

Appendix B

Air Quality and Greenhouse Gas Technical Report

NCE has made every effort to provide this report and all associated information in an accessible format. If you need the appendices in an alternative format please contact Jeffrey Esquivel, (916) 341-6337, <mailto:permittrainingassistance@calrecycle.ca.gov>.

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**Air Quality and GHG Technical Report
for Small/Medium Composting Project
Permitting**

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Prepared for:

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ATTACHMENT 2 – MOBILE AND STATIONARY SOURCES OPERATIONAL EMISSIONS

ATTACHMENT 3 – HEALTH RISK ASSESSMENT

List of Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter
AB	Assembly Bill
APR	Ambient Air Quality Project Risk
AQIA	Air Quality Impact Assessment
AQMP	Air Quality Management Plan
ASP	Aerated Static Pile
BAAQMD	Bay Area Air District (formally known as the Bay Area Air Quality Management District)
BACT	Best Available Control Technology
BMP	Best Management Practice
BPS	Best Performance Standards
CAA	Clean Air Act
CAAA	Clean Air Act Amendment
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model [®]
CAPCOA	California Air Pollution Control Officers Association
CASP	Covered Aerated Static Pile
CEQA	California Environmental Quality Act
CERF	Compost Emission Reduction Factor
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalents
cy	Cubic Yards
DPM	Diesel Particulate Matter
E	Extreme
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	Greenhouse Gas
GWP	Global Warming Potential
HRA	Health Risk Assessment
lb	Pound
IPCC	Intergovernmental Panel on Climate Change
LEA	Local Enforcement Agency
LOS	Level of Service
LST	Localized Significance Threshold
LTS	Less Than Significant
MT/yr	Metric Ton per Year
MT CO _{2e}	Metric Tons of Carbon Dioxide Equivalent
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NF ₃	Nitrogen Trifluoride

NH ₃	Ammonia
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NSR	New Source Review
O ₃	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OIMP	Odor Impact Minimization Plan
PM	Particulate Matter
PM ₁₀	Respirable Particulate Matter (Less Than 10 Microns in Size)
PM _{2.5}	Fine Particulate Matter (Less Than 2.5 Microns in Size)
POC	Precursor Organic Compound
ppm	Parts per million
PS	Potentially Significant
PTE	Potential to Emit
R	Refrigerants
RAQS	Regional Air Quality Strategy
ROG	Reactive Organic Gas
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SDAPCD	San Diego County Air Pollution Control District
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-Lived Climate Pollutant
SLT	Screening-Level Thresholds
SO ₂	Sulfur Dioxide
SO _x	Sulfur Oxides
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TPM	Total Particulate Matter
TPY	Tons per Year
S	Severe
U	Unclassified
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

Air Quality and GHG Technical Report for Small/Medium Composting Project Permitting

1.0 PROJECT OVERVIEW

The California Department of Resources Recycling and Recovery (CalRecycle) is preparing a Program Environmental Impact Report (PEIR) for a Statewide program intended to facilitate the permitting and development of small and medium compostable material handling facilities and operations pursuant to Senate Bill (SB) 1046. The program is designed to support implementation of SB 1383 by increasing California's capacity to process organic waste diverted from landfills through the development of additional composting facilities throughout the State.

Implementation of the program would result in the construction and operation of new small and medium composting facilities that process agricultural, food waste, and green waste materials. Operation of these facilities would generate emissions of criteria air pollutants, toxic air contaminants (TACs), and greenhouse gases (GHGs) from on-road vehicles, off-road equipment, and composting activities. This technical report provides the air quality and GHG impact analyses prepared for the PEIR. Emission estimates were developed for representative facility scenarios within four California air districts.

1.1 Project Location

The program area encompasses the entire State of California. The program is intended to facilitate the development and operation of new small and medium compostable material handling facilities and operations; however, specific facility locations have not been identified. Because future facility sites are unknown, potential air quality and GHG impacts were evaluated using representative facility scenarios developed for four regions of California, defined by the jurisdictional boundaries of the following air districts: the Bay Area Air District, San Joaquin Valley Air Pollution Control District (SJVAPCD), South Coast Air Quality Management District (SCAQMD), and San Diego County Air Pollution Control District (SDAPCD).

1.2 Facility Operations and Project Description

The Statewide program would facilitate the development and operation of small and medium compostable material handling facilities that process agricultural wastes, food waste, green waste, and other organic materials. 'Other organic materials' could include biosolids, digestate, or manure. These materials generally have a higher nitrogen concentration relative to green waste and can be used to improve the carbon to nitrogen ratio when blended with low-nitrogen feedstocks. Co-composting with biosolids, digestate, or manure is thought to lead to lower VOC emissions due to the improved nutrient ratio. For the purpose of this analysis, in order to be conservative (i.e., to ensure that emissions are not underestimated), the higher green waste emission factors are used to predict composting emissions rather than the lower co-composting emission factors.

As defined by SB 1046, small facilities, which are anticipated to occupy approximately 5 acres, would process up to 10,000 tons per year (TPY) of material with an on-site capacity of up to 5,000 cubic yards (cy). Medium facilities, which are anticipated to occupy approximately 11 acres, would process up to 25,000 TPY of material with an on-site capacity of up to 12,500 cy.

Composting operations typically involve feedstock receiving and preparation, active composting, curing, screening, and product export. Incoming feedstocks may be ground, shredded, and sorted to remove contaminants before being placed into windrows, positively covered aerated static piles (CASPs), or negatively aerated static pile (ASP) systems for active composting. Following the active composting phase, material would be cured, screened to remove oversized materials and contaminants, and transported off-site for use as a soil amendment in agricultural, landscaping, and horticultural applications. Equipment commonly used during operations includes loaders, grinders, screeners, water trucks, and haul trucks.

1.3 Analysis Scenarios

1.3.1 Construction

Because the Statewide program does not identify specific facility locations or site designs, the construction analysis was based on representative facility scenarios. The scenarios were developed to capture the range of site development activities anticipated under the program.

Two construction scenarios were evaluated within each of the four air districts included in the analysis, representing development of small and medium composting facilities. The small facility scenarios assume development of 5-acre sites, while the medium facility scenarios assume development of 11-acre sites. For all scenarios, 25% of the site area was assumed to be paved. The scenarios and associated construction assumptions are included in Attachment 1.

1.3.2 Operations

Because the Statewide program does not identify specific facility locations or operational designs, the analyses were based on a series of representative composting facility scenarios. The scenarios were developed to capture the range of facility sizes, feedstocks, and composting technologies anticipated under the program.

Six scenarios were evaluated, representing small and medium composting facilities utilizing windrow, positive CASP, and negative ASP systems. Small facilities were assumed to have an on-site capacity of up to 5,000 cy and process up to 10,000 TPY of green waste, including food waste. Medium facilities were assumed to have an on-site capacity of up to 12,500 cy and process up to 25,000 TPY of green waste and food waste. The scenarios and associated operating assumptions are included in Attachment 2. Simplified descriptions of the scenarios are listed in Table 1-1.

Table 1-1: Representative Composting Facility Scenarios

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Facility Type	Small	Small	Small	Medium	Medium	Medium
Composting Technology	Windrows	Positive CASP	Negative ASP with Filter	Windrows	Positive CASP	Negative ASP with Filter
Throughput	10,000 TPY	10,000 TPY	10,000 TPY	25,000 TPY	25,000 TPY	25,000 TPY

2.0 EMISSIONS

2.1 Construction

A project's construction phase produces many types of emissions, generally particulate matter less than 10 microns in size (PM₁₀), including particulate matter less than 2.5 microns in size (PM_{2.5}), in fugitive dust and diesel engine exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM₁₀, as well as affecting PM₁₀ compliance with ambient air quality standards on a regional basis. Diesel-fueled construction equipment emits ozone (O₃) precursors nitrogen oxides (NO_x) and reactive organic gases (ROGs)¹, and diesel particulate matter (DPM). Use of architectural coatings and other materials associated with finishing buildings may also emit ROGs and TACs.

Construction emissions were evaluated for: 1) a small composting facility on a 5-acre site; and 2) a medium composting facility on an 11-acre site. It was assumed that 25% of the site would be developed with paved surfaces for both facility options.

Construction-related emissions were estimated using the California Emissions Estimator Model[®] (CalEEMod) Version 2022.1.1.45, the official Statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with construction of land use projects. Attachment 1 provides additional detail on CalEEMod inputs, assumptions, and results.

Because construction-related criteria pollutant emissions were generally consistent across the four air districts evaluated², the maximum daily and annual construction emissions for each representative facility scenario are summarized in Table 2-1. Maximum construction GHG emissions, including total and amortized annual emissions, are summarized in Table 2-2. Because construction emissions occur over a finite construction period (less than a year) while operational emissions occur annually, construction GHG emissions are typically amortized over the anticipated project operational life and incorporated into annual GHG emissions for significance evaluation.

¹ ROG, volatile organic compounds (VOCs), and precursor organic compounds (POCs) all refer to photochemically ROGs and can be used interchangeably. For this report, VOC will generally be used to report emissions. POC and ROG will be used when the source document (study, report, software program, etc.) uses that nomenclature to avoid mis-representing the data. For example, CalEEMod is used for construction emission estimates; CalEEMod uses ROG in its documentation, so this report uses ROG in the construction emission discussion.

² The small and medium facility construction plans were identical for the four air districts. The predicted emissions varied because the criteria pollutant emission factors for the on-road and off-road vehicle fleets in the four jurisdictions vary due to differences in fleet composition and age. Overall, the emission totals for the four air districts varied by less than 2%. The maximum emissions are presented.

Table 2-1: Construction Criteria Pollutants Emissions Summary

Pollutant	Small Facilities			Medium Facilities		
	Average Daily Emissions	Maximum Daily Emissions	Annual Emissions	Average Daily Emissions	Maximum Daily Emissions	Annual Emissions
	(lb/day)	(lb/day)	(TPY)	(lb/day)	(lb/day)	(TPY)
VOC	4.9	60.9	0.9	4.9	61.0	0.9
NO _x	6.2	28.1	1.1	6.5	28.1	1.2
CO	8.4	29.2	1.5	8.7	29.2	1.6
SO _x	0.01	0.05	0.003	0.02	0.06	0.003
PM ₁₀ (Exhaust)	0.2	1.2	0.04	0.2	1.2	0.04
Total PM ₁₀	0.4	9.1	0.1	0.5	9.1	0.1
PM _{2.5} (Exhaust)	0.2	1.1	0.04	0.2	1.1	0.04
Total PM _{2.5}	0.3	5.1	0.1	0.3	5.1	0.1

Source: CalEEMod Version 2022.1.1.45.

Note: Consistent with Bay Area Air District California Environmental Quality Act (CEQA) significance thresholds, exhaust PM₁₀ and PM_{2.5} emissions are presented separately because the applicable thresholds apply to exhaust particulate matter (PM) rather than total particulate matter (TPM) emissions. In addition, average daily emissions are presented because Bay Area Air District thresholds are based on average daily emissions rather than peak (maximum) daily emissions.

Table 2-2: Construction GHG Emissions Summary for Representative Facilities

GHG	Emissions (MT CO ₂ e)	
	Small Facilities	Medium Facilities
CO ₂	256	271
CH ₄	<1	<1
N ₂ O	<1	<1
R	<1	<1
Total CO ₂ e	257	272
Amortized CO ₂ e (30 Years)	9	9

Source: CalEEMod Version 2022.1.1.45.

Note: Construction-related GHG emissions were amortized over a 30-year operational life and incorporated into annual operational GHG emissions, consistent with applicable air district guidance (SCAQMD 2008a).

2.2 Operations

2.2.1 Overview

Operation of compost facilities would produce emissions of air pollutants from fuel combustion in stationary and mobile sources, decomposition of organic materials, and use of processing equipment. Emissions estimates were prepared for the mobile and stationary

emission sources required to operate the six representative composting facility scenarios described in Section 1.3.2. Emissions estimates have been prepared for the following stationary source categories:

- Grinding and Screening Dust/Particulate Emissions;
- Material Handling Dust/Particulate Emissions;
- Wind Erosion Dust/Particulate Emissions;
- Feedstock Storage VOC Emissions;
- Composting VOC Emissions;
- Curing VOC Emissions;
- Finished Compost Storage VOC Emissions;
- Stationary diesel engine exhaust criteria pollutant emissions for grinders, screens, stackers, colorizers, and emergency engines;
- Feedstock storage, composting, curing, and finished compost storage organic TAC and ammonia (NH₃) emissions;
- Grinding, screening, material handling, and wind erosion Dust and Particulate TAC Emissions; and
- Stationary diesel engine exhaust DPM emissions.

And the following mobile source categories:

- Vehicle and Equipment Exhaust Emissions:
 - On-Road Vehicle Exhaust Emissions, and
 - Off-Road Equipment Exhaust Emissions;
- Fugitive Dust from Travel on Paved Roads;
- Fugitive Dust from Travel on Unpaved Roads;
- TAC Emissions:
 - Vehicle and Equipment Exhaust TAC Emissions:
 - Diesel Exhaust Emissions (i.e., DPM); and
 - Gasoline Exhaust Emissions;
 - Paved Road Dust TAC Emissions; and
 - Unpaved Road Dust TAC Emissions.

For each category of emissions, emission calculation worksheets for the proposed Project the calculation methodologies are explained and the data and assumptions used in the calculations are provided in Attachment 2.

Baseline operations for all scenarios assume that the feedstock would be sent to a landfill. Because the Statewide program does not identify specific facility locations, detailed comparisons to baseline operations must be largely undefined. The California Air

Resources Board (CARB) and CalRecycle anticipate that emissions of VOCs, NO_x, PM₁₀, and PM_{2.5} from processing compost feedstock would be lower at a composting facility relative to processing at a landfill. CARB and CalRecycle have produced general estimates for the level of GHG reductions that would be achieved through the redirection of 1 ton of organic material from a landfill to an anaerobic digester, composting facility, or other organic waste recovery facility. The Compost Emission Reduction Factor (CERF) model accounts for emissions increases associated with increased truck transport of organic wastes and energy requirements of facilities, as well as emissions reductions from the avoidance of methane (CH₄) emissions, decreased soil erosion and increased carbon sequestration potential, reduced synthetic fertilizer use, and reduced herbicide use (CalRecycle 2019: pg. 3.8-17).

For this analysis, it was assumed that criteria pollutant and TAC emissions at the compost facility would be new emissions, and landfill emissions of these pollutants are not estimated. As a practical matter, the criteria pollutant and TAC emissions have localized impacts, thus emissions of these pollutants from a remote landfill would not factor into the analyses of impacts at the composting sites.

For feedstock truck trips, there are three possibilities: 1) the distance to a new composting facility is shorter than the distance to a landfill; 2) the distance is the same as the distance to a landfill; and 3) the distance to a new composting facility is greater than the distance to a landfill. In the first two possibilities, emissions from truck travel would decrease or be unchanged. To ensure that project emissions are not underestimated, only the third possibility was included in emission calculations; feedstock truck trip distance to a landfill was subtracted from the truck trip distance to a composting facility. This difference from baseline is incorporated into the project emissions by using the difference in distance in the calculations; the baseline emissions from feedstock trucks are not presented separately.

It is likely that composting facilities will be located closer to feedstock sources than landfills because the largest feedstock sources (i.e., agriculture facilities) are also often the largest users of finished compost, which provides additional incentive to locate composting facilities close to the feedstock sources.

GHG emissions were assumed to decrease on a per-ton basis per CARB (CARB 2017). This document compares non-biogenic carbon dioxide (CO₂) emissions at landfills relative to composting facilities.

Projects in nonattainment areas subject to New Source Review (NSR) must have emissions offset. Projects with emissions that are greater than local air district offsets thresholds must purchase offsets to apply an emission reduction to the project such that the NSR emission increase in the air basin is zero. Offsets obtained for a project are accounted for as emissions reductions in this analysis. The offset thresholds for the Bay Area Air District, SJVAPCD, SCAQMD, and SDAPCD are summarized in Table 2-3.

Table 2-3: Summary of Air District Offset Thresholds

Air District	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Bay Area Air District ¹	10	10	N/A	100	100	100
SJVAPCD	10	10	100	27.3	14.6	70
SCAQMD ²	4	4	29	4	4	10
SDAPCD	25	25	N/A	N/A	N/A	N/A

¹Bay Area Air District NO_x and VOC offset purchases are not needed until the Potential to Emit (PTE) is greater than 35 TPY; however, offsets are still provided by the Bay Area Air District's Small Facility Bank for projects with PTE between 10-35 TPY.

²Windrows are not subject to permit requirements in the SCAQMD; thus, a project would not be subject to permitting or NSR requirements in the SCAQMD and would not be required to provide offsets.

2.2.2 Operational Emissions Summary

Tables 2-4 through 2-15 summarize the daily and annual operational criteria pollutant emissions associated with the six project scenarios. Table 2-16 summarizes the net GHG operational emissions associated with the six operating scenarios. Each table lists stationary source emissions, mobile source emissions, offset requirement (if any), baseline emissions, and net emission increase for each air district. Detailed project emission calculations, including TAC emissions, are presented in Attachment 2.

Table 2-4: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 1: Small Facility, Windrows

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	4.84	111.10	13.66	0.02	0.87	0.43
Offsets – Bay Area Air District	0.00	-111.10	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-111.10	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	3.19	1.43	19.51	0.03	8.07	0.93
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	8.03	1.43	33.17	0.05	8.95	1.35
Net Increase – SJVAPCD	8.03	1.43	33.17	0.05	8.95	1.35
Net Increase – SCAQMD	8.03	112.53	33.17	0.05	8.95	1.35
Net Increase – SDAPCD	8.03	112.53	33.17	0.05	8.95	1.35

Table 2-5: Summary of Annual Project and Baseline Operational Criteria Pollutants Emissions for Scenario 1: Small Facility, Windrows

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.31	20.07	1.67	0.00	0.12	0.05
Offsets – Bay Area Air District	0.00	-20.07	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-20.07	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	0.50	0.22	3.04	0.01	1.26	0.14
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	0.81	0.22	4.71	0.01	1.38	0.19
Net Increase – SJVAPCD	0.81	0.22	4.71	0.01	1.38	0.19
Net Increase – SCAQMD	0.81	20.30	4.71	0.01	1.38	0.19
Net Increase – SDAPCD	0.81	20.30	4.71	0.01	1.38	0.19

Table 2-6: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 2: Small Facility, CASP

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	4.84	32.64	13.66	0.02	0.87	0.43
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-32.64	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	2.91	1.30	17.10	0.03	7.43	0.86
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	7.75	33.93	30.76	0.05	8.30	1.28
Net Increase – SJVAPCD	7.75	33.93	30.76	0.05	8.30	1.28
Net Increase – SCAQMD	7.75	1.30	30.76	0.05	8.30	1.28
Net Increase – SDAPCD	7.75	33.93	30.76	0.05	8.30	1.28

Table 2-7: Summary of Annual Project and Baseline Operational Criteria Pollutants Emissions for Scenario 2: Small Facility, CASP

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.31	5.75	1.67	0.00	0.12	0.05
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-5.75	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	0.45	0.20	2.67	0.00	1.16	0.13
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	0.77	5.96	4.34	0.01	1.28	0.18
Net Increase – SJVAPCD	0.77	5.96	4.34	0.01	1.28	0.18
Net Increase – SCAQMD	0.77	0.20	4.34	0.01	1.28	0.18
Net Increase – SDAPCD	0.77	5.96	4.34	0.01	1.28	0.18

Table 2-8: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 3: Small Facility, Negative ASP with Filter

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	4.84	22.83	13.66	0.02	0.87	0.43
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	2.91	1.30	17.10	0.03	7.43	0.86
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	7.75	24.12	30.76	0.05	8.30	1.28
Net Increase – SJVAPCD	7.75	24.12	30.76	0.05	8.30	1.28
Net Increase – SCAQMD	7.75	24.12	30.76	0.05	8.30	1.28
Net Increase – SDAPCD	7.75	24.12	30.76	0.05	8.30	1.28

Table 2-9: Summary of Annual Project and Baseline Operational Criteria Pollutants Emissions for Scenario 3: Small Facility, Negative ASP with Filter

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.31	3.96	1.67	0.00	0.12	0.05
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	0.45	0.20	2.67	0.00	1.16	0.13
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	0.77	4.17	4.34	0.01	1.28	0.18
Net Increase – SJVAPCD	0.77	4.17	4.34	0.01	1.28	0.18
Net Increase – SCAQMD	0.77	4.17	4.34	0.01	1.28	0.18
Net Increase – SDAPCD	0.77	4.17	4.34	0.01	1.28	0.18

Table 2-10: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 4: Medium Facility, Windrows

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	6.36	275.62	35.35	0.05	1.77	0.71
Offsets – Bay Area Air District	0.00	-275.62	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-275.62	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	-275.62	0.00	0.00	0.00	0.00
Mobile Source Emissions	8.24	3.30	50.74	0.09	20.85	2.38
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	14.60	3.30	86.09	0.14	22.62	3.09
Net Increase – SJVAPCD	14.60	3.30	86.09	0.14	22.62	3.09
Net Increase – SCAQMD	14.60	278.91	86.09	0.14	22.62	3.09
Net Increase – SDAPCD	14.60	3.30	86.09	0.14	22.62	3.09

Table 2-11: Summary of Annual Project and Baseline Operational Criteria Pollutants Emissions for Scenario 4: Medium Facility, Windrows

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.55	50.09	5.05	0.01	0.27	0.10
Offsets – Bay Area Air District	0.00	-50.09	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-50.09	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	-50.09	0.00	0.00	0.00	0.00
Mobile Source Emissions	1.28	0.51	7.92	0.01	3.25	0.37
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	1.83	0.51	12.97	0.02	3.53	0.47
Net Increase – SJVAPCD	1.83	0.51	12.97	0.02	3.53	0.47
Net Increase – SCAQMD	1.83	50.60	12.97	0.02	3.53	0.47
Net Increase – SDAPCD	1.83	0.51	12.97	0.02	3.53	0.47

Table 2-12: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 5: Medium Facility, CASP

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	6.36	79.45	35.35	0.05	1.77	0.71
Offsets – Bay Area Air District	0.00	-79.45	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-79.45	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-79.45	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	7.54	2.97	44.72	0.08	19.23	2.20
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	13.90	2.97	80.07	0.13	21.00	2.91
Net Increase – SJVAPCD	13.90	2.97	80.07	0.13	21.00	2.91
Net Increase – SCAQMD	13.90	2.97	80.07	0.13	21.00	2.91
Net Increase – SDAPCD	13.90	82.43	80.07	0.13	21.00	2.91

Table 2-13: Summary of Annual Project and Baseline Operational Criteria Pollutants Emissions for Scenario 5: Medium Facility, CASP

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.55	14.29	5.05	0.01	0.27	0.10
Offsets – Bay Area Air District	0.00	-14.29	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	-14.29	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-14.29	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	1.18	0.46	6.98	0.01	3.00	0.34
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	1.73	0.46	12.03	0.02	3.27	0.44
Net Increase – SJVAPCD	1.73	0.46	12.03	0.02	3.27	0.44
Net Increase – SCAQMD	1.73	0.46	12.03	0.02	3.27	0.44
Net Increase – SDAPCD	1.73	14.75	12.03	0.02	3.27	0.44

Table 2-14: Summary of Daily Project and Baseline Operational Criteria Pollutants Emissions for Scenario 6: Medium Facility, Negative ASP with Filter

Pollutant	NO _x (lb/day)	VOC (lb/day)	CO (lb/day)	SO _x (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)
Stationary Source Emissions	6.36	54.93	35.35	0.05	1.77	0.71
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-54.93	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	7.54	2.97	44.72	0.08	19.23	2.20
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	13.90	57.90	80.07	0.13	21.00	2.91
Net Increase – SJVAPCD	13.90	57.90	80.07	0.13	21.00	2.91
Net Increase – SCAQMD	13.90	2.97	80.07	0.13	21.00	2.91
Net Increase – SDAPCD	13.90	57.90	80.07	0.13	21.00	2.91

**Table 2-15: Summary of Annual Project and Baseline Operational Criteria
Pollutants Emissions for Scenario 6: Medium Facility, Negative ASP with Filter**

Pollutant	NO _x (TPY)	VOC (TPY)	CO (TPY)	SO _x (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)
Stationary Source Emissions	0.55	9.82	5.05	0.01	0.27	0.10
Offsets – Bay Area Air District	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SJVAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Offsets – SCAQMD	0.00	-9.82	0.00	0.00	0.00	0.00
Offsets – SDAPCD	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Source Emissions	1.18	0.46	6.98	0.01	3.00	0.34
Baseline Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Net Increase – Bay Area Air District	1.73	10.28	12.03	0.02	3.27	0.44
Net Increase – SJVAPCD	1.73	10.28	12.03	0.02	3.27	0.44
Net Increase – SCAQMD	1.73	0.46	12.03	0.02	3.27	0.44
Net Increase – SDAPCD	1.73	10.28	12.03	0.02	3.27	0.44

Table 2-16: Summary GHG Emissions Relative to Baseline for All Scenarios

Parameter	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Feedstock	Green Waste	Green Waste	Green Waste	Green Waste + Food Waste	Green Waste + Food Waste	Green Waste + Food Waste
GHG Reduction Relative to Sending to Landfill (CARB 2017) (MT CO ₂ e/Ton Feedstock)	-0.44	-0.44	-0.44	-0.56	-0.56	-0.56
Throughput (TPY)	10,000	10,000	10,000	25,000	25,000	25,000
Net Emission Change (MT CO ₂ e/Year)	-4,400	-4,400	-4,400	-14,000	-14,000	-14,000

3.0 IMPACT ANALYSES

3.1 Significance Thresholds

The air quality, odor, health risk assessment (HRA), and GHG analyses were conducted using significance thresholds adopted or recommended by the applicable air district. The applicable thresholds are described below and summarized in the following tables.

3.1.1 Bay Area Air District

The Bay Area Air District CEQA Air Quality Guidelines provide significance thresholds for criteria pollutants, health risk impacts, and GHGs. The thresholds used in this analysis for projects in the Bay Area Air District are summarized in Table 3-1.

Table 3-1: Bay Area Air District CEQA Thresholds of Significance

Pollutant	Construction Related	Operational	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (TPY)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (Exhaust)	82	15
PM _{2.5}	54 (Exhaust)	54	10
PM ₁₀ /PM _{2.5} (Fugitive Dust)	Best Management Practices (BMPs) ¹	None	
Local CO	None	9.0 ppm (8-Hour Average), 20.0 ppm (1-Hour Average)	
Risks and Hazards for New Sources and Receptors (Cumulative Threshold)	Same as Operational Thresholds	Cancer Risk: > 100 In a Million (From All Local Sources) Non-Cancer: > 10.0 Hazard Index (Chronic, From all Local Sources) PM _{2.5} : > 0.8 µg/m ³ Annual Average (From All Local Sources)	OR Compliance with Qualified Community Risk Reduction Plan
Risks and Hazards for New Sources and Receptors (Individual Project)	Same as Operational Thresholds	Increased Cancer Risk >10.0 In a Million Increased Non-Cancer > 1.0 Hazard Index (Chronic or Acute) PM _{2.5} Increase: > 0.3 µg/m ³ Annual Average	OR Compliance with Qualified Community Risk Reduction Plan
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials located near receptors or new receptors located near stored or used acutely hazardous materials are considered significant.	
Odors	None	Five confirmed complaints per year, averaged over 3 years.	
GHGs	None	- Consistent with applicable Statewide GHG reduction plans, regulations, and targets. - Implement project's "fair share" of GHG reductions necessary to achieve Statewide climate goals.²	

Source: Bay Area Air District 2022

Notes:

¹PM₁₀/PM_{2.5} (fugitive dust) is also recognized to impact local communities. The Bay Area Air District strongly recommends implementing all feasible fugitive dust management practices, especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses. These measures are detailed in Chapter 5, Section 5.2.2, Construction-Related Criteria Air Pollutant Emissions, of the Bay Area Air District 2022 CEQA Guidelines.

²The Bay Area Air District recommends a "fair share" approach for evaluating project GHG emissions. Under this approach, a project's GHG impact may be considered Less Than Significant if the project is consistent with applicable Statewide GHG reduction plans, regulations, and programs intended to achieve California's long-term climate goals. The Bay Area Air District also identifies a bright-line threshold of 10,000 MT CO₂e per year for stationary-source projects.

3.1.2 SJVAPCD

SJVAPCD significance thresholds are provided in the District’s Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI). The GAMAQI includes significance thresholds that are used to evaluate CEQA impacts for criteria air pollutants, health risk impacts, and GHGs. The significance thresholds used in this analysis for projects in the SJVAPCD are summarized in Table 3-2.

Table 3-2: SJVAPCD CEQA Thresholds of Significance

Pollutant	Construction Emissions (TPY)	Operations Emissions		Ambient Air Quality Project Risk (APR-2030) Threshold ¹ (lbs/day)
		Permitted Equipment and Activities (TPY)	Non-Permitted Equipment and Activities (TPY)	
CO	100	100	100	100
NO _x	10	10	10	100
VOC	10	10	10	100
SO _x	27	27	27	100
PM ₁₀	15	15	15	100
PM _{2.5}	15	15	15	100
TACs (Including Carcinogens and Non-Carcinogens)	Maximally Exposed Individual risk equals or exceeds 20 in one million.			
	Acute: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual.			
	Chronic: Hazard Index equals or exceeds 1 for the Maximally Exposed Individual.			
Odors	- Project has the potential to expose sensitive receptors within 1 mile of an odor source and create a nuisance odor impact. - The SJVAPCD defines a significant odor problem as more than one confirmed complaint per year or three unconfirmed complaints per year, averaged over a three-year period.			
GHGs	- Implement Best Performance Standards (BPS). - Reduce Project GHG Emission by 29% over Business as Usual.²			

Source: SJVAPCD 2015a-c; SJVAPCD 2018; SJVAPCD 2009 a and b.

¹Threshold for construction or operation.

²The SJVAPCD supports compliance with California’s Assembly Bill (AB) 32 by implementing a Climate Change Action Plan focused on reducing GHG emissions through energy efficiency, renewable energy, sustainable land use, and Vehicle Miles Traveled (VMT) reduction strategies. The District has adopted BPS to help evaluate GHG impacts under CEQA, considering projects meeting these standards as less-than-significant. Additionally, the SJVAPCD engages communities through programs like AB 617 and clean vehicle initiatives to reduce emissions.

3.1.3 SCAQMD

The SCAQMD has established CEQA significance thresholds for criteria pollutants, health risk impacts, and GHGs. These thresholds are used to evaluate the significance of project-related emissions and exposure impacts within the South Coast Air Basin. The thresholds used in this analysis for projects in the SCAQMD are summarized in Table 3-3.

Table 3-3: SCAQMD CEQA Thresholds of Significance

Pollutant	Construction Emissions (lbs/day)	Operations Emissions (lbs/day)
ROG (VOC)	75	55
NO _x	100	55
CO	550	550
SO _x	150	150
PM ₁₀	150	150
PM _{2.5}	55	55
24-Hour PM _{2.5} Increment	10.4 µg/m ³	2.5 µg/m ³
24-Hour PM ₁₀ Increment	10.4 µg/m ³	2.5 µg/m ³
Annual PM ₁₀ Increment	1.0 µg/m ³ Annual Average	
1-Hour NO ₂ Increment	0.18 ppm (State)	
Annual NO ₂ Increment	0.03 ppm (State) & 0.0534 ppm (Federal)	
1-Hour SO ₂ Increment	0.25 ppm (State) & 0.075 ppm (Federal – 99th percentile)	
24-Hour SO ₂ Increment	0.04 ppm (State)	
24-Hour Sulfate Increment	25 ug/m ³ (State)	
1-Hour CO Increment	20 ppm (State) & 35 ppm (Federal)	
8-Hour CO Increment	9.0 ppm (State/Federal)	
TACs (Including Carcinogens and Non-Carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 Million	
	Cancer Burden >0.5 Excess Cancer Cases (In Areas ≥1 in 1 Million)	
	Chronic and Acute Hazard Index ≥1.0 (Project Increment)	
Odors ¹	Project creates an odor nuisance pursuant to Rule 402.	
GHGs	10,000 MT/yr CO ₂ e for Industrial Facilities	

Source: SCAQMD 2023

¹Note: The SCAQMD Rule 1133 Staff Report identifies a recommended setback distance of approximately a ¼-mile between composting operations and sensitive receptors (SCAQMD 2011). Although this recommendation is not a CEQA significance threshold, it was considered in the development of the odor impact analysis and BMP recommendations presented in Section 5.2.3.

3.1.4 SDAPCD

The SDAPCD has not adopted CEQA significance thresholds for evaluating air quality, GHG, or health risk impacts. Therefore, this analysis relies on Screening-Level Thresholds (SLTs) developed by San Diego County to assist lead agencies in evaluating air quality impacts under CEQA. The County's SLTs are based on SDAPCD Air Quality Impact Assessment (AQIA) screening criteria, United States Environmental Protection Agency (U.S. EPA) guidance, and significance thresholds adopted by other California air districts. The thresholds used in this analysis for projects in San Diego County are summarized in Table 3-4.

Table 3-4: SDAPCD AQIA Screening Criteria

Air Contaminant	lbs/hr	lbs/day	TPY
PM ₁₀	—	100	15
PM _{2.5}	—	55	10
NO _x	25	250	40
SO _x	25	250	40
CO	100	550	100
ROG	—	75	13.7
DPM	Excess Cancer Risk >1 in 1 million; Chronic or Acute Hazard Index >1.0		
Local CO	- Project would not place sensitive receptors within 500 feet of a signalized intersection operating at Level of Service (LOS) E or worse with more than 3,000 peak-hour trips; and - Project would not cause an intersection with more than 3,000 peak-hour trips to operate at LOS E or worse.		
Odors	Project would generate objectionable odors resulting in a public nuisance pursuant to SDAPCD Rule 51.		
GHGs	Climate Action Plan Consistency		

Source: San Diego County 2007 and 2018.

3.2 Would the Project Conflict with or Obstruct the Implementation of the Applicable Air Quality Management Plan?

Organic waste management plays an important role in California's climate strategy. SB 1383 established Statewide targets to reduce the disposal of organic waste and recover edible food, thereby reducing CH₄ emissions associated with decomposition of landfilled organic materials. The Statewide composting program evaluated in this report is intended to support implementation of SB 1383 by facilitating the development of additional composting capacity throughout California.

The current Bay Area Air District Air Quality Management Plan (AQMP) was prepared in 2017. Objectives of the plan include composting organic waste and reducing CH₄ emissions from landfills. This Project will support these objectives. (BAAQMD 2017)

The SJVAPCD has plans for PM and O₃. The latest plans are the 2024 Plan for the 2012 Annual PM_{2.5} Standard and the 2022 Plan for the 2015 8-Hour Ozone Standard. The 2024 plan for PM_{2.5} states that composting is an alternative to open burning, which would reduce PM_{2.5} from open burning. The 2022 plan for O₃ notes that SJVAPCD Rule 4566 regulates emissions from composting facilities. Projects in the SJVAPCD are expected to comply with this rule. Therefore, this Project does not interfere with the implementation of the current air quality plans from SJVAPCD (SJVAPCD 2024 and SJVAPCD 2022).

The current SCAQMD AQMP was prepared in 2022. This plan notes that composting activities are a source of VOCs and NH₃. The plan notes that composting facilities are regulated by Rules 1133, 1133.1, 1133.2, and 1133.3. Projects in the SCAQMD are expected to comply with these rules. Therefore, this Project does not interfere with the implementation of the current AQMP from SCAQMD (SCAQMD 2022 and SCAQMD 2011).

The SDAPCD has plans for attaining O₃ standards in San Diego and a general regional air quality plan. The latest plans are the 2020 Plan for Attaining the National Ambient Air Quality Standards (NAAQS) for Ozone in San Diego County, and the 2022 Regional Air Quality Strategy (RAQS). Compost activities are not discussed in the 2020 plan for O₃ attainment. Diversion of organic waste from landfills is expected to reduce VOC emissions from landfills; reducing VOC emissions from landfills is a goal in the 2020 O₃ plan. The 2022 RAQS includes a goal to incentivize low-carbon farming techniques, such as composting. It also notes that rules may be required for composting activities, as such activities increase in the region. Projects in the SDAPCD are expected to comply with all relevant rules intended to reduce VOC emissions and O₃ levels. Therefore, this Project supports the objective of increasing composting in the 2022 RAQS and does not interfere with the implementation of SDAPCD air quality plans (SDAPCD 2020, and SDAPCD 2022).

IMPACT: Less Than Significant

3.3 Would the Project Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard?

3.3.1 Construction

Construction-related criteria pollutant emissions were compared to the applicable significance thresholds for the Bay Area Air District, SJVAPCD, SCAQMD, and SDAPCD. Tables 3-5 through 3-10 compare the construction emissions for the representative small and medium composting facility scenarios to the applicable air district significance thresholds.

For the SCAQMD, localized air quality impacts were also evaluated. Because specific facility locations and nearby sensitive receptor locations have not been identified, project-specific Localized Significance Threshold (LST) analyses cannot be conducted at the program level. Therefore, the localized air quality analysis applied SCAQMD LSTs using a receptor distance of 50 meters, which is representative of the minimum distance likely to occur between future composting operations and nearest receptors. Two-acre LSTs were conservatively used for the small (5-acre) facility scenario to represent a reasonable upper-bound daily construction disturbance area for facilities of this size. Five-acre LSTs were used for the medium facility scenario because active construction disturbance is not expected to exceed 5 acres on any given day. Because SCAQMD LSTs increase as the distance to the nearest sensitive receptor increases, the use of a 50-meter receptor distance provides a conservative assessment of localized impacts. Facilities with receptors located farther than 50 meters from construction activities would be evaluated using less stringent LST thresholds and would generally be expected to result in lower localized impacts. Site-specific localized impact analyses may be warranted during subsequent project-level environmental review where receptors are located closer than assumed in this analysis or where project conditions differ substantially from the representative facility scenarios.

As shown in Tables 3-5 through 3-10, construction-related criteria pollutant emissions would not exceed the applicable significance thresholds for either the small or medium facility scenarios and impacts would be Less Than Significant; however, because future facility locations and receptor distances are unknown, localized construction air quality

impacts for facilities in SCAQMD with receptors located closer than 50 meters from construction activities are conservatively considered Potentially Significant.

Table 3-5: Construction Emissions Summary and Significance Evaluation (Bay Area Air District)

Criteria Pollutants	Construction Emissions (lb/day)		Threshold (lb/day)	Significant?
	Small Facilities	Medium Facilities		
ROG (VOC)	4.9	4.9	54	No
NO _x	6.2	6.5	54	No
PM ₁₀ (Exhaust)	0.2	0.2	82	No
PM _{2.5} (Exhaust)	0.2	0.2	54	No

Sources: Bay Area Air District 2022, CalEEMod Version 2022.1.1.45.

Note: lb/day are average daily emissions for planned land use.

Table 3-6: Construction Emissions Summary and Significance Evaluation (SJVAPCD)

Pollutant	Construction Emissions (lb/day)		Threshold (lb/day)	Construction Emissions (TPY)		Threshold (TPY)	Significant?
	Small	Medium		Small	Medium		
ROG	60.9	61.0	100	0.9	0.9	10	No
NO _x	28.0	28.0	100	1.1	1.2	10	No
CO	28.8	28.8	100	1.5	1.6	100	No
SO _x	0.05	0.06	100	0.003	0.003	27	No
Total PM ₁₀	8.9	8.9	100	0.1	0.1	15	No
Total PM _{2.5}	5.0	5.0	100	0.1	0.1	15	No

Sources: SJVAPCD 2015b, CalEEMod Version 2022.1.1.45.

Table 3-7: Regional Construction Emissions Summary and Significance Evaluation (SCAQMD)

Pollutant	Construction Emissions (lb/day)		Threshold (lb/day)	Significant?
	Small Facilities	Medium Facilities		
ROG (VOC)	60.9	61.0	75	No
NO _x	28.1	28.1	100	No
CO	29.2	29.2	550	No
SO _x	0.05	0.06	150	No
Total PM ₁₀	9.1	9.1	150	No
Total PM _{2.5}	5.1	5.1	55	No

Sources: SCAQMD 2023, CalEEMod Version 2022.1.1.45.

Note: lb/day are winter or summer maxima for planned land use.

Table 3-8: Localized Construction Emissions Summary and Significance Evaluation for Small Facilities (SCAQMD)

Pollutant	Construction Emissions (lb/day)	Threshold ¹ (lb/day)	Significant? ²
NO _x	28.1	106	No
CO	29.2	1,368	No
Total PM ₁₀	9.1	25	No
Total PM _{2.5}	5.1	7	No

Sources: SCAQMD 2023, CalEEMod Version 2022.1.1.45.

Notes:

¹Source Receptor Area (SRA) 1, Receptor distance 50 meters from site boundary, 2-acre site.

²Localized emissions from construction from the representative small compost facilities, would below the LST at the nearest receptors of 50 meters, and impacts would be Less Than Significant. Site-specific localized impact analyses may be warranted during subsequent project-level environmental review where receptors are located closer than 50 meters from construction activities or where project conditions differ substantially from the representative facility scenarios. Therefore, for facilities with receptors located closer than 50 meters from construction activities, localized construction air quality impacts are conservatively assumed to be Potentially Significant.

Table 3-9: Localized Construction Emissions Summary and Significance Evaluation for Medium Facilities (SCAQMD)

Criteria Pollutants	Construction Emissions (lb/day)	Threshold ¹ (lb/day)	Significant? ²
NO _x	28.1	157	No
CO	29.2	2,331	No
Total PM ₁₀	9.1	50	No
Total PM _{2.5}	5.1	11	No

Sources: SCAQMD 2008b, CalEEMod Version 2022.1.1.45.

Note:

¹SRA 1, Receptor distance 50 meters from site boundary, 5-acre site.

²Localized emissions from construction from the representative medium compost facilities, would below the LST at the nearest receptors of 50 meters, and impacts would be Less Than Significant. Site-specific localized impact analyses may be warranted during subsequent project-level environmental review where receptors are located closer than 50 meters from construction activities or where project conditions differ substantially from the representative facility scenarios. Therefore, for facilities with receptors located closer than 50 meters from construction activities, localized construction air quality impacts are conservatively assumed to be Potentially Significant.

Table 3-10: Construction Emissions Summary and Significance Evaluation (SDAPCD)

Criteria Pollutants	Construction Emissions (lb/day)		Threshold (lb/day)	Construction Emissions (TPY)		Threshold (TPY)	Significant?
	Small Facilities	Medium Facilities		Small Facilities	Medium Facilities		
ROG (VOC)	60.9	61.0	75	0.9	0.9	13.7	No
NO _x	28.0	28.0	250	1.1	1.2	40	No
CO	28.9	28.9	550	1.5	1.6	100	No
SO _x	0.05	0.06	250	0.003	0.003	40	No
Total PM ₁₀	9.0	9.0	100	0.1	0.1	15	No
Total PM _{2.5}	5.1	5.1	55	0.1	0.1	10	No

Sources: San Diego County 2007, CalEEMod Version 2022.1.1.45.

IMPACT: Less Than Significant in the Bay Area Air District, SJVAPCD, and SDAPCD

IMPACT: Potentially Significant in SCAQMD

3.3.1.1 Mitigation Measures

For facilities in SCAQMD with receptors located closer than 50 meters from construction activities, a project-specific localized air quality analysis shall be conducted during subsequent project-level environmental review to demonstrate compliance with applicable localized significance thresholds. Any measures identified in the analysis and determined necessary to reduce impacts shall be incorporated into the project and implemented.

3.3.1.1 Significance After Mitigation

Because the applicability and effectiveness of mitigation measures identified through project-specific localized air quality analyses cannot be determined at the program level, impacts are conservatively identified as potentially significant for facilities with receptors located closer than 50 meters from construction activities.

IMPACT: Potentially Significant in SCAQMD

3.3.2 Operations

3.3.2.1 Project Design Features and Regulatory Requirements

The following project features and regulatory requirements are incorporated into the representative facility scenarios and were considered in the evaluation of operation-related air quality impacts:

- Project proponents would comply with the Clean Air Act (CAA) and Clean Air Act Amendment (CAAA) [e.g., NSR and Best Available Control Technology (BACT) criteria, if applicable]; and
- Project proponents would comply with local plans, policies, ordinances, rules, and regulations regarding air quality-related emissions and associated exposure (e.g., indirect source review, vehicle idling limitations, and payment into off-site mitigation funds).

3.3.2.2 Impact Assessment

Air districts are generally responsible for establishing and enforcing local thresholds of significance for projects undergoing CEQA review. For those air districts with adopted, numerical thresholds of significance, these thresholds are developed in consideration of maintaining or achieving attainment under the NAAQS and California Ambient Air Quality Standards (CAAQS), which are concentrations of criteria air pollutants intended to reduce potential human health impacts related to exposure. Projects that demonstrate operational emissions below the appropriate air districts' thresholds of significance would not degrade regional air quality and would thus minimize potential human health impacts.

Operational impacts were evaluated based on the estimated emissions presented in this report and compared against quantitative criteria established by the Bay Area Air District, SJVAPCD, SCAQMD, and SDAPCD (see Tables 3-1 to 3-4). These criteria are relied upon to make significance determinations based on mass emissions of criteria pollutants.

For the SCAQMD, localized air quality impacts were also evaluated. Because specific facility locations and nearby sensitive receptor locations have not been identified, project-specific LST analyses cannot be conducted at the program level. Therefore, the localized air quality analysis applied SCAQMD LSTs using a receptor distance of 50 meters, which is representative of the minimum distance likely to occur between future composting operations and nearest receptors. Five-acre LSTs were used for all scenarios. Because SCAQMD LSTs become less stringent as receptor distance increases, this analysis is conservative for facilities located more than 50 meters from the nearest sensitive receptor. Site-specific localized analyses may be warranted during subsequent project-level environmental review.

Tables 3-11 to 3-16 provide a detailed evaluation of the significance determination for each of the six operating scenarios in each of the four air districts.

Table 3-11: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 1

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	8.03	1.43	N/A	N/A	0.40	0.34
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	No	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	0.81	0.22	N/A	N/A	0.04	0.03
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10
Significant?	No	No	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.31	0.00	1.67	0.00	0.12	0.05
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	0.50	0.22	3.04	0.01	1.26	0.14

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	8.03	1.43	33.17	0.05	8.95	1.35
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	8.03	112.53	33.17	0.05	8.95	1.35
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	Yes	No	No	No	No
Net Increase – SCAQMD (lb/day)	8.03	112.53	33.17	0.05	8.95	1.35
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/hr) ³	8.03	N/A	33.17	0.05	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	8.03	112.53	33.17	0.05	8.95	1.35
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	Yes	No	No	No	No
Net Increase – SDAPCD (TPY)	0.81	20.30	4.71	0.01	1.38	0.19
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	Yes	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Table 3-12: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 2

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	7.75	33.93	N/A	N/A	0.39	0.33
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	No	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	0.77	5.96	N/A	N/A	0.04	0.03
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10
Significant?	No	No	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.31	5.75	1.67	0.00	0.12	0.05
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	0.45	0.20	2.67	0.00	1.16	0.13
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	7.75	33.93	30.76	0.05	8.30	1.28
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	7.75	1.30	30.76	0.05	8.30	1.28
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	7.75	1.30	30.76	0.05	8.30	1.28
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/hr) ³	7.75	N/A	30.76	0.05	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	7.75	33.93	30.76	0.05	8.30	1.28
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (TPY)	0.77	5.96	4.34	0.01	1.28	0.18
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	No	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Table 3-13: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 3

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	7.75	24.12	N/A	N/A	0.39	0.33
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	No	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	0.77	4.17	N/A	N/A	0.04	0.03
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10
Significant?	No	No	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.31	3.96	1.67	0.00	0.12	0.05

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	0.45	0.20	2.67	0.00	1.16	0.13
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	7.75	24.12	30.76	0.05	8.30	1.28
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	7.75	24.12	30.76	0.05	8.30	1.28
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	7.75	24.12	30.76	0.05	8.30	1.28
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/hr) ³	7.75	N/A	30.76	0.05	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	7.75	24.12	30.76	0.05	8.30	1.28
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (TPY)	0.77	4.17	4.34	0.01	1.28	0.18
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	No	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Table 3-14: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 4

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	14.60	3.30	N/A	N/A	0.67	0.55
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	No	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	1.83	0.51	N/A	N/A	0.08	0.06
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Significant?	No	No	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.55	0.00	5.05	0.01	0.27	0.10
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	1.28	0.51	7.92	0.01	3.25	0.37
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	14.60	3.30	86.09	0.14	22.62	3.09
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	14.60	278.91	86.09	0.14	22.62	3.09
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	Yes	No	No	No	No
Net Increase – SCAQMD (lb/day)	14.60	278.91	86.09	0.14	22.62	3.09
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	Yes	Yes
Net Increase – SDAPCD (lb/hr) ³	14.60	N/A	86.09	0.14	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	14.60	3.30	86.09	0.14	22.62	3.09
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (TPY)	1.83	0.51	12.97	0.02	3.53	0.47
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	No	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Table 3-15: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 5

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	13.90	2.97	N/A	N/A	0.65	0.53

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	No	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	1.73	0.46	N/A	N/A	0.08	0.06
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10
Significant?	No	No	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.55	0.00	5.05	0.01	0.27	0.10
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	1.18	0.46	6.98	0.01	3.00	0.34
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	13.90	2.97	80.07	0.13	21.00	2.91
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	13.90	2.97	80.07	0.13	21.00	2.91
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	13.90	2.97	80.07	0.13	21.00	2.91
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	Yes	No
Net Increase – SDAPCD (lb/hr) ³	13.90	N/A	80.07	0.13	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	13.90	82.43	80.07	0.13	21.00	2.91
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	Yes	No	No	No	No
Net Increase – SDAPCD (TPY)	1.73	14.75	12.03	0.02	3.27	0.44
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	Yes	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Table 3-16: Comparison of Daily Operational Emissions Increases to CEQA Significance Thresholds, Scenario 6

Category	Pollutant					
	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Net Increase – Bay Area Air District (lb/day)	13.90	57.90	N/A	N/A	0.65	0.53
Bay Area Air District Significance Thresholds (lb/day) ¹	54	54	N/A	N/A	82	54
Significant?	No	Yes	N/A	N/A	No	No
Net Increase – Bay Area Air District (TPY)	1.73	10.28	N/A	N/A	0.08	0.06
Bay Area Air District Significance Thresholds (TPY) ¹	10	10	N/A	N/A	15	10
Significant?	No	Yes	N/A	N/A	No	No
Net Increase – SJVAPCD Permitted Sources (TPY)	0.55	9.82	5.05	0.01	0.27	0.10
SJVAPCD Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD Non-Permitted Sources (TPY)	1.18	0.46	6.98	0.01	3.00	0.34
SJVAPCD Non-Permitted Sources Significance Thresholds (TPY)	10	10	100	27	15	15
Significant?	No	No	No	No	No	No
Net Increase – SJVAPCD All Sources (lb/day)	13.90	57.90	80.07	0.13	21.00	2.91
SJVAPCD All Sources Significance Thresholds (lb/day)	100	100	100	100	100	100
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	13.90	2.97	80.07	0.13	21.00	2.91
SCAQMD Significance Thresholds (lb/day)	55	55	550	150	150	55
Significant?	No	No	No	No	No	No
Net Increase – SCAQMD (lb/day)	13.90	2.97	80.07	0.13	21.00	2.91
SCAQMD Localized Significance Thresholds (lb/day) ²	157	N/A	2,331	N/A	12	3
Significant?	No	No	No	No	Yes	No
Net Increase – SDAPCD (lb/hr) ³	13.90	N/A	80.07	0.13	N/A	N/A
SDAPCD Screening Threshold Levels (lb/hr) ⁴	25	N/A	100	25	N/A	N/A
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (lb/day)	13.90	57.90	80.07	0.13	21.00	2.91
SDAPCD Screening Threshold Levels (lb/day) ⁴	250	75	550	250	100	55
Significant?	No	No	No	No	No	No
Net Increase – SDAPCD (TPY)	1.73	10.28	12.03	0.02	3.27	0.44
SDAPCD Screening Threshold Levels (TPY) ⁴	40	13.70	100	40	15	10
Significant?	No	No	No	No	No	No

¹Only for PM₁₀ and PM_{2.5} from exhaust.

²SRA 1 (Central LA), 50-meter receptor distance, 5-acre facility.

³Conservatively showing that daily emissions are below hourly screening levels.

⁴Screening levels, not significance levels.

Although there would be substantial reductions in air emissions from landfills due to the diversion of organic waste to composting, because emissions of air pollutants from the operation of new organic waste recovery facilities exceed the screening thresholds of significance in the Bay Area Air District, SCAQMD, and SDAPCD, operational-related air quality impacts would be potentially significant in these air districts for several of the operating scenarios. Table 3-17 summarizes the significance determinations for the six operating scenarios and four air districts.

Table 3-17: Summary of Significance Determination for Six Scenarios in Four Air Districts

Air District	Small Facilities			Medium Facilities		
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
	Windrows	Positive CASP	Negative ASP with Filter	Windrows	Positive CASP	Negative ASP with Filter
Bay Area Air District	LTS	LTS	LTS	LTS	LTS	PS
SJVAPCD	LTS	LTS	LTS	LTS	LTS	LTS
SCAQMD	PS	LTS	LTS	PS	PS	PS
SDAPCD	PS	LTS	LTS	LTS	PS	LTS

IMPACT: Less Than Significant in SJVAPCD

IMPACT: Potentially Significant in the Bay Area Air District, SCAQMD and SDAPCD

VOC significance threshold exceedances were identified for Small Windrow facilities in the SCAQMD and SDAPCD, Medium Windrow facilities in the SCAQMD, Medium Positive CASP facilities in the SDAPCD, and Medium Negative ASP with Filter facilities in the Bay Area Air District. LST screening level exceedances were also identified in the SCAQMD for Medium Windrow, Positive CASP, and Negative ASP with Filter facilities.

3.3.2.3 Mitigation Measures

For representative facility scenarios that exceed applicable VOC significance thresholds and/or LST screening levels, the following project-level measures shall be required during subsequent environmental review to reduce emissions and demonstrate compliance with applicable air quality significance thresholds:

- Future projects exceeding applicable VOC significance thresholds shall implement feasible VOC reduction measures identified in consultation with the applicable air district or Lead Agency. Such measures may include participation in voluntary air district emission reduction programs, implementation of additional emission controls (e.g., upgrading from a windrow design to an ASP design), acquisition of additional emission reduction credits (over and above what is required by regulation), or other air-district-approved measures sufficient to reduce VOC emissions; and

- For facilities in SCAQMD with the potential to exceed applicable LST screening levels or for new composting facilities with receptors located within 50 meters of operational emission sources, project-specific air quality analyses, including refined dispersion modeling as appropriate, shall be conducted during subsequent project-level environmental review to demonstrate compliance with applicable air quality significance thresholds.

Any measures identified through the analysis and determined necessary to reduce impacts shall be incorporated into the project and implemented.

3.3.2.4 Significance After Mitigation

Because the effectiveness and applicability of project-specific analyses and VOC mitigation measures cannot be determined at the program level, impacts are conservatively identified as Potentially Significant for the representative scenarios exceeding applicable thresholds.

IMPACT: Potentially Significant in the Bay Area Air District, SCAQMD, and SDAPCD

3.3.3 Transportation/CO “Hot Spots”

Local mobile-source carbon monoxide (CO) emissions near roadway intersections are a direct function of traffic volume, speed, and delay. As a pollutant that disperses rapidly under normal meteorological conditions, CO emissions produce localized impacts. However, under certain meteorological conditions, CO concentrations near roadways and/or intersections may increase to unhealthy levels at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. As a result, air districts typically recommend that CO be analyzed at the local level rather than the regional level.

The proposed projects could result in an increase in vehicle travel related to the movement of organics to organic waste recovery facilities; however, vehicle travel would be distributed Statewide. It is also anticipated that vehicle travel to local landfills would decline as a result of the Project. Due to the small size of these facilities, which require relatively few truck trips for feedstock and compost delivery and limited employment, the additional vehicle trips per hour on local roads are not expected to result in a substantial increase in CO concentrations resulting in adverse impacts compared to existing baseline conditions.

Additionally, the efficacy of catalytic converters in internal combustion engines has substantially reduced emissions of CO, as compared to previous internal combustion engines. Other technological improvements, including the use of on-board computers, as well as inspection requirements, have further reduced CO emissions. CO emissions will continue to decline as Statewide programs transition the transportation sector to electric vehicles that do not emit CO. (CalRecycle 2019: pg. 3.3-32)

IMPACT: Less Than Significant

3.4 Would the Project Expose Sensitive Receptors to Substantial Pollutant Concentrations?

3.4.1 Construction

Construction of the representative facility scenarios is expected to occur over a period of less than 1 year. Construction-related emissions would be short-term and temporary and would not result in long-term exposure. Construction-related TAC impacts would be Less Than Significant.

IMPACT: Less Than Significant

3.4.2 Operations

3.4.2.1 Impact Analysis

To assess the potential health risks from a project to sensitive receptors, the TAC emissions from the project are assessed in accordance with CARB HRA guidelines. This analysis is based on the Office of Environmental Health Hazard Assessment (OEHHA) “Hot Spot” guidance document (OEHHA 2015) and the California Air Pollution Control Officers Association (CAPCOA) “Air Toxics ‘Hot Spots’ Program Facility Prioritization Guidelines” (CAPCOA 2016).

The CAPCOA prioritization guidelines outline a technique for calculating a Prioritization Score that helps districts identify priority facilities for risk assessment, which involves consideration of TAC potency, toxicity, quantity of emissions, and proximity to sensitive receptors, such as hospitals, schools, daycare centers, worksites, and residences.

Prioritization Scores were calculated using the Emissions and Potency Procedure in the CAPCOA’s guidelines. Emission data are combined with applicable OEHHA health values and receptor distance adjustment factors to calculate separate Prioritization Scores for residential cancer, worker cancer, chronic non-cancer, and acute non-cancer risk. The worker cancer Prioritization Score was calculated using the SDAPCD method of applying a 0.3 factor to the residential cancer Prioritization Score.

- **Residential Cancer Risk:** Evaluates health risk from lifetime exposure to emissions at residential and sensitive receptor locations. Sensitive receptors include hospitals, K-12 schools, daycare centers, and elder care facilities. Residential cancer risk is typically assessed using a 30-year exposure duration.
- **Worker Cancer Risk:** Evaluates health risk from long-term exposure to individuals at long-term business locations. Worker cancer risk is typically assessed using a 25-year exposure duration.
- **Chronic Risk:** Evaluates health risk from long-term (1-year) exposure to emissions. Chronic receptors include locations where an individual could reasonably be expected to spend time over the better part of the year.
- **Acute Risk:** Evaluates health risk from short-term (1-hour) exposure to emissions. Acute receptors include any location where an individual could reasonably be present for at least 1 hour during a day.

TAC emissions were calculated using the methodology outlined in Section 2, with detailed calculations provided in Attachment 2. TAC emission sources include the DPM emissions from the diesel engines used to screen and grind waste materials and compost, on-road haul trucks, and off-road mobile equipment (e.g., loaders), and NH₃ and organic TACs from composting activities, and toxic components of dust from material handling activities.

To assess the potential health risk from the six operating scenarios, Prioritization Scores were calculated at various receptor distances using the TAC emissions estimated for that scenario. Additionally, receptor distances were back-calculated for each scenario to determine the minimum distances at which the facility would be classified as high, intermediate, or low priority based on the applicable Prioritization Score thresholds. Results by scenario and distance are presented in Attachment 3 with detailed calculations.

Each air district sets their Prioritization Score thresholds and these should be used for Project-specific evaluation. Table 3-18 summarizes the thresholds for the four districts reviewed.

Table 3-18: Prioritization Score Thresholds

Air District	Prioritization Score Threshold Category	Prioritization Score Cancer Risk Thresholds	Prioritization Score Chronic/Acute Risk Threshold	Significance Threshold Category
Bay Area Air District, SJVAPCD, and SCAQMD	High	≥ 10	≥ 10	PS
	Intermediate	≥ 1 and < 10	≥ 1 and < 10	PS
	Low	< 1	< 1	LTS
SDAPCD	High	≥ 100	≥ 10	PS
	Intermediate	≥ 1 and < 100	≥ 1 and < 10	PS
	Low	< 1	< 1	LTS

The significance of the thresholds are described below:

- **High Score:** Projects having a high Prioritization Score may have high risk. A refined HRA is recommended to determine if a Project's TAC emissions would have significant health risk impacts. Thus, this score is considered to have a Potentially Significant human health impact and would necessitate a more detailed analysis for a project-level CEQ review.
- **Intermediate Score:** Projects with an intermediate prioritization score, may require further analysis to determine if the Project's TAC emissions would have significant health risk impacts. Many air districts consider projects with an intermediate Prioritization Score to be unlikely to have an adverse health risk, although some districts may require additional analysis. Consultation with the local air district or lead agency would be required to determine if the Project's TAC emissions have a less than significant human health impact. Therefore, this score is considered to have a Potentially Significant impact on human health and would necessitate a more detailed analysis for a project-level CEQ review.

- **Low Score:** Projects with a low prioritization score are unlikely to have an adverse health risk, thus are considered to have a Less Than Significant human health impact.

In cases where the TAC emission thresholds are exceeded, Project proponents should conduct HRA modeling pursuant to the most recent guidance published by OEHHA. The HRA should incorporate TAC emissions from the proposed TAC sources, including mobile and stationary sources. The HRA modeling estimates the Project-related residential and worker cancer risk, and chronic and acute non-cancer risks. These risks should be compared to the applicable HRA thresholds, such as those outlined in Tables 3-1 through 3-4.

Table 3-19 summarizes the minimum distances to residential and worker receptors required to achieve a Less Than Significant impact for each scenario. These distances were determined using the Prioritization Score calculation methodology and the low priority score threshold of Less Than Significant, which is the same across all air districts evaluated (the Bay Area Air District, SJVAPCD, SCAQMD, and SDAPCD), as well as most other districts.

For example, under Scenario 1, if there are no residential receptors within 666 meters, or worker receptors within 365 meters of the facility, the Project would be considered to have a Less Than Significant impact. If there are residential receptors within 666 meters, or worker receptors within 365 meters, the Project would be considered to have a Potentially Significant impact. The same interpretation applies to the remaining scenarios using the corresponding distances shown in the table. A more comprehensive analysis for each scenario is provided in Attachment 3.

Table 3-19: Minimum Distances to Residential and Worker Receptors for Less Than Significant Impact by Scenario for Four Air Districts

Scenario	Minimum Distance to Residential Receptors for Less Than Significant Impact (meters)	Minimum Distance to Worker Receptors for Less Than Significant Impact (meters)
1	666	365
2	581	318
3	571	313
4	996	546
5	851	466
6	835	457

Note: Residential and worker receptor distances correspond to the residential cancer risk and worker cancer risk thresholds, respectively. For all scenarios, the calculated acute and chronic non-cancer risk distances were less than the corresponding cancer risk distances; therefore, cancer risk is the limiting criterion. Compliance with the cancer risk distance also ensures compliance with the acute and chronic non-cancer risk distance thresholds.

IMPACT: Potentially Significant

3.4.2.2 Mitigation Measures

Any project that does not have the set-back distance to a sensitive receptor shown in Table 3-19 would require a Project-specific HRA to determine impacts. If the HRA modeling determines a Project has a Potentially Significant impact, mitigation measures could be implemented to avoid or minimize impacts from operation-related TAC emissions. The following are operation-related mitigation measures that are typically applied to projects on-site to reduce TAC emissions (CalRecycle 2019: pg. 3.3-27):

- Project proponents shall install diesel particulate filters or implement other CARB-verified diesel emission control strategies for heavy-duty equipment;
- Project proponents shall apply U.S. EPA Tier 3 or 4 emissions standards to off-road heavy-duty equipment;
- Project proponents shall use haul trucks with on-road engines instead of off-road engines for on-site hauling;
- Project proponents shall establish an electricity supply and use electric-powered equipment instead of diesel-powered equipment, if feasible;
- Project proponents shall apply on-road diesel PM mitigation measures consistent with CARB's Diesel Certification Program; and
- Project proponents shall utilize renewable natural gas to power on-road vehicles accessing future Project sites.

3.4.2.3 Significance After Mitigation

It is reasonable to expect that impacts would be reduced to a Less-Than-Significant level by land use and/or permitting agency conditions of approval; the degree to which another agency would require mitigation is uncertain. Although, for CEQA-compliance purposes, if the HRA modeling is above the thresholds, the Project-related TAC emissions could be Potentially Significant.

IMPACT: Potentially Significant

3.5 Would the Project Result in Other Emissions (Such as Those Leading to Odors Adversely Affecting a Substantial Number of People)?

3.5.1 Construction

Construction activities are not a substantial source of objectionable odors. Temporary exhaust emissions from construction equipment may be noticeable in the immediate vicinity of active construction areas, but such emissions would be localized and short-term in duration. Accordingly, construction-related odor impacts would be Less Than Significant.

IMPACT: Less Than Significant

3.5.2 Operations

Composting facilities have the potential to generate objectionable odors associated with feedstock handling, active composting, curing, screening, product storage, and other operational activities. The magnitude of potential odor impacts depends on facility size,

composting technology, operating practices, meteorological conditions, and the proximity of sensitive receptors. Best Management Practices (BMPs) for composting operations would help to minimize odor impacts. These measures may be incorporated into permit conditions by the air districts for permitted facilities, into the Odor Impact Minimization Plan (OIMP), implemented voluntarily by a facility as a BMP to minimize odor impacts, or required as CEQA mitigation. BMPs include the following:

- Site selection: Odor impacts can be minimized by ensuring that the site selected for a new compost facility is sufficiently distant from potential receptors. The SJVAPCD GAMAQI recommends a setback distance of 1 mile for a compost facility from potential receptors (SJVAPCD 2015a), which may be unreasonable for many potential compost sites. The GAMAQI has applied that setback distance for several decades, beginning when windrow technology dominated the composting industry, pre-dating modern ASP composting techniques. A modern ASP compost facility will typically have 80% lower emission levels than a comparably sized windrow facility. Accordingly, a 1-mile setback distance may be appropriate for a windrow facility, but is likely unnecessary for an ASP facility. In its Rule 1133 staff report, the SCAQMD recommends a 1/4-mile setback distance (SCAQMD 2011), which would be more appropriate for an ASP facility.
- Feedstock storage limitation: Although feedstock composition can determine odor to a large extent, management practices can also have a large impact, and in some cases mitigate odor production.
 - Offensive odors from manure, food, and liquid waste can be minimized by incorporating the waste into a compost pile on the same day they are received.
 - Limiting feedstock storage of greenwaste and biosolids prior to introducing the material into the compost pile will reduce the occurrence of decomposition, reducing emissions and odors. The BACT standard in air districts that impose permit requirements on feedstock storage is two days.
- Develop a compost blend to optimize conditions:
 - Balancing the carbon and nitrogen of the initial feedstock, and mixing different types of organic material in quantities to achieve a carbon to nitrogen ratio at a range between 20:1 to 40:1;
 - Ensuring particle size is large enough to allow airflow. This can be accomplished by blending woodchips into dense feedstocks.
 - Add water to the feedstock, as needed, to maintain a moisture content between 40% to 60%.
- Well-constructed, properly aerated static compost piles produce fewer odors.
 - Forcing air through the piles, using either a positive aeration system (pushing air up through the pile) or negative aeration system (pulling air down through the pile) maintains aerobic conditions within the piles.

- Turning or aerating a windrow at a frequency to maintain a center pile temperature between 110°F to 140°F or an oxygen content greater than 5% will minimize odor emissions.
- Covering piles using breathable fabrics (e.g., the Gore® system) or a finished compost biofilter layer reduces odors as well as VOCs and NH₃ emissions from the piles. The finished compost biofilter layer on compost piles for a positively aerated CASP, or a fixed bed biofilter (mulch, engineered fill, or other binding material) for negatively aerated ASP, further reduces emissions.
- Ensure that the biofilter layer (positive aeration) or the fixed bed biofilter (negative aeration) is properly wetted at all times using a sprinkler system.
- Aerate water retention basins to reduce the occurrence of strong odors. (CIWMB 2007, pgs. 27-38)

Future facilities would be subject to applicable local plans, policies, regulations, and development standards, including any applicable setbacks or buffer zones for potentially odorous operations, as part of project approval and environmental review processes.

While proper site selection, implementation of the required OIMP, and adoption of the appropriate BMPs (either required by permit conditions or adopted voluntarily), odor impacts would generally be expected to reduce odor impacts to a less-than-significant level, future facility locations, operational characteristics, proximity to sensitive receptors, and the need for and effectiveness of site-specific odor control measures cannot be determined at the program level. Therefore, the potential for significant odor impacts cannot be ruled out for all future facilities, and odor impacts are conservatively considered potentially significant.

IMPACT: Potentially Significant

4.0 GREENHOUSE GASES

4.1 Significance Thresholds

Project GHG emissions would be evaluated against the thresholds shown in Table 4-1.

Table 4-1: GHG Significance Thresholds

Air District	Significance Threshold
Bay Area Air District	▪ Consistent with applicable Statewide GHG reduction plans, regulations, and targets; and ▪ Implement project's "fair share" of GHG reductions necessary to achieve Statewide climate goals
SJVAPCD	▪ Implement BPS; and ▪ Reduce Project GHG Emission by 29% over Business as Usual
SCAQMD	▪ 10,000 MT/yr CO₂e for industrial facilities
SDAPCD	▪ Climate Action Plan consistency

4.2 Would the Project Generate GHG Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment?

4.2.1 Construction GHGs

Construction-related GHG emissions, summarized in Section 2.1 (Table 2-2), do not represent a long-term source of emissions because they occur over a finite construction period. When amortized over the expected life of the facilities, construction-related GHG emissions would represent a relatively small contribution to total Project emissions and impacts would be less than significant.

4.2.2 Operations GHGs

GHGs are emitted from mobile sources, such as on-road vehicles and off-road equipment, burning fuels, such as gasoline, diesel, biodiesel, propane, or natural gas (compressed or liquefied). Indirect GHG emissions result from electric power generated elsewhere (i.e., power plants) used to operate process equipment, lighting, and utilities at a facility. Also included in a GHG evaluation is electric power used to pump the water supply (e.g., aqueducts, wells, and pipelines) and disposal and decomposition of waste in landfills. Operational GHG emissions may occur due to the fuel combustion in off-road equipment (e.g., front-end loaders and forklifts) used to manage wastes on-site, fuel combustion in haul trucks used to deliver organic feedstock to the facility and delivery compost to the customer, and fuel use to haul wastes or byproducts (e.g., mulch) to recycling, recovery, or disposal facilities.

However, diversion of organic waste from landfills to composting facilities will result in a net decrease in GHG emissions. Organic wastes decompose in landfills to form CH₄, a potent GHG. Although most landfills have landfill gas collection systems which collect and combust CH₄, a portion of the CH₄ (as much as 25% of the CH₄ produced) is emitted from landfills as fugitive emissions. By diverting organic waste from landfill to composting, those fugitive CH₄ emissions are avoided. The net GHG emission reductions are summarized in Table 2-16.

Implementing the proposed Projects would also displace some amount of petroleum-based fertilizers as compost materials become increasingly available. Over the past decade, the average annual amount of petroleum-derived nitrogen fertilizer purchased for use in California was approximately 600,000 tons. The application of these fertilizers is a notable contributor to global emissions of nitrogen dioxide (NO₂), which, according to the Intergovernmental Panel on Climate Change's (IPCC's) most recent estimates, has a Global Warming Potential (GWP) of 265 over a 100-year time horizon. Moreover, the production of nitrogen-rich fertilizers requires the combustion of natural gas. To produce, transport, and apply 1 ton of nitrogen fertilizer requires an amount of energy equal to almost 2 tons of gasoline. Compost materials generated under the proposed Project would reduce overall reliance on petroleum-based fertilizers.

The proposed Project facilitates GHG emission reductions by facilitating landfill diversion, providing an alternative to petroleum-based fertilizers, and sequestering carbon in the soil. Because there will be a net reduction in GHG with the Project compared to baseline, business-as-usual disposal practices for the organic waste, the Project will have a Less-Than Significant impact for this criteria (CalRecycle 2019: pg. 3.8-11).

IMPACT: Less Than Significant

4.3 Would the Project Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs?

One of the primary objectives of the Project is to reduce the disposal of organic waste in landfills. Construction and operation of new or expanded organic waste recovery facilities is identified and evaluated in the California Short-Lived Climate Pollutant (SLCP) Reduction Strategy in addition to other CH₄-reducing measures. Organic waste recovery facilities (e.g., composting) would reduce fugitive CH₄ emissions, as well as emissions of VOCs that would otherwise be emitted from a landfill.

Diversion of organic waste from landfills to composting facilities will result in a net decrease in GHG emissions, as shown in Table 2-16. Improved soil health and carbon sequestration potential would also be achieved from the use of compost product. The compost materials generated from composting activities would contain the necessary soil amendments to enhance the efficiency of the carbon cycle, which would allow for the sequestering of carbon from the atmosphere in soil. Compost materials would be applied throughout the natural and working lands sector and consistent with the *Draft 2030 Natural and Working Lands Climate Change Implementation Plan* and *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) and help the State meet its long-term GHG emission reduction targets.

The actions included in these projects are consistent with the direction provided in the SLCP Reduction Strategy. The compost projects would not interfere with the goals of the plan. The proposed Project does not impede the implementation of any applicable GHG reduction measures and, in fact, facilitates GHG reduction measures by helping to divert waste from landfills. In addition, the Project is consistent with the GHG reduction strategies outlined in CARB's 2022 Scoping Plan.

The net GHG emissions are summarized in Table 2-16. Diversion of organic waste from landfills to composting facilities will result in a net decrease in GHG emissions. The proposed Project does not impede the implementation of any applicable GHG reduction measures and, in fact, facilitates GHG reduction measures by helping to divert waste from landfills. In addition, the Project is consistent with the GHG reduction strategies outlined in CARB's 2022 Scoping Plan.

Proposed projects will be compliant with applicable Best Performance Standards (BPSs), implement additional feasible reduction strategies, be consistent with adopted GHG reduction plans, and implement operational efficiencies. Proposed projects support the goals of applicable GHG reduction plans and policies, such as the CARB 2022 Scoping Plan, by incorporating energy-efficient equipment, diverting waste from landfills, minimizing vehicle trips through routing strategies, and not impeding implementation of any GHG reduction measures (CalRecycle 2019: pgs. 3.8-10,11 and 3.8-15,16,17,18).

IMPACT: Less Than Significant

5.0 REFERENCES

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ATTACHMENT 1 – CALEEMOD CONSTRUCTION EMISSIONS

The attachments to this report are available upon request. If you would like to view the modeling outputs, please contact Jeffery Esquivel at permittrainingassistance@calrecycle.ca.gov.

ATTACHMENT 2 – MOBILE AND STATIONARY SOURCES OPERATIONAL EMISSIONS

The attachments to this report are available upon request. If you would like to view the modeling outputs, please contact Jeffery Esquivel at permittrainingassistance@calrecycle.ca.gov.

ATTACHMENT 3 – HEALTH RISK ASSESSMENT

The attachments to this report are available upon request. If you would like to view the modeling outputs, please contact Jeffery Esquivel at permittrainingassistance@calrecycle.ca.gov.