MEMORANDUM

To:	Tony Pauker, VP Land Acquisition, Brookfield Development
From:	Shane Russett, Air Quality Specialist, Dudek
Subject:	Otay Ranch Planning Area 12 Fourth Addendum Air Quality and Greenhouse Gas Emissions Technical Memorandum
Date:	June 23, 2023
cc:	Alexandra Martini, Project Manager, Dudek
Attachment(s):	Attachment A – CalEEMod Emissions Outputs

1 Introduction and Purpose

The purpose of this technical memorandum is to evaluate the potential air quality and greenhouse gas (GHG) emissions impacts of the proposed Otay Ranch Town Center (project) located in the City of Chula Vista (city) to support the California Environmental Quality Act (CEQA) evaluation for the project, which is an addendum.

The project proposes the development of 840 residential units and the demolition and replacement of 37,200 square feet of commercial space in the Otay Ranch Town Center. The original project was the Otay Ranch Freeway Commercial Sectional Planning Area Plan, which approved approximately 120 acres for commercial use. The *Final Environmental Impact Report for the Otay Ranch Freeway Commercial Sectional Planning Area Plan Planning Area 12* (FEIR) contains a comprehensive disclosure and analysis of the environmental impacts of the project (City of Chula Vista 2003). The FEIR has since been addended three times, and the current proposed modifications are addressed in the current fourth addendum.

This memorandum estimates criteria air pollutant and GHG emissions and impacts from construction and operation of the project, which is the fourth addendum of the original 2003 EIR, in accordance with the CEQA Guidelines.

The contents and organization of this memorandum are as follows: Project Description, General Analysis and Methodology, Thresholds of Significance and Impact Analyses for the Air Quality Assessment, GHG Emissions Disclosure, and References Cited.

2 Project Description

GGP-Otay Ranch L.P. (Applicant) is proposing changes to existing entitlements to allow mixed-use/residential development on a site in the eastern portion of the City of Chula Vista (city), within the Otay Ranch General Development Plan (GDP) Area. More specifically, the site is located immediately east of State Route 125 (SR-125) between Birch Road and Olympic Parkway. Existing entitlements allow for the development of a total of 960,000 square feet of commercial uses on the site. The project proposes modifying the existing entitlements to allow the development of up to 840 residential units, while reducing the allowed commercial square-footage to 816,000 square feet of retail uses. Proposed residential uses could include townhomes, walk-up garden style residences, and "Texas wrap" multi-family attached residential buildings. These residential units would be approximately 500 square feet to 1,800 square feet in size and two to six stories in height. The Existing Town Center would continue to operate;

however, demolition of 37,200 square-feet of existing commercial space is planned, and 37,200 new square feet of commercial uses would be developed as part of the proposed project modifications.

3 Background and Methodology

3.1 Pollutant Overview

The project Site is located within the San Diego Air Basin (SDAB) and is within the jurisdictional boundaries of the San Diego Air Pollution Control District (SDAPCD), which has jurisdiction over San Diego County (County) where the project is located.

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants that are evaluated include oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), particulate matter with an aerodynamic diameter less than or equal to 10 microns in size (coarse particulate matter, or PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns in size (fine particulate matter, or $PM_{2.5}$). Volatile organic compounds (VOCs; also referred to as reactive organic gases [ROGs]) are not a criteria air pollutant but are evaluated as a precursor to ozone (O_3), which is a criteria air pollutant but is difficult to directly quantify because of its complicated formation process in the atmosphere, which requires light photolysis and the presence of multiple precursors.

Greenhouse gases (GHGs) are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2) methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5). The GHG analysis herein focuses on CO_2, CH_4, and N_2O as those are primary GHGs associated with the proposed land use development and what is quantified in the California Emissions Estimator Model (CalEEMod). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. Climate change is already affecting California: average temperatures have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (Climate Action Team [CAT] 2010).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), which varies among GHGs. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalent (CO_2e). The CO_2e for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons (MT) of CO_2e = (MT of a GHG) × (GWP of the GHG). CalEEMod assumes that the GWP for CH_4 is 25, which means that

emissions of one MT of CH_4 are equivalent to emissions of 25 MT of CO_2, and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's (IPCC's) Fourth Assessment Report (IPCC 2007).

3.2 Approach and Methodology

The CalEEMod Version 2020.4.0 was used to estimate emissions from construction of the project (California Air Pollution Control Officers Association (CAPCOA) 2021). CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with construction activities and operation of a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and its size, construction schedule, and anticipated use of construction equipment, were based on information provided by the applicant or default model assumptions if project specifics were unavailable.

Criteria air pollutant emissions associated with construction of the project were estimated for the following emission sources: operation of off-road construction equipment, paving, architectural coating, on-road vendor (material delivery) trucks, and worker vehicles. The operational criteria air pollutant emissions were estimated from area sources, energy sources, and mobile sources. GHG emissions associated with construction of the project were estimated for the following emission sources: operation of off-road construction equipment, on-road vendor trucks, and worker vehicles. GHG emission sources associated with operation of the project include area, energy, mobile, solid waste, water, and wastewater categories. Project construction and operational assumptions are discussed below.

3.2.1 Construction Emissions

Construction of the project would result in a temporary addition of pollutants to the local airshed caused by combustion pollutants from on-site construction equipment and off-site worker vehicles, vendor trucks, and haul trucks, soil disturbance (i.e., dust emissions), and VOC off-gassing from application of paint and asphalt pavement. CalEEMod was used to estimate project-generated construction emissions. For purposes of estimating project-generated emissions, and based on information provided by the applicant, it is assumed that construction of the project would commence in January 2024 and would last approximately 6 years and 7 months (79 months), ending in July 2030.

Construction was broken into three distinct phases, noted as MUR-1, MUR-2, and MUR-3 in Figure 1 below.

Figure 1. Site Plan with Phased Construction Breakdown

This analysis assumes maximum buildout of each phase. MUR-1 includes 200 residential units and 300 parking spots, MUR-2 includes 320 residential units and 480 parking spots, and MUR-3 includes 320 residential units and 570 parking spots. MUR-3 also includes 146,000 square feet of commercial space. All other horizontal development (repaving entry roads, etc.) was included with MUR-1 construction in CalEEMod. Construction phasing provided by the applicant for emissions modeling is as follows:

- MUR-1 from January 2024 to April 2026,
- MUR-2 from April 2026 to June 2028, and
- MUR-3 from April 2028 to July 2030.

There will be overlap between construction phases in 2026 and 2028.

The analysis presented herein assumes a construction start date of January 2024, which represented the earliest date at which construction would initiate, as anticipated by the applicant's construction team. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

The analysis contained herein is based on the following assumptions (duration of phases is approximate):

MUR-1 and Horizontal

- Horizontal Demolition: January 2024 (15 days)
- Horizontal Site Preparation: January 2024 to February 2024 (15 days)
- Horizontal Underground Utilities: February 2024 to July 2024 (100 days)
- Horizontal Grading: July 2024 to August 2024 (20 days)
- Demolition: August 2024 to September 2024 (10 days)
- Site Preparation: August 2024 to September 2024 (10 days)
- Underground Utilities: September 2024 to October 2024 (20 days)
- Grading: October 2024 (10 days)
- Building Construction: October 2024 to April 2026 (360 days)
- Paving: March 2026 to April 2026 (20 days)
- Architectural Coating: January 2026 to April 2026 (65 days)

MUR-2

- Demolition: April 2026 (10 days)
- Site Preparation: April 2026 to May 2026 (10 days)
- Underground Utilities: May 2026 to June 2026 (20 days)
- Grading: May 2026 to June 2026 (10 days)
- Building Construction: June 2026 to June 2028 (500 days)
- Paving: May 2028 to June 2028 (15 days)
- Architectural Coating: October 2027 to April 2028 (110 days)

MUR-3

- Demolition: April 2028 to May 2028 (40 days)
- Site Preparation: May 2028 to June 2028 (15 days)
- Underground Utilities: June 2028 to July 2028 (25 days)
- Grading: July 2028 to August 2028 (15 days)
- Building Construction: August 2028 to August 2030 (500 days)
- Paving: July 2030 (20 days)
- Architectural Coating: January 2030 to May 2030 (110 days)

Tables 1-4 presents the construction scenario assumptions used for estimating project-generated emissions in CalEEMod. The assumptions presented in the tables below are primarily based on CalEEMod default values for the construction activities of each phase along with project-specific information (e.g., truck tips), as available. Vendor truck trips assumed during demolition and earth moving phases represent water trucks for dust suppression.

Table 1. Horizontal Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
Demolition	16	4	246	Concrete/Industrial Saws	1	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/Backhoes	2	8
				Excavators	1	8
Site Preparation	14	4	0	Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	3	8
Underground Utilities	10	4	0	Tractors/Loaders/ Backhoes	4	8
Grading	16	4	28	Excavators	1	8
				Graders	2	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	8

Table 2. Parcel MUR-1 Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
Demolition	16	4	378	Concrete/Industrial Saws	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/Backhoes	2	8
				Excavators	2	8
Site Preparation	10	4	0	Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8
Underground Utilities	6	4	0	Tractors/Loaders/ Backhoes	2	8
Grading	14	4	50	Excavators	1	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/	2	8

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
				Backhoes		
Building Construction	248	62	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	3	7
				Welders	1	8
Paving	16	4	0	Pavers	2	8
				Paving Equipment	2	8
				Rollers	2	8
Architectural Coating	50	4	0	Air Compressors	1	6

Table 3. Parcel MUR-2 Construction Scenario Assumptions

Potential Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
Demolition	16	4	372	Concrete/Industrial Saws	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	8
				Excavators	2	8
Site Preparation	10	4	0	Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8
Underground Utilities	6	4	0	Tractors/Loaders/ Backhoes	2	8
				Rubber Tired Dozers	1	8

Potential Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
				Graders	1	8
				Excavators	1	8
Grading	14	4	50	Excavators	1	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	8
Building Construction	316	68	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	3	7
				Welders	1	8
Paving	20	4	0	Cement and Mortar Mixers	2	6
				Pavers	1	8
				Paving Equipment	2	6
				Rollers	2	6
				Tractors/Loaders/ Backhoes	1	8
Architectural Coating	64	4	0	Air Compressors	1	6

Table 4. Parcel MUR-3 Construction Scenario Assumptions

Potential Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
Demolition	16	4	468	Concrete/Industrial Saws	1	8

Potential Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	8
				Excavators	2	8
Site Preparation	10	4	0	Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8
Underground Utilities	6	4	0	Tractors/Loaders/ Backhoes	2	8
				Rubber Tired Dozers	1	8
				Graders	1	8
				Excavators	1	8
Grading	14	4	50	Excavators	1	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	8
Building Construction	342	80	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	3	7
				Welders	1	8
Paving	20	4	0	Cement and Mortar Mixers	2	6
				Pavers	1	8
				Paving Equipment	2	6
				Rollers	2	6

Potential Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Workers	Average Daily Vendor Trucks	Total Haul Trucks	Type	Quantity	Usage Hours
				Tractors/Loaders/ Backhoes	1	8
Architectural Coating	68	4	0	Air Compressors	1	6

During the MUR-1 and horizontal demolition phases, an estimated 6,314 tons of demolition material is conservatively estimated to be exported offsite associated with asphalt debris, requiring 624 one-way haul truck trips. During MUR-2 demolition, an estimated 3,759 tons of demolition material is estimated associated with the asphalt debris, requiring 372 one-way haul truck trips. During MUR-3 demolition, an estimated 4,724 tons of demolition material is estimated associated with the building and asphalt debris, requiring 468 one-way haul truck trips. During MUR-1 and horizontal grading, 3,500 cubic yards of import and 3,100 cubic yards of export are anticipated, which would require 78 one-way haul trucks. During MUR-2 grading, 3,450 cubic yards of import and 3,050 cubic yards of export are anticipated, which would require 50 one-way haul trucks. During MUR-3 grading, 3,600 cubic yards of import and 3,200 cubic yards of export are anticipated, which would require 50 one-way haul trucks. The distance to the disposal site for demolition and grading was assumed to be the CalEEMod default of 20 miles.

Vendor trucks during Demolition, Grading, and Site Construction represent water trucks. Vendor trucks for each building construction phase were estimated based on CalEEMod assumptions for vendor trips rates and the number of units built for residential or the square footage built for non-residential. Similarly, the interior and exterior square footage to be painted during each architectural coating phase was estimated based on CalEEMod assumptions for building surface area multiplier and fraction of interior or exterior surface area along with estimated square footage painted in that phase, which matches with the square footage built in the respective building construction phase. Asphalt pavement striping square footage is estimated based on the square footage of parking area and an assumption that 6% of the square footage would be painted, consistent with CalEEMod assumptions.

3.2.2 Operational Emissions

The project would generate operational criteria air pollutant emissions from area sources (consumer products, architectural coatings, landscaping equipment, and natural gas hearths), energy sources (natural gas appliances, space and water heating), and mobile sources (vehicular traffic). The first years of operation were assumed to be 2027 for MUR-1, 2029 for MUR-2, and 2031 for MUR-3. Operation of the project would result in GHG emissions from area sources (hearths and landscape maintenance equipment), energy use (natural gas and electricity consumed by the project), mobile sources, solid waste generation, and water supply and wastewater treatment, which was also estimated using CalEEMod. Operational estimates are conservative; the project site currently contains a parking lot and 37,200 square feet of retail space, the emissions of which were not subtracted from the operational emissions of the proposed project.

Area Sources

CalEEMod default assumptions were used to estimate operational emissions from area sources, including emissions from consumer product use and architectural coatings. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described under "Energy Sources" below.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2021). Consumer product VOC emissions were estimated in CalEEMod based on the floor area of buildings and default factor of pounds of VOC per building square foot per day. The CalEEMod default values for consumer products were assumed.

The greatest source of VOC emissions is use of consumer products, and the second greatest source of VOC emissions is architectural coatings. Consistent with typical construction practices and SDAPCD Rule 67.0.1, it is anticipated that, for both residential and non-residential land uses, interior paint would not exceed flat coating limits (50 grams per liter (g/L) VOC) and exterior paint would not exceed non-flat coating limits (50 g/L VOC). It was conservatively assumed in CalEEMod that all residential and non-residential (interior and exterior) architectural coating would be 100 g/L VOC. For parking lot land uses, 100 g/L VOC was assumed consistent with SDAPCD Rule 67.0.1 limits for traffic marking coatings. SDAPCD Rule 67.0.1 identifies VOC limits for various specialty coatings that exceed 150 g/L VOC, but the primarily residential proposed project is not anticipated to require a substantial amount of specialty coatings.

Consistent with CalEEMod default assumptions, it is assumed that the surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating (CAPCOA 2021). CalEEMod default assumptions were assumed for the application of architectural coatings during operation.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. The CalEEMod default assumptions were used for estimating energy use.

Mobile Sources

Following the completion of construction activities, the project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of project residents and the customers and employees of the retail space.. Project-specific trip rates were assumed based on the traffic report completed by Linscott, Law & Greenspan, Engineers. The project modifications proposed here would not result in a significant amount of new mobile trips above what was proposed in the original project FEIR (Linscott, Law & Greenspan, 2022). CalEEMod was used to estimate emissions from proposed vehicular sources (refer to Attachment A). CalEEMod default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the California Air Resources

Board (CARB) EMFAC2017 model. Emission factors representing the vehicle mix and emissions for the applicable operational year were used to estimate emissions associated with vehicular sources.

Solid Waste

The project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

Supply, treatment, and distribution of water for the project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project requires the use of electricity for treatment, and GHG emissions can directly be emitted during wastewater treatment. Water consumption estimates for both indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using CalEEMod default values.

4 Air Quality Assessment

4.1 Summary of Previous Analysis

The FEIR found that impacts associated with air quality standard violations would be significant and unavoidable. The FEIR found that VOC and NOx emissions would exceed thresholds during construction, and that CO, VOC, NO_x, and PM_{10} emissions would exceed thresholds during operation. The first addendum was written in 2015 and proposed the development of 600 multi-family residential units in addition to commercial space. The air quality analysis for the first addendum found that project modifications would result in maximum daily NO_x emissions would exceed thresholds during construction, and VOC emissions that would exceed thresholds during operation. The second addendum was prepared in 2016 to provide more specific detail regarding the modifications described in the first addendum for approval of the SPA Plan Amendment, Tentative Map, and Freeway Commercial North Master Precise Plan. The third addendum was prepared in 2019 and modified the project to include a density increase of 300 dwelling units. The third addendum found that all construction emissions would remain below significance thresholds and that all operational emissions would be lower than levels identified in the FEIR.

Given the project air quality-related impacts identified in the FEIR, the following mitigation measures were incorporated in project design to address emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ during construction and operation. The proposed project modifications discussed here with the fourth addendum will comply with the following mitigation measures to the extent they are applicable.

Construction

5.4-1 The following measures shall be specified as notes on the grading plans, and shall be implemented to minimize VOC and NO_x construction emissions:

- Bring commercial power to the site prior to construction and require contractors to use commercial power whenever feasible
- Develop a ride-share plan for workers
- Develop a site construction traffic management plan to minimize vehicle traffic and vehicle idling time
- Consolidate construction deliveries
- Develop a plan for maximizing loads during hauling operations
- Prohibit truck idling in excess of two minutes
- Use solar, battery or electrically powered lighted signs
- To the extent possible, use vehicles powered by natural gas (CNG, LNG) rather than diesel or gasoline engines
- Use architectural coatings with the lowest VOC content feasible

5.4-2 Although PM10 construction emissions would not be a significant impact on regional air quality, the following measures shall be specified as notes on the project grading plans, and shall be implemented to minimize construction fugitive dust PM_{10} emissions:

- Apply non-toxic soil stabilizers or area covers to all inactive construction areas
- Replace ground cover in disturbed areas as quickly as possible
- Enclose, cover, water or apply soil stabilizers to exposed piles
- Water active sites at least twice daily and unpaved roads at least three times daily, particularly at the end of the day's construction operations
- Suspend all excavating and grading operations when wind gust speeds exceed 25 mph
- All haul trucks to be covered or maintain at least two feet of freeboard
- Maintain vehicle speeds on unpaved roads to 15 mph or less
- Pave or use gravel at all construction access roads at least 100 feet onto the site from the main road
- Use track-out and grizzlies to remove soil and dust from vehicles leaving the site
- Wash construction vehicles regularly.

Operations

5.4-3 The following measures shall be implemented to reduce mobile source operation emissions:

- Provide preferential parking spaces for carpools and vanpools
- Encourage ride-sharing
- Encourage low-emission fleet vehicles such as natural gas-powered vehicles
- Encourage use of public transportation
- Work with local officials to provide efficient public transportation
- Provide on-site or nearby access locations for bus or trolley stops
- Encourage the use of shuttles to major transit stations and multi-modal centers
- To the extent feasible, provide bicycle trails, paths, and lanes
- Include bicycle parking facilities
- Encourage tenants to provide showers for bicycling employees use
- Schedule truck deliveries and pickups for off-peak hours
- Require on-site loading zones

5.4-4 To the extent feasible, the following measures shall be implemented to reduce stationary area source operation emissions:

- Use solar or low-emission and energy-efficient water heaters
- Use central water heating systems

- Use double-paned glass in windows
- Use energy-efficient parking lot lights
- Use lighting controls and energy-efficient interior and exterior lights
- Use energy-efficient systems to control interior HVAC systems
- Keep interior building temperatures at levels consistent with energy efficiency and human health and comfort
- Use light-colored roof materials to reflect heat
- Increase wall and attic insulation
- Increase passive solar building designs

4.2 Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). In addition, Appendix G of the CEQA Guidelines indicates that where available, the significance criteria established by the applicable air district may be relied on to determine whether the project would have a significant impact on air quality. This analysis focuses on addressing the potential for the project to violate any air quality standard or contribute substantially to an existing or projected air quality violation, which is determined by comparing estimated project-generated construction and operational emissions to numeric thresholds established by SDAPCD. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The City of Chula Vista has opted to adopt thresholds from the SCAQMD to address the significance of air quality impacts resulting from projects subject to CEQA environmental review. A project would result in a substantial contribution to an existing air quality violation of the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) for O_3, which is a nonattainment pollutant, if the project's construction emissions would exceed SCAQMD's VOC or NO_x significance thresholds shown in Table 5. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 5. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction (Pounds per Day)**	**Operation (Pounds per Day)**
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

Source: SCAQMD 2015.
Notes: SCAQMD = South Coast Air Quality Management District; VOCs = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
GHG emissions thresholds for industrial proposed projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 5 as they will be addressed within the GHG emissions analysis and not the air quality study.
[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

4.3 Impact Analysis

4.3.1 Does the project conflict with or obstruct implementation of the applicable air quality plan?

No New or Substantially More Severe Significant Impact. The FEIR found that the original project would exceed air quality thresholds, but concluded that as the Otay Ranch GDP project had been planned for many years and included in regional transportation and air quality planning, it would not conflict with or obstruct implementation of the RAQS or SIP.

At the local level, SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in the SDAB; specifically, the State Implementation Plan (SIP) and Regional Air Quality Strategy (RAQS).[1] The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2020. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated every 3 years (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

If a project proposes development that is greater than what was anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. Implementation of the project would result in an increase in housing of 840 residential units. The site is within the Otay Ranch Freeway Commercial Planned Community, zoned FC-1 (Otay Ranch Freeway Commercial SPA). The existing land use designation and zoning does not allow for residential development, so the project requires a plan amendment.

The most recent Regional Housing Needs Assessment (RHNA) from SANDAG stated that Chula Vista needs to build 11,105 units from 2021 through 2029 (SANDAG 2020). The project is expected to bring 840 units to market from 2026 to 2030 as each phase completes, which would be within SANDAG's growth projection for housing during the 6th Cycle planning horizon. Therefore, the project would not conflict with SANDAG's regional growth forecast for the city. Furthermore, the project modifications proposed here would not result in a significant amount of new mobile

[1] For the purpose of this discussion, the relevant federal air quality plan is the O_3 maintenance plan (SDAPCD 2016b). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

trips above what was proposed in the original project FEIR. As indicated in the traffic analysis, the proposed project modifications would not generate more trips than the amount to which the Otay Valley Town Center is entitled and a VMT analysis was not required (Linscott Law & Greenspan 2022). Therefore, the project's VMT and associated mobile source emissions are within what was previously evaluated in the FEIR.

The increase in the housing units and associated vehicle source emissions is not anticipated to result in air quality impacts that were not envisioned in the growth projections and RAQS, and the minor increase in residential units in the region would not obstruct or impede implementation of local air quality plans. Based on the analysis above, implementation of the project would not result in development in excess of that anticipated in local plans or increases in population/housing growth beyond those contemplated by SANDAG. As such, vehicle trip generation and planned development for the project are considered to be anticipated in the SIP and RAQS. Because the proposed land uses and associated vehicle trips are anticipated in local air quality plans, the project would be consistent at a regional level with the underlying growth forecasts in the RAQS. Therefore, impacts associated with the potential to conflict with an applicable air quality plan would be **less than significant**, and the level of impact would not be substantially more severe than the impacts identified in the FEIR.

4.3.2 Does the project violate any air quality standards or contribute to an existing or projected violation?

No New or Substantially More Severe Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

The FEIR found that impacts associated with air quality standard violations would be significant and unavoidable; namely, VOC and NO_x emissions would exceed thresholds during construction, and CO, VOC, NO_x, and PM_{10} emissions would exceed thresholds during operation. Even with implementation of the mitigation measures described in Section 2, the FEIR found that impacts would be reduced, but emissions of VOC and NO_x would still exceed thresholds during construction, and emissions of CO, VOC, NO_x, and PM_{10} would remain above significance thresholds during operation, and the impacts were found to be significant and unavoidable.

Construction Emissions

Proposed construction activities from the project modifications would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

The CalEEMod Version 2020.4.0 was used to estimate emissions from construction of the project. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil.

The proposed project is subject to SDAPCD Rule 55 – Fugitive Dust Control, which requires the project restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit any fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. To account for dust control measures in the emissions modeling, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter. Consistent with typical construction practices and SDAPCD Rule 67.0.1, it is anticipated that for both residential and non-residential land uses, interior paint would not exceed flat coating limits (50 grams per liter (g/L) VOC) and exterior paint would not exceed non-flat coating limits (50 g/L VOC. It was conservatively assumed in CalEEMod that all residential and non-residential (interior and exterior) architectural coating would be 100 g/L VOC. For parking lot land uses, 100 g/L VOC was assumed consistent with SDAPCD Rule 67.0.1 limits for traffic marking coatings. SDAPCD Rule 67.0.1 identifies VOC limits for various specialty coatings that exceed 150 g/L VOC, but preliminary project modification understanding indicates that specialty coatings are not anticipated.

Table 6. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	pounds per day					
2024	3.80	40.62	35.73	0.09	23.85	9.66
2025	2.09	15.58	22.20	0.06	3.01	1.18
2026	27.71	56.14	75.78	0.18	19.67	9.76
2027	19.59	17.21	26.04	0.07	4.22	1.55
2028	23.19	54.43	71.38	0.17	18.12	9.12
2029	2.17	16.23	23.05	0.06	3.91	1.43
2030	25.69	18.06	36.36	0.09	4.14	1.38
Maximum	**27.71**	**56.14**	**75.78**	**0.18**	**23.85**	**9.76**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
FEIR Emissions[a]	142.47	247.67	54.79	N/A	17.53	N/A

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
[a] FEIR emissions were converted from tons/quarter to pounds/day assuming 91.25 days/quarter
Emissions include compliance with SDAPCD Rules 55 and 67.0.1
See Attachment A for complete results.

As shown in Table 6, the project construction would not exceed SCAQMD's daily thresholds. Therefore, construction impacts associated with criteria air pollutant emissions would be less than significant. When compared to construction emissions from the original FEIR, emissions of CO and PM10 from the project modifications would exceed original project emissions estimates. However, consistent with the findings of the original FEIR, neither CO nor PM_{10} would exceed the applicable daily significance thresholds.

Operational Emissions

Criteria air pollutant emissions from operation of the proposed project modifications were estimated using CalEEMod and include emissions from area, energy, and mobile sources, which are discussed below. Operational years of 2027 (horizontal development and MUR-1), 2029 (MUR-2), and 2031 (MUR-3) were assumed; each year listed above would be the first full year following the completion of construction of each respective phase.

Table 7 presents the emissions during operation.

Table 7. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions

Emissions Source	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	Pounds per Day					
MUR-1 and Horizontal: 2027						
Area	10.55	3.91	62.94	0.17	7.70	7.70
Energy	0.04	0.37	0.16	0.00	0.03	0.03
Mobile	3.09	3.22	28.38	0.06	7.26	1.96
MUR-2: 2029						
Area	17.83	6.26	100.68	0.27	12.32	12.32
Energy	0.07	0.59	0.25	0.00	0.05	0.05
Mobile	4.64	4.70	42.88	0.09	11.60	3.13
MUR-3: 2031						
Area	18.69	6.26	100.65	0.27	12.32	12.32
Energy	0.07	0.61	0.27	0.00	0.05	0.05
Mobile	7.26	6.86	64.54	0.14	17.50	4.72
Total	**62.24**	**32.78**	**400.75**	**1.00**	**68.83**	**42.28**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**No**	**No**	**No**	**No**	**No**
FEIR Emissions (operational year 2005)[a]	319	790	3,145	N/A	389	N/A

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
[a] Thresholds in Table 5.4-5 in the FEIR erroneously labeled the threshold as tons/year, however, the significance threshold itself is in terms of lbs/day. The first addendum came to the same conclusions in Table 6.
See Attachment A for complete results. Columns may not add due to rounding.

As shown in Table 7, the project would not exceed SCAQMD's significance thresholds during operations, except for VOC. The FEIR and the first addendum previously found that all criteria pollutant emissions would exceed thresholds during operation, including VOC. Therefore, operational impacts associated with criteria air pollutant emissions other than VOC would be less than significant. VOC emissions would be significant, but not more severe than the previous EIR.

The SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the SDAB. As indicated in Tables 3 and 4, project-generated construction and operational emissions would not exceed SCAQMD's emission-based significance thresholds for NO_x, CO, SO_2, PM_{10}, or $PM_{2.5}$. The project would generate operational emissions that would exceed SCAQMD's VOC thresholds, but the FEIR previously found that VOC emissions during operation would exceed thresholds. Therefore, VOC emissions would be significant, but not more severe than the previous EIR. As such, the project would result in a potentially significant impact with respect to VOC, but **not a new or substantially more significant** impact to air quality.

4.3.3 Does the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard?

No New or Substantially More Severe Significant Impact. At the time of the FEIR, the SDAB was a federal and state nonattainment area for O_3 and a state nonattainment area for PM_{10}. The SDAB remains in nonattainment for federal and state 8-hour O_3 designations at present; it is a state nonattainment area for 1-hour O_3 and a federal attainment area. The SDAB is in state nonattainment for PM_{10}, and is federally "unclassifiable" for PM_{10} due to inconclusive data. The FEIR found that project-generated construction VOC and NOx emissions would exceed thresholds and project-generated operational CO and PM10 emissions would exceed thresholds.

The nonattainment status of regional pollutants is a result of past and present development, and the SDAPCD develops and implements plans for future attainment of ambient air quality standards. In addition to the SDAPCD efforts, CARB has comprehensive regulatory programs in place for new and existing sources of air pollution. Local policies, such as land use decisions that involve siting, zoning, and permitting actions, in conjunction with air agency efforts have the potential to greatly enhance the effectiveness of these programs by addressing cumulative impacts in local areas. Cumulative air quality impacts are the effect of long-term emissions of the project plus any existing emissions at the same location, as well as the effect of long-term emissions of reasonably foreseeable similar projects, on the projected regional air quality or localized air pollution in the SDAB and surrounding areas. Based on the cumulative nature of air pollution and the various mechanisms in place to reduce cumulative air pollutant emissions, project-level thresholds of significance for criteria pollutants, as analyzed in Section 3.2.2, are relevant in the determination of whether the project's individual emissions would have a cumulatively significant impact on air quality.

In analyzing cumulative impacts from a project, the analysis must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project components, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the project would only be considered to have a significant cumulative impact if its contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

Additionally, for the SDAB, the RAQS serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions within the basin to ensure the SDAB continues to make progress toward NAAQS and CAAQS attainment status. As such, cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the RAQS. Similarly, individual projects that are inconsistent with the regional planning documents on which the RAQS is based would have the potential to result in cumulative impacts if they represent development beyond regional projections.

Implementation of the project would generate emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ associated with construction and increased vehicle traffic to and from the site as well as energy use during operation. As indicated in Tables 3 and 4, the construction and operational emissions generated by the project would not exceed the

SCAQMD significance thresholds, apart from operational VOC emissions. The FEIR estimated that the operation of the project would generate VOC emissions of 319 tons per year (equivalent to approximately 1,747 pounds per day), which exceed the VOC threshold of 55 tons per year by a margin of 264 tons per year (equivalent to approximately 1,447 pounds per day). The proposed project would exceed VOC thresholds by an estimated 7.24 pounds/day, a significant decrease.

Project impacts associated with a cumulatively considerable net increase of a criteria air pollutant that the SDAB is designated as a non-attainment area for would be insignificant. The SDAB is in nonattainment for O_3 emissions, for which VOCs are a precursor. VOC emissions would be significant, but not more severe than the previous EIR. As such, the project would result in a potentially significant impact with respect to O_3 emissions through its VOC precursor, but **not a new or substantially more significant** impact to air quality.

4.3.4 Does the project expose sensitive receptors to substantial pollutant concentrations?

No New or Substantially More Severe Significant Impact. The FEIR found that the original project would worsen local air quality, but would not create CO hotspots.

Operational Carbon Monoxide Hotspots

Mobile-source impacts occur on two basic scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. Locally, project traffic will be added to the city's roadway system. If such traffic occurs during periods of poor atmospheric ventilation, consists of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the basin is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The County's CO hotspot screening guidance (County of San Diego 2007) was followed to determine whether the project would require a site-specific hotspot analysis. Per guidance, any project that would place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips) must conduct a "hotspot" analysis for CO. Likewise, projects that will cause road intersections to operate at or below a LOS E (i.e., with intersection peak-hour trips exceeding 3,000) will also have to conduct a CO "hotspot" analysis. The traffic report by Linscott, Law & Greenspan includes analysis of eight intersections within proximity of the proposed project site. All of the proximate intersections are currently operating above LOS E and would continue to do so with the inclusion of project residential and retail traffic (Linscott, Law & Greenspan 2022). Therefore, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots and no hotspot analysis is required. Based on these considerations, the project would result in a **less than significant** impact to air quality with regard to potential CO hotspots.

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute (immediate) and/or chronic (cumulative) non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere.

TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

No residual TAC emissions and corresponding health risk are anticipated after construction, and no long-term sources of TAC emissions are anticipated during operation of the Project. CARB has published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005), which identifies certain types of facilities or sources that may emit substantial quantities of TACs and therefore could conflict with sensitive land uses, such as "schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities." The *Air Quality and Land Use Handbook* is a guide for siting of new sensitive land uses, and CARB recommends that sensitive receptors not be located downwind or in proximity to such sources to avoid potential health hazards. The enumerated facilities or sources include the following: high-traffic freeways and roads, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and large gas dispensing facilities. The Project would not include any of the above-listed land uses associated with generation of TAC emissions.

Project construction would result in emissions of diesel particulate from heavy construction equipment and trucks accessing the site. Diesel particulate is characterized as a TAC by the State of California. The Office of Environmental Health Hazard Assessment (OEHHA) has identified carcinogenic and chronic noncarcinogenic effects from long-term exposure, but has not identified health effects due to short-term exposure to diesel exhaust. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. Due to this relatively short period of exposure (6.5 years) and minimal particulate emissions on-site and locally off-site from exhaust, TACs generated by the project would not result in concentrations causing significant health risks. Furthermore, operation of the project would not include onsite generators or other land uses that could create health risk. Overall, project

construction and operation would not result in substantial TAC exposure to sensitive receptors in the vicinity of the project, and impacts to sensitive receptors would be **less than significant.**

4.3.5 Does the project create objectionable odors affecting a substantial number of people?

No New or Substantially More Severe Significant Impact. The FEIR found that the original project would not expose or create any odors during excavation, construction, or operation.

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities (SCAQMD 1993). The project would not create any new sources of odor during operation. Therefore, project operations would result in an odor impact that is **less than significant**.

5 Greenhouse Gases Assessment

5.1 Summary of Previous Analysis

The FEIR did not include an evaluation of GHG emissions, nor thresholds used to evaluate GHG emissions. At the time the FEIR was adopted, an evaluation of GHG emissions was not required under CEQA; however, since then California laws have expanded to regulate GHG emissions with the passage of the California's Global Warming Solutions Act of 2006 (AB 32) and Senate Bill (SB) 32. While CEQA now requires evaluation of potential GHG emission impacts of a project, based on the findings of Citizens for Responsible Equitable Environmental Development v. City of San Diego, GHG impacts is not a topic that constitutes "new information" triggering preparation of an EIR or negative declaration as opposed to relying on analysis from a prior EIR or negative declaration that did not analyze GHG impacts. Accordingly, a GHG emissions analysis is not required for the proposed project. Nonetheless, for informational purposes, the GHG emissions are presented herein to understand the potential magnitude of project-generated emissions (Section 5.2). In addition, the project's potential to conflict with the city's CAP, SANDAG's RTP, and CARB's Scoping Plan is also presented within for informational purposes (Section 5.3). The FEIR also did not include mitigation measures pertaining to GHG emissions, but some of the AQ mitigation measures are relevant for GHG emissions. Some of these measures are referenced in the Section 5.3 consistency table.

5.2 Emissions Summary

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using CalEEMod, using the assumptions summarized above in Section 2.

Table 8 summarizes the estimated annual GHG construction emissions associated with the project, as well as the amortized construction emissions over a 30-year project life.

Table 8. Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2024	386.00	0.08	0.01	391.54
2025	651.02	0.08	0.03	661.30
2026	691.75	0.10	0.03	702.25
2027	720.14	0.08	0.03	731.24
2028	757.78	0.11	0.03	769.40
2029	725.04	0.08	0.03	736.85
2030	504.58	0.01	0.02	510.94

Table 8. Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
			Total Emissions	4,503.52
			30-Year Amortized Emissions	**150.12**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

Total construction-related GHG emissions for the project modifications are anticipated to be 4,503 MT CO_2e. Estimated 30-year amortized project-generated construction emissions would be approximately 150 MT CO_2e per year. However, because there is no separate GHG threshold for construction emissions alone, the evaluation of significance is discussed in the operational emissions analysis below.

Operational Emissions

Operation of the project would generate GHG emissions from motor vehicle trips to and from the project site; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. The estimated operational (year 2031) project-generated GHG emissions from these sources are shown in Table 9.

Table 9. Estimated Annual Operational Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	775.47	0.82	0.01	799.10
Energy	1,278.27	0.06	0.01	1,283.78
Mobile	4,418.11	0.32	0.20	4,486.60
Solid waste	86.36	5.10	0.00	213.96
Water supply and wastewater	300.06	1.89	0.05	361.12
			Total	**7,144.55**
			Amortized Construction Emissions	150.12
			Operation + Amortized Construction Total	**7,294.67**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for detailed results. These emissions reflect CalEEMod "unmitigated" output and operational year 2031.

As shown in Table 9, estimated annual project-generated GHG emissions in 2031 would be approximately 7,145 MT CO_2e per year as a result of project operations. Estimated annual project-generated emissions in 2031 from area, energy, mobile, solid waste, water/wastewater, and amortized project construction emissions would be approximately 7,295 MT CO_2e per year.

As discussed in Section 5.1 above, GHG emissions were not analyzed in the original FEIR for the project, and GHG emissions impacts do not constitute "new information" that would trigger preparation of an EIR or negative declaration rather than an analysis relying on a prior EIR or negative declaration that did not analyze GHG emission

impacts. Therefore, a GHG emissions analysis is not required for the proposed project modifications, but is provided here for disclosure.

5.3 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The City of Chula Vista Climate Action Plan

The city's Climate Action Plan (CAP) was adopted in 2017 and includes ambitious goals and policies to strengthen the city's climate action and GHG emission reduction efforts (Chula Vista 2017). Table 10 below outlines the proposed project modification's potential to conflict with the applicable policies and strategies of the city's CAP. As shown, the proposed project modifications are consistent with the applicable strategies from the city's CAP.

Table 10. City of Chula Vista Climate Action Plan Consistency Analysis

Category	Policy Objective or Strategy	Potential to Conflict
Water Conservation & Reuse		
Water Education & Enforcement	Expand education and enforcement [through fines] targeting landscape water waste	**Not applicable.** The project would not impair the ability of the City to expand education and enforcement targeting landscape water waste.
Water Efficiency Upgrades	Update the City's Landscape Water Conservation Ordinance to promote more water-wise landscaping designs	**Not applicable.** The project would not impair the ability of the City to update its Water Conservation Ordinance.
	Require water-savings retrofits in existing buildings at a specific point in time (not point of sale)	**Not applicable.** The project would not impair the ability of the City to require water-savings retrofits for existing buildings.
Water Reuse Plan & System Installations	Develop a Water Reuse Master Plan to maximize the use of storm water, graywater [recycled water] and onsite water reclamation	**Not applicable.** The project would not impair the ability of the City to develop a Water Reuse Master Plan.
	Facilitate simple graywater systems for laundry-to-landscape applications	**Not applicable.** The project would not impair the ability of the City to facilitate simple graywater systems for laundry-to-landscape applications. As these are primarily targeted for single-family homes, it is not anticipated that this would apply to the project.
	Streamline complex graywater systems' permit review	**Not applicable.** The project would not impair the ability of the City to streamline complex graywater systems permit review.

Table 10. City of Chula Vista Climate Action Plan Consistency Analysis

Category	Policy Objective or Strategy	Potential to Conflict
Waste Reduction		
Zero Waste Plan	Develop a Zero Waste Plan to supplement statewide green waste, recycling and plastic bag ban efforts	**Not applicable.** The project would not impair the ability of the City to develop a Zero Waste Plan.
Renewable & Energy Efficiency		
Energy Education & Enforcement	Expand education targeting key community segments [e.g., do-it-yourselfers and Millennials] and facilitating energy performance disclosure (e.g., Green Leases, benchmarking and Home Energy Ratings)	**Not applicable.** The project would not impair the ability of the City to expand energy education.
	Leverage the building inspection process to distribute energy-related information and to deter unpermitted, low performing energy improvements	**Not applicable.** The project would not impair the ability of the City to distribute energy-related information during the building inspection process.
Clean Energy Sources	Incorporate solar photovoltaic into all new residential and commercial buildings [on a project-level basis]	**Consistent.** The FEIR includes mitigation to use solar-powered signs for construction and solar-powered water heaters for building operation.
	Provide more grid-delivered clean energy (up to 100%) through Community Choice Aggregation or other mechanism	**Not applicable.** The project would not impair the ability of the City to provide a Community Choice Aggregation of clean energy.
Energy Efficiency Upgrades	Expand the City's "cool roof" standards to include re-roofs and western areas	**Not applicable.** The project would not impair the ability of the City to expand the City's cool roof standards.
	Facilitate more energy upgrades in the community through incentives [e.g., tax breaks and rebates], permit streamlining (where possible) and education [e.g., more local energy efficiency programming]	**Not applicable.** The project would not impair the ability of the City to incentivize additional energy upgrades in the community.
	Require energy-savings retrofits in existing buildings at a specific point in time (not at point of sale)	**Not applicable.** The project would not impair the ability of the City to require energy-savings retrofits for existing buildings.
Robust Urban Forests	Plant more shade trees to save energy, address heat island issues and improve air quality	**Consistent.** Trees will be planted on the project site bordering the developments and in road dividers.
Smart Growth & Transportation		
Complete Streets & Neighborhoods	Incorporate "Complete Streets" principles into municipal capital projects and plans [e.g., the Bicycle	**Not applicable.** The project would not impair the ability of the City to incorporate Complete Streets principles into the Bicycle and Pedestrian Master

Table 10. City of Chula Vista Climate Action Plan Consistency Analysis

Category	Policy Objective or Strategy	Potential to Conflict
	and Pedestrian Master Plans and Capital Improvement Program]	Plans and Capital Improvement Program.
	Encourage higher density and mixed-use development in Smart Growth areas, especially around trolley stations and other transit nodes	**Consistent.** The project encourages higher population density and includes mixed-use development. There is public transportation close to the project site, including a bus stop on Eastlake Parkway and Olympic Parkway.
Transportation Demand Management	Utilize bike facilities, transit access/passes and other Transportation Demand Management and congestion management offerings	**Not applicable.** The project would not impair the ability of the City to use Transportation Demand Management and congestion management offerings.
	Expand bike-sharing, car-sharing and other "last mile" transportation options	**Consistent.** The FEIR mitigation measures include implementation of bike-sharing, car-sharing, and other last mile transportation options.
Alternative Fuel Vehicle Readiness	Support the installation of more local alternative fueling stations	**Consistent.** The FEIR mitigation measures include encouraging low-emission fleet vehicles such as natural gas-powered vehicles.
	Designate preferred parking for alternative fuel vehicles	**Consistent.** The FEIR mitigation measures include encouraging low-emission fleet vehicles such as natural gas-powered vehicles.
	Design all new residential and commercial buildings to be "Electric Vehicle Ready"	**Consistent.** This project would be designed to comply with applicable effective CALGreen requirements for provisions of electric vehicle charging equipment, which at a minimum includes the 2022 CALGreen requirements.

Source: City of Chula Vista 2017.

CARB Scoping Plan

The Climate Change Scoping Plan, approved by CARB in 2008 and updated in 2014, 2017, and 2022, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs (CARB 2014, 2017c, 2022). The Scoping Plan is not directly applicable to specific projects, and it is not intended to be used for project-level evaluations. Under the Scoping Plan, however, several state regulatory measures aim to identify and reduce GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Many of the measures and programs included in the Scoping Plan would result in the reduction of project-related GHG emissions with no action required at the project-level, including GHG emission reductions through increased energy efficiency and renewable energy production (SB 350), reduction in carbon intensity of transportation fuels (LCFS), and the accelerated efficiency and

electrification of the statewide vehicle fleet (Mobile Source Strategy). Given that the proposed project is also not anticipated to result in substantial increase in mobile trips, the project would also not conflict with the Second Update's goal of reducing GHG emissions through reductions in VMT statewide.

The 2045 carbon neutrality goal required CARB to expand proposed actions in the Third Update to include those that capture and store carbon in addition to those that reduce only anthropogenic sources of GHG emissions. The proposed project would support the state's carbon neutrality goals, as implementation includes addition of green space throughout the project site, which represent opportunities for potential carbon removal and sequestration over the project lifetime. However, the Third Update emphasizes that reliance on carbon sequestration in the state's natural and working lands will not be sufficient to address residual GHG emissions, and achieving carbon neutrality will require research, development, and deployment of additional methods to capture atmospheric GHG emissions (e.g., mechanical direct air capture). Given that the specific path to neutrality will require development of technologies and programs that are not currently known or available, the project's role in supporting the statewide goal would be speculative and cannot be wholly identified at this time.

Overall, the proposed project would comply will all regulations adopted in furtherance of the Scoping Plan to the extent applicable and required by law. As mentioned above, several Scoping Plan measures would result in reductions of project-related GHG emissions with no action required at the project-level, including those related to energy efficiency, reduced fossil fuel use, and renewable energy production. As demonstrated above, the proposed project would not conflict with CARB's 2017 or 2022 Scoping Plan updates and with the state's ability to achieve the 2030 and 2045 GHG reduction and carbon neutrality goals. Further, the proposed project's consistency with the applicable measures and programs would assist in meeting the City's contribution to GHG emission reduction targets in California.

SANDAG's San Diego Forward: The 2021 Regional Plan

The passage of SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) in their Regional Transportation Plan (RTP). The San Diego Association of Governments (SANDAG) serves as the MPO for the San Diego region and is responsible for developing and adopting a SCS that integrates transportation, land use, and housing to meet GHG reduction targets set by CARB. The RTP/SCS is updated every 4 years in collaboration the 18 cities and unincorporated County of San Diego, in addition to regional, state, and federal partners. The most recent, *San Diego Forward: The 2021 Regional Plan* was adopted in 2021 and provides guidance on meeting or exceed GHG targets through implementation of five key transportation strategies, including complete corridors, high-speed transit services, mobility hubs, flexible fleets, and a digital platform to tie the transportation system together. Through these strategies, the 2021 Regional Plan is projected to reduce per capita GHG emissions from cars and light-duty trucks to 20% below 2005 levels by 2035, exceeding the regions state-mandated target of 19% (SANDAG 2021)

The primary objective of the RTP/SCS is to provide guidance for future regional growth (i.e., the location of new residential and non-residential land uses) and transportation patterns throughout the region, as stipulated under SB 375. The project is within defined mobility hubs present in the 2021 RTP, which will provide rideshare and microtransit options as part of the flexible fleets initiative. Furthermore, the project is near current bus routes and the planned route for the Next Gen Rapid Bus Service. As discussed previously, the project modifications proposed here would not result in a significant amount of new mobile trips above what was proposed in the original project

FEIR, and because the proposed project would generate more trips than the entitlement, a VMT analysis was not required, and the transportation impact was found to be less than significant (Linscott, Law & Greenspan 2022). As such, the proposed project would not conflict with the goals and policies of the RTP/SCS.

Summary

As discussed above, the GHG emissions and plan consistencies are divulged, but are not required for this analysis. The project is does not conflict with the goals and policies of the Chula Vista CAP, the CARB Scoping Plan, or the RTP/SCS.

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Appendix A

CalEEMod Outputs and Estimated Emissions