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MEMORANDUM

TO: Mr. Greg Mattson, Project Manager, San Diego County

FROM: Stephen Cook, PE, Chen Ryan Associates
Phuong Nguyen, PE, Chen Ryan Associates

DATE: December 2, 2019

RE: **Traffic Technical Memorandum for the Village 14 and Planning Areas 16/19 Proposed Project Amendment**

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 232 acres, to 577 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 analyzed the Approved Project's potential impacts to transportation and traffic in Section 2.9, Transportation and Traffic. This Traffic 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 transportation and traffic differ from those of the Approved Project and, if appropriate, the EIR Land Exchange Alternative. This technical memorandum includes the following sections: (1) background, (2) 2.0 Potential Impacts Associated with the Proposed Project Amendment (3) Internal Project Traffic Operations with Proposed Project Amendment.

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) 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 Owner/Applicant 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 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.

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.

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

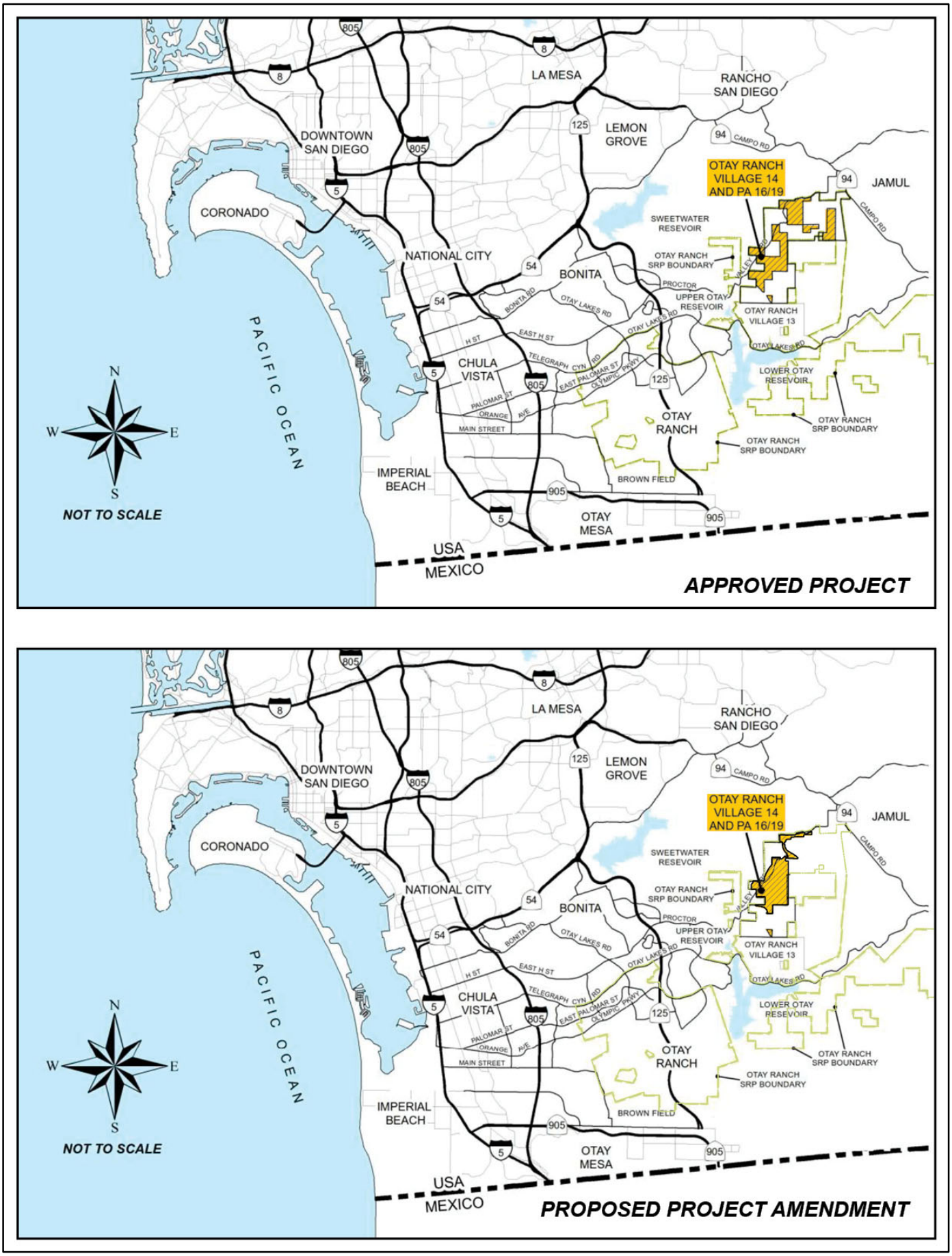

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Figure 1
Project Regional Location

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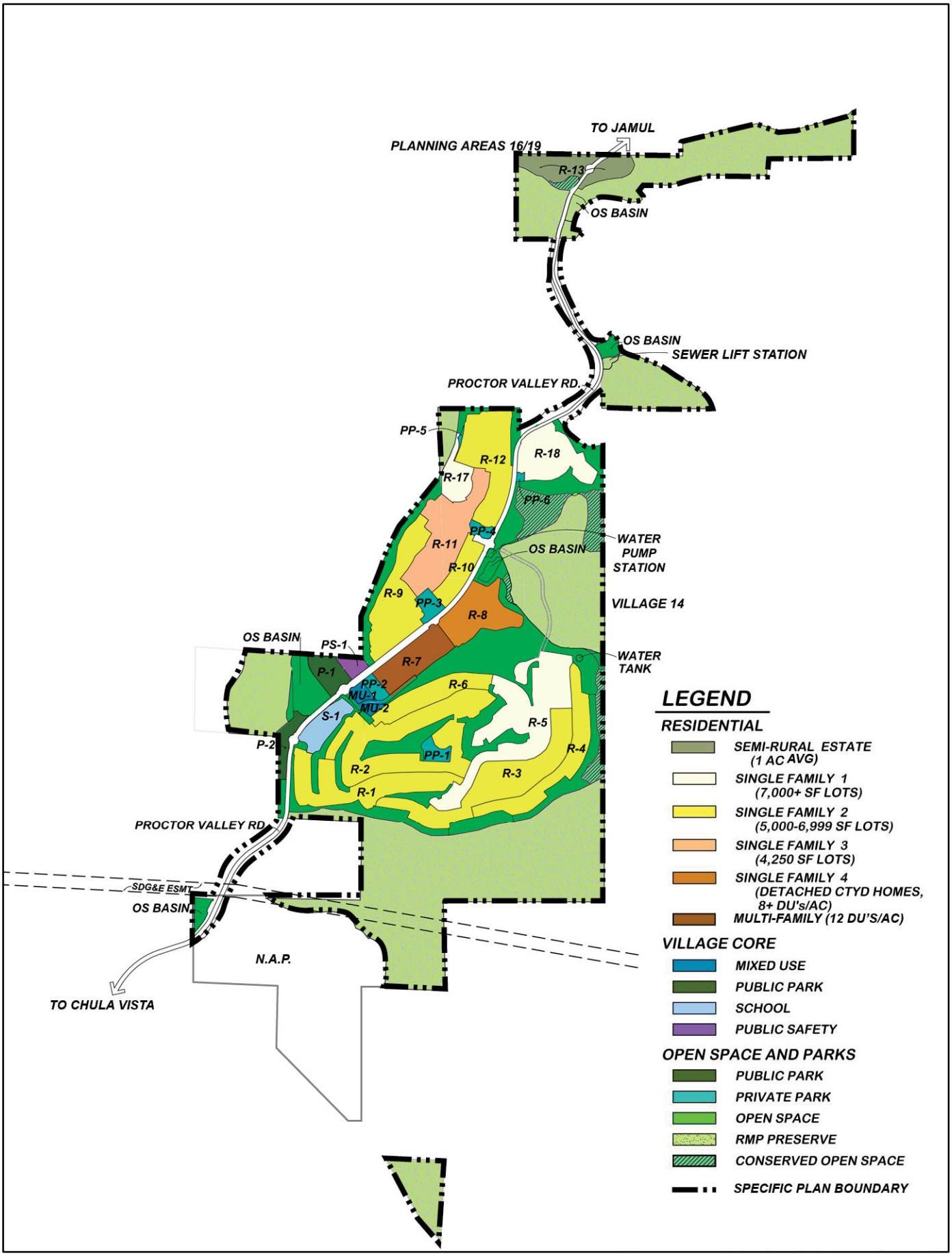

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Figure 2
Proposed Project Amendment
Site Utilization Plan

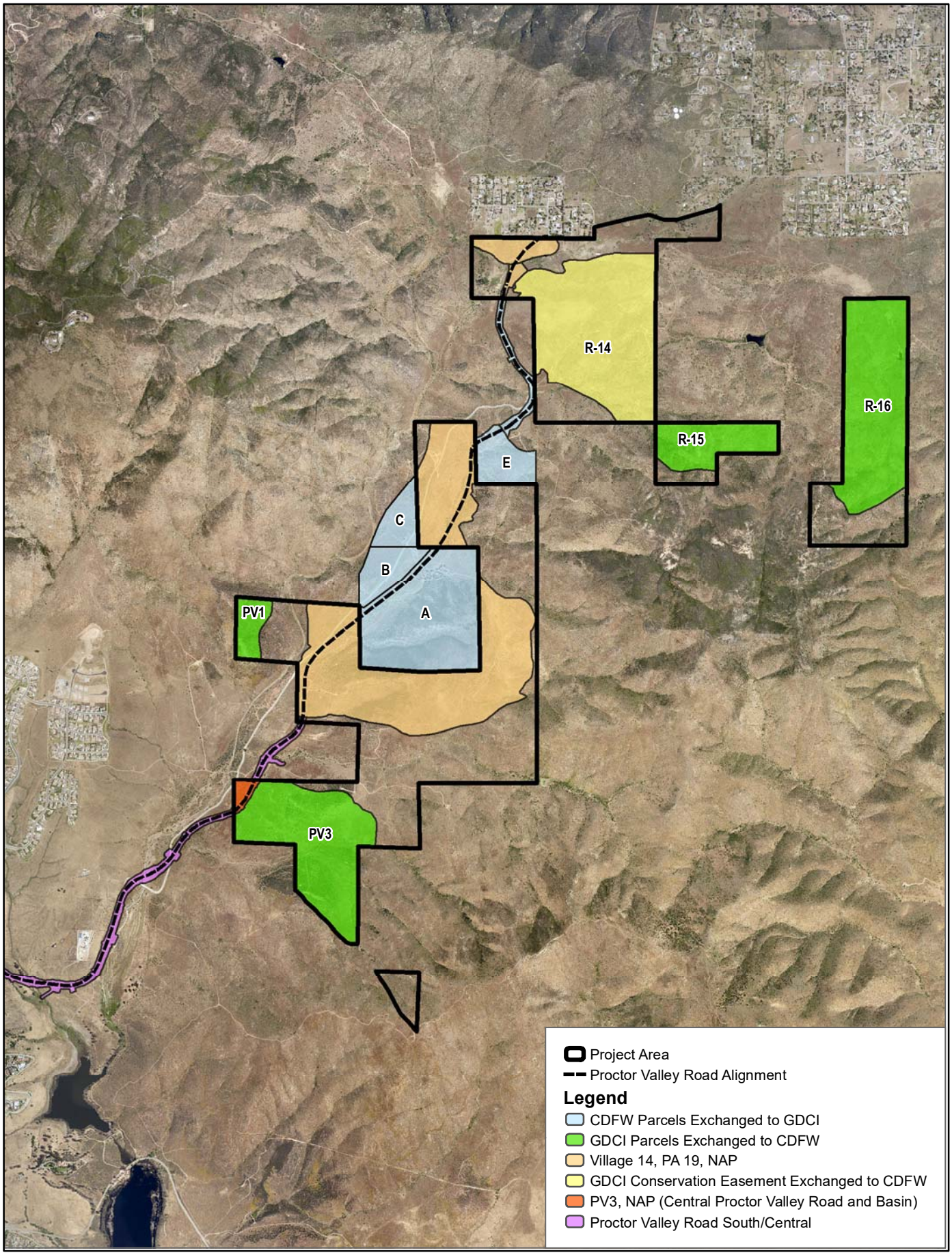


Figure 3
Proposed Land Exchange

1.0 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 1, 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.

The Final EIR includes the following technical reports prepared by Chen Ryan Associates, which are incorporated herein by reference:

- Final EIR Chapter 2.9 dated May 2019 – Transportation and Traffic
- Final EIR Appendix 2.9-1 dated January 2019 – Traffic Impact Assessment
- Final EIR Appendix 4.1-9 dated February 2018 – LEA Traffic Impact Assessment

1.1 Proposed Project Amendment (PPA)

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). The Proposed Project Amendment is depicted in Figure 2, Proposed Project Amendment Site Utilization Plan and summarized in Table 1.

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 4**. 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 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.

1.2 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. Note that from a geographical perspective, each acre 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.

The Approved Project authorizes development of a total of 1,119 dwelling units, which includes 125 estates residential units and 994 single family residential units, as well as 15.2 acres of neighborhood park, 4.5 acres of community purposes facility, 10,000 square feet of mixed-use commercial, and a 3 staff fire station on a Project Area totaling approximately 1,369.0 acres within a development footprint of 809.0 acres. In comparison, the EIR Land Exchange Alternative contemplated the development of 1,530 dwelling units, which included 1,124 single family residential units, 54 mixed-use residential units, 69 multi-family residential units, and 283 retirement community units, along with 15,000 square feet of mixed-use commercial, 8.3 acres for an elementary school, 13.5 acres of neighborhood parks, 5.6 acres for a community purposes facility, and a 3 staff fire station on a Project Area of approximately 2,387.6 acres with a development footprint of 658.3 acres.

Trip Generation Comparison

Specific to traffic, **Table 2** displays the land use and trip generation associated with the Approved Project, while **Table 3** displays the land use and trip generation associated with the EIR Land Exchange Alternative.

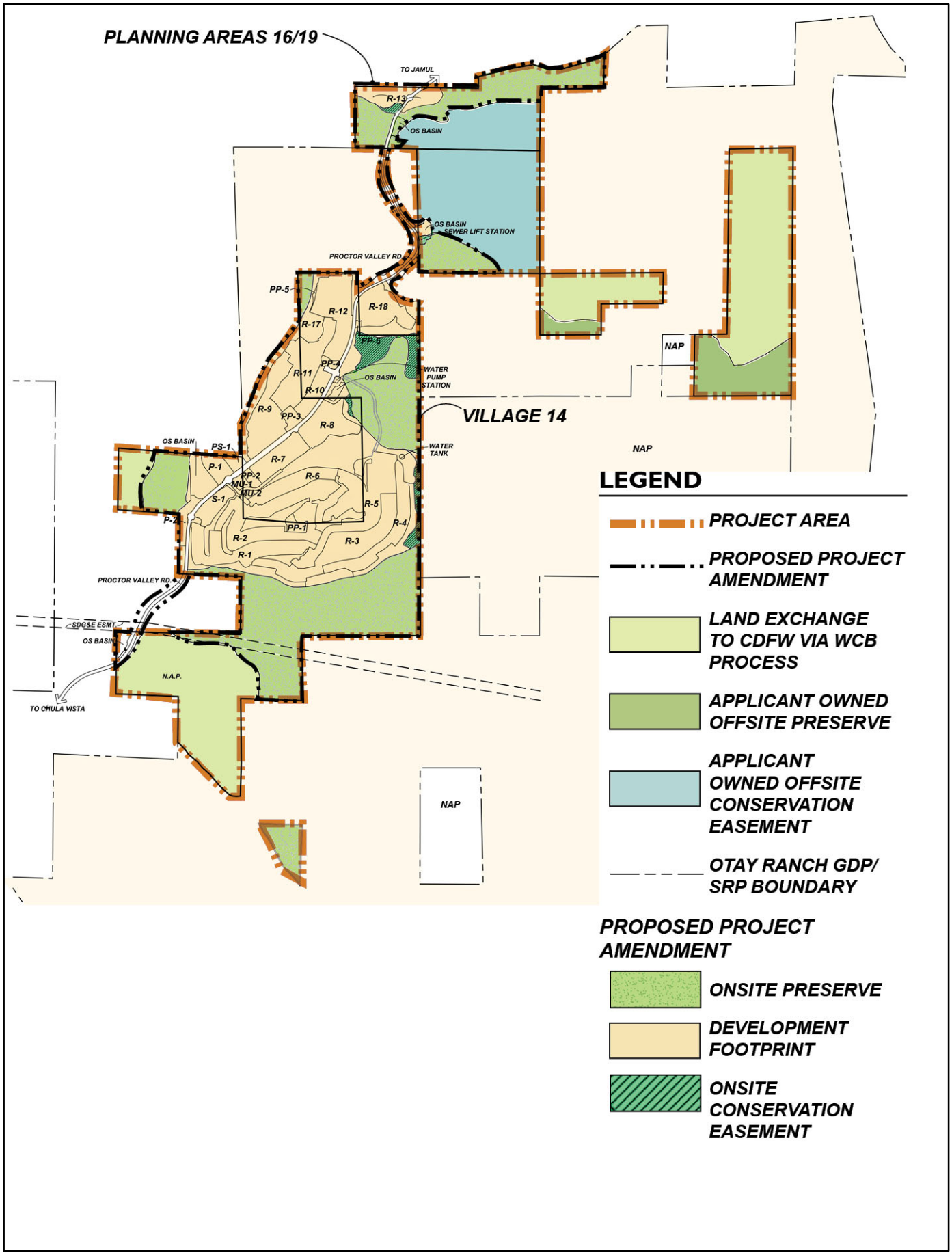
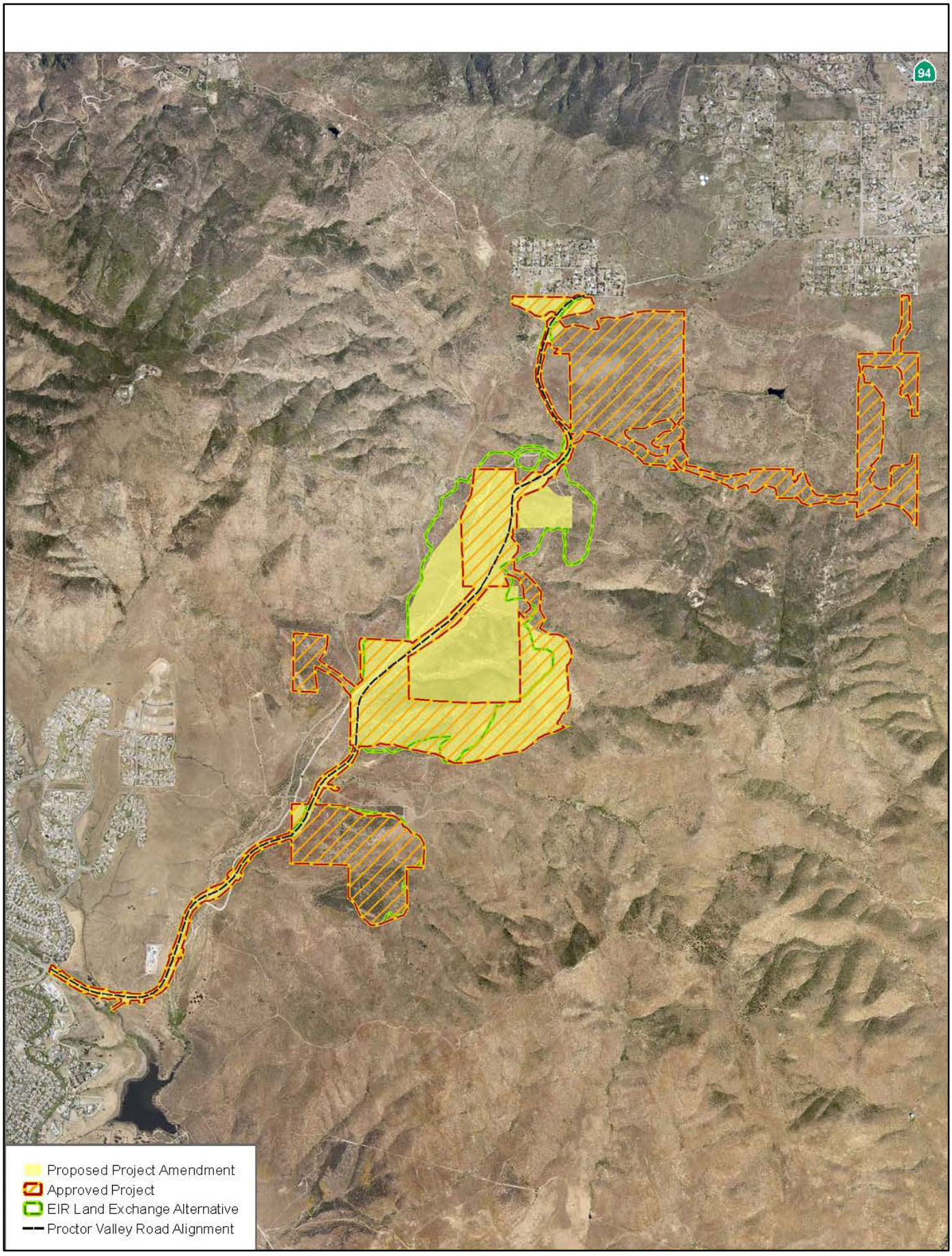


Figure 4
Proposed Project Amendment
Project Area



Traffic Technical Memorandum for the Village 14 and Planning Areas 16/19 Proposed Project Amendment

Figure 5
Certified EIR Study Area

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Table 1: Village 14 and Planning Area 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	
Non-Residential Uses Subtotal	*407.2*		*105.0*		*512.1*	-
Total Proposed Project Amendment [4]	**793.7**	**1,253**	**119.8**	**13**	**913.6**	**1,266**
Other Off-sites						
Offsite Improvements	40.1				40.1	
Offsite Preserve PA16			58.2		58.2	
Parcels Exchanged to CDFW	147.3		192.4		339.7	
Conservation Easement PA16			191.5		191.5	
Total Proposed Project Amendment Area					**1,543.1**	**1,266**

Source: Jackson Pendo Development Company

Notes: PA = Planning Area.
(1) Residential gross acres includes 98.6 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 2: Project Trip Generation – Approved Project

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Estate	125 DU	12/DU	1,500	8%	120	(3:7)	36	84	10%	150	(7:3)	105	45
Single Family Detached Housing	994 DU	10/DU	9,940	8%	795	(3:7)	238	557	10%	994	(7:3)	697	297
Neighborhood/County Park (Undeveloped)	15.2 AC	5/AC	76	4%	3	(5:5)	1	1	8%	6	(5:5)	3	3
Community Facility	4.5 AC	30/AC	135	5%	7	(5:5)	4	3	8%	11	(5:5)	5	5
Fire Station & Satellite Sheriff's Facility	3 Staff	5.33/Staff	16	-	6	(6:4)	3	3	-	0	(5:5)	0	0
Mixed Use: Commercial /Residential	10 KSF	110/KSF	1,100	3%	33	(6:4)	20	13	9%	99	(5:5)	50	50
		Total	**12,767**		**964**		**303**	**661**		**1,260**		**859**	**401**

Table 3: Project Trip Generation – EIR Land Exchange Alternative

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Single Family Detached Housing	1,124 DU	10/DU	11,240	8%	900	(3:7)	270	630	10%	1124	(7:3)	787	337
Mixed Use: Commercial /Residential	54 DU	5/DU	270	9%	25	(3:7)	8	17	13%	36	(6:4)	22	14
Multi-Family (6-20 DU/Acre)	69 DU	8/DU	552	8%	45	(2:8)	9	36	10%	56	(7:3)	39	17
Retirement Community	283 DU	4/DU	1132	5%	57	(4:6)	23	34	7%	80	(6:4)	48	32
Mixed Use: Commercial /Retail	15,000 SF	110/KSF	1,650	3%	50	(6:4)	30	20	9%	149	(5:5)	75	74
Elementary School	8 Acre	90/Acre	720	32%	231	(6:4)	139	92	9%	65	(4:6)	26	39
Neighborhood/County Park (Undeveloped)	13.5 Acre	5/Acre	67	4%	3	(5:5)	2	1	8%	6	(5:5)	3	3
Community Facilities	5.6 Acres	30/Acres	168	80%	135	(5:5)	68	67	20%	34	(5:5)	17	17
Fire Station	3 Staff	5.33/Staff	16	35%	6	(5:5)	3	3	0%	0	(5:5)	0	0
		Sub-Total	15,815		1,452		552	900		1,550		1,017	533
		Internal Capture @ 12%	-1,898		174		66	108		186		122	64
		External Total	**13,917**		**1,278**		**486**	**792**		**1,364**		**895**	**469**

As shown in Table 2, the Approved Project is anticipated to generate 12,767 external daily trips, with 964 trips occurring during the AM peak hour (303-in/661-out) and 1,260 trips occurring during the PM peak hour (859-in/401-out). As shown on Table 3, the EIR Land Exchange Alternative is anticipated to generate 13,917 external daily trips with 1,278 trips occurring during the AM peak hour (486-in/792-out) and 1,364 trips occurring during the PM peak hour (895-in/469-out).

Table 4 displays the Proposed Project Amendment land uses and their associated trip generation. Since the Proposed Project Amendment land uses are similar to the EIR Land Exchange Alternative, which includes an elementary school, the 12% internal capture identified by the SANDAG model for the EIR's Land

Exchange Alternative was also applied to the Proposed Project Amendment. Additional documentation in regards to the assumed internal capture is provided in Chapter 4 of the EIR Land Exchange Alternative Traffic Impact Study. As shown in Table 4, the Proposed Project Amendment is anticipated to generate 12,962 external daily trips, with 1,175 trips occurring during the AM peak hour (434-in/741-out) and 1,273 trips occurring during the PM peak hour (848-in/425-out).

Table 4: Project Trip Generation – Proposed Project Amendment

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Estate	13 DU	12 / DU	156	8%	13	(3:7)	4	9	10%	16	(7:3)	11	5
Single Family Detached Housing	1,103 DU	10 / DU	11,030	8%	883	(3:7)	265	618	10%	1,103	(7:3)	772	331
Multi-Family (6-20 DU/Acre)	150 DU	8 / DU	1,200	8%	96	(2:8)	19	77	10%	120	(7:3)	84	36
Mixed Use: Commercial /Retail	10 KSF	110 / KSF	1,100	3%	33	(6:4)	20	13	9%	99	(5:5)	50	49
Elementary School	9.9 Acre	90 / Acre	891	32%	286	(6:4)	172	114	9%	81	(4:6)	32	49
Neighborhood/County Park (Undeveloped)	10.2 Acre	5 / Acre	51	4%	3	(5:5)	2	1	8%	5	(5:5)	3	2
Community Facilities	9.5 Acre	30 / Acre	285	5%	15	(5:5)	8	7	8%	23	(5:5)	12	11
Fire Station	3 Staff	5.3 / Site	16	35%	6	(5:5)	3	3	0%	0	(5:5)	0	0
		Sub-Total	14,729		1,335		493	842		1,447		964	483
		Internal Capture @ 12%	-1,767		-160		-59	-101		-174		-116	-58
		External Total	12,962		1,175		434	741		1,273		848	425

When comparing the total trip generation from the Approved Project and Proposed Project Amendment (Table 2 vs Table 4), the Proposed Project Amendment would generate 195 more daily trips than the Approved Project, including 209 more AM peak hour trips and 12 more PM peak hours trips. However, when compared to the EIR Land Exchange Alternative (Table 3 vs Table 4), the Proposed Project Amendment would generate 955 fewer daily trips, 103 fewer AM peak hour trips, and 91 fewer PM peak hour trips.

2.0 Potential Impacts Associated with the Proposed Project Amendment

Significant impacts associated with both the Approved Project and the EIR Land Exchange Alternative were identified in the Final EIR. Moreover, the Final EIR identified the exact same significant transportation related impacts for both the Approved Project and the EIR Land Exchange Alternative. Therefore, since the Proposed Project Amendment would generate fewer trips than the EIR Land Exchange Alternative, it is reasonable to conclude that the Proposed Project Amendment would result in the same or fewer transportation related significant impacts as those identified in the Final EIR. The significant impacts associated with the Approved Project, the EIR Land Exchange Alternative, and the Proposed Project Amendment are shown in Attachment A.

Of particular note relative to significant impacts, the Final EIR determined that both the Approved Project and the EIR Land Exchange Alternative would result in a direct significant impact to the Lyons Valley Road & SR-94 intersection but that signalization of the intersection would reduce the project impact to less than significant. Subsequent to the Final EIR analysis, the intersection was signalized by the Jamul Casino in late 2018 and, as such, any impacts to the intersection by the Proposed Project Amendment would be less than significant.

3.0 Internal Project Traffic Operations with Proposed Project Amendment

As noted in the previous section, the Proposed Project Amendment will generate less traffic than the EIR Land Use Exchange Alternative. Moreover, both the Approved Project and the Land Use Exchange Alternative would result in the same significant impacts. Therefore, it is reasonable to conclude that impacts to the external roadways would be the same or less than those identified in the Final EIR. However, because the driveway locations and land use development patterns will change slightly with the Proposed Project Amendment, an internal roadway and intersectional analysis was performed for the Proposed Project Amendment to ensure that Proctor Valley Road, within the limits of the Project site, would still operate at or better than the conditions identified in the Final EIR.

3.1 Roadway Operations

For purposes of identifying impacts to Proctor Valley Road, the Final EIR applied the County of San Diego Roadway Level of Service standards. Daily roadway segment Level of Service analyses are based on the daily roadway capacity compared to its existing or forecasted average daily traffic (ADT) volume. The County of San Diego segment capacity and Level of Service standards for arterial roadways are presented in Attachment B.

According to the Final EIR, both the Approved Project and the EIR Land Exchange Alternative would cause Proctor Valley Road, between Street “A” and Street “C”, to operate at a failing Level of Service under the Year 2025 scenario, resulting in a significant cumulative impact.

For purposes of this updated analysis of roadway traffic from the Proposed Project Amendment land uses, project-related ADT volumes were estimated for the segments of Proctor Valley Road between proposed Street “A” and north of Street “KK.” The resulting volumes were then added to Year 2025 without Proposed Project Amendment conditions. Table 5 and Figure 6 display the resulting roadway ADT for the subject segments.

Table 5: Roadway Segment LOS Results – Year 2025 Cumulative Conditions with Project – County of San Diego

Roadway	Segment	Cross-Section	ADT 2025 w/ Project	LOS Threshold (LOS D)	LOS w/ Project	Project ADT	Significant Impact?
Proctor Valley Road	Street "A" to Street "C"	2-Ln w/ RM (2.2A)	12,300	13,500	D	9,300	No
	Street "C" to Street "O"	2-Ln w/ RM (2.2A)	9,500	13,500	D	6,500	No
	Street "O" to Street "I"	2-Ln (2.2E)	6,600	10,900	C	3,600	No
	Street "I" to Street "AA"/Street "EE"	2-Ln (2.2E)	5,500	10,900	C	2,500	No
	Street "AA"/Street "EE" to Street "GG"	2-Ln (2.2F)	4,300	8,700	A	1,300	No
	Street "GG" to Street "JJ"/Street "KK"	2-Ln (2.2F)	4,100	8,700	A	1,100	No
	North of Street "KK"	2-Ln (2.2F)	3,900	8,700	A	900	No

As shown in Table 5, with the addition of traffic generated by the Proposed Project Amendment, all of the internal Proctor Valley Road segments are anticipated to operate at acceptable LOS D or better.

Thus, unlike the Approved Project and the EIR Land Exchange Alternative, the Proposed Project Amendment would not result in a significant impact to that segment of Proctor Valley Road between Street "A" and Street "C", as shown in Table 5. This change/reduction in roadway impacts is the result of the Proposed Project Amendment's more compact footprint.

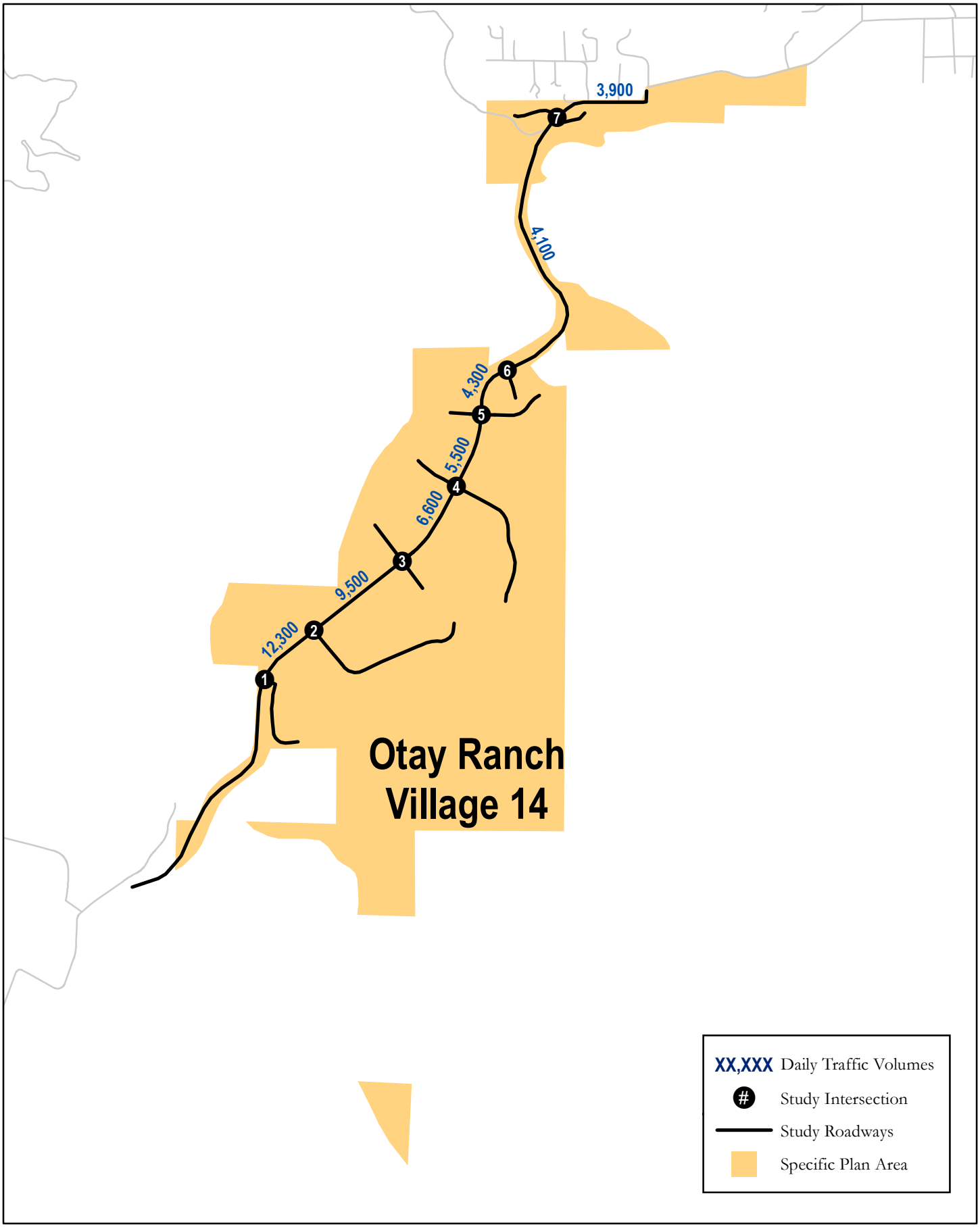

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Figure 6
Proctor Valley Road Average Daily Traffic

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3.2 Intersection Operations

This updated traffic analysis also assessed the Proposed Project Amendment for potential impacts on intersection operations at all intersections where an internal spine road intersects with Proctor Valley Road. **Table 6** displays the intersection analysis results for the Year 2025 Cumulative Conditions scenario. Intersection analysis worksheets are provided in **Attachment C**. Intersection turning movement volumes are presented in **Figure 7.**

Table 6 Intersection LOS Results – Year 2025 Cumulative Conditions – County of San Diego

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1	Proctor Valley Road & Street "A"	Roundabout	16.0	C	15.2	C
2	Proctor Valley Road & Street "C"	Roundabout	11.4	B	11.0	B
3	Proctor Valley Road & Street "O"	Roundabout	7.7	A	8.2	A
4	Proctor Valley Road & Street "I	Roundabout	6.3	A	6.1	A
5	Proctor Valley Road & Street "AA"/Street "EE"	Side-Street Stop Control*	22.0	C	20.9	C
6	Proctor Valley Road & Street "GG"	Side-Street Stop Control*	14.7	B	12.0	B
7	Proctor Valley Road & Street "KK"	Roundabout	5.6	A	5.2	A

Note: Side-Street Stop Control intersection, the delay shown is the worst delay experienced by any of the approaches.

As shown in Table 6, with the addition of traffic generated by the Proposed Project Amendment, all intersections along Proctor Valley Road within the Project area are projected to operate at acceptable LOS C or better under Year 2025 Cumulative conditions. Thus, no significant cumulative impact is expected to occur.

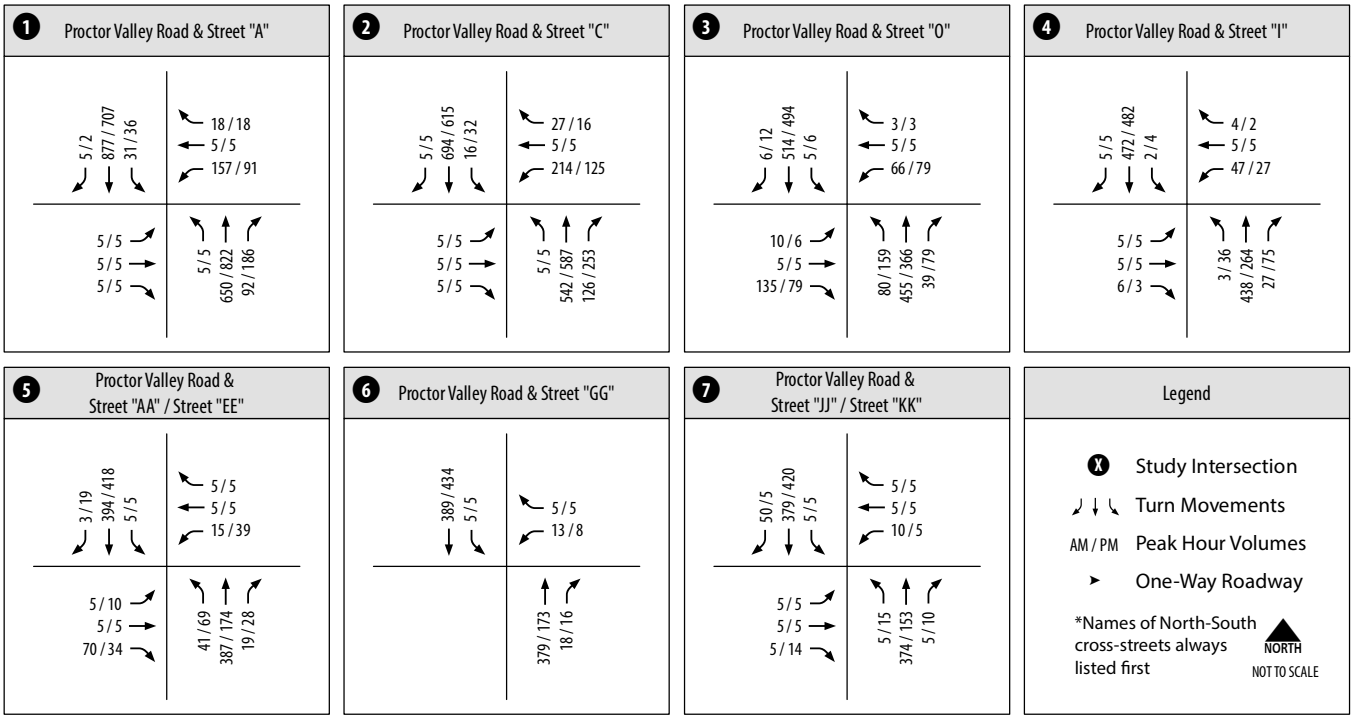

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Figure 7
Intersection Traffic Volumes
Year 2025 Cumulative Conditions

3.3 Year 2030 Cumulative Conditions Plus Hypothetical Development of State Preserve Property

In order to provide a "worst case" cumulative impacts analysis, the Final EIR for the Approved Project assumed the hypothetical development of the Rancho Jamul Ecological Reserve (RJER) property in year 2030 (Year 2030 Cumulative Conditions). This assumption was based on the fact that the approved Otay Ranch GDP/SRP (1993) designates the land on which the RJER is located for residential development, even though the land itself is owned by the State of California and is managed by the California Department of Fish and Wildlife (CDFW) for conservation purposes exclusively. In fact, the property was purchased with public funds on condition that it be operated as an ecological preserve. Thus, while the RJER could, theoretically, be developed pursuant to the dwelling unit counts permitted under the GDP/SRP, this scenario is, as a practical matter, highly unlikely. For the scenario to be realized, CDFW would have to relinquish control/ownership of the property to a development interest. In addition, the State Wildlife Conservation Board would have to approve the transfer and could do so only if the exchange resulted in a net biological benefit to the conservation goals of the state. Moreover, the biology assumptions that inform the Proposed Project Amendment – including those related to maintaining wildlife movement corridors and large blocks of unfragmented habitat – preclude development of the RJER. Accordingly, it is highly unlikely that the additional units identified in the Final EIR's cumulative impact analysis and assigned to the Rancho Jamul Preserve would ever be developed.

As shown in Table 9.2 of the Approved Project TIS (Table 2.9-19 of the Final EIR), the hypothetical development of the RJER property would consist of 854 single family residential units, 4.7 acres of community purpose facility uses, and 1.2 acres of mixed-use commercial use. Development of these uses would result in 11,081 daily trips. Under the Proposed Project Amendment, the land exchange between Owner/Applicant and CDFW would result in a slightly different development footprint of the RJER. Thus, under this hypothetical scenario, development of the RJER property would consist of 857 single family residential units and 4.3 acres of neighborhood parks, resulting in 8,592 daily trips.

The total number of daily trips from the Approved Project (12,767 from Table 2) plus the hypothetical buildout of the RJER property (11,081) would result in a combined total of 23,848 daily trips. In comparison, the total daily trips that would be generated by the Proposed Project Amendment (12,962 from Table 4) plus the hypothetical buildout of State land uses (8,592) would result in a total of 21,5554 daily trips.

Thus, the combined total daily trips for the Proposed Project Amendment plus the hypothetical buildout of the RJER property would be less than those of the Approved Project studied in the Final EIR and corresponding TIS. As such, the hypothetical scenario presented in the Final EIR is a worst-case scenario, and no additional impacts beyond those previously identified in the Final EIR would result.

4.0 Summary

The Proposed Project Amendment would generate slightly more ADT than the Approved Project, but fewer ADT than the EIR Land Exchange Alternative. Since both the Approved Project and the EIR Land Exchange Alternative were studied at the project level, specific impacts for each alternative were identified in the Final EIR. Through this process, the Final EIR determined that the transportation related significant impacts would be the same for both the Approved Project and the EIR Land Exchange alternative. Because the Proposed Project Amendment would generate fewer ADT than the EIR Land Exchange Alternative, it is reasonable to conclude that the transportation-related impacts associated with the Proposed Project Amendment would be less than those previously identified in the Final EIR. Additionally, under the Proposed Project Amendment, traffic congestion on Proctor Valley Road between Street "A" and Street

"C", which the Final EIR identified as a significant impact of both the Approved Project and the EIR Land Exchange Alternative, would be reduced to less than significant.

Lastly, under the Year 2030 Cumulative Conditions Plus Hypothetical Development of State Preserve Property scenario, the transportation related impacts associated with the Proposed Project Amendment would be the same or less than those identified in the Final EIR.

Attachment A

Transportation Related Impact Comparison Matrix

Table S-1
Summary of Significant Effects

Approved Adara Project				Land Exchange Alternative	Proposed Project Amendment
Impact No.	**Impact**	**Mitigation**	**Conclusion**	**Impact(s) and Mitigation from Technical Reports**	
2.9 Transportation and Traffic					
Existing Plus Project					
Segments					
TR-1	During Existing Plus Project Build-Out conditions, the Proposed Project would have a significant project-specific impact to one roadway segment approximately 2,100 feet in length along Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary, located within the City of Chula Vista.	**M-TR-1:** Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary (Project-Specific Impact, City of Chula Vista): The Proposed Project applicant, or its designee, shall coordinate with the City of Chula Vista to widen the roadway segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary from a two-lane roadway to a Class I Collector prior to issuance of a building permit for the 1,229th equivalent dwelling unit (EDU). (This mitigation measure applies under Existing Plus Project Build-Out (Impact TR-1), Year 2025 (Impact TR-3), Year 2030 Cumulative Conditions (Impact TR-5), and Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property (Impact TR-8). Under the Year 2025, Year 2030, and Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, the building permit threshold is the 563rd EDU.)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
Intersections					
TR-9	During Existing Plus Project Build-Out conditions, traffic associated with the Proposed Project would result in a significant direct impact at the intersection of SR-94 and Lyons Valley Road in the County.	**M-TR-2:** Intersection at SR-94 and Lyons Valley Road (Direct Impact, Cumulative Impact, Caltrans Facility: The Proposed Project applicant, or its designee, shall coordinate with Caltrans to install a traffic signal at the intersection of SR-94 and Lyons Valley Road prior to issuance of a building permit for the 741st EDU. (This mitigation measure applies under Existing Plus Project Build-Out (Impacts TR-9), Year 2025 (Impacts TR-11), Year 2030 Cumulative Condition (Impacts TR-13), and Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property (Impacts TR-15).)	Impacts would be significant and unavoidable	Impacts would be significant and unavoidable.	Intersection is signalized by Jamul Casino at the end of 2018. Impact is no longer significant.
TR-10	During Existing Plus Project Build-Out conditions, traffic associated with the Proposed Project would result in a significant Project-specific impact at the intersection of Northwoods Drive/Agua Vista Drive and Proctor Valley Road in the City of Chula Vista.	**M-TR-3:** Intersection at Northwoods Drive/Agua Vista Drive and Proctor Valley Road (Project-Specific Impact, City of Chula Vista): The Proposed Project applicant, or its designee, shall coordinate with the City of Chula Vista to install a traffic signal at the intersection of Northwoods Drive/Agua Vista Drive and Proctor Valley Road prior to issuance of a building permit for the 660th EDU. (This mitigation measure applies under Existing Plus Project Build-Out (Impacts TR-10), Year 2025 (Impacts TR-12), Year 2030 Cumulative Conditions (Impacts TR-14), and Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property (Impacts TR-24). Under the Year 2025, Year 2030 Cumulative Conditions, and Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, the threshold is the 287th EDU.)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
Year 2025 Cumulative-Conditions Impacts					
Segments					
TR-2a, 2b	The Proposed Project would have a significant cumulative impact along the following four roadway segments of Proctor Valley Road during Year 2025 Cumulative Conditions: • Proctor Valley Road between the City of Chula Vista boundary and Project Driveway #1	**M-TR-4:** The Proposed Project applicant, or its designee, shall pay the appropriate County of San Diego Transportation Impact Fee (TIF) to reduce the Proposed Project's identified significant cumulative impact along the following four roadway segments of Proctor Valley Road: • Proctor Valley Road between the City of Chula Vista boundary and Project Driveway #1 (Year 2025, Year 2030) • Proctor Valley Road between Project Driveway #1 and Project Driveway #2 (Year 2025, Year 2030) • Proctor Valley Road between Project Driveway #2 and Project Driveway #3 (Year 2030)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable between City of Chula Vista boundary and Street "A" Note that the segment between Project Driveway #1 and Project Driveway #2 (as documented in the EIR and the LEA doesn't exist in the Proposed Project Amendment. Rather the impact will be between Chula Vista boundary and the 1st Project's driveway (Street "A")

Table S-1
Summary of Significant Effects

Approved Adara Project				Land Exchange Alternative	Proposed Project Amendment
Impact No.	**Impact**	**Mitigation**	**Conclusion**	**Impact(s) and Mitigation from Technical Reports**	
	• Proctor Valley Road between Project Driveway #1 and Project Driveway #2	• Proctor Valley Road, between Project Driveway #3 to Project Driveway #4 (Year 2030) (This mitigation measure applies under Year 2025 and Year 2030 conditions.)			
TR-3	The Proposed Project would result in a significant project specific impact to one roadway segment at Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary, located within the City of Chula Vista, under Year 2025 Cumulative Conditions.	**M-TR-1** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
Intersection					
TR-11	During Year 2025 conditions, the Proposed Project would have a significant cumulative impact on the intersection of SR-94 and Lyons Valley Road within the County of San Diego.	**M-TR-2** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Intersection is signalized by Jamul Casino at the end of 2018. Impact is no longer significant.
TR-12	During Year 2025 Cumulative Conditions, traffic associated with the Proposed Project would result in a significant Project-specific impact at the intersection of Northwoods Drive/Agua Vista Drive and Proctor Valley Road in Chula Vista.	**M-TR-3** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
Year 2030 Cumulative-Conditions Impacts					
Segments					
TR-4a, 4b, 4c, 4d	The Proposed Project would have a significant cumulative impact along the following four roadway segments of Proctor Valley Road during Year 2030 Cumulative Conditions: • Proctor Valley Road between the City of Chula Vista boundary and Project Driveway #1 • Proctor Valley Road between Project Driveway #1 and Project Driveway #2 • Proctor Valley Road between Project Driveway #2 and Project Driveway #3 • Proctor Valley Road between Project Driveway #3 to Project Driveway #4	**M-TR-4** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable between City of Chula Vista boundary and Street "A". Note that the segment between Project Driveway #1 and Project Driveway #2 (as documented in the EIR and the LEA doesn't exist in the Proposed Project Amendment. Rather the impact will be between Chula Vista boundary and the 1st Project's driveway (Street "A") **If we are to do an equivalent comparison, the impact between Project Driveway #3 and Project Driveway #4 is no longer a significant impact**.
TR-5	During Year 2030 Cumulative Conditions, the Proposed Project would have a significant Project-specific impact to the roadway of Proctor Valley Road from Northwoods Drive to the City of Chula Vista boundary.	**M-TR-1** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.

Table S-1
Summary of Significant Effects

Approved Adara Project				Land Exchange Alternative	Proposed Project Amendment
Impact No.	**Impact**	**Mitigation**	**Conclusion**	**Impact(s) and Mitigation from Technical Reports**	
Intersections					
TR-13	During Year 2030 Cumulative Conditions, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of SR-94 and Lyons Valley Road.	**M-TR-2** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-14	During Year 2030 Cumulative Conditions, traffic associated with the Proposed Project would result in a significant Project-specific impact at the intersection of Northwoods Drive/Agua Vista Drive and Proctor Valley Road.	**M-TR-3** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
Year 2030 Cumulative Conditions Plus Hypothetical Development of State Preserve Property					
Segments					
TR-6a, 6b, 6c, 6d	The Proposed Project would cause significant cumulative impacts under Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property within San Diego County on the road segments along Proctor Valley Road, between: • City of Chula Vista boundary to Project Driveway No. 1 (LOS F); • Proctor Valley Road, between Project Driveway No. 1 to Project Driveway No. 2 (LOS F); • Proctor Valley Road, between Project Driveway No. 2 to Project Driveway No. 3 (LOS F); and • Proctor Valley Road, between Project Driveway No. 3 to Project Driveway No. 4 (LOS F).	**M-TR-5:** Proctor Valley Road, between the City of Chula Vista Boundary and Project Driveway No. 1 (Cumulative Impact, County of San Diego; Impact 6a): In the event development of the Rancho Jamul Preserve were to be approved, and construction commenced prior to buildout of the Proposed Project, to mitigate an over-capacity road segment, the project applicant, or it's designee, would be required to pay its fair-share of the costs to widen Proctor Valley Road from a 2-Lane Collector with Raised Median (2.2A) to a 4-Lane Major (4.1A). **M-TR-6:** Proctor Valley Road, between Project Driveway No. 1 and Project Driveway No. 2 (Cumulative Impact, County of San Diego; Impact 6b): In the event development of the Rancho Jamul Preserve were to be approved, and construction commenced prior to buildout of the Proposed Project, to mitigate an over-capacity road segment, the project applicant, or it's designee, would be required to pay its fair-share of the costs to widen Proctor Valley Road from a 2-Lane Collector with Raised Median (2.2A) to a 4-Lane Major (4.1A). **M-TR-7:** Proctor Valley Road, between Project Driveway No.2 Project Driveway No. 3 (Cumulative Impact, County of San Diego; Impact 6c): In the event development of the Rancho Jamul Preserve were to be approved, and construction commenced prior to buildout of the Proposed Project, to mitigate an over-capacity road segment, the project applicant, or it's designee, would be required to pay its fair-share of the costs to widen Proctor Valley Road from a 2-Lane Collector with Raised Median (2.2A) to a 4-Lane Major (4.1A). **M-TR-8:** Proctor Valley Road, between Project Driveway No. 3 and Project Driveway No. 4 (Cumulative Impact, County of San Diego; Impact 6d): In the event development of the Rancho Jamul Preserve were to be approved, and construction commenced prior to buildout of the Proposed Project, to mitigate an over-capacity road segment, the project applicant, or it's designee, would be required to pay its fair-share of the costs to widen Proctor Valley Road from a 2-Lane Collector with Raised Median (2.2A) to a 4-Lane Major (4.1A).	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable. Note that the segment between Project Driveway #1 and Project Driveway #2 (as documented in the EIR and the LEA doesn't exist in the Proposed Project Amendment. Rather the impact will be between Chula Vista boundary and the 1st Project's driveway (Street "A")
TR-7	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, the Proposed Project would result in a significant project specific impact to Proctor Valley Road,	**M-TR-9:** Proctor Valley Road, between Hunte Parkway and Northwoods Drive (Project Specific Impact, City of Chula Vista): If development of the Rancho Jamul Preserve is approved, and construction commenced prior to buildout of the Proposed Project, the project applicant, or its designee, shall coordinate with the City of Chula Vista to widen Proctor Valley Road between Hunte Parkway and Northwoods Drive from a four-lane	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.

Table S-1
Summary of Significant Effects

Approved Adara Project				Land Exchange Alternative	Proposed Project Amendment
Impact No.	**Impact**	**Mitigation**	**Conclusion**	**Impact(s) and Mitigation from Technical Reports**	
	between Hunte Parkway and Northwoods Drive.	roadway to a six-lane Major Street, by the issuance of the building permit for the 487th equivalent dwelling unit.			
TR-8	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, the Proposed Project would result in a significant project specific impact to Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary.	**M-TR-1** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
		Intersections			
TR-15	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of SR-94 and Lyons Valley Road.	**M-TR-2** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Intersection is signalized by Jamul Casino at the end of 2018. Impact is no longer significant.
TR-16	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of Paseo Ranchero and East H Street.	**M-TR-15:** Intersection at Paseo Ranchero and East H Street (Project Specific Impact, City of Chula Vista): The Proposed Project applicant, or its designee, shall coordinate with the City of Chula Vista to restripe the eastbound approach to the intersection of Paseo Ranchero and East H Street to include an exclusive right-turn lane.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-17	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of Proctor Valley Road and Project Driveway No. 1	**M-TR-10:** Proctor Valley Road and Project Driveway No. 1 (Cumulative Impact, County of San Diego): Signalization would mitigate the cumulative impact at the intersection. This impact would occur with the full development of the Proposed Project as well as the development of 74 additional units within the Rancho Jamul Preserve.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-18	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of Proctor Valley Road and Project Driveway No. 2.	**M-TR-11:** Proctor Valley Road and Project Driveway No. 2 (Cumulative Impact, County of San Diego): Widening Proctor Valley Road from two to four lanes would mitigate the cumulative impact at this intersection. This impact would occur with the full development of the Proposed Project as well as the development of 1,083 additional units within the Rancho Jamul Preserve.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-19	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of Proctor Valley Road and Project Driveway No. 3.	**M-TR-12:** Proctor Valley Road and Project Driveway No. 3 (Cumulative Impact, County of San Diego): Signalization would mitigate the cumulative impact at this intersection. This impact would occur with the full development of the Proposed Project as well as the development of 397 additional units within the Rancho Jamul Preserve.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-20	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic	**M-TR-13:** Proctor Valley Road and Project Driveway No. 4 (Cumulative Impact, County of San Diego): Signalization would mitigate the cumulative impact at this intersection.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.

Table S-1
Summary of Significant Effects

Approved Adara Project				Land Exchange Alternative	Proposed Project Amendment
Impact No.	**Impact**	**Mitigation**	**Conclusion**	**Impact(s) and Mitigation from Technical Reports**	
	associated with the Proposed Project would result in a significant cumulative impact at the intersection of Proctor Valley Road and Project Driveway No. 4.	This impact would occur with the full development of the Proposed Project as well as the development of 563 additional units within the Rancho Jamul Preserve.			
TR-21	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant cumulative impact at the intersection of Proctor Valley Road and Project Driveway No. 5.	**M-TR-14:** Proctor Valley Road and Project Driveway No. 5 (Cumulative Impact, County of San Diego): Signalization would mitigate the cumulative impact at this intersection. This impact would occur with the full development of the Proposed Project as well as the development of 481 additional units within the Rancho Jamul Preserve.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-22	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant project specific impact at the intersection of Mt. Miguel Road and East H Street.	**M-TR-16:** Intersection at Mt Miguel Road and East H Street (Project Specific Impact City of Chula Vista): The Proposed Project applicant, or its designee, shall coordinate with the City of Chula Vista to restripe the westbound approach to the intersection of Mt. Miguel Road and East H Street to include an exclusive right-turn lane prior to issuance of a building permit for the 638th equivalent dwelling unit.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-23	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant project specific impact at the intersection of Lane Avenue and East H Street.	**M-TR-17:** Intersection at Lane Avenue and East H Street (Project Specific Impact City of Chula Vista): The Proposed Project applicant, or its designee, shall coordinate with the City of Chula Vista to adjust the median and restripe the westbound approach at the intersection of Lane Avenue and East H Street to include a second left-turn lane.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
TR-24	During Year 2030 With Cumulative Conditions Plus Hypothetical Development of State Preserve Property, traffic associated with the Proposed Project would result in a significant project specific impact at the intersection of Northwoods Drive/Agua Vista Drive and Proctor Valley Road.	**M-TR-3** (described above)	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.
		SB 743 Land Use Project per Capita Analysis			
TR-25	Implementation of the Proposed Project would result in a potentially significant impact related to vehicle miles traveled (VMT) per capita because the Proposed Project VMT per capita would exceed the significance threshold suggested by the SB 743 Draft Proposal currently being circulated for public review and comment, not yet in effect.	No feasible mitigation measures exist to reduce identified impacts below a level of significance.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.	Impacts would be significant and unavoidable.

Attachment B

County of San Diego Roadway Standard

TABLE 1
AVERAGE DAILY VEHICLE TRIPS*

MOBILITY ELEMENT ROADS			LEVELS OF SERVICE				
Road Classification		# of Travel Lanes	A	B	C	D	E
Expressway (6.1)		6	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial (6.2)		6	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	w/ Raised Median (4.1A)	4	<14,800	<24,700	<29,600	<33,400	<37,000
	w/ Intermittent Turn Lanes (4.1B)	4	<13,700	<22,800	<27,400	<30,800	<34,200
Boulevard	w/ Raised Median (4.2A)	4	<18,000	<21,000	<24,000	<27,000	<30,000
	w/ Intermittent Turn Lanes (4.2B)	4	<16,800	<19,600	<22,500	<25,000	<28,000
Community Collector	w/ Raised Median (2.1A)	2	<10,000	<11,700	<13,400	<15,000	<19,000
	w/ Continuous Left Turn Lane (2.1B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lane (2.1C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Passing Lane (2.1D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.1E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector	w/ Raised Median (2.2A)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Continuous Left Turn Lane (2.2B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lane (2.2C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Passing Lane (2.2D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.2E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
	w/ Reduced Shoulder (2.2F)	2	<5,800	<6,800	<7,800	<8,700	<9,700
Minor Collector	w/ Raised Median (2.3A)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	w/ Intermittent Turn Lane (2.3B)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	No Median (2.3C)	2	<1,900	<4,100	<6,000	<7,000	<8,000
NON-MOBILITY ELEMENT ROADS**			LEVELS OF SERVICE				
Residential Collector		2	-	-	<4,500	-	-
Rural Residential Collector***		2	-	-	<4,500	-	-
Residential Road		2	-	-	<1,500	-	-
Rural Residential Road***		2	-	-	<1,500	-	-
Residential Cul-de-Sac or Loop Road		2	-	-	<200	-	-

* The values shown are subject to adjustment based on the geometry of the roadway, side frictions, and other relevant factors as determined by the Director, Department of Public Works.

** Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

*** Rural Residential Collectors and Rural Residential Roads are intended to serve areas with lot sizes of 2 acres or more which do not have a demand for on-street parking. On-street parking is not assured for these cross sections. Additional right-of-way is needed if on-street parking is in paved area.

**** See Tables 2A and 2B for roadway surfacing and right-of-way widths.

Attachment C

Intersection Analysis Results Worksheets

Intersection	
Intersection Delay, s/veh	16.0
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	15	189	786	961
Demand Flow Rate, veh/h	15	192	802	980
Vehicles Circulating, veh/h	1143	708	44	178
Vehicles Exiting, veh/h	15	138	1114	722
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.9	9.1	10.0	22.4
Approach LOS	A	A	B	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	15	192	802	980
Cap Entry Lane, veh/h	430	670	1319	1151
Entry HV Adj Factor	0.993	0.984	0.980	0.980
Flow Entry, veh/h	15	189	786	961
Cap Entry, veh/h	427	659	1293	1128
V/C Ratio	0.035	0.286	0.608	0.852
Control Delay, s/veh	8.9	9.1	10.0	22.4
LOS	A	A	B	C
95th %tile Queue, veh	0	1	4	11

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	15	258	709	753
Demand Flow Rate, veh/h	15	264	723	768
Vehicles Circulating, veh/h	992	592	27	239
Vehicles Exiting, veh/h	15	158	980	616
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	7.6	9.2	8.6	14.8
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	15	264	723	768
Cap Entry Lane, veh/h	502	754	1342	1081
Entry HV Adj Factor	0.993	0.977	0.980	0.981
Flow Entry, veh/h	15	258	709	753
Cap Entry, veh/h	498	737	1316	1060
V/C Ratio	0.030	0.350	0.539	0.711
Control Delay, s/veh	7.6	9.2	8.6	14.8
LOS	A	A	A	B
95th %tile Queue, veh	0	2	3	6

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	158	77	604	552
Demand Flow Rate, veh/h	161	78	617	563
Vehicles Circulating, veh/h	627	586	21	161
Vehicles Exiting, veh/h	97	52	767	503
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.6	5.9	7.3	8.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	161	78	617	563
Cap Entry Lane, veh/h	728	759	1351	1171
Entry HV Adj Factor	0.981	0.986	0.980	0.981
Flow Entry, veh/h	158	77	604	552
Cap Entry, veh/h	714	748	1323	1148
V/C Ratio	0.221	0.103	0.457	0.481
Control Delay, s/veh	7.6	5.9	7.3	8.4
LOS	A	A	A	A
95th %tile Queue, veh	1	0	2	3

Intersection	
Intersection Delay, s/veh	6.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	16	58	492	504
Demand Flow Rate, veh/h	16	59	502	514
Vehicles Circulating, veh/h	559	478	12	58
Vehicles Exiting, veh/h	13	36	563	479
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	5.0	6.1	6.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	16	59	502	514
Cap Entry Lane, veh/h	780	847	1363	1301
Entry HV Adj Factor	0.994	0.981	0.980	0.981
Flow Entry, veh/h	16	58	492	504
Cap Entry, veh/h	775	832	1335	1275
V/C Ratio	0.021	0.070	0.368	0.395
Control Delay, s/veh	4.8	5.0	6.1	6.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	2	2

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	70	15	5	5	41	387	19	5	394	3
Future Vol, veh/h	5	5	70	15	5	5	41	387	19	5	394	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	74	16	5	5	43	407	20	5	415	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	935	940	417	969	931	417	418	0	0	427	0	0
Stage 1	427	427	-	503	503	-	-	-	-	-	-	-
Stage 2	508	513	-	466	428	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	246	264	636	233	267	636	1141	-	-	1132	-	-
Stage 1	606	585	-	551	541	-	-	-	-	-	-	-
Stage 2	547	536	-	577	585	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	230	249	636	194	252	636	1141	-	-	1132	-	-
Mov Cap-2 Maneuver	230	249	-	194	252	-	-	-	-	-	-	-
Stage 1	576	581	-	523	514	-	-	-	-	-	-	-
Stage 2	510	509	-	502	581	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	22	0.8	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1141	-	-	527	238	1132	-	-
HCM Lane V/C Ratio	0.038	-	-	0.16	0.111	0.005	-	-
HCM Control Delay (s)	8.3	0	-	13.1	22	8.2	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.4	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	5	379	18	5	389
Future Vol, veh/h	13	5	379	18	5	389
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	5	399	19	5	409

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	828	409	0	0	418	0
Stage 1	409	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	642	-	-	1141	-
Stage 1	671	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	339	642	-	-	1141	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	1141	-
HCM Lane V/C Ratio	-	-	0.049	0.005	-
HCM Control Delay (s)	-	-	14.7	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Intersection Delay, s/veh	5.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	15	21	404	457
Demand Flow Rate, veh/h	15	21	412	466
Vehicles Circulating, veh/h	423	412	15	21
Vehicles Exiting, veh/h	64	15	423	412
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.2	4.2	5.4	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	15	21	412	466
Cap Entry Lane, veh/h	896	906	1359	1351
Entry HV Adj Factor	0.993	0.995	0.981	0.981
Flow Entry, veh/h	15	21	404	457
Cap Entry, veh/h	890	902	1333	1325
V/C Ratio	0.017	0.023	0.303	0.345
Control Delay, s/veh	4.2	4.2	5.4	5.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	2

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	15	120	1066	784
Demand Flow Rate, veh/h	15	122	1087	800
Vehicles Circulating, veh/h	896	892	49	108
Vehicles Exiting, veh/h	12	244	862	906
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	9.5	18.6	11.5
Approach LOS	A	A	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	15	122	1087	800
Cap Entry Lane, veh/h	553	556	1313	1236
Entry HV Adj Factor	0.993	0.983	0.980	0.980
Flow Entry, veh/h	15	120	1066	784
Cap Entry, veh/h	550	546	1287	1211
V/C Ratio	0.027	0.220	0.828	0.647
Control Delay, s/veh	6.9	9.5	18.6	11.5
LOS	A	A	C	B
95th %tile Queue, veh	0	1	10	5

Intersection	
Intersection Delay, s/veh	11.0
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	15	154	889	686
Demand Flow Rate, veh/h	15	157	906	700
Vehicles Circulating, veh/h	830	640	45	145
Vehicles Exiting, veh/h	15	311	800	652
Ped Vol Crossing Leg, #/h	0	0	0	5
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	6.4	7.6	12.1	10.3
Approach LOS	A	A	B	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	15	157	906	700
Cap Entry Lane, veh/h	592	718	1318	1190
Entry HV Adj Factor	0.993	0.980	0.981	0.980
Flow Entry, veh/h	15	154	889	686
Cap Entry, veh/h	588	704	1293	1166
V/C Ratio	0.025	0.219	0.687	0.589
Control Delay, s/veh	6.4	7.6	12.1	10.3
LOS	A	A	B	B
95th %tile Queue, veh	0	1	6	4

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	94	91	635	539
Demand Flow Rate, veh/h	96	93	648	549
Vehicles Circulating, veh/h	621	569	17	260
Vehicles Exiting, veh/h	188	96	700	402
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.4	6.0	7.5	9.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	96	93	648	549
Cap Entry Lane, veh/h	732	772	1356	1058
Entry HV Adj Factor	0.978	0.977	0.980	0.981
Flow Entry, veh/h	94	91	635	539
Cap Entry, veh/h	716	755	1330	1038
V/C Ratio	0.131	0.120	0.478	0.519
Control Delay, s/veh	6.4	6.0	7.5	9.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	3	3

Intersection	
Intersection Delay, s/veh	6.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	13	35	395	516
Demand Flow Rate, veh/h	13	36	404	526
Vehicles Circulating, veh/h	550	328	14	73
Vehicles Exiting, veh/h	49	90	549	291
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.8	4.1	5.3	6.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	13	36	404	526
Cap Entry Lane, veh/h	787	988	1360	1281
Entry HV Adj Factor	0.992	0.969	0.979	0.981
Flow Entry, veh/h	13	35	395	516
Cap Entry, veh/h	782	957	1331	1256
V/C Ratio	0.017	0.036	0.297	0.411
Control Delay, s/veh	4.8	4.1	5.3	6.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	2

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	5	34	39	5	5	69	174	28	5	418	19
Future Vol, veh/h	10	5	34	39	5	5	69	174	28	5	418	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	5	36	41	5	5	73	183	29	5	440	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	809	818	450	825	814	198	460	0	0	212	0	0
Stage 1	460	460	-	344	344	-	-	-	-	-	-	-
Stage 2	349	358	-	481	470	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	299	311	609	292	312	843	1101	-	-	1358	-	-
Stage 1	581	566	-	671	637	-	-	-	-	-	-	-
Stage 2	667	628	-	566	560	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	275	286	609	255	287	843	1101	-	-	1358	-	-
Mov Cap-2 Maneuver	275	286	-	255	287	-	-	-	-	-	-	-
Stage 1	537	563	-	621	589	-	-	-	-	-	-	-
Stage 2	608	581	-	525	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.1	20.9	2.2	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1101	-	-	447	278	1358	-	-
HCM Lane V/C Ratio	0.066	-	-	0.115	0.186	0.004	-	-
HCM Control Delay (s)	8.5	0	-	14.1	20.9	7.7	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.7	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	5	173	16	5	434
Future Vol, veh/h	8	5	173	16	5	434
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	5	182	17	5	457

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	658	191	0	0	199	0
Stage 1	191	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	429	851	-	-	1373	-
Stage 1	841	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	427	851	-	-	1373	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	528	1373	-
HCM Lane V/C Ratio	-	-	0.026	0.004	-
HCM Control Delay (s)	-	-	12	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	5.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	25	15	188	452
Demand Flow Rate, veh/h	25	15	191	461
Vehicles Circulating, veh/h	461	185	15	26
Vehicles Exiting, veh/h	26	21	471	174
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.5	3.3	3.8	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	25	15	191	461
Cap Entry Lane, veh/h	862	1143	1359	1344
Entry HV Adj Factor	0.996	0.993	0.983	0.981
Flow Entry, veh/h	25	15	188	452
Cap Entry, veh/h	859	1135	1336	1318
V/C Ratio	0.029	0.013	0.141	0.343
Control Delay, s/veh	4.5	3.3	3.8	5.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	2