Air Quality Technical Report
for
Otay Ranch Village 14 and Planning Areas 16/19
San Diego County, California

Prepared For:

County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 110
San Diego, California 92123

Project Applicant:

Jackson Pendo Development
2245 San Diego Avenue, No. 223
San Diego, California 92110
Contact: Liz Jackson

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Jennifer Reed

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Summary of Appendix 2.3-1, Air Quality Technical Report Text Changes
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Section (Page)	Change	Reason for Change
TOC (iii)	Addition of reference to new Appendix E	To address recent case law related to health effects
2.3.1 (25)	Reference to more detailed discussion of ambient air quality standards	To address recent case law related to health effects
2.3.2 (26)	Additional discussion of the ambient air quality standards	To address recent case law related to health effects
2.4.1 (37)	Reference to more detailed discussion of criteria air pollutants in Appendix E	To address recent case law related to health effects
4.2.1.2 (98)	Discussion of construction health effects and reference to Appendix E added	To address recent case law related to health effects
4.2.2.2 (106)	Discussion of operational health effects and reference to Appendix E added	To address recent case law related to health effects
Appendix E	Added Appendix E	To address recent case law related to health effects

Summary of Appendix 2.3-1, Air Quality Technical Report Text Changes

Section (Page)	Change	Reason for Change
Ix	PM_{10} was changed to less-than-significant after mitigation	Emissions were over estimated in the DEIR
1.2.2 (2)	"Will" was changed to "would"	Typographical errors
1.2.3 (15)	"linear feet" was changed to "square feet"	Typographical errors
1.2.5 (17)	"Will" was changed to "would"	Typographical errors
1.2.5 (19)	The following PDFs were added: PDF-AQ/GHG-6 Efficient Outdoor lighting, PDF-AQ/GHG-7 Energy Efficiency Education, PDF-AQ/GHG-8 Cool Roods, and PDF-AQ/GHG-9 Cool Pavements	Response to comment
1.2.5 (20)	PDF-AQ/GHG-6 was changed to PDF-AQ/GHG-10 and revised to included dedicated 208/240 dedicated branch circuit in each garage.	New PDFs AQ/GHG-6, 7, and 8 were added as a response to comment
3.2.2 (56)	Adjusted grading narrative text to match Table 6 and supporting calculations	Typographical errors
3.2.3 (57)	Changes to utility installation period to match calculations	Typographical errors
3.2.4 (60)	VOC limits were adjusted to reflect modeling	Inconsistency in text
3.2.8 (64)	"Will" was changed to "would"	Typographical errors
3.2.8 (65)	Numerical edits were made to Table 13	Edits to match Appendix and emissions presented
3.3.4 (81)	The following PDFs were added: PDF-AQ/GHG-6 Efficient Outdoor lighting, PDF-AQ/GHG-7 Energy Efficiency Education, PDF-AQ/GHG-8 Cool Roods, and PDF-AQ/GHG-9 Cool Pavements, and PDF AQ/GHG6 was revised to PDF AQ/GHG-10	Response to comment
4.2.1 (96, 97)	Typographical errors corrected (Table 26)	Typographical errors
4.2.1 (101-103)	Numerical edits were made to Table 27 and associated text.	Emissions were over estimated in the DEIR
5.1 (129)	The following PDFs were added: PDF-AQ/GHG-6 Efficient Outdoor lighting, PDF-AQ/GHG-7 Energy Efficiency Education, PDF-AQ/GHG-8 Cool Roods, and PDF-AQ/GHG-9 Cool Pavements	Response to comment
5.2 (132)	Project specific PM_{10} was changed to less-than-significant after mitigation. PM_{10} cumulative impacts remained significant and unavoidable due the uncertain nature of cumulative projects.	Emissions were over estimated in the DEIR

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
ANFO	ammonium nitrate/fuel oil
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO	carbon monoxide
County	County of San Diego
DPM	diesel particulate matter
EIR	environmental impact report
EMFAC	Mobile Source Emissions Inventory Model
EPA	U.S. Environmental Protection Agency
EV	electric-powered vehicle
g/L	grams per liter
GDP/SRP	General Development Plan/Subregional Plan
HARP 2	Hotspots Analysis and Reporting Program, Version 2
LOS	level of service
MSCP	Multiple Species Conservation Program
NAAQS	National Ambient Air Quality Standards
NO_x	oxides of nitrogen
NO_2	nitrogen dioxide
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
PDF	Project Design Feature
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
ppb	parts per billion
ppm	parts per million
RAQS	Regional Air Quality Strategy
RMP	Otay Ranch Resource Management Plan
RTIP	Regional Transportation Improvement Program

Acronym/Abbreviation	Definition
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas & Electric
SF	square feet
SIP	State Implementation Plan
SO_x	sulfur oxides
SO_2	sulfur dioxide
SR	State Route
TAC	toxic air contaminant
T-BACT	toxics best available control technology
TDM	Transportation Demand Management
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOC	volatile organic compound
ZNE	zero net energy

EXECUTIVE SUMMARY

Project Overview

Otay Ranch Village 14 and Planning Areas 16/19 (Proposed Project) is part of the overall Otay Ranch, an approximately 22,845-acre master-planned community in southern San Diego County designed as a series of villages and planning areas. The Proposed Project is located within Otay Ranch Village 14 and Planning Areas 16/19 in the Proctor Valley area of Otay Ranch.

Otay Ranch Village 14 is planned around a centrally located "Village Core." The Village Core is composed of a 7.2-acre Village Green Park (public park), a 1.7-acre Mixed-Use Site with up to 10,000 square feet of commercial/retail uses, a 2.3-acre public safety site for a fire station and satellite sheriff's facility, and 9.7-acre elementary school site.[1] Additional public and private parks, swim clubs, trails, and recreational facilities would be situated throughout the three distinct areas of Village 14, referred to herein as South Village 14, Central Village 14, and North Village 14.

Approximately 994 homes would be located in South Village 14, Central Village 14, and North Village 14. Of this total, 878 would be single-family homes located in gated enclaves and 116 would be detached courtyard homes. Twelve neighborhoods are planned with approximate densities ranging from 0.2 to 10.0 dwelling units per acre. In addition to the homes in Village 14, there are 13 one-acre estate lots proposed in Planning Area 19 and 112 ranchettes averaging 3 acres located in Planning Area 16.

The Proposed Project would include numerous project design features (PDFs) that would reduce emissions of criteria air pollutants and toxic air contaminants. Energy-related PDFs include zero-net-energy design for the residential land uses, Energy Star or equivalent appliances, and solar water heating for the swimming pools at private recreation centers. Mobile-related strategies would include implementation of a Transportation Demand Management Program aimed at reducing vehicle miles traveled (VMT).

Impact Analysis Summary

This air quality impact analysis evaluates the potential for significant adverse impacts to air quality due to construction and operational emissions resulting from the Proposed Project. Impacts were evaluated for their significance, in part, based on the County of San Diego's (County) mass daily criteria air pollutant thresholds of significance (County of San Diego 2007). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air

[1] The school may instead be developed as 97 residential units, which was used in this analysis due to the higher trip rates associated with housing to reflect a conservative estimate of criteria air pollutant emissions and potential impacts.

quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone, nitrogen dioxide, carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to ozone.

Estimated maximum daily emissions generated by the Proposed Project at full build-out in 2028 from area, energy, and mobile emission sources were calculated using California Emissions Estimator Model (CalEEMod) Version 2016.3.1.[2,3]

Air Quality Plan Consistency

Regarding consistency with local air quality plans, the Proposed Project would result in an equal to or less-intensive land use than currently allowed under the County's General Plan (County of San Diego 2011a), which the San Diego Air Pollution Control District's (SDAPCD) Regional Air Quality Strategy emissions forecast is based on. Because the Proposed Project would contribute to local population and employment growth and associated VMT in an amount anticipated for the Project Area by the County's General Plan, the Proposed Project's growth is accounted for in the State Implementation Plan and Regional Air Quality Strategy. Therefore, the Proposed Project would be consistent with relevant air quality plans, and impacts would be **less than significant.**

Construction Criteria Air Pollutant Emissions

Construction of the Proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, rock crushing, blasting, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Proposed Project construction was assumed to occur from 2019 to 2027. The analysis concludes that maximum daily construction emissions generated by

[2] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects.

[3] CalEEMod Version 2016.3.1 was the current version of CalEEMod when the Proposed Project analysis was initiated. In October 2017, CalEEMod Version 2016.3.2 was released, followed by CalEEMod Version 2016.3.2.25 in November 2017, which fixed a Windows security update issue in Version 2016.3.2. CalEEMod Version 2016.3.2 included five upgrades and 10 bug fixes. The most notable upgrade and bug fix, respectively, is the incorporation of percent reductions in default energy consumption to reflect compliance with the 2016 Title 24, Part 6 Building Energy Efficiency Standards, and fixing the bug that overestimated annual construction PM_{10} and $PM_{2.5}$ emissions from fugitive dust in multiple year scenario runs (SCAQMD 2017). All CalEEMod Version 2016.3.2 updates were reviewed and it was determined that use of CalEEMod Version 2016.3.2 is not anticipated to result in greater criteria air pollutant emissions compared to estimated Proposed Project emissions generated using CalEEMod Version 2016.3.1. Accordingly, use of CalEEMod Version 2016.3.1 is appropriate for the Proposed Project's air quality analysis.

the Proposed Project would exceed the County's daily significance thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Maximum daily construction emissions would not exceed the County's daily thresholds for SO_x. Implementation of mitigation measures M-AQ-1 through M-AQ-8 would reduce emissions of PM_{10} and $PM_{2.5}$ below the County's thresholds; however, mitigated emissions of VOC, NO_x, and CO, ~~and PM_{10}~~ would still exceed thresholds. Because VOCs, NO_x, CO, and PM_{10} emissions generated by the Proposed Project would exceed the County's thresholds, potential Proposed Project criteria air pollutant impacts would be **significant and unavoidable**.

Operational Criteria Air Pollutant Emissions

Operation of the Proposed Project would generate operational criteria air pollutants from area sources (consumer product use, architectural coatings, and landscape maintenance equipment), energy sources (natural gas), and mobile sources (vehicles). An operational year of 2028 was used in the analysis based on the anticipated construction schedule. Maximum operational emissions would exceed the County's operational significance thresholds for VOC and PM_{10}; thresholds for NO_x, CO, SO_x, or $PM_{2.5}$ would not be exceeded.

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), exterior paint would not exceed non-flat coating limits (100 g/L VOC), and a small portion of exterior paint and finishes (trim and other minor finishes) would not exceed non-flat high-gloss coatings limits (150 g/L VOC). Although the majority (i.e., 75%) of the surface area painted is assumed to be interior, which would meet or be less than the 50 g/L VOC content flat coating limit, it was conservatively assumed in CalEEMod that all residential and non-residential (interior and exterior) architectural coating would be 150 g/L VOC. For parking lot land uses, 250 g/L VOC was assumed consistent with CalEEMod default VOC rates. The Proposed Project includes mitigation to encourage the use of low-VOC consumer products,[4] which are chemically formulated products used by household and institutional consumers; however, low-VOC content consumer products was not quantitatively assumed because of enforceability challenges.

Mobile sources are the primary source of PM_{10} emissions. Implementation of PDF-TR-1's Transportation Demand Management Program would reduce VMT by 4.7% in Village 14 and 2.0% in Planning Areas 16/19, with an overall reduction of 4.3% in VMT, which would reduce all vehicle emissions, including PM_{10}. No additional feasible mitigation measures were identified that

[4] Consumer products include detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products.

would reduce operational PM_{10} emissions below the threshold. Because operational emissions of VOCs and PM_{10} cannot be mitigated, the Proposed Project's operational emissions would remain **significant and unavoidable**.

Cumulative Impacts

Cumulative emissions were found to be significant and unavoidable when considering the Proposed Project in combination with other existing and foreseeable future projects in the Proposed Project's vicinity. Specifically, the Proposed Project would result in significant cumulative construction impacts associated with VOC, NO_x, CO, and PM_{10} emissions,[5] and significant cumulative operational impacts associated with VOC and PM_{10} emissions. Because the Proposed Project would generate NO_x, VOC, CO, and PM_{10} emissions that exceed the County's thresholds after implementation of mitigation, and other cumulative projects would have the potential to be constructed and operated in the Proposed Project's vicinity, cumulative construction and operational emissions could further exacerbate emissions. As such, the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants that is **significant and unavoidable**.

Exposure of Sensitive Receptors

Carbon Monoxide Hotspots

Construction traffic in 2024, which represents the highest level of construction-related traffic for the Proposed Project, would not result in traffic volumes that would cause a CO hotspot; therefore, impacts related to CO near sensitive receptors during construction would be **less than significant**.

Similarly, operation of the Proposed Project would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. As neither the 1-hour nor the 8-hour CO California Ambient Air Quality Standards would be equaled or exceeded at any of the studied intersections, potential operational CO hotspot impacts would be **less than significant**.

[5] Project-generated construction emissions of PM_{10} $PM_{2.5}$ would be reduced below the County's threshold with implementation of mitigation (i.e., mitigation measures M-AQ-1 through M-AQ-8). Project generated emissions of PM_{10} would remain remains near the maximum daily thresholds, and therefore due to the uncertain nature of additional potential projects in the region, cumulative emissions were determined to have a potentially cumulative impact.

Toxic Air Contaminants

Impacts related to cancer risk and chronic hazard from diesel particulate matter, which is a toxic air contaminant (TAC), would be below the County's thresholds during construction activities; therefore, impacts would be **less than significant**.

No long-term sources of TAC emissions are anticipated during operation of the Proposed Project because the Proposed Project would only include residential units, commercial land uses, a school, parks, and Preserve land; the Proposed Project would not include heavy industrial uses or other land uses typically associated with stationary sources and TACs. Additionally, the Proposed Project would not be located next to a major source of TAC or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs. Impacts would be **less than significant**.

Odors

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and from excavated sediment. These odors would disperse rapidly from the Project Area 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**.

Also, the Proposed Project would not include any land uses that are known to generate odors, such as wastewater treatment plants, landfills, or other industrial sources. Although odor impacts are unlikely, the Proposed Project would be required to comply with the County's odor policies enforced by the SDAPCD, including Rule 51, in the event a nuisance complaint occurs, and County Zoning Code Section 6318, which prohibits nuisance odors and identifies enforcement measures to reduce odor impacts to nearby receptors. Therefore, impacts associated with objectionable odors would be **less than significant**.

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1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this report is to evaluate potential air quality impacts associated with construction and operation of the proposed Otay Ranch Village 14 and Planning Areas 16/19 (Proposed Project) located within the County of San Diego. Potential air quality impacts are evaluated for their significance based on the criteria provided in the County of San Diego's Guidelines for Determining Significance – Air Quality (County of San Diego 2007).

This introductory section provides a description of the Proposed Project. Section 2, Existing Conditions, presents the relevant existing setting in the context of air quality, climate and meteorology, regulatory setting, and background air quality. Section 3, Significance Criteria and Analysis Methodologies, outlines the thresholds of significance applied in the analysis and methodology, and assumptions used in the construction and operational emissions analysis. Section 4, Project Impact Analysis, evaluates the Proposed Project's potential to result in a significance air quality impact per the thresholds identified in Section 3. A summary of the recommended Proposed Project design features, impacts, and mitigation measures is presented in Section 5. Section 6, References, includes a list of the references cited, and Section 7, List of Preparers, includes a list of those who prepared this technical report.

1.2 Project Description

1.2.1 Overview and Background

The Proposed Project is part of the overall Otay Ranch project, an approximately 22,845-acre master-planned community in southern San Diego County designed as a series of villages and planning areas. The Proposed Project addressed in this air quality emissions technical report is located within Otay Ranch Village 14 and Planning Areas 16/19 in the Proctor Valley area of Otay Ranch, as shown in Figure 1, Regional Map.

The underlying purpose of the Proposed Project is to implement the adopted Otay Ranch General Development Plan/Otay Subregional Plan (GDP/SRP), Volume II (City of Chula Vista and County of San Diego 1993a) and complete the planned development within Jackson Pendo Development Company's (applicant) ownership of Village 14 and Planning Areas 16/19. The Otay Ranch GDP/SRP is also a component of the County of San Diego General Plan (County of San Diego 2011a) and allows for a total of 2,133 homes in Otay Ranch Village 14 and Planning Areas 16/19.

The Proposed Project is designed to be consistent with the Otay Ranch GDP/SRP's directive to provide a transitional community between the suburban densities and character of eastern Chula

Vista and the more rural community of Jamul. The Proposed Project proposes 1,119 homes, of which 994 would be in Village 14 and 125 homes would be in Planning Areas 16/19.

1.2.2 Definitions

County. The "County" is the County of San Diego jurisdiction.

Project Area. The "Project Area" is the applicant's ownership within Otay Ranch Village 14 and Planning Areas 16/19, in addition to certain off-site areas for infrastructure, as depicted in Figure 1. The Project Area covers approximately 1,283.6 acres owned by the applicant and approximately 85.4 acres of off-site improvements, described below, for a total of 1,369 acres.

Proposed Project. The "Proposed Project" is the applicant's ownership, as depicted in Figure 1. The Proposed Project includes a Specific Plan (RH Consulting 2018), General Plan Amendments, EIR, Rezone, Tentative Map, and an Otay Ranch Resource Management Plan Amendment. The Proposed Project is further defined in Chapter 1, Project Description, of the Proposed Project's environmental impact report (EIR), which is incorporated herein by reference. Except for the off-site areas described below, the Proposed Project specifically excludes the State of California's ownership in Village 14 and Planning Areas 16/19, which remains approved for development per the County's General Plan and the Otay Ranch GDP/SRP. The underlying County General Plan and Otay Ranch GDP/SRP land uses on the state's property ~~will~~ would remain unchanged. In addition, the "Inverted L" is excluded from this analysis, since it is not owned by the applicant and is in the City of Chula Vista; it is owned by the Otay Water District and the United States Fish and Wildlife Service.

Otay Ranch Village 14. "Otay Ranch Village 14" or "Village 14" as referred to herein is a discrete subset of the Proposed Project and reflects approximately 723.7 acres of the applicant's ownership located exclusively within Village 14, as depicted in Figure 2, Vicinity Map. Approximately 994 homes are planned around a Village Core in this area, as shown in Table 1, Land Use Summary.

Otay Ranch Planning Areas 16/19. "Otay Ranch Planning Areas 16/19" or "Planning Areas 16/19" is a discrete subset of the Proposed Project and reflects approximately 559.8 acres of the applicant's ownership located exclusively within Planning Areas 16/19, as depicted in Figure 2. Approximately 125 homes are planned on 1-acre and 3-acre average lots in this area, as shown in Table 1. The 127.1 acres of Limited Development Area is defined below.

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SOURCE: Hunsaker 2017

FIGURE 1

Regional Map

Otay Ranch Village 14 and Planning Areas 16/19

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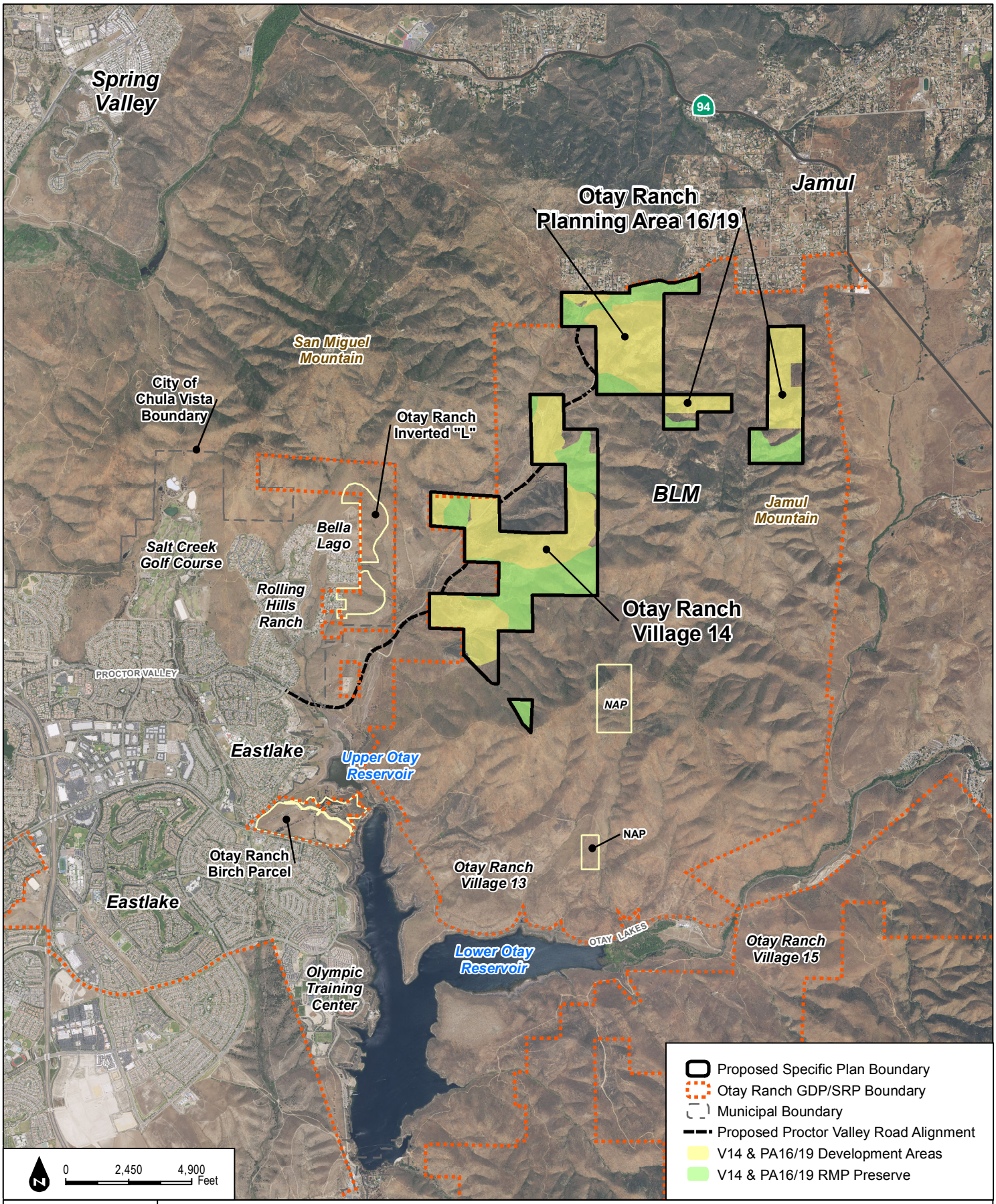

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SOURCE: NAIP 2016; Hunsaker 2017; County of San Diego 1997

FIGURE 2

Vicinity Map

Otay Ranch Village 14 and Planning Areas 16/19

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Limited Development Area. "Limited Development Area" (LDA) is a designated land use in the Otay Ranch GDP/SRP: "An open space easement will cover the areas designated as 'Limited Development Area' … These areas will be left as natural open space with the exception that roads and utilities are anticipated to cross or lie within these areas … LDAs may be included within private lots but would have the following set of restrictions. Removal of native vegetation would be prohibited except as necessary for construction of roads and utilities. There would be no buildings or other structure, agriculture, landscaping, livestock, grazing, horses, trash disposal of fences allowed within these areas" (City of Chula Vista and County of San Diego 1993a). Fuel modification is allowed in the LDA as "brushing for fire control zones would conform to the local fire district regulations" (City of Chula Vista and County of San Diego 1993a). A total of 127.1 acres of LDA occurs in Planning Areas 16/19; there is no LDA in Village 14.

Otay Ranch RMP and MSCP Preserve. The "Otay Ranch Resource Management Plan" (RMP) provides for the conservation, funding, and management of the entire 11,375-acre Otay Ranch RMP Preserve (City of Chula Vista and County of San Diego 2015). The Multiple Species Conservation Program (MSCP) County Subarea Plan Implementing Agreement (USFWS et al. 1998) describes the County's required contribution to the MSCP Preserve. The Implementing Agreement states that the required mitigation for Otay Ranch includes "protection of the areas identified as preserved in the boundaries of the Otay Ranch project, including approximately 11,375 acres" of the Otay Ranch RMP Preserve (USFWS et al. 1998). Therefore, the Otay Ranch RMP Preserve is a subset of the MSCP Preserve. The portion of the Proposed Project's land use designated as Otay Ranch RMP Preserve is, therefore, referred to as MSCP Preserve, which includes 270.2 acres in Village 14 and 156.5 acres in Planning Areas 16/19, for a total of 426.7 acres.

The portion of the Proposed Project's land use designated as Otay Ranch RMP Preserve, while considered a part of the MSCP County Subarea Plan Preserve, is unique to Otay Ranch because it specifically mitigates for direct and cumulative impacts associated with implementation of the Otay Ranch GDP/SRP. The Proposed Project includes 426.7 acres of Otay Ranch RMP Preserve, of which 270.2 acres is in Village 14 and 156.5 acres is in Planning Areas 16/19.

Preserve Conveyance Obligation. To satisfy assemblage of the 11,375-acre Otay Ranch RMP (MSCP) Preserve ranch-wide, a "Preserve Conveyance Obligation" was prescribed in the Otay Ranch RMP (City of Chula Vista and County of San Diego 2015). The Preserve Conveyance Obligation is 1.188 acres of Otay Ranch RMP (MSCP) Preserve conveyed per 1 acre of development, as further defined in the adopted Otay Ranch RMP. This obligation, which is the primary basis of the Proposed Project's required mitigation, may be achieved through conveyance of either the applicant's RMP (MSCP) Preserve ownership, or through off-site acquisition within the 11,375-acre Otay Ranch RMP (MSCP) Preserve.

Conserved Open Space. "Conserved Open Space" refers to those areas with an Otay Ranch GDP/SRP land use designation other than MSCP Otay Ranch RMP Preserve that remain undisturbed; would be preserved on site; and would be added to the Otay Ranch RMP Preserve (through a future RMP Amendment), managed under a separate resource management plan, or used to mitigate impacts to the City of San Diego MSCP Cornerstone Lands. The approximately 72.4 acres of Conserved Open Space is composed of 31.9 acres within the 127.1 acres of LDA and 43.6 acres of residential land use designation in Planning Area 16/19 plus 36.9 acres of residential land use designation within Village 14. The Conserved Open Space areas are located adjacent to the Otay Ranch RMP Preserve and would be conserved by recording a biological open space easement over the land.

Development Footprint. The "Development Footprint" includes areas where there ~~will~~ would either be permanent or temporary ground disturbance. The Development Footprint includes all on-site development, off-site improvements, graded LDA, and impacts resulting from infrastructure and other allowable uses within the MSCP Preserve, per Section 1.9.3 of the MSCP County Subarea Plan (County of San Diego 1997).

Off-Site Improvements. "Off-site Improvements" would total approximately 85.4 acres of temporary and permanent impacts, as shown in Table 1. Off-site improvements would include the following: Proctor Valley Road, including related wet and dry utilities, drainage facilities, and trails; access roads in Planning Area 16; an off-site sewer pump station in the southern reach of Proctor Valley Road; and off-site sewer facilities to connect to the Salt Creek Interceptor, as planned since 1994.

Proctor Valley Road improvements would include South Proctor Valley Road (0.25 miles in the City of Chula Vista and 0.2 acres privately owned in the County); South and Central Proctor Valley Road (1.5 miles in City of San Diego Cornerstone Land); Central Proctor Valley Road (0.4 miles in California Department of Fish and Wildlife (CDFW) Otay Ranch Village 14 land); and North Proctor Valley Road (0.75 miles in CDFW Otay Ranch land between Village 14 and Planning Areas 16/19).

Central and South Proctor Valley Road are proposed to be improved and classified as two-lane-with-median light collectors with a width ranging from 68 to 74 feet, plus an additional 20-foot-wide fuel modification/construction easement on each side. Proctor Valley Road North would be a two-lane interim road with a paved width of 28 feet in a 40-foot-wide right-of-way. Improvements in Proctor Valley Road would include those typically in roadways, including wet and dry utilities, a sewer pump station, drainage, landscape, culverts, and trails. Proctor Valley Road is an approved County General Plan Mobility Element road (County of San Diego 2011a) and an approved facility in the MSCP County Subarea Plan (County of San Diego 1997).

In addition, there are three public off-site roads within Planning Area 16. These roads are located primarily within CDFW managed lands and are approved in the Otay Ranch GDP/SRP as facilities within designated development or LDA land use (and are also approved facilities per the MSCP County Subarea Plan, Section 1.9.3.3 (County of San Diego 1997)). Improvements in these off-site roads would include those typically in roadways, including wet and dry utilities, drainage, landscape, culverts, and trails.

1.2.3 Proposed Specific Plan

Summary

The adopted Otay Ranch GDP/SRP requires preparation of a Specific Plan, to include a Site Utilization Plan, to describe the land uses for the Proposed Project. Figure 3 depicts the proposed Site Utilization Plan. Table 1, Land Use Summary, identifies the proposed land uses.

Approximately 994 homes are planned in Village 14, set in three distinct areas (referred to herein as the South, Central, and North Village 14). Of these, 878 homes would be single-family homes located in gated enclaves, and 116 would be detached courtyard homes. Twelve neighborhoods are planned with approximate densities ranging from 0.2 to 10.0 dwelling units per acre. Otay Ranch Village 14 is planned around a centrally located "Village Core." The Village Core would be composed of a 9.7-acre elementary school, a 7.2-acre Village Green (public park), a 1.7-acre Mixed-Use Site with up to 10,000 square feet of commercial/retail uses, and a 2.3-acre public safety site for a fire station and satellite sheriff's facility. Additional public and private parks, swim clubs, trails, and recreational facilities would be situated throughout South, Central, and North Village 14. See Table 1 for land uses in Village 14.

In addition to the homes in Village 14, there are 13 one-acre average sized estate lots proposed in Planning Area 19 and 112 three-acre average sized ranchettes proposed in Planning Area 16. Planning Areas 16/19 neighborhoods would not be gated. The LDA may include public infrastructure and/or be conserved within private lots with a conservation easement. See Table 1 for detailed land uses in Planning Areas 16/19.

Table 1
Land Use Summary

Land Use	Acres	Units
Otay Ranch Village 14[a,b,c]		
Single-Family Residential	344.2	994[a]
Residential Subtotal[b]	*344.2*	*994*
Public Parks	13.8	N/A
Private Parks	4.5	N/A

Table 1
Land Use Summary

Land Use	Acres	Units
Public Safety Site	2.3	N/A
Elementary School	9.7	N/A
Mixed-Use[f]	1.7	N/A
Circulation	12.7	N/A
Open Space	27.6	N/A
Conserved Open Space	36.9	N/A
Otay Ranch RMP	270.2	N/A
Non-Residential Subtotal[b]	*379.5*	*N/A*
Village 14 Subtotal[b]	**723.7**	**994**
Planning Areas 16/19[d,e]		
Planning Area 19 Estates Planning Area 16 Ranchettes[e]	14.3 350.5	13 112
Public Park	1.4	N/A
Circulation	0.8	N/A
Open Space	2.1	N/A
Conserved Open Space	35.5	N/A
Otay Ranch RMP	156.7	N/A
Planning Areas 16/19 Subtotal[b]	*559.8*	*125*
Otay Ranch Village 14 and Planning Areas 16/19 Total[b]	**1,283.5**	**1,119**
Off-Site Improvements		
South Proctor Valley Road – within City of Chula Vista, City of San Diego and County	32.7	N/A
Central Proctor Valley Road – within City of San Diego and CDFW Otay Ranch	19.8	N/A
North Proctor Valley Road – within CDFW Otay Ranch ownership	17.1	N/A
Planning Areas 16/19 Roads – within CDFW Otay Ranch ownership	1.8	N/A
Total Off Site[b]	**85.4**	**N/A**

CDFW = California Department of Fish and Wildlife; N/A = not applicable.

[a] Residential gross acres in Village 14 would include 96.0 acres of related internal slopes, fuel modification, and/or Preserve edge.

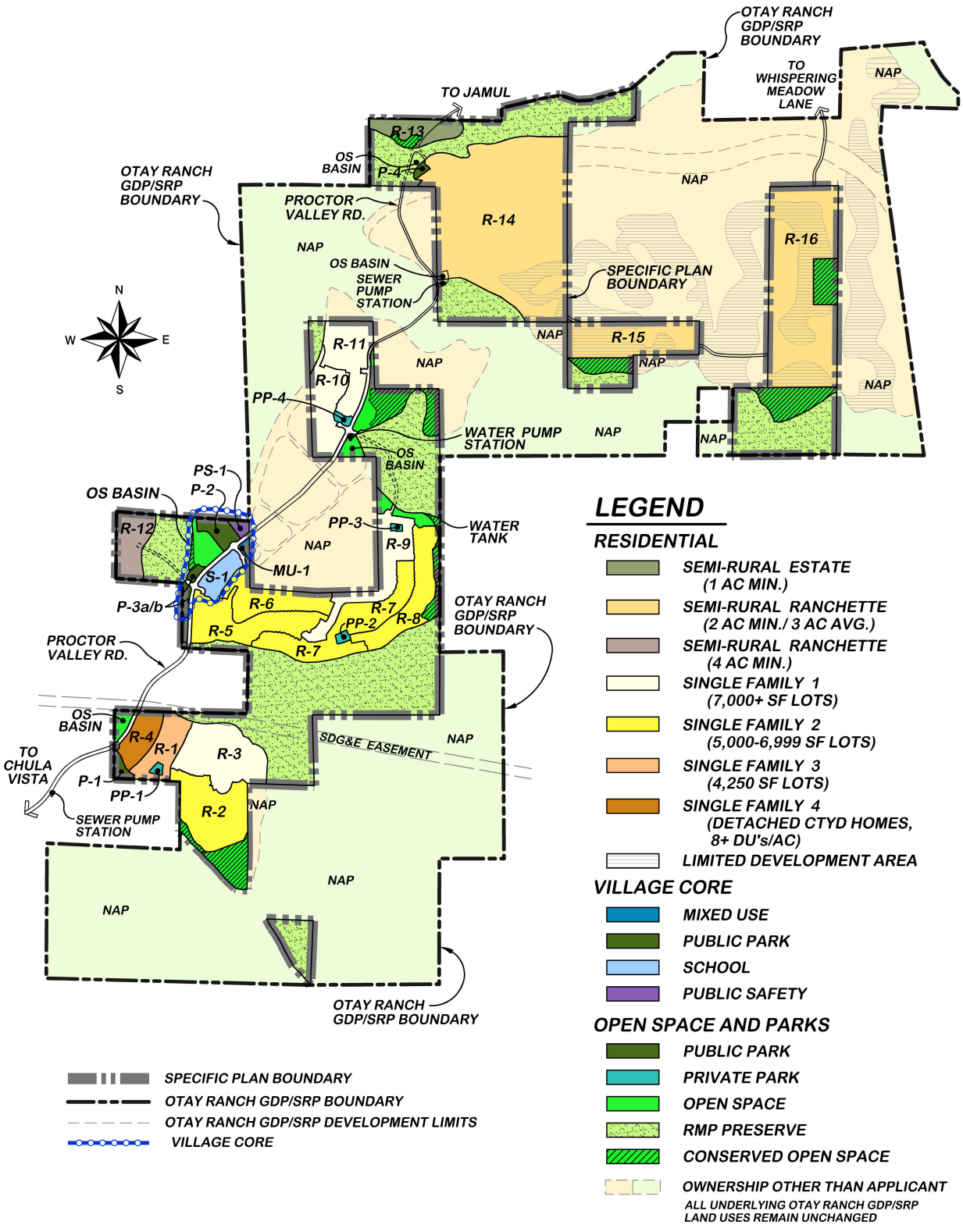
[b] Village 14 would have 5 acres of private pocket parks included in the residential acreage; therefore, the subtotal including private pocket parks is 9.5 acres.

[c] Units allocated to school site at 10 dwelling units per acres per the Otay Ranch GDP/SRP policies. Should the school site not be needed, 97 units may be built.

[d] Residential gross acres in Planning Areas 16/19 would include 14.1 acres of related private lift and pump stations.

[e] Residential gross acres in Planning Areas 16/19 would include 127.1 acres of Limited Development Area.

[f] Village 14 Mixed Use acreage would include 10,000 square feet of commercial use.



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SOURCE: Hunsaker 2018

FIGURE 3

Proctor Valley Site Utilization Plan

Otay Ranch Village 14 and Planning Areas 16/19

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The Proposed Project was designed around an active lifestyle and wellness recreation theme, and would include a park and recreation system that would include four public parks totaling approximately 15.2 acres. The remaining private recreation facilities would include three private swim clubs and numerous pocket parks totaling approximately 9.5 acres. An approximately 4.5-mile, 10-foot-wide decomposed granite Community Pathway is proposed along Proctor Valley Road from Chula Vista to Jamul. The Proposed Project would include approximately 27.6 acres of open space (exclusive of the 110.1 acres of open space included in the residential gross acres), 127.1 acres of LDA, and 426.7 acres of Otay Ranch RMP Preserve within the applicant's ownership. Approximately 72.4 acres of Conserved Open Space within the Project Area would be conserved by recording a biological open space easement.

Circulation and Access

Regional access to Otay Ranch Village 14 would be provided by State Route (SR) 125, located approximately 3 miles to the west. Interstate 805, approximately 8 miles to the west, would provide secondary north/south access. SR-54, located approximately 6 miles to the northwest, connects to SR-125 and Interstate 805, and would provide regional east/west access. SR-94 runs northwest/southeast along the eastern side of the Project Area through Jamul, connecting the Project Area to Rancho San Diego to the north.

Proctor Valley Road would provide the main access to the Proposed Project. Four roundabouts in Village 14 and one roundabout in Planning Areas 16/19 would identify the entrance into each residential area and provide traffic-calming at key internal intersections. The internal circulation plan also includes a series of collectors and residential streets to provide access to the residential neighborhoods, with Planning Areas 16/19 designed to County Rural Road Standards. A secondary access to the easternmost portion of Planning Area 16 is the planned extension of existing Whispering Meadows Road.

Proctor Valley Road is a two-lane road and is designated as a scenic corridor. The northern connection of Village 14 to Jamul would remain substantially in the alignment of the existing partially improved Proctor Valley Road and would be paved with pervious asphalt; it would provide public access and secondary emergency access to both communities.

Public Services

A summary of the public services that would be provided is described below.

Sewer

Sewer capacity would be provided by the County through annexation into the County Sanitation District. Sewer transportation would be provided for by the Salt Creek Interceptor, located in the City

of Chula Vista, pursuant to agreements between the City of Chula Vista and the County. Sewer is allowed in Village 14 and Planning Areas 16/19 per the Otay Ranch GDP/SRP (City of Chula Vista and County of San Diego 1993a). Sewer trunk line extensions and pump stations are planned.

Water

The Project Area is located within the Otay Water District boundary and the Proposed Project is already accommodated in the Otay Water District Master Plan (Dexter Wilson Engineering Inc. 2017). A 980 pressure zone water tank adjacent to Central Village 14 is planned. Water transmission lines and pump stations are also planned.

Law Enforcement

The County Sheriff's office would provide service. A satellite office would have a storefront facility co-located with the fire station on the Proposed Project's public safety site in the Village Core.

Fire

Fire service would be provided by the County from a fire station built within the Proposed Project's public safety site in the Village Core.

Stormwater/Drainage

Biofiltration basins are planned.

Schools

Village 14 is planned to be served by the Chula Vista Elementary School District and Sweetwater Union High School District. Planning Areas 16/19 are planned to be served by the Jamul/Dulzura Union School District and the Grossmont High School District, as prescribed in the adopted Otay Ranch GDP/SRP Facility Implementation Plan (City of Chula Vista and County of San Diego 1993b) and consistent with County Board of Supervisors Policy I-109, Policy II.

Options

The Proposed Project includes three options for internal circulation: (1) the Proctor Valley Road North Option, (2) the Preserve Trails Option, and (3) the Perimeter Trail Option. The Proposed Project's EIR assesses each of these options and their respective impacts. This will allow the County to select the option (or combination of options) it considers best for the Proposed Project and the environment. Each of these options is summarized below. For detailed descriptions with exhibits, see the Specific Plan Section VIII, Internal Circulation Options (RH Consulting 2018).

Proctor Valley Road North Option: The Proctor Valley Road North Option applies to the portion of Proctor Valley Road from Street AA in North Village 14 to Echo Valley Road, and includes two dedicated bike lanes (one on each side of the road) instead of the "sharrows"[6] proposed in street section 10 of the Proposed Project. Generally, the Proctor Valley Road North Option would increase the right-of-way width from 40 feet to 64 feet starting from the intersection of Street AA northward to the applicant's Village 14 ownership boundary; from 40 feet to 48 feet within the off-site improvement area owned by the state; and from 40 feet to 64 feet within the applicant's ownership north of the state's property to Echo Valley Road.

Preserve Trails Option: The Preserve Trails Option consists of two segments of existing, disturbed trails approximately 1 mile in length within the Project Area, east of the Development Footprint. These segments would be located within the Otay Ranch RMP Preserve. The Preserve Trails Option includes segments "A" and "B" as identified in the Otay Ranch GDP/SRP, which are also identified as segments 52 and 49 in the County of San Diego's Community Trails Master Plan (County of San Diego 2005). Segment "A"/"52" is 2,350 lineal feet, located at the northern terminus of the Proctor Valley Community Pathway and extending east through the on-site Otay Ranch RMP Preserve to the eastern edge of the Echo Valley loop (Community Trails Master Plan Trail 53). Segment "B"/"49" is 2,328 lineal feet and is located between South and Central Village 14 along an existing, historic ranch road. This trail is located within the on-site Otay Ranch RMP Preserve and bisects regional wildlife corridor R1. The Preserve Trails Option would retain these portions of trails in their existing conditions, which meet the Community Trails Master Plan primitive trail standard. No improvements to these Preserve Trails are anticipated with the Proposed Project.

Perimeter Trail Option: The Perimeter Trail Option is an approximately 3.6-mile-long perimeter trail located within the Development Footprint of South and Central Village 14. The Perimeter Trail Option is situated primarily within the Otay Ranch RMP 100-foot Preserve edge. The Perimeter Trail Option is designed to Community Trails Master Plan primitive trail standards, and the trail tread would vary from 2 to 6 feet wide. Due to topography, trail grades would range from 2% to the maximum grade allowed of 30%. The Perimeter Trail Option would require construction of approximately 19,000 ~~lineal feet~~square feet ~~(0.7 miles)~~ of 5 to-7-foot-high retaining walls due to steep topography and drainage constraints. The Perimeter Trail Option would be graded as part of overall Proposed Project, grading and would not encroach into the Otay Ranch RMP Preserve. The perimeter trail would be accessed at public parks and trailheads, and would be maintained by the County of San Diego.

[6] Sharrows are road markings that guide bicyclists to bike routes between neighborhoods and alert motorists to the presence of bicyclists within the shared travel lane.

Dudek has evaluated these options and they are discussed herein.

1.2.4 Existing and Surrounding Land Uses

Existing Project Area Conditions

The entire Project Area is undeveloped, and on-site elevation ranges from 525 to 1,650 feet above mean sea level. The Project Area is diverse in topography and contains a flat valley along Proctor Valley Road and rolling hills within the remainder of the Project Area. The two eastern portions of Planning Area 16 are located within portions of the Jamul Mountains and contain the highest elevations.

Land Use Designations and Zoning

In the County's General Plan, the Project Area is designated as Rural and Semi-Rural regional categories, and has Specific Plan Area (SPA) and Open Space (Conservation) land use designations (County of San Diego 2011a). The Project Area is zoned S80 (Open Space) and S88 (Specific Plan) by the County of San Diego Zoning Map (County of San Diego 2014). The Proposed Project does not propose any changes to the existing regional categories, land use designations, or zoning. Because the County formally adopted the Otay Ranch GDP/SRP to govern development within the Otay Ranch area, the land use designations specified in the Otay Ranch GDP/SRP take precedence over those in the County General Plan. A wide range of land use designations are specified in the Otay Ranch GDP/SRP for the Project Area: Very Low Density Residential (VL), Low Density Residential (L), Low Medium Village Density Residential (LMV), Medium Density Residential (MD), Medium High Residential (MH), Mixed Use (MU), Public/Quasi Public (P/QP), Park (P), and Open Space (OS) (City of Chula Vista and County of San Diego 1993a).

Surrounding Land Uses

Existing surrounding development, including the master planned communities of Eastlake Woods, Bella Lago, Salt Creek Ranch, and Rolling Hills Ranch, is located approximately 1 mile to the southwest of the Project Area. Commercial centers are located in Eastlake and Rolling Hills Ranch, and regional shopping is located in Otay Ranch. The proposed Village 13 Resort development is located south of the Project Area. The Otay Reservoir System is located south of the Project Area, along with the City of San Diego's Multiple Species Conservation Program "Cornerstone Lands," which are adjacent to the Project Area to the south. The Cornerstone Lands Multi-Habitat Planning Area Preserve areas include the lands surrounding the Otay Reservoir System under the jurisdiction of the City of San Diego (more specifically, the Water Utilities Department). The community of Jamul is located approximately 1 mile north of the Project Area and is rural, as

reflected by primarily large-lot estates and horse ranches. Rancho San Diego, which is more heavily developed, is located to the northwest.

1.2.5 Project Design Features

The following Project Design Features (PDFs), organized by emission source,[7,8] ~~will~~ would be included in the Proposed Project.

Construction

PDF-AQ-1 **Fugitive Dust Control**. The Proposed Project shall implement the following measures to minimize fugitive dust (PM_{10} and $PM_{2.5}$), comply with County Code Section 87.428 (Grading Ordinance), and comply with San Diego Air Pollution Control District (SDAPCD) Rule 55 (Fugitive Dust Control):

a. Water or another SDAPCD-approved dust control non-toxic agent shall be used on the grading areas at least three times daily.

b. All main roadways shall be constructed and paved as early as possible in the construction process.

c. Building pads shall be finalized as soon as possible following site preparation and grading activities.

d. Grading areas shall be stabilized as quickly as possible.

e. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last 100 feet of internal travel path within the construction site shall be paved prior to public road entry and for all haul roads.

f. Wheel washers shall be installed adjacent to the apron indicated in (c) for tire inspection and washing prior to vehicle entry on public roads.

g. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or similar method within 30 minutes of occurrence.

h. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads.

i. Unpaved construction site egress points shall be graveled to prevent track-out.

[7] Operational criteria air pollutant emission sources are categorized in this analysis as area sources (consumer products, reapplication of architectural coating, and landscape maintenance equipment), energy sources (natural gas usage), and mobile sources (vehicle trips).

[8] Sections 3 and 4 discuss what PDFs are quantified in this analysis.

j. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred.

k. Transported material in haul trucks shall be watered or treated.

l. All soil disturbance and travel on unpaved surfaces shall be suspended if winds exceed 25 miles per hour.

m. On-site stockpiles of excavated material shall be covered.

n. A 15 mile per hour speed limit on unpaved surfaces shall be enforced.

o. Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance.

p. Construction traffic control plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.

PDF-AQ-2 **Construction Architectural Coating Limits**. The Proposed Project shall comply with the following volatile organic compound (VOC) content limits for architectural coatings during construction for residential and non-residential and uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings.

Area Sources

PDF-AQ/GHG-1 **Wood Burning Stoves and Fireplaces**. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that no wood burning stoves or fireplaces would be constructed.

Energy Sources

PDF-AQ/GHG-2 **Zero Net Energy Development – Residential Land Uses**. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission.

PDF-AQ/GHG-3 **Non-Residential Energy Improvement Standards.** Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that the Proposed Project's non-residential

land uses shall achieve a 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24, Part 6 of the California Code of Regulations.

PDF-AQ/GHG-4 **Energy Star Appliances**. All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial businesses shall be Energy Star rated or equivalent.

PDF-AQ/GHG-5 **Solar Water Heating**. Prior to the issuance of private recreation center building permits, the Proposed Project applicant or its designee shall submit swimming pool heating design plans to the County of San Diego for review and approval. The design plans shall demonstrate that all swimming pools located at private recreation centers in the Project Area are designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.

PDF-AQ/GHG-6 **Efficient Outdoor Lighting**. Prior to the issuance of permits, the Proposed Project applicant or its designee shall submit building plans that demonstrate that all outdoor lighting shall be (light emitting diodes) LED or other high efficiency lightbulbs

PDF-AQ/GHG-7 **Energy Efficiency Education**. All new home packets shall provide information on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs.

PDF-AQ/GHG-8 **Cool Roofs**. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar reflectance index (SRI) of 64 for a low-sloped roof and an SRI of 32 for a high-sloped roof.

Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating non-residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year SRI of 64 for a low-sloped roof and 32 for a high-sloped roof.

PDF-AQ/GHG-9 **Cool Pavements**. Prior to the issuance of building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that outdoor pavement, such as walkways and patios shall use paving materials with three-year SRI of 0.28 or initial SRI of 0.33.

Mobile Sources

PDF-AQ/GHG-10~~6~~ Electric Vehicle Charging Stations. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit plans for the installation of a dedicated 208/240 dedicated branch circuit will be included in each garage and one Level 2 electric vehicle (EV) charging station in the garage in half of all residential units to the County of San Diego for review and approval. Prior to the issuance of non-residential building permits, the applicant or its designee shall submit plans for the installation of 10 Level 2 EV charging stations in parking spaces located in the Village Core's commercial development area and P1 through P4 park areas to the County of San Diego for review and approval.

As described in the Proposed Project's Transportation Demand Management **(**TDM) Program evaluation memorandum (Chen Ryan 2017a) and identified in the Proposed Project's EIR Section 2.9, Transportation and Traffic, the Proposed Project would employ PDF-TR-1 to reduce the Proposed Project's total vehicle miles traveled (VMT). As detailed below, the TDM Program would facilitate increased opportunities for transit, bicycling, and pedestrian travel, as well as provide the resources, means, and incentives for ride-sharing and carpooling.

PDF-TR-1 Transportation Demand Management. The Proposed Project applicant or its designee shall implement a Transportation Demand Management (TDM) Program to facilitate increased opportunities for transit, bicycling, and pedestrian travel, as well as provide the resources, means, and incentives for ride-sharing and carpooling. The following components are to be included in the TDM Program:

- Develop a comprehensive pedestrian network designed to provide safe bicycle and pedestrian access between the various Proposed Project phases, land uses, parks/open spaces, schools, and the Village Core. Where approved by the appropriate jurisdiction, the pedestrian network would also provide connections to the various recreational trails/pathways and multi-modal facilities accessing the Project Area.
- Provide bicycle racks along main travel corridors adjacent to commercial developments and at public parks and open spaces within the Project Area.
- Coordinate with the San Diego Association of Governments (SANDAG) iCommute program for carpool, vanpool, and rideshare programs that are specific to the Proposed Project.

- Promote available websites providing transportation options for residents and businesses.
- Create and distribute a "new resident" information packet addressing alternative modes of transportation.
- Coordinate with San Diego Metropolitan Transit System and SANDAG about the future siting of transit stops/stations within the Project Area.
- Provide a school carpool program by coordinating with the local school district and SANDAG. Provide dedicated parking space for the school carpool program at the Village Core.
- Implement a school bus program in coordination with the school district.
- Require homeowner's associations within the Project Area to coordinate with the local school district and partner with the on-site elementary school to create a "walking school bus program" for neighborhood students to safely walk to and from school. The Proposed Project applicant would also coordinate with the local school district to encourage the provision of bicycle storage facilities at the on-site elementary school.

1.2.6 Proctor Valley Road North and Trails Options

The Proposed Project includes three options for internal circulation: the Proctor Valley Road North Option, the Preserve Trails Option and the Perimeter Trail Option. The Proposed Project's EIR assesses each of these options and their respective impacts. This will allow the County Board of Supervisors to select the option (or combination of options) it considers best for the Proposed Project and the environment. Each of the options is summarized in Section 1.2.3, above. For detailed descriptions with exhibits, see the Specific Plan, Section VIII, Internal Circulation Options (RH Consulting 2018).

These three options are quantitatively or qualitatively evaluated in this air quality report. Potential criteria air pollutant emissions associated with implementation of the Proctor Valley Road North Option are quantified herein, as discussed in Section 3.2.6 and Section 4.2.1, Construction Impacts, because implementation is anticipated to require additional construction days. Implementation of the Perimeter Trail and Preserve Trail Options are not anticipated to require additional construction activities than evaluated herein; therefore, potential construction of these two options is not anticipated to generate additional criteria air pollutant emissions.

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2 EXISTING CONDITIONS

2.1 Existing Setting

The Project Area is located within the San Diego Air Basin (SDAB) and is subject to San Diego Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is one of 15 air basins that geographically divide California. The SDAB lies in the southwest corner of California. The SDAB comprises the entire San Diego region and covers approximately 4,260 square miles.

2.2 Climate and Meteorology

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. Meteorological and topographical factors that affect air quality in the SDAB are described below.[9]

Regional Climate and Meteorological Conditions

The climate of the San Diego region, as in most of Southern California, is influenced by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The SDAB is characterized as a Mediterranean climate with dry, warm summers and mild, occasionally wet winters. Average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s, with an average of 201 days warmer than 70°F. The SDAB experiences 9 to 13 inches of rainfall annually, with most of the region's precipitation falling from November through March, with infrequent (approximately 10%) precipitation during the summer. El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego, where San Diego receives less than normal rainfall during La Niña years.

[9] The discussion of meteorological and topographical conditions of the SDAB is based on information provided in the SDAPCD *2016 Monitoring Plan* (SDAPCD 2017a), the County of San Diego *Guidelines for Determining Significance – Air Quality* (County of San Diego 2007), the County of San Diego *General Plan Update EIR* (County of San Diego 2011b), and the CARB *Recommended Area Designation for the 2010 Federal Sulfur Dioxide Standard* (CARB 2011).

The interaction of ocean, land, and the Pacific High maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). The winds tend to blow onshore in the day and offshore at night. Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific High, creates a temperature inversion known as a subsidence inversion, which acts as a "lid" to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions that result in the creation of ozone (O_3) at this surface layer. In addition, light winds during the summer further limit ventilation.

In the fall months, the SDAB is often impacted by Santa Ana winds, which are the result of a high-pressure system over the Nevada and Utah regions that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. The Santa Ana winds are powerful and can blow the SDAB's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase O_3 concentrations in the San Diego area.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within San Diego County. The transport of air pollutants from Los Angeles to San Diego can also occur within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

Site-Specific Meteorological Conditions

The local climate in southwestern San Diego County is characterized as semi-arid with consistently mild, warmer temperatures throughout the year. The average summertime high temperature in the region is approximately 81°F, with highs approaching 80°F in August on average, and record highs approaching 104°F in August. The average wintertime low temperature is approximately 43.7°F, although record lows have approached 32°F in January. Average precipitation in the local area is approximately 9 inches per year, with the bulk of precipitation falling between December and March (WRCC 2009).

Topographical Conditions

Topography in the San Diego region varies greatly, from beaches in the west to mountains and desert in the east; much of the topography in between consists of mesa tops intersected by canyon

areas. Along with local meteorology, topography influences the dispersal and movement of pollutants in the SDAB. Mountains to the east prohibit dispersal of pollutants in that direction and help trap pollutants in inversion layers.

The topography of the SDAB also drives pollutant levels, and the SDAB is classified as a "transport recipient," whereby pollutants are transported from the South Coast Air Basin to the north and, when the wind shifts direction, from Tijuana, Mexico, to the south.

2.3 Regulatory Setting

2.3.1 Federal

Criteria Air Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The U.S. Environmental Protection Agency (EPA) is responsible for implementing most aspects of the CAA, including setting the National Ambient Air Quality Standards (NAAQS) for major air pollutants, setting hazardous air pollutant standards, approving state attainment plans, setting motor vehicle emissions standards, setting stationary source emissions standards and approving permits, providing acid rain control measures, implementing stratospheric O_3 protection, and providing enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated timeframes. A more detailed discussion of the NAAQS, as well as the CAAQS (discussed below), is provided in Appendix E.

Hazardous Air Pollutants

The 1977 federal CAA amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. Hazardous air pollutants include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA

amendments, which expanded the control program for hazardous air pollutants, 187 substances and chemical families were identified as hazardous air pollutants.

2.3.2 State

Criteria Air Pollutants

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to the California Air Resources Board (CARB), with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the CAA, and regulating emissions from motor vehicles and consumer products.

CARB established the California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

California air districts have based their thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health.

The NAAQS and CAAQS are presented in Table 2.

Table 2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day Average	1.5 µg/m³	—	—
	Calendar Quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24- hours	25 µg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016a.

Notes: µg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

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

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

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

A toxic air contaminant (TAC) is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health. Federal laws use "hazardous air pollutants" to refer to the same types of compounds that are referred to as TACs under state law. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill (AB) 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. Pursuant to AB 2588, existing facilities that emit air pollutants above specified level were required to prepare a TAC emission inventory plan and report; prepare a risk assessment if TAC emissions were significant; notify the public of significant risk levels; and, if health impacts were above specified levels, prepare and implement risk reduction measures.

The following regulatory measures pertain to the reduction of diesel particulate matter and criteria pollutant emissions from off-road equipment and diesel-fueled vehicles.

Idling of Commercial Heavy-Duty Trucks

In July 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to control emissions from idling trucks (13 CCR 2485). The ATCM prohibits idling for more than 5 minutes for all commercial trucks with a gross vehicle weight rating over 10,000 pounds. The ATCM contains an exception that allows trucks to idle while queuing or involved in operational activities.

In-Use Off-Road Diesel-Fueled Fleets

In July 2007, CARB adopted an ATCM for in-use off-road diesel vehicles (13 CCR 2449 et seq.). This regulation requires that specific fleet average requirements are met for NO_x emissions and for particulate matter emissions. Where average requirements cannot be met, Best Available Control Technology (BACT) requirements apply. The regulation also includes several recordkeeping and reporting requirements.

In response to AB 8 2X, the regulations were revised in July 2009 (effective December 3, 2009) to allow a partial postponement of the compliance schedule in 2011 and 2012 for existing fleets. On December 17, 2010, CARB adopted additional revisions to further delay the deadlines reflecting reductions in diesel emissions due to the poor economy and overestimates of diesel emissions in California. The revisions delayed the first compliance date until no earlier than January 1, 2014, for large fleets, with final compliance by January 1, 2023. The compliance dates for medium fleets were delayed until an initial date of January 1, 2017, and final compliance date of January 1, 2023. The compliance dates for small fleets were delayed until an initial date of January 1, 2019, and final compliance date of January 1, 2028. Correspondingly, the fleet average targets were made more stringent in future compliance years. The revisions also accelerated the phase-out of equipment with older equipment added to existing large and medium fleets over time, requiring the addition of Tier 2 or higher engines starting on March 1, 2011, with some exceptions: Tier 2 or higher engines on January 1, 2013, without exception; and Tier 3 or higher engines on January 1, 2018 (January 1, 2023, for small fleets).

On October 28, 2011 (effective December 14, 2011), the Executive Officer of CARB approved amendments to the regulation. The amendments included revisions to the applicability section and additions and revisions to the definition. The initial date for requiring the addition of Tier 2 or higher engines for large and medium fleets, with some exceptions, was revised to January 1, 2012. New provisions also allow for the removal of emissions control devices for safety or visibility purposes. The regulation also was amended to combine the particulate matter and NO_x fleet

average targets under one, instead of two, sections. The amended fleet average targets are based on the fleet's NO_x fleet average, and the previous section regarding particulate matter performance requirements was deleted completely. The BACT requirements, if a fleet cannot comply with the fleet average requirements, were restructured and clarified. Other amendments to the regulations included minor administrative changes to the regulatory text.

In-Use On-Road Diesel-Fueled Vehicles

On December 12, 2008, CARB adopted an ATCM to reduce NO_x and particulate matter emissions from most in-use on-road diesel trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds (13 CCR 2025). The original ATCM regulation required fleets of on-road trucks to limit their NO_x and particulate matter emissions through a combination of exhaust retrofit equipment and new vehicles. The regulation limited particulate matter emissions for most fleets by 2011, and limited NO_x emissions for most fleets by 2013. The regulation did not require any vehicle to be replaced before 2012, and never required all vehicles in a fleet be replaced.

In December 2009, the CARB Governing Board directed staff to evaluate amendments that would provide additional flexibility for fleets adversely affected by the poor California economy. On December 17, 2010, CARB revised this ATCM to delay its implementation, along with limited relaxation of its requirements. Starting on January 1, 2015, lighter trucks with a gross vehicle weight rating of 14,001 to 26,000 pounds with 20-year-old or older engines needed to be replaced with newer trucks (2010 model year emissions equivalent as defined in the regulation). Trucks with a gross vehicle weight rating greater than 26,000 pounds with 1995 model year or older engines needed to be replaced by January 1, 2015. Trucks with 1996–2006 model year engines had to install a Level 3 (85% control) diesel particulate filter starting on January 1, 2012, to January 1, 2014, depending on the model year, and then be replaced after 8 years. Trucks with 2007–2009 model year engines have no requirements until 2023, at which time they must be replaced with 2010 model year emissions-equivalent engines as defined in the regulation. Trucks with 2010 model year engines would meet the final compliance requirements. The ATCM provides a phase-in option under which a fleet operator would equip a percentage of trucks in the fleet with diesel particulate filters, starting at 30% by January 1, 2012, with 100% by January 1, 2016.

On September 19, 2011 (effective December 14, 2011), the Executive Officer of CARB approved amendments to the regulations, including revisions to the compliance schedule for vehicles with a gross vehicle weight rating of 26,000 pounds or less to clarify that all vehicles must be equipped with 2010 model year emissions-equivalent engines by 2023. The amendments included revised and additional credits for fleets that have downsized; that implement early particulate matter retrofits; that incorporate hybrid vehicles, alternative-fueled vehicles, and/or vehicles with heavy-duty pilot ignition engines; and/or that implement early addition of newer vehicles. The

amendments included provisions for additional flexibility, such as for low-usage construction trucks, and revisions to previous exemptions, delays, and extensions. Other amendments to the regulations included minor administrative changes to the regulatory text, including recordkeeping and reporting requirements related to other revisions.

California Health and Safety Code Section 41700

Section 41700 of the California Health and Safety Code states that a person cannot discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.3.3 Local

San Diego Air Pollution Control District

Although CARB is responsible for the regulation of mobile emissions sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The Project Area is located within the SDAB and is subject to the guidelines and regulations of the SDAPCD.

In the County, O_3 and particulate matter are the pollutants of main concern, since exceedances of state ambient air quality standards for those pollutants are experienced in the County in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, an O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only, including the Project Area).

Federal Attainment Plans

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS). The 2016 Eight-Hour Ozone Attainment Plan for San Diego County indicates that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016a). In this plan, SDAPCD relies on the Regional Air Quality Strategy (RAQS) to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NOx and VOCs) by identifying measures and regulations intended to reduce these pollutants. The control measures identified in the RAQS generally focus on stationary

sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

Currently, the County is designated as moderate nonattainment for the 2008 NAAQS and maintenance for the 1997 NAAQS. As documented in the 2016 8-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low emissions cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. The County will also continue emissions control measures, including ongoing implementation of existing regulations in ozone precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and adoption of laws requiring Best Available Retrofit Control Technology for control of emissions (SDAPCD 2016a).

State Attainment Plans

The SDAPCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated on a triennial basis, most recently in 2016 (SDAPCD 2016b). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast 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 the County and the cities in the County as part of development of their general plans (SANDAG 2017a, 2017b).

In December 2016, the SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region reduced daily VOC emissions and NOx emissions by 3.9% and 7.0% respectively; the SDAPCD expects to continue reductions through 2035 (SDAPCD 2016b). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in the SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, the SDAPCD is considering additional measures, including three VOC measures and four control measures to reduce 0.3 daily tons of VOC and 1.2 daily tons of NO_x, provided the control measures are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emissions offset repeal.

In regards to particulate matter emissions reduction efforts, in December 2005, the SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill 656 in San Diego County (Senate Bill 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

SDAPCD Rules and Regulations

SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD, and would apply to the Proposed Project:

SDAPCD Regulation II: Permits; Rule 20.2: New Source Review Non-Major Stationary Sources. Requires new or modified stationary source units (that are not major stationary sources) with the potential to emit 10 pounds per day or more of VOC, NO_x, sulfur oxides (SO_x), or PM_{10} to be equipped with BACT. For those units with a potential to emit above Air Quality Impact Assessments Trigger Levels, the units must demonstrate that such emissions would not violate or interfere with the attainment of any national air quality standard (SDAPCD 2016b).

The Proposed Project does not propose specific stationary sources. If stationary sources were to be included as part of the Proposed Project, or at a later date, those sources would be subject to Rule 20.2 and would require appropriate operating permits from the SDAPCD. Because the SDAPCD has not adopted specific criteria air pollutant thresholds for analyses under the California Environmental Quality Act (CEQA), the thresholds identified in Rule 20.2 are used in this analysis as screening-level thresholds to evaluate project-level impacts, as discussed in Section 3.1.

SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions. Prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes that is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

Construction of the Proposed Project may result in visible emissions, primarily during earth-disturbing activities, which would be subject to SDAPCD Rule 50. Although visible emissions are less likely to occur during operation of the Proposed Project, compliance with SDAPCD Rule 50 would be required during both construction and operational phases.

SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).

Any criteria air pollutant emissions, TAC emissions, or odors that would be generated during construction or operation of the Proposed Project would be subject to SDAPCD Rule 51. Violations can be reported to the SDAPCD in the form of an air quality compliant by telephone, email, or online form. Complaints are investigated by SDAPCD as soon as possible.

SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009b).

Construction of the Proposed Project, primarily during earth-disturbing activities, may result in fugitive dust emissions that would be subject to SDAPCD Rule 55. Implementation of PDF-AQ-1 would limit fugitive dust emissions through a fugitive dust control plan, as outlined in Rule 55.[10] Fugitive dust emissions are not anticipated during operation of the Proposed Project.

SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015a). Construction and operation of the Proposed Project would include application of architectural coatings (e.g., paint and other finishes) that are subject to SDAPCD Rule 67.0.1. Implementation of PDF-AQ-2 would limit the VOC content for interior and exterior coatings during construction of the Proposed Project's residential and non-residential land uses, and is more restrictive than the VOC content limits identified in SDAPCD Rule 67.0.1. Architectural coatings used in the reapplication of coatings during operation of the Proposed Project would be subject to the VOC content limits identified in SDAPCD Rule 67.0.1, which applies to coatings manufactured, sold, or distributed within San Diego County.[11]

[10] Specific assumptions included in CalEEMod in compliance with Rule 55 are included in Table 15.
[11] Specific assumptions included in CalEEMod in compliance with Rule 67.0.1 are included in Table 15.

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1200: Toxic Air Contaminants - New Source Review. Requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above 1 in 1 million at every receptor location, or demonstrate that toxics best available control technology (T-BACT) will be employed if maximum incremental cancer risk is equal to or less than 10 in 1 million, or demonstrate compliance with SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in 1 million but less than 100 in 1 million (SDAPCD 2017b).

The Proposed Project does not propose specific stationary sources that would generate TACs that are not commonly associated with residential development projects. If stationary sources with the potential to emit TACs were to be included as part of the Proposed Project, or at a later date, those sources would be subject to SDAPCD Rule 1200, and would be subject to New Source Review requirements.

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction. Requires each stationary source that is required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute noncancer health hazard index equal to or greater than 1.0, or total chronic noncancer health hazard index equal to or greater than 1.0 (SDAPCD 2017c).

The Proposed Project does not propose specific stationary sources that would generate TACs. If stationary sources with the potential to emit TACs were to be included as part of the Proposed Project, or at a later date, those sources would be subject to SDAPCD Rule 1210, and would be subject to Public Notification and Risk Reduction requirements. The thresholds identified in Rule 1210 are used in this analysis as thresholds for the health risk assessment, which are consistent with the SDAPCD health risk assessment guidelines (SDAPCD 2015b).

San Diego Association of Governments

SANDAG is the regional planning agency for the County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for the County. With respect to air quality planning and other regional issues, SANDAG prepared its San Diego Forward: The Regional Plan (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how the region will grow over the next 35 years with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy, is built on an integrated set of public policies, strategies, and

investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050 (SANDAG 2015).

The Regional Plan sets the policy context for how SANDAG participates in and responds to the SDAPCD's air quality plans, and builds off the SDAPCD's air quality plan processes that are designed to meet health-based criteria pollutant standards (SANDAG 2015). The Regional Plan complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support technology-based control measures in air quality plans. The Regional Plan also emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution (SANDAG 2015).

On September 23, 2016, SANDAG's Board of Directors adopted the final 2016 Regional Transportation Improvement Program (RTIP). The 2016 RTIP is a multi-billion dollar, multi-year program of proposed major transportation projects in the San Diego region. Transportation projects funded with federal, state, and TransNet (the San Diego transportation sales tax program) must be included in an approved RTIP. The programming of locally funded projects also may be programmed at the discretion of SANDAG. The 2016 RTIP covers 5 fiscal years and incrementally implements the Regional Plan (SANDAG 2016).

San Diego County

County Code Section 87.428, Dust Control Measures. As part of the San Diego County Grading, Clearing, and Watercourses Ordinance, County Code Section 87.428 requires all clearing and grading to be carried out with dust control measures adequate to prevent creation of a nuisance to people or public or private property. Clearing, grading, or improvement plans must require that measures be undertaken to achieve this result, including watering, application of surfactants,[12] shrouding, control of vehicle speeds, paving access areas, or implementing other operational or technological measures to reduce dispersion of dust. These project design measures are to be incorporated into all earth-disturbing activities to minimize the amount of particulate matter emissions from construction (County of San Diego 2004).

County Zoning Ordinance Section 6318. Section 6318 of the San Diego County Zoning Ordinance requires that all commercial and industrial uses be operated so as not to emit matter causing unpleasant odors that are perceptible by the average person at or beyond any lot line of the lot

[12] Surfactants are compounds that lower surface tension between liquids or between a solid and a liquid, such as a detergent.

containing said uses. Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses" (County of San Diego 1979).

2.4 Background Air Quality

2.4.1 Pollutants and Effects

Criteria Air Pollutants

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. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. These pollutants are discussed below.[13] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. A more detailed discussion of health effects of criteria air pollutants is provided in Appendix E.

Ozone (O_3). O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone).[14] The O_3 that the EPA and CARB regulate as a criteria air pollutant is produced close to the ground, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern

[13] The descriptions of health effects herein for each of the criteria air pollutants associated with Proposed Project construction and operation are based on EPA's Six Common Air Pollutants (EPA 2017) and CARB's Glossary of Air Pollutant Terms (CARB 2017).

[14] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward approximately 5 miles at the poles and approximately 10 miles at the equator.

changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, older adults, and young children.

Nitrogen Dioxide (NO_2). NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a).

Carbon Monoxide (CO). CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas November through February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide (SO_2). SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary-source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter (PM). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and VOCs.

PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{10} and $PM_{2.5}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces where they settle, and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and older adults may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead (Pb). Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead.

Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds (VOCs). Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the main sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Pollutants

Toxic Air Contaminants (TACs). 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 and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In 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, AB 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples of TACs include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. 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.

Diesel Particulate Matter (DPM). Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (approximately 1/70th the diameter of a human hair), and is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including more than 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 CCR 93000). DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars, and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and older adults who have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and is quite subjective, since people may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an

alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

Valley Fever is not considered highly endemic to San Diego. Per the San Diego County Health and Human Services Agency, the 10-year average (2007–2016) for Coccidioidomycosis cases in San Diego County is 4.4 cases per 100,000 people per year (HHSA 2017). For the three zip codes in the Project Area (91914, 91935, and 91978), the incidence of Coccidioidomycosis is either less than the average County rate or had too few cases to be reliably used to calculate a rate (Nelson 2017).[15] Statewide incidences in 2016 were 13.7 per 100,000 people (CDPH 2016).

Even if present at a site, earth-moving activities may not result in increased incidence of Valley Fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. *Coccidioides immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing Valley Fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

2.4.2 San Diego Air Basin Attainment Designation

Pursuant to the 1990 CAA amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. As previously discussed, these standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air

[15] Per the County of San Diego Health & Human Services Agency, Coccidioidomycosis incidence counts for a single year and a single zip code are too small to work with; therefore, incidence counts reflect 10 years of aggregated data (2007–2016) (Nelson 2017). For zip code 91914, the number of cases was 7, reflecting a rate of 4.3 cases per 100,000 people. For zip codes 91935 and 91978, the number of cases was 3 for both, and rates were not calculated for counts less than 5 cases.

without unacceptable effects on human health or the public welfare. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/ attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than NAAQS. The attainment classifications for the criteria pollutants are listed in Table 3.

Table 3
San Diego Air Basin Attainment Classification

Pollutant	Federal Designation	State Designation
O_3 (1-hour)	Attainment[a]	**Nonattainment**
O_3 (8-hour – 1997) (8-hour – 2008)	Attainment (Maintenance) **Nonattainment (Moderate)**	**Nonattainment**
NO_2	Unclassifiable/Attainment	Attainment
CO	Attainment (Maintenance)	Attainment
SO_2	Unclassifiable/Attainment	Attainment
PM_{10}	Unclassifiable/Attainment	**Nonattainment**
$PM_{2.5}$	Unclassifiable/Attainment	**Nonattainment**
Lead	Unclassifiable/Attainment	Attainment
Sulfates	No federal standard	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2016b (federal); CARB 2016b (state).
Notes:
Bold text = not in attainment; Attainment = meets the standards; Attainment (Maintenance) = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
[a] The federal 1-hour standard of 0.12 parts per million was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in SIPs.

The SDAB is designated as an attainment area for the 1997 8-hour O_3 NAAQS and as a nonattainment area for the 2008 8-hour O_3 NAAQS. The SDAB is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ CAAQS. The portion of the SDAB where the Project Area is located is designated as attainment or unclassifiable/unclassified for all other criteria pollutants under the NAAQS and CAAQS.

2.4.3 Air Quality Monitoring Data

The SDAPCD operates a network of 11 ambient air monitoring stations throughout the County that measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and NAAQS. Due to its proximity to the Project Area and similar geographic and climactic characteristics, the Otay Mesa-Donovan – Richard J Donovan Correctional Facility monitoring station monitors concentrations for all pollutants except $PM_{2.5}$, CO, and SO_2, and is considered most representative of the Project Area. The two El Cajon monitoring stations, one located on Floyd Smith Drive and the other located on Redwood Avenue, are the nearest stations to the Project Area where CO and SO_2 concentrations are monitored. The Chula Vista 80 East J Street is the closest station where $PM_{2.5}$ concentrations are monitored. Ambient concentrations of pollutants from 2014 through 2016 are presented in Table 4, Local Ambient Air Quality Data. The number of days exceeding the NAAQS and CAAQS is also shown in Table 4.

Table 4
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Ozone (O_3)										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	ppm	Maximum 1-hour concentration	State	0.09	0.082	0.087	0.092	0	0	0
	ppm	Maximum 8-hour concentration	State	0.070	0.075	0.071	0.075	1	1	4
			Federal	0.070	0.075	0.071	0.075	1	1	4
Nitrogen Dioxide (NO_2)										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	ppm	Maximum 1-hour concentration	State	0.18	0.064	0.061	0.067	0	0	0
			Federal	0.100	0.064	0.061	0.067	0	0	0
	ppm	Annual concentration	State	0.030	—	0.008	0.008	0	0	0
			Federal	0.053	—	0.008	0.008	0	0	0
Carbon Monoxide (CO)										
El Cajon – Floyd Smith Drive (2014, 2015)	ppm	Maximum 1-hour concentration	State	20	1.5	1.4	1.6	0	0	0
			Federal	35	1.5	1.4	1.6	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	1.1	1.1	1.0	0	0	0
			Federal	9	1.1	1.1	1.0	0	0	0

Table 4
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Sulfur Dioxide (SO_2)										
El Cajon – Floyd Smith Drive (2014, 2015)	ppm	Maximum 1-hour concentration	Federal	0.075	0.012	0.012	0.018	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.140	0.05	0.04	0.02	0	0	0
	ppm	Annual concentration	Federal	0.030	—	—	—	—	—	—
Coarse Particulate Matter (PM_{10})[a]										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	µg/m³	Maximum 24-hour concentration	State	50	58.0	136.0	79.0	—	61.0	54.1
			Federal	150	59.0	136.0	79.0	0	0	0
	µg/m³	Annual concentration	State	20	—	—	—	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Chula Vista – 80 E. 'J' Street	µg/m³	Maximum 24-hour concentration	Federal	35	26.5	33.5	23.9	0	0	0
	µg/m³	Annual concentration	State	12	9.3	8.4	8.7	0	0	0
			Federal	12.0	9.2	8.3	8.7	0	0	0

Sources: CARB 2016c; EPA 2016c.

Notes: — = not available or applicable; µg/m³ = micrograms per cubic meter; ppm = parts per million

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

Otay Mesa-Donovan – Richard J Donovan Correctional Facility monitoring station is located at 480 Alta Road, San Diego, California.

Chula Vista – 80 E. 'J' Street monitoring station is located at 80 East J Street, Chula Vista, California

El Cajon – Redwood Avenue monitoring station is located at 1155 Redwood Avenue, El Cajon, California.

El Cajon – Floyd Smith Drive monitoring station is located at 10537 Floyd Smith Drive, El Cajon, California.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

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3 SIGNIFICANCE CRITERIA AND ANALYSIS METHODOLOGIES

3.1 Thresholds of Significance

California has developed guidelines to address the significance of air quality impacts that are contained in Appendix G of the CEQA Guidelines. Based on those guidelines, a project would have a significant environmental impact if it would:

1. Conflict with or obstruct the implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors);
4. Expose sensitive receptors to substantial pollutant concentrations; or
5. Create objectionable odors affecting a substantial number of people.

The following significance thresholds for air quality are based on criteria provided in the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007). The County's guidelines were adapted from Appendix G of the CEQA Guidelines listed above.

A significant impact would result if any of the following would occur:

- The project would conflict with or obstruct the implementation of the SDAPCD's RAQS and/or applicable portions of the SIP.
- The project would result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation:
    - The project would result in emissions that exceed 250 pounds per day of NO_x or 75 pounds per day of VOCs;
    - The project would result in emissions of CO that, when totaled with the ambient concentration, would exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm;
    - The project would result in emissions of $PM_{2.5}$ that exceed 55 pounds per day;

- The project would result in emissions of PM_{10} that exceed 100 pounds per day and increase the ambient PM_{10} concentrations by 5 micrograms per cubic meter ($\mu g/m^3$) or greater at the maximum exposed individual.

- The project would result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is in nonattainment under an applicable federal or state Ambient Air Quality Standard.
  - The following guidelines for determining significance must be used for determining whether the net increase during the construction phase is cumulatively considerable:
    - A project that has a significant direct impact on air quality with regard to construction-related emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs would also have a significant cumulatively considerable net increase;
    - In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the construction-related emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines, including the SDAPCD's screening-level thresholds.
  - The following guidelines for determining significance must be used for determining whether the net increase during the operational phase is cumulatively considerable:
    - A project that does not conform to the SDPACD's RAQS and/or has a significant direct impact on air quality with regard to operational-related emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs would also have a significant cumulatively considerable net increase;
    - Projects that cause road intersections to operate at or below level of service E (analysis required only when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO hotspot create a cumulatively considerable net increase of CO.
    - In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the operational-related emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines, including the SDAPCD's screening-level thresholds.

- The project would expose sensitive receptors to substantial pollutant concentrations.
- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors;
- Project implementation would result in exposure to TACs resulting in a:
  - Maximum incremental cancer risk equal to or greater than 10 in one million, or
  - Cancer burden equal to or greater than 1.0, or
  - Total acute non-cancer health hazard index equal to or greater than 1.0, or
  - Total chronic non-cancer health hazard index equal to or greater than 1.0.
- The project, which is not an agricultural, commercial, or an industrial activity subject to SDAPCD standards, as a result of implementation, would either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public.

As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of an Air Quality Impact Assessment for permitted stationary sources. The SDAPCD sets forth quantitative emissions thresholds below which a stationary source would not have a significant impact on ambient air quality. Proposed Project air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 5, SDAPCD Air Quality Significance Thresholds, are exceeded.

Table 5
SDAPCD Air Quality Significance Thresholds

Construction Emissions	
Pollutant	*Total Emissions (Pounds per Day)*
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	55
Oxides of Nitrogen (NO_x)	250
Oxides of Sulfur (SO_x)	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOC)	75 [a]

Table 5
SDAPCD Air Quality Significance Thresholds

Operational Emissions			
	Total Emissions		
Pollutant	*Pounds per Hour*	*Pounds per Day*	*Tons per Year*
Respirable Particulate Matter (PM_{10})	—	100	15
Fine Particulate Matter ($PM_{2.5}$)	—	55	10
Oxides of Nitrogen (NO_x)	25	250	40
Sulfur Oxides (SO_x)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	—	3.2	0.6
Volatile Organic Compounds (VOC)	—	75[a]	13.7

Sources: SDAPCD Rules 1501 (SDAPCD 1995) and 20.2(d)(2) (SDAPCD 2016c).

[a] VOC threshold based on the threshold of significance for VOC from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

The thresholds listed in Table 5 represent screening-level thresholds that can be used to evaluate whether Proposed Project emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. The emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "O_3 significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly (see the discussion of O_3 and its sources in Section 2.4.1, Pollutants and Effects) 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. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 5, the Proposed Project could have the potential to result in a cumulatively considerable net increase in these pollutants, and, thus, could have a significant impact on ambient air quality.

The County's health risk guidance is derived from SDAPCD Rule 1200, which states that permits to operate may not be issued when TAC emissions result in an incremental cancer risk greater than 1 in 1 million without application of T-BACT, or an incremental cancer risk greater than 10 in 1 million with application of T-BACT. Per the County's guidance, T-BACT is determined on a case-by-case basis; however, an example of T-BACT includes diesel particulate filters. The Proposed Project would use construction equipment that meets Tier 4 Interim standards, as required by mitigation measure M-AQ-4. To meet stringent Tier 4 Interim particulate matter emissions standards, equipment manufacturers typically use diesel particulate filters, selective catalytic reduction system that employ diesel particulate filters or combination diesel particulate filters and diesel oxidation catalysts, or other equivalent device to remove DPM from the exhaust of a diesel engine. As such, T-BACT is reasonably expected

to be achieved by the Proposed Project's construction equipment fleet. In addition, other T-BACT and CARB regulations would be applicable to the Proposed Project, including Idling of Commercial Heavy Duty Trucks (13 CCR Section 2485), In-Use Off-Road Diesel-Fueled Fleets (13 CCR Section 2449 et seq.), and In-Use On-Road Diesel-Fueled Vehicles (13 CCR Section 2025), as described in Section 2.3.2, Regulatory Setting (State). Because T-BACT is incorporated, the construction health risk assessment for the Proposed Project applies the maximum incremental cancer risk equal to or greater than 10 in 1 million threshold to evaluate the significance of health risk impacts.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of people or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

3.2 Construction Emissions Methodology

Emissions from the construction phase of the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod)[16] Version 2016.3.1[17] (CAPCOA 2016). Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the applicant and CalEEMod default values when Proposed Project specifics were not known.

[16] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria air pollutant emissions from a variety of land use projects.

[17] CalEEMod Version 2016.3.1 was the current version of CalEEMod when the Proposed Project analysis was initiated. In October 2017, CalEEMod Version 2016.3.2 was released, followed by CalEEMod Version 2016.3.2.25 in November 2017, which fixed a Windows security update issue in Version 2016.3.2. CalEEMod Version 2016.3.2 included five upgrades and 10 bug fixes. The most notable upgrade and bug fix, respectively, is the incorporation of percent reductions in default energy consumption to reflect compliance with the 2016 Title 24, Part 6 Building Energy Efficiency Standards and fixing the bug that overestimated annual construction PM_{10} and $PM_{2.5}$ emissions from fugitive dust in multiple year scenario runs (SCAQMD 2017). All CalEEMod Version 2016.3.2 updates were reviewed and it was determined that use of CalEEMod Version 2016.3.2 is not anticipated to result in greater criteria air pollutant emissions compared to estimated Proposed Project emissions generated using CalEEMod Version 2016.3.1. Accordingly, use of CalEEMod Version 2016.3.1 is appropriate for the Proposed Project's air quality analysis.

3.2.1 Overall Schedule

For purposes of estimating Proposed Project emissions, and based on information provided by the applicant, it is assumed that construction of the Proposed Project would commence in July 2019[18] and would last approximately 9 years, ending in December 2027. The analysis contained herein is based on the following subset area schedule assumptions (duration of phases is approximate):

- South Village 14: July 2019 – May 2023
  - Residential: July 2019 – May 2023
  - Non-residential: April 2021 – January 2022
- Central Village 14: November 2020 – July 2026
  - Residential: November 2020 – July 2026
  - Non-residential: April 2023 – July 2026
- North Village 14: June 2022 – December 2025
  - Residential: June 2022 – June 2025
  - Non-residential: May 2024 – December 2025
- Planning Areas 16/19: April 2023 – December 2027
  - Residential: April 2023 – December 2027
- Off-site improvements: July 2019 – September 2023

For modeling purposes, site preparation and mass grading phases, which are discussed in detail below, were included in the residential development construction scenario; as such, the construction duration associated with those phases are included in the residential duration estimates presented above.

3.2.2 Mass Project Area Grading

Cut-and-fill quantities would be balanced on site (within the Project Area), and no external soil export would be required. Soil balance would occur within each subset area, and hauling would not be required between subset areas. Approximately 8,350,000 cubic yards of cut and fill would

[18] The analysis assumes a construction start date of July 2019, which represents the earliest date construction would initiate. 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.

occur within the Project Area, which is broken down by subset area in Table 6, Construction Grading Assumptions. Mass Project Area grading would also include construction and installation of retaining walls, as needed.

With the exception of construction of South Proctor Valley Road, as discussed below, all other balancing activities are anticipated to be performed through the use of off-road construction equipment (e.g., excavators, graders, dozers, and scrapers). However, to present a conservative analysis, the use of haul trucks to transport a small portion (i.e., 2%) of the excavated soil within each subset area was assumed. This approach is considered conservative because moving of earth material to balance the site is anticipated to be performed using off-road construction equipment, as assumed in CalEEMod. If haul trucks were used to transport earth material instead of construction equipment, it is thereby reasonable to anticipate that a reduction in construction equipment operation hours would occur. Assuming operation of both construction equipment and haul trucks to perform the same activity is considered a conservative emissions modeling approach. For modeling purposes, it was assumed that approximately ~~166,150~~166,155 cubic yards of soil would be relocated within the Project Area (Hunsaker and Associates Inc. 2017), which is broken down by area in Table 6.

To estimate emissions from trucks hauling excavated rock and soil to various portions of the Project Area, daily haul truck quantities were estimated using a hauling capacity of 12 cubic yards. Average travel distances were estimated based on internal site movement of soil for grading of individual subset areas.

Table 6
Construction Grading Assumptions

Subset Area	Grading Period (work days)	On-Site Soil Cut and Fill (cubic yards)	Assumed On-Site Soil Movement (cubic yards)	Average On-Site Haul Distance (miles)
South Village 14	66	1,408,000	28,160	0.5
Central Village 14	239	4,371,000	87,420	0.5
North Village 14	87	750,734	15,015	0.5
Planning Areas 16/19	129	1,778,000	35,560	0.5

Source: Hunsaker and Associates Inc. 2017.
Note: It was assumed that 2% of the total on-site soil cut and fill would be relocated internally.

Off-site improvements is anticipated to result in 48 acres of disturbance (i.e., acres graded) over 122 days.

To construct South Proctor Valley Road, approximately 240,000 cubic yards of fill would be transported from South Village 14 to South Proctor Valley Road. For purposes of this analysis,

120,000 cubic yards (50%) of that total are assumed to be transported using 100-ton rock trucks, which are categorized as off-highway trucks in CalEEMod. These off-highway trucks would transport fill from South Village 14 to the farthest reaches of Proctor Valley Road, resulting in a one-way trip length between approximately 0.75 and 1.5 miles. Off-road construction equipment, such as graders and scrapers, would move the remaining 120,000 cubic yards (50%) of that total from South Village 14 to the closest portions of Proctor Valley Road, resulting in a one-way trip length between approximately 0.1 and 0.75 miles. The following paragraphs describe the methodologies used to estimate the emissions associated with this aspect of the Proposed Project's construction phase.

To estimate the daily number of 100-ton rock trucks required to transport 120,000 cubic yards over 19 days (the estimated duration of this construction activity), it was assumed that each truck would have a capacity of 97 cubic yards, thereby requiring approximately 65 total round trip truck trips per day.[19] Assuming a speed of 15 miles per hour, an average one-way trip distance of 1.1 miles (2.2 miles round trip),[20] 30 minutes per round trip,[21] and an 8-hour operation day, each truck is estimated to complete a minimum of 16 round trips per day. Accordingly, four off-highway trucks operating at 8 hours per day was assumed to be required to transport 120,000 cubic yards over 19 days.[22]

As for the remaining 120,000 cubic yards of fill required for construction of South Proctor Valley Road that would be transported using off-road construction equipment, operation of such equipment is captured by the off-site grading CalEEMod run (discussed above; see Appendix A). Accordingly, no additional off-road construction equipment was needed in the Proctor Valley Road CalEEMod run, which was modeled separately from the off-site grading CalEEMod run (see Appendix A). The Proctor Valley Road CalEEMod run evaluates emissions associated with grading (off-highway, rock truck operation and fugitive dust), paving, and asphalt striping (see Appendix A). Proposed Project roads would be constructed as early as possible, and internal haul roads would be maintained with soil stabilizer, which would reduce construction-related vehicular dust emissions from unpaved roads. For the purposes of a conservative analysis, emissions have

[19] Calculation parameters:
120,000 cubic yards ÷ 19 days of construction activity = 6,315 cubic yards per day
6,315 cubic yards per day ÷ 97 cubic yards per truck = 65 truck trips

[20] The minimum one-way distance a rock truck would travel to transport fill material, versus transporting fill using off-road construction equipment, was assumed to be 0.75 miles. The maximum one-way distance a rock truck would travel to transport fill material was assumed to be 1.5 miles. Accordingly, an average one-way distance of 1.1 miles (0.75 + 1.5 = 2.25 miles; 2.25 miles ÷ 2 = 1.1 miles) was assumed for the rock truck (off-highway truck) travel.

[21] The estimated average 30-minute trip duration conservatively assumes 10 minutes total travel time per trip (5 minutes each direction traveling at 15 miles per hour and a 1.1-mile one-way trip length), 15 minutes for loading, and 5 minutes for unloading.

[22] Mathematically, four trucks completing 16 round-trips a day would total 64 round-trips per day. Because of the conservative assumptions regarding trip time and other averages used in the calculations, it is anticipated that four trucks can accomplish 65 round trips in one day.

been estimated to assume all on-site haul truck would occur on unpaved surfaces. Workers and vendors would travel to the Project Area on paved roads in the County of San Diego and City of Chula Vista before reaching the Project Area. To reflect these likely routes and minimal driving on site, worker and vendor trips were assumed to occur on unpaved surfaces 2% of the time. See Section 3.2.7, Vehicle Trips, for a discussion of haul trucks trip assumptions.

3.2.3 Residential Development Phasing and Equipment

For each distinct subset area, including South Village 14, Central Village 14, and North Village 14, a mass initial site preparation phase was assumed that would entail clearing and grubbing activities (e.g., removal of vegetation). Following the initial site preparation phase, a mass grading phase would occur that would prepare the entire subset area for subsequent development activities (e.g., utilities, landscaping, paving, and building construction) (see Section 3.2.2 for grading assumptions). Utility installation and slope landscaping was assumed to occur after grading is complete, but in some subset areas, would occur concurrently with other post-grading construction phases such as paving and building construction. Utility installation would include trenching to install water, wastewater, sewer, and fiber-optic lines. Slope landscaping would include site improvement and fine grading, and other types of landscaping would include construction and planting of parks.

For each subset area, residential construction was broken down into distinct phases, each with an estimated number of housing products and total units developed. The total homes built within each phase would differ, but for emissions estimation purposes, it was assumed that each of the residential construction phases would occur over a 5-month period. Month 1 of the building construction phase would entail lot preparation where smaller grading-type equipment would perform minor residential site preparation activities (fine grading), residential utility lines would be installed, and a concrete pad would be poured for each of the lots identified in that phase. Months 2 through 4 would involve typical vertical construction of the residential buildings, including framing, wiring, and plumbing. Month 5 would include drywall and flooring installation, and lot finishing, such as driveway concrete pouring.

The architectural coating phase, which would involve application of paints and other finishes, would occur during months 3 and 4, concurrent with the vertical building construction phases. Although vertical construction and architectural coating would not occur simultaneously on the same residence, since dry wall construction would need to be completed prior to painting activities, it is reasonable to assume that architectural coating and building construction would occur concurrently in the 5-month phase because the construction crew could be working on two or more residential units concurrently. Since the construction crew would proceed from lot to lot in sequence, interior and/or exterior architectural coating could occur at one residential unit while

construction of another unit on a different lot is in progress (e.g., construction crew would be painting residence 1 while framing residence 2).

Prior to each of the residential development phases, a paving phase would occur that would include internal circulation pavement installation (i.e., paving of neighborhood streets).

In summary, for residential development at each distinct subset area, the following general construction phases were assumed for residential development:

- Site preparation (Development Footprint): 1 month
- Grading (Development Footprint): ranging from 3 months to 11 months[23]
- Utility installation and slope landscaping (Development Footprint): ranging from ~~5~~ 6 to 8 months[24]
- Slope landscaping or park landscaping (Development Footprint): ranging from 6 to 8 months
- For each neighborhood phase:
    - Paving: 1 month
    - Building construction: 5 months total, consisting of the following:
        - Lot and pad site preparation: 1 month (month 1)
        - Vertical development: 3 months (months 2–4)
        - Finishing: 1 month (month 5)
    - Architectural coating: 2 months (months 3 and 4 of the "building construction" period)

General construction equipment assumptions were based on the anticipated activities associated with each type of construction phase (e.g., earth-moving and rough-grading activities during the grading phase) and the typical equipment used to perform those activities (e.g., graders, loaders, rollers, and scrapers for grading). Although subset areas would involve different residential unit totals and different non-residential land uses, the activities for each construction phase (i.e., site preparation, grading, utilities installation, slope landscaping, paving, building construction, architectural coasting) are anticipated to be similar. The equipment mix anticipated for construction was based on information provided by the Proposed Project applicant and best engineering judgment. The equipment mix is meant to represent a reasonably conservative estimate of construction activity.

[23] Grading durations for South Village 14 would be 3 months, Central Village 14 would be 11 months, North Village 14 would be 8 months, and Planning Areas 16/19 would be 5 months.

[24] Utility and slope landscaping durations for South Village 14 would be 7 months, Central Village 14 would be 8 months, North Village 14 would be 6 months, and Planning Areas 16/19 would be 8 months.

General construction equipment modeling assumptions for residential development are provided in Table 7. Default values for horsepower and load factor as provided in CalEEMod were used for all construction equipment listed in Table 7. It was assumed that all equipment used during each construction subphase would be operating 8 hours per day, 5 days per week. Detailed construction equipment modeling assumptions are provided in Appendix A.

Table 7
General Residential Development Construction Equipment Assumptions

Construction Subphase	Off-Road Equipment	
	Type	*Quantity*
Site Prep	Rubber-Tired Dozer	3
	Tractor/Loader/Backhoe	4
	Other Construction Equipment (brush grinder)	1
Grading	Excavators	2
	Graders	1
	Rubber-Tired Dozers	1
	Scrapers	2
	Tractors/Loaders/Backhoes	2
Utilities and Slope Landscaping	Excavator	1
	Rubber-Tired Loader	1
Site Preparation (month 1)	Grader	1
	Skid Steer	1
	Trencher	1
	Pump	1
	Cement Mixer	1
Building Construction 1 (months 2–4)	Rough-Terrain Forklift	1
	Backhoe	1
Building Construction 2 (month 5)	Rough-Terrain Forklift	1
	Skid Steer	2
	Cement Mixer	1
Paving (all phases)	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating	Air Compressor	2

Note: See Appendix A for details.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building construction. CalEEMod calculates the VOC evaporative emissions from application of surface coatings based on the VOC emissions factor, the building square footage, and the assumed fraction of surface area. VOC rates of 50 grams per liter for flat coatings were assumed for the interior, and 100 grams per liter for non-flat coatings were assumed for the

exterior for residential development in accordance with SDAPCD Rule 67.0.1. Consistent with CalEEMod defaults, it was assumed that the residential 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. For the paved surfaces, the architectural coating area was assumed to be 6% of the total square footage[25] with a VOC rate of 100 grams per liter, consistent with the supporting CalEEMod studies provided as an appendix to the CalEEMod User's Guide (CAPCOA 2016).

CalEEMod was used to estimate the number of vendor (material delivery) trips and worker trips. Changes to any standard default values or assumptions are reported in the CalEEMod output (see Appendix A). Refer to Section 3.2.7 for vehicle trip assumptions.

Additional details of the construction schedule, including hours of operation and duration for heavy construction equipment; worker, vendor (delivery), and internal hauling trips; and equipment mix, are included in Appendix A.

3.2.4 Non-Residential Development Phasing and Equipment

For non-residential development at each distinct Project Area subset, the following general construction phases were assumed (i.e., swimming pools, parks, public safety site, and commercial area):[26,27]

- Site preparation: less than 1 week
- Grading (entire Project Area): ranging from 1 to 7 days
- Building construction: ranging from 1 to 8 months
- Paving: ranging from 2 weeks to 1 month
- Architectural coating: ranging from 1 week to 9 months

General construction equipment modeling assumptions for non-residential development are provided in Table 8. Default values for horsepower and load factor as provided in CalEEMod were used for all construction equipment listed in Table 8. It was assumed that all equipment used during each subphase would be operating 8 hours per day, 5 days per week. Detailed construction equipment modeling assumptions are provided in Appendix A.

[25] Paved surface architectural coating includes painting of stripes, handicap symbols, directional arrows, and car space descriptions in parking lots (CAPCOA 2016).
[26] Represents total days of construction phase, not continuous duration.
[27] As discussed in Section 1.2, Project Description, no school was modeled.

Table 8
General Non-Residential Construction Equipment Assumptions

Construction Subphase	Off-Road Equipment	
	Type	*Quantity*
Site Preparation (all non-residential land uses)	Graders	1
	Rubber-Tired Dozers	1
	Tractors/Loaders/Backhoes	1
Grading (all non-residential land uses)	Excavators	1
	Graders	1
	Rubber-Tired Dozers	1
	Tractors/Loaders/Backhoes	1
Building Construction – Swimming Pool	Cranes	1
	Forklifts	1
	Generator Sets	1
	Tractors/Loaders/Backhoes	1
	Welders	3
Building Construction – Park	Forklift	1
	Tractor/Loader/Backhoe	1
	Welder	1
Building Construction – Public Safety Site	Cranes	1
	Forklifts	2
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Building Construction – Commercial	Cranes	1
	Forklifts	1
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating (all non-residential land uses)	Air Compressors	1
Landscaping (all non-residential land uses)	Skid Steer	2

Note: See Appendix A for details.

As discussed in Section 3.2.3, Residential Development Phasing and Equipment, VOC off-gassing emissions from evaporation of solvents contained in surface coatings for non-residential development were estimated using CalEEMod. For non-residential land uses (e.g., public safety site), it is assumed that the surface area for painting equals 2 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. VOC rates of

150 grams per liter for interior and ~~100 grams per liter for~~ exterior were assumed for non-residential development to provide a conservative analysis in accordance with SDAPCD Rule 67.0.1. For the paved surfaces, the architectural coating area was assumed to be 6% of the total square footage with a VOC rate of 100 grams per liter.

CalEEMod was used to estimate the number of vendor (material delivery) trips and worker trips; see Section 3.2.7 for vehicle trip assumptions. Additional details of the construction scenario assumptions are included in Appendix A.

3.2.5 Off-Site Improvements Phasing and Equipment

For off-site improvements, the following phases were assumed:

- Grading (all areas): 6 months
- Paving (all areas): 5 months
- Architectural coating (striping): 1 month
- Landscaping (all areas): 4 months

Table 9 presents the construction equipment modeling assumptions for the Proposed Project's off-site improvements. Default values for horsepower and load factor as provided in CalEEMod were used for all construction equipment listed in Table 9. It was assumed that all equipment used during each subphase would be operating 8 hours per day, 5 days per week.

Table 9
Off-Site Improvements Construction Equipment Assumptions

Construction Subphase	Off-Road Equipment	
	Type	*Quantity*
Grading	Excavators	2
	Graders	1
	Rubber-Tired Dozers	1
	Scrapers	2
	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating (striping)	Air Compressors	1
Landscaping	Skid Steer	2

Note: See Appendix A for details.

CalEEMod was used to estimate the number of vendor (material delivery) trips and worker trips; see Section 3.2.7 for vehicle trip assumptions. Additional details of the construction scenario assumptions are included in Appendix A.

3.2.6 Proctor Valley Road North and Trails Options

As explained in Section 1, the Proposed Project would include the Proctor Valley Road North Option for additional bike lanes to be constructed on Proctor Valley Road North if selected by the San Diego County Board of Supervisors. Construction of these bike lanes would require approximately 20,000 cubic yards of grading, 65,000 square feet of paving, and associated architectural coating for striping and bike lane signage. If constructed, it is expected that the additional grading, paving, and architectural coating associated with the bike lane option would use the same construction equipment as used for off-site improvements, as presented in Table 9, and would result in a maximum of 9 additional days of construction: 2 days for grading, 5 days for paving, and 2 days for architectural coating (striping and signage).[28] The additional construction activities were modeled separately in CalEEMod to estimate potential additional emissions resulting from equipment operation, worker trips, fugitive dust, and VOC off-gassing. No additional haul truck trips would be required for the Proctor Valley Road North Option.

The Perimeter Trail Option, if selected by the San Diego County Board of Supervisors, would provide for an improved trail around the Project Area. Because this Perimeter Trail Option would be graded during the Development Footprint mass-grading phase, no additional grading is anticipated for this option, and no additional criteria air pollutant emissions are anticipated to occur.

The Preserve Trails Option would not result in any physical improvements; therefore, no criteria air pollutant emissions are anticipated from implementation of this option.

[28] It is anticipated that the additional construction associated with the Proctor Valley Road North Option would not occur as an independent construction phase, but instead would slightly increase the duration of the grading, paving, and architectural coating phases. The 9 construction days associated with the potential Proctor Valley Road North Option were modeled in CalEEMod to follow the overall construction phasing of Proctor Valley Road North. More specifically, it was assumed in CalEEMod that the 2 additional grading days would be added onto the off-site improvements' 6-month grading phase, the 5 additional paving days would be added onto the off-site improvements' 5-month paving phase, and the 2 additional architectural coating days would be added onto the off-site improvements' 1-month architectural coating phase.

3.2.7 Vehicle Trips

Haul Truck Trips

As discussed in Section 3.2.2, Mass Project Area Grading, cut and fill would be balanced on site, and hauling would be limited to internal site movement within each Village site. To provide a conservative estimate of emissions relating to hauling, it was assumed that 2% of cut and fill would be moved internally in medium (12 cubic yard) haul trucks, as presented in Table 10. Due to the size of the Village sites (subset areas), haul truck trip length was assumed to be 0.5 miles. Table 10 presents estimated cubic yards of grading and associated haul truck trip by Village.

Table 10
Haul Truck Round Trip Estimates

Village	Total Graded Cubic Yards	Cubic Yard Hauled	Trucks (round trips)
South Village 14	1,408,000	28,160	2,347
Central Village 14	4,371,000	87,420	7,285
North Village 14	750,734	15,015	1,251
Planning Areas 16/19	1,778,000	35,560	2,963

Worker and Truck Trips

Construction worker and vendor trips were calculated using the methodology presented in CalEEMod Users Guide, Appendix A (CAPCOA 2016). In CalEEMod, the estimate of worker trips for site preparation, grading, paving, and trenching are based on 1.25 workers per each piece of equipment. The CalEEMod worker rate was used for all phases of construction to provide a consistent methodology between land uses,[29] with the exception of the building construction phases of single-family homes, which is presented in Table 11. This approach reflects a conservative analysis due to the detailed and extensive construction equipment list provided by the applicant. Table 11 presents the CalEEMod worker and vendor truck trip generation rates for single-family residences, which were used to estimate worker and vendor truck trips for the building construction phase for residential uses.

[29] CalEEMod does not include default rates for workers and vendors for all of the Proposed Project's non-residential building phases, such as park structures and recreational swimming pools.

Table 11
Worker and Vendor Truck Trip Estimate Methodology

Land Use Subtype	Rate Metric	Worker Trip Rate	Vendor Trip Rate
Single-Family	Daily Trips per Dwelling Unit	0.36	0.1069

Source: CAPCOA 2016.

In addition, architectural coating worker trips are 20% of building construction phase trips. Vendor trips associated with building construction are based on the land uses and trip rate indicated in Table 11. For phases with construction less than 1,000 square feet, two trips (one worker round-trip) were assumed. Additional vendor trips were included for site preparation, grading, and paving. Four trips were assumed for site preparation and grading phases, and 10 vendor trips were assumed for paving to conservatively estimate material delivery to the Project Area.

3.2.8 Blasting and Rock Crushing

Blasting

Blasting operations would be required for site preparation. Rock blasting is the controlled use of explosives to excavate, break down, or remove rock. The result of rock blasting is often known as a rock cut. The most commonly used explosives today are ammonium nitrate/fuel oil (ANFO)–based blends due to their lower cost compared to dynamite. The chemistry of ANFO detonation is the reaction of ammonium nitrate with a long-chain alkane to form NO_x, carbon dioxide, and water. When detonation conditions are optimal, these gases are the only products. In practical use, such conditions are impossible to attain, and blasts produce moderate amounts of other gases. The EPA's Compilation of Air Pollutant Emission Factors (AP-42), Section 13.3 – Explosives Detonation (EPA 1980), provided the emissions factors for CO, NO_x, and SO_x used in this assessment. According to AP-42, "Unburned hydrocarbons also result from explosions, but in most instances, methane is the only species that has been reported" (EPA 1980); methane is not a VOC, and a methane emission factor has not been determined for ANFO.

AP-42 states that CO is the pollutant produced in greatest quantity from explosives detonation. All explosives produce measurable amounts of CO. Particulates are produced as well, but such large quantities of particulate are generated during shattering of the rock and earth by the explosive that the quantity of particulates from the explosive charge cannot be distinguished. Accordingly, AP-42, Section 11.9 – Western Surface Coal Mining (EPA 1998), provided the basis for the PM_{10} and $PM_{2.5}$ emissions factors. The emissions factors are based on the horizontal area disturbed during blasting. The cubic yards and area to be blasted were provided by the applicant.

It is anticipated that blasting operations would occur during the grading phase. An average of 8.25 tons of ANFO would be applied per blast (Revey Associates Inc. 2015). All blasting activity ~~will~~ would comply with Section 96.1.5601.2 of the County of San Diego 2017 Consolidated Fire Code. The blasting information provided by the applicant and additional calculation assumptions are provided in Table 12.

Table 12
Blasting Characteristics

Activity	Proctor Valley Road North	South Village 14	Central Village 14	North Village 14	Planning Areas 16/19
Total Rock Requiring Blasting (cubic yards)	28,414	70,951	1,918,440	269,712	845,839
Rock Blasted per Blast (cubic yards per blast)	15,000	15,000	15,000	15,000	15,000
Maximum Blasts per Day (blasts per day)	1	1	1	1	1
Total Blasts (blasts per phase)	1 full 1 partial	4 full 1 partial	127 full 1 partial	18 full 0 partial	56 full 1 partial
Maximum Explosive per Blast (tons ANFO per blast)	8.25	8.25	8.25	8.25	8.25
Total Explosives Used (tons ANFO per phase)	15.63	39.04	1,055.14	148.34	465.21
Maximum Area Blasted per Day (square feet per day)	1,335	1,335	1,335	1,335	1,335
Total Area Blasted (square feet per phase)	2,528	6,312	170,680	23,996	75,253

Sources: Devenco and Revey 2017; Hunsaker & Associates 2017.
ANFO = ammonium nitrate/fuel oil

Rock Crushing

In addition to blasting emissions, emissions associated with rock crushing were quantified in a separate calculation, since CalEEMod does not account for rock crushing. Emissions factors were obtained from AP-42, Section 11.9.2 – Crushed Stone Processing and Pulverized Mineral Processing (EPA 2004). For transfers to the feed hopper and stockpiles, the "drop" equation in Section 13.2.4 (Aggregate Handling and Storage Piles) of AP-42 (EPA 2006) was used to derive an emissions factor. The crushing information provided by the applicant and additional calculation assumptions are provided in Table 13.

Table 13
Rock Crushing Characteristics

Activity	Proctor Valley Road North	South Village 14	Central Village 14	North Village 14	Planning Area 16/19
Amount of Rock to be Processed (cubic yards)	~~36,938~~ 28,414	~~92,236~~ 70,951	~~2,119,876~~ 1,630,674	~~350,626~~ 269,712	~~1,099,591~~ 845,839
Number of Rock Crushing Facilities ~~(number of generators)~~	~~3~~1	~~2~~1	~~2~~3	~~2~~1	~~2~~2
Number of Generators	3	2	2	2	2
Operating Hours per Day per Generator (hours per day)	8	8	8	8	8
Rock Processing Rate per Facility (cubic yards day)	3,769	3,769	3,769	3,769	3,769
Total Rock Processed per Day (cubic yards day)	3,769~~11,307~~	3,769~~7,538~~	~~7,538~~11,307	3,769~~7,538~~	7,538
Total Operating Days per Phase (days)	10	20	~~20~~145	70	110

Sources: Devenco and Revey 2017; Hunsaker & Associates 2017.

The rock-crushing equipment was assumed to consist of a crusher, screen, and conveyor, and the crushed rock would be stockpiled for future use. Although a single primary crusher and screen may be all that is required, use of a secondary crusher and additional screen would expedite this process. To generate a conservative emissions estimate, it was assumed that a feed hopper, primary and secondary crushers, two screens, and several conveyors for transfers would be used. Particulate emissions from the crushers, screens, and conveyors would be controlled with water sprays.

It is expected that the rock-crushing equipment would be powered by a diesel-engine generator. It was assumed that the engine generator would be rated at 750 kilowatts, or approximately 1,000 horsepower. The engine generator would operate up to 8 hours per day. The VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from the diesel-engine generator were estimated using the off-road-engine load factor and emissions factors from the CalEEMod User's Guide for a typical generator operating in 2019 (the first year of construction). It was assumed that the same equipment would be used for each phase; thus, the CalEEMod emissions factors for later years, which would generally be lower, were not applied. Blasting and rock-crushing emissions calculations are provided in Appendix B.

3.2.9 Regulatory Compliance Measures and Project Design Features that Reduce Construction Criteria Air Pollutant Emissions

Construction activities would be subject to several control measures per the requirements of the County, SDAPCD rules, and CARB ATCMs. Table 14 outlines the required regulatory control measures that would apply to the Proposed Project, and what measures have been quantitatively incorporated into the construction emissions estimates.

Table 14
Regulatory Compliance Measures that Reduce
Construction Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Particulate Matter/Fugitive Dust Control			
REG-AQ-1	County Grading Dust Control (County Ordinance 87.428)	Per County Ordinance 87.428, all clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. County Ordinance 87.428 identifies the following measures that could be employed to control dust: • Watering • Application of surfactants • Shrouding • Control of vehicle speeds • Paving of access areas • Other operational or technological measures to reduce dispersion of dust	County Ordinance 87.428 does not require specific measures; rather, it requires that adequate dust control measures be employed. Compliance with REG-AQ-1 (County Ordinance 87.428) for the Proposed Project would occur through implementation of PDF-AQ-1, which includes fugitive dust control strategies. The following was assumed in CalEEMod: • Watering of actively disturbed surfaces at least three times daily was assumed in CalEEMod, representing a 61% reduction in PM_{10} and $PM_{2.5}$ emissions. • Applying nontoxic soil stabilizers or other SDACPD-approved measure to minimize fugitive dust on unpaved roads was assumed in CalEEMod, representing a 30% reduction in unpaved road PM_{10} and $PM_{2.5}$ emissions (SCAQMD 1993). • A speed limit of 15 miles per hour on all unpaved surfaces was assumed in CalEEMod.

Table 14
Regulatory Compliance Measures that Reduce
Construction Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
REG-AQ-2	Fugitive Dust Control (SDAPCD Rule 55)	SDAPCD Rule 55 identifies two main standards relating to airborne dust beyond the property line, and dust control track-out/carry-out. Regarding airborne dust beyond the property line, Rule 55 requires that no person engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period. Regarding track-out/carry-out,[a] Rule 55 requires that visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out be minimized, and provides the following potential control measures: • Track-out grates or gravel beds at each egress point • Wheel-washing at each egress during muddy conditions • Use of soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding • Water or treat transported material in outbound transport trucks Rule 55 also requires that track-out/carry-out be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations.	Compliance with Reg-AQ-1 (SDAPCD Rule 55) is demonstrated through implementation of PDF-AQ-1, which includes specific fugitive dust control strategies. See REG-AQ-1 for related assumptions incorporated into CalEEMod.

Table 14
Regulatory Compliance Measures that Reduce
Construction Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Volatile Organic Compounds (VOC)			
REG-AQ-3	Architectural Coating VOC limits (SDAPCD Rule 67.0.1)	Per SDAPCD Rule 67.0.1, the applicant shall use regulated low-VOC coatings for all architectural coating activities.	Compliance with REG-AQ-3 (SDAPCD Rule 67.0.1) is demonstrated through implementation of PDF-AQ-2, which includes specific VOC coating limits for residential and non-residential land uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings.
Oxides of Nitrogen (NO_x), Carbon Monoxide (CO)			
REG-AQ-4	Reduce Idling Time (CARB's ATCM)	Per CARB's ATCM 13 (CCR Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.	Not quantified.

[a] "Track-out/carry-out" means any bulk materials that adhere to and agglomerate on the exterior surfaces of motor vehicles and/or equipment (including tires), or are inadvertently carried out, and that fall onto a paved road, creating visible roadway dust. (SDAPCD Rule 55, SDAPCD 2009b).

Table 15 presents PDFs that would reduce construction criteria air pollutant emissions generated by the Proposed Project.

Table 15
Project Design Features that Reduce Construction Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Particulate Matter/Fugitive Dust Control			
PDF-AQ-1	Fugitive Dust Control	The Proposed Project shall implement the following measures to minimize fugitive dust (PM_{10} and $PM_{2.5}$), comply with County Code Section 87.428 (Grading Ordinance), and comply with San Diego Air Pollution Control District (SDAPCD) Rule 55 (Fugitive Dust Control): a. Water or use another SDAPCD-approved dust control non-toxic agent shall be used on the grading areas at least three times daily.	The following fugitive dust control strategies identified in PDF-AQ-1 were quantitatively assumed in CalEEMod: • Watering of actively disturbed surfaces at least three times daily was assumed in CalEEMod, representing a 61% reduction in PM_{10} and $PM_{2.5}$ emissions.

Table 15
Project Design Features that Reduce Construction Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
		b. All main roadways shall be constructed and paved as early as possible in the construction process. c. Building pads shall be finalized as soon as possible following site preparation and grading activities. d. Grading areas shall be stabilized as quickly as possible. e. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last 100 feet of internal travel path within the construction site shall be paved prior to public road entry, as well as and for all haul roads. f. Wheel washers shall be installed adjacent to the apron indicated in (c) for tire inspection and washing prior to vehicle entry on public roads. g. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or similar method within 30 minutes of occurrence. h. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads. i. Unpaved construction site egress points shall be graveled to prevent track-out. j. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred. k. Transported material in haul trucks shall be watered or treated. l. All soil disturbance and travel on unpaved surfaces shall be suspended if winds exceed 25 miles per hour. m. On-site stockpiles of excavated material shall be covered.	• Applying nontoxic soil stabilizers or other SDACPD-approved measure to minimize fugitive dust on unpaved roads was assumed in CalEEMod, representing a 30% reduction in unpaved road PM_{10} and $PM_{2.5}$ emissions (SCAQMD 1993). • A traffic speed limit on unpaved roads of 15 miles per hour was assumed in CalEEMod. The emissions reduction benefits of REG-AQ-1 and PDF-AQ-1 were not double-counted, but rather accounted for in CalEEMod on a one-time basis.

Table 15
Project Design Features that Reduce Construction Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
		n. A 15 mile per hour speed limit on unpaved surfaces shall be enforced. o. Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance. p. Construction traffic control plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.	
Volatile Organic Compounds (VOC)			
PDF-AQ-2	Construction Architectural Coating Limits	The Proposed Project shall comply with the SDAPCD VOC content limits for architectural coatings during construction.	PDF-AQ-2 includes specific VOC coating limits for residential and non-residential land uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings. The emissions reduction benefits of REG-AQ-3 and PDF-AQ-2 were not double-counted, but rather accounted for in CalEEMod on a one-time basis.

3.3 Operational Emissions Methodology

3.3.1 Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves were calculated in the building energy use module of CalEEMod, as described in the following text.

Based on information provided by the applicant, each single-family unit was assumed to have a natural gas fireplace, courtyard homes were assumed to have no fireplace, and no woodstoves were included as part of the development. The use of fireplaces was assumed to be included in the heating demand used for the Building Analysis (ConSol 2017). Fireplaces were not included separately in the CalEEMod area source calculations to avoid double counting.

Consumer products are chemically formulated products used by household and institutional consumers. They include 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 2016). Consumer product VOC emissions were estimated in CalEEMod based on the floor area of residential and non-residential buildings, and on the default factor of pounds of VOC per building square foot per day. For parking lot and other asphalt surface land uses, CalEEMod estimated VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

As discussed in Section 3.2.3, VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as paints and primers. Architectural coating VOC emissions represent an operational emissions source as a result of reapplication of paint (long-term building maintenance). The CalEEMod default assumption that all land use buildings are assumed to be repainted at a rate of 10% of area per year (i.e., reapplication rate of 10%) was assumed. Per the SDAPCD Rule 67.0.1, the VOC content limits for the three general coatings categories are 50 grams per liter (g/L) VOC for flat coatings, 100 g/L VOC for non-flat coatings, and 150 g/L VOC for non-flat high-gloss coatings. Consistent with typical construction practices, it is anticipated that interior paint would not exceed flat coating limits, exterior paint would not exceed non-flat coating limits, and a small portion of exterior paint and finishes (trim and other minor finishes) would not exceed non-flat high-gloss coatings limits. Although the majority (i.e., 75%) of the surface area painted is assumed to be interior, which would meet or be less than the 50 g/L VOC content flat coating limit, it was conservatively assumed that all residential and non-residential

(interior and exterior) architectural coating would be 150 g/L VOC.[30] For parking lot land uses, 250 g/L VOC was assumed, consistent with CalEEMod default VOC rates.

Landscape maintenance results in fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. Emissions associated with landscape equipment use were estimated based on CalEEMod default values for emissions factors (grams per residential dwelling unit per day and grams per square foot of non-residential building space per day), number of summer days (when landscape maintenance would generally be performed), and number of winter days. Although electric equipment for landscaping maintenance activities could be used by future residents and/or the homeowner's association landscape maintenance contractor, default CalEEMod assumptions were used when estimating emissions, as a conservative estimate.

3.3.2 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 greenhouse gases in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

For residential land uses, Proposed Project energy use data was used in place of CalEEMod default values. To calculate the total residential building energy input for the Proposed Project (i.e., natural gas use from the residential development's regulated and unregulated loads), Proposed Project energy use data prepared by ConSol, which were calculated using the California Energy Commission's public-domain compliance software (i.e., CBECC-Res[31]), was used in CalEEMod.[32] The prototype residence used in the ConSol analysis was a 3,652-square-foot, two-story, single-family residence, and the plans for this building were provided from

[30] 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. In addition, many of the specialty coating categories have limits of less than 150 g/L, including driveway sealers (50 g/L VOC); floor coatings (100 g/L VOC); and primers, sealers, and undercoaters (100 g/L VOC).

[31] "CBECC-Res" is an abbreviation for California Building Energy Code Compliance – Residential.

[32] CalEEMod Version 2016.3.1 was the current version of CalEEMod when the Proposed Project analysis was initiated. In October 2017, CalEEMod Version 2016.3.2 was released. The most notable upgrade is the incorporation of percent reductions in default energy consumption to reflect compliance with the 2016 Title 24, Part 6 Building Energy Efficiency Standards. Proposed Project energy use data was used for the residential buildings to reflect zero net energy (ZNE), but because Proposed Project data was not available for the non-residential structures, CalEEMod defaults reflecting the 2013 Title 24 standards were used. CalEEMod default values were assumed to be improved 5% to meet 2016 standards, and then improved by 10% to reflect the implementation of PDF-AQ/GHG-3.

ConSol's library of building plans (ConSol 2017).[33] The total residential natural gas energy use rates input to CalEEMod are presented in Table 16.

Table 16
Natural Gas Assumptions

Single-Family	Title 24 Natural Gas[a]	Non-Title 24 Natural Gas[b]	Total Natural Gas[c]
	kBtu per Unit per Year		
Zero Net Energy Residences	22,000	4,500	26,500
Industrial Park (Public Safety Site)	4.17	4.97	3.34
Parking Lot	0	0	0.75
Regional Shopping Center	2.86	3.16	5.46

Source: ConSol 2017.
kBtu = thousand British thermal units
[a] Title 24 natural gas is the "regulated loads" Therms shown in the ConSol report.
[b] Non-Title 24 natural gas is the "Appliance & Cooking Therms" shown in ConSol report.
[c] Total natural gas is not used in CalEEMod inputs, but is presented for disclosure.

For non-residential land uses, CalEEMod default values for energy consumption for each land use were applied. The energy use for non-residential buildings was calculated in CalEEMod using energy intensity values (natural gas usage per square foot per year) assumptions, which are based on the California Commercial End-Use Survey database.

The current Title 24 building energy efficiency standards[34] are the 2016 Title 24 building energy efficiency standards, which became effective on January 1, 2017. In general, non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a). CalEEMod default values assume compliance with the 2013 Title 24 standards, which became effective on July 1, 2014. In accordance with PDF-AQ/GHG-3, non-residential land uses would be designed to achieve 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24. The CalEEMod default values for Title 24–regulated energy, natural gas, and lighting were assumed to be 5% more efficient, then improved another 10% from the 2016 estimated values to reflect demand after implementation of PDF-AQ/GHG-3.

[33] The Proposed Project proposes a variety of residential types that may range from approximately 2,000 to 4,500 square feet. The prototype residence studied in the ConSol report (ConSol 2017) was selected to represent the approximate weighted average square footage of the residential types, thereby providing a reasonable representation of building energy consumption for purposes of this environmental analysis, and specifically the estimation of the Proposed Project's emissions calculated in CalEEMod. Although the calculated weighted average square footage is 3,400, use of a 3,652-square-foot prototype residence reasonably represents the energy profile of a slightly larger home, and is conservative in that it likely serves to over-estimate the energy demand profile of the Proposed Project by some small increment.

[34] Title 24, part 6 of the California Code of Regulations.

Private Swimming Pools

The Proposed Project would include three private swimming pools with an average size of 140,026 gallons each. Energy demand for swimming pools was estimated using a baseline demand in the San Diego Gas & Electric (SDG&E) service area (SCE 2016). The swimming pools were assumed to use electricity for filters and pumps, and natural gas for water heating. Table 17 shows the estimated energy use associated with heating the Proposed Project's swimming pools. The natural gas demand for heating would be completely offset through implementation of PDF-AQ/GHG-5, which requires installation of solar water heating on all recreational swimming pools. As shown in Table 17, pool heating would require 64.47 million British thermal units (MMBtu) daily, and thus, implementation of PDF-AQ/GHG-5 would reduce natural gas demand by 64.47 MMBtu.

Table 17
Swimming Pool Heating Energy Demand

Facility Name	Pool Volume (gallons)	MMBtu per Gallon per Day	MMBtu per Day
PP2	180,956	0.00015	27.77
PP4	81,861		12.56
PP1	157,260		24.14
Average	*140,026*	N/A	21.49
Total	**420,077**	N/A	64.47

Sources: DOE 2017; SCE 2016
Notes: MMBtu = million British thermal units.
Pool hours of operation assume 12 hours daily.
Pool heaters from the SDG&E study were assumed to use 78% efficient heaters (the minimum required by 10 CFR Part 431). Newer pools use heaters with 89%–95% efficiency (DOE 2017). Heaters in the Proposed Project were assumed to use 90% efficient heaters.

3.3.3 Mobile Sources

Mobile sources for the Proposed Project would primarily be motor vehicles (automobiles and light-duty trucks) traveling to and from the proposed land uses, and would primarily include future residents. The anticipated Proposed Project trip generation, including trip rates and total trips, was based on the Proposed Project's Traffic Impact Study prepared by Chen Ryan (Chen Ryan 2017b). CalEEMod was used to calculate the emissions resulting from on-road mobile sources associated with residents and with workers, customers, and delivery vehicles visiting the proposed land use types.

The calculation of vehicle emissions generated by the Proposed Project was based on multiple variables, including trip rate, trip length, trip purpose, and trip type, which were all factors in estimating VMT generated by the Proposed Project, discussed in detail below. Emissions associated with on-road mobile sources include running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads.

Default trip generation rates and trip lengths included in CalEEMod for each analyzed land use in the build-out scenario were adjusted to match the average weekday trip rates and total weekday VMT data (107,130 daily VMT, discussed in detail below) provided in the Proposed Project's TDM (Chen Ryan 2017a). In addition, Saturday and Sunday trip rates for the Proposed Project land uses were adjusted in proportion to the CalEEMod default trip rates and the Proposed Project's assumed weekday trip rate (Chen Ryan 2017b). The CalEEMod default and assumed Proposed Project trip rates are depicted in Table 18.

Table 18
CalEEMod Default Trip Rates and Assumed Proposed Project Trip Rates

Land Use Type	Size Metric	CalEEMod Default Trip Rates			Proposed Project Trip Rates[a]		
		Weekday Trip Rate	*Saturday Trip Rate*	*Sunday Trip Rate*	*Weekday Trip Rate*	*Saturday Trip Rate*	*Sunday Trip Rate*
Estate	Dwelling Unit	9.52	9.91	8.62	12	12.49	10.87
Single-Family Detached Housing	Dwelling Unit	9.52	9.91	8.62	10	10.41	9.05
Neighborhood/County Park (Undeveloped)	Acre	1.89	22.75	16.74	5	60.19	44.29
Fire Station	1,000 SF	6.38	2.49	0.73	1.88	0.73	0.22
Recreational Swimming Pool	1,000 SF	33.82	9.1	13.6	33	8.88	13.27
Mixed-Use Commercial/Residential	1,000 SF	42.7	49.97	25.24	110	128.73	65.02

Sources: CAPCOA 2016; Chen Ryan 2017b.
SF = square feet
[a] Weekday trip rates were provided in the Proposed Project's Traffic Impact Study (Chen Ryan 2017b) and were not adjusted. Proposed Project Saturday and Sunday trips rates were adjusted based on the ratios of the CalEEMod default Saturday and Sunday trip rates to the CalEEMod default weekday trip rate.

The estimated daily and annual trips generated by the Proposed Project at build-out conditions in 2028, based on the trip rates depicted in Table 18, are presented in Table 19.

Table 19
Estimated Daily and Annual Proposed Project Trips at Build-Out (2028)

Land Use Type	Units	Size Metric	Trips per Day			Trips per Year		
			Weekday Trips	*Saturday Trips*	*Sunday Trips*	*Weekday Trips*	*Saturday Trips*	*Sunday Trips*
Estate	125	Dwelling Unit	1,500	1,561	1,358	390,000	81,172	70,616
Single-Family Detached Housing[a]	994	Dwelling Unit	9,940	10,347	9,000	2,584,400	538,044	468,000
Neighborhood/County Park (Undeveloped)	14.9	Acre	70	837	616	18,200	43,524	32,032

Table 19
Estimated Daily and Annual Proposed Project Trips at Build-Out (2028)

Land Use Type	Units	Size Metric	Trips per Day			Trips per Year		
			Weekday Trips	*Saturday Trips*	*Sunday Trips*	*Weekday Trips*	*Saturday Trips*	*Sunday Trips*
Public Safety Site	8.5	1,000 SF	16	6	2	4,160	312	104
Recreational Swimming Pool	3	1,000 SF	132	36	53	34,320	1,872	2,756
Mixed-Use Commercial/Residential	10	1,000 SF	1,100	1,287	650	286,000	66,924	33,800
Total			**12,758**	**14,074**	**11,679**	**3,317,080**	**731,848**	**607,308**
Total Annual Trips						**4,656,236**		

Source: Chen Ryan 2017b.
SF = square feet
[a] 97 residential units may be alternatively developed as a school site. The trip generation of 97 residential units is greater than that of the possible school, and, therefore, reflects the worst-case scenario.

Implementation of PDF-TR-1 would result in reductions of VMT generated by the Proposed Project. The estimated VMT reductions are based on the California Air Pollution Control Officers Association's (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures (CAPCOA Quantification Report) (CAPCOA 2010) guidance document and the Proposed Project's TDM Program.

The CAPCOA Quantification Report notes that when determining the overall VMT reduction associated with a project, the VMT reduction for each individual strategy should be "dampened," that is adjusted to reflect the fact that some of the strategies may be redundant or applicable to the same populations (CAPCOA 2010). Based on the VMT reductions, Village 14 would have a total VMT reduction of 4.7%. Similarly, based on the VMT reductions, Planning Areas 16/19 would have a total VMT reduction of 2.0%. Before incorporation of VMT reductions associated with proposed TDM strategies, the estimated total daily VMT for the Proposed Project would be 111,988 (Chen Ryan 2017a). As a result of implementation of the Proposed Project's TDM strategies (PDF-TR-1), there would be an overall reduction of 4,858 VMT per day, which represents a 4.3% total reduction in VMT. The estimated total daily VMT for the Proposed Project with implementation of the TDM Program is 107,130 (Chen Ryan 2017a).

In addition to trip rates (presented in Table 18), trip lengths, trip purpose, and trip type are factors in the calculation of VMT and associated vehicle-generated emissions. In general, CalEEMod

determines an overall average trip length for primary, diverted, and pass-by trip link types,[35] where primary trips are 100% of the trip length, diverted trips are 25% of the primary trip length, and pass-by trips are 0.1 mile (CAPCOA 2016). For this Proposed Project analysis, the CalEEMod default trip type percentages were adjusted so that the CalEEMod-generated VMT would mathematically match the overall weekday VMT data (i.e., 107,130 daily VMT) provided in the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a). This simple mathematical adjustment was performed by assuming all trip lengths were the same and all trips were primary trips. This approach is consistent with the transportation modeling, which accounts for a full inventory of trip categories; that is, both primary and shorter trips are already assessed in the model (i.e., the modeled VMT estimates provided in the TDM Program Evaluation reflect primary trip, pass-by trips, and diverted trips). The CalEEMod default and adjusted trip lengths are depicted in Table 20.

Table 20
CalEEMod Default and Proposed Project Adjusted Trip Lengths

Land Use Type	CalEEMod Default Trip Lengths (Miles)			Adjusted Trip Lengths (Miles)		
Residential Trip Type	*Home–Work*	*Home–Shop*	*Home–Other*	*Home–Work*	*Home–Shop*	*Home–Other*
Estate	10.8	7.3	7.5	8.40	8.40	8.40
Single-Family Detached Housing	10.8	7.3	7.5	8.40	8.40	8.40
Commercial Trip Type	*Commercial-Customer*	*Commercial-Work*	*Commercial-Non-Work*	*Commercial-Customer*	*Commercial-Work*	*Commercial-Non-Work*
Neighborhood/County Park (Undeveloped)	7.3	9.5	7.3	8.40	8.40	8.40
Village Core Community Facility	7.3	9.5	7.3	8.40	8.40	8.40
Public Safety Site	7.3	9.5	7.3	8.40	8.40	8.40
Mixed-Use Commercial/Residential	7.3	9.5	7.3	8.40	8.40	8.40

Sources: CAPCOA 2016; Chen Ryan 2017a.

Finally, CalEEMod default emissions factors and vehicle fleet mix were conservatively used for the model inputs to estimate daily emissions from proposed vehicular sources.[36] Emission factors

[35] Trip link types further describe the characteristics of the trip attracted to each land use, whether it is a primary trip, a diverted link trip, or a pass-by trip. For example, a commercial customer pass-by trip could be a person going from home to shop on the way to work. In addition, a commercial customer diverted-link trip could be a person going from home to work, and making a diversion to shop (CAPCOA 2016).

[36] Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. The default vehicle mix (vehicle class distribution including automobiles, trucks, buses, motorcycles) provided in CalEEMod 2016.3.1, which is based on CARB's Mobile Source Emissions Inventory model, EMFAC, version 2014, was applied.

representing the vehicle mix and emissions for 2028 were used to estimate emissions associated with full build-out of the Proposed Project.

3.3.4 Regulatory Compliance Measures and Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

Table 21 outlines the required regulatory control measures that would apply to the Proposed Project and what measures have been quantitatively incorporated into the operational emissions estimates.

Table 21
Regulatory Compliance Measures that
Reduce Operational Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Area			
REG-AQ-5	Architectural Coating VOC Limits	Per SDAPCD Rule 67.0.1, the applicant shall use regulated low-VOC coatings for all architectural coating activities. VOC content limits for the three general coating categories identified in Rule 67.0.1 are as follows: • Flat coatings: 50 grams per liter (g/L) • Non-flat coatings: 100 g/L • Non-flat high-gloss coatings: 150 g/L	It was conservatively assumed in CalEEMod that reapplication of architectural coating for interior and exterior residential and non-residential building surfaces would be 150 g/L VOC to demonstrate compliance with SDAPCD Rule 67.0.1 VOC content limits.
Energy			
REG-AQ-6	Compliance with Title 24 Building Energy Efficiency Standards	Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, became effective on January 1, 2017. CalEEMod Version 2016.3.1 assumes compliance with 2013 Title 24 Standards. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).	Per PDF-AQ/GHG-2, the Proposed Project residential land uses would be zero net energy (ZNE), which exceeds the energy efficiency requirements of the 2016 Title 24 standards. Accordingly, no emission reduction associated with compliance with 2016 Title 24 building energy efficiency standards was assumed for residential land uses. For the Proposed Project's non-residential land uses, CalEEMod default energy values were conservatively

Table 21
Regulatory Compliance Measures that
Reduce Operational Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
			assumed, which reflect compliance with 2013 Title 24 standards. Accordingly, no emission reduction associated with compliance with 2016 Title 24 building energy efficiency standards was assumed for non-residential land uses.
REG-AQ-7	Solar-Ready Units	Per the California Energy Commission's 2016 Residential Compliance Manual (CEC 2015b), all single-family homes constructed as part of the Proposed Project would be designed with pre-plumbing for solar water heaters and solar and/or wind renewable energy systems.	No reduction assumed.
Mobile			
REG-AQ-8	State and Federal Mobile Source Reduction Strategies	• Advanced Clean Cars (for model years 2016 and beyond) • Truck and Bus Rule (2014 Amendment) • Heavy-Duty Greenhouse Gas Phase 1 (2013), which includes the 2013 Tractor-Trailer Greenhouse Gas Regulation Amendments and Federal Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles[a] • Pavley I federal standard for model years 2012 through 2016	Accounted for in EMFAC 2014 vehicle emission factors as part of CalEEMod version 2016.3.1.

[a] Although the Heavy-Duty Greenhouse Gas Phase 1 and Tractor-Trailer Greenhouse Gas Regulation Amendments are focused on reducing greenhouse gas emissions, implementation would result in co-benefits to reducing mobile source criteria air pollutant emissions.

Table 22, Project Design Features that Reduce Operational Criteria Air Pollutant Emissions, presents PDFs that would reduce criteria air pollutant emissions, and if they were quantified in the analysis.

Table 22
Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Area			
PDF-AQ/GHG-1	Wood Burning Stoves and Fireplaces	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that no wood-burning stoves or fireplaces would be constructed.	The number of wood-burning stoves and fireplaces were set to zero in CalEEMod. Natural gas fireplace use was included in the natural gas consumption estimates in the energy module of CalEEMod.
Energy			
PDF-AQ/GHG-2	Zero Net Energy Residences	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission.	Proposed Project electricity and natural gas assumptions were incorporated into CalEEMod for the residential land uses based on the Proposed Project's Building Analysis (ConSol 2017).
PDF-AQ/GHG-3	Non-Residential Energy Improvement Standards	Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that the Proposed Project's non-residential land uses shall achieve a 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24, Part 6 of the California Code of Regulations.	CalEEMod default energy rates reflect 2013 standards. Accordingly, Title 24 energy use was adjusted to reflect the estimated 5% increase in efficiency for non-residential buildings (CEC 2015a), and then adjusted to reflect an additional 10% increase on the calculated 2016 energy demand factors.
PDF-AQ/GHG-4	Energy Star Appliances	All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial businesses shall be Energy Star rated or equivalent.	The following percent improvement in energy efficiency was assumed in CalEEMod based on default values: Clothes washers: 30% Dishwashers: 15% Fan: 50% Refrigerator: 15%

Table 22
Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
PDF-AQ/GHG-5	Solar Water Heating	Prior to the issuance of private recreation center building permits, the Proposed Project applicant or its designee shall submit swimming pool heating design plans to the County of San Diego for review and approval. The design plans shall demonstrate that swimming pools located at private recreation centers in the Project Area are designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.	Swimming pool heating needs are assumed to be met with solar heating; therefore, no criteria air pollutant emissions associated with pool heating were included in Proposed Project emissions estimates.
PDF-AQ/GHG-6	Efficient Outdoor Lighting	All outdoor lighting will be LED or other high efficiency lightbulbs	Conservatively, no credit was taken for implementation of high efficiency outdoor lighting.
PDF-AQ/GHG-7	Energy Efficiency Education	All new home packets will provide information on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs.	Conservatively, no credit was taken for implementation for energy efficiency education.
PDF-AQ/GHG-8	Cool Roofs	Residential structures will meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar reflectance index (SRI) of 64 for a low-sloped roof and an SRI of 32 for a high sloped roof. Non-residential structures will meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar index of 64 for a low-sloped roof and 32 for a high sloped roof.	Conservatively, no credit was taken for implementation for cool roofs.
PDF-AQ/GHG-9	Cool Pavements	Outdoor pavement, such as walkways and patios will use paving materials with three-year SRI of 0.28 or initial SRI of 0.33.Mobile Sources	Conservatively, no credit was taken for implementation for cool pavements.

Table 22
Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Mobile			
PDF-AQ/GHG-10~~6~~	Electric Vehicle Charging Stations	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit plans to the County of San Diego for review and approval of installation of one Level 2 electric vehicle (EV) charging station in the garage in half of all residential units. Prior to the issuance of non-residential building permits, the applicant or its designee shall submit plans for the installation of 10 Level 2 EV charging stations in parking spaces located in the Village Core's commercial development area and P1 through P4 park areas to the County of San Diego for review and approval.	Conservatively, no credit was taken for implementation for EV charging equipment.
PDF-TR-1	Bus Pull-Ins	Bus pull-ins shall be constructed throughout the Project Area.	Conservatively, no credit was taken for implementation of bus pull-ins.
	Improve Design of Development	The Proposed Project shall include improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, usually measured in terms of average block size, proportion of four-way intersections, or number of intersections per square mile. Design is also measured in terms of sidewalk coverage, building setbacks, street widths, pedestrian crossings, presence of street trees, and a host of other physical variables that differentiate pedestrian-oriented environments from auto-oriented environments.	Conservatively, no credit was taken for implementation of improvement of design.
	Locate Project Near Bike Path/Bike Lane	The Proposed Project will be located within 1/2 mile of an existing Class I path or Class II bike lane. The Proposed Project design should include a comparable network that connects the Proposed Project uses to the existing off-site facilities.	A 0.63% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).

Table 22
Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
	Provide Pedestrian Network Improvements	The Proposed Project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the Project Area. The Proposed Project will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated.	A 2% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).
	Provide Traffic-Calming Measures	Proposed Project design will include pedestrian/bicycle safety and traffic-calming measures in excess of jurisdictional requirements. Roadways will be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic-calming features. Traffic-calming features may include marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.	A 0.63% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).
	Dedicate Land for Bike Trails	Larger projects may be required to provide for, contribute to, or dedicate land for the provision of off-site bicycle trails linking the Proposed Project to designated bicycle commuting routes in accordance with an adopted citywide or Countywide bikeway plan.	A 0.10% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).
	Provide Ride-Sharing Programs	The Proposed Project will include a ride-sharing program and a permanent transportation management association membership and funding requirement. Funding may be provided by community facilities district, County service area, or other non-revocable funding mechanism. The Proposed Project will promote ride-sharing programs through a multi-faceted approach:	A 0.75% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).

Table 22
Project Design Features that Reduce Operational Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
		• Designating a certain percentage of parking spaces for ride-sharing vehicles • Designating adequate passenger loading/unloading and waiting areas for ride-sharing vehicles • Providing a website or message board for coordinating rides	
	Implement Commute Trip Reduction Marketing	The Proposed Project will implement marketing strategies to reduce commute trips. Information-sharing and marketing are important components to successful commute-trip reduction strategies. Implementing commute-trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include the following: • New employee orientation of trip reduction and alternative mode options • Event promotions • Publications	A 0.40% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).
	Implement a School Pool Program	This Proposed Project will create a ride-sharing program for school children. Most school districts provide busing services to public schools only. School Pool helps match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for busing.	A 0.24% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM Program Evaluation (Chen Ryan 2017a).
	Required Project Contributions to Transportation Infrastructure Improvement Projects	The Proposed Project should contribute to traffic-flow improvements or other multi-modal infrastructure projects that reduce emissions and are not considered substantially growth-inducing. The local transportation agency should be consulted for specific needs.	Conservatively, no credit was taken for Proposed Project contributions to transportation infrastructure improvements.

3.4 Carbon Monoxide Hotspots

Mobile source impacts occur on two scales of motion: regionally and locally. Regionally, travel related to the Proposed Project would add to regional trip generation and increase VMT within the local airshed and the SDAB. Locally, traffic generated by the Proposed Project would be added to the County's roadway system near the Project Area. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-starting" and operating at pollution-inefficient speeds, and is operating on roadways already congested with non-Proposed-Project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic.

In addition to the numerous factors that would need to be present for a CO hotspot to occur, the potential for CO hotspots in the SDAB is steadily decreasing because of the continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, and the already very low ambient CO concentrations. Furthermore, CO transport is extremely limited, and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, children, hospital patients, and older adults. Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable level of service (LOS). Projects contributing to adverse traffic impacts may result in the formation of CO hotspots.

As indicated in the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality (County of San Diego 2007), a site-specific CO hotspot analysis should be performed if a proposed development would cause road intersections to operate at or below a LOS E with intersection peak-hour trips exceeding 3,000. Appendix C presents additional details for the Proposed Project's CO hotspot assessment.

3.5 Health Risk Assessment

Proposed Project construction would result in DPM emissions from heavy-duty construction equipment and trucks operating within the Project Area. As discussed in Section 2.4.1, DPM is characterized as a TAC by CARB. The Office of Environmental Health Hazard Assessment (OEHHA) has identified carcinogenic and chronic noncarcinogenic effects from long-term (chronic) exposure, but it has not identified health effects due to short-term (acute) exposure to DPM.[37]

[37] The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment

The nearest existing off-site residential receptors consist of single-family residences approximately 130 feet north of the northwestern land parcel of Planning Areas 16/19. Since the Proposed Project also includes residential development that could be occupied in the initial phase while the remaining phases of construction are ongoing, it was assumed that the nearest on-site residence would be located 79 feet from Proposed Project construction. The closest off-site worker receptors are at the Hollywood Casino in the Jamul Indian Village off State Route 94, near Peaceful Valley Ranch Road. The closest off-site school receptor is The Academy of Exploration in Jamul.

Cancer risk is defined as the increase in lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased probability in 1 million. The cancer risk from inhalation of a TAC is estimated by calculating the inhalation dose in units of milligrams per kilogram of body weight per day based on an ambient concentration in units of micrograms per cubic meter ($\mu g/m^3$), breathing rate, age-specific sensitivity factors, and exposure period, and multiplying the dose by the inhalation cancer potency factor, expressed as units of inverse dose [i.e., (milligrams/kilogram body weight per day)$^{-1}$]. Typically, population-wide cancer risks are based on a lifetime (70 years) of continuous exposure, and an individual resident cancer risk is based on a 30-year exposure duration; however, for the purposes of this analysis, a 5-year exposure scenario corresponding to the worse-case construction area for the Proposed Project was assumed by evaluation of the emissions from Planning Areas 16/19 for the 5-year construction duration.[38] All other Proposed Project construction areas are located much farther than 1,000 feet from the nearest refined discrete receptors that were chosen locations of maximum cancer risk and non-cancer health effects.

Cancer risks are typically calculated for all carcinogenic TACs and summed to determine overall increase in cancer risk to an individual. The calculation procedure assumes that cancer risk is proportional to modelled concentrations at any level of exposure and that risks from various TACs are additive. This is considered a conservative assumption at low doses and is consistent with the updated OEHHA-recommended approach (OEHHA 2015).

The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of $\mu g/m^3$ divided by the reference exposure level, also in units of $\mu g/m^3$. Reference exposure levels represent concentrations at or below which no adverse health effects are anticipated to occur. Reference exposure levels are also based on health effects to a particular target organ system, such as the respiratory system, liver, or central

[38] Proposed Project construction is anticipated to occur over 9 years throughout the Project Area; however, construction of Planning Areas 16/19 is anticipated to occur over 5 years. Therefore, a 5-year exposure period was assumed, consistent with 5 years of estimated construction emissions within Planning Areas 16/19.

nervous system. Hazard quotients are then summed for each TAC for each target organ system to obtain a hazard index.

To estimate the ambient DPM concentrations resulting from construction activities at nearby sensitive receptors, a dispersion modeling analysis was performed using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model Version 16216r (AERMOD View Version 9.3.0, Lakes Environmental Software 2017) and the Hotspots Analysis and Reporting Program Version 2, version 17052 (HARP 2). CARB developed HARP 2 as a tool to implement risk assessments and to incorporate requirements provided by OEHHA as outlined in the Air Toxics Hot Spot Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015).

DPM emissions from diesel-powered construction equipment and on-site diesel-powered trucks that would be used during construction are provided in Appendix D. The total tons of on-site DPM emissions from these sources were converted to pounds per year for input into HARP 2.

To develop a conservative assumption regarding DPM exposure, it was assumed that Planning Areas 16/19 would be disturbed with equipment during its 5-year period of activity, after which construction would occur at a different area of the site more than 1,000 feet away from the nearest existing off-site and future on-site residence. A 1,000-foot radial distance is considered the distance within which pollutant concentrations are greatest, and serves as a general "notification" distance for receptors. For example, research conducted by CARB indicated an 80% drop-off in pollutant concentrations at approximately 1,000 feet from major sources (CARB 2005). Therefore, a 1,000-foot distance is often used in analyzing impacts to receptors from distribution centers, freeways, rail yards, stationary sources, and other pollutant sources.[39]

To analyze impacts to potential on-site receptors, a receptor grid was placed over a 15-kilometer coarse grid area using 250-meter resolution to evaluate locations of maximum health risk impact. Subsequent discrete receptors were analyzed at the northern and southern extremes of Proposed Project activity where actual receptors are located. Proposed Project activity in the northern section would be more impactful, and, therefore, was analyzed for locations of maximum exposure. Annual emissions of construction-related exhaust PM_{10}, as a surrogate for DPM, during the worse-

[39] If the school is developed instead of the assumed 97 residential units within Central Village 14, it is anticipated that construction of the school would be completed in 2026, and operation of the school would not occur until all construction in Central Village 14 is complete. Proposed Project construction that would occur while the school would be in operation would be limited to construction activities within Planning Areas 16/19. The distance between the closest portion of Planning Areas 16/19 to the school site is approximately 7,300 feet, which is outside of the 1,000-foot radial distance for sensitive receptors assumed in the health risk assessment. Accordingly, the school is not included as a sensitive receptor land use in the health risk assessment.

case year of construction were calculated and then converted to grams per second for use in the AERMOD model.

Unmitigated and mitigated annual average emissions were calculated by averaging emissions for the 5-year construction activity period, and then input into HARP 2 with dispersion field unity concentrations output to determine ground level concentrations. These ground level concentrations were then applied to cancer and non-cancer chemical exposure methodology to determine health risk impacts. These impacts are evaluated in the following section. Emissions rates of 1 gram per second per total square meter of Project Area were input to AERMOD to determine the dispersion field unity concentrations. The emissions from heavy-duty equipment and trucks are represented by area sources encompassing Planning Areas 16/19. A release height of 5 meters was provided to represent vertical plume rise from frequently used construction equipment during atmospheric conditions. An initial vertical dimension of 1.2 meters was applied, which is optional for an area source.

In summary, the following parameters were used in the AERMOD model to represent the sources of DPM emissions in the Project Area:

- Source type: Area
- Release height: 5 meters
- Initial vertical dimension: 1.2 meters
- Setting: Rural

The three latest years of AERMOD-ready meteorological data from 2010 through 2012 for the Chula Vista Monitoring Station were provided by the SDAPCD for use in AERMOD. SDAPCD processes the meteorological data using EPA's AERMET meteorological data processor.

The cancer risk calculations were performed using the HARP 2 Air Dispersion Modeling and Risk Tool (ADMRT) by inputting the predicted annual DPM dispersion field unity concentrations from AERMOD for the nearest potential on-site residence (which would be the Maximally Exposed Individual Resident) and for the nearest off-site resident. Cancer risk parameters, such as age sensitivity factors, daily breathing rates, fraction of time at home, and cancer potency factors, were based on the values and data recommended by OEHHA (2015) as implemented in HARP 2. The potential exposure pathway for DPM includes inhalation only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for DPM are not known for these pathways.

For the purposes of this assessment, given the less-than-lifetime exposure period and the higher breathing rates and sensitivity of children to TACs, the cancer risk calculation assumes that the

exposure would affect children early in their lives. For the derived cancer risk calculation under the worst-case scenario, the 5-year exposure duration was assumed to start during the 3rd trimester of pregnancy. Additionally, "fraction of time at home" default factors were applied to conservatively account for typical time spent in the home and at work during the exposure period. For sensitive receptors, default residential exposures were conservatively assumed.

In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncarcinogenic health impacts. The chronic hazard index was evaluated using the OEHHA inhalation reference exposure levels. The chronic non-carcinogenic inhalation hazard index for construction activities was also calculated using HARP 2.

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4 PROJECT IMPACT ANALYSIS

The significance criteria described in Section 3 were used to evaluate impacts associated with construction and operation of the Proposed Project.

4.1 Conformance to the RAQS

4.1.1 Guideline for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, and the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007), the Proposed Project would have a significant impact if it would:

- Conflict with or obstruct the implementation of the RAQS and/or applicable portions of the SIP.

4.1.2 Significance of Impacts Prior to Mitigation

As previously discussed, the SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the SDAB, specifically the SIP and RAQS.[40] The federal O_3 attainment plan, which is part of the SIP, was adopted in 2016. 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 typically updated on a triennial basis (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards 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 the 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's mobile source emissions projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans.

As mentioned above, the SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of development of their general plans. As such, projects that involve development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS. However, if a project involves development that is greater than that anticipated in the local plan and/or

[40] For the purpose of this discussion, the relevant federal air quality plan is the Ozone Attainment Plan (SDAPCD 2016a). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

SANDAG's growth projections, that project might be in conflict with the SIP and RAQS, and may contribute to a potentially significant cumulative impact on air quality.

The Proposed Project is consistent with the County's General Plan land use designations and the County's existing zoning designations. More specifically, the Otay Ranch GDP/SRP allows for a total of 2,133 homes.[41] The Proposed Project would include a maximum of 1,119 units, which is consistent with Otay Ranch GDP/SRP (City of Chula Vista and County of San Diego 1993a). The Otay Ranch GDP/SRP is an implementation document of the County General Plan, and is therefore consistent with the General Plan, County Zoning Code, and associated regional growth assumptions. Therefore, the Proposed Project would not result in population growth that is greater than that expected in the County's General Plan, and actually reduces the number of dwelling units from the Otay Ranch GDP/SRP, thereby resulting in fewer emissions than anticipated in the 2016 RAQS. As such, the impact would be **less than significant**.

4.1.3 Mitigation

No mitigation measures would be required.

4.1.4 Conclusion

The Proposed Project would not result in greater population growth or VMT than anticipated in the County's General Plan, Otay Ranch GDP/SRP, or 2016 RAQS; therefore, this impact would be **less than significant**.

4.2 Conformance to Federal and State Ambient Air Quality Standards

4.2.1 Construction Impacts

4.2.1.1 Guideline for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, and the County Guidelines for Determining Significance – Air Quality (County of San Diego 2007), the Proposed Project would have a significant impact if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

[41] The Otay Ranch GDP/SRP includes land owned by the California for conservation purposes. The parcels that are owned by California are not expected to be developed; however, if the additional 1,014 units were to be built, population growth would remain in compliance with the County's General Plan and SDAPCD 2016 RAQS.

4.2.1.2 Significance of Impacts Prior to Mitigation

Construction Equipment and Vehicle Trips

Construction of the Proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application, and internal haul trucks) and off-site sources (e.g., vendor trucks and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, internal haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions. Construction of the Proposed Project would also generate emissions associated with blasting and rock crushing, which are discussed separately, below. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Section 3.2, Construction Emissions Methodology, presents the methodology and assumptions used to estimate emissions from construction of the Proposed Project. Appendix A presents construction scenario details, including phasing and phase duration, off-road-equipment use (equipment type, quantity, horsepower, load factor, and hours of operation), and vehicle trips (internal haul trucks, vendor truck, and workers vehicle trips).

As presented in Table 15, PDF-AQ-1 (Fugitive Dust Control) and PDF-AQ-2 (Architectural Coating Limits) were quantitatively included in the Proposed Project's estimated construction emissions.

Table 23 presents the estimated maximum daily emissions at each development subset area for each year of active construction with PDFs.

Table 23
Estimated Maximum Daily Construction Emissions – Unmitigated

Subset Area	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2019						
South Village 14	4.92	56.16	34.55	0.06	22.66	6.55
Central Village 14	—	—	—	—	—	—
North Village 14	—	—	—	—	—	—
Planning Areas 16/19	—	—	—	—	—	—

Table 23
Estimated Maximum Daily Construction Emissions – Unmitigated

Subset Area	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Off-Site Grading	4.80	55.05	33.81	0.06	11.28	6.28
Proctor Valley Road	—	—	—	—	—	—
Total Maximum Daily Emissions	*9.72*	*111.21*	*68.36*	*0.12*	*33.94*	*12.83*
2020						
South Village 14	46.40	20.65	21.69	0.04	248.86	29.38
Central Village 14	4.61	51.58	32.92	0.06	107.60	13.60
North Village 14	—	—	—	—	—	—
Planning Areas 16/19	—	—	—	—	—	—
Off-Site Grading	4.13	42.90	21.91	0.04	11.08	6.10
Proctor Valley Road	4.27	45.00	24.53	0.04	9.40	6.00
Total Maximum Daily Emissions	*59.41*	*160.13*	*101.05*	*0.18*	*376.94*	*55.08*
2021						
South Village 14	36.00	61.94	45.56	0.08	28.60	13.50
Central Village 14	8.77	94.61	57.99	0.12	62.95	20.68
North Village 14	—	—	—	—	—	—
Planning Areas 16/19	—	—	—	—	—	—
Off-Site Grading	3.94	40.93	21.52	0.04	10.93	5.96
Proctor Valley Road	1.32	13.96	15.14	0.03	0.81	0.66
Total Maximum Daily Emissions	*50.03*	*211.44*	*140.21*	*0.27*	*103.29*	*40.80*
2022						
South Village 14	35.15	29.39	36.57	0.06	9.80	2.20
Central Village 14	32.03	90.08	64.41	0.13	69.95	34.89
North Village 14	4.20	44.84	34.54	0.08	12.54	5.68
Planning Areas 16/19	—	—	—	—	—	—
Off-Site Grading	5.25	54.85	36.63	0.07	16.37	8.00
Proctor Valley Road	3.34	35.33	22.67	0.04	8.79	5.44
Total Maximum Daily Emissions	*79.97*	*254.49*	*194.82*	*0.38*	117.45	56.21
2023						
South Village 14	8.05	6.01	8.46	0.01	2.01	0.45
Central Village 14	70.35	67.13	62.57	0.12	30.61	20.68
North Village 14	16.77	19.27	24.70	0.05	4.29	1.14
Planning Areas 16/19	11.99	39.66	33.70	0.08	12.70	5.53
Off-Site Grading	6.07	62.69	46.93	0.10	16.80	8.16
Proctor Valley Road	*82.93*	*29.56*	*21.20*	*0.04*	*8.43*	*5.11*
Total Maximum Daily Emissions	*196.16*	*224.32*	*197.56*	*0.40*	74.84	41.07
2024						
South Village 14	—	—	—	—	—	—
Central Village 14	113.88	58.94	61.77	0.13	36.14	9.02
North Village 14	39.20	57.54	80.47	0.14	14.80	4.70

Table 23
Estimated Maximum Daily Construction Emissions – Unmitigated

Subset Area	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Planning Areas 16/19	8.33	37.44	33.49	0.08	17.32	5.52
Off-Site Grading	—	—	—	—	—	—
Proctor Valley Road	—	—	—	—	—	—
Total Maximum Daily Emissions	*161.41*	*153.92*	*175.73*	*0.35*	68.26	19.24
2025						
South Village 14	—	—	—	—	—	—
Central Village 14	47.36	109.65	127.77	0.26	33.61	13.46
North Village 14	7.91	15.45	24.48	0.04	3.67	0.94
Planning Areas 16/19	19.65	12.72	20.44	0.04	3.85	0.80
Off-Site Grading	—	—	—	—	—	—
Proctor Valley Road	—	—	—	—	—	—
Total Maximum Daily Emissions	*74.92*	*137.82*	*172.69*	*0.34*	*41.13*	*15.20*
2026						
South Village 14	—	—	—	—	—	—
Central Village 14	38.22	70.74	73.19	0.15	25.21	8.18
North Village 14	—	—	—	—	—	—
Planning Areas 16/19	28.27	28.14	44.88	0.08	9.43	1.97
Off-Site Grading	—	—	—	—	—	—
Proctor Valley Road	—	—	—	—	—	—
Total Maximum Daily Emissions	*66.49*	*98.88*	*118.07*	*0.23*	*34.64*	*10.15*
2027						
South Village 14	—	—	—	—	—	—
Central Village 14	—	—	—	—	—	—
North Village 14	—	—	—	—	—	—
Planning Areas 16/19	19.54	12.69	20.40	0.03	5.17	0.97
Off-Site Grading	—	—	—	—	—	—
Proctor Valley Road	—	—	—	—	—	—
Total Maximum Daily Emissions	*19.54*	*12.69*	*20.40*	*0.03*	*5.17*	*0.97*

Source: See Appendix 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.
Emissions represent maximum daily construction activities from overlapping construction phases at any one point for a given year.
Estimated emissions include compliance with all regulations and PDF-AQ-1 and PDF-AQ-2.

Construction of the Proctor Valley Road North Option for bike lanes in 2022 would result in a maximum of 9.26 pounds per day of VOC, 20.99 pounds per day of NO_x, 17.40 pounds per day of CO, 0.03 pounds per day of SO_x, 3.72 pounds per day of PM_{10}, and 2.22 pounds per day of $PM_{2.5}$. It is not anticipated that the optional bike lane construction would result in an increase in the maximum daily criteria air pollutants in 2022, since bike lane construction would not require

additional on-site equipment or additional equipment operation hours during off-site improvement construction, but would instead extend the length of the construction of Proctor Valley Road by 9 working days.

Neither the Perimeter Trails Option or Preserve Trails Option would require additional construction; therefore, construction of these options would not result in additional criteria air pollutant emissions.

Blasting Emissions

Using the methodology described in Section 3.2.8, the emissions of NO_x, CO, SO_X, PM_{10}, and $PM_{2.5}$ for blasting activities are presented in Table 24. As noted in Section 3.1.2, methane is the primary hydrocarbon reported, and methane is not considered to be a VOC; thus, no VOC emissions are reported in Table 24. Detailed emissions calculations are provided in Appendix B of this report.

Table 24
Blasting Emissions – Unmitigated

Phase	VOC	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Proctor Valley Road North (October 2019)	—	140.25	552.75	16.50	0.35	0.02
South Village 14 (August 2019)	—	140.25	552.75	16.50	0.35	0.02
Central Village 14 (December 2020–September 2021)	—	140.25	552.75	16.50	0.35	0.02
North Village 14 (July 2022–August 2022)	—	140.25	552.75	16.50	0.35	0.02
Planning Areas 16/19 (May 2023–September 2023)	—	140.25	552.75	16.50	0.35	0.02

Source: See Appendix B.
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

Rock-Crushing Emissions

As noted in Section 3.2.8, emissions associated with rock crushing were quantified in a separate calculation, since CalEEMod does not account for rock crushing. The daily emissions by phase for the rock-crushing operation and associated diesel-engine generators are shown by phase in Table 25. Emission calculations are provided in Appendix B.

Table 25
Rock-Crushing Emissions – Unmitigated

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Proctor Valley Road North (August 2019)						
Rock Crushing	—	—	—	—	14.59	1.95
Diesel Generator	7.36	142.12	43.19	0.20	2.90	2.90
Total	**7.36**	**142.12**	**43.19**	**0.20**	**17.49**	**4.85**
South Village 14 (August 2019 – September 2019)						
Rock Crushing	—	—	—	—	14.59	1.95
Diesel Generator	4.91	94.75	28.79	0.13	1.93	1.93
Total	**4.91**	**94.75**	**28.79**	**0.13**	**16.52**	**3.88**
Central Village 14 (December 2020 – June 2021)						
Rock Crushing	—	—	—	—	43.78	5.84
Diesel Generator	4.91	94.75	28.79	0.13	1.93	1.93
Total	**4.91**	**94.75**	**28.79**	**0.13**	**45.71**	**7.77**
North Village 14 (July 2022 – October 2022)						
Rock Crushing	—	—	—	—	14.59	1.95
Diesel Generator	4.91	94.75	28.79	0.13	1.93	1.93
Total	**4.91**	**94.75**	**28.79**	**0.13**	**16.52**	**3.88**
Planning Areas 16/19 (April 2023 – September 2023)						
Rock Crushing	—	—	—	—	29.19	3.89
Diesel Generator	1.30	25.07	7.62	0.03	0.51	0.51
Total	**1.30**	**25.07**	**7.62**	**0.03**	**29.70**	**4.40**

Source: See Appendix B. 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.
Note: All grading activities, blasting, and rock-crushing operations are anticipated to be completed by the end of 2023, when major earthwork activity would be completed.

Combined Construction Emissions

Table 26, Combined Estimated Maximum Daily Construction Emissions – Unmitigated, shows the estimated maximum daily construction emissions associated with construction of the Proposed Project assuming implementation of PDF-AQ-1 and PDF-AQ-2. The maximum daily emissions for each pollutant may occur during different phases of construction; however, maximum daily emissions reflect the worst-case day accounting for overlapping construction subphases. It was conservatively assumed that maximum daily construction activities from overlapping construction phases, such as that resulting from site preparation, grading, and building construction during construction of all subareas, could occur concurrently with blasting and rock-crushing activities. Although these activities may occur on the same day, activities would occur in various locations

across the Project Area, which would vary on a daily basis. Therefore, maximum daily emissions shown in Table 26 reflect a conservative, worst-case construction scenario.

Table 26
Combined Estimated Maximum Daily Construction Emissions – Unmitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2019						
Construction Activities[a]	9.73	111.21	68.37	0.13	33.93	12.83
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	12.26	236.87	71.98	0.33	34.02	8.74
Maximum Daily Emissions	*21.99*	*488.33*	*693.1*	*16.96*	*68.3*	*21.59*
2020						
Construction Activities[a]	59.41	160.13	101.05	0.19	376.94	55.08
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	4.91	94.75	28.79	0.13	45.71	7.77
Maximum Daily Emissions	*64.32*	*488.33*	*693.1*	*16.96*	*423.00*	*62.87*
2021						
Construction Activities[a]	50.03	211.43	140.22	0.26	103.30	40.80
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	4.91	94.75	28.79	0.13	45.71	7.77
Maximum Daily Emissions	*54.94*	*446.43*	*721.76*	*16.89*	*149.36*	~~*78.77*~~*48.59*
2022						
Construction Activities[a]	79.96	254.49	194.82	0.39	177.48	56.21
Blasting (Phase 2)b	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)b	4.91	94.75	28.79	0.13	16.52	3.88
Maximum Daily Emissions	*84.87*	*489.49*	*776.36*	*17.02*	*134.35*	*60.11*
2023						
Construction Activities[a]	196.16	224.32	197.56	0.40	74.84	41.07
Rock Crushing (Phase 2)b	1.30	25.07	7.62	0.03	29.70	4.40
Maximum Daily Emissions	*197.46*	*249.39*	*205.18*	*0.43*	*104.54*	*45.47*
2024						
Construction Activities[a]	161.41	153.92	175.73	0.34	68.26	19.24
2025						
Construction Activities[a]	74.92	137.82	172.69	0.34	41.13	15.21
2026						
Construction Activities[a]	66.49	98.88	118.07	0.22	34.63	10.15
2027						
Construction Activities[a]	19.54	12.69	20.40	0.03	5.17	0.97

Table 26
Combined Estimated Maximum Daily Construction Emissions – Unmitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Maximum Daily Emissions						
Maximum Daily Emissions During Any Construction Year	**197.46**	**489.49**	**776.36**	**17.02**	**423.00**	**62.87**
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Sources: See Appendices A and B.
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
Estimated emissions include implementation of REG-AQ-1, REG-AQ-3, PDF-AQ/GHG-1, and PDF-AQ/GHG-2.
[a] Emissions represent maximum daily construction activities from overlapping construction phases at any one point for a given year.
[b] Appendix B.

Construction of the Proctor Valley Road North Option for bike lanes in 2022 would result in a maximum of 9.26 pounds per day of VOC, 20.99 pounds per day of NO_x, 17.40 pounds per day of CO, 0.03 pounds per day of SO_x, 3.72 pounds per day of PM_{10}, and 2.22 pounds per day of $PM_{2.5}$. It is not anticipated that the optional bike lane construction would result in an increase in the maximum daily criteria air pollutants in 2022, since bike lane construction would not require additional on-site equipment or additional equipment operation hours during off-site improvement construction, but would instead extend the length of the construction of Proctor Valley Road by 9 working days.

As shown, maximum combined daily construction emissions would exceed the thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Impacts for these pollutants would be **potentially significant**. Daily construction emissions would not exceed the threshold for SO_x.

In summary, prior to mitigation, the Proposed Project would result in emissions that would exceed the County's thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ during construction. As discussed in Section 4.2.1.3 below, implementation of feasible mitigation would reduce the Project's construction-related PM_{10} and $PM_{2.5}$ impacts to a level below significant. However, the Project's construction-related VOC, NO_x and CO emissions would still exceed the County's thresholds following implementation of all feasible mitigation. Notably, since the emission-based thresholds used in this analysis were established to provide project-level estimates of criteria air pollutant quantities that the SDAB can accommodate without affecting the attainment dates for the ambient air quality standards, and since the EPA and CARB have established the ambient air quality standards at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety, elevated levels of criteria air pollutants above adopted thresholds as a result of the Proposed Project's construction could cause adverse health effects

associated with these pollutants. (The effects typically associated with unhealthy levels of criteria air pollutant exposure are described in Section 2.4.1, Pollutants and Effects, above.) However, as detailed in the Appendix E, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects.

4.2.1.3 Mitigation

M-AQ-1 through M-AQ-8 have been identified to reduce construction criteria air pollutant emissions and associated construction-related air quality impacts generated by the Proposed Project. M-AQ-1, M-AQ-2, and M-AQ-3 would be implemented during blasting and rock-crushing activities. Prior to approval of any grading permits, the applicant or its designee would include M-AQ-3 on all grading plans, which would be implemented during blasting and rock-crushing of each phase of the Proposed Project to minimize PM_{10} and $PM_{2.5}$. Tier 4 Interim exhaust emission standards, as required by M-AQ-4, include exhaust emission limits for NO_x, CO, particulate matter (PM_{10} and $PM_{2.5}$), and non-methane hydrocarbons, which are a subset of VOCs; therefore, M-AQ-4 serves to minimize Project-generated emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$, with the greatest emission reductions to NO_x, PM_{10}, and $PM_{2.5}$ emissions. M-AQ-5 through M-AQ-7 were identified to reduce VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$emissions. In addition, PDF-AQ-1 would limit PM_{10} and $PM_{2.5}$ emissions through a fugitive dust control plan and PDF-AQ-2 would limit the VOC content of paint and other finishes used during the architectural coating phase of the Proposed Project.

M-AQ-1 **Tier 4 Final Rock-Crushing Equipment**. Prior to the commencement of any rock-crushing activities, the applicant or its designee shall provide evidence to the County of San Diego that all diesel-powered generators with engines greater than 750 horsepower used for rock-crushing operations are equipped with Tier 4 Final engines.

M-AQ-2 **Blasting and Rock-Crushing Notification**. Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the County of San Diego that the applicant has employed a construction relations officer who will address community concerns regarding on-site construction activity. The applicant shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer, who shall document complaints and concerns regarding on-site construction activity. The sign shall be placed in easily accessible locations along Proctor Valley Road, and noted on grading and improvement plans.

M-AQ-3 **Blasting and Rock-Crushing Emission Controls**. The following provisions shall be implemented to reduce emissions associated with blasting and rock-crushing activities:

a. During blasting activities, the construction contractor shall implement all feasible engineering controls to control fugitive dust including exhaust ventilation, blasting cabinets and enclosures, vacuum blasters, drapes, water curtains or wet blasting.

   Watering methods, such as water sprays and water applications, also shall be implemented during blasting, rock crushing, cutting, chipping, sawing, or any activity that would release dust particles to reduce fugitive dust emissions.

b. During rock-crushing transfer and conveyance activities, material shall be watered prior to entering the crusher.

   Additionally, crushing activities shall not exceed an opacity limit of 20% (or Number 1 on the Ringelmann Chart) as averaged over a 3-minute period in any period of 60 consecutive minutes, in accordance with SDAPCD Rule 50, Visible Emissions. A qualified opacity observer shall monitor opacity from crushing activities once every 30 days while crushers are employed on site to ensure compliance with SDAPCD Rule 50.

   Water sprayers, conveyor belt enclosures, or other mechanisms also shall be employed to reduce fugitive dust generated during transfer and conveyance of crush material.

M-AQ-4 **Tier 4 Interim Construction Equipment**. Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the County of San Diego (County) that for off-road equipment with engines rated at 75 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Interim. An exemption from these requirements may be granted by the County in the event that the applicant documents that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment.[42] Before an exemption may be considered by the County, the applicant shall be required to demonstrate that three construction fleet owners/operators in the San Diego Region were

[42] For example, if a Tier 4 Interim piece of equipment is not reasonably available at the time of construction and a lower tier equipment is used instead (e.g., Tier 3), another piece of equipment could be upgraded from a Tier 4 Interim to a higher tier (i.e., Tier 4 Final) or replaced with an alternative-fueled (not diesel-fueled) equipment to offset the emissions associated with using a piece of equipment that does not meet Tier 4 Interim standards.

contacted and that those owners/operators confirmed Tier 4 equipment could not be located within the San Diego region.

M-AQ-5 **Construction Equipment Maintenance**. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained in accordance with manufacturer specifications before and for the duration of construction.

M-AQ-6 **Use of Electrical-Powered Equipment**. Electrical hookups shall be provided on site for hand tools, such as saws, drills, and compressors, used for building construction to reduce the need for electric generators and other fuel-powered equipment. The use of electrical construction equipment shall be employed, where feasible.

M-AQ-7 **Best Available Control Technology**. Construction equipment shall be outfitted with best available control technology (BACT) devices certified by the California Air Resources Board. A copy of each unit's BACT documentation shall be provided to the County of San Diego at the time of mobilization of each applicable unit of equipment.

M-AQ-8 **Haul Trucks.** Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance.

Although the mitigation measures listed above would reduce the potential for the Proposed Project to result in air quality impacts during construction, not all mitigation provided results in quantifiable emissions reductions. Accordingly, estimated mitigated emissions do include the full extent of potential emissions reductions associated with required mitigation and the non-quantifiable emissions reductions associated with regulatory compliance. Nonetheless, in addition to compliance with the PDFs assumed in Table 25 (unmitigated emissions), estimated mitigated emissions generated by the Proposed Project presented in Table 25 assume M-AQ-1 (Tier 4 Final Rock Crushing Equipment) and M-AQ-4 (Tier 4 Interim Construction Equipment).

Implementation of M-AQ-1, Tier 4 Final Rock Crushing Equipment, and M-AQ-4, Tier 4 Interim Construction Equipment, would reduce all criteria air pollutants associated with most off-road diesel construction equipment—chiefly VOC, NO_x, PM_{10}, and $PM_{2.5}$. The measures would restrict the model years, which are associated with engine tiers, of construction equipment or its engines. Emissions shown in Table 25 represent the maximum emissions during summer or winter as estimated in CalEEMod. Estimated mitigated emissions reflect the use of Tier 4 Interim equipment or higher. Tier 4 equipment focuses on reducing NO_x, PM_{10}, and $PM_{2.5}$ emissions. When applying

the engine tier mitigation in CalEEMod, CalEEMod assumes the diesel engine emission standards set for that selected tier and engine power class for CO, non-methane hydrocarbons (a subset of VOCs), NO_x, PM_{10}, and $PM_{2.5}$. The CO standard for Tier 4 is higher than what is typically observed when using non-tiered equipment, resulting in higher estimated mitigated CO emissions than unmitigated emissions in some years.

Table 27 presents estimated maximum daily construction emissions generated by the Proposed Project with incorporation of M-AQ-1 and M-AQ-4.

Table 27
Estimated Maximum Daily Construction Emissions – Mitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2019						
Construction Activities[a]	2.25	41.10	75.05	0.13	29.39	8.35
Blasting (Phase 1)[a]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	2.82	138.57	169.66	0.33	30.07	4.79
Maximum Daily Emissions	*5.07*	*319.92*	*797.46*	*16.96*	*59.81*	*13.16*
2020						
Construction Activities[a]	51.1552.13	138.3196.49	152.83107.26	0.260.19	49.32283.77	27.4844.65
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	1.13	55.43	67.87	0.13	44.14	6.20
Maximum Daily Emissions	*52.2853.26*	*333.99292.17*	*773.45727.88*	*16.8916.82*	*93.81328.26*	*33.750.87*
2021						
Construction Activities[a]	39.1338.41	124.58109.72	157.78128.62	0.260.23	48.1796.03	22.9234.13
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	1.13	55.43	67.87	0.13	44.14	6.20
Maximum Daily Emissions	*40.2639.54*	*320.26305.4*	*778.4749.24*	*16.8916.86*	*92.66140.52*	*29.1440.35*
2022						
Construction Activities[a]	69.7566.39	195.26114.11	244.02182.08	0.420.31	77.47100.56	36.7743.22
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	1.13	55.43	67.87	0.13	14.95	2.31

Table 27
Estimated Maximum Daily Construction Emissions – Mitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Maximum Daily Emissions	*70.88~~67.52~~*	*390.94~~309.79~~*	*864.64~~802.7~~*	*17.05~~16.94~~*	*92.77~~115.86~~*	*39.14~~5.55~~*
2023						
Construction Activities[a]	106.36~~186.76~~	165.18~~145.44~~	263.97~~240.26~~	0.45~~0.418~~	68.53~~72.56~~	30.53~~27.62~~
Rock Crushing (Phase 2)[b]	0.30	14.66	17.95	0.03	29.28	3.98
Maximum Daily Emissions	*106.66~~187.06~~*	*179.84~~160.10~~*	*281.92~~258.21~~*	*0.48~~0.45~~*	*97.81~~101.84~~*	*34.51~~31.60~~*
2024						
Construction Activities[a]	155.55~~154.75~~	135.72~~123.87~~	223.99~~210.19~~	0.36~~0.34~~	47.27~~62.64~~	12.96~~14.12~~
2025						
Construction Activities[a]	71.55	124.26	210.55	0.34	36.47	10.77
2026						
Construction Activities[a]	61.90	83.52	138.57	0.22	31.52	7.01
2027						
Construction Activities[a]	19.22	14.75	23.52	0.03	4.79	0.63
Maximum Daily Emissions						
Maximum Daily Emissions During Any Construction Year	**155.55 ~~191.67~~**	**390.94 ~~319.92~~**	**864.64 ~~802.7~~**	**17.05~~16.96~~**	**97.81~~328.26~~**	**39.10 ~~50.87~~**
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	~~Yes~~No	No

Source: See Appendix A.
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.
Note: Estimated emissions include compliance with all regulations, PDF-AQ-1, and PDF-AQ-2, and implementation of M-AQ-1 and M-AQ-4.
[a] Emissions represent maximum daily construction activities from overlapping construction phases at any one point for a given year.
[b] Appendix B.

With incorporation of mitigation, construction of the Proctor Valley Road North Option for bike lanes in 2022 would result in a maximum of 9.11 pounds per day of VOC, 11.29 pounds per day of NO_x, 20.91 pounds per day of CO, 0.03 pounds per day of SO_x, 2.83 pounds per day of PM_{10}, and 1.41 pounds per day of $PM_{2.5}$. It is not anticipated that the optional bike lane construction

would result in an increase in the maximum daily criteria air pollutants in 2022, but would instead extend the length of construction of Proctor Valley Road by 9 working days.

As shown in Table 27, maximum daily construction emissions would still exceed the thresholds for VOC, NO_x, and CO~~, and PM_{10}~~ following implementation of mitigation measures. Daily construction emissions of PM_{10} and $PM_{2.5}$ would be reduced below thresholds with incorporation of mitigation. Daily emissions from SO_x were below the thresholds prior to incorporation of mitigation and would remain below thresholds with mitigation. As noted previously, not all reductions that would result from implementation of mitigation provided in M-AQ-1 through M-AQ-8 are quantifiable; therefore, emissions shown in Table 27 are overestimated and emissions would be further reduced on a daily basis, but not to a level below significance. Impacts would remain **significant and unavoidable**.

4.2.1.4 Conclusions

The emissions associated with construction would be temporary, lasting approximately 9 years. As shown in Table 26, Proposed Project maximum daily construction emissions would exceed the thresholds for VOC, NO_x, CO, PM_{10} and $PM_{2.5}$ prior to mitigation; maximum daily construction emissions would not exceed the threshold for SO_x. As shown in Table 27, following implementation of M-AQ-1 through M-AQ-8 (M-AQ-1 and M-AQ-4 quantified), VOC, NO_x, and CO~~, and PM_{10}~~ emissions would remain **significant and unavoidable**.

4.2.2 Operational Impacts

4.2.2.1 Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, and the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007), the Proposed Project would have a significant impact if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

4.2.2.2 Significance of Impacts Prior to Mitigation

Operation of the Proposed Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, including from the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; energy sources, including combustion of fuels used for space and water heating and cooking appliances; and mobile sources, including vehicle trips from future residents. As discussed in Section 3.3, Operational Emissions

Methodology, criteria air pollutant emissions associated with long-term operations were quantified using CalEEMod.

Regulatory compliance measures that would reduce operational criteria air pollutant emissions that were quantified in CalEEMod include REG-AQ-5 (Architectural Coating VOC Limits), as presented in Table 21. Consistency with REG-AQ-5 was conservatively represented in this analysis by assuming a VOC content limit of 150 g/L for operational reapplication of interior and exterior surface architectural coatings. CalEEMod Version 2016.3.1 uses vehicle emission factors from EMFAC 2014, which take into account various statewide and federal mobile source strategies and regulations. No mobile source regulatory measures were quantitatively assumed in addition to regulations included in EMFAC 2014 as incorporated into CalEEMod.

As presented in Table 21, PDF-AQ/GHG-2 (Zero Net Energy Development), PDF-AQ/GHG-3 (Non-Residential Energy Improvement Standards), PDF-AQ/GHG-4 (Energy Star Appliances), PDF-AQ/GHG-5 (Solar Water Heaters), and PDF-TR-1 (TDM Program) were quantitatively included in the Proposed Project's estimated operational emissions.

Table 28, Estimated Maximum Daily Operational Emissions, presents the maximum daily emissions associated with operation of the Proposed Project after all phases of construction have been completed and the development is fully occupied in 2028. The values shown are the maximum summer and winter daily emissions results from CalEEMod.

Table 28
Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Area	96.34	1.06	92.30	0.00	0.51	0.51
Energy	0.88	7.59	3.62	0.05	0.61	0.61
Mobile	27.71	105.13	250.31	0.92	92.55	25.17
Total	**124.93**	**113.77**	**346.23**	**0.97**	**93.68**	**26.29**
Winter						
Area	96.34	1.06	92.30	0.00	0.51	0.51
Energy	0.88	7.59	3.62	0.05	0.61	0.61
Mobile	26.64	106.29	254.13	0.87	92.56	25.17
Total	**123.86**	**114.94**	**350.05**	**0.93**	**93.68**	**26.29**

Table 28
Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Maximum Daily Emissions						
Maximum Daily Emissions	**124.93**	**114.94**	**350.05**	**0.97**	**93.68**	**26.29**
Pollutant Threshold	75	250	550	250	100	55
Threshold Exceeded?	**Yes**	No	No	No	**Yes**	No

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.
Emissions reflect operational year 2028.
See Appendix A for complete results.
Estimated emissions include compliance with regulatory measures (REG-AQ-5) and implementation of PDFs (PDF-AQ/GHG-2, PDF-AQ/GHG-3, PDF-AQ/GHG-4, PDF-AQ/GHG-5, and PDF-TR-1).

As shown, daily operational emissions generated by the Proposed Project would exceed the County's threshold for VOCs and PM_{10}. Daily operational emissions would not exceed the County's thresholds for NO_x, CO, SO_x, or $PM_{2.5}$. Because VOC and PM_{10} emissions generated by the Proposed Project would exceed the County's threshold, potential operational air quality impacts would be **potentially significant**.

In summary, prior to mitigation, the Proposed Project would result in emissions that would exceed the County's thresholds for VOC and PM_{10} during operations. As discussed in Section 4.2.2.3 below, the Project's operations-related VOC and PM_{10} emissions would still exceed the County's thresholds following implementation of all feasible mitigation. Notably, since the emission-based thresholds used in this analysis were established to provide project-level estimates of criteria air pollutant quantities that the SDAB can accommodate without affecting the attainment dates for the ambient air quality standards, and since the EPA and CARB have established the ambient air quality standards at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety, elevated levels of criteria air pollutants above adopted thresholds as a result of the Proposed Project's operation could cause adverse health effects associated with these pollutants. (The effects typically associated with unhealthy levels of criteria air pollutant exposure are described in Section 2.4.1, Pollutants and Effects, above.) However, as detailed in the Appendix E, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects.

4.2.2.3 Mitigation

M-AQ-9 through M-AQ-10 are included to reduce VOC operational emissions.

M-AQ-9 **Facilitate Use of Electrical Lawn and Garden Equipment**. Prior to the issuance of residential building permits, the applicant or its designee shall provide evidence to the County of San Diego that building design plans require that residential structures be equipped with outdoor electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.

M-AQ-10 **Low-VOC/Green Cleaning Product Educational Program.** Prior to the occupancy of any on-site development, the applicant or its designee shall provide evidence to the County of San Diego that the applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental offices, leasing spaces, and/or on websites.

4.2.2.4 Conclusions

As shown in Table 28, daily operational emissions would not exceed the County's thresholds for NO_x, CO, SO_x, or $PM_{2.5}$. Maximum daily operational emissions, however, would exceed the County's threshold for VOCs and PM_{10}.

The primary source of VOC emissions is use of consumer products, which are subject to CARB regulations and could not be mitigated further by PDFs, although M-AQ-10 (Low-VOC/Green Cleaning Product Educational Program) would encourage use of low-VOC cleaning products. M-AQ-9, which facilitated use of electrical lawn and garden equipment, would reduce criteria air pollutant emissions, including VOC and PM_{10}, associated with fossil fuel consumption.

The primary source of PM_{10} emissions is mobile sources (e.g., passenger vehicles). The engine and fuel efficiencies of vehicles are regulated by the EPA and CARB, and the Proposed Project includes PDFs to reduce emissions associated with fossil fuel consumption (i.e., PDF-AQ/GHG-6 (Electric Vehicle Charging Stations) and PDF-TR-1 (Transportation Demand Management)). No additional feasible mitigation measures are available to further reduce PM_{10} emissions.

Although M-AQ-9 and M-AQ-10 would effectively reduce emissions, reductions associated with these mitigation measures are not readily quantifiable. As such, there are no mitigated emissions presented herein. Following implementation of the mitigation measures listed above, in addition to the Proposed Project's PDFs, Proposed Project operational emissions of VOCs and PM_{10} would remain **significant and unavoidable**.

4.3 Cumulatively Considerable Net Increase of Criteria Pollutants

In analyzing cumulative impacts from a project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as nonattainment for the state and federal ambient air quality standards. As discussed in Section 2.4.2, the SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the SDAB. The Proposed Project would have a cumulatively considerable impact if emissions generated by the Proposed Project would exceed thresholds for VOC or NO_x (O_3 precursors), PM_{10}, and/or $PM_{2.5}$. If the Proposed Project does not exceed thresholds and is determined to have less-than-significant impacts, it may still have a cumulatively considerable impact on air quality if emissions from the Proposed Project, in combination with emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the Proposed Project would have a cumulative impact only if the Proposed Project's contribution accounts for a significant proportion of the cumulative total emissions.

Background ambient air quality, as measured at the monitoring stations maintained and operated by SDAPCD, is the concentration of pollutants from existing sources; therefore, past and present impacts are included in the background ambient air quality data.

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to air quality is the south-central portion of the SDAB (San Diego County). Due to the nonattainment status of the SDAB, the primary air pollutants of concern are VOC and NO_x, which are O_3 precursors, and PM_{10} and $PM_{2.5}$. Because of the nature of O_3 as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum O_3 impacts generally occur downwind of the area where the O_3 precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, tend to occur locally; thus, projects occurring in the same general area and in the same time period tend to create cumulative air quality impacts.

Existing Cumulative Conditions

Air quality management in the geographic area for the cumulative impact assessment is the responsibility of the SDAPCD. Existing levels of development in the County have led to the nonattainment status for O_3 with respect to the CAAQS and NAAQS, and for PM_{10} and $PM_{2.5}$ with respect to the CAAQS. The nonattainment status is based on ambient air quality monitoring generally conducted in the urban portions of the County. Due to its proximity to the Project Area and similar geographic and climactic characteristics, the Otay Mesa/Donovan monitoring station

is the most representative to Project Area conditions for criteria pollutants. The air quality plans prepared by the SDAPCD reflect future growth under local development plans, but they are intended to reduce emissions Countywide to levels that would comply with the NAAQS and CAAQS through implementation of new regulations at the local, state, and federal levels.

The separate guidelines of significance discussed below were developed to respond to the following question from the CEQA Guidelines Appendix G:

- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is nonattainment under an applicable federal or state ambient air quality standard (including emissions that exceed the significance thresholds for O_3 precursors)?

4.3.1 Construction Impacts

4.3.1.1 Guidelines for the Determination of Significance

Cumulatively considerable net increases during the construction phase would typically occur if two or more projects near each other are simultaneously under construction. The following guidelines for determining significance must be used for determining the cumulatively considerable net increases during the construction phase:

- A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs would also have a significant cumulatively considerable net increase.
- In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from that project, in combination with the emissions of concern from other projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of guidelines.

4.3.1.2 Significance of Impacts Prior to Mitigation

In analyzing cumulative impacts from the Proposed Project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS.[43] If the Proposed Project's emissions do 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 Proposed Project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds.

[43] The Project Area is designated as maintenance for CO under the NAAQS. Although not required by County of San Diego guidelines, potentially significant impacts from CO emissions are also discussed herein.

Construction of cumulative projects simultaneously with the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by off-road construction equipment, soil disturbance, architectural coating and asphalt pavement VOC off-gassing, on-road haul trucks, vendor trucks, and worker vehicle trips. As discussed in Section 4.2.1, fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from site preparation and grading activities. NO_x emissions would primarily result from the use of construction equipment and motor vehicles, the latter of which would generally be dispersed over a large area where the vehicles are traveling. VOC emissions would primarily result from architectural coatings of buildings, which by nature would be dispersed over the Project Area.

As discussed in Section 4.2.1, maximum daily construction emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ generated by the Proposed Project would exceed thresholds prior to implementation of mitigation. With mitigation, VOC, NO_x, CO, and PM_{10} emissions generated by the Proposed Project during construction would remain above thresholds.[44] The Proposed Project would be required to comply with SDAPCD Rule 55, which regulates construction activity capable of generating fugitive dust (PM_{10} and $PM_{2.5}$) emissions, including active operations, open storage piles, inactive disturbed areas, and trackout and carry out onto paved roads beyond the Project Area. Implementation of PDF-AQ-1 would ensure that the Proposed Project would comply with SDAPCD Rule 55 and the County's Grading Ordinance. Although construction would be temporary, it is possible that other land development and infrastructure projects could be constructed in the general vicinity and during the same timeframe as the Proposed Project.

Should other projects occur in the vicinity of the Proposed Project, significant effects related to VOC, NO_x, CO, and/or PM_{10} emissions could be further intensified due to active operations at multiple sites with potential earth-moving activities associated with site preparation and grading (resulting in increased PM_{10} emissions), and exhaust emissions from construction equipment, worker vehicles (resulting in increased VOC, NO_x and CO, and PM_{10} emissions), and truck trips associated with material deliveries and on-site hauling activities. When combined with other reasonably foreseeable future projects, significant off-site VOC emissions could result during Proposed Project construction primarily due to overlapping application of architectural coatings during construction. The Proposed Project's temporary cumulative construction impacts relative to VOC, NO_x, CO, and PM_{10} emissions would be **significant and unavoidable**.

[44] The County of San Diego's cumulative thresholds presented in Section 4.3.1.1 only identify VOC, NO_x, PM_{10}, and $PM_{2.5}$ as pollutants of cumulative concern. In addition, the SDAB is designated as an attainment (maintenance) area for CO; therefore, exceeding project-specific thresholds would not necessarily result in a cumulative impact. Nonetheless, because Proposed Project emissions of CO during construction activities would exceed the maximum daily project-level CO emissions thresholds, it was conservatively determined that the Proposed Project would have a cumulative impact in regards to CO emissions.

4.3.1.3 Mitigation

M-AQ-1 through M-AQ-8 are provided to reduce impacts to criteria pollutant emissions during construction.

To reduce NO_x emissions from construction activities, M-AQ-1 and M-AQ-4, requiring Tier 4 Final rock-crushing equipment and requiring Tier 4 Interim construction equipment, respectively, would be implemented. Following implementation of M-AQ-1 and M-AQ-4, NO_x emissions would not be reduced to a level below the thresholds. As such, impacts regarding NO_x emissions during construction activities would remain above thresholds.

PDF-AQ-1 and M-AQ-3 would be implemented to reduce fugitive dust (PM_{10} and $PM_{2.5}$) emissions, and following implementation of mitigation, PM2.5 emissions would be reduced below thresholds; however, PM_{10} emissions would remain above the threshold. Impacts associated with PM_{10} emissions would be significant and unavoidable during grading, blasting, and rock-crushing activities. Following completion of grading, blasting, and rock crushing, PM_{10} emissions would be below the thresholds of significance.

PDF-AQ-2 would reduce VOC emissions generated by the Proposed Project associated with application of architectural coating and would ensure compliance with SDAPCD Rule 67.0.1; however, VOC emissions would remain above thresholds.

4.3.1.4 Conclusions

Emissions associated with construction would be temporary, lasting approximately 9 years. As shown in Table 26, unmitigated maximum daily construction emissions would exceed the County's thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Daily construction emissions would not exceed the County's threshold for SO_x.[45] As shown in Table 26, emissions would still exceed the County's thresholds for VOC, NO_x, CO, and PM_{10} following implementation of mitigation measures; however, $PM_{2.5}$ emissions would be reduced below the County's threshold. Moreover, because other cumulative projects would have the potential to be constructed in the Proposed Project vicinity, cumulative construction emissions could further exacerbate emissions shown in Table 26. Following implementation of mitigation measures, cumulative construction emissions of VOC, NO_x, CO, and PM_{10} would remain **significant and unavoidable**.

[45] Although the County of San Diego's cumulative thresholds only identify VOC, NO_x, PM_{10}, and $PM_{2.5}$ as pollutants of cumulative concern, the determination that Proposed Project construction emissions of SO_x would not exceed project-level thresholds is noted for completeness.

4.3.2 Operational Impacts

4.3.2.1 Guidelines for the Determination of Significance

The guidelines for operational cumulatively considerable net increases are treated differently due to the mobile nature of the emissions. The SDAB's RAQS, based on growth projections derived from the allowed general plan densities, is typically updated every 3 years by SDAPCD and lays out the programs for attaining the CAAQS for O_3 precursors. It is assumed that if a project conforms to the County General Plan and does not have emissions exceeding the screening-level thresholds, it will not create a cumulatively considerable net increase for O_3 since the emissions of O_3 precursors were accounted for in the RAQS.

The following guidelines for determining significance are used for determining the cumulatively considerable net increases during the operational phase:

- A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs would also have a significant cumulatively considerable net increase.
- Projects that cause road intersections to operate at or below LOS E (analysis only required when the addition of peak-hour trips from a project and surrounding projects exceeds 2,000) and create a CO hotspot create a cumulatively considerable net increase of CO.

4.3.2.2 Significance of Impacts Prior to Mitigation

With regard to cumulative impacts associated with O_3 precursors, in general, if a project is consistent with the community and general plans, it has been accounted for in the O_3 attainment demonstration contained within the RAQS. As such, it would not cause a cumulatively significant impact on the ambient air quality for O_3.

The Proposed Project would include a General Plan Amendment that would neither adjust land use or zoning designations nor permit a higher density of housing than permitted by the County's General Plan. As such, the Proposed Project would be fully consistent with the County's General Plan. The Proposed Project is consistent with the current zoning designations and does not include any other amendments to the County Zoning Ordinance aside from minor mapping corrections.

Since the Proposed Project would not contribute to local population or employment growth and associated VMT in excess of that anticipated for the Project Area by the County's General Plan, the Proposed Project is considered accounted for in the RAQS, and the Proposed Project would

not result in cumulatively considerable impacts. However, as shown in Table 27, the Proposed Project would exceed operational criteria pollutant emission thresholds resulting in direct impacts to VOC and PM_{10} emissions; therefore, combined with potential future projects, operational cumulative emissions would be considered **potentially significant**. As discussed below in Section 4.4.2, the predicted CO concentrations would not exceed the CO Ambient Air Quality Standards; therefore, impacts from CO hotspots would **be less than significant**.

4.3.2.3 Mitigation

M-AQ-9 through M-AQ-10 would be implemented to reduce operational emissions.

4.3.2.4 Conclusions

M-AQ-9 through M-AQ-10 would be implemented to reduce operational emissions; however, additional reductions in VOC and PM_{10} emissions would be required to reduce emissions of these pollutants to less than significant, and feasible mitigation measures are not available to achieve these reductions. When considered with other potential cumulative projects in the Proposed Project vicinity, cumulative operational emissions would be **significant and unavoidable**.

The Proposed Project is consistent with the current zoning designations and does not include any other amendments to the County Zoning Ordinance aside from minor mapping corrections. The Proposed Project would not lead to population growth greater than that expected in the County's General Plan, and reduces the number of dwelling units approved for in the Otay Ranch GDP/SRP; therefore, the Proposed Project is anticipated to result in less VMT than evaluated in the County's General Plan EIR and in the 2016 RAQS, and the impact would be **less than significant**.

As discussed in Section 4.4.2, the Proposed Project would not result in CO concentrations that would exceed the 1-hour or 8-hour CAAQS; therefore, the impact would be **less than significant**.

4.4 Impacts to Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Reduced visibility, eye irritation, and adverse health impacts upon sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Air quality regulators typically define sensitive receptors as schools (preschool–12th grade), hospitals, resident care facilities, daycare centers, and other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality.

However, for the purposes of CEQA analysis in the County, the definition of a sensitive receptor also includes residents.

The two primary emissions of concern regarding health effects for land development projects are DPM during construction and CO hotspots related to traffic congestion; however, emissions of other criteria air pollutants may also result in health effects. Table 29 presents a list of the criteria pollutants and other related pollutants of concern and associated emission sources, health effects, and current SDAB attainment status.

Table 29
Pollutants, Sources, Health Effects, and Attainment Status

Pollutant	Sources	Health Effects	Attainment Status	
			NAAQS	*CAAQS*
Ozone (O_3)	Formed when VOCs and NO_x react in the presence of sunlight. VOC sources include any source that burns fuels (e.g., gasoline, natural gas, wood, and oil), solvents, coatings, consumer products, and petroleum processing and storage.	Breathing difficulties, lung tissue damage, and vegetation damage.	Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2)	See carbon monoxide.	Lung irritation and damage. Reacts in the atmosphere to form ozone and acid rain.	Unclassifiable/ Attainment	Attainment
Carbon Monoxide (CO)	Any source that burns fuel such as automobiles, trucks, heavy construction and farming equipment, and residential and industrial heating.	Chest pain in heart patients, headaches, reduced mental alertness.	Attainment	Attainment
Sulfur Dioxide (SO_2)	Coal- or oil-burning power plants and industries, refineries, diesel engines.	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.	Unclassifiable/ Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Road dust, windblown dust, agriculture and construction, fireplaces. Also formed from other pollutants (NO_x, SO_x, organics). Incomplete combustion.	Increased respiratory disease, lung damage, cancer, premature death.	Unclassifiable/ Attainment	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (NO_x, SO_X, VOCs, and ammonia).	Increases respiratory disease, lung damage, cancer, and premature death. Particles can aggravate heart diseases such as congestive heart failure and coronary artery disease.	Unclassifiable/ Attainment	Nonattainment

Table 29
Pollutants, Sources, Health Effects, and Attainment Status

Pollutant	Sources	Health Effects	Attainment Status	
			NAAQS	*CAAQS*
Lead	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint.	Learning disabilities, brain and kidney damage.	Unclassifiable/ Attainment	Attainment
Sulfates	Produced by reaction in the air of SO_2, (see SO_2 sources), a component of acid rain.	Breathing difficulties, aggravates asthma.	No federal standard	Attainment
Hydrogen Sulfide	Geothermal power plants, petroleum production and refining, sewer gas.	Headache and breathing difficulties (higher concentrations).	No federal standard	Unclassified
Vinyl Chloride	Exhaust gases from factories that manufacture or process vinyl chloride (construction, packaging, and transportation industries).	Central nervous system effects (e.g., dizziness, drowsiness, headaches), kidney irritation, liver damage, liver cancer.	No federal standard	No designation
Toxic Air Contaminants (TACs)	Combustion engines (stationary and mobile), diesel combustion, storage and use of TAC-containing substances (e.g., gasoline, lead smelting).	Depends on TAC, but may include cancer, mutagenic and/or teratogenic effects, and other acute or chronic health effects.	N/A	N/A

Source: County of San Diego 2007.
Attainment = meets the standards; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
N/A = Not Applicable

4.4.1 Construction Impacts

4.4.1.1 Guidelines for the Determination of Significance

A significant impact would result if:

- The project would result in CO emissions that when totaled with the ambient concentrations will exceed a 1-hour concentration of 20 ppm or an 8-hour average of 9 ppm. Projects that cause road intersections to operate at or below LOS E and the addition of peak-hour trips from a project and surrounding projects exceeds 3,000 have the potential to create CO concentrations exceeding the CAAQS.
- Project implementation would result in exposure to TACs resulting in a maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0 would be deemed as having a potentially significant impact.

4.4.1.2 Significance of Impacts Prior to Mitigation

Carbon Monoxide Hotspots

Proposed Project trip generation and distribution for workers and delivery trucks would vary depending on the phase of construction. Earthwork associated with construction of the Proposed Project would be balanced on site (in the Project Area); therefore, no offsite import or export of soil and associated haul trucks would occur. Neither construction material transport activities nor construction workers would generate traffic during the peak commute hours (both AM and PM), because all inbound and outbound trips are planned to occur during off-peak hours, and construction workers are scheduled to arrive before 7:00 a.m. and leave by 3:30 p.m. Therefore, no intersection peak-hour analysis is necessary for assessing potential construction-related traffic impacts (Chen Ryan 2017b). Additionally, the area surrounding the Project Area is primarily rural, the population is low, and local roads are typically traversed by local residents. Regional travel through the area is provided by SR-125 and SR-94. Because construction traffic generated by the Proposed Project would occur intermittently throughout the various phases of construction, and would be spread throughout the day and not necessarily occur concurrently with peak-hour traffic, construction-related traffic is not expected to impact local intersections or cause an exceedance of the CO CAAQS. As such, impacts related to construction CO hotspots would be **less than significant**.

Toxic Air Contaminants

A health risk assessment was performed to estimate the maximum individual cancer risk and the Chronic Hazard Index for residential and off-site worker receptors as a result of Proposed Project construction. An unmitigated emissions scenario, which would not include M-AQ-1 through M-AQ-8, is presented for disclosure purposes. The mitigated emissions scenario assumes implementation of construction criteria air pollutant emissions mitigation, specifically, M-AQ-1 and M-AQ-4, which are quantified in the estimated mitigated emissions.[46]

On-site residential receptors, off-site residential receptors, off-site worker receptors, and receptors at the nearest school site were evaluated. For both the unmitigated and mitigated emissions scenarios, the maximum exposed individual resident was the resident living in the Project Area at Universal Transverse Mercator (UTM) coordinates 509305, 3618372. The maximum exposed

[46] Some construction equipment that was assumed to meet Tier 4 Interim standards may achieve Tier 4 Final standards, which would include more restrictive emissions controls than what was assumed in this assessment, depending on the engine size and model year. In addition, other T-BACT and CARB regulations would be applicable to the Proposed Project, including Idling of Commercial Heavy Duty Trucks (13 CCR 2485), In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.), and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025), as described in Section 2.3, Regulatory Setting.

worker was at the Hollywood Casino's upstream location to Proposed Project emissions at UTM coordinates 512040, 3618362. The Academy of Exploration, which is the closest school to the Project Area, is located at UTM coordinates 510800, 3619100.

Cancer Risk

The following tabulations are for cancer risk for on-site and off-site residences, workers, and the Academy of Exploration assuming unmitigated Proposed Project emissions.

As shown in Table 30, unmitigated construction emissions would result in maximum individual cancer risks for on-site and off-site residences and worker locations that are below the significance threshold of 10 in 1 million. Unmitigated construction emissions would result in cancer risk at the Academy of Exploration below significance thresholds of 10 in 1 million. Therefore, the unmitigated construction impacts would be **less than significant.**

Table 30
Construction Cancer Risk Assessment Results – Unmitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk—On-Site Residential	Per Million	1.23	10	Less than Significant
Maximum Individual Cancer Risk—Off-Site Residential	Per Million	1.06	10	Less than Significant
Maximum Individual Cancer Risk—Worker	Per Million	0.11	10	Less than Significant
Maximum Individual Cancer Risk—Academy of Exploration	Per Million	3.23	10	Less than Significant

Source: SDAPCD 2015b.
The estimated cancer risk (unmitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Off-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Worker: 101.68 pounds per year exhaust PM_{10}
- Academy of Exploration: 127.1 pounds per year exhaust PM_{10}

Chronic Hazard

Table 31 shows the chronic hazard index for on-site and off-site residences, workers, and the Academy of Exploration assuming unmitigated Proposed Project emissions.

Table 31
Construction Chronic Hazard Index Assessment Results – Unmitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Chronic Hazard Index—On-Site Residential	Index Value	0.0005	1.0	Less than Significant
Chronic Hazard Index—Off-Site Residential	Index Value	0.0005	1.0	Less than Significant
Chronic Hazard Index—Worker	Index Value	0.002	1.0	Less than Significant
Chronic Hazard Index —Academy of Exploration	Index Value	0.001	1.0	Less than Significant

Source: See Appendix D for complete results.
The estimated chronic hazard index (unmitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Off-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Worker: 101.69 pounds per year exhaust PM_{10}
- Academy of Exploration: 127.1 pounds per year exhaust PM

Unmitigated construction emissions would result in chronic hazard indices for on-site and off-site residences and worker locations that are below the significance threshold of 1.0. Unmitigated construction emissions would result in a chronic hazard index at the Academy of Exploration below the significance threshold of 1.0. Therefore, the unmitigated construction impacts would be **less than significant**.

4.4.1.3 Valley Fever Exposure

As discussed in Section 2.4.1, Valley Fever is not highly endemic to San Diego County, and within San Diego County, the incidence rate in the Project Area is below the County average and the statewide average. Construction of the Proposed Project would comply with SDAPCD Rule 55, which limits the amount of fugitive dust generated during construction. Strategies the Proposed Project would implement to comply with SDAPCD Rule 55 and control dust include watering three times per day and limiting speed on unpaved roads to 15 miles per hour. The nearest existing off-site sensitive-receptor land use (existing residences) is located approximately 130 feet to the north of the northwestern land parcel of Planning Areas 16/19. Based on the low incidence rate of Coccidioidomycosis in the Project Area and in greater San Diego County, and the Proposed Project's implementation of dust control strategies, it is not anticipated that earth-moving activities during Proposed Project construction would result in exposure of nearby sensitive receptors to Valley Fever. Therefore, the Proposed Project would have a **less-than-significant** impact with respect to Valley Fever exposure for sensitive receptors.

4.4.1.4 Mitigation

Carbon Monoxide Hotspots

No mitigation measures would be required to address potential CO hotspots impacts.

Toxic Air Contaminants

The following construction-related mitigation measures for criteria pollutants also apply to reducing TAC emissions: M-AQ-1, M-AQ-2, M-AQ-4, M-AQ-5, M-AQ-6, M-AQ-7, and M-AQ-8. Therefore, although no mitigation is required, Table 32 presents the mitigated cancer risk for on-site and off-site residences, workers, and the Academy of Exploration.

Table 32
Construction Cancer Risk Assessment Results – Mitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk—On-Site Residential	Per Million	1.06	10	Less than Significant
Maximum Individual Cancer Risk—Off-Site Residential	Per Million	0.913	10	Less than Significant
Maximum Individual Cancer Risk—Worker	Per Million	0.096	10	Less than Significant
Maximum Individual Cancer Risk—Academy of Exploration	Per Million	2.23	10	Less than Significant

Source: See Appendix D for complete results.
The estimated cancer risk (mitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Off-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Worker: 87.9 pounds per year exhaust PM_{10}
- Academy of Exploration: 87.9 pounds per year exhaust PM_{10}

As shown in Table 32, mitigated construction emissions would result in maximum individual cancer risks for on-site and off-site residences and worker locations that are below the significance threshold of 10 in 1 million. Mitigated construction emissions would result in cancer risk at the Academy of Exploration below significance thresholds of 10 in 1 million. Therefore, the mitigated construction emissions would result in a cancer risk impact that is **less than significant.**

Table 33 shows the mitigated chronic hazard index for on-site and off-site residences, workers, and the Academy of Exploration.

Table 33
Construction Chronic Hazard Index Results – Mitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Chronic Hazard Index—On-Site Residential	Index Value	0.0005	1.0	Less than Significant
Chronic Hazard Index—Off-Site Residential	Index Value	0.0004	1.0	Less than Significant
Chronic Hazard Index—Worker	Index Value	0.001	1.0	Less than Significant
Chronic Hazard Index —Academy of Exploration	Index Value	0.001	1.0	Less than Significant

Source: See Appendix D for complete results.
The estimated chronic hazard index risk (mitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Off-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Worker: 87.9 pounds per year exhaust PM_{10}
- Academy of Exploration: 87.9 pounds per year exhaust PM_{10}

Mitigated construction emissions would result in chronic hazard indices for on-site and off-site residences and worker locations that are below the significance threshold of 1.0. Mitigated construction activities would result in chronic hazard indices at the Academy of Exploration below the significance threshold of 1.0. Therefore, mitigated construction impacts would be **less than significant.**

Implementation of the PDFs and mitigation measures listed above would ensure that the Proposed Project has implemented the most current technology feasible to mitigate TACs. Implementation of mitigation measures would reduce DPM emissions levels used to model construction-related cancer risk. The maximum anticipated cancer risk associated with the Proposed Project after mitigation is 2.23 in 1 million at the on-site and off-site maximally exposed individual residents based on a 5-year exposure scenario. This would be below the County's threshold of 10 in 1 million for projects. Maximum mitigated cancer risk and chronic hazard impacts at residential, worker, and sensitive receptors on site and off site would be below threshold levels of 10 in 1 million and 1.0, respectively. Impacts related to cancer risk and chronic hazard from DPM would be **less than significant**.

4.4.1.5 Conclusions

Carbon Monoxide Hotspots

Construction-related traffic on local roads would not be anticipated to contribute traffic volumes to intersections that would cause a CO hotspot. Thus, potential impacts associated with exposure of sensitive receptors to localized CO concentrations would be **less than significant**.

Toxic Air Contaminants

The Proposed Project's residential cancer risk on site and off site would be below the County's thresholds before mitigation. Implementation of M-AQ-1 through M-AQ-8 would further reduce construction-related TAC (DPM) emissions, and the Proposed Project's cancer risk and chronic hazard at worker and sensitive receptor locations would be below the County's thresholds; therefore, impacts would be **less than significant**.

4.4.2 Operational Impacts

4.4.2.1 Guidelines for the Determination of Significance

A significant impact would result if:

- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors.
- Project implementation would result in exposure to TACs resulting in a maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0 would be deemed as having a potentially significant impact.

4.4.2.2 Significance of Impacts Prior to Mitigation

Carbon Monoxide Hotspots

To verify that the Proposed Project would not cause or contribute to a violation of the CO standards, a screening evaluation of the potential for CO hotspots was conducted using the California Department of Transportation (Caltrans) and the U.C. Davis Institute of Transportation Studies Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Caltrans 2010). The County recommends that a local CO hotspot analysis be conducted if the intersection is at LOS E or worse and where a project operates at peak-hour trips exceeding 3,000 trips, or the intersection operates at LOS E or worse and under cumulative conditions exceeds 2,000 peak trips per hour. The screening evaluation for the Proposed Project is included as Appendix C. If the screening criteria are exceeded, additional site-specific analyses are performed to determine whether a project would result in a significant impact.

A Transportation Impact Study (Chen Ryan 2017b) was prepared for the Proposed Project and evaluated whether there would be a decrease in the LOS (e.g., congestion) at the intersections affected by the Proposed Project. The Proposed Project's traffic analysis evaluated 41 intersections based on

existing traffic volumes and current street geometry. As shown in Appendix C, 10 of the key study intersections operate at an LOS E or worse according to the criteria above:

1. SR-94/Lyons Valley Road (LOS F in the AM peak hour/LOS F for the PM peak hour)
2. Paseo Ranchero and East H Street (LOS E in the AM and PM peak hours)
3. Mt. Miguel Road and Proctor Valley Road (LOS F in the AM and LOS E in the PM)
4. Lane Avenue and Proctor Valley Road (LOS F in the AM and LOS E in the PM)
5. Agua Vista Drive/Northwoods Drive and Proctor Valley Road (LOS F in the AM and PM peak hours)
6. Proctor Valley Road and Project Driveway #1 (LOS F in the AM and PM)
7. Proctor Valley Road and Project Driveway #2 (LOS E in the PM)
8. Proctor Valley Road and Project Driveway #3 (LOS F in the AM and PM)
9. Proctor Valley Road and Project Driveway #4 (LOS F in the AM and PM)
10. Proctor Valley Road and Project Driveway #5 (LOS E in the AM)

The remaining key intersections operate at an acceptable LOS during the AM and PM peak hours in the scenarios evaluated.

Of those 10 intersections, nine operate at greater than 2,000 peak-hour trips in the cumulative scenario:

1. SR-94/Lyons Valley Road (2,510 in the AM and 2,906 in the PM)
2. Paseo Ranchero and East H Street (5,724 in the AM and 5,936 in the PM)
3. Mt. Miguel Road and Proctor Valley Road (5,260 in the AM and 4,985 in the PM)
4. Lane Avenue and Proctor Valley Road (4,488 in the AM and 5,036 in the PM)
5. Agua Vista Drive/Northwoods Drive and Proctor Valley Road (3,023 in the AM and 3,569 in the PM)
6. Proctor Valley Road and Project Driveway #1 (2,677 in the AM and 3,228 in the PM)
7. Proctor Valley Road and Project Driveway #2 (2,440 in the AM and 2,954 in the PM)
8. Proctor Valley Road and Project Driveway #3 (2,198 in the AM and 2,745 in the PM)
9. Proctor Valley Road and Project Driveway #4 (2,049 in the AM and 2,551 in the PM)

For each scenario (Existing Plus Project Conditions, Year 2025 Traffic Conditions, Year 2030 Cumulative Conditions, and Year 2030 Cumulative Conditions with full Otay Ranch GDP/SRP

build-out), the screening evaluation presents LOS and whether a quantitative CO hotspots analysis may be required. The results shown above represent the worst-case Year 2030 Cumulative Condition with full Otay Ranch GDP/SRP build-out. Year 2030 cumulative conditions with full Otay Ranch GDP/SRP build-out traffic conditions assume that all of the additional dwelling units allowed under the approved Otay Ranch GDP/SRP, in the areas not included within the Project Area, would be developed. This is a theoretical, highly unlikely scenario, since the site of a majority of the additional dwelling units that would be developed under this scenario is located in Village 14 and Planning Area 16 on state property (Rancho Jamul Preserve). Accordingly, it is highly unlikely that these additional units would ever be developed.

According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing the test described in the CO Protocol, an additional intersection should be analyzed (Caltrans 2010). Four intersections were analyzed for the Proposed Project, consistent with the CO Protocol, as discussed below.

Based on the CO hotspot screening evaluation (Appendix C), the intersection of SR-94 and Lyons Valley Road was determined to be a unique intersection, prompting a more detailed analysis. Similarly, the Proctor Valley Road and Project Driveway #2 intersection had a unique geometry and was selected for a detailed analysis. The Proctor Valley Road and Project Driveway #s 1, 3, and 4 are all roundabouts with similar geometries. Therefore, Driveway #1 was modelled, since it would have highest volumes and would represent the worst-case scenario. The remaining four intersections had similar geometry, so the Paseo Ranchero and East H Street intersection was selected since it would have the highest volume and would represent the highest emissions. The potential impact of the Proposed Project on local CO levels was assessed at these intersections using the Caltrans CL4 interface based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a).

The emissions factor represents the weighted average emissions rate of the local County vehicle fleet expressed in grams per mile per vehicle. Consistent with the traffic scenario, emissions factors for 2030 were used for the three intersections. Emissions factors for 2030 were predicted by EMFAC 2014 based on a 5-mile-per-hour average speed for all of the intersections for approach and departure segments. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on information provided by the traffic consultant; modeling assumptions are outlined in Appendix C.

Consistent with the CO Protocol (Caltrans 2010), four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed to be on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the future possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur in 2030. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The maximum CO concentration measured at the Redwood Avenue and Floyd Smith Drive monitoring stations in El Cajon over the last 3 years was 2 parts per million, which was measured in 2014. This maximum 1-hour concentration value is used as the background concentration when evaluating the addition of the vehicle-generated CO emissions. To estimate an 8-hour average CO concentration, a persistence factor of 0.7, as calculated based on Caltrans guidance (Caltrans 2010), was applied to the output values of predicted concentrations in parts per million at each of the receptor locations.

The results of the model are shown in Table 34. Model input and output data are provided in Appendix C.

Table 34
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact for Year 2040 Cumulative Plus Project (ppm)	
	1-hour	*8-hour*[a]
SR-94 and Lyons Valley Road (PM peak hour)	2.4	1.67
Paseo Ranchero and East H Street (PM peak hour)	2.6	1.81
Proctor Valley Road and Project Driveway #2 (PM peak hour)	2.4	1.67
Proctor Valley Road and Project Driveway #1 (PM peak hour)	2.4	1.67

Source: Caltrans 1998a (CALINE4).
Notes:
ppm = parts per million.
See Appendix C.
[a] 8-hour concentrations were obtained by multiplying the 1-hour concentration by a persistence factor of 0.7 (Caltrans 2010).

As shown in Table 34, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 2.6 ppm, which is below the 1-hour CO CAAQS of 20 ppm (CARB 2016b). The maximum predicted 8-hour CO concentration of 1.81 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9 ppm (CARB 2016b). Neither the 1-hour

nor 8-hour CAAQS would be equaled or exceeded at any of the intersections studied. Impact would be **less than significant**.

Toxic Air Contaminants

No residual TAC emissions and corresponding cancer risk are anticipated after construction. The Proposed Project is not anticipated to generate long-term, operational sources of TAC emissions because the Proposed Project would only include residential units, commercial land uses, a school, parks, and Otay Ranch RMP land. The Proposed Project would not include heavy industrial uses or other land uses typically associated with stationary sources of TACs. Additionally, the Proposed Project would not be located next to a major source of TAC or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs. Impact would be **less than significant**.

4.4.2.3 Mitigation

Carbon Monoxide

No mitigation measures would be required to address potential CO hotspot impacts.

Toxic Air Contaminants

No mitigation measures would be required to address potential TAC impacts.

4.4.2.4 Conclusions

Carbon Monoxide

Neither the state 1-hour standard nor the 8-hour CO standard would be equaled or exceeded at any of the intersections studied. Operation of the Proposed Project would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. Therefore, the Proposed Project's impact with respect to localized CO would be **less than significant**.

Toxic Air Contaminants

The Proposed Project does not propose any major operational sources of TAC or DPM. In addition, the Proposed Project would not be located next to a major stationary TAC source or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may

affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs. Impact would be **less than significant**.

4.5 Odor Impacts

Odors are a form of air pollution that can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern.

4.5.1 Guidelines for the Determination of Significance

Based on Appendix G of the CEQA Guidelines, and the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007), the Proposed Project would have a significant impact if:

- The project, which is not an agricultural, commercial, or an industrial activity subject to SDAPCD standards, as a result of implementation, would either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons.

California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700, and SDAPCD Rule 51, commonly referred to as the public nuisance law, prohibit emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. The potential for an operation to result in odor complaints from a "considerable" number of persons in the area would be considered to be a significant, adverse odor impact.

Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Odor issues are subjective because of the nature of odors themselves and because their measurements are difficult to quantify. As a result, this guideline is qualitative, and each project is reviewed on an individual basis, focusing on the existing and potential surrounding uses and location of sensitive receptors.

4.5.2 Significance of Impacts Prior to Mitigation

4.5.2.1 Construction

Section 6318 of the San Diego County Zoning Ordinance requires that all commercial and industrial uses be operated so as not to emit matter causing unpleasant odors that are perceptible by the average person at or beyond any lot line of the lot containing said uses. Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses" (County of San Diego 1979). SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of people or endangers the comfort, health, or safety of any person. A project that involves a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

The closest off-site residential receptors to the Proposed Project include single-family residences, approximately 130 feet north of the northwestern land parcel of Planning Areas 16/19.

Construction of Proposed Project components would result in the emission of diesel fumes and other odors typically associated with construction activities. These compounds would be emitted in varying amounts on the Project Area depending on where construction activities are occurring. Sensitive receptors located in the vicinity of the construction site may be affected; however, odors are highest near the source and would quickly dissipate. Any odors associated with construction activities would be temporary and would cease upon Proposed Project completion; therefore, odor impacts would be **less than significant**.

4.5.2.2 Operation

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Proposed Project would not include land uses that would generate objectionable odors, and Proposed Project land uses would not attract people to an area where there would be a potential for exposure to objectionable odors.

The Proposed Project would operate on-site sewer lift stations that could potentially generate odors. However, these lift stations would be subject to odor control during operation and maintenance. As discussed above, odor is regulated as a public nuisance, and the control of odor is enforced through complaints made to the SDAPCD. Odor complaints are investigated by the SDAPCD, which coordinates with the entity related to the odor source if it is determined that there is a violation of California Health and Safety Code Section 41700 and there is a need to rectify the situation. In this case, each pump station would be outfitted with an odor control slab during

construction of the initial lift station. Theses slabs include power and a conduit for odor control chemicals, so that an odor control tank can easily be added in the future if odors become an issue (Nielson 2017). If a tank is added as a result of a confirmed violation of California Health and Safety Code Section 41700 through the SDPACD process, the odor control tank uses controlled chemicals that are slowly dropped into the wet well to prevent the formation of odors.

Because odor control requirements would be incorporated into the design, operation, and maintenance of the sewer lift stations, the Proposed Project would not subject nearby sensitive receptors to substantial odor emissions. In addition, the Proposed Project would be required to comply with the County odor policies enforced by SDAPCD, including SDAPCD Rule 51 and County Zoning Code Section 6318, in the event a nuisance complaint occurs, which prohibit nuisance odors and identify enforcement measures to reduce odor impacts to nearby receptors. As such, the Proposed Project would not generate objectionable odors; therefore, potential Proposed Project impacts associated with odors would be **less than significant**.

4.5.3 Mitigation

Although mitigation is not required, M-AQ-8 would require the staging of haul trucks at the farthest feasible distance away from residences.

4.5.4 Conclusion

The Proposed Project would not include land uses commonly associated with odor complaints, and the Proposed Project would be required to comply with the County's odor policies enforced by SDAPCD, including Rule 51, in the event a nuisance complaint occurs. Therefore, impacts associated with objectionable odors would be **less than significant**.

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5 SUMMARY OF RECOMMENDED PROJECT DESIGN FEATURES, IMPACTS, AND MITIGATION MEASURES

5.1 Project Design Features

The following section provides a complete list of PDFs included in this analysis.

PDF-AQ-1 **Fugitive Dust Control**. The Proposed Project shall implement the following measures to minimize fugitive dust (PM_{10} and $PM_{2.5}$), comply with County Code Section 87.428 (Grading Ordinance), and comply with San Diego Air Pollution Control District (SDAPCD) Rule 55 (Fugitive Dust Control):

a. Water or another SDAPCD-approved dust control non-toxic agent shall be used on the grading areas at least three times daily.

b. All main roadways shall be constructed and paved as early as possible in the construction process.

c. Building pads shall be finalized as soon as possible following site preparation and grading activities.

d. Grading areas shall be stabilized as quickly as possible.

e. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last 100 feet of internal travel path within the construction site shall be paved prior to public road entry and for all haul roads.

f. Wheel washers shall be installed adjacent to the apron indicated in (c) for tire inspection and washing prior to vehicle entry on public roads.

g. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or similar method within 30 minutes of occurrence.

h. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads.

i. Unpaved construction site egress points shall be graveled to prevent track-out.

j. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred.

k. Transported material in haul trucks shall be watered or treated.

l. All soil disturbance and travel on unpaved surfaces shall be suspended if winds exceed 25 miles per hour.

m. On-site stockpiles of excavated material shall be covered.

n. A 15 mile per hour speed limit on unpaved surfaces shall be enforced.

o. Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance.

p. Construction traffic control plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.

PDF-AQ-2 **Construction Architectural Coating Limits**. The Proposed Project shall comply with the following volatile organic compound (VOC) content limits for architectural coatings during construction for residential and non-residential and uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings.

PDF-AQ/GHG-1 **Wood-Burning Stoves and Fireplaces**. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that no wood-burning stoves or fireplaces would be constructed.

PDF-AQ/GHG-2 **Zero-Net Energy Development – Residential Land Uses**. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission.

PDF-AQ/GHG-3 **Non-Residential Energy Improvement Standards.** Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that the Proposed Project's non-residential land uses shall achieve a 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24, Part 6 of the California Code of Regulations.

PDF-AQ/GHG-4 **Energy Star Appliances**. All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial businesses shall be Energy Star rated or equivalent.

PDF-AQ/GHG-5 **Solar Water Heating**. Prior to the issuance of private recreation center building permits, the applicant or its designee shall submit swimming pool heating

design plans to the County of San Diego for review and approval. The design plans shall demonstrate that swimming pools located at private recreation centers in the Project Area have been designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.

PDF-AQ/GHG-6 Efficient Outdoor Lighting. Prior to the issuance of permits, the Proposed Project applicant or its designee shall submit building plans that demonstrate that all outdoor lighting shall be (light emitting diodes) LED or other high efficiency lightbulbs

PDF-AQ/GHG-7 Energy Efficiency Education. All new home packets shall provide information on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs.

PDF-AQ/GHG-8 Cool Roofs. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar reflectance index (SRI) of 64 for a low-sloped roof and an SRI of 32 for a high-sloped roof.

Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating non-residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year SRI of 64 for a low-sloped roof and 32 for a high-sloped roof.

PDF-AQ/GHG-9 Cool Pavements. Prior to the issuance of building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that outdoor pavement, such as walkways and patios shall use paving materials with three-year SRI of 0.28 or initial SRI of 0.33.

PDF-AQ/GHG-106 Electric Vehicle Charging Stations. Prior to the issuance of residential building permits, the applicant or its designee shall submit plans for the installation of a dedicated 208/240 dedicated branch circuit will be included in each garage and one Level 2 electric vehicle (EV) charging station in the garage of half of all residential units to the County of San Diego for review and approval. Prior to the issuance of non-residential building permits in the Proposed Project's Village Core area, the applicant or its designee shall submit plans for the installation of Level 2 EV charging stations in 10 parking spaces located in the Village Core's commercial development area and P1 through P4 park area parking spaces to the County of San Diego for review and approval.

PDF-TR-1 **Transportation Demand Management.** The Proposed Project applicant or its designee shall implement a Transportation Demand Management (TDM) Program to facilitate increased opportunities for transit, bicycling, and pedestrian travel, as well as provide the resources, means, and incentives for ride-sharing and carpooling. The following components are to be included in the TDM Program:

- Develop a comprehensive pedestrian network designed to provide safe bicycle and pedestrian access between the various Proposed Project phases, land uses, parks/open spaces, schools, and the Village Core. Where approved by the appropriate jurisdiction, the pedestrian network would also provide connections to the various recreational trails and multi-modal facilities accessing the Project Area.
- Provide bicycle racks along main travel corridors adjacent to commercial developments and at public parks and open spaces within the Project Area.
- Coordinate with the San Diego Association of Governments (SANDAG) iCommute program for carpool, vanpool, and rideshare programs that are specific to the Proposed Project.
- Promote available websites providing transportation options for residents and businesses.
- Create and distribute a "new resident" information packet addressing alternative modes of transportation for residential and commercial residents.
- Coordinate with San Diego Metropolitan Transit System and SANDAG about the future sighting of transit stops/stations within the Project Area.
- Provide a school carpool program by coordinating with the local school district and SANDAG. Provide dedicated parking space for the school carpool program in the Village Core.
- Implement a school bus program in coordination with the school district.
- Require homeowner's associations within the Project Area to coordinate with the local school district and partner with the on-site elementary school to create a "walking school bus program" for neighborhood students to safely walk to and from school. The Proposed Project applicant would also coordinate with the local school district to encourage the provision of bicycle storage facilities at the on-site elementary school.

5.2 Impacts

Conformance with the Regional Air Quality Strategy

The Proposed Project would develop single-family residences, commercial uses, parks, and a public safety site. The Proposed Project's consistency with the RAQS was evaluated to determine if the Proposed Project would conflict with or obstruct implementation of the applicable air quality plan. In addition, emissions from construction and operation of the Proposed Project were analyzed to determine potential direct and cumulative air quality impacts.

The Proposed Project is included as part of the Otay Ranch GDP/SRP in the County's General Plan, which was used for emissions modeling and forecasts in the RAQS and SIP. The Proposed Project would require a General Plan Amendment to refine the land uses described in the Otay Ranch GDP/SRP; however, the refinement in land uses would not exceed or intensify the land uses planned for in the Otay Ranch GDP/SRP. Therefore, emissions associated with the Proposed Project have been accounted for in the RAQS and SIP, and the Proposed Project is considered consistent with the RAQS and SIP. Impacts would be **less than significant**.

Conformance to Federal and State Ambient Air Quality Standards

Maximum daily Proposed Project construction emissions would exceed the construction thresholds for VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$; the threshold for SO_x would not be exceeded during construction of the Proposed Project. PDF-AQ-1 would limit PM_{10} and $PM_{2.5}$ emissions through a fugitive dust control plan and PDF-AQ-2 would limit the VOC content of paint and other finishes used during the architectural coating phase of the Proposed Project. AQ-1 through AQ-8 would reduce NO_x, $PM_{10,}$ and $PM_{2.5}$ emissions to the extent feasible. As presented in Table 27, after implementation of PDFs and mitigation measures, the Proposed Project's construction emissions would still exceed thresholds for VOC, NO_x, CO, and PM_{10}. After implementation of PDFs and mitigation measures, maximum daily construction emissions of $PM_{2.5}$ would be reduced below thresholds. Although implementation of M-AQ-1 through M-AQ-8 would effectively reduce construction emissions, not all reductions associated with these mitigation measures are readily quantifiable. Accordingly, mitigated Proposed Project construction emissions shown in Table 27 are overestimated, and Project-generated construction emissions are expected to be further reduced on a daily basis with incorporation of mitigation, but not to a level below significance for VOC, NO_x, CO, and PM_{10}. As such, Proposed Project construction emissions of VOC, NO_x, CO, and PM_{10} would result in a **significant and unavoidable impact**.

Maximum daily Proposed Project operational emissions would exceed the operational thresholds for VOC and PM_{10}; thresholds for NO_x, CO, SO_x, and $PM_{2.5}$ would not be exceeded during

Proposed Project operation. M-AQ-9 and M-AQ-10 are provided to reduce VOC emissions from consumer products. Daily operational emissions for VOCs and PM_{10} would still exceed the County's significance thresholds after mitigation. Therefore, the Proposed Project would have a **significant and unavoidable** impact during operation.

Cumulatively Considerable Net Increase of Criteria Pollutants

The Proposed Project's cumulative air quality impacts in the County would be significant because the Proposed Project would exceed the County's screening level thresholds for VOC and PM_{10} during construction and operation. The County's Air Quality Guidelines consider projects with construction and/or operational emissions that exceed the County's screening level thresholds to cause a significant cumulatively considerable net increase in emissions in addition to a significance project-level impact. Construction mitigation measures (M-AQ-1 through M-AQ-8) are provided to reduce construction emissions and associated impacts, which would reduce Proposed Project construction PM_{10} and $PM_{2.5}$ emissions below the County's threshold, but would not reduce construction emissions of VOC, NO_x, or CO~~, or PM_{10}~~ emissions below the County's screening level thresholds. Although, PM_{10} would be reduced below the project level significance thresholds, emissions remain near the maximum daily thresholds, and therefore due to the uncertain nature of additional potential projects in the region, cumulative emissions were determined to have a potentially cumulative impact. After implementation of all mitigation, construction emissions for VOC, NO_x, CO and PM_{10} would continue to exceed the County's screening level thresholds and remain a **significant cumulatively considerable impact**.

Operational mitigation measures (M-AQ-9 through M-AQ-10) are provided to reduce operational emissions and associated impacts; however, with implementation of all mitigation, operational emissions of VOC and PM_{10} would continue to exceed the County's screening level thresholds and remain a **significant cumulatively considerable impact**.

Impacts to Sensitive Receptors

Carbon Monoxide Hotspots

Construction traffic in 2024, which represents the highest level of construction-related traffic, would not result in traffic volumes that would cause a CO hotspot; therefore, impacts related to CO near sensitive receptors during construction would be **less than significant**. Similarly, operation of the Proposed Project would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. As neither the 1-hour nor the 8-hour CO CAAQS would be equaled or exceeded at any of the studied intersections, potential operational CO hotspot impacts would be **less than significant**.

Toxic Air Contaminants

Impacts related to cancer risk and chronic hazard from particulate matter (DPM) emissions, which is a TAC, would be below the County's thresholds during construction activities; therefore, impacts would be **less than significant**.

No long-term sources of TAC emissions are anticipated during operation of the Proposed Project because the Proposed Project would only include residential units, commercial land uses, a school, parks, and Otay Ranch RMP land; the Proposed Project would not include heavy industrial uses or other land uses associated with stationary sources of TACs. Additionally, the Proposed Project would not be located next to a major source of TAC or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs. Impacts would be **less than significant**.

Odors

The Proposed Project's construction and operational activities are not anticipated to expose a substantial number of people to objectionable odors. Potential odor impacts would be **less than significant**.

5.3 Mitigation

M-AQ-1 through M-AQ-8 are provided to reduce construction emissions to the extent feasible:

M-AQ-1 **Tier 4 Final Rock-Crushing Equipment**. Diesel-powered generators (engines greater than 750 horsepower) used for rock-crushing operations shall be equipped with Tier 4 Final engines.

M-AQ-2 **Blasting and Rock-Crushing Notification**. Prior to construction activities, the applicant or its designee shall employ a construction relations officer who shall address community concerns regarding on-site construction activity. The applicant shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer who shall document complaints and concerns regarding on-site construction activity. The sign shall be placed in easily accessible locations along Proctor Valley Road and noted on grading and improvement plans.

M-AQ-3 **Blasting and Rock-Crushing Emission Controls**. The following provisions shall be implemented to reduce emissions associated with blasting and rock-crushing activities:

a. During blasting activities, the construction contractor shall implement all feasible engineering controls to control fugitive dust including exhaust ventilation, blasting cabinets and enclosures, vacuum blasters, drapes, water curtains or wet blasting. Watering methods, such as water sprays and water applications shall be implemented during blasting, rock crushing, cutting, chipping, sawing, or any activity that would release dust particles to reduce fugitive dust emissions.

b. During rock-crushing transfer and conveyance activities, material shall be watered prior to entering the crusher. Crushing activities shall not exceed an opacity limit of 20% (or Number 1 on the Ringelmann Chart) as averaged over a 3-minute period in any period of 60 consecutive minutes, in accordance with SDAPCD Rule 50, Visible Emissions. A qualified opacity observer shall monitor opacity from crushing activities once every 30 days while crushers are employed on site to ensure compliance with SDAPCD Rule 50. Water sprayers, conveyor belt enclosures or other mechanisms shall be employed to reduce fugitive dust generated during transfer and conveyance of crush material.

M-AQ-4 **Tier 4 Interim Construction Equipment**. Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the County of San Diego (County) that for off-road equipment with engines rated at 75 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Interim. An exemption from these requirements may be granted by the County in the event that the applicant documents that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment.[47] Before an exemption may be considered by the County, the applicant shall be required to demonstrate that three construction fleet owners/operators in the San Diego Region were contacted and that those owners/operators confirmed Tier 4 equipment could not be located within the San Diego region.

[47] For example, if a Tier 4 Interim piece of equipment is not reasonably available at the time of construction and a lower tier equipment is used instead (e.g., Tier 3), another piece of equipment could be upgraded from a Tier 4 Interim to a higher tier (i.e., Tier 4 Final) or replaced with an alternative-fueled (not diesel-fueled) equipment to offset the emissions associated with using a piece of equipment that does not meet Tier 4 Interim standards.

M-AQ-5 **Construction Equipment Maintenance**. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained in accordance with manufacturer's specifications before and for the duration of on-site operation.

M-AQ-6 **Use of Electrical-Powered Equipment**. Electrical hookups shall be provided on site for the use of hand tools such as saws, drills, and compressors used for building construction to reduce the need for electric generators and other fuel-powered equipment. The use of electrical construction equipment shall be employed where feasible.

M-AQ-7 **Best Available Control Technology**. All construction equipment shall be outfitted with best available control technology (BACT) devices certified by the California Air Resources Board. A copy of each unit's BACT documentation shall be provided at the time of mobilization of each applicable unit of equipment.

M-AQ-8 **Haul Trucks.** Haul-truck staging areas shall be provided for loading and unloading soil and materials, and shall be located away from sensitive receptors at the farthest feasible distance.

M-AQ-9 through M-AQ-10 are provided to reduce operational emissions to the extent feasible:

M-AQ-9 **Facilitate Electrical Lawn and Garden Equipment**. Prior to the issuance of residential building permits, the applicant or its designee shall provide evidence to the County of San Diego that building design plans require that residential structures be equipped with outdoor electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.

M-AQ-10 **Low-VOC/Green Cleaning Product Educational Program.** Prior to the occupancy of any on-site development, the applicant or its designee shall provide evidence to the County of San Diego that the applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental offices, leasing spaces, and/or on websites.

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6 REFERENCES

Caltrans (California Department of Transportation). 1998a. CALINE4 – A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways. Version 1.32. Written by Sonoma Technology. Petaluma, California. Sponsored by the University of California, Davis Institute of Transportation Studies and Caltrans. http://www.dot.ca.gov/hq/InfoSvcs/EngApps/.

Caltrans. 1998b. User's Guide for CL4: A User-Friendly Interface for the CALINE4 Model for Transportation Project Impact Assessments. User's Guide STI-997480-1814-UG. June 1998. http://www.dot.ca.gov/hq/env/air/documents/CL4Guide.pdf.

Caltrans. 2010. *Transportation Project-Level Carbon Monoxide Protocol*. Appendix B, Table B.2. Prepared by the Institute of Transportation Studies, University of California, Davis. Revised December 1997. Re-released 2010.

CAPCOA (California Air Pollution Control Officers Association). 2010. *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures.*

CAPCOA. 2016. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.1.* Prepared by BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts. September. Accessed February 2017. http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/02_appendix-a2016-3-1.pdf?sfvrsn=2.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf.

CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

CARB. 2011. *Recommended Area Designation for the 2010 Federal Sulfur Dioxide Standard* - Appendix 1 Five Factor Analyses for California Air Basins. June 2011. https://www.arb.ca.gov/desig/so2a1.pdf.

CARB. 2016a. "Ambient Air Quality Standards." May 4, 2016. Accessed August 2016. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2016b. "Area Designation Maps/State and National." Last updated May 5, 2016. http://www.arb.ca.gov/desig/adm/adm.htm.

CARB. 2016c. "iADAM: Air Quality Data Statistics" Accessed June 20, 2017. https://www.arb.ca.gov/adam/topfour/topfourdisplay.php.

CARB. 2017. "Glossary of Air Pollutant Terms." Accessed June 2017. http://www.arb.ca.gov/html/gloss.htm

CDPH (California Department of Public Health). 2016. Epidemiologic Summary of Coccidioidomycosis in California, 2016. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2016.pdf

CEC (California Energy Commission). 2015a. 2016 Building Energy Efficiency Standards – Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

CEC. 2015b. *2016 Residential Compliance Manual.*

Chen Ryan. 2017a. Transportation Demand Management Program Evaluation – Otay Ranch Village 14 and Planning Areas 16 & 19 Memorandum. June 2017.

Chen Ryan. 2017b. Proctor Valley Transportation Impact Study.

City of Chula Vista and County of San Diego. 1993a. *Otay Ranch General Development Plan/ Otay Subregional Plan, Volume 2*. Adopted October 28, 1993; amended May 26, 2015. http://www.chulavistaca.gov/home/showdocument?id=12375.

City of Chula Vista and County of San Diego. 1993b. Otay Ranch Facility Implementation Plans. October 1993. http://www.sandiegocounty.gov/dplu/docs/OtayRanchFacilityImpPlan.pdf.

City of Chula Vista and County of San Diego. 2015. *Otay Ranch Phase 2 Resource Management Plan*. Adopted October 1993; updated April 2, 2015. http://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/OtayRanchVillage13Resort/PDS2004-3810-04-002-OtayRanchPhase2RMP.pdf.

ConSol. 2017. *Jackson Pendo Development Company Building Analysis.* February 2017.

County of San Diego. 1979. San Diego County Zoning Ordinance, Part Six: General Regulations, Section 6318, Odors. May 16, 1979. http://www.sdcounty.ca.gov/pds/zoning/index.html.

County of San Diego. 1997. *Multiple Species Conservation Program, County of San Diego Subarea Plan*. Prepared by the County of San Diego in conjunction with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Adopted October 22, 1997. http://www.sandiegocounty.gov/content/dam/sdc/pds/mscp/docs/SCMSCP/MSCP_County_Subarea_Plan.pdf.

County of San Diego. 2004. San Diego County Grading, Clearing and Watercourses Ordinance. San Diego County Code, Title 8, Division 7, Section 87.428, Dust Control Measures. April 23, 2004. http://www.sdcounty.ca.gov/dpw/docs/propgradord.pdf.

County of San Diego. 2005. *Community Trails Master Plan*. January 12, 2005. http://www.sandiegocounty.gov/content/sdc/pds/community-trails-master-plan.html.

County of San Diego. 2007. *Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality*. Department of Planning and Land Use, Department of Public Works. March 19, 2007.

County of San Diego. 2011a. *San Diego County General Plan: A Plan for Growth, Conservation, and Sustainability*. August 2011. http://www.sandiegocounty.gov/pds/gpupdate/ docs/GP/Cover_Intro_Vision.pdf.

County of San Diego. 2011b. *San Diego County General Plan Update Environmental Impact Report*. Section 2.3 Air Quality. August 2011. https://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/BOS_Aug2011/EIR/FEIR_2.03_-_Air_Quality_2011.pdf.

County of San Diego. 2014. County of San Diego Zoning Ordinance. Planning & Development Services. Updated November 4014. http://www.sandiegocounty.gov/content/sdc/pds/zoning.html.

Devenco and Revey. 2017. Blasting and Crushing Assumptions.

Dexter Wilson Engineering Inc. 2017. Overview of Water Service for Otay Ranch Village 14 and Planning Areas 16/19. December 2017.

DOE (Department of Energy). 2017. Gas Swimming Pool Heaters.

EPA (U.S. Environmental Protection Agency). 1980. "Explosives Detonation." Section 13.3 in *Compilation of Air Pollutant Emission Factors*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. February 1980 (Reformatted January 1995). https://www3.epa.gov/ttn/chief/ap42/ch13/index.html.

EPA. 1998. "Western Surface Coal Mining." Section 11.9 in *Compilation of Air Pollutant Emission Factors*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. October 1998. http://www.epa.gov/ttn/chief/ap42/ch11/index.html.

EPA. 2004. "Crushed Stone Processing and Pulverized Mineral Processing." Section 11.19.2 of *Compilation of Air Pollutant Emission Factors.* Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA; Office of Air and Radiation; Office of Air Quality Planning and Standards. August 2004. http://www.epa.gov/ttn/chief/ap42/ch11/index.html.

EPA. 2006. "Aggregate Handling and Storage Piles." Chap. 13.2.4 in *Compilation of Air Pollutant Emission Factors. Vol. 1, Stationary Point and Area Sources*. Update to 5th ed. AP-42. Research Triangle Park, North Carolina: EPA, Office of Air and Radiation, Office of Air Quality Planning and Standards. November 2006. http://www.epa.gov/ttn/chief/ap42/ch13/index.html.

EPA. 2009. "Integrated Science Assessment for Particulate Matter." EPA/600/R-08/139F.

EPA. 2013. "Integrated Science Assessment of Ozone and Related Photochemical Oxidants." EPA/600R-10/076F.

EPA. 2016a. "Integrated Science Assessment for Oxides of Nitrogen-Health Criteria (2016 Final Report)." U.S. EPA, EPA/600/R-15/068, 2016.

EPA. 2016b. "EPA Region 9 Air Quality Maps and Geographic Information." Last updated April 27, 2016. Accessed August 2016. http://www.epa.gov/region9/air/maps/.

EPA. 2016c. "Outdoor Air Quality Data" Last Updated June 12, 2017. Accessed June 16, 2017. https://www.epa.gov/outdoor-air-quality-data/monitor-values-report.

EPA. 2017. "Six Common Air Pollutants." Last updated April 3, 2017. http://www.epa.gov/air/urbanair/.

Hunsaker and Associates Inc. 2017. Proctor Valley Site Plans.

Lakes Environmental Software. 2017. AERMOD View Software (Version 9.3.0).

Nelson, J. 2017. Coccidioidomycosis Data Requests. Email from J. Nelson (County of San Diego Health & Human Services Agency, Epidemiologist II) to J. Reed (Dudek). December 14, 2017.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments*. February 2015. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

Revey Associates Inc. 2015. Use of Ammonium Nitrate and Fuel Oil (ANFO) for Rock Blasting at the Proctor Valley Village 14 and Preserve, San Diego, CA. October 20, 2015.

RH Consulting. 2018. Otay Ranch Village 14 and Planning Areas 16/19 Specific Plan. Prepared by RH Consulting. January 2018.

SANDAG (San Diego Association of Governments). 2015. *San Diego Forward: The Regional Plan*. October 2015. Accessed April 2017. http://www.sdforward.com/pdfs/RP_final/The%20Plan%20-%20combined.pdf.

SANDAG. 2016. *2016 Regional Transportation Improvement Program*. Accessed November 2016. http://www.sandag.org/uploads/publicationid/publicationid_2071_21174.pdf.

SANDAG. 2017a. *Series 13: 2050 Regional Growth Forecast.* Accessed June 2017. http://www.sandag.org/index.asp?classid=12&subclassid=84&projectid=503&fuseaction=projects.detail.

SANDAG. 2017b. *2050 Regional Transportation Plan.* Accessed June 2017. http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail.

SCAQMD (South Coast Air Quality Management District). 1993. *CEQA Air Quality Handbook*.

SCAQMD. 2017. California Emission Estimator Model (CalEEMod) 2016.3.2 Update Presentation Diamond Bar, CA. September 14, 2017.

SCE (Southern California Edison). 2016. *Metering and Measuring of Multi-Family Pool Pumps, Final Report - Phase 1 & 2*. http://www.calmac.org/publications/Multi-Family_VSD_Pool_Pump_ReportES.pdf.

SDAPCD (San Diego Air Pollution Control District). 1969. Rules and Regulations. Regulation IV. Prohibitions. Rule 51. Nuisance. Effective January 1, 1969.

SDAPCD. 1995. Rules and Regulations. Regulation XV. Federal Conformity. Rule 1501. Conformity with General Federal Actions. Adopted March 7, 1995.

SDAPCD. 1997. Rules and Regulations. Regulation IV. Prohibitions. Rule 50. Visible Emissions. Effective August 13, 1997. Accessed June 2017. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R50.pdf.

SDAPCD. 2005. *Measures to Reduce Particulate Matter in San Diego County*. December 2005. http://www.sdapcd.org/planning/plan.html.

SDAPCD. 2009a. *2009 Regional Air Quality Strategy Revision*. April 2009. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2009-RAQS.pdf.

SDAPCD. 2009b. SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. June 24, 2009. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R55.pdf.

SDAPCD. 2015a. SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. June 24. Accessed May 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R67-0-1.pdf.

SDAPCD. 2015b. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs).* June 2015. Accessed May 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Misc/APCD_HRA_Guidelines.pdf.

SDAPCD. 2016a. *2008 Eight-Hour Ozone Attainment Plan for San Diego County*. Updated December 2016. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.

SDAPCD. 2016b. *2016 Revision of the Regional Qir Quality Strategy for San Diego County*. December 2016. Accessed June 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf.

SDAPCD. 2016c. SDAPCD Regulation II: Permits; Rule 20.2: New Source Review—Non-Major Sources. January 29, 2016. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Permits/APCD_R20-2.pdf.

SDAPCD. 2017a. Annual Air Quality Monitoring Network Plan 2016. April 2017. https://www.sdapcd.org/content/dam/sdc/apcd/monitoring/2016_Network_Plan.pdf

SDAPCD. 2017b. Regulation XII. Toxic Air Contaminates; Rule 1200: Toxic Air Contaminates – New Source Review. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Toxic_Air_Cotaminants/ACPD_R1200.pdf.

SDAPCD. 2017c. Regulation XII. Toxic Air Contaminates; Rule 1210: Toxic Air Contaminates – Public Notification and Risk Reduction. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Toxic_Air_Cotaminants/APCD_R1210.pdf.

USGS (United States Geological Survey). 2000. *Operational Guidelines (version 1.0) for Geological Fieldwork in Areas 1 Endemic for Coccidioidomycosis (Valley Fever).*

USFWS (United States Fish and Wildlife Service), CDFG (California Department of Fish and Game), and County of San Diego. 1998. MSCP County Subarea Plan Implementing Agreement by and between United States Fish and Wildlife Service, California Department of Fish and Game, County of San Diego, March 17, 1998.

WRCC (Western Regional Climate Center). 2009. *2008 LCD for San Diego - Brown, California* Accessed June 2017. http://www.wrcc.dri.edu/Climate/west_lcd_show.php?iyear=2008&sstate=CA&stag=sandiegobrown&sloc=San+Diego+-+Brown.

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7 LIST OF PREPARERS

Jennifer Reed	Air Quality Services Manager
Rose Kelly	Air Quality Specialist
Adam Poll	Air Quality Specialist
David Deckman	Senior Air Quality Analyst
David Waymire	Air Quality Specialist

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