

MEMORANDUM

To: Mr. Greg Mattson, Project Manager, County of San Diego
From: Adam Poll, Dudek
Subject: Energy Technical Memorandum for the Otay Ranch Village 14 and Planning Area 16/19
Proposed Project Amendment
Date: December 19, 2019
cc: Sean Kilkenny and Jennifer Reed, Dudek

Introduction

This Memorandum reflects proposed changes to the Otay Ranch Village 14 and Planning Areas 16/19 Project that was approved by the San Diego County Board of Supervisors on June 26, 2019 (Approved Project). The changes to the Approved Project would reconfigure the development footprint to consolidate development in Village 14; add 147 units, for a total of 1,266 residential units; and reduce impacts by approximately 230 acres, to 579 acres (the Proposed Project Amendment). Figure 1, Regional Location Map, shows the regional location of the Approved Project Area and the Proposed Project Amendment Project Area, in the County of San Diego (County).

An Environmental Impact Report (EIR) was prepared for the Approved Project and was certified by the Board on June 26, 2019. The Final EIR analyzed the potential impacts of the Approved Project. The Final EIR also analyzed potential impacts associated with the EIR Land Exchange Alternative, which was one of the alternatives to the Approved Project. The Final EIR is incorporated herein by reference and the results are summarized in Section 3 and mitigation measures and project design features are described in Section 5.

The Final EIR analyzed the Approved Project's potential impacts to energy in Section 3.9, Energy. This Energy Technical Memorandum was prepared for the Proposed Project Amendment. The purpose of this analysis is to evaluate whether, and to what extent, the potential impacts of the Proposed Project Amendment to energy differ from those of the Approved Project and the EIR Land Exchange Alternative. This technical memorandum includes the following sections: (1) background, (2) Proposed Project Amendment description, (3) summary of the Approved Project's impacts to energy, (4) analysis of the Proposed Project Amendment's impacts to energy, (5) mitigation measures, and (6) conclusion.

For additional context, the following terminology is used in this Technical Memorandum.

Terminology

Approved Project: The project described in Otay Ranch Village 14 and Planning Areas 16/19 Tentative Map 5616, Specific Plan 16-002, and the certified EIR, which the County of San Diego (County) approved on June 26, 2019. The Approved Project permits 1,119 residential units within a Project Area of approximately 1,369 acres. The Development Footprint of the Approved Project is 809 acres.

Conserved Open Space: Conserved Open Space refers to 24.5 acres of land within the Project Area, which, while designated in the Otay Ranch General Development Plan/Otay Subregional Plan (Otay Ranch GDP/SRP) (City of Chula Vista and County of San Diego 1993) for residential uses within Village 14 and Planning Areas 16/19, will not be developed as part of the Proposed Project Amendment. Instead, the Conserved Open Space will be preserved on site and be (a) added to the Otay Ranch Resource Management Plan (RMP) Preserve (through a future RMP Amendment), (b) managed under a separate RMP, or (c) utilized to mitigate impacts to the City of San Diego Multiple Species Conservation Program Cornerstone Lands. The Conserved Open Space areas are located adjacent to Otay Ranch RMP Preserve and will be conserved by recording a biological open space easement over the land.

Development Footprint: The areas where a given project will cause permanent or temporary ground disturbance. The Development Footprint includes all on-site development, off-site improvements, and impacts resulting from infrastructure and other allowable uses within the Otay Ranch Resource Management Plan (RMP) Preserve.

EIR Land Exchange Alternative: The project alternative identified as the “Land Exchange Alternative” in Chapter 4 of the certified Final EIR. This Land Exchange Alternative contemplated a land exchange with the California Department of Fish and Wildlife (CDFW) and would develop 1,530 residential units within a Project Area of approximately 2,387.6 acres, with a Development Footprint of 658.3 acres.

Off-Site Improvements: Off-site improvements total approximately 40.1 acres and include Proctor Valley Road, wet and dry utilities, drainage facilities, trails, 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.

Project Area: The total land area for the Proposed Project Amendment as contemplated in the proposed land exchange between applicant and CDFW.¹ The Project Area consists of approximately 1,283.6 acres currently owned by GDCI Proctor Valley, L.P., the owner/applicant, 219.4 acres currently owned by CDFW, and approximately 40.1 acres of off-site improvements, for a total of 1,543 acres.

Proposed Project Amendment: The Proposed Project Amendment reflects proposed changes to the Approved Project, which would add 147 units for a total of 1,266 residential units and would reduce the Development Footprint by approximately 230 acres, to a total of 579 acres, within a Project Area of 1,543 acres, as shown on Figure 2, Site Utilization Plan, and more fully described below in Section 2. The Proposed Project Amendment includes a Revised Tentative Map and Specific Plan Amendment. As contemplated in the Dispute Resolution Agreement, the Proposed Project Amendment assumes and will require a County-initiated amendment to the MSCP County Subarea Plan. Because the amendment to the MSCP County Subarea Plan will be initiated by the County, it is not part of the Proposed Project Amendment.

¹ As indicated above, the land exchange necessary to implement the Proposed Project Amendment must be approved by the California Wildlife Conservation Board.

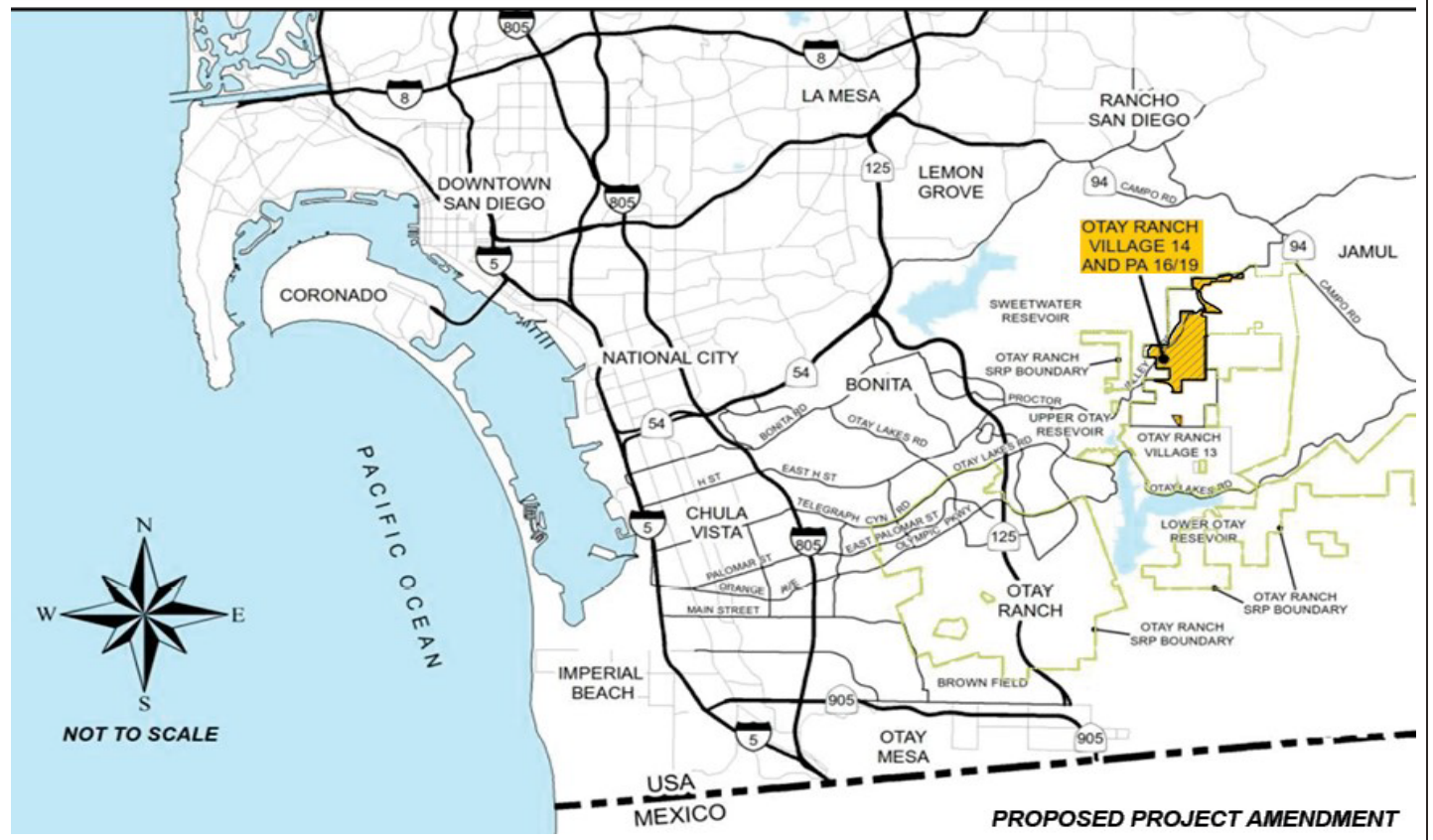
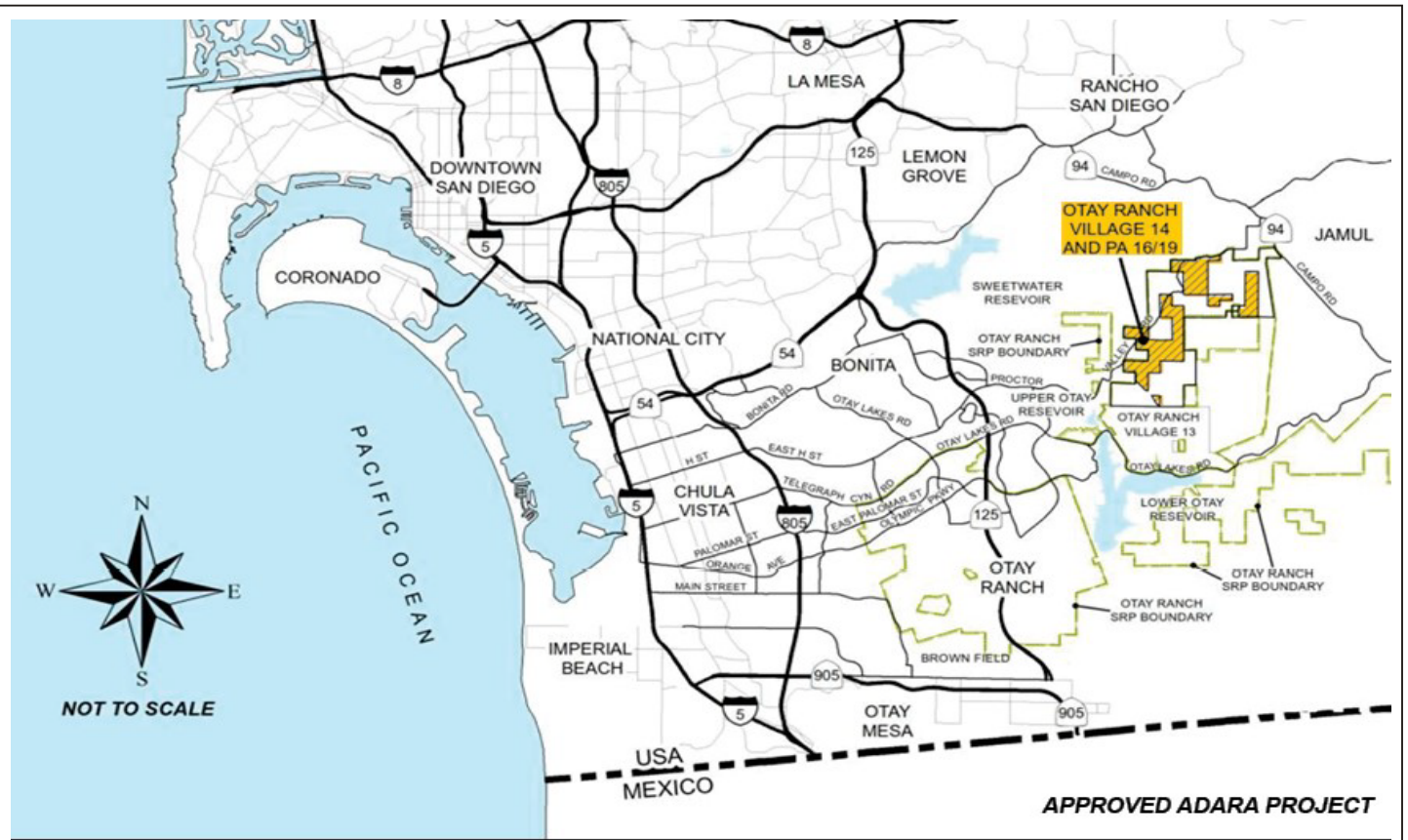
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PV1 and PV3: PV1 and PV3 are areas of the Approved Project located in Village 14 as shown on Figure 3 attached.

Revised Tentative Map: The Revised Tentative Map reflects revisions to the June 26, 2019, Approved Tentative Map #5616 that are necessary to process and implement the land exchange with CDFW and the Proposed Project Amendment in the County.

Specific Plan Amendment: The Specific Plan Amendment reflects revisions to the June 26, 2019, Approved Specific Plan #16-002 that are necessary to process and implement the land exchange with CDFW and the Proposed Project Amendment in the County.

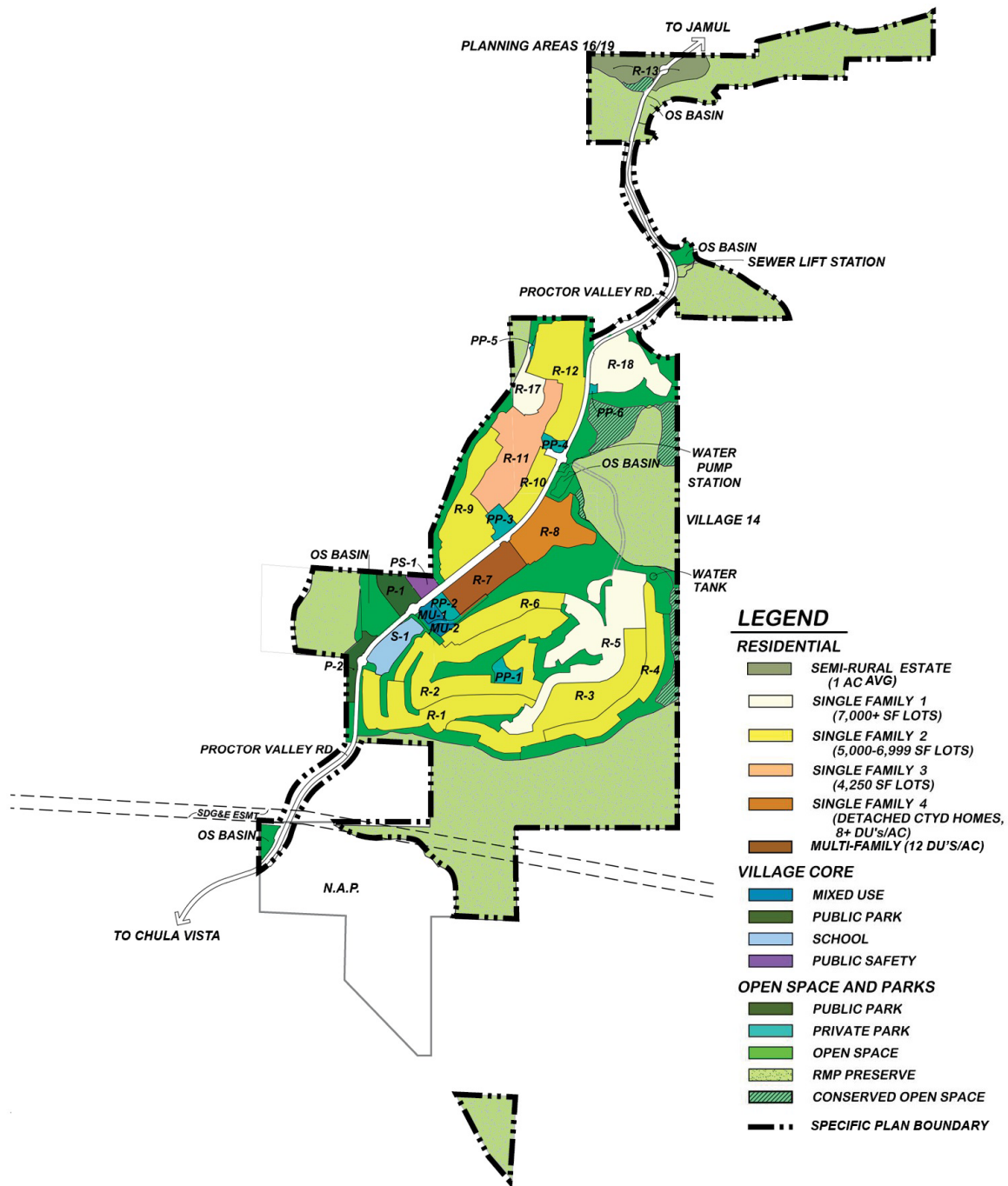


SOURCE: Hunsaker 2019

FIGURE 1

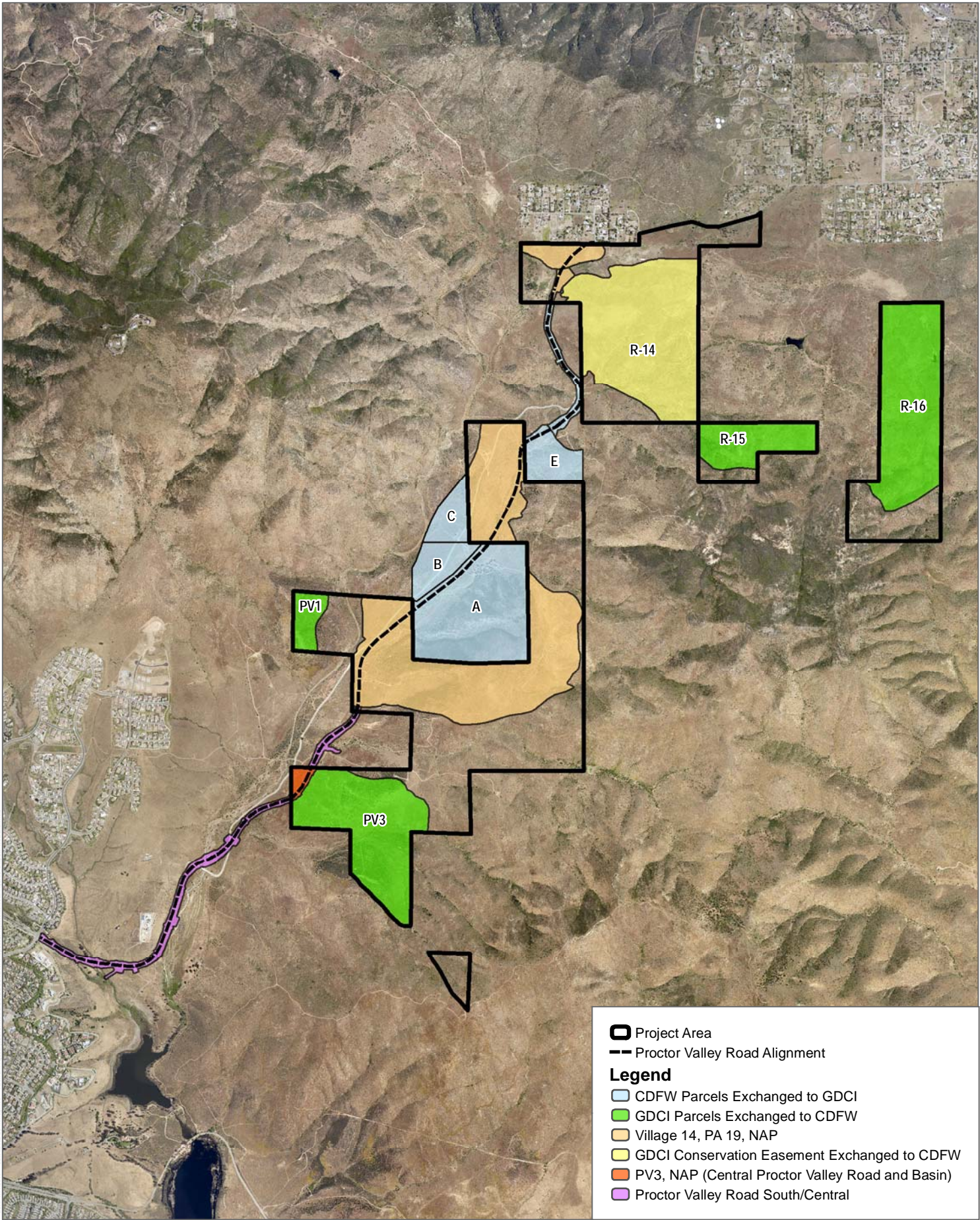
Regional Location

Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment



SOURCE: Hunsaker 2019

FIGURE 2



SOURCE: SANGIS 2017; Hunsaker 2019

FIGURE 3

Proposed Land Exchange

Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment

Section 1. Background

The Proposed Project Amendment Project Area comprises approximately 1,543 acres of undeveloped land within the Proctor Valley area of the 23,000-acre Otay Ranch master planned community (see Figure 4, Proposed Project Amendment Project Area). The Proposed Project Amendment reflects proposed changes to the Approved Project, including a proposed land exchange with the California Department of Fish and Wildlife (CDFW).

On June 27, 2019, the owner/applicant of the Approved Project entered into a Dispute Resolution Agreement with CDFW, the U.S. Fish and Wildlife Service, and the County. Pursuant to this agreement, the owner/applicant would seek a land exchange with CDFW through a process overseen by the California Wildlife Conservation Board. The proposed land exchange, if approved by the Wildlife Conservation Board, would require the owner/applicant to (i) transfer 147.3 acres in Village 14 and 192.4 acres in Planning Area 16 to CDFW, and (ii) record a conservation easement over 191.5 acres in Planning Area 16. In exchange, CDFW would transfer 219.4 acres in Village 14 to the owner/applicant. The Proposed Project Amendment would then be implemented upon the lands within the applicant's ownership, including those received via the Wildlife Conservation Board land exchange. Because the Proposed Project Amendment assumes the above-described land exchange, it would result in a different development footprint than the Approved Project's development footprint. Therefore, a Specific Plan Amendment to the approved Village 14 and Planning Areas 16/19 Specific Plan and a Revised Tentative Map are required processes for the Proposed Project Amendment.

While the Proposed Project Amendment and EIR Land Exchange Alternative both contemplate exchanges of land with the CDFW, the Development Footprints and other aspects differ. It is important to note that the Development Footprint of the Proposed Project Amendment was assessed in the certified Final EIR as part of the Approved Project Development Footprint and as part of the EIR Land Exchange Alternative Development Footprint.

Section 2. Proposed Project Amendment Description and Summary of Amendment/Revisions

The Proposed Project Amendment proposes 1,266 residential units within a Project Area of 1,543 acres. The Proposed Project Amendment Development Footprint would be approximately 578.6 acres, which would consist of approximately 513.1 acres within Otay Ranch Village 14, 25.2 acres within Otay Ranch Planning Area 19, and 40.1 acres of off-site improvements (i.e., Proctor Valley Road). Of the 1,266 residential units, 1,253 units would be located in Village 14 (consistent with the Otay Ranch GDP/SRP) and 13 units would be located in Planning Area 19 (consistent with the Otay Ranch GDP/SRP) (City of Chula Vista and County of San Diego 1993). The Proposed Project Amendment is depicted in Figure 2 and summarized in Tables 1 through 3.

As described above, the Proposed Project Amendment would also include a land exchange between the owner/applicant and CDFW, which would require the owner/applicant to transfer 339.7 acres to CDFW and record a conservation easement over 191.5 acres, and, in exchange, CDFW would transfer 219.4 acres in Village 14 to the owner/applicant to create a consolidated Development Footprint. The proposed land exchange between the applicant and CDFW is depicted in Figure 3. As defined above, the Proposed Project Amendment requires a Specific Plan Amendment and Revised Tentative Map, which must be approved by the County. The Revised Tentative Map

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would replace that certain approved Tentative Map TM #5616, approved by the County on June 26, 2019. The Specific Plan Amendment would amend the Specific Plan 16-002 to reflect the Proposed Project Amendment, including the Revised Tentative Map and the land exchange with CDFW.

Table 1. Village 14 and Planning Areas 16/19 Proposed Project Amendment Site Utilization Plan Summary

Description	Village 14		Planning Area 16/19		Total Proposed Project Amendment	
	Gross Acres	Units	Gross Acres	Units	Gross Acres	Units
Residential Subtotal ⁽¹⁾	386.6	1,253	14.9	13	401.4	1,266
Non-Residential Uses						
Mixed Use ⁽²⁾	2.7				2.7	
Public Parks	10.2				10.2	
Private Parks/Recreation ⁽³⁾	9.5				9.5	
Public Safety Site	2.3				2.3	
Elementary School Site	9.9				9.9	
Open Space	47.8		1.7		49.5	
Conserved Open Space	23.0		1.5		24.5	
Otay Ranch RMP Preserve	278.6		98.4		377.0	
Circulation	23.3		3.4		26.7	
<i>Non-Residential Uses Subtotal</i>	<i>407.2</i>		<i>105.0</i>		<i>512.1</i>	<i>-</i>
Total Proposed Project Amendment ⁴	793.7	1,253	119.8	13	913.6	1,266
Other Off-sites						
Off-site Improvements	40.1				40.1	
Off-site Preserve PA 16			58.2		58.2	
Parcels Exchanged to CDFW	147.3		192.4		339.7	
Conservation Easement PA 16			191.5		191.5	
Total Proposed Project Amendment Area					1,543.1	1,266

Notes: PA = Planning Area, CDFW = California Department of Fish and Wildlife.

¹ Residential gross acres includes 96.7 acres of related internal slopes, fuel modification and/or preserve edge open space lots.

² Village 14 Mixed Use acreage includes 10,000 sf of commercial use.

³ Village 14 has 2.1 acres of private pocket parks included in the residential acreage; therefore, the subtotal including PPP is 11.7 acres.

⁴ Totals may not sum due to rounding

Table 2. Proposed Project Amendment Site Utilization Plan Detail (Village 14)

Description		Gross Acres ^(1,2)	Units ⁽³⁾	Density
Single Family Residential				
R-1	50*100	33.1	103	3.1
R-2	60*100	48.3	136	2.8
R-3	60*85	35.8	112	3.1
R-4	60*100	31.5	73	2.3
R-5	75*100	51.7	121	2.3
R-6	60*85	22.5	47	2.1
R-8	Courtyard	21.1	116	5.5
R-9	60*85	33.0	96	2.9
R-10	60*85	8.5	31	3.7
R-11	50*85	25.4	119	4.7
R-12	50*100	27.6	94	3.4
R-17	70*100	7.4	10	1.4
R-18	70*100	27.8	45	1.6
<i>Single Family Residential Subtotal</i>		373.8	1,103	3.0
Multi-Family				
R-7	MF	12.7	150	11.8
<i>MF Subtotal</i>		12.7	150	11.8
Residential Subtotal ⁽³⁾⁽⁴⁾		386.6	1,253	3.2
Non-Residential Uses				
Mixed Use ⁽²⁾	MU - C	2.7		
Public Parks				
P-1	Village Green Park	6.2		
P-2	Scenic Park	3.9		
<i>Public Parks Subtotal</i>		10.2		
Private Parks & Recreation				
PP-1	Central	2.8		
PP-2	Village Core	2.1		
PP-3	West	1.9		
PP-4	West	1.5		
PP-5	northwest	0.8		
PP-6	Northeast	0.4		
PPP ⁽³⁾	Various	0.0		
<i>Private Parks/Recreation Subtotal</i>		9.5		
Public Safety Site		2.3		
Elementary School Site		9.9		
Open Space		47.8		
Conserved Open Space		23.0		
Otay Ranch RMP Preserve		274.9		
Circulation - In Preserve		3.7		
Circulation - Arterial		23.3		
<i>Non-Residential Uses Subtotal</i>		407.2		
Village 14 Subtotal		793.7	1,253	1.6

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- 1 Residential gross acres includes 96.5 acres of related internal slopes, fuel modification and/or preserve edge open space lots.
- 2 Village 14 Mixed Use acreage includes 10,000 sf of commercial use.
- 3 Village 14 has 2.1 acres of private pocket parks included in the residential acreage; therefore, the subtotal including PPP is 11.6 acres.
- 4 Totals may not sum due to rounding

**Table 3. Proposed Project Amendment Site Utilization Plan Detail
(Planning Areas 16/19)**

Description	Gross Acres	Units	Density
Residential Uses			
R-13 (PA 19 Estates)	14.9	13	0.9
<i>Residential Subtotal ⁽¹⁾</i>	14.9	13	0.9
Non-Residential Uses			
Circulation in Preserve	1.4		
Open Space	1.7		
Conserved Open Space	1.5		
Otay Ranch RMP Preserve	97.0		
Circulation Arterial	3.4		
<i>Non-Residential Uses Subtotal</i>	105.0		
<i>Planning Area 19 Subtotal</i>	119.8	13	0.1
Proposed Project Amendment Total ⁽²⁾	913.6	1,266	1.4
OTHER			
Description	Gross Acres ⁽¹⁾	Target Units	Density
Other Applicant Owned NAP of TM			
PV1 exchanged to CDFW	18.9		
PV3 exchanged to CDFW	128.4		
R-15 Exchanged to CDFW	49.9		
R-16 Exchanged to CDFW	142.5		
R-14 Conservation Easement Area	191.5		
R-15 Preserve	10.5		
R-16 Preserve	47.8		
<i>Subtotal</i>	589.5		
Off-site Acres	40.1		
Proposed Project Amendment Project Area	1,543.1	1,266	

Notes: PA = Planning Area.

¹ Residential gross acres includes 2.1 acres of related internal slopes, fuel modification and/or preserve edge open space lots.

² Totals may not sum due to rounding

Proposed Project Amendment Relative to the Approved Project and the EIR Land Exchange Alternative.

The Final EIR evaluated both the Approved Project and the EIR Land Exchange Alternative at a project level of analysis. This Technical Memorandum examines whether the Final EIR, through its analysis of the Approved Project and the EIR Land Exchange Alternative, covered all anticipated impacts of the Proposed Project Amendment. Figure 5 depicts the limits of the development contemplated under the Approved Project, the EIR Land Exchange Alternative, and the Proposed Project Amendment. Table 4 provides a summary of the components for the Proposed Project Amendment, the Approved Project, and the EIR Land Exchange Alternative. Note that from a geographical perspective, each acre

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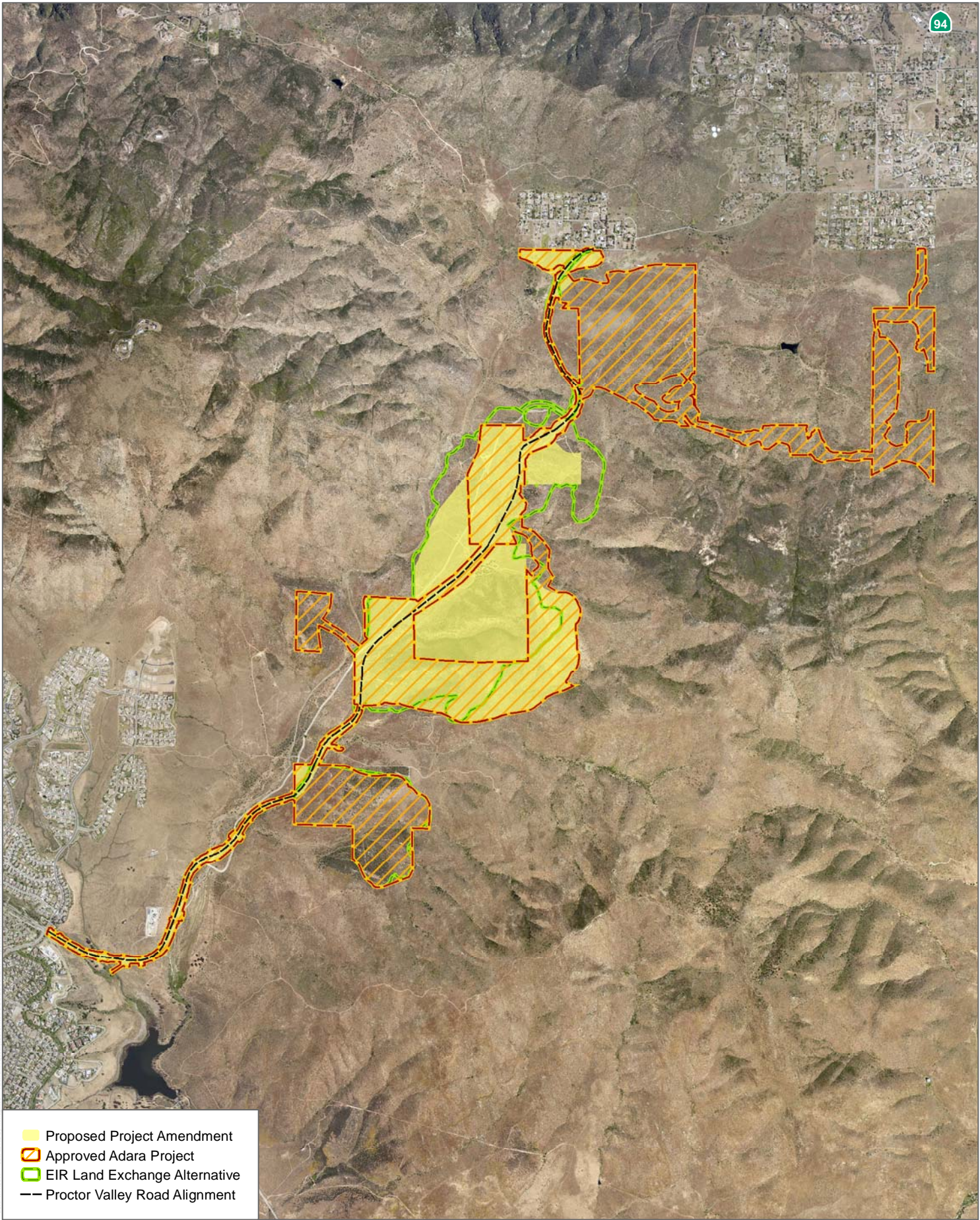
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that comprises the Proposed Project Amendment's Development Footprint is located either within the Approved Project Development Footprint or within the EIR Land Exchange Alternative Development Footprint. In other words, no portion of the Proposed Project Amendment Development Footprint is outside the combined Approved Project and EIR Land Exchange Alternative Development Footprints.

Table 4. Proposed Project Amendment Comparison to Approved Project and EIR Land Exchange Alternative

Description	Proposed Project Amendment	Approved Project	EIR Land Exchange Alternative
Development Footprint (Acres)	579	809	658
Project Area (Acres)	1,543	1,369	2,388
Off-sites (Acres)	40	85	40
Units	1,266	1,119	1,530
Proctor Valley Rd.	Same	Same	Same





SOURCE: SANGIS 2017; Hunsaker 2019

FIGURE 5

Certified EIR Study Area

Otay Ranch Village 14 and Planning Areas 16/19 Proposed Project Amendment

Section 2.1 Project Design Features

The following section provides a complete list of energy-relevant project design features (PDFs) from Section 1.2.5, Project Design Features, in Appendix 2.7-1 of the Approved Project's Final EIR, which would also be implemented as part of the Proposed Project Amendment.

PDF-AQ/GHG-1 Wood-Burning Stoves and Fireplaces. Prior to the issuance of residential building permits, the Proposed Project Amendment 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 Amendment 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 Amendment 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 Proposed Project Amendment 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 Amendment 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 Amendment 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 Amendment 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 Amendment 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-10 Electric Vehicle Charging Stations. Prior to the issuance of residential building permits, the Proposed Project Amendment 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 Amendment'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 Amendment 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 Proposed Project Amendment 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.

Section 3. Approved Project Findings

Section 3.1 Wasteful and Inefficient Use of Nonrenewable Resources

The Approved Project is estimated to consume 872,501 gallons of petroleum during the construction phase. By comparison, approximately 164 billion gallons of petroleum would be consumed in California over the course of the Approved Project's construction period based on the California daily petroleum consumption estimate of approximately 52.9 million gallons per day (CEC 2016). The Approved Project would be required to comply with the California Air Resources Board's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. Therefore, because petroleum use during construction, including construction of the Proctor Valley Road North and Perimeter Trail Options, would be temporary and minimal and would not be wasteful or inefficient, impacts would be less than significant. It is noted that **mitigation measure (M) AQ-5**, Construction Equipment Maintenance, and **M-AQ-6**, Use of Electrical-Powered Equipment, would result in further un-quantified reductions in fuel consumed during construction.

Mobile sources from the Approved Project would result in approximately 1,718,084 gallons of gasoline consumed per year and 123,215 gallons of diesel consumed per year beginning in 2028. By comparison, California as a whole consumes approximately 19.3 billion gallons of petroleum per year (CEC 2016). Although the Approved Project would increase petroleum use during operation, the use would be a small fraction of the statewide use and, due to efficiency increases, diminish over time. Additionally, the inclusion of on-site walking/bicycling trails and other resident-serving amenities would help ensure that petroleum-based fuels are efficiently consumed. Given these considerations, petroleum consumption associated with the Approved Project would not be considered inefficient or wasteful and would result in a less-than-significant impact.

Section 3.2 Consistency with Adopted Plans and Policies

The Approved Project would follow applicable energy standards and regulations during the construction phases. Construction equipment for rock crushing would meet Tier 4 Final standards in accordance with **M-AQ-1**, and all other construction equipment would meet Tier 4 Interim standards in accordance with **M-AQ-4**. The Approved Project would also provide electrical hookups and use electrical construction equipment in accordance with **M-AQ-6**. The applicant has committed to incorporating zero net energy features into residential building design, including rooftop solar photovoltaic systems. The Approved Project would be built and operated in accordance with all existing, applicable regulations at the time of construction. For the reasons stated, the Approved Project would not conflict with existing energy standards or regulations, and impacts would be less than significant.

Section 4. Proposed Project Amendment Impacts

Section 4.1 Wasteful and Inefficient Use of Nonrenewable Resources

Construction

Construction of the Proposed Project Amendment would result in energy consumption from operation of off-road construction equipment; haul trucks, vendor trucks, and worker vehicles; the diesel engine generator powering the rock-crushing equipment; and blasting operations using ammonium nitrate/fuel oil-based blend explosives.

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A comparison of the key construction characteristics that are factors in estimated energy consumption, including total development, area graded, and blasting assumptions, was conducted between the Proposed Project Amendment and the Approved Project to qualitatively evaluate energy use associated with implementation of the Proposed Project Amendment.

The Proposed Project Amendment proposes 1,266 residential units, which is larger than the Approved Project (an increase of 147 units from 1,119 units) and smaller than the EIR Land Exchange Alternative (a reduction of 264 units from 1,530 units) (see Table 1). While the Proposed Project Amendment would result in 147 more residential units than the Approved Project, the total square footage of vertical development is anticipated to be similar to the Approved Project because the Proposed Project Amendment would consolidate development on smaller lots which have been designed to include more homes that would range between approximately 2,000 to 2,500 square feet. In comparison, Planning Area 16 in the Approved Project includes homes that average approximately 4,000 square feet (the Approved Project includes 125 residential lots as “estate” homes, whereas the Proposed Project Amendment would include 13 estate homes). Based on the vertical development characteristics, the Proposed Project Amendment is anticipated to involve similar vertical construction activity compared to the Approved Project, including similar phasing, equipment, workers, and vendor truck trips. The Proposed Project Amendment total vertical development square footage would increase by 1.55% over the Approved Project, which would not substantially change the construction assumptions or construction duration/phasing.

A comparison of the Proposed Project Amendment, Approved Project, and EIR Land Exchange Alternative square footage is provided in Table 5.

Table 5. Proposed Project Amendment Building Square Footage Compared to Approved Project and Environmental Impact Report Land Exchange Alternative

Building Square Footage	Proposed Project Amendment	Approved Project	EIR Land Exchange Alternative
<i>Total Residential</i>	3,961,600	3,904,214	4,704,470
<i>Total Non-Residential</i>	88,340	83,760	102,180
Total Square Feet	4,049,940	3,987,974	4,806,650

Similar to the Approved Project, the Proposed Project Amendment’s cut-and-fill quantities would be balanced on site, and no external soil export would be required. The Proposed Project Amendment would grade approximately 522 acres, which is less than the approximately 599 acres required for the Approved Project (see Table 4). Grading would balance within each subset area, and hauling would not be required between subset areas. 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 in the Approved Project EIR. Approximately 8,943,005 cubic yards of cut and fill would occur within the Proposed Project Amendment area, which is less than the 8,948,734 cubic yards that would be required for the Approved Project. Therefore, the Proposed Project Amendment would result in less cubic yards of grading than the Approved Project. Accordingly, the Proposed Project Amendment is anticipated to result in less earthwork activity compared to the Approved Project.

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Blasting operations and rock crushing would also be required for site preparation for the Proposed Project Amendment, similar to the Approved Project. The Proposed Project Amendment would blast approximately 1,729,498 cubic yards of rock, which is 24.7% less than the 2,298,117 cubic yards required for the Approved Project. All blasting activity would comply with Section 96.1.5601.2 of the County of San Diego 2017 Consolidated Fire Code. The total blasting operations associated with the Proposed Project Amendment would be less than the Approved Project. Regarding rock crushing activities, the Proposed Project Amendment is anticipated to result in similar construction activities as compared to the Approved Project.

Based on the above considerations, overall construction energy use resulting from implementation of the Proposed Project Alternative are expected to be similar to the Approved Project construction energy use. Because the Proposed Project Amendment would use the same construction techniques, but would have similar activities compared to the Approved Project, impacts related to inefficient or wasteful use of nonrenewable resources during construction would be less than significant. Further, the Proposed Project Amendment would be required to comply with applicable plans and policies. Accordingly, energy impacts would remain less than significant, as they would be less than the Approved Project. Accordingly, the level of impact would not increase from the level identified in the Approved Project Final EIR.

Operational

Similar to the Approved Project, operation of the Proposed Project Amendment would have energy impacts from electricity, natural gas, and mobile source fuel use, which are discussed below.

Electricity

At full build-out, the Proposed Project Amendment's operational phase would require electricity for operating the various buildings and residences. The current Title 24 building energy efficiency standards (24 CCR Part 6) are the 2016 Title 24 building energy efficiency standards, which became effective 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 2015). The Proposed Project Amendment would include **PDF-AQ/GHG-3**, which requires non-residential land uses to be 10% more energy efficient than required by the 2016 Title 24 energy efficiency standards. The 2019 standards will continue to improve upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards will go into effect on January 1, 2020.

The Proposed Project Amendment would have more residential units than the Approved Project, but as shown in Table 5 above, a similar total amount of built square footage due to the change in product type resulting from consolidating development in Village 16 and eliminating the estate homes in Planning Area 16. Therefore, the Proposed Project Amendment is expected to have similar electricity demand compared to the Approved Project. The Approved Project had a less-than-significant impact with respect to inefficient or wasteful electricity use. Therefore, with implementation of **PDF-AQ/GHG-1** through **PDF-AQ/GHG-10**, the Proposed Project Amendment would also have a less-than-significant impact with respect to inefficient or wasteful electricity use, and the level of impact would not increase from those levels identified in the Approved Project Final EIR. Furthermore, the Proposed Project Amendment would be subject to the same mitigation measures as the Approved Project, further reducing electricity use.

Natural Gas

Natural gas would be directly consumed throughout operation of the Proposed Project Amendment, primarily through building heating and fireplace options for homes. As described above and consistent with electricity use, the Proposed Project Amendment natural gas use is directly tied to the number of homes within the development. The Proposed Project Amendment is expected to have similar natural gas demand to the Approved Project. Therefore, the Proposed Project Amendment would also have a less-than-significant impact with respect to inefficient or wasteful natural gas use, and the level of impact would not increase from those levels identified in the Approved Project Final EIR. Furthermore, the Proposed Project Amendment would be subject to the same mitigation measures as the Approved Project, further reducing its natural gas use.

Petroleum Use

The majority of fuel consumption resulting from the Proposed Project Amendment's operational phase would be attributable to the use of resident, visitor, and employee motor vehicles (automobiles and light-duty trucks) traveling to and from the Proposed Project Amendment, as well as fuels used for alternative modes of transportation that may be used by residents, visitors, and employees. The source of petroleum use would be the same as from the Approved Project.

Because the Proposed Project Amendment would generate a similar land use mix as the EIR Land Exchange Alternative, the assumed average trip length for the EIR Land Exchange Alternative of 9.71 miles, which was back-calculated from the estimated vehicle miles traveled (VMT), was assumed for the Proposed Project Amendment.² Because the Proposed Project Amendment would implement a Transportation Demand Management (TDM) Program similar to the Approved Project, the Approved Project's transportation engineer (Chen Ryan) quantified the reduction in VMT attributable to implementation of the TDM-related strategies. Please see Table 15 in Appendix 2.7-1 of the Final EIR for additional information regarding the VMT reduction benefits of the TDM program. The Approved Project was determined to result in an overall 4.3% reduction in total VMT; therefore, the Proposed Project Amendment is anticipated to achieve a minimum of 4.3% reduction in VMT. However, a total VMT reduction of 4.6% was estimated for the EIR Land Exchange Alternative and since the Proposed Project Amendment was assumed to be similar to the EIR Land Exchange Alternative, a VMT reduction of up to 4.6% is possible.

The Proposed Project Amendment would also include a multipronged approach to increase electric vehicle (EV) adoption for residents. As part of this strategy, Level 2 EV Supply Equipment would be installed in half of all residential units³ (633 units), and 10 parking spaces located in the Village Core's commercial development area and P1 through P4 park areas would include charging stations.⁴ These strategies—in conjunction with market forces

² VMT was estimated for the Approved Project and the EIR Land Exchange Alternative by Chen Ryan in the Approved Project Final EIR. The EIR Land Exchange Alternative had a higher estimated VMT per trip compared to the Approved Project. Therefore, it was determined the EIR Land Exchange Alternative VMT was more conservative to use as the basis for the Proposed Project Amendment VMT. The Proposed Project Amendment VMT was estimated using Proposed Project Amendment-specific trip rates (Chen Ryan 2019) and the average trip length from the EIR Land Exchange Alternative (Chen Ryan 2017).

³ Providing EV charging stations to half of all Proposed Project Amendment residential units was chosen as an estimate of market demand. It is assumed that providing EV charging stations would incentivize homeowners to purchase EVs or provide an opportunity to homeowners who own EVs to have in-home chargers.

⁴ To meet Governor Brown's goals, 15% of new car purchases in 2025 would need to be ZEVs; 3% of new car purchases in 2016 were ZEVs (CEC 2016). This adoption rate is anticipated to be slightly higher in urban areas with major destinations in typical EV range, which the Proposed Project Amendment's in-home EV charging stations would

decreasing the cost and increasing the availability of EVs, regional charging initiatives decreasing range anxiety and increasing the share of miles driven by plug-in hybrid electric vehicles in EV mode, and state targets fueling programs and incentive pools making EV ownership more cost effective and appealing (International Council on Clean Transportation 2017)—will increase the market penetration of EVs and share of EV miles driven as a result of the Proposed Project Amendment.

As VMT is directly correlated with petroleum consumption it is used as a surrogate for evaluating the Proposed Project Amendment's impact. Because the Proposed Project Amendment VMT would be reduced from the TDM program and internal capture, the Proposed Project Amendment, similar to the Approved Project, would have a less-than-significant impact related to the inefficient or wasteful use of petroleum during operation, and the level of impact would not increase from those levels identified in the Approved Project Final EIR.

Section 4.2 Consistency with Adopted Plans and Policies

Similar to the Approved Project, the Proposed Project Amendment is consistent with the County General Plan and San Diego Association of Governments Regional Transportation Plan/Sustainable Communities Strategy underlying land use assumptions. The Proposed Project Amendment would follow applicable energy standards and regulations during the construction phases. Construction equipment for rock crushing would meet Tier 4 Final standards in accordance with **M-AQ-1**, and all other construction equipment would meet Tier 4 Interim standards in accordance with **M-AQ-4**. The Proposed Project Amendment would also provide electrical hookups and use electrical construction equipment in accordance with **M-AQ-6**. The applicant has committed to incorporating zero net energy features into residential building design, including rooftop solar photovoltaic systems. The Proposed Project Amendment would be built and operated in accordance with all existing, applicable regulations at the time of construction. The Proposed Project Amendment would not conflict with existing energy standards or regulations, impacts would be less than significant, and the level of impact would not increase from the level identified in the Approved Project Final EIR.

Section 5.Certified Environmental Impact Report Mitigation Measures and Project Design Features

Table 6 summarizes the PDFs from the Approved Project that would apply to the Proposed Project Amendment.

support. The non-residential spaces were determined to assist those with range anxiety and non-resident visitors to the site, as the entire proposed project Amendment is well within typical EV and PHEV range.

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<p>PDF-AQ/GHG-1 Wood-Burning Stoves and Fireplaces. Prior to the issuance of residential building permits, the Proposed Project Amendment applicant or its designee shall submit building plans illustrating that no wood-burning stoves or fireplaces would be constructed.</p> <p>PDF-AQ/GHG-2 Zero-Net Energy Development – Residential Land Uses. Prior to the issuance of residential building permits, the Proposed Project Amendment applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission.</p> <p>PDF-AQ/GHG-3 Non-Residential Energy Improvement Standards. Prior to the issuance of non-residential building permits, the Proposed Project Amendment applicant or its designee shall submit building plans illustrating that the Proposed Project Amendment'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.</p> <p>PDF-AQ/GHG-4 Energy Star Appliances. All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial</p>	<p>The EIR Land Exchange Alternative would implement PDF-AQ/GHG-1 through PDF-AQ/GHG-10 and PDF-TR-1.</p>	<p>The Proposed Project Amendment would implement PDF-AQ/GHG-1 through PDF-AQ/GHG-10 and PDF-TR-1.</p>	<p>Similar to the Approved Project, the Proposed Project Amendment's cut-and-fill quantities would be balanced on site, and no external soil export would be required. The Proposed Project Amendment is anticipated to result in less earthwork activity compared to the Approved Project. Regarding blasting and rock crushing activities, the Proposed Project Amendment is anticipated to result in less construction activities as compared to the Approved Project. The Proposed Project Amendment construction emissions are expected to be similar to the Approved Project construction emissions. Furthermore, the Proposed Project Amendment would offset 100% of its annual GHG emissions to achieve carbon neutrality. The Proposed Project Amendment would implement PDF-AQ/GHG-1 through PDF-AQ/GHG-10 and PDF-TR-1.</p>

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<p>businesses shall be Energy Star rated or equivalent.</p> <p>PDF-AQ/GHG-5 Solar Water Heating. Prior to the issuance of private recreation center building permits, the Proposed Project Amendment 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 Proposed Project Amendment Area have been designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.</p> <p>PDF-AQ/GHG-6 Efficient Outdoor Lighting. Prior to the issuance of permits, the Proposed Project Amendment 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</p> <p>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.</p> <p>PDF-AQ/GHG-8 Cool Roofs. Prior to the issuance of residential building permits, the Proposed Project Amendment</p>			

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<p>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.</p> <p>Prior to the issuance of non-residential building permits, the Proposed Project Amendment 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.</p> <p>PDF-AQ/GHG-9 Cool Pavements. Prior to the issuance of building permits, the Proposed Project Amendment 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.</p> <p>PDF-AQ/GHG-10 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</p>			

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<p>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 Amendment'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.</p> <p>PDF-TR-1 Transportation Demand Management. The Proposed Project Amendment 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:</p> <ul style="list-style-type: none"> 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 			

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<p>would also provide connections to the various recreational trails and multi-modal facilities accessing the Project Area.</p> <ul style="list-style-type: none"> • 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. 			

Table 6. Project Design Features and Mitigation Measures

Approved Project Impact and PDF or Mitigation Measure	EIR Land Exchange Alternative Impact and PDF or Mitigation Measure	Proposed Project Amendment Impact and PDF or Mitigation Measure	Explanation
<ul style="list-style-type: none"> 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. 			

Section 6. Conclusions

The Proposed Project Amendment would result in similar construction-generated energy use and impacts as compared to the Approved Project and the Land Exchange Alternative. The Proposed Project Amendment would continue to implement the PDFs described the Approved Project's Final EIR to reduce energy impacts. Therefore, the Proposed Project Amendment would not result in any new significance energy impacts beyond those disclosed in the Approved Project's Final EIR, and no new mitigation measures beyond those included in the Approved Project's Mitigation Monitoring and Reporting Plan are necessary.

Section 7. References

- CEC (California Energy Commission). 2015. *California Energy Demand Updated Forecast, 2015–2025*. CEC-200-2014-009-CMF. February 2015. Accessed December 2017. <http://www.energy.ca.gov/2014publications/CEC-200-2014-009/CEC-200-2014-009-CMF.pdf>.
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- Chen Ryan. 2017. Proctor Valley Transportation Impact Study.
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- City of Chula Vista and County of San Diego. 1993. *City of Chula Vista General Development Plan/County of San Diego Otay Subregional Plan*, Volume 2. Adopted October 28, 1993; amended June 4, 1996. <http://www.sandiegocounty.gov/dplu/docs/OtayRanchGenDevPlanVol2.pdf>.
- International Council on Clean Transportation. 2017. Expanding the Electric Vehicle Market in U.S. Cities. Published July 24, 2017. https://www.theicct.org/sites/default/files/publications/US-Cities-EVs_ICCT-White-Paper_25072017_vF.pdf.