statutes of 2016). SB 1383 establishes statewide goals to reduce California's disposal of organic waste 50 percent by 2020 and 75 percent by 2025. SB 1383 regulations are codified in Chapter 12 of Title 14 CCR, Division 7 and amended portions of Title 14 CCR and Title 27 CCR. The regulations establish program and policy requirements for waste generators and facilities to support the statewide goals of SB 1383. Statewide implementation of these regulations will result in increasing levels of food waste requiring management at composting or other organics management facilities.

Information on the CalRecycle web site indicates that composting may generate odorous compounds including ammonia, hydrogen sulfide, VOCs, and mercaptans (which may smell like rotten eggs). VOCs are a class of more than 1,000 chemicals with greatly varying degrees of reactivity and toxicity. Some VOCs may be considered desirable, such as those that give off the scent of lemons, pine, or an expensive perfume. Others, like cadaverine, are offensive (CalRecycle 2021).

The level of emissions released during composting appears to be highly variable, and is influenced by feedstocks, management practices, and even climate. For example, an ammonia smell may indicate that a compost pile has too much nitrogen for the carbon present, or that the carbon chips are too large and therefore are not available for the biological processing with the nitrogen. Hydrogen sulfide and mercaptans may indicate an anaerobic condition that may have resulted from too much water or not enough air spaces (CalRecycle 2020, 2021).

State regulations to minimize odors associated with compostable materials handling operations and facilities are codified in CCR Title 14 Section 17863.4, requiring that compostable material handling operations and facilities prepare, implement, and maintain a site-specific OIMP to minimize odors. The OIMP provides guidance to operations personnel including the following:

- Odor monitoring and data collection protocol for onsite odor sources
- A description of meteorological conditions affecting mitigation of odors or transport of odor-causing material offsite
- A complaint response and recordkeeping protocol
- A description of design considerations and ranges of optimal operations to minimize odor
- A description of operating procedures to minimize odor

6.3.3 Local

Placer County's Health and Human Services Department – Environmental Health Division is the designated Local Enforcement Agency for issuing a Solid Waste Facility Permit and is also the designated Certified Unified Program Agency for Placer County coordinating administrative activities related to permits, inspections, and enforcement.

PCAPCD is responsible for implementing local air pollution control programs to improve air quality in Placer County and has local air quality jurisdiction over the proposed project area.

Criteria Air Pollutants

PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. PCAPCD oversees control of air pollution emissions including "criteria air pollutants" and "toxic air pollutants" from direct sources (such as factories) and indirect sources (such as land use projects) to improve air quality within Placer County. The clean air strategy of PCAPCD includes preparing plans for the attainment of ambient air quality standards, developing and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, and adopting policies and programs to manage emissions. PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA and CCAA and amendments (Placer County 2018).

As described previously, portions of Placer County are within the Sacramento federal nonattainment area for O_3 and $PM_{2.5}$. As a result, the PCAPCD has worked with the other local air districts within the Sacramento area to develop a regional air quality management plan to describe and demonstrate how Placer County, as well as the rest of the Sacramento nonattainment area, would attain the 2008 federal 8-hour ozone standard (75 parts per billion [ppb]) by the proposed attainment deadline (CARB 2018). In accordance with the requirements of the CAA, the PCAPCD and other air districts developed the *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan* to address attainment of the 8-hour ozone NAAQS by 2024. The plan demonstrates how existing and new control strategies will provide the necessary future emission reductions to meet the CAA requirements for reasonable further progress and attainment of the ozone NAAQS. It provides an updated emission inventory, sets new motor vehicle emission budgets for conformity purposes, and documents the implementation of control measures (El Dorado County Air Quality Management District et al. 2017).

In 2015, EPA promulgated a new 8-hour ozone NAAQS of 70 ppb, so future Sacramento area attainment planning efforts will need to address the more stringent NAAQS. According to their *2021 Board of Directors Handbook*, the PCAPCD has committed to work with the Sacramento Federal Nonattainment Area air districts to implement the plan for the 2008 federal 8-hour ozone standard (0.075 ppm) and to begin preparation of the regional ozone SIP for the 2015 standard (PCAPCD 2021a). The Sacramento region does not anticipate attainment of the 2015 8-hour ozone NAAQS by the required date for a "moderate" nonattainment classification, so they have filed a request that the area be reclassified from moderate to "serious" nonattainment. As a result, the final attainment deadline for the 2015 ozone standard is pending EPA's approval. If the reclassification request is approved, the regional ozone SIP for the 2015 ozone standard will be due in August 2022 (PCAPCD 2021a).

In 2009, the Sacramento $PM_{2.5}$ planning region was classified as nonattainment for the 2006 24-hour $PM_{2.5}$ NAAQS of 35 micrograms per cubic meter ($\mu g/m^3$). The local air districts in the Sacramento area prepared the *Proposed $PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request for the Sacramento $PM_{2.5}$ Nonattainment Area* to address how the region attained and would continue to attain the 2006 $PM_{2.5}$ NAAQS (El Dorado County Air Quality Management District et al. 2013). The region attained the standard based on 2009–2011 monitoring data but postponed the submittal of the plan because of high concentrations in 2012 that caused exceedances. On May 10, 2017, EPA found that the area attained the 2006 24-hour $PM_{2.5}$ NAAQS by the attainment date of December 31, 2015 (82 *Federal Register* [FR] 89). In order for the area to be redesignated as attainment, additional criteria in CAA Section 107(d)(3) need to be met. These criteria include EPA approval of a state plan demonstrating maintenance of the 2006 $PM_{2.5}$ NAAQS for 10 years following redesignation (82 FR 89).

The CCAA requires air districts to assess the progress made toward attaining the state air quality standards every three years. The "Triennial Reports" prepared by the air districts describe the historical trends in ambient air quality levels, provide updates to the emission inventories, and evaluate the implementation of stationary and mobile-source control measures in reducing air pollutant emissions. The PCAPCD has prepared several triennial progress reports that build upon the air quality plans in the area (Placer County 2018).

PCAPCD actively participates as a commenting agency under CEQA to assist lead agencies with environmental review when a land use project would result in air pollutant emissions within Placer County (PCAPCD 2017a, 2021). PCAPCD published the CEQA Handbook in 2017 to describe their process for review of the CEQA documents prepared for land use projects in Placer County. The Handbook contains criteria used by PCAPCD to recommend when an air quality analysis is needed, what types of analysis should be performed, and what kinds of mitigation measures should be identified to reduce overall air quality impacts from proposed land use projects. These criteria include specific methods for calculating emissions, recommended thresholds for evaluating the level of significance, and mitigation strategies for mitigating a project's related air quality impacts (PCAPCD 2017a).

All projects in Placer County are subject to PCAPCD's adopted rules and regulations. Specific rules applicable to implementation of the project under Plan Concept 1 and Plan Concept 2 may include but are not limited to the following:

- PCAPCD Rule 202 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is: A. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart.
- PCAPCD Rule 205 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property. This rule applies to odors.
- PCAPCD Rule 207 – Particulate Matter. A person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of: 0.1 grains per cubic foot of gas at District standard conditions.
- PCAPCD Rule 210 – Specific Contaminants. A person shall not discharge into the atmosphere from any source emissions exceeding 0.2 percent by volume in concentration of sulfur compounds, calculated as sulfur dioxide (SO_2), at point of discharge. A person shall not discharge into the atmosphere from any source combustion contaminants (particulate matter) exceeding 0.1 grains per dry standard cubic foot at 12 percent carbon dioxide (CO_2) at standard conditions.
- PCAPCD Rule 211 – Process Weight. A person shall not discharge into the atmosphere in any one hour from any source whatsoever solid particulate matter in excess of the listed amounts.
- PCAPCD Rule 217 – Cutback and Emulsified Asphalt Paving Materials: A person shall not discharge to the atmosphere VOCs caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance, unless such manufacture or use complies with the provisions of this Rule.
- PCAPCD Rule 218 – Application of Architectural Coatings. This rule limits the quantity of VOCs in architectural coatings used in PCAPCD's jurisdiction. Subsection 301 lists VOC content limits for a variety of architectural coatings.

- PCAPCD Rule 228 – Fugitive Dust. This rule addresses fugitive dust generated by construction and grading activities and outlines BMPs to prevent, reduce, and mitigate fugitive dust emissions. Good practices to minimize dust generation are required to prevent dust plumes and dust from leaving the property and creating a public nuisance. The minimum dust control requirements of Rule 228 must be met regardless of whether a dust control plan is required.
- PCAPCD Rule 242 – Stationary Internal Combustion Engines. Establishes concentration limits for the emission of NOx and CO from stationary internal combustion engines. This rule applies to any stationary internal combustion engine rated at more than 50 brake horsepower and using any gaseous fuel or liquid fuel, including liquid petroleum gas, gasoline or diesel fuel. This rule shall not apply to low-use engines used less than 200 hours per year or emergency generators operated for maintenance less than 100 hours per year.
- PCAPCD Rule 408 – Source Record Keeping and Reporting. The owner or operator of any stationary source, shall, upon notification from the PCAPCD, maintain records of the nature and amounts of emissions from such sources and any other information as may be deemed necessary by the PCAPCD to determine whether such source is in compliance with applicable emission limitations or other control measures. The Air Pollution Control Officer may require that such records be certified by a professional engineer, registered in the State of California. Such studies shall be at the expense of the person causing the emissions.
- PCAPCD Rule 501 – General Permit Requirements. Any person operating an article, machine, equipment, or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer. Stationary sources subject to the requirements of Rule 507, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.
- PCAPCD Regulation 5 – Permits. The series of rules in Regulation 5 provide procedures for the review of new sources of air pollution and modification and operation of existing sources through the issuance of permits, including the following:
  - Rule 501, General Permit Requirements
  - Rule 502, New Source Review
  - Rule 507, Federal Operating Permit Program
  - Rule 514, Federal Major Modifications
  - Rule 518, Prevention of Significant Deterioration (PSD) Permit Program

PCAPCD Regulation 6 – Fees. Rules governing payment of fees by emission sources, including the following:

- Rule 601, Permit Fees
- Rule 602, Hearing Board Fees
- Rule 604, Source Test Observation and Report Evaluation
- Rule 610, Air Toxics "Hot Spots" Fees

In addition to their rules and regulations, PCAPCD establishes policies and guidelines for air quality management. For example, the PCAPCD Policy Regarding Land Use Air Quality Mitigation Funds was adopted on April 17, 2001, and amended on December 11, 2008. The guidelines for the Air Quality Mitigation Fund are listed below (PCAPCD 2008):

- PCAPCD considers permanent onsite air quality mitigation the preferred method of reducing a project's emissions. However, if sufficient measures cannot be implemented onsite to adequately reduce a project's emissions, then payment into PCAPCD's Off-Site Air Quality Mitigation Fund is preferred to offset air quality impacts. Typically, funds are used to purchase cleaner on- and off-road vehicles for county projects or cleaner buses for schools.

- The amount of the payment for the criteria pollutants into the Fund is calculated based on the total amount of ROG/NOx emissions exceeding the daily thresholds for a single ozone season (that is, May through October).
- Apply a cost-effectiveness factor [$18,790 per ton at the time of preparing this EIR (PCAPCD 2021b)] to calculate the funds required to achieve the needed reduction. The cost-effectiveness factor may be adjusted by the California Consumer Price Index (CPI), starting in 2018.
- An emission reduction project is eligible for mitigation funding only if source of the emissions reduction (public or private project) is not required by existing state or federal law to reduce emissions to the levels proposed by the project.
- The source of the emissions reduction should be located within Placer County, specifically within the SVAB, primarily within the nonattainment area classified by the NAAQS.
- For criteria air pollutants of localized concern (PM, CO), it is preferred that the location of the emissions reduction be as close as possible to the project that is to be mitigated.
- The type of emissions to be reduced are of the same type as those emissions for which the Air Quality Mitigation Fee was paid.
- Examples of the types of emissions reduction projects that may be qualifying:
  - Provide monetary incentives to homeowners to replace high-polluting non-EPA certified woodstoves with new EPA certified low-emission wood, pellet or gas burning appliances.
  - Provide monetary incentives to local transit operators, public and private owners of heavy-duty diesel on-road trucks and off-road equipment to replace older, high-emission diesel engines with new, low-emission diesel or compressed/liquefied natural gas engines.
  - Use as matching funds to obtain "Carl Moyer" funding for public and private air quality improvement projects.
  - Provide monetary incentives to the agricultural industry to replace high-polluting, diesel-powered water pumps with new cleaner burning diesel or natural gas-powered agricultural pumps.
  - Alternative project designs or locations that conserve energy and water, projects that reduce VMT by fossil-fueled vehicles, projects that contribute to established regional or programmatic mitigation strategies, and projects that sequester carbon to offset the emissions generating from the land use development project.

Toxic Air Contaminants

At the local level, PCAPCD may adopt and enforce CARB's airborne toxic control measures. Under PCAPCD Rule 501 ("Permit Requirements"), PCAPCD Rule 502 ("New Source Review"), PCAPCD Rule 507 ("Federal Operating Permit"), PCAPCD Rule 513 ("Toxics New Source Review"), all stationary sources that possess the potential to emit TACs are required to obtain permits from PCAPCD. PCAPCD may grant permits to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. PCAPCD limits emissions and public exposure to TACs through a number of programs.

Sources that require a permit are analyzed by PCAPCD (for example, HRA) based on their potential to emit TACs that would expose receptors to substantial health risk. If it is determined that a source would emit TACs in excess of PCAPCD's standard of significance for TACs, then the source would have to implement BACT for TACs to reduce emissions. If a source cannot reduce the risk below the standard of significance even after BACT has been implemented, PCAPCD indicates that they will deny issuing a permit to the

source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new TAC-reduction technology when being retrofitted.

Odorous Compounds

As described previously, all projects in Placer County are subject to PCAPCD's adopted rules and regulations. Specific rules applicable to odors from implementation of the project under Plan Concept 1 and Plan Concept 2 include the prohibitions in PCAPCD Rule 205 – Nuisance, described earlier in the discussion of local regulations.

Placer County General Plan

The WPWMA is a Joint Powers Authority (JPA) composed of Placer County and the cities of Lincoln, Rocklin, and Roseville to own and operate a regional recycling facility and sanitary landfill. As a JPA, the WPWMA considers local regulations and consults with local agencies, but County and city regulations, goals, and policies are not applicable, because the County and cities do not have jurisdiction over the proposed project. Accordingly, the following discussion of local goals and policies from the Placer County General Plan is provided for informational purposes only.

The relevant goals and policies from the Placer County General Plan that pertain to air quality and odors are presented in the following (Placer County 2013). Again, the WPWMA is an independent government agency that is not required to comply with the County's goals or policies. Goal 4.G is to ensure safe waste disposal and recycling. Goal 6.F is to protect and improve air quality in Placer County, and Goal 6.G is to integrate air quality planning with the land use and transportation planning process. The policies from the General Plan under these goals include the following:

GOAL 4.G: To ensure the safe and efficient disposal or recycling of solid waste generated in Placer County.

- Policy 4.G.6. The County shall ensure that landfills and transfer stations are buffered from incompatible development.
- Policy 4.G.11. When considering land use changes in the vicinity of a landfill operation, the County shall consider the landfill as the dominant land use in the area. In order to protect these facilities from incompatible encroachment, new residential land uses shall be separated from the property lines of active and future landfill sites by a buffer of one mile.[21] Such buffers do not apply to closed landfills or solid waste transfer stations. Other uses will be required to provide buffers as described in Table 1-5. The intent of this policy is to prohibit the creation of new parcels for residential use within one mile of the landfill; not to prohibit construction of a residence on an existing legal building site within this area.

GOAL 6.F: To protect and improve air quality in Placer County.

- Policy 6.F.5: The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and areawide source programs and transportation control measures programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

[21] The SAP/PRSP FEIR describes an amendment to the buffer requirements in this policy, "The proposed project includes an amendment to the County General Plan Policy 4.G.11, which would reduce the buffer around the WRSL from 1 mile (5,280 feet) to 2,000 feet for residential development with the approval of a specific plan, master plan, or development agreement…" (Placer County 2019). The SAP/PRSP FEIR, this General Plan amendment, and the PRSP and development agreement were approved by the Placer County Board of Supervisors on December 10, 2019. In its analysis of future air quality conditions in Chapter 19, the Consultant Team has conservatively assumed the potential for future residential development to occur up to the 2,000-foot (reduced) buffer area around the project site.

- Policy 6.F.6: The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.
- Policy 6.F.7: The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.
- Policy 6.F.8: The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.
- Policy 6.F.9: In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.
- Policy 6.F.10: The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with PCAPCD's 1991 Air Quality Attainment Plan (or 2017 Draft).
- Policy 6.F.11: The County shall apply the buffer standards described in Part 1 of this Policy Document [Land Use/Circulation Diagrams and Standards] and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

GOAL 6.G: To integrate air quality planning with the land use and transportation planning process.

- Policy 6.G.1: The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.
- Policy 6.G.2: The County shall continue and, where appropriate, expand the use of synchronized traffic signals on roadways susceptible to emissions improvement through approach control.
- Policy 6.G.3: The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.
- Policy 6.G.4: The County shall consider instituting disincentives for single-occupant vehicle trips, including limitations in parking supply in areas where alternative transportation modes are available and other measures identified by the PCAPCD and incorporated into regional plans.
- Policy 6.G.5: The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.
- Policy 6.G.6: The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.
- Policy 6.G.7: The County shall require stationary-source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design.

Sunset Area Plan

As indicated previously, the approved SAP/PRSP FEIR (Placer County 2019) included an amendment to the County General Plan Policy 4.G.11, to reduce the buffer around the WRSL from 1 mile (5,280 feet) to 2,000 feet for residential development with the approval of a specific plan, master plan, or development

agreement. The relevant goals and policies from the SAP that pertain to air quality and odors are presented in this section (Placer County 2018, 2019). These policies are intended to supplement the goals and policies of the Placer County General Plan. The County would require, as conditions of approval, that applicants for future projects under the SAP implement these policies. As stated previously in relation to Placer County General Plan policies, the WPWMA is an independent government agency that is not required to comply with the SAP policies established by the County.

Proposed goals, objectives, and policies in the Natural Resources section of the SAP address air quality and odors, including the following:

- GOAL NR-5: To protect and improve air quality in the Sunset Area, primarily through support and implementation of PCAPCD programs and guidance for CEQA review, submittal of an Air Quality Analysis and Mitigation Plan for projects with significant impacts, submittal of a Construction Emission/Dust Control Plan for projects that will disturb more than 1 acre, BACT for construction equipment exhaust, compliance with state and local emission reduction requirements, establishment of buffers for air pollutant and odor (more detail below), chlorofluorocarbon recovery, Cool Community strategies, and particulate matter control.
  - Policy NR-5.7: Buffers for Air Pollution and Odor. The County, in coordination with the PCAPCD, shall require the establishment of buffers and/or other appropriate mitigation on a project-by-project basis to provide for protection of sensitive receptors from sources of air pollution or odor.
- GOAL NR-7: To integrate air quality improvement with the land use and transportation planning process, primarily through policies to support reduction of vehicle emissions, projects that encourage alternative transportation modes, transit funding, transportation control measures, alternative fuel vehicle infrastructure, and low-emission fleet vehicles.

6.4 Impact Analysis and Mitigation Measures

The air quality analysis, impacts, and mitigation for some of the planned land development in the proposed project area has been generally described in prior studies for the SAP and PCCP EIRs (Placer County 2018, 2019, 2020). Some parts of the following discussion of the thresholds of significance, air quality impact analysis, results, and mitigation for the proposed project have been adapted from these prior EIRs, with updates of pertinent information for the proposed project.

6.4.1 Thresholds of Significance

The thresholds of significance for assessing impacts come from the CEQA Environmental Checklist, located in Appendix G of the State CEQA Guidelines. For air quality, the CEQA Checklist asks whether the project would do the following:

- Conflict with or obstruct implementation of the applicable air quality plan
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (that is, NAAQS or CAAQS)
- Expose sensitive receptors to substantial pollutant concentrations (including TACs)
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air district, in this instance PCAPCD, may be relied upon to make the above determinations.

PCAPCD has developed guidance for use by lead agencies when preparing CEQA documents (PCAPCD 2017a). PCAPCD has adopted CEQA thresholds of significance for evaluating impacts to air quality. CEQA-related air quality thresholds of significance are tied to achieving or maintaining attainment designations with the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. PCAPCD significance criteria are substantially similar to those of Appendix G, but with some additional specificity.

PCAPCD identified numerical thresholds for project-generated emissions of criteria air pollutants and precursors that would determine whether a project's discrete emissions would result in a cumulative, regional contribution (that is, significant) to the baseline nonattainment status of the air basin. PCAPCD's quantitative thresholds of significance for project-level CEQA evaluation are used to determine the extent to which a project's emissions of criteria air pollutants and precursors would contribute to regional degradation of ambient air quality within the air basin. In its CEQA Thresholds of Significance Justification Report, PCAPCD indicates that development of its mass emissions thresholds considered the following (PCAPCD 2016):

- The current emission offset requirement required by PCAPCD's new source review rule
- The regional goal to attain the NAAQS and CAAQS
- The historical CEQA projects reviewed by PCAPCD from 2003 to 2015
- The CEQA significance thresholds adopted by other air districts in the Sacramento Area

As a nonattainment area under the NAAQS and CAAQS, PCAPCD must prepare a SIP, which serves as a comprehensive plan that describes how state and local measures will attain air quality standards. Within the SIP, PCAPCD develops an emissions inventory for nonattainment areas to determine to what extent various sources within the area are responsible for emissions of criteria pollutants and ozone precursors. Baseline emissions are established, and a trajectory to attainment based on expected growth rate of population, housing, industrial/commercial activity, energy use, and motor vehicle travel is developed (PCAPCD 2016).

PCAPCD's mass emissions CEQA thresholds represent a portion of land use emissions budgeted for in the SIP. Based on the above considerations, PCAPCD has determined that projects that emit criteria air pollutants and ozone precursors below these thresholds would not impede PCAPCD's capacity to attain the NAAQS and CAAQS under the emissions inventory found in the SIP. As discussed in Section 6.2, Environmental Setting, and Section 6.3, Regulatory Setting, the NAAQS and CAAQS were developed in consideration of extensive scientific and economic review and represent concentrations of criteria air pollutants that provide public health protection, including protecting the health of sensitive populations such as people with asthma, children, and the elderly.

For the purpose of this analysis, the following thresholds of significance are used to determine whether project-generated emissions would produce a considerable level of air pollutants that would impede PCAPCD's capacity to attain the NAAQS and CAAQS at the regional level or result in localized air quality impacts (PCAPCD 2017a, Placer County 2018). For the reasons discussed above, if the project would generate emissions below these thresholds, the project's contribution of air pollutants would not inhibit PCAPCD achieving attainment under the NAAQS and CAAQS, and the potential for an adverse human health impact would be avoided. As identified by PCAPCD, an air quality impact is considered significant if implementation of the project would result in the following:

- Construction-generated criteria air pollutant or precursor emissions that would exceed the PCAPCD-recommended threshold of 82 pounds per day (lb/day) for ROG, NOx, or PM_{10} (PCAPCD 2017a), or operation-related (regional) emissions of ROG or NOx that exceed a mass emission threshold of 55 lb/day, and emissions of PM_{10} that exceed 82 lb/day. While PCAPCD has not established a mass

emission threshold for $PM_{2.5}$, which is a subset of PM_{10}, this analysis considers project-generated emissions of $PM_{2.5}$ to be significant if PCAPCD's thresholds for PM_{10} are exceeded (PCAPCD 2017a).

- Long-term operational local mobile-source CO emissions that would result in an exceedance of the NAAQS and CAAQS for CO (PCAPCD 2017a)
- Exposure of sensitive receptors to TAC emissions, from a single source, that would exceed 10 in 1 million for the carcinogenic risk (that is, the risk of contracting cancer) or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual (PCAPCD 2017a)
- Creation of an objectionable odor affecting a substantial number of people (PCAPCD 2017a)

PCAPCD recommends that CO dispersion modeling be conducted if a project would result in emissions exceeding 550 lb/day of CO from vehicle operation[22] and if any roadway intersections affected by project traffic meet either of the following criteria:

- A traffic study for the project indicates that the peak-hour level of service (LOS) on one or more streets or at one or more intersections (signalized or unsignalized) in the project vicinity would be degraded from an acceptable LOS (for example, A, B, C, or D) to an unacceptable LOS (for example, E or F).
- A traffic study indicates that the project would substantially worsen an already unacceptable peak-hour LOS on one or more streets or at one or more intersections in the project vicinity. "Substantially worsen" includes situations in which a delay would increase by 10 seconds or more when project-generated traffic is included.

No specific odor standards or thresholds have been adopted by the State of California, Placer County, or PCAPCD. PCAPCD has no rules or standards directly related to odor emissions other than its nuisance rule, Rule 205. Actions taken by PCAPCD related to odors are based on responses to citizen complaints to local governments and the air district. The determination of whether implementation of the proposed project would create objectionable odors affecting a substantial number of people is based on a qualitative evaluation of the numbers and proximity of receptors to sources of odors, the odor complaint history for those sources, direct and indirect contribution of the project to future odors, and the odor-abatement and mitigation measures that would be implemented.

Potential odor impacts are evaluated in accordance with the *CEQA Air Quality Handbook*, which indicates that potential odor impacts should be acknowledged and discussed so that mitigation measures may be identified (PCAPCD 2017a). The Handbook (PCAPCD 2017a) indicates that one of the most important factors influencing odor impacts is the distance between the odor source and potential receptors (that is, the buffer zone or setback). A greater buffer zone between the source and receptors results in a lower odor impact. The PCAPCD guidance lists a recommended odor screening distance of 1 mile for sanitary landfills and 2 miles for composting facilities. While not the only factor affecting potential odor impacts, the size of the proposed project buffer zone is compared to the recommended odor screening distances as part of the odor impact analysis. The odor impact significance determination is made in consideration of recommended parameters, such as buffer distance, wind conditions and prevailing wind direction, and the facility's odor complaint history.

6.4.2 Methods and Approach

Implementation of the proposed Plan Concepts could result in direct, indirect, and cumulative impacts on air quality and odors. Direct impacts are those effects of a project that occur at the same time and place as

[22] Projects emitting less than 550 lb/day of CO from vehicle operation are not anticipated to exceed the NAAQS and CAAQS for CO (PCAPCD 2017a).

project implementation, such as emission increases from project construction and operations. Indirect impacts are those effects that occur either removed by time or by distance from project activities, but are reasonably foreseeable, such as human health effects that could result from changes in ambient air quality due to project emissions. Direct and indirect impacts can be permanent or temporary. Cumulative impacts are those incremental effects of a project that, even if less than significant themselves, could in combination with the effects of other projects significantly affect regional air quality or odors.

The methods and criteria used to assess potential impacts on air quality have been described in Section 6.1, Methodology, and Section 6.4.1, Thresholds of Significance. The Methodology for Air Quality and Greenhouse Gas Impact Analysis, presented in Appendix C.1, provides additional details regarding the PCAPCD-approved methods used to quantify and analyze potential air quality and health impacts associated with emissions from project-related construction and operations, fugitive emissions, air toxics, GHGs, and odors. Emission calculations quantifying criteria pollutant, TAC, and GHG emissions estimates for the proposed project are presented in Appendix C.2. LandGEM modeling results showing predicted annual landfill gas generation values for the proposed project are included in Appendix C.3. The Air Dispersion and Health Risk Assessment Modeling Protocol detailing the methods used to complete the HRA is provided in Appendix C.4. The Health Risk Assessment Modeling Report, which contains the results of the HRA, is presented in Appendix C.5. The impact analysis identifies the potential impacts of the project, including cumulative impacts, and identifies mitigation measures, when available, to reduce the level of impact.

6.4.3 Impacts and Mitigation Measures

This section describes the air quality effects associated with the two Plan Concepts, mitigation measures for identified significant impacts, and the level of impact significance following implementation of the identified mitigations.

IMPACT 6-1	**Consistency with Applicable Air Quality Plans.** PCAPCD and other air districts in the SVAB develop and implement air quality plans to enable the region to achieve attainment of the federal and state standards (that is, NAAQS and CAAQS) for ozone, $PM_{2.5}$, and PM_{10}, and maintain compliance with standards. These air quality plans are based on an inventory of existing emission sources as well as projections about future development in Placer County and the SVAB. The SAP DEIR/FEIR concluded that the levels of growth associated with the SAP project, including development of WPWMA solid waste elements, supporting elements, and land use changes similar to those proposed as complementary and programmatic elements under the proposed project, were accounted for in the projections of emissions-generating activity used in the air quality planning documents. However, the emissions estimates prepared to support this analysis of the proposed project indicate that the construction and operation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project would have the potential to exceed PCAPCD's numerical thresholds of significance for emissions of the ozone precursor NOx, PM_{10}, and $PM_{2.5}$. These emissions increases could contribute to the existing nonattainment status of Placer County and the SVAB region with respect to the NAAQS for ozone and $PM_{2.5}$, and the CAAQS for ozone and PM_{10}, and could impede air quality planning efforts to bring the air basin into attainment of the health-protective NAAQS and CAAQS. For these reasons, the project would potentially conflict with implementation of the applicable air quality plans. **This impact would be significant**.

Plan Concept 1

PCAPCD is responsible for implementing local air pollution control plans and programs to improve air quality in Placer County. The clean air strategy of PCAPCD includes preparing plans for the attainment of ambient air quality standards, developing and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, and adopting policies and programs to manage emissions (Placer County 2018). As described previously, portions of Placer County are within the Sacramento nonattainment areas for the O_3 and $PM_{2.5}$ NAAQS, and portions of Placer County are also designated by CARB as nonattainment for the O_3 and PM_{10} CAAQS (EPA 2020; CARB 2020). The applicable air quality plans and related reports include the following:

- The PCAPCD and other air districts developed the *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan* to address attainment of the 8-hour ozone NAAQS by 2024.[23] The plan demonstrates how existing and new regulations and control strategies provide the emission reductions needed to achieve attainment of the ozone NAAQS (El Dorado County Air Quality Management District et al. 2017).
- The Sacramento $PM_{2.5}$ planning region prepared the $PM_{2.5}$ Maintenance Plan and Redesignation Request (2013) to address how the region attained and would continue to attain the 2006 $PM_{2.5}$ NAAQS. In 2017, EPA found that the area attained the 2006 24-hour $PM_{2.5}$ NAAQS. However, additional criteria, including EPA approval of a plan demonstrating maintenance of the 2006 $PM_{2.5}$ NAAQS for 10 years following redesignation, must be met.
- California requires air districts to assess the progress made toward attaining the state air quality standards every 3 years. The "Triennial Reports" prepared by the air districts describe the historical trends in ambient air quality levels, provide updates to the emission inventories, and evaluate the implementation of stationary and mobile-source control measures in reducing air pollutant emissions. The PCAPCD has prepared several triennial progress reports that build upon the air quality plans in the area (Placer County 2018).

In general, a project would not interfere with the applicable air quality plans if it is consistent with the growth assumptions and emission projections used to form the plan(s). Regional emission inventories in air quality plans are based on anticipated growth in population, housing, and other parameters, such as the zoning designations of local general plans. Impacts to regional air quality are managed through policies and regulations of PCAPCD, the Placer County General Plan, and the applicable air quality plans and triennial progress reports. The SAP DEIR/FEIR concluded that the levels of growth associated with implementation of the SAP, which includes development of WPWMA solid waste elements, supporting elements, and land use changes similar to those proposed as complementary and programmatic elements under the proposed project, were accounted for in the growth assumptions and projections of emissions-generating activity used to prepare the applicable air quality plans (Placer County 2018, 2019). However, the emissions estimates prepared to support this analysis of the proposed project, presented in Tables 6-7 and 6-10, indicate that the construction and operation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project would have the potential to exceed PCAPCD's numerical thresholds of significance for emissions of the ozone precursor NOx, PM_{10}, and $PM_{2.5}$. These emissions increases could contribute to the existing nonattainment status of Placer County and the SVAB region with respect to CAAQS and NAAQS for ozone, the CAAQS for PM_{10}, and the NAAQS for $PM_{2.5}$, and could impede air quality planning efforts to bring the air basin into attainment of the health-protective NAAQS and CAAQS.

[23] In 2015, EPA promulgated a new 8-hour ozone NAAQS of 70 ppb, so future Sacramento area attainment planning efforts will address the more stringent NAAQS (PCAPCD 2021a).

The results of this analysis indicate that the project would potentially conflict with implementation of the applicable air quality plans.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on the WPWMA's property and when various facilities would be developed. These differences would not change the conclusions regarding potential to conflict with air quality plans identified for Plan Concept 1. As such, impacts related to consistency with air quality plans for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

Mitigation Measure 6-1: Consistency with applicable air quality plans.

Through the air permitting process and implementation of BMPs and project design measures in Table 6-1, the WPWMA shall work with the PCAPCD to provide information on the construction and operation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project. The emissions estimates prepared to support this CEQA air quality impact analysis are based on many conservative assumptions (as described in the sections to follow and in Appendix C.2) to allow flexibility as the project elements move forward through planning, design, funding, and implementation. The methodology for this air quality and environmental assessment is consistent with the CEQA Handbook that PCAPCD prepared for evaluation and mitigation of projects in Placer County (PCAPCD 2017a). Current results and conclusions are based on criteria used by PCAPCD to evaluate potential air quality impacts, using PCAPCD-recommended emissions calculation methods, significance thresholds, and mitigation strategies. All projects in Placer County are subject to PCAPCD's adopted rules and regulations. Specific local air quality rules applicable to implementation of the proposed project have been evaluated for applicability to the project elements, and results show that the proposed project elements (solid waste elements, complementary and programmatic elements, and supporting elements) would comply with applicable regulatory and permitting requirements.

Level of Significance after Mitigation.

Ongoing evaluation of construction and operation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project shall be conducted to confirm compliance with BMPs, project design measures, and applicable PCAPCD rules and regulations, as project elements are designed, permitted, and implemented. This impact would be **less than significant** after mitigation.

MRF Operations Design Concept Evaluation.

As indicated previously, PCAPCD implements local air pollution control plans and programs to improve air quality in Placer County, including developing and enforcing rules and regulations concerning sources of air pollution and issuing permits for stationary sources of air pollution (Placer County 2018).

As described in Chapter 3, Project Description, and Chapter 4, Approach, proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in project-related air emissions and the potential for odor generation, primarily due to accelerated and expanded diversion of organic material, including the organic fraction of the MSW (OFMSW) processed in the MRF, for composting in covered aerated static pile (CASP) composting systems and increased recovery and diversion of recyclables. Changes may also involve addition of an enclosed building for organics receipt and processing. This would reduce the amount and organic content of waste residuals sent to the

landfill. Diversion of more OFMSW from the landfill within a faster timeframe would correspond to a near-term (next 10 years) reduction in LFG production, including reduced emissions of fugitive LFG and associated odors.

Mitigation Measure 6-1 requires the WPWMA to work with the PCAPCD to provide information on the construction and operation of the proposed project through the air permitting process and implementation of BMPs and project design measures in Table 6-1. The emissions estimates prepared to support this CEQA air quality impact analysis are based on many conservative assumptions to allow flexibility as the project elements move forward through planning, design, funding, and implementation.

The PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system that may require permitting by the PCAPCD as a stationary source. As the permitting process is undertaken, the WPWMA facility must continue to comply with applicable regulatory and permitting requirements.

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this air quality impact analysis, and the conclusions of the project-level analysis related to consistency with applicable air quality plans would not change.

IMPACT 6-2	**Construction Emissions of Criteria Air Pollutants and Ozone Precursors.** Total maximum daily construction emissions estimated for the development of solid waste elements, complementary elements, and supporting elements under the proposed project would exceed PCAPCD's recommended construction significance threshold of 82 lb/day for PM_{10}. Exceedance of the threshold indicates that air quality impacts associated with project-related construction emissions would be significant for PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, the significance finding for PM_{10} is conservatively used to indicate potentially significant impacts related to $PM_{2.5}$. Prediction of the specific health consequences associated with the criteria pollutant emissions from an individual project is not feasible at this time. More generally, by exceeding PCAPCD's numerical thresholds, construction-generated emissions of PM_{10} could contribute to the existing nonattainment status of Placer County and the SVAB region with respect to the CAAQS and the NAAQS for PM_{10} and $PM_{2.5}$, respectively. The NAAQS and CAAQS represent concentrations of criteria air pollutants that provide public health protection, including protecting the health of sensitive populations. Because estimated maximum daily construction emissions would exceed the PCAPCD significance threshold, it is reasonably foreseeable that construction-generated PM_{10} emissions could result in increases in ambient air concentrations of PM_{10} and $PM_{2.5}$, and could contribute to higher levels of exposure and health effects for some sensitive receptors. However, it would be misleading and speculative to correlate the estimated PM_{10} emissions to specific health outcomes. Construction of the proposed project could result in a net increase of criteria pollutants (PM_{10} and $PM_{2.5}$) for which the project region is nonattainment under an applicable and health-protective federal or state ambient air quality standard. **This impact would be significant**.

Plan Concept 1

The project's construction-related activities would result in emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ (a subset of PM_{10}) from construction, upgrade, expansion, and replacement of onsite facilities and construction of new landfill modules. Activities associated with construction of the proposed facilities would include demolition, site preparation, grading, excavation, road construction, foundation construction, and building construction. Construction activities associated with landfill module construction would include excavation, placement of liner materials, and partial module closure. Onsite and offsite construction emissions would fall into three categories: vehicle and construction equipment exhaust, fugitive dust generated by vehicle travel and soil-disturbing activities, and fugitive emissions from paving. During onsite construction, activities would be assumed to occur during daylight hours, 5 days per week, year-round. Although activities may occur 7 days a week at times, concentrating activities to 5 days a week represents a more conservative, worst-case daily emission rate.

Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with travel on paved and unpaved roads, soil management, and grading. Fugitive PM_{10} and $PM_{2.5}$ emissions vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, volumes of material managed, and VMT on and off the site. Emissions of ozone precursors, ROG and NOx, are associated primarily with fuel combustion in construction equipment and on-road mobile sources. PM_{10} and $PM_{2.5}$ are also products of combustion, emitted in equipment and vehicle exhaust. Paving results in emissions of ROG.

Typical construction activities would require forklifts, cranes, pickup and fuel trucks, loaders, backhoes, excavators, dozers, tractors, graders, scrapers, pavers, rollers, paving equipment, welders, bore/drill rigs, cement and mortar mixers, off-road haul trucks, generator sets, as well as other diesel-fueled equipment as necessary. On-road haul trucks would be used to deliver equipment, materials, and supplies, and on-road passenger vehicles would be used for worker commute trips.

Construction of project elements under Plan Concept 1 is anticipated to begin in 2024 and continue periodically throughout the analysis period of approximately 30 years. The amount of new construction would vary from year to year and even from day to day, depending on the timing and construction phasing of project elements. There could be little to no new construction during some years and more intensive construction during other years.

The estimated schedule for Plan Concept 1, presented in Appendix C.2, was analyzed to identify "peak" years when anticipated construction activities could result in the highest levels of daily emissions. Potential peak construction years identified for Plan Concept 1 included 2024, 2025, 2028, 2029, and 2033. These years were considered representative of construction of major project elements and multiple construction projects that could occur simultaneously. To conservatively estimate the hypothetical "maximum" daily emissions for each peak year, the highest daily emissions for each project element anticipated to be constructed in that year were summed. Table 6-7 summarizes estimated maximum daily construction emissions estimated for the calendar years when the highest levels of potential construction activity are predicted for Plan Concept 1. The emission values presented in Table 6-7 represent construction of project elements with implementation of BMPs and project design measures from Table 6-1, but no additional mitigation.

As indicated previously, the amount of construction would vary from year to year, as is shown in the variability of maximum daily emissions estimated for the "peak" construction years. The estimated maximums represent worst plausible estimates of simultaneous construction on any given day; emissions are not expected to ever reach these levels. The conservative approach used to estimate maximum daily emissions allows for evaluation of the potential significance of project impacts, while accommodating flexibility in the actual timing and phasing of construction.

In Table 6-7, estimated maximum daily emission rates are compared to the PCAPCD thresholds of significance for construction, and values that indicate an exceedance of the applicable threshold are in bold type. Total estimated daily construction emissions associated with the development of project-related solid waste elements and supporting elements would exceed PCAPCD's recommended construction significance threshold of 82 lb/day for PM_{10} in each of the hypothetical peak construction years, indicating a significant impact for PM_{10}. While PCAPCD has not established a mass emission threshold for $PM_{2.5}$, which is a subset of PM_{10}, this analysis has conservatively used the significance finding for PM_{10} as an indicator of potentially significant impacts for construction emissions of $PM_{2.5}$. Construction-related emissions would not exceed PCAPCD's recommended significance thresholds for ROG/VOC, or NOx. As shown in Table 6-7, estimated emissions from construction of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements over 5 years would add a negligible level of additional daily emissions.[24] For specific assumptions and modeling inputs used in the emissions calculations, refer to Appendix C.2.

Table 6-7. Summary of Maximum Daily Emissions of Criteria Air Pollutants and Ozone Precursors Associated with Construction by Year for Plan Concept 1

Maximum Daily Emissions (lb/day) – across all construction phases						
Year	**ROG/VOC**	**CO**	**NOx**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2024	3.6	74.1	11.5	0.2	**288.3**	36.1
2025	1.3	51.6	8.3	0.1	**245.2**	32.2
2028	2.0	76.6	8.7	0.2	**85.0**	12.4
2029	3.2	129.8	15.9	0.3	**321.4**	36.2
2033	1.7	43.2	5.9	0.1	**93.0**	10.6
PCAPCD Construction Threshold of Significance (lb/day)	82	N/A	82	N/A	82	N/A
Exceeds Threshold?	No	No	No	No	**Yes**	See PM_{10}
Assumed Construction of Complementary Elements in Any Given Year[a]	2.3	8.3	4.6	0.0	0.5	0.2

[a] Emission calculations assumed construction of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and of associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:
Values in **bold** type indicate exceedance of the applicable PCAPCD Construction Threshold of Significance.

Prediction and analysis of the specific health consequences associated with criteria pollutants from an individual project are not feasible at this time. Unlike the predictive health risk assessments currently conducted using statewide guidance to evaluate human exposures to project-related TAC emissions, no proven approaches or guidance are available for this type of project-specific health study for criteria

[24] Emission calculations for this analysis of maximum daily project-related construction emissions assumed construction of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the timing or impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required prior to construction.

pollutant emissions.[25] In this project analysis, comparison of emission results to PCAPCD's numerical thresholds is used as a surrogate for evaluation of potential health impacts. As described previously, the NAAQS and CAAQS are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. PCAPCD's air quality thresholds of significance for project-level CEQA evaluation are used to evaluate the extent to which a project's emissions of criteria air pollutants and precursors would contribute to regional degradation of ambient air quality. PCAPCD has determined that projects that emit criteria air pollutants and ozone precursors at levels below the thresholds would not impede the air basin's capacity to attain the NAAQS and CAAQS under the emissions inventory found the in the applicable SIPs and air quality plans. As a result, the PCAPCD thresholds are tied to achieving or maintaining attainment designations with the health-protective NAAQS and CAAQS.

During more intensive construction periods, emissions estimates for Plan Concept 1 indicate that construction activities could generate daily emission emissions of PM_{10} that would exceed PCAPCD's recommended threshold and thereby contribute to the existing nonattainment status of Placer County and the SVAB with respect to the CAAQS for PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, construction-generated emissions of $PM_{2.5}$ could also contribute to the nonattainment status of the SVAB with respect to the NAAQS for $PM_{2.5}$.

The addition of construction-generated particulate matter emissions to the regional emissions inventory could impede air quality planning efforts to bring the air basin into attainment of health-protective NAAQS and CAAQS. Acute health effects of PM_{10} and $PM_{2.5}$ exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects of exposure to particulate matter include alterations to the immune system and the initiation of cancer formation, or carcinogenesis (Placer County 2018). However, it would be misleading and speculative to correlate the levels of criteria air pollutant and precursor emissions associated with the proposed project to specific health outcomes to sensitive receptors. While the description of effects noted above could manifest in exposed receptors, actual effects on individuals depend on individual factors, such as life stage (for example, infants, adolescents, and the elderly are more sensitive), prior exposures to air pollution, preexisting cardiovascular or respiratory diseases, lifestyle choices, and genetic polymorphisms (Placer County 2019).

Even if this type of specific medical information, which is confidential to the individual, were available, potential health outcomes from exposure to PM_{10} and $PM_{2.5}$ can range from no effect to the effects described above. Therefore, other than describing the general types of health effects that could occur, it would be speculative to more specifically correlate exposure to emissions from this project to the degree and locations of specific health outcomes to receptors. Because the project's estimated maximum daily construction PM_{10} emissions would exceed the PCAPCD's mass emissions threshold, the proposed project has the potential to contribute emissions that could impede the area's ability to attain the NAAQS and CAAQS. The higher emissions levels and human exposure to the associated ambient air concentrations could result in adverse health effects. It is possible that health complications associated with exposure to PM_{10} and $PM_{2.5}$ in ambient air could be increased for nearby sensitive receptors due to project-related construction emissions, but it is not feasible to define the nature and extent of the health effects, if any, at this time.

[25] The California Supreme Court, in the case of *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502, determined that the air quality analysis in the EIR prepared under CEQA for the Friant Ranch Project was inadequate because it did not make "a reasonable effort to substantively connect the project's air quality impacts to likely health consequences." The Court determined that "the EIR should be revised to relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis" (SMAQMD 2020). Proposed approaches to respond to the Supreme Court's Friant Ranch ruling, like those proposed by the SMAQMD in their final guidance (SMAQMD 2020), have not undergone adequate scientific or legal review, nor has the SMAQMD's recommended approach been proven in CEQA practice. As a result, the SMAQMD approach has not been used in this analysis.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on WPWMA's property and when various facilities would be developed. Construction of project elements under Plan Concept 2 is anticipated to begin in 2024 and continue periodically throughout the analysis period of approximately 30 years. The amount of new construction that would occur would also vary from year to year with Plan Concept 2 but would generally occur earlier in the project analysis period and at a faster pace than for Plan Concept 1. Analysis of the projected project schedule for Plan Concept 2, presented in Appendix C.2, identified 2024, 2026, 2031, and 2032 as potential peak construction years for Plan Concept 2. Table 6-8 summarizes estimated maximum daily construction emissions estimated for the calendar years when the highest levels of construction activity are predicted for Plan Concept 2. The estimated maximums represent worst plausible estimates of simultaneous construction on any given day; emissions are not expected to reach these levels. Like values presented in Table 6-7 for Plan Concept 1, the emission values presented in Table 6-8 represent construction with implementation of BMPs and project design measures, but no additional mitigation. For specific assumptions and modeling inputs, refer to Appendix C.2.

These differences would not change the conclusions regarding construction emissions of criteria air pollutants and ozone precursors identified for Plan Concept 1, including a finding of significance for PM_{10}, and potential significance for $PM_{2.5}$ as a subset of PM_{10}. Construction-related emissions would not exceed PCAPCD's recommended significance thresholds for ROG/VOC, or NOx. As such, impacts related to construction emissions of criteria air pollutants for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

Table 6-8. Summary of Maximum Daily Emissions of Criteria Air Pollutants and Ozone Precursors Associated with Construction by Year for Plan Concept 2

Maximum Daily Emissions (lb/day) – across all construction phases						
Year	**ROG/VOC**	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2024	3.5	115.8	13.7	0.3	**217.5**	36.4
2026	3.5	90.6	12.4	0.2	**301.1**	55.7
2031	2.0	76.6	8.7	0.2	**90.7**	20.3
2032	3.9	146.9	18.6	0.3	**376.3**	48.8
PCAPCD Construction Threshold of Significance (lb/day)	82	N/A	82	N/A	82	N/A
Exceeds Threshold?	No	No	No	No	**Yes**	See PM_{10}
Assumed Construction of Complementary Elements in Any Given Year[a]	2.3	8.3	4.6	0.0	0.5	0.2

[a] Emission calculations assumed construction of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:
Values in **bold** type indicate exceedance of the applicable PCAPCD Construction Threshold of Significance.

Mitigation Measure 6-2(a): Construction emissions of criteria air pollutants (PM_{10} and $PM_{2.5}$) and ozone precursors.

Construction contractor(s) shall document their capability and commitment to implement PCAPCD's recommended construction mitigation measures and the project design measures identified in Table 6-1 as part of their grading/improvement plan submittals. Prior to any construction activity, the contractor(s) shall submit a Construction Emission/Dust Control Plan to PCAPCD, a minimum of 21 days before construction activity is scheduled to commence. To further mitigate the significant air quality impact identified for construction PM_{10} emissions, the following additional mitigation measures, expanding on those identified in Table 6-1 as BMPs and project design measures,[26] shall be implemented to address exhaust PM_{10} and $PM_{2.5}$ emissions and provide dust control.

Mitigation Measure 6-2(b): Project contractor(s) shall implement BMPs prior to or during all construction activities, including onsite construction-related grading.

The WPWMA shall require all construction contracts and plans to include the applicable construction BMPs and project design measures from Table 6-1, as well as the following:

- Designation of a person or persons to monitor fugitive dust emissions and enhance implementation of the Dust Control Plan to minimize dust complaints, reduce visible emissions to below 20 percent opacity, and prevent transport of dust offsite. Duties shall include holidays and weekend periods when work may not be in progress.
- Post signage at property boundaries with name(s) and contact information for designated person(s) for reporting of dust complaints.
- All roadways, driveways, sidewalks, parking lots intended for pavement as part of an applicable construction project shall be paved as soon as possible. In addition, building pads shall be laid immediately after grading unless seeding or soil binders are used.

Mitigation Measure 6-2(c): The WPWMA shall implement a recordkeeping program to oversee and enforce compliance with the BMP requirement for diesel-fueled equipment to use engines that meet Tier 4 Final emission standards, as certified by CARB, or cleaner, prior to or during onsite grading and construction activities.

This mitigation measure is intended for WPWMA oversight to ensure that all diesel-fueled construction equipment shall have engines that meet the Tier 4 Final emission standards, as certified by CARB, or cleaner, if feasible (City of Sacramento 2021). This requirement shall be verified through contractor submittal of an equipment inventory to the WPWMA for each construction project that includes the following information:

A. Type of Equipment

B. Engine Year and Age

C. Number of Years Since Rebuild of Engine (if applicable)

D. Type of Fuel Used

E. Engine Horsepower

[26] Note: Applicable measures from PCAPCD's recommended construction mitigation measures (PCAPCD 2017a) are incorporated in the proposed project as project design measures. For the list of BMPs and project design measures incorporated in the proposed project, please see the list of measures in Table 6-1.

F. Verified Diesel Emission Control Strategy (VDECS) information, if applicable, and other related equipment data

If any new equipment is added after submission of the inventory, the contractor(s) shall contact the WPWMA regarding the new equipment being used.

The project contractor(s) must also provide a signed Certification Statement for documentation of compliance and for future review by the WPWMA as needed. The Certification Statement shall state that the contractor agrees to compliance and acknowledges that a violation of this requirement shall constitute a material breach of contract.

The WPWMA may waive the equipment requirement above only under the following unusual circumstances:

- A particular piece of off-road equipment with Tier 4 Final standards is technically not feasible or not commercially available.
- The equipment would not produce desired emissions reduction due to expected operating modes.
- Installation of the equipment would create a safety hazard or impair visibility for the operator.
- There is a compelling emergency need to use other alternate off-road equipment.

If the WPWMA grants the waiver, the contractor shall use the next cleanest piece of off-road equipment available, as detailed in Table 6-9. If seeking a waiver from this requirement it must be demonstrated, to the satisfaction of the WPWMA, that the emissions do not exceed significance thresholds. If the project implements the "step down" approach, using construction equipment with less than Tier 4 emissions standards and the resulting emissions exceed the PCAPCD threshold, a mitigation fee (per ton of emissions) shall be assessed to achieve the remaining mitigation.

Table 6-9 describes the Off-Road Equipment Compliance Step Down approach:

- If engines that comply with Tier 4 Final off-road emission standards are not commercially available, then the contractor shall meet Compliance Alternative 1.
- If off-road equipment meeting Compliance Alternative 1 are not commercially available, then the project sponsor shall meet Compliance Alternative 2.
- If off-road equipment meeting Compliance Alternative 2 are not commercially available, then the project sponsor shall meet Compliance Alternative 3.

Table 6-9. Off-Road Equipment Compliance Step Down Approach

Compliance Alternative	Engine Emissions Standard	Emissions Control
1	Tier 4 Interim	Tier 4 Interim
2	Tier 3	CARB Level 3 VDECS
3	Tier 2 with retrofit	CARB Level 3 VDECS

For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 Final engines similar to the availability for other large-scale construction projects in the region occurring at the same time and taking into consideration factors such as (1) potential significant delays to critical-

path timing of construction for the project and (2) geographic proximity to the project site of Tier 4 Final equipment.

The project contractor(s) shall maintain records concerning relevant efforts to comply with this requirement and provide them to WPWMA on a weekly basis during active construction periods.

Level of Significance after Mitigation.

Implementation of Mitigation Measures 6-2(a) through 6-2(c) would result in additional reductions in fugitive dust and exhaust PM emissions. Due to the extensive list of emission reduction measures and BMPs incorporated in the project as design measures, estimation of the achievable additional reductions would be speculative. Available information on the benefits of the proposed mitigation measures is not sufficient to quantify the additional emission reductions that would occur, so this analysis of significance after mitigation is qualitative and conservative in nature.

Even with incorporation of all available and feasible mitigation measures, it is likely that project-related construction emissions would continue to exceed PCAPCD-recommended thresholds of significance for PM_{10}. Because of the scale and extent of construction activities that would occur, as well as the uncertainty of specific construction activities and timing, construction activities could overlap, resulting in emissions that would exceed PCAPCD's daily construction thresholds for PM_{10}. Construction emissions, even after mitigation, could contribute further to the nonattainment status of the Placer County and the SVAB for PM_{10} and $PM_{2.5}$. **This impact would remain significant and unavoidable.**

MRF Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in quantities, timing, and release locations of project-related air emissions estimated for construction. The proposed changes would involve accelerated and expanded diversion of organic material, including OFMSW, for composting in CASP composting systems and increased recovery and diversion of recyclables. Changes may also involve addition of an enclosed building for organics receipt and processing.

To accommodate the proposed increase in the quantity of material processed at the organics management facility, the facility would need to be built sooner than anticipated in Plan Concept 1 and Plan Concept 2. The proposed total processing capacity would not exceed the full buildout capacity evaluated for Plan Concept 1 and Plan Concept 2 and the proposed CASP processes are similar to the ASP process analyzed as part of the proposed project, so facility sizing and design would not be expected to differ from the proposed project. Construction of an enclosed building for organics receipt and processing was not specifically analyzed as part of the proposed project and could result in a shifting of the year(s) for construction emissions or increased construction emissions for the organics management facility during the years when construction occurs. Increased diversion would reduce the amount of waste residuals sent to the landfill, reducing the frequency of landfill cell construction over time. Processing of increased quantities of organic material and recyclables could be accommodated within the existing MRF facility.

The conservative approach used to calculate potential maximum daily construction emissions associated with the proposed project included assessment of multiple overlapping construction projects to allow flexibility in the timing of individual projects. Both Plan Concepts analyzed potential peak periods of considerable construction activity near the beginning of the project analysis timeframe. It is anticipated that shifting the timing of construction of individual project elements to accommodate earlier construction of the organics management facility would not result in emissions exceeding those

calculated for the proposed project, even with the potential addition of an enclosed building for organics receipt and processing.

The PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system would require preconstruction review and permitting by the PCAPCD as a stationary source. As the permitting process is undertaken, the WPWMA facility must continue to comply with applicable regulatory and permitting requirements.

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this air quality impact analysis, and the conclusions of the project-level analysis related to construction emissions of criteria air pollutants would not change.

IMPACT 6-3	**Operational Emissions of Criteria Air Pollutants and Ozone Precursors.** Estimated net changes in total emissions associated with the future operation of solid waste elements, complementary elements, and supporting elements under the proposed project would exceed PCAPCD's recommended operational significance thresholds of 55 lb/day for NOx and 82 lb/day for PM_{10}. Exceedance of the thresholds indicates that air quality impacts associated with project-related operational emissions would be significant for NOx and PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, the significance finding for PM_{10} is conservatively used to indicate potentially significant impacts related to $PM_{2.5}$. Operational emissions from the proposed project could contribute to the existing nonattainment status of Placer County and the SVAB region with respect to the NAAQS for ozone and $PM_{2.5}$, and the CAAQS for ozone and PM_{10}. It is reasonably foreseeable that operational emissions could result in increases in ambient air concentrations of ozone, PM_{10}, and $PM_{2.5}$, and could contribute to higher levels of exposure and health effects for some sensitive receptors. Prediction of the specific health consequences associated with the criteria pollutant emissions and ozone precursors from operation of an individual project is not feasible at this time. Operation of the proposed project elements would result in a net increase of criteria pollutants (NOx as an ozone precursor, PM_{10}, and $PM_{2.5}$) for which the project region is nonattainment under the applicable and health-protective federal or state ambient air quality standards. **This impact would be significant.**

Plan Concept 1

Operation of the proposed solid waste elements, complementary and programmatic elements, and supporting elements would result in emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$. Operational emissions would be generated from worker commute trips, haul truck trips (commercial and self-haul), off-road equipment, waste receipt, recovery, and disposal operations, composting, soil management, generators, LFG-to-energy plant operation, LFG flares, and fugitive LFG. Hours and days of operation for the landfill and waste recovery facilities would vary by facility but were assumed to occur 52 weeks per year. The LFG collection system and the LFG-to-energy plant would be operated continuously, and fugitive LFG and compost process emissions would be emitted continuously, 24 hours per day, 7 days per week, and 52 weeks per year.

The incremental increases in activity for Plan Concept 1 were identified by comparing the activity levels forecasted for the project buildout year of 2050 (when maximum operational capacity is expected) to

baseline activity levels in 2018. Net daily emissions changes were calculated for the incremental changes in activity levels for each of the source categories that would operate under Plan Concept 1 at buildout. A peaking factor of 1.28 (peak 2018 weekday tonnage divided by the average 2018 weekday tonnage) was applied when determining the potential maximum daily emissions to account for variability in the quantity of material received and processed each day. Net daily operational emissions changes estimated for each source category were conservatively summed for each pollutant to approximate a hypothetical maximum operating scenario.[27] Table 6-10 summarizes the net maximum daily operational emissions increases estimated for project-related criteria air pollutants and ozone precursors under Plan Concept 1.

The emissions benefits associated with the proposed improvements in organic waste composting technology (e.g., transition from windrows to ASP composting) for future waste streams have been estimated. Actively composting piles of organic feedstocks emit VOCs, which can react in the atmosphere with oxides of nitrogen (NOx) to make ground-level ozone, a criteria pollutant. VOCs can also react with ammonia (NH_3) to create fine particulates (alternatively referred to as particulate matter ($PM_{2.5}$), another criteria pollutant). The proposed project would result in a net benefit for VOC emissions from composting operations, when compared to existing operations.

Net changes in estimated total daily emissions for operation of solid waste elements, complementary and programmatic elements,[28] and supporting elements under the proposed project have been compared to the PCAPCD CEQA significance thresholds for operational phase emissions, as described in the *CEQA Air Quality Handbook* (PCAPCD 2017a). Values that indicate an exceedance of the applicable threshold are in bold type. Results shown in Table 6-10 show that operational activities associated with the proposed project would result in total emissions of NOx and PM_{10} that exceed the PCAPCD significance thresholds of 55 lb/day for the ozone precursor NOx and 82 lb/day for PM_{10}, indicating that air quality impacts associated with project-related operational emissions would be significant for NOx and PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, the significance finding for PM_{10} and the exceedance of the PM_{10} threshold of 82 lb/day by total operational daily $PM_{2.5}$ emissions are indicators of potentially significant impacts related to $PM_{2.5}$. Operational emissions would not exceed PCAPCD's recommended significance thresholds for ROG/VOC. For specific assumptions and modeling inputs used in the emissions calculations, refer to Appendix C.2. The emission values presented in Table 6-10 represent operation of project elements with implementation of BMPs and project design measures from Table 6-1, but no additional mitigation.

[27] Note that the maximum daily project-related activity levels for each source category would not typically occur on the same day, As a result, the hypothetical maximum estimates of net daily operational emissions increases are not expected to occur, but have been conservatively estimated for comparison to CEQA significance thresholds.

[28] Operation of 300,000 ft2 of building space and 300,000 ft2 of parking and roads for complementary elements was analyzed quantitatively. This analysis did not evaluate the timing or impacts of full buildout of complementary and programmatic elements (1,900,000 ft2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of operation of specific types of industrial facilities. Additional project-level analysis and air permits from PCAPCD may be required.

Table 6-10. Summary of Net Daily Operational Emissions Increases for Criteria Air Pollutants and Ozone Precursors for Plan Concept 1

(Net = Emissions Associated with Activity Delta between Buildout Year 2050 and Baseline Year 2018)

Maximum Daily Emissions (lb/day) – across all project elements

Source Category	VOC/ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Onsite Roads	0.1	2.7	8.0	0.0	391.8	89.7
Offsite Roads	0.6	9.5	25.5	0.1	5.4	1.2
Off-road Equipment	5.3	193.3	32.1	0.4	0.7	0.7
MSW Spread/ Compact/Exc/Daily Cover	-	-	-	-	28.7	13.8
Wind Erosion	-	-	-	-	1.7	0.3
Composting Operations	-193.4	-	-	-	10.6	3.5
MRF Ops	-	-	-	-	13.1	2.0
C&D Wood Chip/Grind/Crush	-	-	-	-	20.3	5.4
Gasoline Generators	0.7	0.3	0.5	0.1	0.1	0.1
LFG-to-energy Engines[a]	164.0	303.7	72.9	0.2	0.0	0.0
Flares	7.0	30.7	9.2	10.2	5.2	5.2
LFG Fugitives	20.6	1.6	-	-	-	-
Operation of Complementary Elements[b]	8.4	11.6	9.2	0.1	7.2	2.0
Total (lb/day)	13.2	553.6	**157.5**	11.2	**485.0**	**123.9**
PCAPCD Operations Threshold of Significance (lb/day)	55	N/A	55	N/A	82	N/A (Significant if PM_{10} exceeds threshold)
Exceeds Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

[a] Currently, the LFG-to-energy facility and all required air permits are held by a private operator. Other emission sources may also be owned and operated by others.

[b] Emission calculations assumed operation of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:
Negative values indicate a net benefit. Values in **bold** type indicate an exceedance of the applicable PCAPCD Operational Threshold of Significance.

The following discussion regarding analysis of health consequences from project operational emissions is much like that provided for Impact 6-2 for construction emissions. Again, analysis of the specific health consequences associated with estimated emissions of criteria pollutants and ozone precursors from an individual project is not feasible at this time. Again, no proven approaches or guidance are available for this type of project-specific health study for criteria pollutant or ozone precursor emissions.[29] In this project analysis, comparison of emission results to PCAPCD's numerical thresholds is used as a surrogate for evaluation of potential health impacts. PCAPCD's air quality thresholds of significance for project-level CEQA evaluation are used to evaluate the extent to which a project's emissions of criteria air pollutants and precursors would contribute to regional degradation of ambient air quality. As a result, the PCAPCD thresholds are tied to achieving or maintaining attainment with the health-protective NAAQS and CAAQS.

As a precursor to ozone, additional NOx emissions in the region could result in an increase in ambient concentrations of ozone in the air basin and, moreover, could increase the likelihood and frequency that ambient air concentrations would exceed the CAAQS and NAAQS. As summarized in Section 6.2, Environmental Setting, human exposure to ozone may cause acute and chronic health impacts including coughing, pulmonary distress, lung inflammation, shortness of breath, and permanent lung impairment. Similarly, the estimated net increases in operational emissions of PM_{10} could impede air quality planning efforts to bring the air basin into attainment of the CAAQS for PM_{10} and the NAAQS for $PM_{2.5}$. Acute health effects of PM_{10} and $PM_{2.5}$ exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects of exposure to particulate matter include alterations to the immune system and the initiation of cancer formation, or carcinogenesis (Placer County 2018). However, it would be misleading and speculative to correlate the levels of criteria air pollutant and precursor emissions associated with the proposed project to specific health outcomes to sensitive receptors. While the description of effects noted above could manifest in exposed receptors, actual effects on individuals depend on individual factors, such as life stage (for example, infants, adolescents, and the elderly are more sensitive), prior exposures to air pollution, preexisting cardiovascular or respiratory diseases, lifestyle choices, and genetic polymorphisms (Placer County 2019).

[29] The California Supreme Court, in the case of *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502, determined that the air quality analysis in the environmental impact report (EIR) prepared under CEQA for the Friant Ranch Project was inadequate because it did not make "a reasonable effort to substantively connect the project's air quality impacts to likely health consequences." The Court determined that "the EIR should be revised to relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis" (SMAQMD 2020). Proposed approaches to respond to the Supreme Court's Friant Ranch ruling, like those proposed by the SMAQMD in their final guidance (SMAQMD 2020), have not undergone adequate scientific or legal review, nor has the SMAQMD's recommended approach been proven in CEQA practice. As a result, the SMAQMD approach has not been used in this analysis.

Even if this type of specific medical information, which is confidential to the individual, were available, potential health outcomes from exposure to PM_{10} and $PM_{2.5}$ can range from no effect to the effects described above. Therefore, other than describing the general types of health effects that could occur, it would be speculative to more specifically correlate exposure to emissions from this project to the degree and locations of specific health outcomes to receptors. Because the project's estimated net daily emissions increases would exceed the PCAPCD's mass emissions thresholds for NOx and PM_{10}, the proposed project has the potential to contribute emissions that could impede the area's ability to attain the NAAQS and CAAQS. Higher emissions levels and human exposure to the associated ambient air concentrations could result in adverse health effects. It is possible that health complications associated with exposure to ozone, PM_{10}, and $PM_{2.5}$ in ambient air could be increased for nearby sensitive receptors due to project-related construction emissions, but it is not feasible to define the nature and extent of the health effects, if any, at this time.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on the WPWMA's property and when various facilities would be developed. Table 6-11 summarizes the net maximum daily operational emissions increases[30] estimated for project-related criteria air pollutants and ozone precursors under Plan Concept 2. Like values presented in Table 6-11 for Plan Concept 1, the emission values presented in Table 6-11 represent operation of project elements with implementation of BMPs and project design measures, but no additional mitigation. For specific assumptions and modeling inputs, refer to Appendix C.2.

These differences would not change the conclusions regarding operational emissions identified for Plan Concept 1, including a finding of significance for operational emissions of NOx, PM_{10}, and $PM_{2.5}$ as a subset of PM_{10}. Operational emissions would not exceed PCAPCD's recommended significance thresholds for ROG/VOC. As such, impacts related to operational emissions of criteria air pollutants and ozone precursors for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

[30] Note that the maximum daily project-related activity levels for each source category would not typically occur on the same day, As a result, the hypothetical maximum estimates of net daily operational emissions increases are not expected to occur, but have been conservatively estimated for comparison to CEQA significance thresholds.

Table 6-11. Summary of Net Daily Operational Emissions Increases for Criteria Air Pollutants and Ozone Precursors for Plan Concept 2
(Net = Emissions Associated with Activity Delta between Buildout Year 2050 and Baseline Year 2018)
Maximum Daily Emissions (lb/day) – across all project elements

Source Category	VOC/ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Onsite Roads	0.1	2.0	3.8	0.0	253.2	61.0
Offsite Roads	0.6	9.5	25.5	0.1	5.4	1.2
Off-road Equipment	5.3	193.3	32.1	0.4	0.7	0.7
MSW Spread/Compact/Exc/Daily Cover	-	-	-	-	28.7	13.8
Wind Erosion	-	-	-	-	1.7	0.3
Composting Operations	(193.4)	-	-	-	10.6	3.5
MRF Ops	-	-	-	-	13.1	2.0
C&D Wood Chip/Grind/Crush	-	-	-	-	20.3	5.4
Gasoline Generators	0.7	0.3	0.5	0.1	0.1	0.1
LFG-to-energy Engines[a]	164.0	303.7	72.9	0.2	0.0	0.0
Flares	6.2	27.2	8.2	9.1	4.6	4.6
LFG Fugitives	19.4	1.5	-	-	-	-
Operation of Complementary Elements[b]	8.4	11.6	9.2	0.1	7.2	2.0
Total (lb/day)	11.2	549.2	**152.2**	10.0	**345.7**	**94.6**
PCAPCD Operations Threshold of Significance (lb/day)	55	N/A	55	N/A	82	N/A (Significant if PM_{10} exceeds threshold)
Exceeds Threshold?	No	No	Yes	No	Yes	Yes

[a] Currently the LFG-to-energy facility and all required air permits are held by a private operator. Other emission sources may also be owned and operated by others.

[b] Emission calculations assumed operation of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:
Negative values (in parentheses) indicate a net benefit. Values in **bold** type indicate an exceedance of the applicable PCAPCD Operational Threshold of Significance.

Mitigation Measure 6-3: Operational emissions of criteria air pollutants and ozone precursors.

The WPWMA and their operation contractor(s) shall document their capability and commitment to implement the operational emission reduction BMPs and project design measures identified in Table 6-1 as part of their contracts and plan submittals. To further mitigate the significant air quality impacts

identified for operational emissions of NOx and PM_{10}, the following additional mitigation measures, expanding on those identified in Table 6-1 as BMPs and project design measures,[31] shall be implemented.

Mitigation Measure 6-3(a): Fund NOx emissions reductions through an Offsite Mitigation Fee Program.

The operation of solid waste elements, complementary elements, and supporting elements under the proposed project would result in net emissions increases in operational emissions that would exceed PCAPCD's recommended operational significance thresholds of 55 lb/day for NOx, even with implementation of the BMPs and project design measures listed in Table 6-1. The estimated total increase in NOx emissions estimated in excess of the significance threshold for this project under Plan Concept 1 is approximately 102.5 lb/day, equivalent to 9.4 tons per ozone season,[32] and under Plan Concept 2 is approximately 97.2 lb/day, equivalent to 8.9 tons per ozone season. To mitigate the net project-related increases in operational NOx emissions, the WPWMA shall participate in one of the following voluntary offsite mitigation programs:

- Establish and fund an offsite mitigation project to result in a NOx emission reduction equivalent to the total amount of emissions estimated to exceed the PCAPCD significance threshold over a single season. Developing an offsite mitigation program in western Placer County shall be coordinated with PCAPCD. Emission reductions achieved through the offsite mitigation program must be real and quantifiable, as verified by PCAPCD. Examples of NOx emission reduction mitigation projects include, but are not limited to retrofitting, repowering, or replacing heavy-duty engines from mobile sources (for example, buses, construction equipment, on-road haulers), provision of electrical charging stations to support vehicle electrification, or other programs to reduce regional NOx emissions.
- Participate in the District's Off-Site Mitigation Fee Program by paying the equivalent amount of money, to mitigate the net project contribution of NOx that exceeds the 55 lb/day threshold over a single season. As indicated previously, the estimated NOx emissions offset requirement is approximately 9.4 tons/year for Plan Concept 1 and 8.9 tons/year for Plan Concept 2. The estimated mitigation fees for the NOx emissions increase associated with project operations is approximately $177,000 for Plan Concept 1 and $167,000 for Plan Concept 2, based upon PCAPCD's adopted cost-effectiveness rate of $18,790 per ton for ozone precursors like NOx and the current California CPI rate (PCAPCD 2017b, 2021b). The actual amount to be paid shall be determined based on the selected program and applicable cost-effectiveness rate agreed to by the WPWMA and PCAPCD and shall be paid by the WPWMA or other responsible parties.
- Any combination of the above or other measures, as determined feasible by WPWMA and PCAPCD.

Mitigation Measure 6-3(b): Fund PM_{10} emissions reductions through an Off-Site Mitigation Fee Program.

The operation of solid waste elements, complementary elements, and supporting elements under the proposed project would result in net emissions increases in operational emissions that would exceed PCAPCD's recommended operational significance thresholds of 82 lb/day for PM_{10}, even with implementation of the BMPs and project design measures listed in Table 6-1. The estimated total increase in PM_{10} emissions estimated in excess of the significance threshold for this project under Plan Concept 1 is approximately 403.0 lb/day, equivalent to 36.5 tons per winter season, and for Plan Concept 2 is approximately 263.7 lb/day, equivalent to 23.9 tons per winter season. To mitigate the net project-related

[31] Note: Applicable measures from PCAPCD's recommended operational emission mitigation measures (PCAPCD 2017a) are incorporated in the proposed project as project design measures. For the list of BMPs and project design measures incorporated in the proposed project, please see the list of measures in Table 6-1.

[32] The summer season is estimated at 184 days per year and applies to estimation of mitigation requirements for ozone precursors like NOx, and the winter season is estimated at 181 days and applies for PM_{10} (PCAPCD 2017a).

increases in operational PM_{10} emissions, the WPWMA shall participate in one of the following voluntary offsite mitigation programs:

- Establish and fund an offsite mitigation project to result in a PM_{10} emission reduction equivalent to the total amount of emissions estimated to exceed the PCAPCD significance threshold over a single season. Developing an offsite mitigation program in western Placer County shall be coordinated with PCAPCD. Emission reductions achieved through the offsite mitigation program must be real and quantifiable, as verified by PCAPCD. Examples of PM_{10} emission reduction mitigation projects include, but are not limited to retrofitting, repowering, or replacing heavy-duty engines from mobile sources (for example, buses, construction equipment, on-road haulers), replacing woodstoves, road paving, or other programs to reduce PM_{10} emissions.
- Participate in the District's Off-Site Mitigation Fee Program by paying the equivalent amount of money, to mitigate the net project contribution of PM_{10} that exceeds the 82 lb/day threshold over a single season. As indicated previously, the estimated PM_{10} emissions offset requirement is approximately 36.5 tons/year for Plan Concept 1 and 23.9 tons/year for Plan Concept 2. The estimated mitigation fees for the PM_{10} emissions increase associated with project operations is approximately $220,800 for Plan Concept 1 and $144,600 for Plan Concept 2, based upon an assumed cost-effectiveness rate of $6,050 per ton used for PM_{10} in the SAP DEIR (Placer County 2018). The actual amount to be paid shall be determined based on the selected program and applicable cost-effectiveness rate agreed to by the WPWMA and PCAPCD and shall be paid by the WPWMA or other responsible parties.
- Any combination of the above or other measures, as determined feasible by the WPWMA and PCAPCD.

Level of Significance after Mitigation.

Implementation of Mitigation Measure 6-3(a) and 6-3(b) would result in additional reductions in NOx and PM_{10} emissions and funded measures may also reduce $PM_{2.5}$. Available information on the benefits of the proposed mitigation measures is not sufficient to quantify the additional emission reductions that would occur, so this analysis is qualitative and conservative in nature.

Even with incorporation of all available and feasible BMPs, project design measures, and mitigation measures to reduce emissions, including funding of one-time mitigation fees, it is likely that project-related operational emissions could continue to exceed PCAPCD-recommended thresholds of significance for the ozone precursor NOx and PM_{10}. Even though the operational emissions of some elements developed under the proposed project would not individually generate emissions of NOx that exceed PCAPCD's operational threshold of 55 lb/day, or PM_{10} that would exceed the threshold of 82 lb/day, the combined level of operational emissions associated with the project elements could exceed PCAPCD's thresholds. Participation in a verified NOx or PM_{10} offset program cannot be assured. Operational emissions, even after mitigation, could contribute further to the nonattainment status of the SVAB for ozone, PM_{10}, and $PM_{2.5}$. No additional feasible mitigation measures are available to reduce this impact. **This impact would remain significant and unavoidable**.

MRF Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in quantities, timing, and release locations of estimated project-related air emissions from operations. The proposed changes would involve accelerated and expanded diversion of organic material, including OFMSW, for composting in CASP composting systems and increased recovery and diversion of recyclables. Changes may also involve addition of an enclosed building for organics receipt and processing.

To accommodate the proposed increase in the quantity of material processed at the organics management facility, facility operation would need to increase sooner than anticipated in Plan Concept 1 and Plan Concept 2, but the proposed total processing capacity would not exceed the full buildout capacity evaluated for the proposed project. The proposed CASP processes are similar to the ASP process analyzed as part of the proposed project and would provide similar or better control of fugitive emissions from active composting. Use of an enclosed building for organics receipt and processing was not specifically analyzed as part of the proposed project, but is not expected to result in increased operational emissions. Processing of increased quantities of organic material and recyclables could be accommodated within the existing MRF facility, but may require use of additional equipment which could generate increased air emissions. Increased amounts of recyclables recovered from the MRF would also be anticipated to result in a near-term increase in outbound traffic taking material to market and associated air emissions.

Increased diversion would reduce the amount of waste residuals sent to the landfill, reducing the operational emissions associated with landfill waste disposal. Diversion of more OFMSW from the landfill within a faster timeframe would correspond to a near-term (next 10 years) reduction in LFG production, including reduced emissions of fugitive LFG.

The conservative approach used to calculate potential maximum daily emissions associated with operation of the proposed project included application of a peaking factor to address variability in material quantities received and processed, and the assumption that maximum daily emissions for each facility could occur on the same day. While the proposed changes have the potential to result in near-term emissions increases for the organics management facility and MRF, they also have the potential to result in decreased emissions from waste disposal operations and LFG. Overall, operational activity is not expected to exceed the levels analyzed for full buildout of the proposed project with implementation of the proposed changes.

The PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system would require preconstruction review and permitting by the PCAPCD as a stationary source. As the permitting process is undertaken, the WPWMA facility must continue to comply with applicable regulatory and permitting requirements.

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this air quality impact analysis, and the conclusions of the project-level analysis related to operational emissions of criteria air pollutants and ozone precursors would not change.

IMPACT 6-4	**Mobile-Source Concentrations of Carbon Monoxide**. Though buildout of the proposed project would result in additional vehicle trips on the surrounding roadway network, mobile-source emissions of CO associated with the proposed project would not exceed the PCAPCD's screening criterion for CO dispersion modeling. Therefore, the proposed project is not anticipated to cause a localized exceedance of the NAAQS and CAAQS for CO. **This impact would be less than significant.**

Plan Concept 1

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO from offsite locations is extremely limited because, under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain meteorological conditions, CO concentrations near roadways and intersections may reach unhealthy levels

at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. As a result, it is recommended that CO be analyzed at the local level instead of at the regional level (Placer County 2018).

PCAPCD's screening criterion for CO dispersion modeling indicate that projects emitting less than 550 lb/day of CO from vehicle operation are not anticipated to exceed the NAAQS and CAAQS for CO (PCAPCD 2017a). Although the maximum daily CO emissions from vehicle trips on offsite roads associated with construction and operation of the proposed project are not anticipated to occur contemporaneously, they were conservatively summed for comparison to the PCAPCD screening criterion. As shown in Table 6-12, estimated mobile-source emissions of CO from offsite vehicle trips for Plan Concept 1 would not exceed PCAPCD's screening criterion; as summed, they are far less than the threshold of significance. Therefore, CO dispersion modeling is not recommended, and the proposed project is not anticipated to cause a localized CO impact. This impact would be less than significant.

Table 6-12. Mobile-Source CO Emissions from Vehicle Trips for Plan Concept 1
(Net = Emissions Associated with Activity Delta between Buildout Year 2050 and Baseline Year 2018)

Mobile Sources: Vehicle Trips on Offsite Roads	Maximum Daily CO Emissions (lb/day)
Operation of Solid Waste Elements and Supporting Elements	9.5
Construction of Solid Waste Elements and Supporting Elements	1.6
Operation of Complementary Elements[a]	10.7
Assumed Construction of Complementary Elements in Any Given Year[a]	0.3
Total (lb/day)	22.1
PCAPCD Threshold of Significance (lb/day)	> 550 from vehicle trips
Exceeds Threshold?	No

[a] Emission calculations assumed construction and operation of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements. Construction was assumed to occur over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:
> = greater than

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on the WPWMA's property and when various facilities would be developed. Due to these differences, mobile-source emissions of CO for Plan Concept 2 could differ from mobile-source emissions of CO for Plan Concept 1. As shown in Table 6-13, estimated offsite mobile-source emissions of CO for Plan Concept 2 would not exceed PCAPCD's screening criterion; as summed, they are far less than the threshold of significance. Therefore, CO dispersion modeling is not recommended, and the proposed project is not anticipated to cause a localized CO impact. This impact would be less than significant.

Table 6-13. Mobile-Source CO Emissions from Vehicle Trips for Plan Concept 2
(Net = Emissions Associated with Activity Delta between Buildout Year 2050 and Baseline Year 2018)

Mobile Sources: Vehicle Trips on Offsite Roads	Maximum Daily CO Emissions (lb/day)
Operation	9.5
Construction	1.7
Operation of Complementary Elements[a]	10.7
Assumed Construction of Complementary Elements in Any Given Year[a]	0.3
Total (lb/day)	22.2
PCAPCD Threshold of Significance (lb/day)	>550 from vehicle trips
Exceeds Threshold?	No

[a] Emission calculations assumed construction and operation of 300,000 ft^2 of building space and 300,000 ft^2 of parking and roads for complementary elements. Construction was assumed to occur over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 ft^2 of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

MRF Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in quantities, timing, and release locations of estimated air emissions associated with project-related construction and operations. The proposed changes would involve accelerated and expanded diversion of organic material, including OFMSW, for composting in CASP composting systems and increased recovery and diversion of recyclables.

This accelerated diversion rate may result in a nominal increase in traffic in the near term as materials diverted from the waste stream are recovered and taken offsite. However, this increase in near-term traffic would be less than the net increase in vehicle trips associated with full buildout of the Waste Action Plan and evaluated as part of the proposed project. Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this air quality impact analysis, and the conclusions of the project-level analysis related to mobile-source concentrations of CO would not change.

IMPACT 6-5 **Exposure of Sensitive Receptors to TACs**. Estimated net changes in TAC emissions associated with construction and operation of solid waste elements, complementary elements, and supporting elements under the proposed project would not result in the exposure of sensitive receptors to substantial TAC concentrations. Based on the results of a HRA for project-related emissions, the evaluated exposure conditions at nearby residential, workplace, and sensitive receptor locations would not result in risk values that exceed PCAPCD thresholds of significance at any modeled receptors, including sensitive receptors. Modeled emissions and exposures would not result in an incremental increase in lifetime cancer risk of greater than 10 in 1 million, nor would they result in hazard indices for noncancer chronic (HIC) or acute exposures (HIA) greater than 1.0. **This impact would be less than significant.**

Plan Concept 1

Construction and operation of the proposed project under Plan Concept 1 would result in TAC emissions from the MRF, landfill, composting facility, LFG-to-energy facility and flares, and fuel combustion in on- and off-road vehicles and equipment. An HRA was conducted to evaluate potential human health risks associated with exposure to pollutant concentrations resulting from net increases of project-related TAC emissions for Plan Concept 1. The HRA was developed using air dispersion modeling of the project-related emissions and characterization of the resultant exposures and health risks using approved risk assessment methodology from the California OEHHA (OEHHA 2015), CARB risk management guidance (CARB 2015), and CEQA guidelines (PCAPCD 2017a).

This HRA follows four general steps to estimate health impacts:

A. Identification and quantification of project-related TAC emissions

B. Evaluation of pollutant transport (using air dispersion modeling) to estimate ground-level TAC concentrations at each receptor location in the plotted receptor grid and at sensitive receptor locations

C. Assessment of human exposures[33]

D. Use of a risk characterization model to estimate the potential health risks at each receptor location

TAC emissions for the incremental increase in activity associated with operation of the proposed project were calculated for the project buildout year of 2050, when maximum operational capacity is expected. The incremental increase is based on overall tonnage increase for each facility with the proposed project and is the same for both Plan Concepts (Figure 1-4, 2018 Waste Material Flowchart, and Figure 3-4, 2050 Waste Material Flowchart). A peaking factor of 1.28 (obtained by dividing the peak 2018 weekday tonnage by the average 2018 weekday tonnage) has been applied to represent a hypothetical future maximum day for purposes of maximum short-term emissions. For purposes of annual emission estimates in the modeling analysis, annual average emissions were used without the use of the short-term peaking factor. For operational sources for which no hourly emission data was available, maximum daily emissions assumed a 14-hour operational day.

Throughout operation of the proposed project, construction would occur as new or existing facilities that are part of the proposed project would be constructed, upgraded, expanded, or replaced. In order to determine the maximum annual construction emissions from diesel off-road equipment, emissions were calculated for hypothetical peak years for each Plan Concept. These years generally included construction of major project elements or multiple construction projects estimated to be completed in the same year. Emissions from construction projects completed in all other, nonpeak years would be expected to be lower than emissions in the hypothetical peak years.

The annual emission rate values for construction used in the modeling were derived by averaging the annual emission rate values for the individual hypothetical peak years for each Plan Concept. These annual emissions were conservatively assumed to occur during each of the 30 years of this HRA to account for varying levels of construction over the analysis period. For short-term emissions, the maximum daily emissions calculated assume all construction projects within a given year could overlap and therefore

[33] The risk assessment evaluated both carcinogenic (cancer) and noncarcinogenic (noncancer) health risks for two exposure scenarios: one for exposure of existing receptors to project-related increases in TAC emissions (for project-level impact analysis), and one that reflects potential receptor locations and exposure conditions under future development plans (presented in the cumulative impact analysis in Chapter 19). The existing receptor locations have been characterized based on current land use types and buildings, and the future receptor locations have been characterized based on future developments, including residential communities, businesses, and sensitive receptors such as schools.

reflect the sum of the max daily emissions for each individual construction project divided by an 8-hour workday.

The TAC emission rates used in the HRA analysis were modeled assuming concurrent operational and construction activity.

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 21112) was used for air dispersion modeling, as recommended in the EPA Appendix W, Guideline on Air Quality Models (EPA 2017). The most recent version of CARB's Hotspots Analysis and Reporting Program (HARP2) (Version 21081), with the revised unit risk and cancer potency values updated in October 2020, was used for this analysis. The updated sensitivity factors were applied in accordance with the *Risk Management Guidance for Stationary Sources of Air Toxics* (CARB 2015b). As recommended by the 2015 OEHHA and CARB risk management guidance, a Tier 1 assessment was performed (OEHHA 2015; CARB 2015). A Tier 1 assessment is the most conservative of the four Tiers of assessment methodologies identified in the OEHHA guidance and uses a standard point-estimate approach, with standard OEHHA assumptions.

The 2015 OEHHA guidance uses AERMOD-predicted pollutant concentrations, exposure assumptions, and approved health values (that is, pollutant-specific cancer potency values and reference exposure levels [RELs]) from OEHHA to predict potential health impacts. Following the 2015 OEHHA guidance and the 2017 PCAPCD guidance, the HRA estimated potential health impacts associated with the following exposure routes: inhalation, dermal absorption, and ingestion of homegrown produce, farm products (meat and eggs), soil, and mother's milk. Health risk results are presented in terms of the incremental increase in lifetime cancer risk, chronic hazard index (HIC), and acute hazard index (HIA). These types of results are explained in the following:

- Cancer risks are evaluated based on the estimated annual project-related TAC emission rates, ground-level concentrations obtained from the dispersion modeling analysis, and values for inhalation cancer potency, oral slope factor, frequency and duration of exposure at the receptor, age-specific sensitivity factors, and breathing rates of the exposed persons from the HARP model. Potential cancer risks for residential and sensitive receptors were evaluated using a scenario assuming 30-year continuous exposure duration starting in the third trimester. Potential cancer risks for worker and commercial/industrial receptors were evaluated using a scenario assuming a 25-year workplace exposure duration (8 hours per day, 5 days per week starting at age 16 years old), as recommended in the OEHHA Guidelines (OEHHA 2015). For carcinogens, the toxicity criterion, or health guidance value, is the cancer potency factor, which describes the potential risk of developing cancer per unit of average daily dose over a 70-year lifetime. Cancer inhalation and oral potency factors have been derived by OEHHA or EPA and approved by the State's Scientific Review Panel on Toxic Air Contaminants (OEHHA 2015). Cancer risk results are expressed as the incremental increase in lifetime cancer risk above baseline levels of risk, typically as a predicted number (of persons) per 1 million individuals.
- Chronic toxicity is defined as adverse health effects from prolonged chemical exposure caused by chemicals accumulating in the body. To assess long-term chronic noncancer exposures, modeled TAC ground-level concentrations were compared to chemical-specific RELs developed by OEHHA to obtain an HIC. The REL is a concentration in ambient air at or below which no adverse health effects are anticipated. Noncancer chronic health risks are calculated as a hazard quotient, which is the modeled exposure concentration of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as hazard indices (HI) for each organ system. HIC values less than 1 are assumed to reflect pollutant exposure concentrations with no anticipated adverse health effects.

- Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. To assess acute noncancer exposures, predicted 1-hour average TAC concentrations were compared to chemical-specific acute RELs to obtain an HIA. Similar to assessing chronic noncancer health risks, acute health risks were calculated as a hazard quotient, which is the modeled exposure concentration of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as HIs for each organ system. Again, HIA values less than 1 are assumed to reflect exposures with no anticipated adverse health effects.

By plotting the risk results on the receptor grid for the project, cancer, chronic, and acute health risks were estimated for the locations of the hypothetical maximally exposed individual at a residential location (MEIR), the maximally exposed individual at a workplace location (MEIW), and at sensitive receptors within 10 kilometers of the project site. Presently there is an onsite groundskeeper residence located within the property boundary of the facility, which is slated to be removed prior to the completion of the proposed project. The HRA results for the location of the groundskeeper residence are presented in Appendix D of the Health Risk Assessment Modeling Report (Appendix C.5 of this EIR) for informational purposes but are not used as a basis for determining significance. Health risk results at the modeled point of maximum impacts (PMI) are also estimated. Risk results predicted at the MEIR, MEIW, and sensitive receptor locations for Plan Concept 1 are presented in Table 6-14 and Table 6-15. Results have been compared to the PCAPCD's recommended thresholds of significance summarized below (PCAPCD 2017a):

- Incremental increase in cancer risk of 10 in 1 million individuals
- HIC of 1.0
- HIA of 1.0

Table 6-14. Health Risk Assessment Cancer Risk Results for Plan Concept 1 – Project-Level Analysis

Receptor Type[a]	Receptor Location		Incremental Increase in Cancer Risk	PCAPCD Significance Threshold
	X Coordinate (m)	Y Coordinate (m)	(per 1 million)	(per 1 million)
MEIR[b]	645,250	4,297,000	4.7	10
MEIW[c]	645,300	4,300,100	6.7	10
Existing Sensitive Receptor[d]	645,250	4,297,000	4.7	10

[a] Risk results for the groundskeeper residence are included in the HRA Modeling Report for informational purposes.

[b] The MEIR represents the location of the maximum observed risk at residential receptors as defined by land use type for the existing analysis or as observed in aerial imagery.

[c] The MEIW is represented as the location of the maximum observed risk at all modeled receptors.

[d] Existing sensitive receptor locations that would have fallen within the footprint of the modeled sources were removed from this health risk analysis.

Note:
Receptor location coordinates are respective to UTM NAD83 Zone 10.

Table 6-15. Health Risk Assessment Noncancer Risk Results for Plan Concept 1– Project-Level Analysis

Receptor Type[a]	Noncancer Chronic Risk (HIC)	Noncancer Acute Risk (HIA)	PCAPCD Significance Threshold for HIC and HIA
MEIR[b]	0.004	0.12	1.0
PMI	0.203	0.71	1.0
Existing Sensitive Receptor	0.003	0.12	1.0

[a] Risk results for the groundskeeper residence are included in the HRA Modeling Report for informational purposes.

[b] The MEIR represents the location of the maximum observed risk at residential receptors as defined by land use type for the existing analysis or as observed in aerial imagery.

Note:
Receptor location coordinates are respective to UTM NAD83 Zone 10.

Using the OEHHA guidance, the incremental increase in lifetime cancer risk associated with exposure to construction and operation emissions from implementation of Plan Concept 1 at the location of the MEIR (also the existing sensitive receptor, located approximately 2 kilometers from the facility's southeastern boundary) is predicted to be 4.7 in 1 million. The maximum incremental increase in cancer risk predicted for worker exposures at the location of the MEIW (located near the intersection of Athens Avenue and Foothills Blvd) is predicted to be 6.7 in 1 million. For specific assumptions, modeling inputs, figures, and risk results, refer to Appendix C.5.

The HIC and HIA values estimated for the locations of maximum impact for noncancer chronic and acute exposures are all less than the PCAPCD threshold of 1.0.

No cancer, chronic, or acute thresholds have been exceeded, indicating health risk impacts for TAC emissions associated with the proposed project under Plan Concept 1 would be less than significant.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on the WPWMA's property and when various facilities would be developed. Table 6-16 and Table 6-17 present cancer and noncancer health risk results, respectively, for exposure of receptors to the TAC emissions estimated for the proposed project under Plan Concept 2.

Estimated risks for Plan Concept 2 are similar to those estimated for Plan Concept 1. Using the OEHHA guidance, the incremental increase in lifetime cancer risk associated with exposure to construction and operation emissions from implementation of Plan Concept 2 at the location of the MEIR (also the existing sensitive receptor, located approximately 2 kilometers from the facility's southeastern boundary) is predicted to be 4.7 in 1 million. The maximum incremental increase in cancer risk predicted for worker exposures at the location of the MEIW (located near the intersection of Athens Avenue and Foothills Blvd) is predicted to be 6.8 in 1 million. For specific assumptions, modeling inputs, figures, and risk results, refer to Appendix C.5.

The HIC and HIA values estimated for the locations of maximum impact for noncancer chronic and acute exposures are all less than the PCAPCD threshold of 1.0.

No cancer, chronic, or acute thresholds have been exceeded, indicating health risk impacts for TAC emissions associated with the proposed project under Plan Concept 2 would be less than significant.

Table 6-16. Health Risk Assessment Cancer Risk Results for Plan Concept 2– Project-Level Analysis

Receptor Type[a]	Receptor Location		Incremental Increase in Cancer Risk	PCAPCD Significance Threshold
	X Coordinate (m)	Y Coordinate (m)	(per 1 million)	(per 1 million)
MEIR[b]	645,250	4,297,000	4.7	10
MEIW[c]	645,300	4,300,100	6.8	10
Existing Sensitive Receptor[d]	645,250	4,297,000	4.7	10

[a] Risk results for the groundskeeper residence are included in the HRA Modeling Report for informational purposes.

[b] The MEIR represents the location of the maximum observed risk at residential receptors as defined by land use type for the existing analysis or as observed in aerial imagery.

[c] The MEIW is represented as the location of the maximum observed risk at all modeled receptors.

[d] Existing sensitive receptor locations that would have fallen within the footprint of the modeled sources were removed from this health risk analysis.

Note:
Receptor location coordinates are respective to UTM NAD83 Zone 10.

Table 6-17. Health Risk Assessment Noncancer Risk Results for Plan Concept 2 – Project-Level Analysis

Receptor Type[a]	Noncancer Chronic Risk (HIC)	Noncancer Acute Risk (HIA)	PCAPCD Significance Threshold for HIC and HIA
MEIR[b]	0.003	0.10	1.0
PMI	0.218	0.69	1.0
Existing Sensitive Receptor	0.003	0.10	1.0

[a] Risk results for the groundskeeper residence are included in the HRA Modeling Report for informational purposes.

[b] The MEIR represents the location of the maximum observed risk at residential receptors as defined by land use type for the existing analysis or as observed in aerial imagery.

Note:
Receptor location coordinates are respective to UTM NAD83 Zone 10.

MRF Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in quantities, timing, and release locations of estimated project-related air emissions from construction and operations. The proposed changes would involve accelerated and expanded diversion of organic material, including OFMSW, for composting in CASP composting systems and increased recovery and diversion of recyclables. Changes may also involve addition of an enclosed building for organics receipt and processing. This accelerated diversion rate may result in a nominal

increase in traffic in the near term as materials diverted from the waste stream are recovered and taken offsite. Diversion of more OFMSW from the landfill within a faster timeframe would correspond to a near-term (next 10 years) reduction in LFG production, and reduced emissions of fugitive LFG and the associated TACs.

The PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system that may require permitting by the PCAPCD as a stationary source. As the permitting process is undertaken, the WPWMA facility must continue to comply with applicable regulatory and permitting requirements. Under PCAPCD Rule 513 ("Toxics New Source Review"), all stationary sources that have the potential to emit TACs are required to obtain permits from PCAPCD. PCAPCD may grant permits to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures.

A project-level HRA has been conducted to assess the potential for project-related TAC emissions to expose receptors to substantial health risks. The analysis found less than significant impacts for the proposed project without the MRF operations design changes. To evaluate the MRF operations design changes, TAC emissions for stationary sources that would change to meet the accelerated and expanded demand for OFMSW processing and CASP composting may need to be evaluated at the time of air permitting. If the facility changes would emit TACs in excess of PCAPCD's standard of significance for TACs, the sources would have to implement BACT to reduce the TAC emissions.

IMPACT 6-6	**Create Objectionable Odors Affecting a Substantial Number of People**. Implementation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project has the potential to create objectionable odors affecting a substantial number of people. The proposed project would implement numerous facility improvements, including more efficient waste management operations and odor-abatement strategies. However, the nature and effectiveness of these strategies are unknown, there are no quantifiable thresholds of significance for odor impacts, and there is no existing fee program or other mechanism by which to fund odor mitigation. **Impacts related to odors would be significant.**

Plan Concept 1

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; distance from the odor source; and the sensitivity of the affected receptor (PCAPCD 2017a). Local meteorology, including the prevailing wind direction near the site, is described in Section 6.2.1. With approval of the SAP/PRSP, the residential buffer zone surrounding the proposed project site was reduced from 1 mile to 2,000 feet. This does not meet the PCAPCD-recommended odor screening distances of 1 mile for sanitary landfills and 2 miles for composting facilities. Section 6.2.4 describes the existing setting for odors, including odor sources, odor controls already in place, odor notification reports received for the existing site, and other potential odor sources in the proposed project area. Odors from the site are part of the existing environment in the proposed project area, and it is not feasible to differentiate between existing odors that would continue in the future and future proposed project-related odors.

The WPWMA SWOP describes both the odor control measures that are currently being implemented and those that will be fully implemented as part of the proposed project. Odor control measures and BMPs

identified in the SWOP are listed in Table 6-1 and have been taken into consideration when determining significance. In addition to the odor control measures currently undertaken at the facility, the WPWMA will implement the SWOP to provide information about facility odor sources, meteorological conditions that have the potential to exacerbate the perception of odors, and the measures the WPWMA will take to reduce the potential for facility odors to be perceived by nearby receptors. The SWOP will be used as a tool by the WPWMA and its facility operators and contractors to reduce the potential for offsite odors. The SWOP is included in this DEIR as Appendix C.6 (WPWMA 2020c).

Construction of solid waste elements, complementary and programmatic elements, and supporting elements under Plan Concept 1 could result in odorous emissions from activities such as use of heavy-duty diesel equipment and the laying of fresh asphalt. However, these emissions would be intermittent and temporary and would dissipate with an increase in distance from the construction location(s). Construction under Plan Concept 1 would be implemented over approximately 30 years, but construction-related odors would not be limited to a single location or occur within proximity to offsite receptors for an extended period. The type and level of construction activity would be typical of new development at various locations on a large site, and associated odor sources would not remain in any one part of the proposed project area throughout all construction phases. Given the temporary and intermittent nature of odor-generating construction activities, construction of the project elements developed under the proposed project would not expose people to objectionable odors for an extended period.

The SWOP identifies four facilities or operations at the WPWMA facility with the greatest potential to produce odors: MRF building, composting operation, WRSL active landfill areas, and LFG collection and control system. Operation of these facilities and other solid waste elements and supporting elements under Plan Concept 1 could result in increases in odorous emissions. Ongoing efforts to prevent public nuisance and excessive odor impacts in nearby neighborhoods would continue under Plan Concept 1, including implementation of the odor BMPs listed in Table 6-1 and described in Section 6.2.4.2 to reduce the potential for odor from the MRF, landfill, LFG, ADC materials, composting, and other facility operations. The WPWMA would continue and expand these programs under the proposed project, as the levels of activity at the various solid waste management and supporting elements would increase over time under Plan Concept 1. The proposed improvements in organic waste composting technology (for example, transition from windrows to ASP composting) and the reduction in the quantity of organic materials landfilled would result in a beneficial impact for odors over the existing condition.

Various new commercial and industrial facilities developed as complementary and programmatic elements under the proposed project could potentially result in the siting of new sources of odors. Development may include research facilities, an LFG to compressed natural gas facility, or other compatible technologies. Because no specific projects or sites have been identified for such future uses, however, the degree of impact with respect to potential odors associated with future projects and their effects on adjacent receptors is uncertain. Emissions of odors from such facilities would be subject to PCAPCD's Rule 205, Nuisance, which prohibits the discharge of air contaminants or other materials that would cause detriment, nuisance, or annoyance to any number of people.

Implementation of the Waste Action Plan under Plan Concept 1 would address regional growth, regulatory changes, and other operational objectives, including ongoing and expanded odor control measures. The WPWMA would continue to monitor odor, implement effective odor control measures, and take advantage of advanced technologies as they become available and financially feasible. However, odor impacts are subjective, there are no quantifiable thresholds of significance. The effectiveness of odor control measures to be implemented by the WPWMA cannot be determined at this time, and odor impacts may remain after implementation of odor control measures. This impact would be significant.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on the WPWMA's property and when various facilities would be developed. These differences do not change the conclusions identified for Plan Concept 1. As such, impacts related to odors for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

Mitigation Measure 6-4: Implement Odor Reduction Measures.

The following odor reduction measures shall be implemented in addition to the BMPs and project design measures listed in Table 6-1 as mitigation measures for the proposed project:

- Conduct Annual Odor Emissions Testing and Implement Response Actions (Tier 1, Composting Operations).
- Increase Screening of LFG and Implement Response Actions (Tier 1, Landfill Operations). Quarterly screening for fugitive LFG shall be conducted to identify "hot spots" of LFG emissions through interim and final landfill covers. Such screening reduces the time between identification and repair of surface hot spot emissions, and thus odor.
- Enhance LFG Collection (Tier 1, Landfill Operations). To reduce landfill-related odor emissions, the WPWMA shall establish stricter protocols for LFG collection. Because LFG must be used, flared, or stored in a leak-free container, minimizing odorous emissions involves operating the system for maximum containment of gas as well as cost-effective performance of the gas-to-energy system.
- Implement Enhanced Monitoring and Modeling (Tier 1, Site-wide Technologies and Operations). To monitor odor emissions in areas around the WRSL, odor sensors shall be placed in developed areas surrounding the landfill to identify odor spikes or other abnormal odor emissions, ideally before community complaints are lodged. Updates to the WPWMA's dispersion modeling capabilities shall also be implemented to better predict the nature, location, and intensity of odor issues.
- Establish Tree-lined Perimeter of WRSL (Tier 1, Site-wide Technologies and Operations). Trees with aromatic foliage, such as pine or eucalyptus, shall be planted around the WRSL to visually screen the landfill from surrounding areas, providing psychological benefits, and to serve as a windbreak, thereby impeding, absorbing, or otherwise altering the flow of odorous emissions from the facility.
- Implement additional measures in accordance with the Odor Mitigation MOU (Churchwell White, LLP 2019; Schmidt and Card 2019).

Level of Significance after Mitigation.

The proposed project would implement numerous facility improvements, including more efficient waste management operations and odor-abatement strategies. However, the nature and effectiveness of these strategies are unknown, there are no quantifiable thresholds of significance for odor impacts, and there is no existing fee program or other mechanism by which to fund odor mitigation. This impact would remain significant after mitigation.

MRF Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either Plan Concept and would potentially result in changes in project-related odors, primarily due to accelerated, expanded processes to sort and remove the organic fraction of the MSW (OFMSW) for composting in CASP composting systems. This would reduce the amount and organic content of waste residuals sent to the landfill. Diversion of

more OFMSW from the landfill within a faster timeframe would correspond to a near-term (next 10 years) reduction in LFG production, including reduced emissions of fugitive LFG. Additionally, the organic content of MRF fines used as ADC would be reduced, reducing the likelihood of odor generation from ADC application.

The OFMSW processes and composting would have the potential to increase odors, so additional odor control measures would be implemented. CASP composting systems would include covers on the composting piles to reduce odorous emissions, using either a membrane cover system (or similar), or a biolayer and positive ASP technology like that analyzed for the proposed project. If the aeration system for composting were changed to negative or reverse flow, a stand-alone biofilter for odor control would be installed and operated. Changes may also involve addition of an enclosed building for organics receipt and processing.

The PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system that may require permitting by the PCAPCD as a stationary source. As the permitting process is undertaken, the facility must continue to comply with applicable regulatory and permitting requirements. As discussed with PCAPCD staff, implementation of the SWOP and OIMP, which PCAPCD intends to add to the operating permit for the WPWMA facility, should also reduce odors and the related odor notifications in the future (Springsteen, pers. comm., 2021).

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this air quality impact analysis, and the conclusions of the project-level analysis related to odor impacts and mitigation would not change.

6.5 References

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