

APPENDIX 4.1-9
Land Exchange Alternative
Traffic Impact Analysis

Transportation Impact Study

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative

Draft Report

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Executive Summary

The purpose of this Transportation Impact Study (TIS) is to identify and document potential transportation impacts related to the development of the proposed Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative (Land Exchange Alternative), as well as to recommend mitigation measures for any identified significant impacts associated with the Land Exchange Alternative.

ES.1 Study Purpose and Project Description

The Land Exchange Alternative is located within Otay Ranch Village 14 and Planning Areas 16 and 19 in the Proctor Valley parcel of Otay Ranch. Village 14 and Planning Areas 16 and 19 are part of the larger Otay Ranch, an approximately 23,000-acre master-planned community in southern San Diego County designed as a series of villages and planning areas.

The Land Exchange Alternative proposes 1,530 homes within a development footprint that is limited to Proctor Valley Village 14. The majority of Planning Areas 16 and 19 would be converted to MSCP and Otay Ranch RMP Preserve and would not be developed.

The Land Exchange Alternative includes approximately 511 acres designated for 1,530 homes, 1,124 of which would be traditional single-family homes, 283 would be single family age-restricted and 123 would be multifamily homes as indicated on Table 1 below. 18 neighborhoods are planned with approximate densities ranging from 1.5 to 15.0 dwelling units per acre. The age-restricted neighborhoods would be gated, as would four of the single-family neighborhoods situated on the largest lots.

Village 14 in the Land Exchange Alternative is planned around a Village Core, centrally located in the heart of the village. Higher density residential uses will be adjacent to the Village Core with single family residential radiating out in decreasing density. The Village Core is comprised of the Neighborhood Center which includes an 8-acre elementary school; a 4-acre Village Green (public park); a 3-acre Mixed Use Site with up to 15,000 square feet of commercial/retail uses and 54 multi-family homes; and a 2-acre Village Square Community Facility. The Village Core also includes a 2-acre public safety site for a fire station and sheriff's storefront facility and 69 multi-family townhomes located adjacent to the public safety site.

The Land Exchange Alternative is designed around an active lifestyle and wellness recreation theme and includes an extensive park and recreation system including four public parks totaling 13 acres. The remaining private recreation facilities include three private swim clubs, a senior activity center, the Village Square community facility and numerous pocket parks totaling approximately 9 acres. Approximately 4.6 miles of community pathway are proposed on the Proctor Valley Road. Approximately three miles of Park-to-Park Loop connect to the regional pathway.

After implementing the proposed land exchange agreement, MSCP and RMP Preserve boundary adjustment, and General Plan Amendment, the Land Exchange Area will include 1,749 acres of land for MSCP and Otay Ranch RMP Preserve, consisting of 404 acres in Proctor Valley Village 14, and 1,345 acres in Planning Areas 16 and 19.

ES.2 Project Trip Generation

The Land Exchange Alternative is anticipated to generate a total of 15,814 daily vehicular trips. Based on the mix of project land uses, the Land Exchange Alternative is forecast to have an internal capture rate of 12%, *i.e.*, 1,898 trips will have both an origin and destination within the project site, and not utilize external roadway facilities. As a result, the Land Exchange Alternative is anticipated to add 13,917 new daily trips (under project buildout) to the external roadway network, including 1,278 AM peak hour trips and 1,364 PM peak hour trips.

ES.3 Project Impacts and Mitigation Measures

Land Exchange Alternative related impacts were determined based on the significance criteria contained in the County of San Diego significance criteria and the City of Chula Vista Guidelines for Traffic Impact Studies for each respective jurisdiction – the County of San Diego and the City of Chula Vista.

Impacts were analyzed under the following six scenarios:

- Existing Project Buildout Conditions
- Year 2025 Cumulative Conditions
- Year 2030 Cumulative Conditions

Existing Plus Land Exchange Alternative

Intersection Impacts

The Land Exchange Alternative would have a direct impact on one (1) intersection within the County of San Diego that is under the jurisdiction and control of Caltrans, as well as a project specific impact on one (1) intersection within the City of Chula Vista. The following intersection improvements would be required to mitigate the identified traffic impacts:

- *SR-94 & Lyons Valley Road (Direct Impact, County of San Diego)* – Signalization by the 854th EDU would mitigate the direct impact at this intersection. A traffic signal warrant was conducted, and based upon MUTCD 2012 Figure 4C-103 (CA), this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. This intersection is a Caltrans facility in which the County does not have jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that this improvement is part of the improvement project analyzed in the *Caltrans’ State Route 94 Improvement Project Draft EIR, July 2015*. According to the EIR, this improvement is scheduled for implementation in summer 2016. In addition, this improvement is also included as a mitigation measure in the Jamul Indian Village Final Environmental Evaluation.
- *Northwoods Drive/Agua Vista Drive & Proctor Valley Road (Project Specific Impact, City of Chula Vista)* – Signalization by the 926th EDU would mitigate the project specific impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous

Traffic” warrants. However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

In addition, the City of Chula Vista does not consider impacts to its facilities under the Existing Plus Land Exchange Alternative conditions as significant impacts requiring mitigation when used in connection with a long-range development project such as the proposed Proctor Valley Village 14 project, which is not anticipated to reach full buildout until approximately 2025. This is because the Existing Plus Land Exchange Alternative analysis does not take into consideration cumulative traffic growth and, therefore, it may understate impacts by assuming capacity that is not available; at the same time, the analysis may overstate impacts by failing to account for future road improvements that would provide increased capacity. As a result, the Existing Plus Land Exchange Alternative analysis may be misleading to the public and decision makers; as such, the analysis of the project’s potential impacts to facilities located within the City of Chula Vista as measured against the existing conditions baseline is presented for disclosure, information, and comparison purposes only. The identification of the Land Exchange Alternative’s significant impacts, with recommended mitigation, will be based on the future year analyses that take into account cumulative traffic growth, as well as the changing roadway network and land uses that accompany a long-range development project such as this. In this regard, under the 2025 Cumulative scenario, the analysis identifies a significant project-specific impact at the Northwoods Drive/Agua Vista Drive & Proctor Valley Road intersection and mitigation is proposed. Therefore, the mitigation, including mitigation trigger identified above, is provided for informational purpose only.

Roadway Segment Impacts

The Land Exchange Alternative would have a project specific impact on one (1) roadway segment located in the City of Chula Vista under Existing Plus Land Exchange Alternative conditions. The following roadway improvements would be required to mitigate these impacts:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific Impact, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector, by the 1,270th EDU. With widening to a Class I Collector, the Project’s significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS A once widened and no further mitigation would be required. Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which designates the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street; improving the segment to a Class I Collector would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if future traffic conditions warrant such action.

However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

It also is noted, and as previously explained, the City of Chula Vista does not consider impacts to its facilities identified under the Existing Plus Land Exchange Alternative conditions analysis as significant impacts requiring mitigation when the analysis is conducted in connection with a long-range development project such as the proposed Proctor Valley Village 14 project, which is not anticipated to reach full buildout until approximately 2025. As such, this analysis of the project's potential impacts to facilities located within the City of Chula Vista as measured against the existing conditions baseline is presented for disclosure, information and comparison purposes only. The identification of the project's significant impacts, with recommended mitigation, will be based on the future year analyses that take into account cumulative traffic growth, as well as the changing roadway network and land uses that accompany a long-range development project. In this regard, under the 2025 Cumulative scenario, the analysis identifies a significant project-specific impact at the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary and mitigation is proposed. Therefore, the mitigation, including mitigation trigger identified above, is provided for informational purpose only.

Year 2025 Conditions

Intersection Impacts

The Land Exchange Alternative would have a project specific impact on one (1) intersection within the County if San Diego and one (1) intersection in the City of Chula Vista. The following intersection improvements would be required to mitigate the identified traffic impact:

- *SR-94 & Lyons Valley Road (Cumulative Impact, County of San Diego)* – Signalization by the 741st EDU would mitigate both the cumulative impact identified under the 2025 cumulative conditions scenario and the direct impact identified under Existing plus Project conditions at this intersection. A traffic signal warrant was conducted, and based upon MUTCD 2012 Figure 4C-103 (CA), this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants (provided in Appendix K). This intersection is a Caltrans facility in which the County does not have jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that this improvement is part of the improvement project analyzed in the *Caltrans’ State Route 94 Improvement Project Draft EIR, July 2015*. In addition, this improvement is also included as a mitigation measure in the Jamul Indian Village Final Environmental Evaluation.
- *Northwoods Drive/Agua Vista Drive & Proctor Valley Road (Project Specific, City of Chula Vista)* – Signalization by the 327th EDU would mitigate the project specific impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this

intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

Roadway Segment Impacts

The Land Exchange Alternative would impact one (1) roadway segment located in the City of Chula Vista. The Land Exchange Alternative would also impact three (3) roadway segments (cumulative impacts) within the County of San Diego under Year 2025 conditions.

The following roadway improvements would be required to mitigate these impacts within the City of Chula Vista:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector, by the 861st EDU. With widening to a Class I Collector, the Project’s significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS B once widened and no further mitigation would be required. Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which designates the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street; improving the segment to a Class I Collector would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if traffic conditions warrant such action. However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

County of San Diego Impacts (Cumulative) – The Land Exchange Alternative was identified to have a significant cumulative impact along the following three (3) segments of Proctor Valley Road, which are located along the project frontage:

- *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; and*
- *Proctor Valley Road, between Project Driveway #2 and Project Driveway #3.*

As mitigation, the Land Exchange Alternative applicant will pay the appropriate Transportation Impact Fee (TIF). However, utilizing the daily roadway segment volume to capacity analysis method, the three identified segments are projected to continue to operate at substandard LOS E under Year 2025 conditions even after they are constructed to their ultimate classification as 2.2A facilities.

Because of the minimal interruption to traffic flows along Proctor Valley Road (i.e., minimal cross streets)

between the City of Chula Vista Boundary and Project Driveway #3, it was determined that a more detailed arterial analysis of the three segments would be conducted to further assess future operating conditions. In this case, it was important to consider how performance of a roadway segment is heavily influenced by the ability of the arterial intersections to accommodate peak hour traffic.

Due to the minimal interruption along Proctor Valley Road, and the distance between Northwood Drive and Project's Driveway #1 being greater than 1 mile, it was determined that the Highway Capacity Software (HCS) 2000 developed by McTrans would be employed for the arterial analysis. The HCS arterial analysis methodology is based upon Chapter 20 (2-Lane Highway) of the Highway Capacity Manual (HCM) 2000, which determines average travel speed and facility level of service according to the roadway functional classification. The arterial analysis shows that the average travel speed along these segments would be LOS D when constructed to its ultimate classification as a 2.2A facility, since there are minimal to no interruptions along this corridor.

In addition, traffic control along Proctor Valley Road would include a number of roundabouts with implementation of the Land Exchange Alternative. It has been well documented by the La Jolla Bird Rock roundabouts and other national-level research that 2 lanes of travel with roundabouts can carry up to 25,000 cars per day, which exceeds the projected 15,900 ADT for Proctor Valley Road. A multi-purpose trail is also provided along the eastside of Proctor Valley Road, which will greatly improve safety and comfort for pedestrians and bicyclists. Therefore, based on the supplemental analysis, the cumulative impact at the three identified segments of Proctor Valley Road, between the City of Chula Vista Boundary and Project Driveway #3, is expected to be reduced to less than significant with construction of the segments to a 2.2A facility. However, based on the results of the volume to capacity analysis, and to be conservative, this impact is considered significant and unavoidable.

Year 2030 Conditions

Intersection Impacts

The Land Exchange Alternative would have a project specific impact on one (1) intersection in the City of Chula Vista. The following intersection improvements would be required to mitigate the identified traffic impact:

- *Northwoods Drive/Agua Vista Drive & Proctor Valley Road (Project Specific, City of Chula Vista)* – Signalization by the 327th EDU would mitigate the project specific impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants (provided in Appendix M). However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

Roadway Segment Impacts

The Land Exchange Alternative would impact one (1) roadway segment located in the City of Chula Vista under Year 2030 conditions. The following roadway improvements would be required to mitigate these impacts:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector, by the 861st EDU. With widening to a Class I Collector, the Project's significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS B once widened and no further mitigation would be required. Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which designates the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street; improving the segment to a Class I Collector would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if future traffic conditions warrant such action. However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

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1.0 Introduction

1.1 Purpose of the Report

The purpose of this Transportation Impact Study (TIS) is to identify and document potential transportation impacts related to the development of the proposed Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative (Land Exchange Alternative), as well as to recommend mitigation measures for any identified significant impacts associated with the Land Exchange Alternative.

1.2 Land Exchange Alternative Background

This technical report provides a project level analysis of the Land Exchange Alternative (defined below) for inclusion in the Otay Ranch Village 14 and Planning Areas 16/19 Environmental Impact Report (EIR). The regional location is shown in **Figure 1-1**.

The Land Exchange Alternative is located within Otay Ranch Village 14 and Planning Areas 16 and 19 in the Proctor Valley Parcel of Otay Ranch as shown on **Figure 1-2**. Village 14 and Planning Areas 16 and 19 are part of the larger Otay Ranch, an approximately 23,000-acre master-planned community in southern San Diego County designed as a series of villages and planning areas.

The Land Exchange Alternative proposes 1,530 homes within a development footprint that is limited to Proctor Valley Village 14. The majority of Planning Areas 16 and 19 would be converted to MSCP and Otay Ranch RMP Preserve and would not be developed.

The following describes the major components and characteristics of the Land Exchange Alternative.

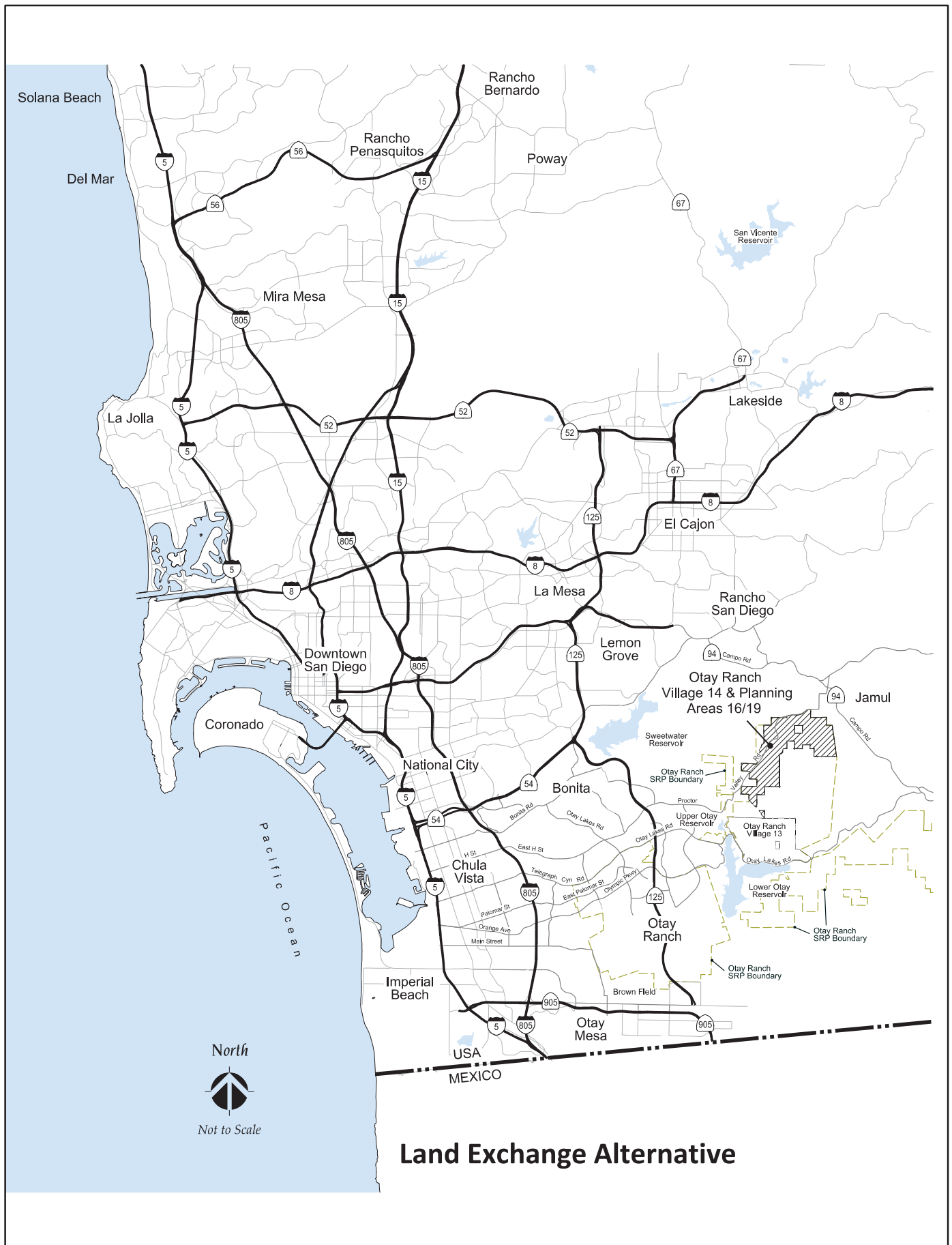
Definitions

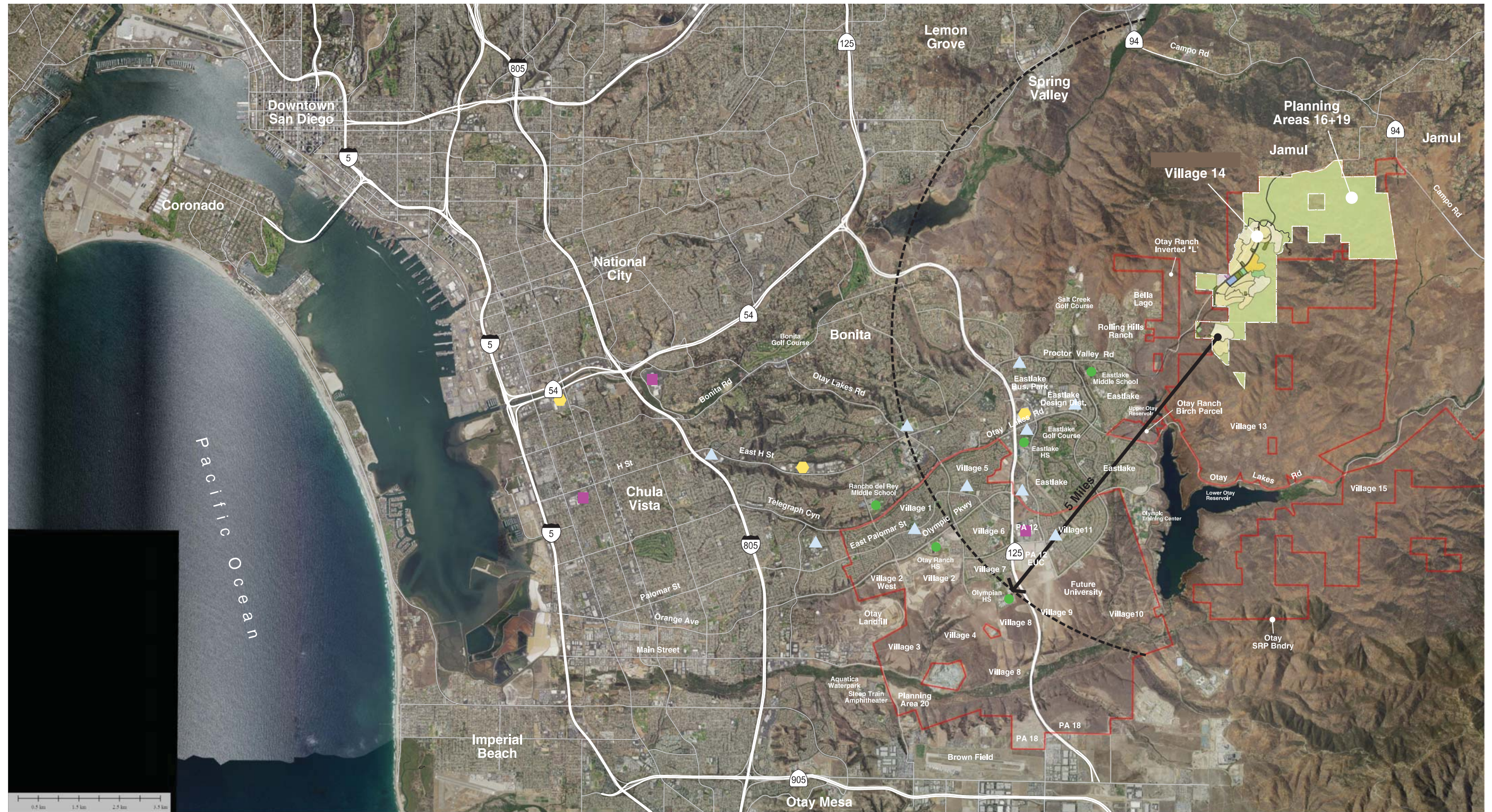
1.2.1 “Land Exchange Project Area” Defined

As indicated above, the “Land Exchange Area” is located within Otay Ranch Village 14 and Planning Areas 16 and 19 as depicted in **Figure 1-3**. The total Land Exchange Area covers approximately 2,387 acres, of which the Applicant owns 1,294 acres, the State owns approximately 1,053 acres and 39.9 acres are Offsites. Within the Land Exchange Area, there are 1,003 acres in Village 14 and 1,345 acres in Planning Areas 16 and 19. Offsites include Proctor Valley Road and related utilities in the south and central portions of Village 14. The State’s ownership is included in order to process a General Plan Amendment to remove existing approved Otay Ranch GDP/SRP and County General Plan development land uses and convert these acres to MSCP/Otay Ranch RMP Preserve.

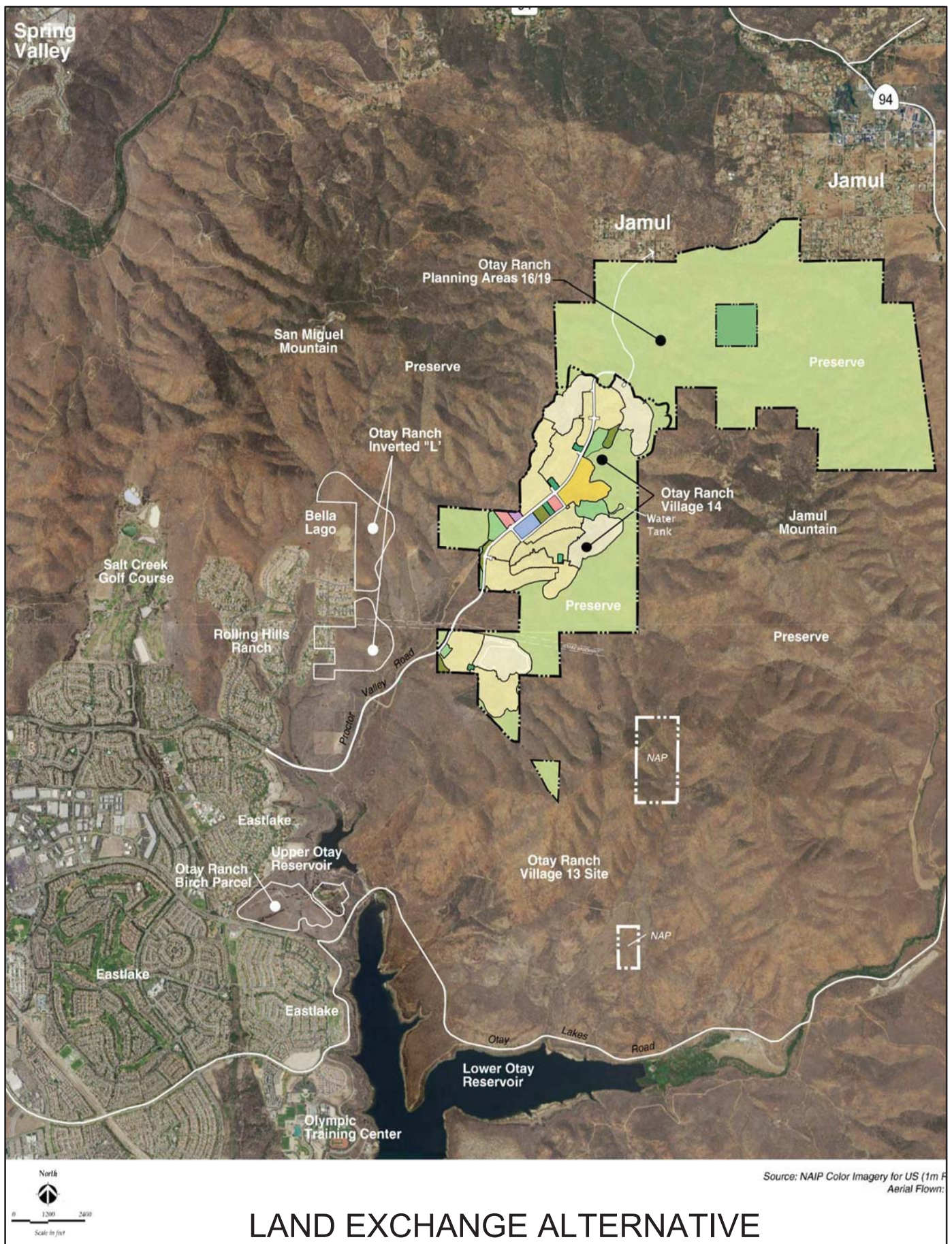
1.2.2 “Land Exchange Alternative” Defined

The Land Exchange Alternative limits development to Otay Ranch Village 14 and converts the majority of development approved by the Otay Ranch GDP/SRP in Planning Areas 16 and 19 to MSCP and Otay Ranch RMP Preserve. The Land Exchange Alternative assumes the completion of a land exchange agreement with the State of California and a simultaneous boundary adjustment to the MSCP and Otay Ranch RMP Preserve systems.





Land Exchange Alternative



Specifically, the "Land Exchange Alternative" proposes to:

- Exchange 278 acres owned by the State in Village 14 for 278 acres owned by the Applicant in Planning Area 16.
- Amend MSCP and Otay Ranch RMP Preserve boundaries via a boundary adjustment where approximately 169.8 acres in Planning Areas 16/19 are converted to Otay Ranch RMP Preserve and 142.3 acres in Village 14 are converted to Otay Ranch RMP Preserve and 43.6 acres in Village 14 are converted to development footprint for an overall net increase in Otay Ranch RMP Preserve of 268.5 acres.

After implementation, the Land Exchange Alternative land plan is depicted in **Figure 1-4**. The Land Exchange Alternative contemplates a Specific Plan, General Plan Amendments, EIR, Rezone, Tentative Map, the Otay Ranch RMP Amendment, and County MSCP Subarea Plan South County Segment Boundary Adjustment.

1.2.3 "Village 14" Defined

"Village 14" as referred to herein is a discrete subset of the Land Exchange Alternative and reflects that portion located exclusively within Village 14 as depicted in **Figure 1-5**. The majority of the technical reports focus on Village 14 as this is where the development is planned.

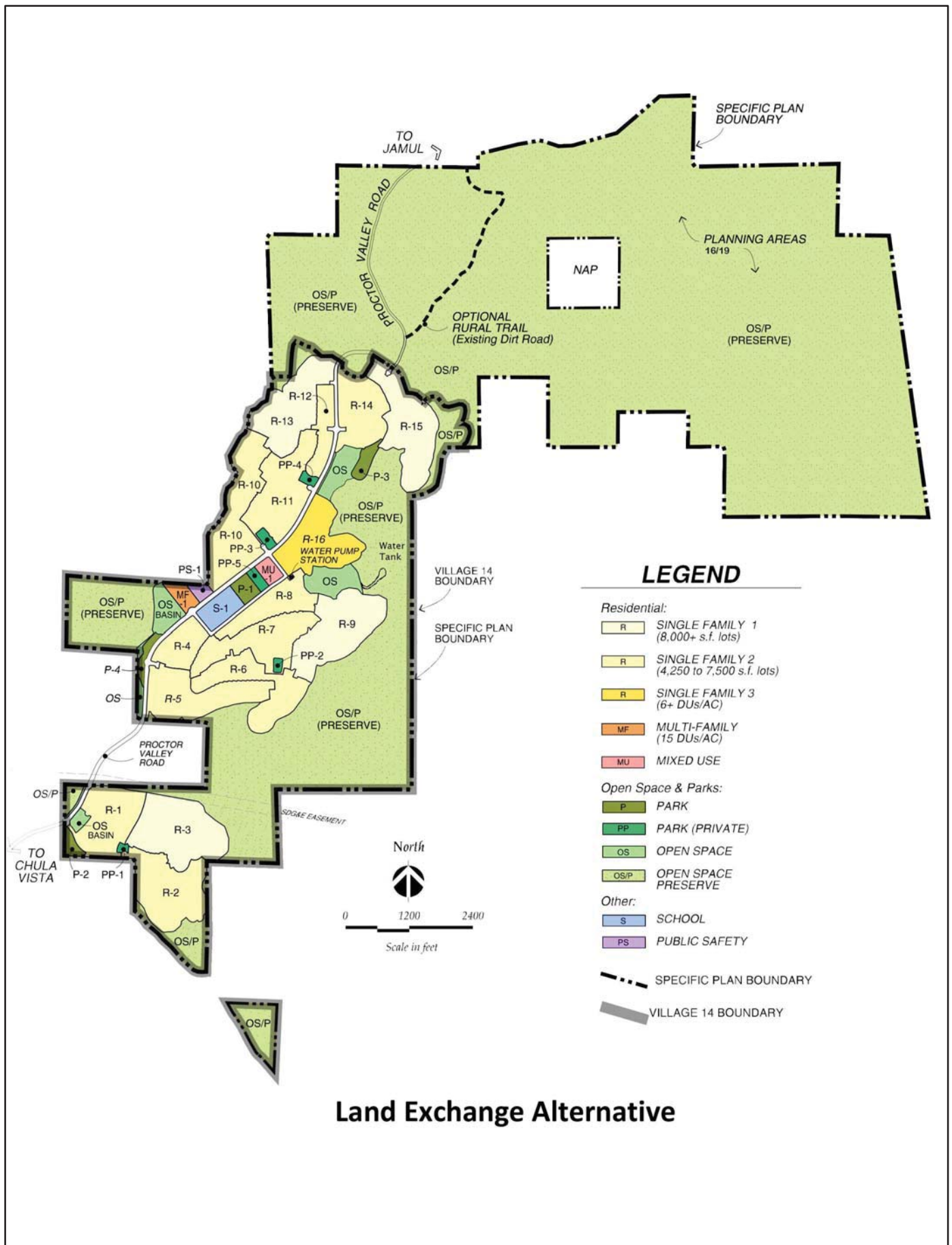
1.3 Proposed Specific Plan

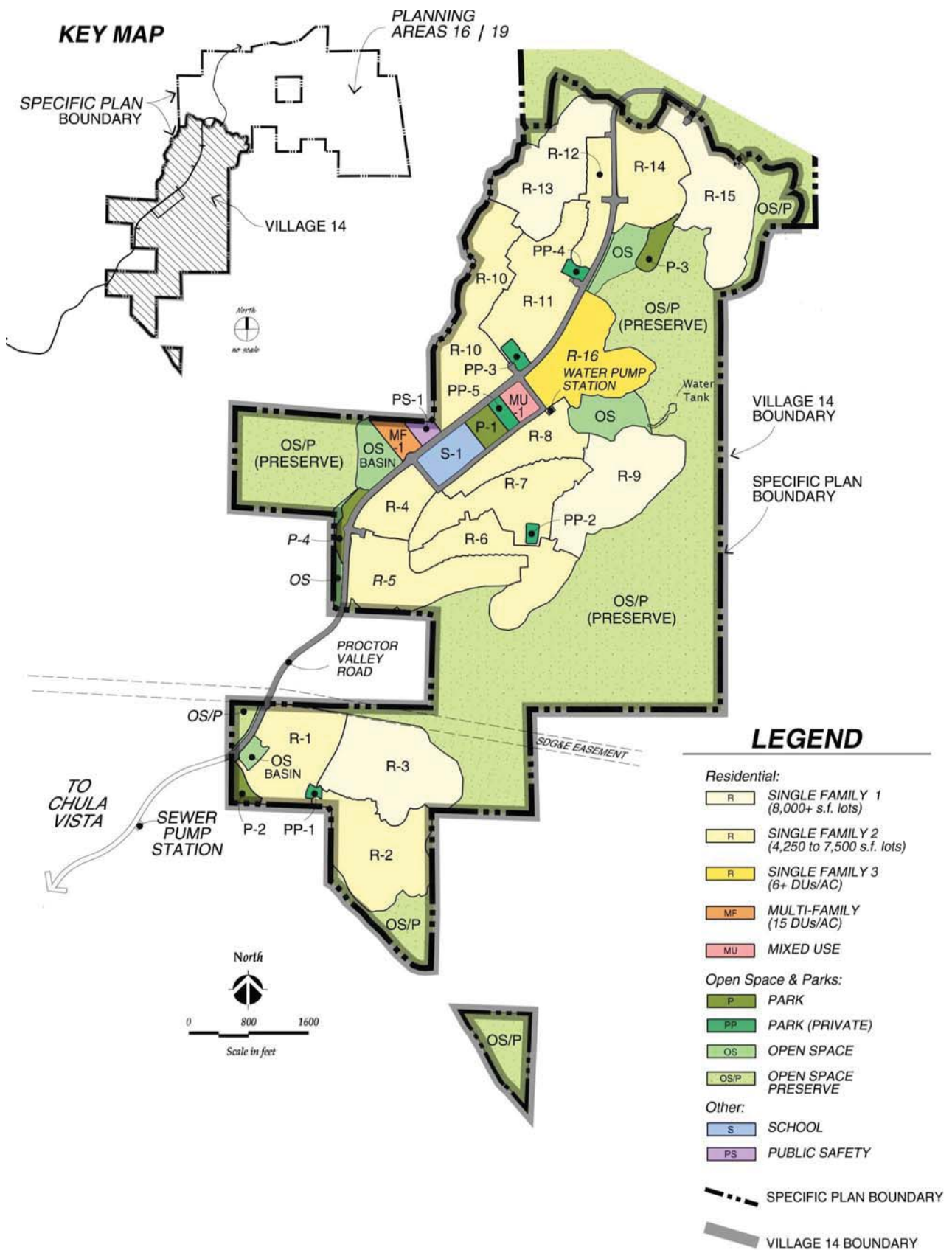
1.3.1 Summary

The adopted Otay Ranch GDP/SRP requires the preparation of a Site Utilization Plan that describes proposed land uses. Figures 1-4 and 1-5 depict the proposed Site Utilization Plan for the Land Exchange Alternative. Additionally, Table 1 quantifies the land uses.

The Land Exchange Alternative includes approximately 511 acres designated for 1,530 homes, 1,124 of which would be traditional single-family homes, 283 would be single family age-restricted and 123 would be multifamily homes as indicated on Table 1 below. 18 neighborhoods are planned with approximate densities ranging from 1.5 to 15.0 dwelling units per acre. The age-restricted neighborhoods would be gated, as would four of the single-family neighborhoods situated on the largest lots.

Village 14 in the Land Exchange Alternative is planned around a Village Core, centrally located in the heart of the village. Higher density residential uses will be adjacent to the Village Core with single family residential radiating out in decreasing densities. The Village Core is comprised of the Neighborhood Center which includes an 8-acre elementary school; a 4-acre Village Green (public park); a 3-acre Mixed Use Site with up to 15,000 square feet of commercial/retail uses and 54 multi-family homes; and a 2-acre Village Square Community Facility. The Village Core also includes a 2-acre public safety site for a fire station and sheriff's storefront facility and 69 multi-family townhomes located adjacent to the public safety site.





The Land Exchange Alternative is designed around an active lifestyle and wellness recreation theme and includes an extensive park and recreation system including four public parks totaling 13 acres as depicted on Figure 1-5. The remaining private recreation facilities include three private swim clubs, a senior activity center, the Village Square community facility and numerous pocket parks totaling approximately 9 acres. Approximately 4.6 miles of community pathway are proposed on the Proctor Valley Road. Approximately three miles of Park-to-Park Loop connect to the regional pathway.

After implementing the proposed land exchange agreement, MSCP and RMP Preserve boundary adjustments, and General Plan Amendments, the Land Exchange Alternative Area will include 1,749 acres of land designated MSCP and Otay Ranch RMP Preserve, consisting of 404 acres in Proctor Valley Village 14, and 1,345 acres in Planning Areas 16 and 19.

1.3.2 Circulation and Access

Under the Land Exchange Alternative, regional access to Village 14 would be provided by State Route 125 (SR-125), located approximately three miles to the west. Interstate 805 (I-805), approximately eight miles to the west, provides secondary north/south access. SR 54, located approximately six miles to the northwest, connects to SR-125 and I-805, and provides regional east/west access.

Proctor Valley Road would provide the main access to Village 14. Five roundabouts would identify the entrance into each residential area as well as provide traffic calming at key internal intersections. The internal circulation plan also includes a series of residential collectors and residential streets to provide access to the residential neighborhoods.

Proctor Valley Road is planned as a two-lane road and is designated as a scenic corridor. The Land Exchange Alternative includes an Otay Ranch GDP/SRP amendment to the classification of Proctor Valley Road from a 4 Lane Major to a 2 Lane Light Collector. The northern connection of Proctor Valley Village 14 to Jamul will be in the alignment of the existing partially-improved Proctor Valley Road and will be paved provide both public access and secondary emergency access to both communities.

The Land Exchange Alternative Circulation Plan incorporates vehicular and non-vehicular modes of transportation to create an integrated system of roads, bike lanes, trails, pathways, and sidewalks.

1.3.3 Options

The Land Exchange Alternative includes three options for internal circulation: (1) the Proctor Valley Road North Option, (2) the Preserve Trails Option and (3) the Perimeter Trail Option. The Draft EIR Land Exchange Alternative assesses each of these options and their respective impacts. Each of the options summarized below. For detailed descriptions with exhibits, see the Specific Plan Section VIII. Internal Circulation Options.

Proctor Valley Road North Option: The Proctor Valley Road North Option applies to Proctor Valley Road Street Section 10 at the northerly edge of Village 14. Street Section 10 would be replaced with Street Section 10B to provide for two dedicated bike lanes (one on each side of the road) instead of the “sharrows” [1] proposed in the Land Exchange Alternative. Note that Street Section 10A provides a transition section at the northerly property boundary and does not change in the Option scenario.

Generally, the Proctor Valley Road North Option would increase the right-of-way width from 40 feet to 48 feet.

Preserve Trails Option: The Preserve Trails Option consists of two segments of existing, disturbed trails. These segments would be located within the Otay Ranch RMP Preserve. The Preserve Trails Option includes segments “A” & “B” as identified in the Otay Ranch GDP/SRP, which are also identified as segments 52 & 49 in the County of San Diego’s Community Trails Master Plan (CTMP). Segment “A”/“52” is 4,450 lineal feet, generally located at the northern terminus of Village 14 and extending northeast through the onsite Otay Ranch RMP Preserve to the eastern edge of the Echo Valley loop (CTMP Trail 53). Segment “B”/“49” is approximately 3,100 lineal feet and is located between South and Central Village 14, along an existing, historic ranch road. This trail is located within onsite Otay Ranch RMP Preserve and bisects regional wildlife corridor R1. The Preserve Trails Option would retain these portions of trails in their existing conditions, which meet the CTMP primitive trail standard. No improvements to these Preserve Trails are contemplated.

Perimeter Trail Option: The Perimeter Trail Option is an approximately 4.5-mile perimeter trail located within the Development Footprint of Village 14. The Perimeter Trail Option is situated primarily within the Otay Ranch RMP 100-foot Preserve Edge. The Perimeter Trail Option is designed to CTMP primitive trail standards, and the trail tread varies from 2-6 feet. Due to topography, trail grades range from 2% to the maximum grade allowed of 30%. The Perimeter Trail Option requires the construction of approximately 5,200 lineal feet (1.0 mile) of 5 to-7-foot-high retaining walls due to steep topography and drainage constraints. The Perimeter Trail Option would be graded as part of overall project grading and does not encroach into the Otay Ranch RMP Preserve. The perimeter trail would be accessed at public parks and trailheads and would be maintained by the County of San Diego.

Chen Ryan Associates has evaluated these options and have determined that they would help to enhance the multi-modal connectivity within the Proposed Project site. However, since these facilities are optional they were not included in this study so that a worst-case scenario (i.e. providing less connectivity within the project site) was evaluated from a mobility stand point.

1.4 Analysis Scenarios

A total of four (4) scenarios were analyzed in this study, including:

1. Existing Conditions – utilized to establish the existing baseline traffic operations within the study area.
2. Existing Plus Land Exchange Alternative Conditions – represents the existing transportation network with the addition of traffic from buildout of the Land Exchange Alternative, which is expected to be completed by 2025.
3. Year 2025 Conditions – represents 2025 conditions including cumulative traffic and traffic generated from the Land Exchange Alternative. The Land Exchange Alternative trip generation was determined based upon the buildout of the Land Exchange Alternative by the Year 2025.
4. Year 2030 Conditions – represents Land Exchange Alternative long-range cumulative conditions for the Year 2030, with the addition of traffic from the buildout of the Land Exchange Alternative.

1.5 Report Organization

Following this Introduction chapter, the report is organized into the following sections:

- 2.0 Analysis Methodology – This chapter describes the methodologies and standards utilized to analyze roadway, intersection, and freeway traffic conditions.
- 3.0 Existing Conditions – This chapter describes the existing traffic network within the study area and provides analysis results for existing traffic conditions.
- 4.0 Land Exchange Alternative Description – This chapter describes the Land Exchange Alternative including Land Exchange Alternative traffic generation.
- 5.0 Existing Plus Land Exchange Alternative Conditions – This chapter describes the existing traffic network with the addition the full development of the Land Exchange Alternative. Mitigation measures, if necessary, for Land Exchange Alternative-related impacts are also identified.
- 6.0 Year 2025 Traffic Conditions – This chapter includes Year 2025 development Land Exchange Alternatives anticipated to generate additional study area trips by the Year 2025. Analysis results are provided for the Year 2025 traffic conditions, along with recommended mitigation measures (if necessary).
- 7.0 Year 2030 Traffic Conditions – This chapter describes Land Exchange Alternative long-range future traffic conditions. Traffic analysis results are presented for the Year 2030 traffic conditions, along with recommended mitigation measures for Land Exchange Alternative-related impacts, as appropriate.
- 8.0 Hazards to Pedestrians and Bicyclists – This chapter describes existing and proposed pedestrian and bicycle facilities in the vicinity of the Land Exchange Alternative site, as well as potential impacts to cyclists and pedestrians.
- 9.0 Construction Traffic – This chapter identifies potential traffic impacts associated with construction of the Land Exchange Alternative.
- 10.0 Transportation Demand Management – This chapter discusses the potential Transportation Demand Management (TDM) program developed to reduce vehicle trips in favor of alternative modes of transportation.
- 11.0 Findings and Recommendations – This chapter summarizes overall study findings and identifies recommended Land Exchange Alternative-related mitigation measures.

2.0 Analysis Methodology

The traffic analyses prepared for this study were performed in accordance with the County of San Diego Traffic Impact Guidelines, the California Environmental Quality Act (CEQA) project review process, the City of Chula Vista Traffic Impact Study Guidelines, and the SANTEC/ITE Guidelines for Traffic Impact Studies in San Diego.

The SANTEC/ITE guidelines require delineation of a project study area based on the following criteria:

- All local roadway segments, including all State surface routes, intersections, and mainline freeway locations where the Land Exchange Alternative will add 50 or more peak-hour trips in either direction to the existing roadway traffic.
- All freeway entrance and exit ramps where the Land Exchange Alternative will add a significant number of peak-hour trips that cause traffic queues to exceed ramp storage capacities.

In addition to the SANTEC/ITE requirements, County Guidelines require that the project study area also include all County Mobility Element roadways and intersections where the Land Exchange Alternative is projected to add 25 or more peak hour trips.

2.1 Level of Service Definition

Level of Service (LOS) is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passenger's perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. **Table 2.1** describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

Table 2.1 Level of Service Definitions

LOS Category	Definition of Operation
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS, the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Source: Highway Capacity Manual 2010

2.2 Roadway Segment Level of Service

Roadway segment Level of Service standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment Level of Service is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes. **Table 2.2** and **Table 2.3** present the roadway segment capacity and Level of Service standards utilized to analyze roadway segments within the County of San Diego and the City of Chula Vista, respectively.

Table 2.2 County of San Diego Roadway Classification and LOS Standards

No.	Travel Lanes	Design Speed	Road Classification	Level of Service (in ADT)				
				A	B	C	D	E
6.1	6	65 mph	Expressway	36,000	54,000	70,000	86,000	108,000
6.2	6	65 mph	Prime Arterial	22,200	37,000	44,600	50,000	57,000
4.1A	4	55 mph	Major Road with Raised Median	14,800	24,700	29,600	33,400	37,000
4.1B			Major Road with Intermittent Turn Lanes	13,700	22,800	27,400	30,800	34,200
4.2A	4	40 mph	Boulevard with Raised Median	18,000	21,000	24,000	27,000	30,000
4.2B			Boulevard with Intermittent Turn Lane	16,800	19,600	22,500	25,000	28,000
2.1A	2	45 mph	Community Collector with Raised Median	10,000	11,700	13,400	15,000	19,000
2.1B			Community Collector w/ Continuous Turn Lane	3,000	6,000	9,500	13,500	19,000
2.1C			Community Collector w/ Intermittent Turn Lane	3,000	6,000	9,500	13,500	19,000
2.1D			Community Collector with Improvement Options	3,000	6,000	9,500	13,500	19,000
2.1E	2	45 mph	Community Collector	1,900	4,100	7,100	10,900	16,200
2.2A	2	40 mph	Light Collector with Raised Median	3,000	6,000	9,500	13,500	19,000
2.2B			Light Collector with Continuous Turn Lane	3,000	6,000	9,500	13,500	19,000
2.2C			Light Collector with Intermittent Turn Lanes	3,000	6,000	9,500	13,500	19,000
2.2D			Light Collector with Improvement Options	3,000	6,000	9,500	13,500	19,000
2.2E			Light Collector	1,900	4,100	7,100	10,900	16,200
2.2F			Light Collector with Reduced Shoulder	5,800	6,800	7,800	8,700	9,700
2.3A	2	35 mph	Minor Collector with Raised Median	3,000	6,000	7,000	8,000	9,000
2.3B			Minor Collector with Intermittent Turn Lane	3,000	6,000	7,000	8,000	9,000
2.3C			Minor Collector	1,900	4,100	6,000	7,000	8,000

Source: County of San Diego Public Road Standards; March 2012

Note:

Bold numbers indicate the ADT thresholds for acceptable LOS.

Table 2.3 City of Chula Vista Roadway Classification and LOS Standards

Circulation Element Roadway Classification	Level of Service				
	A	B	C	D	E
Expressway (7 or 8-lane)	52,500	61,300	70,000	78,800	87,500
Gateway Street (6-lane)	40,800	47,600	54,400	61,200	68,000
Prime Arterial (6-lane)	37,500	43,800	50,000	56,300	62,500
Major Street (6-lane)	30,000	35,000	40,000	45,000	50,000
Major Street (4-lane)	22,500	26,300	30,000	33,800	37,500
Town Center Arterial (6-lane)	37,500	43,800	50,000	56,300	62,500
Town Center Arterial (4-lane)	22,500	26,300	30,000	33,800	37,500
Class I Collector (4-lane)	16,500	19,300	22,000	24,800	27,500
Class II Collector (3-lane)	9,000	10,500	12,000	13,500	15,000
Class III Collector (2-lane)	5,600	6,600	7,500	8,400	9,400

Source: City of Chula Vista

Note:

Bold numbers indicate the ADT thresholds for acceptable LOS.

These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical attributes. Typically, the performance and Level of Service of a roadway segment are heavily influenced by the ability of the arterial intersections to accommodate peak hour volumes.

For the purposes of this traffic analysis, LOS D is considered acceptable for Mobility Element roadway segments within the County of San Diego. LOS C is considered acceptable for Circulation Element roadway segments within the City of Chula Vista. Per the Otay SRP (Page 104), LOS D is permitted within the Otay Ranch Villages.

2.3 Two-Lane State Highway Level of Service Standards and Thresholds

The two-lane state highway SR-94 was analyzed utilizing both the County of San Diego and Caltrans (or HCM 2000) methodologies.

As stated above, per County requirements, all facilities where the Land Exchange Alternative would add 25 or more peak hour trips were included in the study area. Thus, SR-94 from Lyons Valley Road to south of Otay Lakes Road was included in the analysis.

Table 2.4 displays the two-lane state highway ADT thresholds for LOS E and LOS F when signalized intersection spacing is over one mile. For facilities where signalized intersections are less than one mile apart, the Level of Service is determined to be that of the intersections along the subject highway.

Table 2.4 Two-Lane Highway LOS Thresholds – With Signalized Intersection Spacing Over One Mile

LOS	LOS Criteria
LOS E	> 16,200 ADT
LOS F	> 22,900 ADT

Source: County of San Diego

Note:

Where detailed data are available, the Director of Public Works may also accept a detailed level of service analysis based upon the two-lane highway analysis procedures provided in the Chapter 20 Highway Capacity Manual.

2.4 Peak Hour Intersection Level of Service Standards and Thresholds

This section presents the methodologies used to perform peak hour intersection capacity analysis, including both signalized and unsignalized intersections. The following assumptions were utilized in conducting all intersection level of service analyses:

- *Signal Timing*: Based on existing signal timing plans (as of March 2015)..
- *Peak Hour Factor*: Based on existing peak hour count data for existing conditions and 0.92, which is the typical industry standard, for all future conditions.

The County of San Diego and the City of Chula Vista both consider LOS D or better during the AM and PM peak hours to be acceptable for intersection LOS.

2.4.1 Signalized Intersection Analysis

The analysis of signalized intersections utilized the operational analysis procedures as outlined in the *2010 Highway Capacity Manual (HCM)*. This method defines LOS in terms of delay, or more specifically, average stopped delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time. This technique uses 1,900 vehicles per hour per lane (VPHPL) as the maximum saturation volume of an intersection. This saturation volume is adjusted to account for lane width, on-street parking, pedestrians, traffic composition (i.e., percentage trucks) and shared lane movements (i.e., through and right-turn movements originating from the same lane). The LOS criteria used for this technique are described in **Table 2.5**. The computerized analysis of intersection operations was performed utilizing *SYNCHRO 8.0* traffic analysis software.

2.4.2 Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop controlled intersections, were analyzed using the 2010 Highway Capacity Manual unsignalized intersection analysis methodology. The *SYNCHRO 8.0* Traffic Analysis software supports this methodology and was utilized to produce LOS results. The LOS for a side street stop controlled (SSSC) intersection is determined by the computed control delay and is defined for each minor movement. **Table 2.6** summarizes the LOS criteria for unsignalized intersections.

Table 2.5 Signalized Intersection LOS Criteria

Average Stopped Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
<10.0	<i>LOS A</i> describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
10.1 – 20.0	<i>LOS B</i> describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for <i>LOS A</i> , causing higher levels of average delay.
20.1 – 35.0	<i>LOS C</i> describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
35.1 – 55.0	<i>LOS D</i> describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
55.1 – 80.0	<i>LOS E</i> is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80.0	<i>LOS F</i> describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the <i>LOS D</i> capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: 2010 Highway Capacity Manual

Table 2.6 Unsignalized Intersection LOS Criteria

Average Control Delay (sec/veh)	Level of Service (LOS)
≤ 10	A
>10 and ≤ 15	B
>15 and ≤ 25	C
>25 and ≤ 35	D
>35 and ≤ 50	E
>50	F

Source: 2010 Highway Capacity Manual

2.5 Freeway Mainline Analysis

Freeway level of service and performance analysis is based upon procedures developed by Caltrans District 11. The procedure for calculating freeway level of service involves estimating a peak hour volume to capacity (V/C) ratio. Peak hour volumes are estimated from the application of design hour (“K”), directional (“D”) and truck (“T”) factors to Average Daily Traffic (ADT) volumes. The base capacities utilized were 2,400 pc/h/ln for mainline and 1,200 pc/h/ln for auxiliary lane, respectively.

The resulting V/C is then compared to acceptable ranges of V/C values corresponding to the various levels of service for each facility classification, as shown in **Table 2.7**. The corresponding level of service represents an approximation of existing or anticipated future freeway operating conditions in the peak direction of travel during the peak hour.

LOS D or better is used in this study as the threshold for acceptable freeway operations based upon

Caltrans and the SANDAG Regional Growth Management Strategy (RGMS) requirements.

For the purposes of this study, all of the traffic adjustment factors utilized in the analysis of existing and future conditions were obtained from Caltrans.

Table 2.7 Caltrans District 11 Freeway and State Highway Segment LOS

LOS	V/C	Congestion/Delay	Traffic Description
Free Flow Speed = 65 mi/h			
"A"	<0.30	None	Free flow.
"B"	0.30-0.50	None	Free to stable flow, light to moderate volumes.
"C"	0.50-0.71	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.71-0.89	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.89-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
"F"	>1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.

Source: Caltrans Guide for the Preparation of Traffic Impact Studies, December 2002

2.6 Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, all signalized intersections at freeway ramps were analyzed using Intersecting Lane Volume (ILV) procedures as described in Topic 406 of the Caltrans *Highway Design Manual* (HDM). This methodology is based upon an assessment of each intersection as an isolated unit, without consideration of the effects from adjacent intersections. For this reason, the ILV analysis is utilized as an additional validation of signalized ramp intersection operations derived from the 2010 Highway Capacity Manual methodology. **Table 2.8** provides values of ILV/hr associated with various traffic flow thresholds. Neither Caltrans, the City of Chula Vista, nor the County uses ILV results in determining significance of project impacts, and, therefore, the analyses are only included for informational purposes.

Table 2.8 Traffic Flow Conditions at Ramp Intersections at Various Levels of Operation

Description
<1,200: (Under Capacity) - Stable flow with slight, but acceptable delay. Occasional signal loading may develop. Free midblock operations.
1,200-1,500: (At Capacity) - Unstable flow with considerable delays possible. Some vehicles occasionally wait two or more cycles to pass through the intersection. Continuous backup occurs on some approaches.
>1,500: (Over Capacity) - Stop-and-go operation with severe delay and heavy congestion ⁽¹⁾ . Traffic volume is limited by maximum discharge rates of each phase. Continuous backup in varying degrees occurs on all approaches. Where downstream capacity is restrictive, mainline congestion can impede orderly discharge through the intersection.

Source: Caltrans Highway Design Manual, Topic 406

Note:

¹The amount of congestion depends on how much the ILV/hr value exceeds 1,500. Observed flow rates will normally not exceed 1,500 ILV/hr, and the excess will be delayed in a queue.

2.7 Ramp Meter Analysis

Ramp metering analysis was conducted based upon the SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego region to calculate delays and queues at the study area freeway on-ramps. The demand per hour per lane was calculated using the following equation:

$$D_{vol} = \frac{(P_{vol} - H_{vol})}{N}$$

- D_{vol} (Demand Volume per hour per Lane): total peak hour demand expected to use the on-ramp (non-HOV lane only);
- P_{vol} (Peak Hour Ramp Volume): sum of all peak hour volumes using the on-ramp;
- H_{vol} (HOV lane volume): based on field observation, approximately 20% of the P_{vol} utilized the HOV lane; and
- N : number of non-HOV lanes at the on-ramp.

2.8 Determination of Significant Impacts

This section outlines the thresholds for determination of significant project-related impacts to roadways and intersections in the County of San Diego and the City of Chula Vista, as well as along freeway and state highway facilities within Caltrans' jurisdiction.

2.8.1 County of San Diego

Signalized Intersections

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or Level of Service traffic impact on a road segment:

- The additional or redistributed ADT generated by the Land Exchange Alternative will significantly increase congestion at a signalized intersection currently operating at LOS E or LOS F, as identified in **Table 2.9**, or will cause a signalized intersection to operate at LOS E or LOS F.

Table 2.9 Measures of Significant Project Impacts to Congestion at Intersections – Allowable Increases at Congested Intersections

Level of Service	Signalized	Unsignalized
LOS E	Delay of 2 seconds	20 peak hour trips on a critical movement
LOS F	Delay of 1 second, or 5 peak hour trips on a critical movement	5 peak hour trips on a critical movement

Source: County of San Diego

Notes:

1. A critical movement is an intersection movement (right turn, left turn, and through-movement) that experiences excessive queues, which typically operate at LOS F. Also if a project adds significant volume to a minor roadway approach, a gap study should be provided that details the headways between vehicles on the major roadway.
2. By adding Land Exchange Alternative trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's direct or cumulative impacts do not

trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay and the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

Unsignalized Intersections

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or Level of Service traffic impact on a road segment:

The additional or redistributed ADT generated by the Land Exchange Alternative will add 20 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate below LOS D (see Table 2.9), or

- The additional or redistributed ADT generated by the Land Exchange Alternative will add 20 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E (see Table 2.9), or
- The additional or redistributed ADT generated by the Land Exchange Alternative will add 5 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F (see Table 2.9), or
- The additional or redistributed ADT generated by the Land Exchange Alternative will add 5 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F (see Table 2.9), or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, and sight distance or other factors, it is found that a project's generation rate less than those specified above would significantly impact the operations of the intersection.

Roadway Segments

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or Level of Service traffic impact on a roadway segment, unless specific facts show that there are other circumstances that mitigate or avoid such impacts:

- The additional or redistributed ADT generated by the Land Exchange Alternative will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F as identified in **Table 2.10**, or will cause a Circulation Element Road or State Highway to operate at LOS E or LOS F as a result of the Land Exchange Alternative, or
- The additional or redistributed ADT generated by the Land Exchange Alternative will cause a residential street to exceed its design capacity.

**Table 2.10 Measures of Significant Project Impacts to Congestion on Road Segments –
Allowable Increases on Congested Road Segments**

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

Source: County of San Diego

Notes:

1. By adding Land Exchange Alternative trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable Level of Service, when such traffic uses a significant amount of remaining road capacity.

Two-Lane Highways with Signalized Intersection Spacing Over One Mile

Traffic volume increases from public or private projects that result in the following criteria will have a significant traffic volume or Level of Service traffic impact on a two-lane highway facility with signalized intersection spacing over one mile:

- The additional or redistributed ADT generated by the Land Exchange Alternative will significantly increase congestion on a two-lane highway segment currently operating at LOS E or LOS F, as identified in **Table 2.11**, or will cause a two-lane highway segment to operate at LOS E or LOS F as a result of the Land Exchange Alternative.

**Table 2.11 Measures of Significant Project Impacts to Congestion –
Allowable Increases on Two-Lane Highways with Signalized Intersection Spacing Over One Mile**

LOS	LOS Criteria	Impact Significance Level
LOS E	> 16,200 ADT	> 325 ADT
LOS F	> 22,900 ADT	> 225 ADT

Source: County of San Diego

Note:

Where detailed data are available, the Director of Public Works may also accept a detailed Level of Service analysis based upon the two-lane highway analysis procedures provided in the Chapter 20 Highway Capacity Manual.

Two-Lane Highways with Signalized Intersection Spacing Under One Mile

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or Level of Service traffic impact on a two-lane highway facility with signalized intersection spacing under one mile:

- The additional or redistributed ADT generated by the Land Exchange Alternative will significantly increase congestion on a two-lane highway segment currently operating at LOS E or LOS F, as identified in **Table 2.12**, or will cause a two-lane highway segment to operate at LOS E or LOS F as a result of the Land Exchange Alternative.

**Table 2.12 Measures of Significant Project Impacts to Congestion –
Allowable Increases on Two-Lane Highways with Signalized Intersection Spacing Under One Mile**

LOS	Impact Significance Level
LOS E	Intersection delay of 2 seconds
LOS F	Intersection delay of 1 second, or 5 peak hour trips on a critical movement

Source: County of San Diego

Notes:

1. A critical movement is one that is experiencing excessive queues.
2. By adding Land Exchange Alternative trips to all other trips from a list of projects, this same table is used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate a share of the cumulative impacts.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable Level of Service, when such traffic uses a significant amount of remaining road capacity.

2.8.2 City of Chula Vista

Project impacts will be defined as either project specific impacts or cumulative impacts. Project specific impacts are those impacts for which the addition of project trips result in an identifiable degradation in level of service on freeway segments, roadway segments, or intersections, triggering the need for specific project-related improvement strategies. Cumulative impacts are those in which the project trips contribute to a poor level of service, at a nominal level.

Study horizon year as used herein is intended to describe a future period of time in the traffic studies, which corresponds to SANDAG's traffic model years, and are meant to synchronize study impacts to be in line with typical study years of 2015, 2020, 2025 and 2030.

Criteria for determining whether the Land Exchange Alternative results in either project specific or cumulative impacts on freeway segments, roadway segments, or intersections are as follows:

Short-term (Study Horizon Year 0 to 4)

For purposes of the short-term analysis roadway sections may be defined as either links or segments. A link is typically that section of roadway between two adjacent Circulation Element intersections and a segment is defined as that combination of contiguous links used in the Growth Management Plan Traffic Monitoring Program. Analysis of roadway links under short-term conditions may require a more detailed analysis using the Growth Management Oversight Committee (GMOC) methodology if the typical planning analysis using volume to capacity ratios on an individual link indicates a potential impact to that link. The GMOC analysis uses the Highway Capacity Manual (HCM) methodology of average travel speed based on actual measurements on the segments as listed in the Growth Management Plan Traffic Monitoring Program.

Intersections

- (a) Project specific impact if both the following criteria are met:
 - i. Level of service is LOS E or LOS F.
 - ii. Project trips comprise 5% or more of entering volume.
- (b) Cumulative impact if only #1 is met.

Street Links/Segments

If the planning analysis using the volume to capacity ratio indicates LOS C or better, there is no impact. If the planning analysis indicates LOS D, E or F, the GMOC method should be utilized. The following criteria would then be utilized.

- (a) Project specific impact if all the following criteria are met:
 - i. Level of service is LOS D for more than 2 hours or LOS E/F for 1 hour
 - ii. Project trips comprise 5% or more of segment volume.
 - iii. Project adds greater than 800 ADT to the segment.
- (b) Cumulative impact if only #1 is met.

Freeways

- (a) Project specific impact if both the following criteria are met:
 - i. Freeway segment LOS is LOS E or LOS F
 - ii. Project comprises 5% or more of the total forecasted ADT on that freeway segment.
- (b) Cumulative impact if only #1 is met.

Long-term (Study Horizon Year 5 and later)

Intersections

- (a) Project specific impact if both the following criteria are met:
 - i. Level of service is LOS E or LOS F.
 - ii. Project trips comprise 5% or more of entering volume.
- (b) Cumulative impact if only #1 is met.

Street Segments

Use the planning analysis using the volume to capacity ratio methodology only. The GMOC analysis methodology is not applicable beyond a four-year horizon.

- (a) Project specific impact if all three of the following criteria are met:
 - i. Level of service is LOS D, LOS E, or LOS F.
 - ii. Project trips comprise 5% or more of total segment volume.
 - iii. Project adds greater than 800 ADT to the segment.
- (b) Cumulative impact if only #1 is met. However, if the intersections along a LOS D or LOS E segment all operate at LOS D or better, the segment impact is considered not significant since intersection analysis is more indicative of actual roadway system operations than street segment analysis. If segment Level of Service is LOS F, impact is significant regardless of intersection LOS.
- (c) Notwithstanding the foregoing, if the impact identified in paragraph a. above occurs at study horizon year 10 or later, and is offsite and not adjacent to the project, the impact is considered cumulative. Study year 10 may be that typical SANDAG model year which is between 8 and 13 years in the future. In this case of a traffic study being performed in the period of 2000 to 2002, because the typical model will only evaluate traffic at years divisible by 5 (i.e. 2005, 2010, 2015 and 2020) study horizon year 10 would correspond to the SANDAG model for year 2010 and would

be 8 years in the future. If the model year is less than 7 years in the future, study horizon year 10 would be 13 years in the future.

- (d) In the event a direct identified project specific impact in paragraph a. above occurs at study horizon year 5 or earlier and the impact is offsite and not adjacent to this project, but the property immediately adjacent to the identified project specific impact is also proposed to be developed in approximately the same time frame, an additional analysis may be required to determine whether or not the identified project specific impact would still occur if the development of the adjacent property does not take place. If the additional analysis concludes that the identified project specific impact is no longer a direct impact, then the impact shall be considered cumulative.

Freeways

- (a) Project specific impact if both the following criteria are met:
- Freeway segment LOS is LOS E or LOS F.
 - Project comprises 5% or more of the total forecasted ADT on that freeway segment.
- (b) Cumulative impact if only #1 is met. Traffic impacts are defined as either *direct impacts* or *cumulative impacts*. *Direct impacts* are those impacts for which the addition of project trips results in an identifiable degradation in level of service on freeway segments, roadway segments, or at intersections, triggering the need for specific project-related improvements. *Cumulative impacts* are those in which the project trips contribute to a poor level of service at a nominal level and thus requiring the developer to contribute its fair share towards the improvements necessary to mitigate the impact.

2.8.3 SANTEC/ITE Guidelines

Facilities that belong to other jurisdictions or Caltrans, within the County of San Diego, should comply with the traffic study requirements identified in the SANTEC/ITE Guidelines, as summarized in **Table 2.13**.

Table 2.13 Santec/Ite Measure of Significant Project Traffic Impacts

Level of Service (LOS) with Project	Allowable Change Due to Impact					
	Freeways		Roadway Segments		Intersections	Ramp Metering
E & F (or ramp meter delays above 15 min.)	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec)	Delay (min.)
	0.01	1	0.02	1	2	2

Source: SANTEC/ITE Guidelines for TIS in the San Diego Region

3.0 Existing Conditions

This section describes the study area roadway, two-lane highway, and freeway segment daily traffic volumes, as well as intersection peak hour traffic volumes. Level of service analysis results for all study area facilities under Existing conditions are also presented.

3.1 Existing Roadway Facilities

Several regionally and locally significant roadways, including state highways and freeways, traverse the study area. Each of the roadways, and associated intersections within the study area, is discussed below.

3.1.1 Study Intersections

The SANDAG Series 11 Transportation Model was utilized to perform a Select Zone Analysis, which identified the number of project-related peak hour trips distributed across the transportation network. All intersections and roadways where the Land Exchange Alternative would add 50 or more peak hour trips in either direction to the existing traffic were included for analysis. In addition, the study area also includes intersections and roadways where the Land Exchange Alternative would add 25 peak hour trips on County facilities. A total of 42 study area intersections, including 5 in the County of San Diego, 28 in the City of Chula Vista, and 9 project access points (also in the County of San Diego) were analyzed in this study, as shown below:

- | | |
|---|---|
| 1. SR-94 & Lyons Valley Road | 23. Heritage Road/Paseo Ranchero & Telegraph Canyon Road |
| 2. Proctor Valley Road/Jefferson Road & SR-94 | 24. La Media Road & Telegraph Canyon Road/Otay Lakes Road |
| 3. Proctor Valley Road & Maxfield Road | 25. SR-125 SB Ramps & Otay Lakes Road |
| 4. Proctor Valley Road & Melody Road | 26. SR-125 NB Ramps & Otay Lakes Road |
| 5. SR-94 & Melody Road | 27. Eastlake Parkway & Otay Lakes Road |
| 6. San Miguel Ranch Road & SR-125 SB Ramps | 28. Lane Avenue & Otay Lakes Road |
| 7. San Miguel Ranch Road & SR-125 NB Ramp | 29. Hunte Parkway & Otay Lakes Road |
| 8. I-805 SB Ramp & East H Street | 30. Fenton Street & Otay Lakes Road |
| 9. I-805 NB Ramp & East H Street | 31. Eastlake Parkway & Olympic Parkway |
| 10. Terra Nova Drive & East H Street | 32. Hunte Parkway & Olympic Parkway |
| 11. East H Street & Del Rey Boulevard | 33. Eastlake Parkway & Hunte Parkway |
| 12. Pasel Del Rey & East H Street | 34. Proctor Valley Road & Project Driveway #1 |
| 13. Paseo Ranchero & East H Street | 35. Proctor Valley Road & Project Driveway #2 |
| 14. Otay Lakes Road & East H Street | 36. Proctor Valley Road & Project Driveway #3 |
| 15. SR-125 SB Ramp & East H Street | 37. Proctor Valley Road & Project Driveway #4 |
| 16. SR-125 NB Ramp & East H Street | 38. Proctor Valley Road & Project Driveway #5 |
| 17. Mt Miguel Road & East H Street | 39. Proctor Valley Road & Project Driveway #6 |
| 18. Lane Avenue & East H Street | 40. Proctor Valley Road & Project Driveway #7 |
| 19. Hunte Parkway & East H Street | 41. Proctor Valley Road & Project Driveway #8 |
| 20. Aqua Vista & East H Street | 42. Proctor Valley Road & Project Driveway #9 |
| 21. Eastlake Parkway & Fenton Street | |
| 22. Lane Avenue & Fenton Street | |

Figure 3-1 displays the location of the study area intersections, roadway segments and the Land Exchange Alternative. **Figure 3-2** and **Figure 3-3** display the current roadway and intersection geometrics, respectively.

3.1.2 County of San Diego Roadway Facilities

North-South Facilities

Proctor Valley Road – Proctor Valley Road is a 2-lane undivided roadway that extends from Chula Vista’s eastern boundary to SR-94 in the Community of Jamul, in the County, with posted speed limits ranging between 40 and 45 mph. There are no sidewalk or bicycle facilities along either side of the roadway. Within the County of San Diego, Proctor Valley Road is classified as 2-lane Light Collector (2.2E) in the County of San Diego’s currently adopted General Plan Circulation Element Update. A portion of Proctor Valley Road is currently an unpaved road within the County of San Diego boundaries.

Jefferson Road – Jefferson Road is a 2-lane undivided roadway between Lyons Valley Road and SR-94 in the County of San Diego. There are no sidewalk or bicycle facilities along either side of the roadway. Jefferson Road is classified as a 2-lane Light Collector with Raised Median (2.2A) in the County of San Diego’s currently adopted General Plan Circulation Element Update.

East West-Facilities

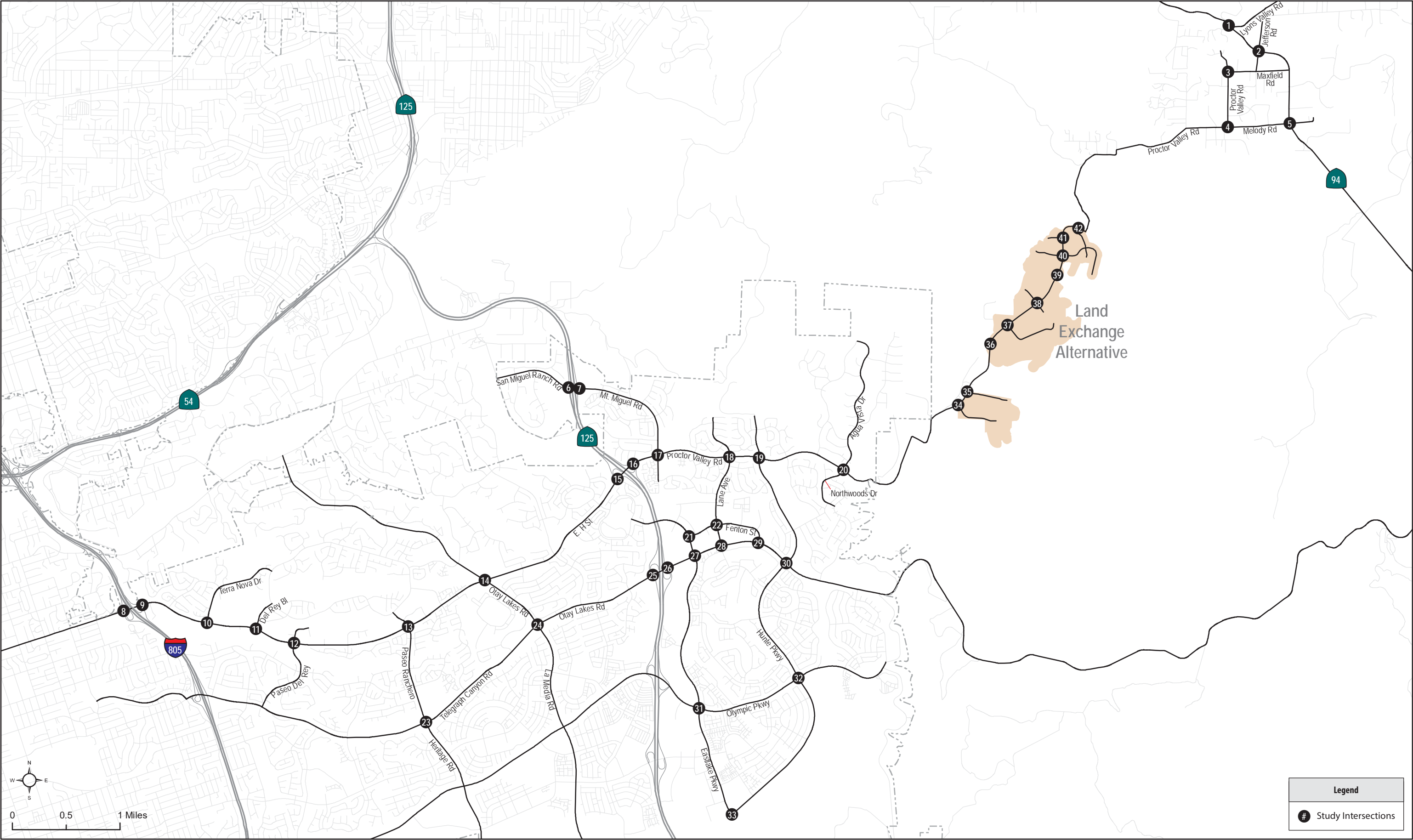
Lyons Valley Road - Lyons Valley Road is a 2-lane undivided roadway with a 45 mph posted speed limit between SR-94 and Jefferson Road in the County of San Diego. Sidewalks and bicycle facilities are not present on either side of the roadway. Parking is prohibited on both sides of the roadway. Lyons Valley Road is classified as a 2-lane Light Collector with a Continuous Turn-Lane (2.2B) in the County of San Diego’s currently adopted General Plan Circulation Element Update.

Melody Road – Melody Road is a 2-lane undivided roadway with no posted speed limit signs present between Proctor Valley Road and SR-94, in the Community of Jamul. There are no sidewalk or bicycle facilities along either side of the roadway. There is 245 feet of permitted parking to the east of Calle Mesquite. Melody Road is classified as a 2-lane Light Collector (2.2E) in the County of San Diego’s currently adopted General Plan Circulation Element Update.

3.1.3 City of Chula Vista Roadway Facilities

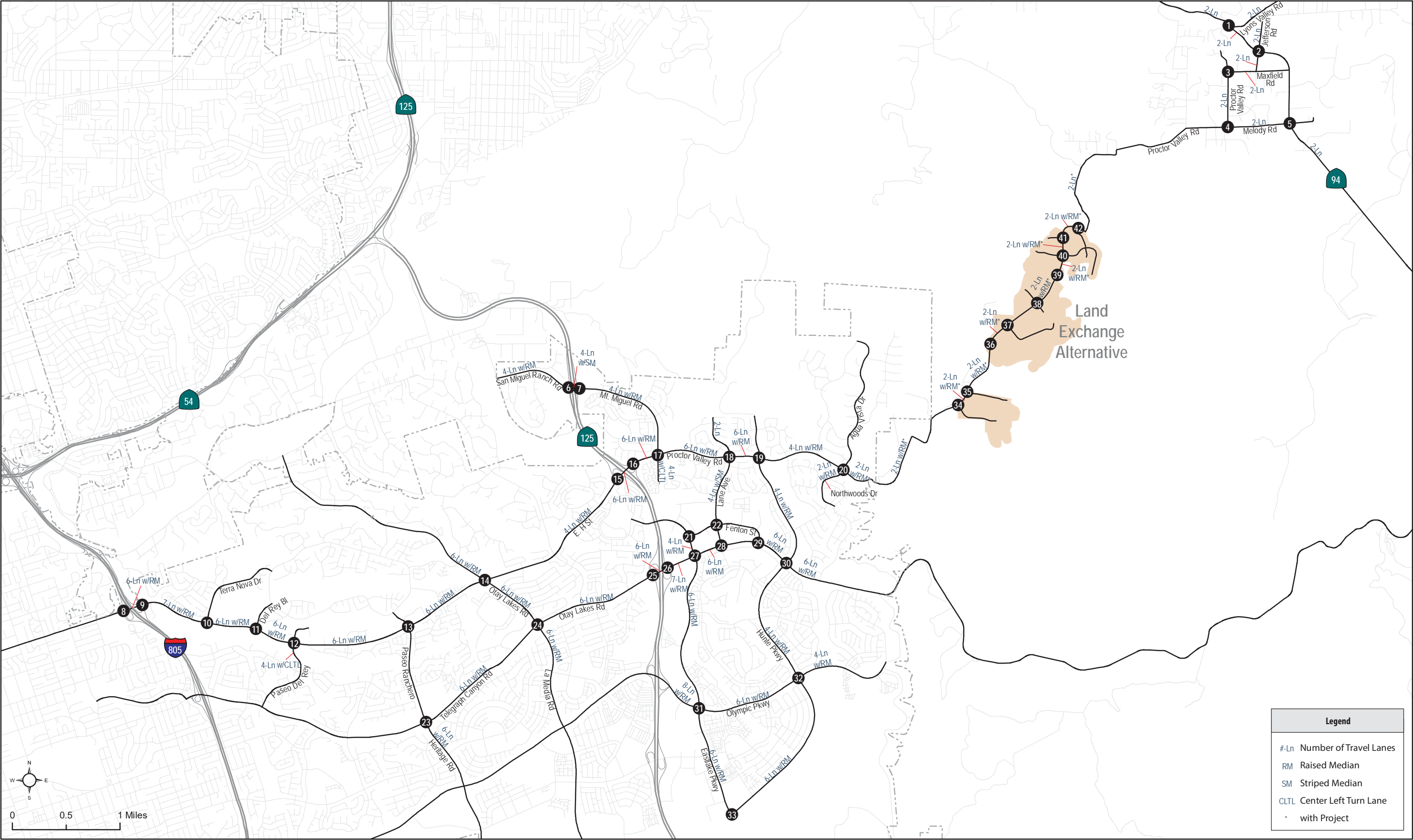
North-South Facilities

Otay Lakes Road – The north/south portion of Otay Lakes Road runs from Bonita Road to Telegraph Canyon Road where it becomes La Media Road. Within the Land Exchange Alternative study area, Otay Lakes Road is a 6-lane roadway with a raised median between Ridgeback Road and Telegraph Canyon Road. Posted speed limits of 40 and 45 mph are present between Ridgeback Road and Telegraph Canyon, and between Telegraph Canyon and East Palomar Street, respectively. This roadway is currently classified as a 6-lane Prime Arterial in the Chula Vista General Plan Circulation Element. Sidewalk and Class II bicycle facilities are present on both sides of the roadway.



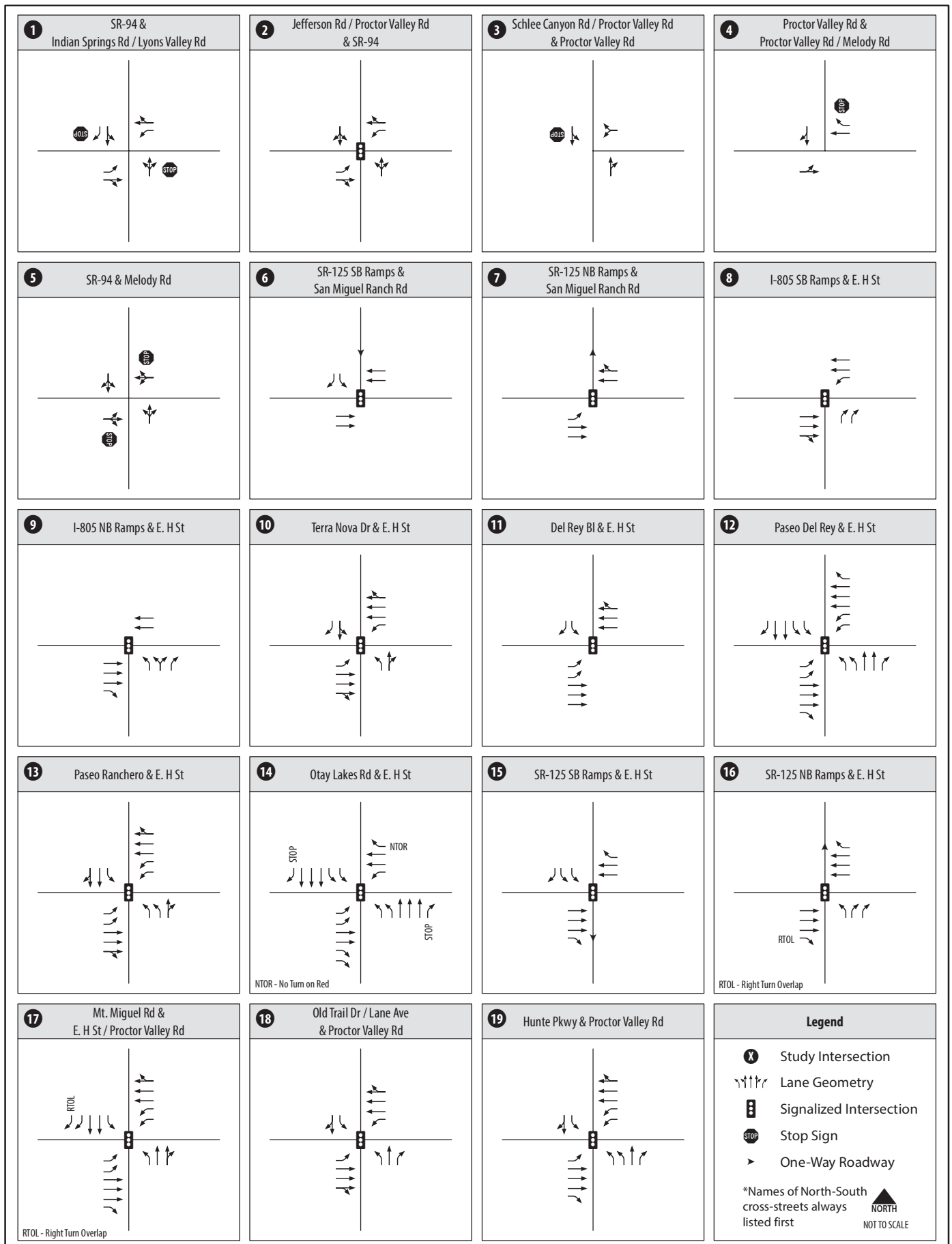
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

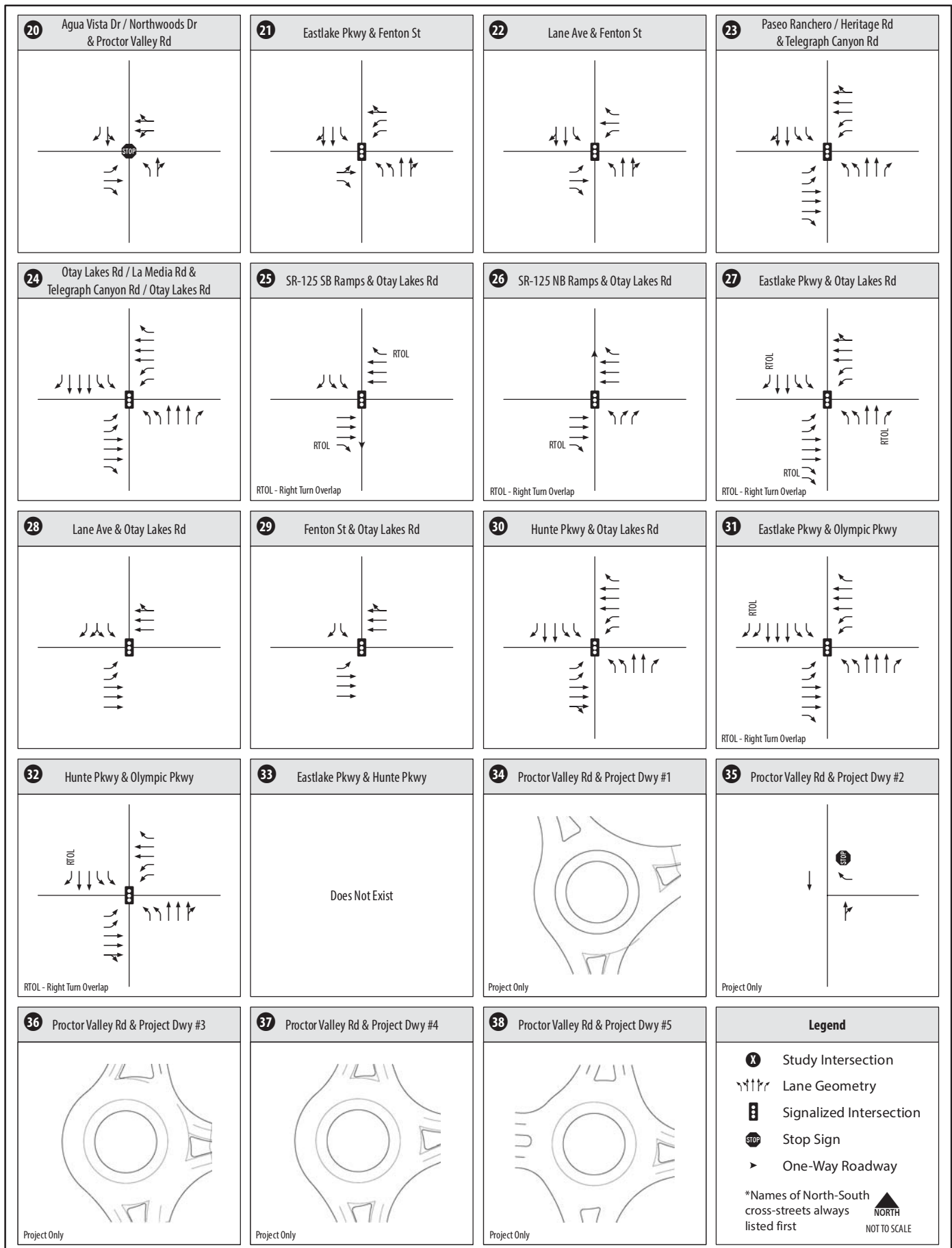
Figure 3-1
Study Area Intersection Locations

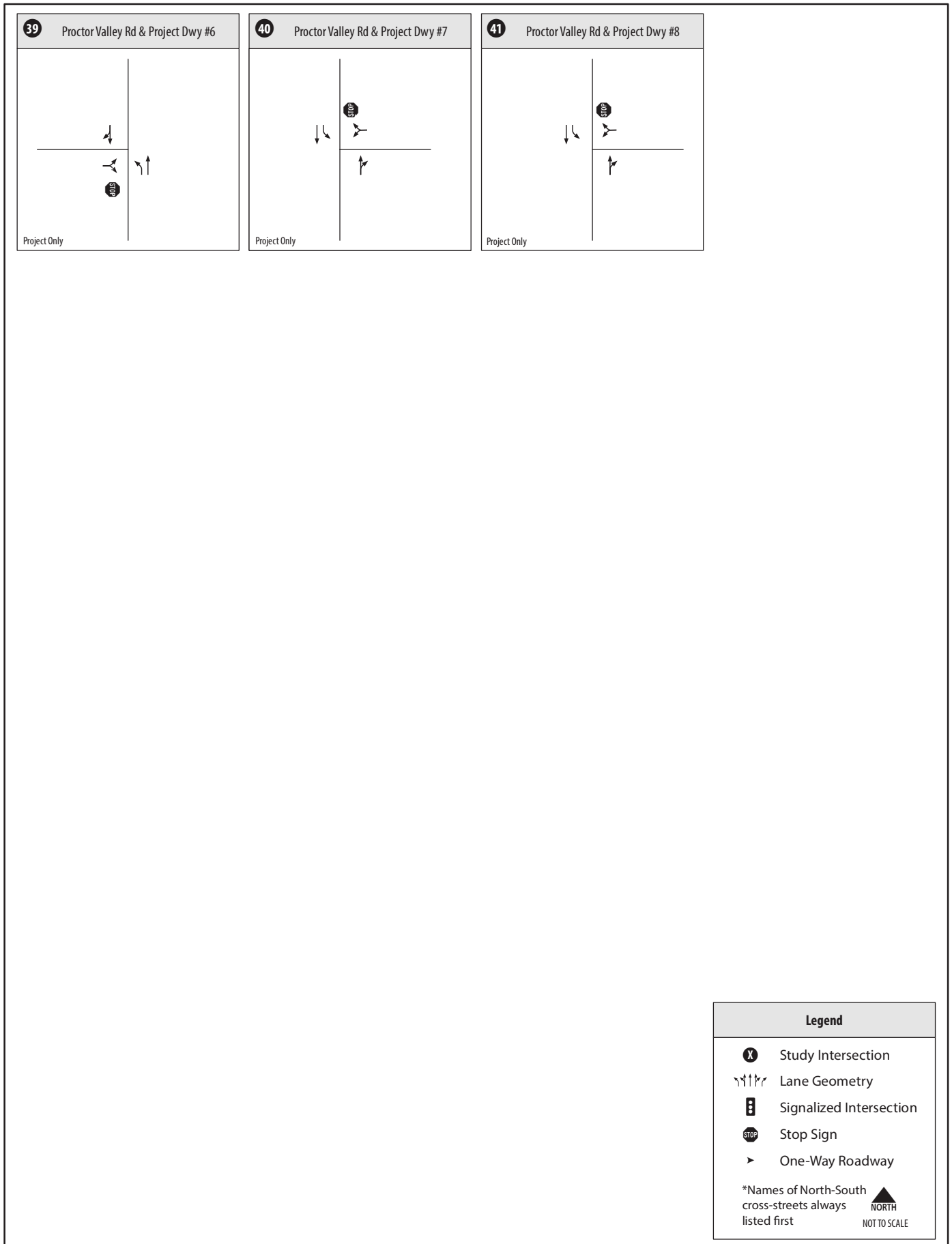


Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 3-2
Roadway Geometry - Existing Conditions







Eastlake Parkway – Eastlake Parkway is a 4-lane roadway with a landscaped raised median and a 40 mph posted speed limit between Miller Drive and Corte Vista. It then transitions into a 6-lane roadway with a landscaped raised median and posted speed limits of 40 and 50 mph between Corte Vista and Olympic Parkway, and between Olympic Parkway and Hunte Parkway, respectively. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Eastlake Parkway is currently classified as a 4-lane Major Arterial between Miller Drive and Corte Vista, a 6-lane Prime Arterial between Corte Vista and Olympic Parkway, and as a 6-Lane Major Arterial between Olympic Parkway and Hunte Parkway in the Chula Vista General Plan Circulation Element.

Lane Avenue – Lane Avenue is a 4-lane roadway with a painted median and a 40 mph posted speed limit between Proctor Valley Road and Boswell Road, and then it transitions into a 4-lane roadway with a continuous left-turn-lane median and a 35 mph posted speed limit between Boswell Road and Otay Lakes Road. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Lane Avenue is classified as a 4-lane Collector in the City of Chula Vista General Plan Circulation Element.

Hunte Parkway – Hunte Parkway is a 4-lane roadway with a landscaped raised median and a 45 mph posted speed limit between Proctor Valley Road and Olympic Parkway. Hunte Parkway transitions into a 6-lane roadway with a landscaped raised median and a 50 mph posted speed limit between Olympic Parkway and its current southern terminus. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Hunte Parkway is classified in the City of Chula Vista General Plan Circulation Element as a 4-lane Major Street between Proctor Valley Road and Olympic Parkway, and a 6-lane Prime Arterial south of Olympic Parkway.

Northwoods Drive – Northwoods Drive is a 2-lane roadway with a raised median and no posted speed limit signs present between Proctor Valley Road and Blue Ridge Drive. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Northwoods Drive is not classified as a circulation element roadway in the Chula Vista General Plan Circulation Element.

Mountain Miguel Road – Mountain Miguel Road is a 4-lane roadway with a landscaped raised median and a 40 mph posted speed limit between Proctor Valley Road/East H Street and Plaza Palmera. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. San Miguel Ranch Road is classified as a Class I Collector in the Chula Vista General Plan Circulation Element.

Paseo Del Rey – Paseo Del Rey is a 4-lane roadway with a continuous-left-turn-lane median and a 35 mph posted speed limit between East H Street and East J Street. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. A continuous barrier (guard rail) to protect pedestrians from vehicular traffic is present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Paseo Del Rey is classified as a Class I Collector in the Chula Vista General Plan Circulation Element.

Heritage Road – Heritage Road is a 6-lane roadway with a landscaped raised median and a 40 mph posted speed limit between Telegraph Canyon Road and Olympic Parkway. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Heritage Road is classified as a 6-lane Prime Arterial between Telegraph Canyon Road and Olympic Parkway in the Chula Vista General Plan Circulation Element.

La Media Road – La Media Road is a 6-lane roadway with a landscaped raised median and a 45 mph posted speed limit between Telegraph Canyon Road/Otay Lakes Road and East Palomar Street. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. La Media Road is classified as a 6-lane Prime Arterial in the Chula Vista General Plan Circulation Element.

Old Trail Drive - Old Trail Drive is a 2-lane undivided residential roadway between North Trail Court and Proctor Valley Road in the City of Chula Vista. There are no posted speed limit signs along the entire extent of Old Trail Drive. Sidewalks are present on both sides of the roadway but bicycle facilities are not. Parking is permitted on both sides of the roadway.

East/West Facilities

Proctor Valley Road – Proctor Valley Road is a 6-lane roadway with a landscaped raised median and a 45 mph posted speed limit in the City of Chula Vista. Meandering pedestrian facilities (sidewalks) as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Proctor Valley Road is classified as a 6-lane Prime Arterial between SR-125 and Hunte Parkway, and as a 4-lane Major Road between Hunte Parkway and the City's eastern border with the County of San Diego.

East H Street – East H Street is a 4-lane roadway between Hilltop Drive and the I-805 SB Ramps, a 5-lane roadway between the I-805 ramps, a 7-lane roadway with 50 mph posted speed limit between the I-805 NB Ramps and Terra Nova Drive, a 6-lane roadway between Terra Nova and Otay Lakes Road, and a 4-lane roadway between Otay Lakes Road and the SR-125 ramps. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway except on the roadway segment between Hilltop Drive and the I-805 ramps, where no bicycle facilities are present on either side. Parking is prohibited on both sides of the roadway. East H Street is classified as a 6-lane Gateway Street between Hilltop Drive and the I-805 SB ramps, as a 6-lane Prime Arterial between the I-805 NB Ramps and Otay Lakes Road, and as a 4-Lane Major Arterial between Otay Lakes Road and the SR-125 SB ramps in the Chula Vista General Plan Circulation Element.

San Miguel Ranch Road – San Miguel Ranch Road is a 4-lane roadway with a landscaped raised median and a 40 mph posted speed limit between Proctor Valley Road and Plaza Palmera. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. San Miguel Ranch Road is classified as a Class I Collector in the Chula Vista General Plan Circulation Element.

Telegraph Canyon Road – Telegraph Canyon Road is a 7-lane roadway between I-805 and Oleander Avenue with a 40 mph posted speed limit, and a 6-lane roadway with a landscaped raised median between Oleander Avenue and Otay Lakes Road with a 45 mph posted speed limit. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Telegraph Canyon Road is classified in the Chula Vista General Plan Circulation Element as a 7-lane Expressway between I-805 and Oleander Avenue, and a 6-lane Prime Arterial between Oleander Avenue and Otay Lakes Road.

Otay Lakes Road – Otay Lakes Road is a 6-lane roadway with a landscaped raised median and a posted speed limit of 50 mph between Telegraph Canyon Road and the eastern boundary of Chula Vista, just east of Wueste Road. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Otay Lakes Road is classified as a 6-lane Prime Arterial, with the exception of the segment between I-805 and Eastlake Parkway, which is classified as a 7-lane Expressway in the Chula Vista General Plan Circulation Element.

Olympic Parkway – Olympic Parkway between La Media Road and Hunte Parkway is a 6-lane roadway with a raised median, with the exception of the segment between the SR-125 NB Ramps and Eastlake Parkway, which is an 8-lane roadway with a raised median. Between Hunte Parkway and Wueste Drive, Olympic Parkway narrows to a 4-lane roadway with a raised median. Sidewalk as well as Class II bicycle facilities are present on both sides of the roadway. Parking is prohibited on both sides of the roadway. Olympic Parkway is classified as a 6-lane Prime Arterial between I-805 and the SR-125, an 8-lane Expressway between SR-125 and Eastlake Parkway, a 6-lane Prime Arterial between Eastlake Parkway and Hunte Parkway, and a 4-lane Major Street between Hunte Parkway and Wueste Road.

3.1.4 Freeway and State Highway Facilities

Four (4) Caltrans freeway and state highway facilities traverse the study area, as follows:

I-805 – I-805 ranges from 8-lanes to 10-lanes within the study area, between Home Avenue and SR-905. Construction of two new High Occupancy Vehicle (HOV) lanes on I-805, between Home Avenue and East Palomar Street, has been recently completed.

SR-125 – SR-125 is a 4-lane state highway between East H Street and SR-905. It will operate as a toll road through the Year 2035. However, SANDAG has recently purchased this facility and could potentially convert this facility to a freeway sooner than the Year 2035.

SR-94 – Within the project study area, SR-94 is a 2-lane state highway between Lyons Valley Road and the community of Tecate. There are currently no improvements planned by Caltrans to the portions of SR-94 located within the study area. However, the Jumal Indian Village Environmental Evaluation has identified several capacity enhancing improvements that they will implement along key study segments of SR-94. Caltrans is also proposing to implement several operational improvements along the study area segment of the SR-94 corridor. Implementation of these improvements is anticipated to begin in early 2016.

SR-54 – SR-54 is 6-lanes within the study area between I-805 and SR-125, with HOV lanes between Briarwood Road and SR-125.

3.2 Existing Intersection and Roadway Volumes

Figure 3-4 and **Figure 3-5** show the existing ADT volumes for study area roadway segments and the AM/PM peak hour traffic volumes for the study area intersections, respectively. The study area roadway segment and intersection traffic counts were conducted in April 2014 and from March to June 2015. Count worksheets are provided in **Appendix A**.

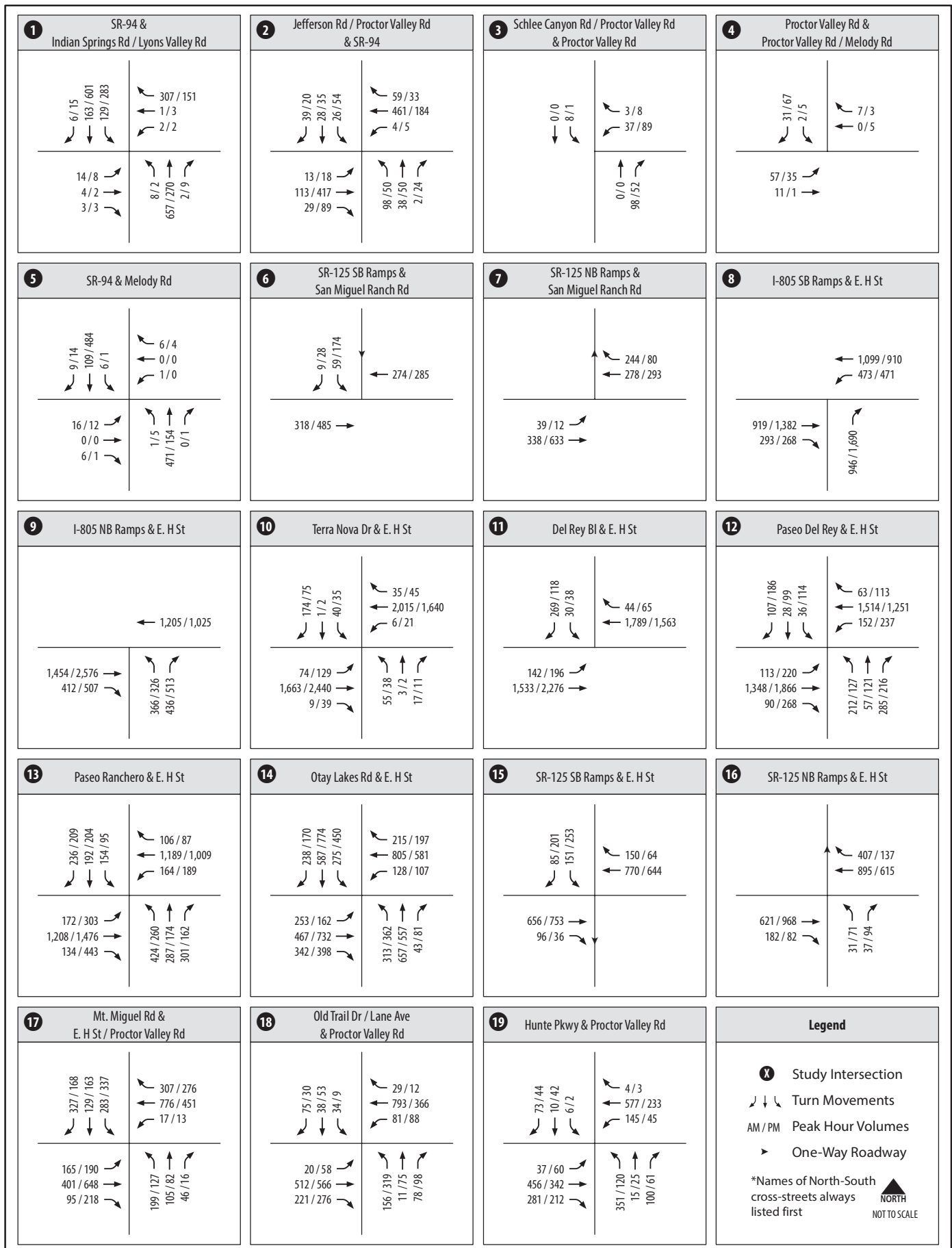
3.3 Existing Conditions Traffic Operations Analysis

Level of service analyses under Existing conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway segment, and freeway mainline level of service, as well as freeway ramp intersection ILV analysis results, are discussed separately below.

3.3.1 Intersection Analysis

Table 3.1 displays intersection level of service and average vehicle delay results for the study area intersections under Existing conditions. All intersections are signalized unless otherwise noted. Level of service calculation worksheets for Existing conditions are provided in **Appendix B**.

As shown, all study area intersections currently operate at LOS D or better, with the exception of the SR-94 / Lyons Valley Road intersection, which operates at LOS F during both the AM and PM peak hours.



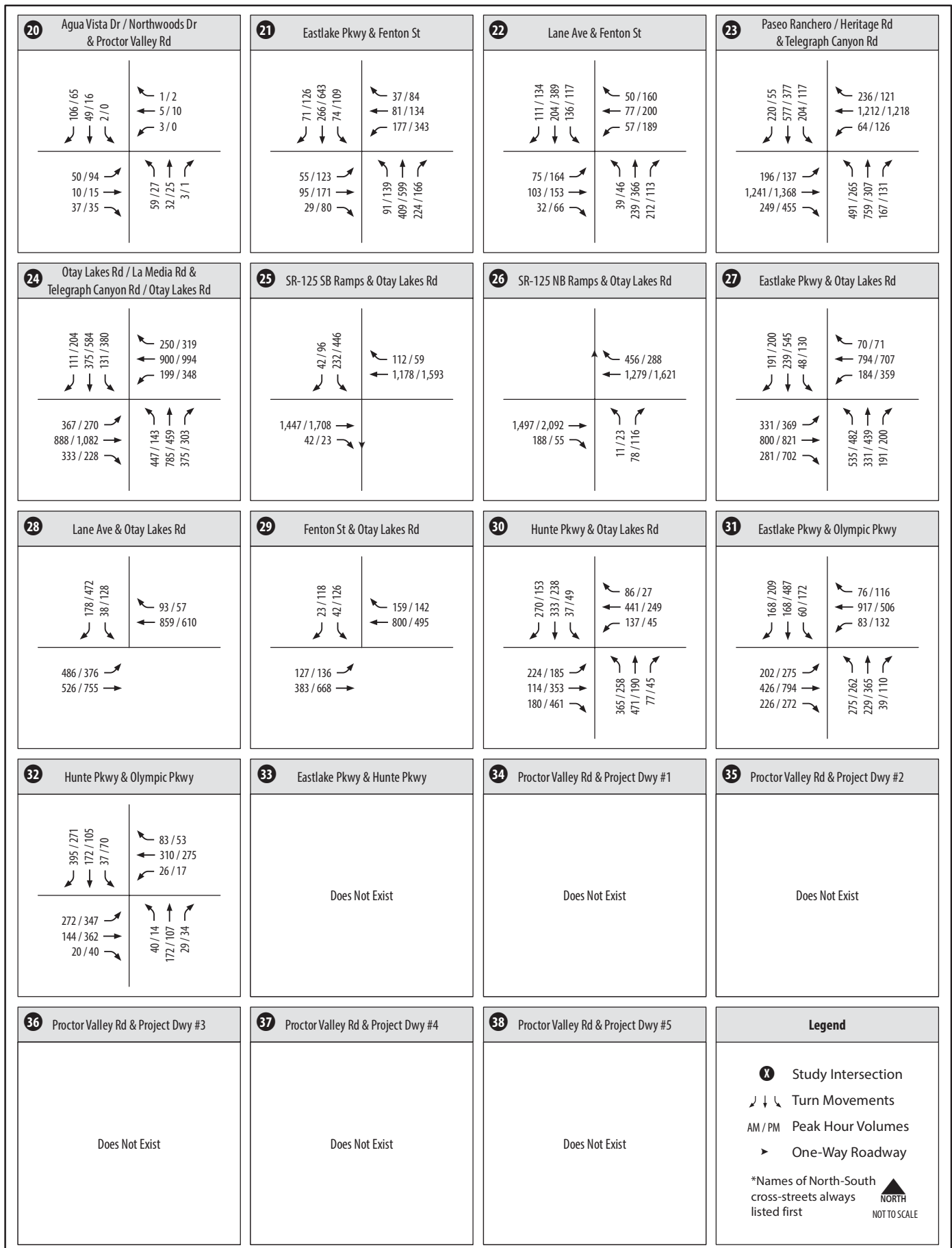




Figure 3-5

Otay Ranch Village 14 and PA 16/19 -
Land Exchange EIR Alternative Transportation Impact Study
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Peak Hour Intersection Traffic Volumes - Existing Conditions (Intersections 39-42)

Table 3.1 Peak Hour Intersection LOS Results - Existing Conditions

#	Intersection	Control	Jurisdiction	AM Peak Hour		PM Peak Hour	
				Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1	SR-94 & Lyons Valley Road	SSSC	Caltrans	81.5	F	79.7	F
2	Proctor Valley Road/Jefferson Road & SR-94	Signal	County	10.6	B	10.0	B
3	Proctor Valley Road & Maxfield Road	SSSC	County	9.0	A	9.0	A
4	Proctor Valley Road & Melody Road	SSSC	County	8.4	A	8.4	A
5	SR-94 & Melody Road	SSSC	Caltrans	13.6	B	18.1	C
6	San Miguel Ranch Road & SR-125 SB Ramps	Signal	Caltrans	21.7	C	18.8	B
7	San Miguel Ranch Road & SR-125 NB Ramp	Signal	Caltrans	16.7	B	13.3	B
8	I-805 SB Ramp & East H Street	Signal	Caltrans	7.8	A	9.7	A
9	I-805 NB Ramp & East H Street	Signal	Caltrans	9.8	A	11.4	B
10	Terra Nova Drive & East H Street	Signal	Chula Vista	13.0	B	11.0	B
11	East H Street & Del Rey Boulevard	Signal	Chula Vista	11.1	B	8.5	A
12	Paseo Del Rey & East H Street	Signal	Chula Vista	19.9	B	25.7	C
13	Paseo Ranchero & East H Street	Signal	Chula Vista	50.8	D	42.6	D
14	Otay Lakes Road & East H Street	Signal	Chula Vista	37.2	D	29.2	C
15	SR-125 SB Ramp & East H Street	Signal	Caltrans	5.0	A	6.1	A
16	SR-125 NB Ramp & East H Street	Signal	Caltrans	3.4	A	4.0	A
17	Mt Miguel Road & East H Street	Signal	Chula Vista	23.7	C	20.3	C
18	Lane Avenue & East H Street	Signal	Chula Vista	16.8	B	23.0	C
19	Hunte Parkway & East H Street	Signal	Chula Vista	18.9	B	13.6	B
20	Aqua Vista & East H Street	AWSC	Chula Vista	8.6	A	8.4	A
21	Eastlake Parkway & Fenton Street	Signal	Chula Vista	18.2	B	31.4	C
22	Lane Avenue & Fenton Street	Signal	Chula Vista	17.8	B	24.9	C
23	Heritage Road/Paseo Ranchero & Telegraph Canyon Road	Signal	Chula Vista	45.4	D	24.9	C
24	La media Road & Telegraph Canyon Road / Otay Lake Road	Signal	Chula Vista	27.1	C	26.8	C
25	SR-125 SB Ramps & Otay Lakes Road	Signal	Caltrans	9.6	A	10.9	B
26	SR-125 NB Ramps & Otay Lakes Road	Signal	Caltrans	8.4	A	8.8	A
27	Eastlake Parkway & Otay Lakes Road	Signal	Chula Vista	31.9	C	32.6	C
28	Lane Avenue & Otay Lakes Road	Signal	Chula Vista	11.3	B	25.4	C
29	Fenton Street & Otay Lakes Road	Signal	Chula Vista	8.8	A	9.0	A
30	Hunte Parkway & Otay Lakes Road	Signal	Chula Vista	23.1	C	17.2	B
31	Eastlake Parkway & Olympic Parkway	Signal	Chula Vista	17.0	B	19.7	B
32	Hunte Parkway & Olympic Parkway	Signal	Chula Vista	15.8	B	13.9	B
33	Eastlake Parkway & Hunte Parkway	Signal	Chula Vista	Does Not Exist			

Source: NDS, Chen Ryan Associates; August 2015

Notes:

AWSC: All-way stop controlled intersection.

SSSC: Side-Street stop controlled intersection, the delay shown is the worst delay experienced by any of the approaches.

Bold indicates LOS E or F.

3.3.2 Roadway Segment Analysis

Table 3.2a displays the level of service analysis results for the study area roadway segments located within the County of San Diego under Existing conditions.

Table 3.2a Roadway Segment LOS Results – Existing Conditions – County of San Diego

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS D)	LOS
Proctor Valley Rd	City of Chula Vista Boundary to Melody Rd	2-Ln	198	8,700	A
	Melody Rd to Schlee Canyon Rd	2-Ln	1,724	8,700	B
	Schlee Canyon Rd to Maxfield Rd	2-Ln	2,093	8,700	B
	Maxfield Rd to SR-94	2-Ln	2,490	8,700	B
Melody Rd	Proctor Valley Rd to SR-94	2-Ln	259	8,700	A
Jefferson Rd	SR-94 to Olive Vista Dr	2-Ln	2,210	8,700	B
Lyons Valley Rd	SR-94 to Olive Vista Dr	2-Ln	6,191	8,700	B

Source: NDS, Chen Ryan Associates; August 2015

As shown, all study area roadway segments within the County of San Diego currently operate at LOS B or better.

Table 3.2b displays the LOS analysis results for study area roadway segments within the City of Chula Vista under Existing conditions.

Table 3.2b Roadway Segment LOS Results – Existing Conditions – City of Chula Vista

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS
San Miguel Ranch Rd	Proctor Valley Rd to SR-125 SB Ramp	4-Ln w/ RM	8,329	22,000	A
	SR-125 SB Ramp to SR-125 NB Ramp	4-Ln w/ RM	9,464	22,000	A
San Miguel Ranch / Mt Miguel Rd	SR-125 NB Ramp to Proctor Valley Rd	4-Ln w/ RM	10,118	22,000	A
Mt Miguel Rd	Proctor Valley Rd to Mackenzie Creek Rd	4-Ln w/ CLTL	5,053	22,000	A
H St	I-805 SB Ramps to I-805 NB Ramps	6-Ln w/ RM	52,190	50,000	D
	I-805 NB Ramps to Terra Nova Dr	7-Ln w/ RM	52,289	70,000	A
	Terra Nova Dr to Del Rey Blvd	6-Ln w/ RM	49,948	50,000	C
	Del Rey Blvd to Paseo Del Rey	6-Ln w/ RM	47,324	50,000	C
	Paseo Del Rey to Paseo Ranchero	6-Ln w/ RM	44,733	50,000	C
	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	37,457	50,000	A
	Otay Lakes Rd to SR-125 SB Ramps	4-Ln w/ RM	24,424	30,000	B
Proctor Valley Rd	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	20,142	50,000	A
	SR-125 NB Ramps to Mt Miguel Rd	6-Ln w/ RM	21,699	50,000	A

Table 3.2b Roadway Segment LOS Results – Existing Conditions – City of Chula Vista

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS
Proctor Valley Rd	Mt Miguel Rd to Lane Ave	6-Ln w/ RM	19,956	50,000	A
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	14,155	50,000	A
	Hunte Pkwy to Northwood Dr	4-Ln w/ RM	5,755	30,000	A
	Northwoods Dr to County of San Diego Boundary	2-Ln w/ RM	198	12,000	A
Telegraph Canyon Rd	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	35,495	50,000	A
Otay Lakes Rd	Ridgeback Rd to E. H St	6-Ln w/ RM	26,241	50,000	A
	E. H St to Otay Lakes Rd	6-Ln w/ RM	28,912	50,000	A
	Telegraph Canyon to SR-125 SB Ramps	6-Ln w/ RM	41,931	50,000	B
	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	46,406	50,000	C
	SR-125 NB Ramps to Eastlake Pkwy	6-Ln w/ RM	40,291	50,000	B
	Eastlake Pkwy to Lane Ave	6-Ln w/ RM	26,054	50,000	A
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	18,832	50,000	A
	Hunte Pkwy to Woods Dr	6-Ln w/ RM	9,672	50,000	A
Olympic Pkwy	SR-125 NB Ramps to Eastlake Pkwy	8-Ln w/ RM	43,506	70,000	A
	Eastlake Pkwy to Hunte Pkwy	6-Ln w/ RM	16,289	50,000	A
	Hunte Pkwy to Olympic Vista Rd	4-Ln w/ RM	9,936	30,000	A
Paseo Del Rey	E. H St to E. J St	4-Ln w/ CLTL	11,356	22,000	A
Heritage Rd	Telegraph Canyon Rd to E. Palomar St	6-Ln w/ RM	21,087	50,000	A
La Media Rd	Otay Lakes Rd to E. Palomar St	6-Ln w/ RM	26,420	50,000	A
Eastlake Pkwy	Miller Rd to Otay Lakes Rd	4-Ln w/ RM	24,124	30,000	B
	Otay Lakes Rd to Olympic Pkwy	6-Ln w/ RM	29,836	50,000	A
	Olympic Pkwy to Hunte Pkwy	6-Ln w/ RM	17,751	40,000	A
Old Trail Dr	N Trail Ct to Proctor Valley Rd	2-Ln	2,790	7,500	A
Lane Ave	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ SM	10,804	22,000	A
Hunte Pkwy	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ RM	6,269	30,000	A
	Otay Lakes Rd to Olympic Pkwy	4-Ln w/ RM	10,897	30,000	A
	Olympic Pkwy to Eastlake Pkwy	6-Ln w/ RM	2,015	50,000	A
Northwoods Dr	Proctor Valley Rd to Blue Ridge Dr	2-Ln	1,433	7,500	A

Source: NDS, Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS D, E or F.

As shown, all study area roadway segments within the City of Chula Vista currently operate at LOS C or better, with the exception of East H Street, between the I-805 SB Ramps and the I-805 NB Ramps (LOS D).

3.3.3 Two-Lane Highway Segment Analysis

Table 3.3 displays two-lane highway level of service analysis results for SR-94 under Existing conditions. This analysis was performed using the County of San Diego methodologies as described in Chapter 2.0.

Table 3.3 Two-Lane Highway Segment LOS Results – Existing Conditions

Highway	Segment	LOS Threshold (LOS D)	ADT	LOS
SR-94	Vista Sage Ln to Lyons Valley Rd	16,200	17,125	E
	Lyons Valley Rd to Jefferson Rd		10,776	D or better
	Jefferson Rd to Maxfield Rd		9,049	D or better
	Maxfield Rd to Melody Rd		8,024	D or better
	Melody Rd to Otay Lakes Rd		6,945	D or better

Source: NDS, Chen Ryan Associates, August 2015

As shown, all study area two-lane highway segments within the County of San Diego currently operate at LOS D or better, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, which operates at LOS E.

3.3.4 Freeway Mainline Analysis

Table 3.4 displays freeway level of service analysis results for the study area freeway mainline facilities under Existing conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodology presented in Section 2.2.5.

Table 3.4 Freeway/State Highway Segment LOS Results – Existing Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS
I-805	Home Ave to SR-94	220,000	7.9%	17,292	0.58	4M	0.95	6.0%	2,813	1.172	F
	SR-94 to Market St	219,000	8.0%	17,586	0.60	4M	0.95	6.0%	2,943	1.226	F
	Market St to Imperial Ave	227,000	8.0%	18,228	0.60	4M + 1 HOV + 1 Aux	0.95	6.0%	2,440	1.017	F
	Imperial Ave to E Division St	209,000	8.0%	16,783	0.60	5M + 1 HOV	0.95	6.0%	2,042	0.851	D
	E Division St to Plaza Blvd	198,000	8.0%	15,919	0.60	5M + 1 HOV + 1 Aux	0.95	6.0%	1,793	0.747	D
	Plaza Blvd to SR-54	206,000	8.0%	16,562	0.60	5M + 1 HOV	0.95	6.0%	2,035	0.848	D
	SR-54 to Bonita Rd	262,000	8.0%	20,986	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	2,702	1.126	F
	Bonita Rd to East H St	207,000	8.0%	16,581	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	2,135	0.889	D
	East H St to Telegraph Canyon Rd	192,000	8.0%	15,379	0.57	5M + 1 HOV	0.95	7.3%	1,800	0.750	D
SR-125	SR-94 Junction to Jamacha Rd	112,000	8.8%	9,811	0.56	3M	0.95	4.4%	2,004	0.835	D
	Jamacha Rd to Paradise Valley Rd	93,000	8.8%	8,147	0.56	3M	0.95	4.4%	1,664	0.693	C

Table 3.4 Freeway/State Highway Segment LOS Results – Existing Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS
SR-125	Paradise Valley Rd to SR-54 Junction	99,000	8.8%	8,672	0.56	3M + 1 HOV	0.95	4.4%	1,518	0.633	C
	SR-54 to Mt. Miguel Rd	17,500	7.0%	1,225	0.59	2M	0.95	1.9%	388	0.162	A
	Mt. Miguel Rd to Proctor Valley Rd	16,300	7.0%	1,141	0.59	2M	0.95	1.9%	361	0.150	A
	Proctor Valley Rd to Otay Lakes Rd	12,600	7.0%	882	0.59	2M	0.95	1.9%	279	0.116	A
	Otay Lakes Rd to Olympic Pkwy	4,700	7.0%	329	0.59	2M	0.95	1.9%	104	0.043	A
	Olympic Pkwy to Birch Rd	4,300	7.0%	301	0.59	2M	0.95	1.9%	95	0.040	A
	Birch Rd to Main St	4,600	7.0%	322	0.59	2M	0.95	1.9%	102	0.042	A
	Main St to Otay Valley Rd	4,600	7.0%	322	0.59	2M	0.95	1.9%	102	0.042	A
	Otay Valley Rd to Lone Star Rd	4,600	7.0%	322	0.59	2M	0.95	1.9%	102	0.042	A
	Lone Star Rd to Otay Mesa Rd	4,600	7.0%	322	0.59	2M	0.95	1.9%	102	0.042	A
SR-54	I-805 to Reo Dr/Plaza Bonita Center Wy	118,000	8.2%	9,711	0.58	3M	0.95	1.9%	2,005	0.836	D
	Reo Dr/Plaza Bonita Center Wy to Woodman St	118,000	8.3%	9,818	0.55	3M	0.95	1.9%	1,936	0.806	D
SR-54	Woodman St to Briarwood Rd	106,000	8.3%	8,766	0.55	3M	0.95	1.9%	1,728	0.720	C
	Briarwood Rd to SR-125 Junction	98,000	8.5%	8,281	0.52	3M + 1 HOV	0.95	1.9%	1,313	0.547	C

Source: Chen Ryan Associates; August 2015

Notes:

K = Percent of Traffic during the peak hour.

HVF = Percent of heavy vehicles.

M = Mainline lane.

Aux = Auxiliary lane.

D = Directional split.

PHF = Peak Hour Factor

HOV = High Occupancy Vehicle Lane

Bold Indicates E or F.

As shown, all study area freeway segments currently operate at LOS D or better with the exception of the following segments:

- I-805, between Home Avenue and SR-94 (LOS F);
- I-805, between SR-94 and Market Street (LOS F);
- I-805, between Market Street and Imperial Avenue (LOS F); and
- I-805, between SR-54 and Bonita Road (LOS F).

3.3.5 Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized ramp intersections within the project study area were analyzed using ILV procedures, as described in Section 2.6. ILV analysis results are displayed in **Table 3.5** and analysis worksheets for Existing conditions are provided in **Appendix B**.

Table 3.5 Ramp Intersection Capacity Analysis – Existing Conditions

Intersection	Peak Hour	ILV/hour	Capacity
SR-125 SB / Mt. Miguel	AM	218	Under Capacity
	PM	417	Under Capacity
SR-125 NB / Mt. Miguel	AM	300	Under Capacity
	PM	317	Under Capacity
I-805 SB / H Street	AM	1,350	At Capacity
	PM	1,866	Over Capacity
I-805 NB / H Street	AM	870	Under Capacity
	PM	792	Under Capacity
SR-125 SB / H Street	AM	470	Under Capacity
	PM	523	Under Capacity
SR-125 NB / H Street	AM	329	Under Capacity
	PM	276	Under Capacity
SR-125 SB / Mt. Miguel	AM	598	Under Capacity
	PM	792	Under Capacity
SR-125 NB / Otay Lakes Road	AM	538	Under Capacity
	PM	755	Under Capacity

Source: Chen Ryan Associates; August 2015

As shown, all study area freeway ramp intersections are currently operating either at or under capacity, with the exception of I-805 SB / H Street during the PM peak hour, which is currently over capacity.

3.3.6 Ramp Meter Analysis

Table 3.6 displays the ramp metering analysis conducted at study area freeway ramps under Existing conditions. Existing ramp meter rates were obtained from Caltrans. Ramp meter excess demand, delay and queuing results were calculated using the methodologies outlined in Section 2.7.

Table 3.6 Ramp Metering Analysis – Existing Conditions

Location	Peak Hour	Peak Hour Volume	Meter Rate ¹	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)
I-805 NB On-Ramp @ WB H Street	AM	665	934	0	0	0
I-805 NB On-Ramp @ EB H Street	AM	330	369	0	0	0

Source: Chen Ryan Associates; August 2015

Notes:

1. Meter Rate is the peak hour capacity expected to be processed through the ramp meter (veh/hr).
This value was obtained from Caltrans.
2. Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater (veh/hr).
3. Delay = (Excess Demand / Meter Rate) X 60 min/hr.
4. Queue = (Excess Demand) X 29 ft/veh.

As shown, the current peak hour ramp volumes do not exceed the current ramp meter rates at both study area on-ramps that are metered.

4.0 Land Exchange Alternative

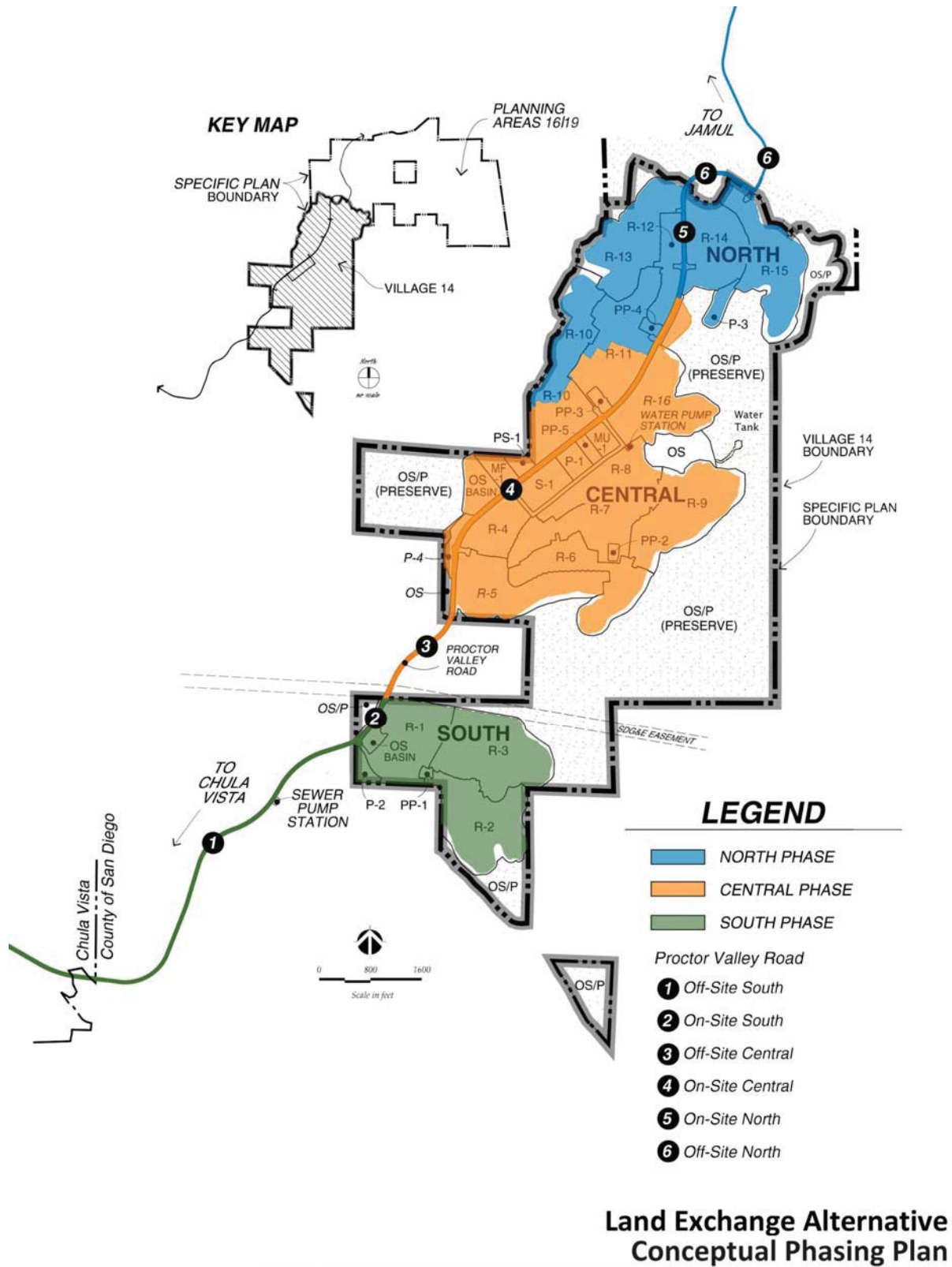
This section describes the Land Exchange Alternative, including land uses and estimated trip generation.

4.1 Project Description

The Land Exchange Alternative is located along Proctor Valley Road north of the City of Chula Vista city limits in the Jamul Community Planning Area of the unincorporated County of San Diego. The Land Exchange Alternative will be comprised of 1,124 single family dwelling units, 54 mixed use multi-family units, 69 townhomes, and 283 senior housing units, 15,000 square feet of neighborhood commercial, 13.5 acres of public parks, an 8-acre elementary school, 5.6 acres of community purpose facilities and a fire station. All neighborhoods within the Land Exchange Alternative will take access via Proctor Valley Road.

4.2 Project Phasing

The Proposed Project will be constructed in the following three (3) separate phases (Southern Village, Central Village, Northern Village). However, it should be noted that these phases represent different sub-areas within the project site and do not necessarily correlate to the timing of the project development. As shown in the Project Construction Timeline, included in **Appendix E**, the development of the various project phases/areas overlap throughout project construction process, making it so there are no distinct construction timing phases. Instead, project construction will be continuous throughout multiple areas of the project site between the years 2021 through 2026. Since the project phases are area based and not timing based, no phased project analysis was conducted. Instead an interim year (Year 2025) was analyzed to identify the project related impacts that may occur as the project is developed and impact triggers are defined based on the number of units that could be developed by the Proposed Project prior to the impact occurring.



October 2015

4.3 Project Trip Generation

Trip generation rates for the Land Exchange Alternative were developed utilizing SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002) (SANDAG Trip Generation Manual). **Table 4.1** displays daily, as well as AM and PM peak hour, project trip generation.

Table 4.1 Project Trip Generation - Buildout

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	1,132	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	8 Acres	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
<i>Sub-Total</i>			15,815		1,452		552	900		1,550		1,017	533
Internal Capture ¹	-12%		-1,898		174		66	108		186		122	64
External Total			13,917		1278		486	792		1,364		895	469

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; August 2015

Note:

- Each trip generation rate includes a number of trip purposes, generally categorized as home-based work (HBW); home-based other (HBO), consisting of shopping, school, recreation; and non-home-based (NHB) trips. For developments with mixed land uses, many of the trips generated are served on-site. For example, shopping trips (reflected by HBO trips) would be satisfied by the commercial uses within the project site, as would school trips and recreational trips. The same logic would apply to the trip production/attraction interactions between office and commercial uses. It is a common practice, both nationwide and in the San Diego region, to allow for trip reductions reflecting the internal capture of trips associated with mixed-use developments resulting from the fact that complementary land uses (i.e. residential and commercial) help to serve each other's needs on-site. A SANDAG Series 11 Select Zone Assignment was used to determine the percent of project trips that would stay internal within the project site (internal capture). The Select Zone Assignment results are provided in **Appendix C**.

As shown, the Land Exchange Alternative is anticipated to generate a total of 13,917 daily trips, including 1,278 (486-in / 892-out) AM peak hour trips and 1,364 (895-in / 469-out) PM peak hour trips under buildout conditions.

In deriving the Project's trip generation, it is necessary to consider that the Land Exchange Alternative includes residential, commercial, school, and recreational uses and, as a result, not all trips generated by the Project would leave the project site given the nature of the project land uses. For example, certain

shopping trips would be satisfied by the commercial uses that would be located within the Project site, as would school trips and many recreational trips. Estimates for internal versus external trip generation percentages were developed based upon likely origins/destinations of each land use type. Project trips were disaggregated into those that would remain within the project site (internally captured), and those that would leave the project site (external trips). Only external trips were distributed and assigned to the study area roadways.

To determine the rate of internal trip capture, a SANDAG Select Zone Assignment was conducted. The Select Zone Assignment aggregates all project land uses into one Traffic Analysis Zone (TAZ), and assigns the trips to the transportation network. The model estimates the percent of trips that will be internally captured. The Select Zone Assignment for the Land Exchange Alternative estimated that 12% of daily trips would be internally captured within the Land Exchange Alternative's boundary. Therefore, a 12% reduction was applied to the total project trip generation, resulting in 88% of Project traffic leaving the project site for distribution on the external (i.e., off-site) roads.

4.4 Project Trip Distribution and Assignment

The Land Exchange Alternative trip Select Zone Assignment described in the previous section was utilized to estimate how project trips would likely distribute across the study area roadway network. As to Proctor Valley Road, the paved portion of the road presently terminates east of the Northwoods Drive/Agua Vista Drive intersection within the city of Chula Vista. As part of the Land Exchange Alternative, Proctor Valley Road would be constructed (i.e., paved): (1) as a Light Collector with a Raised Median (2.2A) between its current eastern terminus point within the City of Chula Vista across the County boundary to Project Driveway #6; (2) as a Light Collector (2.2E) between Project Driveway #6 and Project Driveway #9; and (3) as a two-lane interim roadway (28 feet paved on a 40-foot right-of-way) between Project Driveway #9 and its current western terminus point located in the community of Jamul. Therefore, for purposes of the analysis, Proctor Valley Road was analyzed as a two-lane facility with a speed limit of 35 mph (2.2A) south of the Land Exchange Alternative and as a Local Public Road with a 25 mph speed limit along its current alignment, to the north of the Land Exchange Alternative. The Select Zone Assignment results are provided in Appendix C.

Based on a review of the Select Zone Assignment project trip distribution and assignment results to the larger study area, some inaccuracies and anomalies were discovered, particularly within the Jamul Community Planning Area. Manual adjustments were therefore made to the Select Zone Assignment distribution and were documented in a memorandum entitled the *Proctor Valley Village 14 and Preserve - Project Vehicular Trip Distribution, March 9, 2015*, which was reviewed and approved by both the County of San Diego and City of Chula Vista and is included in **Appendix D**.

Since the anticipated development patterns (both land use and roadway network) in the areas around the Land Exchange Alternative site vary across the multiple analytical timeframes presented in this report, the Land Exchange Alternative trip distribution and assignment also vary for each analyzed future timeframe (Year 2025 and 2030 conditions). For that reason, Land Exchange Alternative trip distribution and assignment patterns are discussed and documented separately for each timeframe in their respective chapters.

5.0 Existing Plus Land Exchange Alternative

This section provides an analysis of existing traffic conditions with the addition of the Proposed Project. This section also describes the anticipated trip distribution and assignment for the Proposed Project under Existing Plus Project conditions.

5.1 Existing Plus Land Exchange Alternative Roadway Network and Traffic Volumes (All Facilities)

Roadway and intersection geometrics under Existing Plus Land Exchange Alternative conditions would be identical to the existing geometries displayed in Figure 3-2, with the addition of the following improvements that would be constructed by the Project:

- The Proposed Project will construct Proctor Valley Road as follows:
 - A Light Collector with a Raised Median (2.2A) between its current eastern terminus within the City of Chula Vista to Project Driveway 6;
 - A Light Collector between Project Driveway 6 and the Village 14 Boundary; and
 - As a two-lane interim roadway (28 feet paved on a 40-foot right-of-way) between the Village 14 Boundary and its current western terminus point located in the community of Jamul.
- The Proposed Project will extend Whispering Meadows Lane to the South, as a Rural Road, to provide a secondary access point for Planning Area 16.
- All Project Driveways and access points.

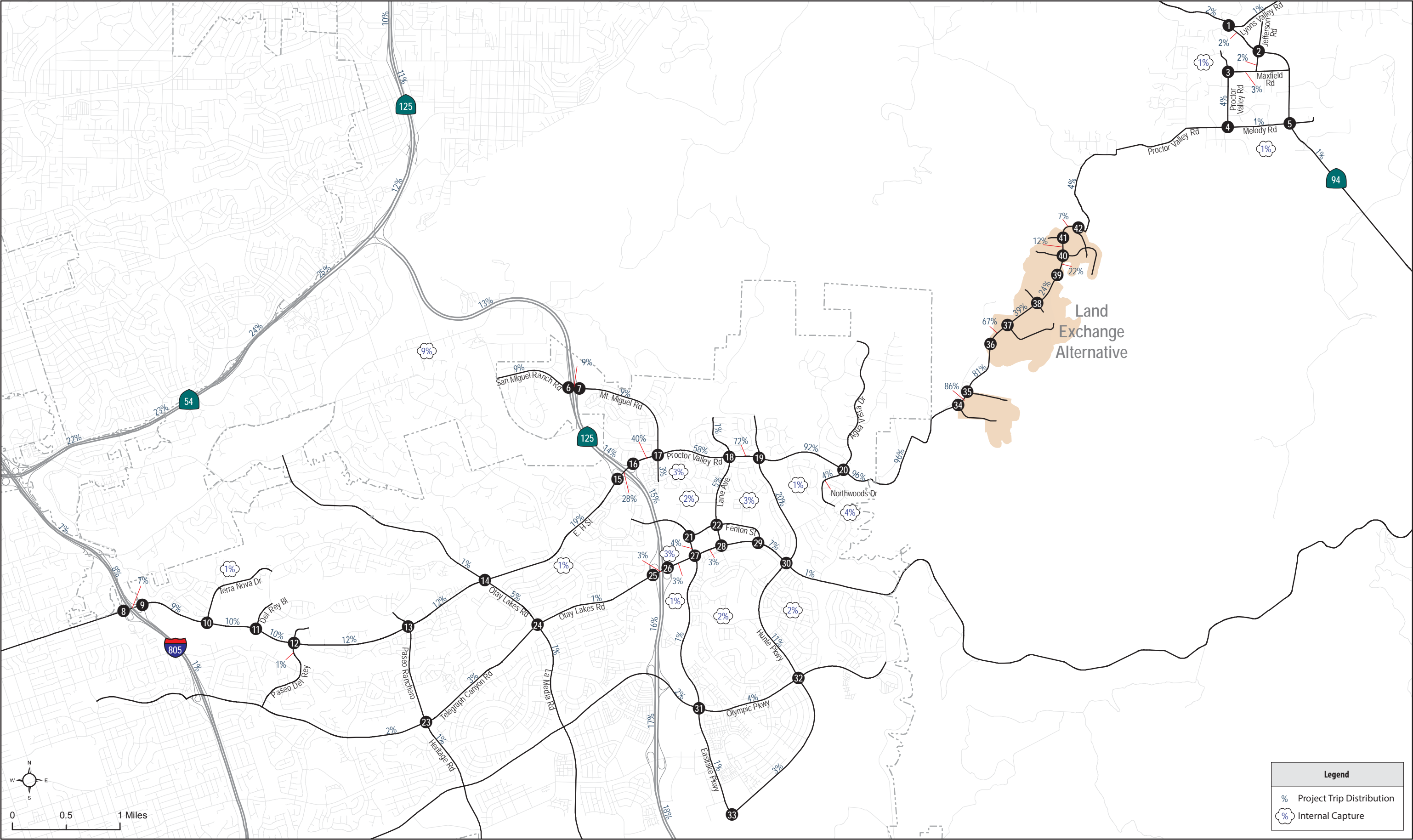
Project Buildout trip assignment was derived by assigning the project buildout trip generation estimates to the surrounding roadway network based on trip distribution patterns identified in Section 4.4 and displayed in **Figure 5-1**. **Figure 5-2** and **Figure 5-3** display the assumed Project Buildout trip assignment for study area roadways and intersections, respectively. Existing Plus Land Exchange Alternative traffic volumes were derived by adding the project trip assignment volumes to the existing traffic volumes (displayed in Figure 3-3). Existing Plus Land Exchange Alternative daily roadway and peak hour intersection volumes are displayed in **Figure 5-4** and **Figure 5-5**, respectively.

5.1.1 Existing Plus Land Exchange Alternative Conditions Traffic Operations Analysis

Analyses were conducted using the methodologies described in Chapter 2.0. Intersection, roadway segment, two-lane highway segment, and freeway mainline Level of Service analysis, as well as freeway ramp intersection ILV analysis results are discussed separately below.

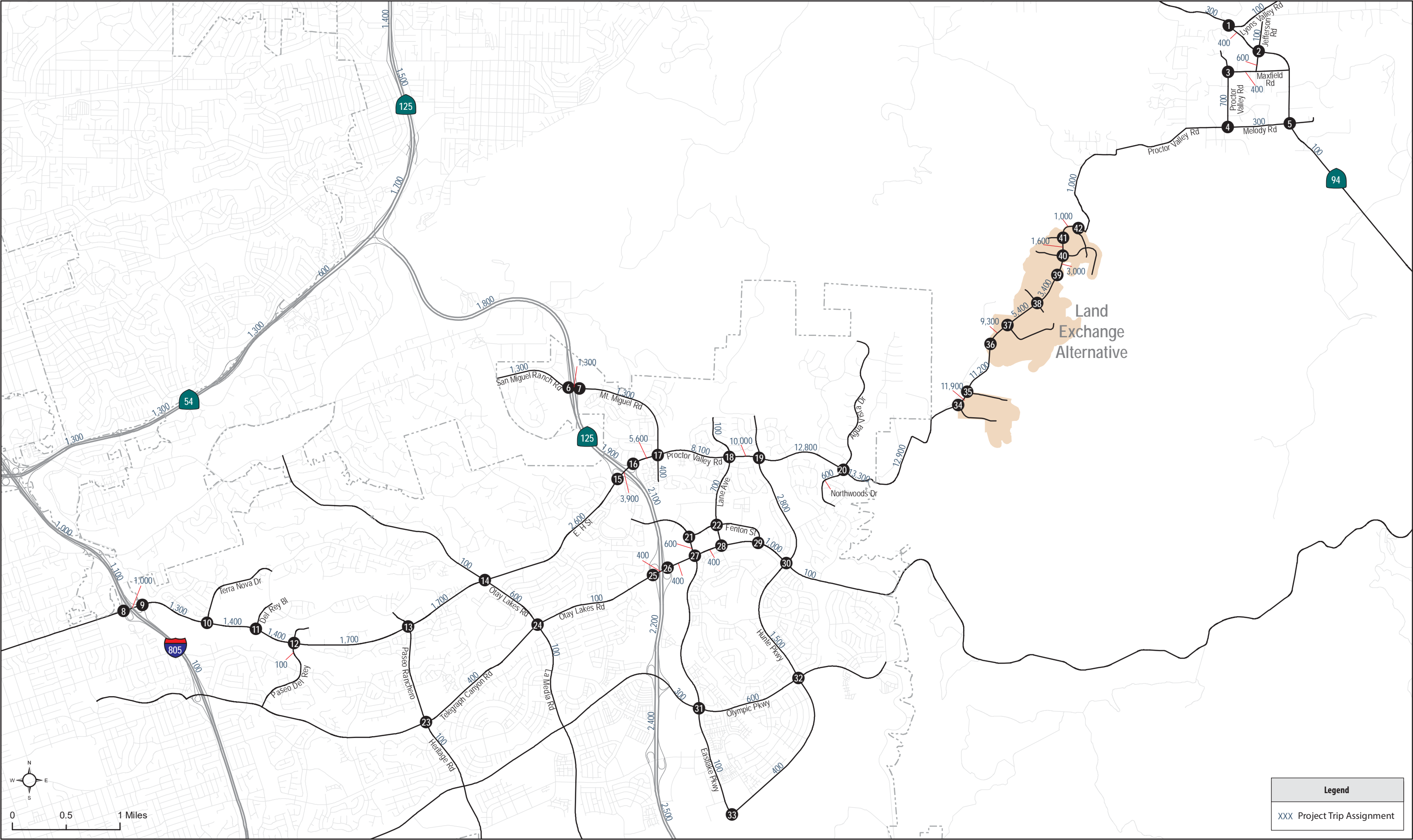
Intersection Analysis

Table 5.1 displays intersection Level of Service and average vehicle delay results under Existing Plus Land Exchange Alternative conditions. Level of Service calculation worksheets for the Existing Plus Land Exchange Alternative conditions are provided in **Appendix F**.



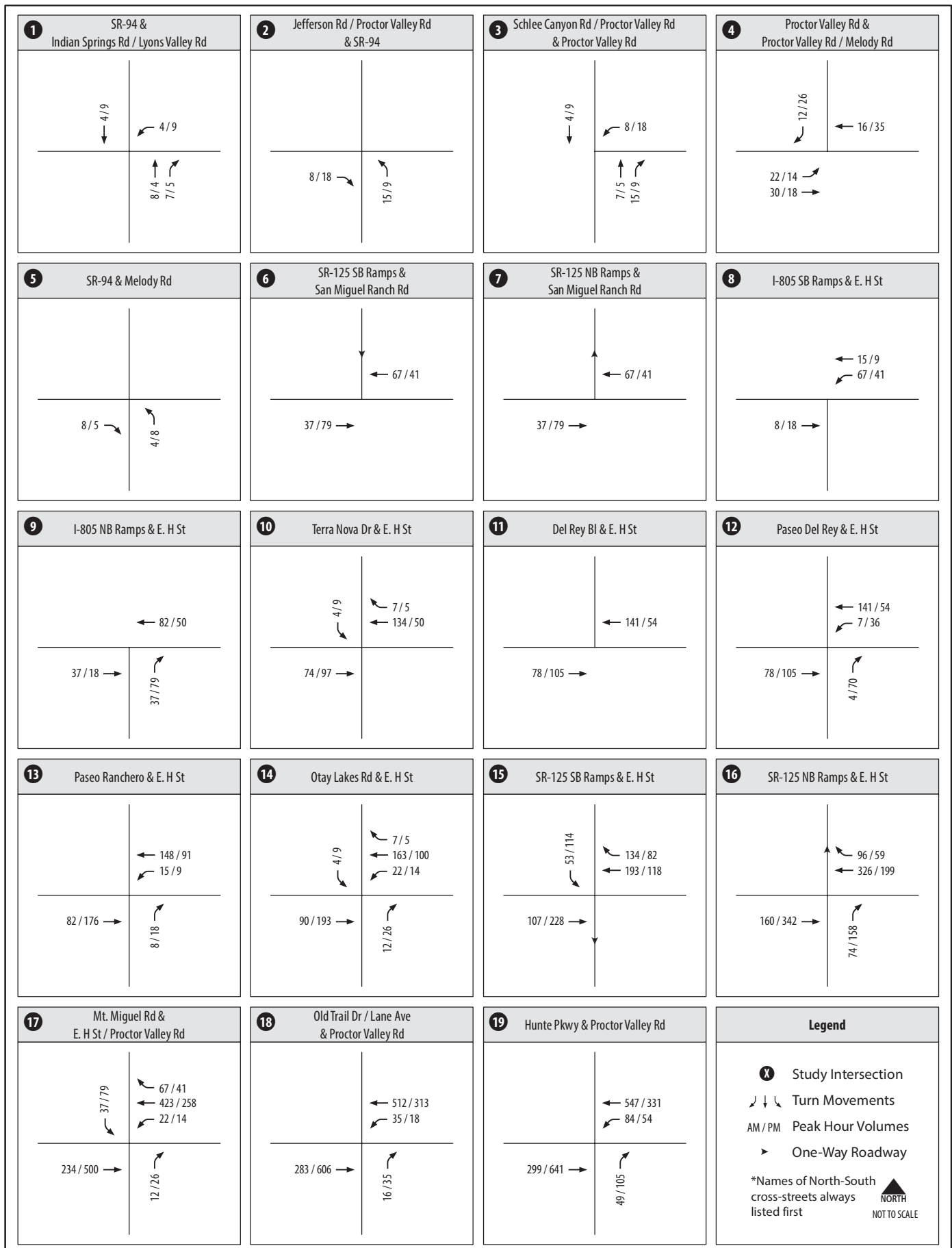
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
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Figure 5-1
Project Trip Distribution - Existing Conditions



Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
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Figure 5-2
Land Exchange Alternative Daily Roadway Trip Assignment - Existing Plus Land Exchange Alternative



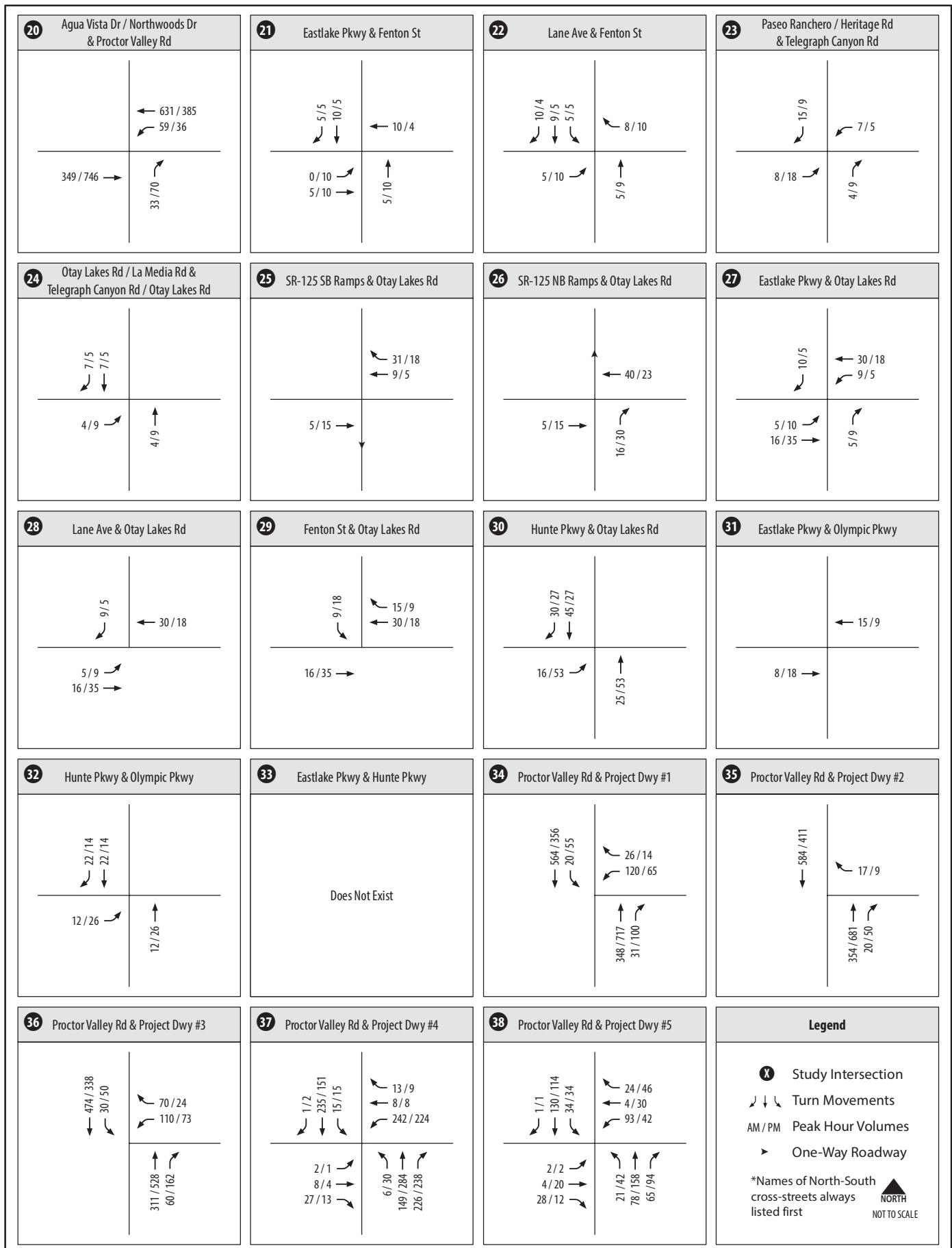
Otay Ranch Village 14 and PA 16/19 - Land Exchange EIR

Figure 5-3

Alternative Transportation Impact Study

CHEN RYAN

Proposed Project Peak Hour Intersection Trip Assignment -
Existing Plus Land Exchange Alternative (Intersections 1-19)



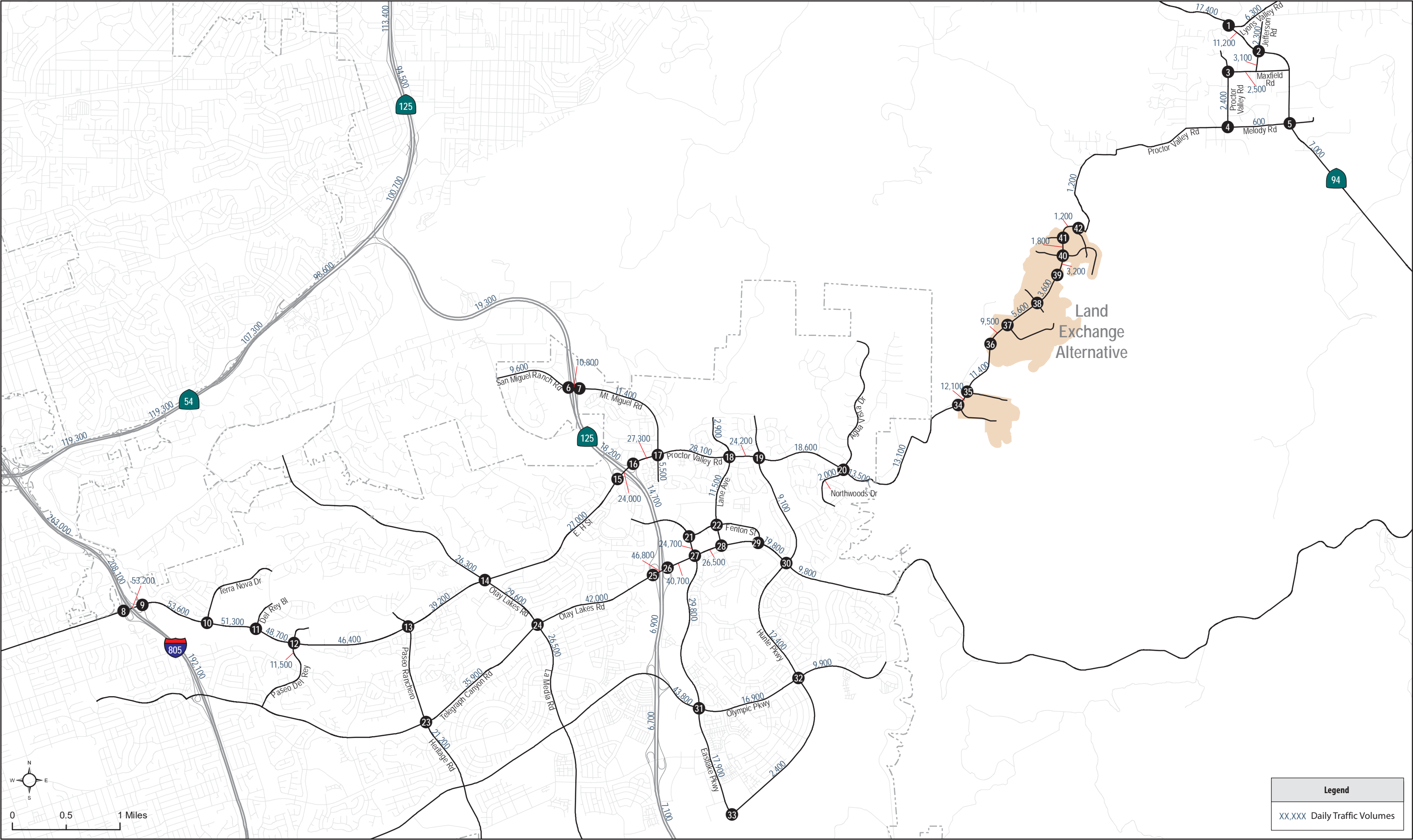
Otay Ranch Village 14 and PA 16/19 - Land Exchange EIR

Figure 5-3

Alternative Transportation Impact Study

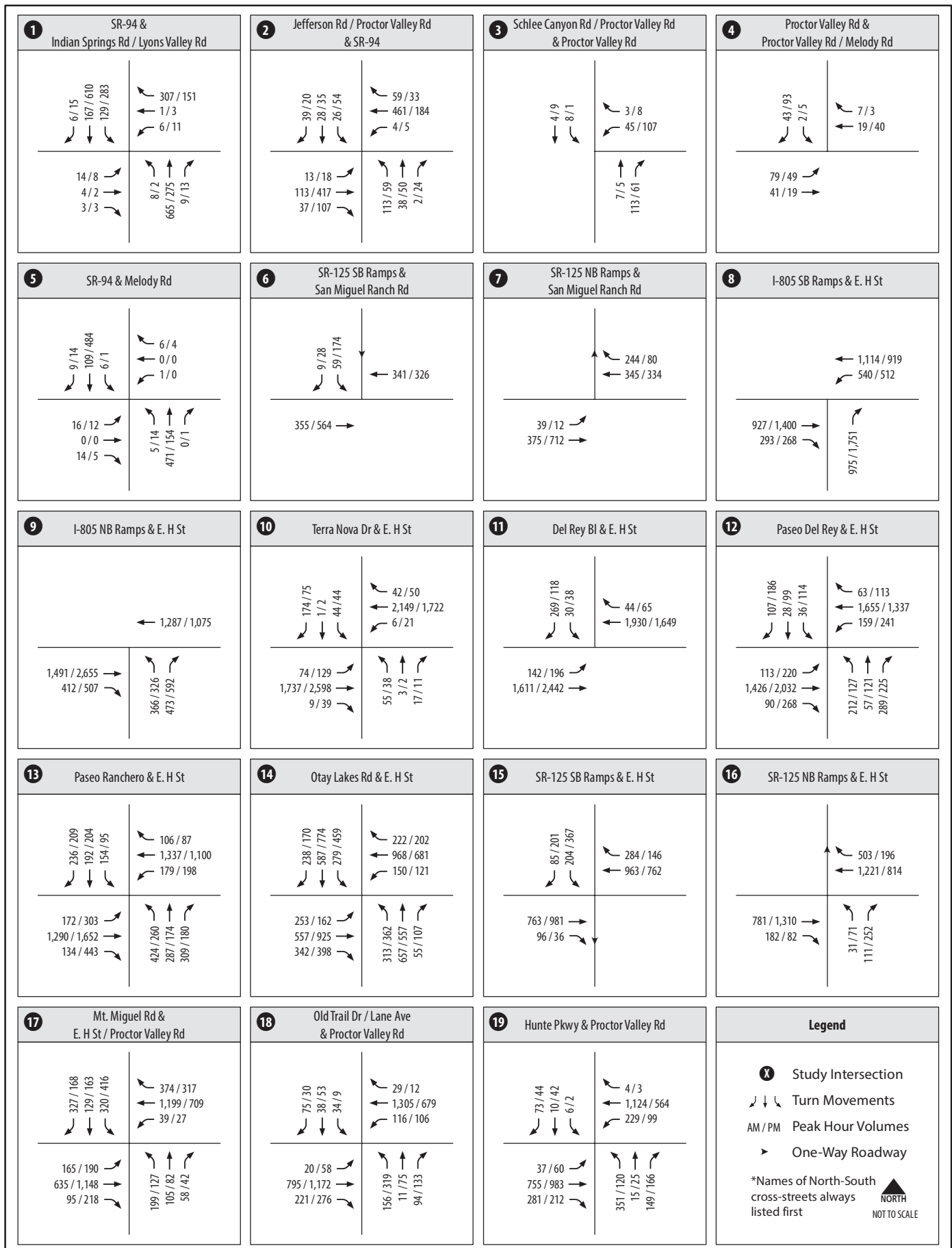
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Proposed Project Peak Hour Intersection Trip Assignment -
Existing Plus Land Exchange Alternative (Intersections 20-38)



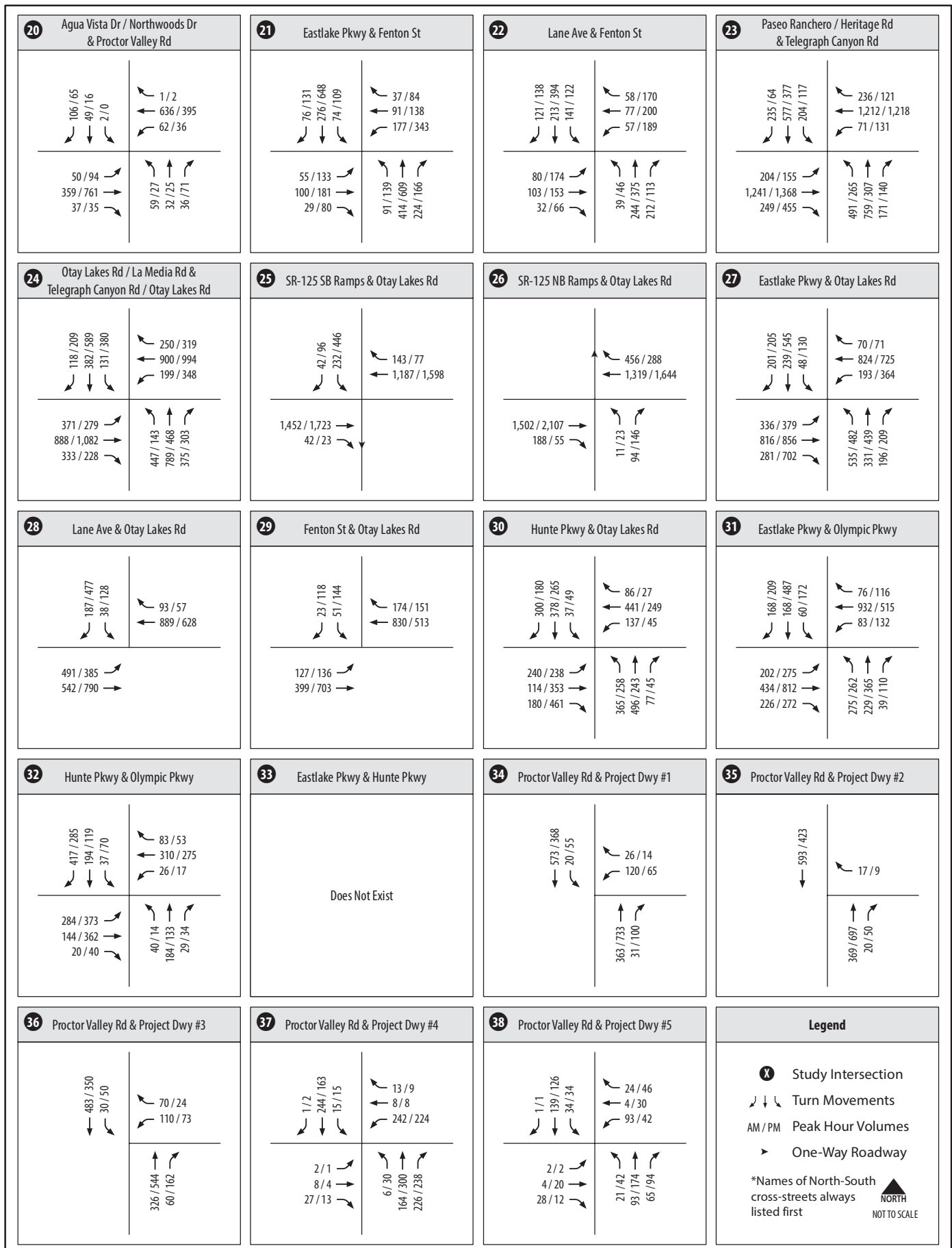
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
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Figure 5-4
Daily Roadway Traffic Volumes - Existing Plus Land Exchange Alternative



Otay Ranch Village 14 and PA 16/19 - Land Exchange EIR
Alternative Transportation Impact Study

Figure 5-5



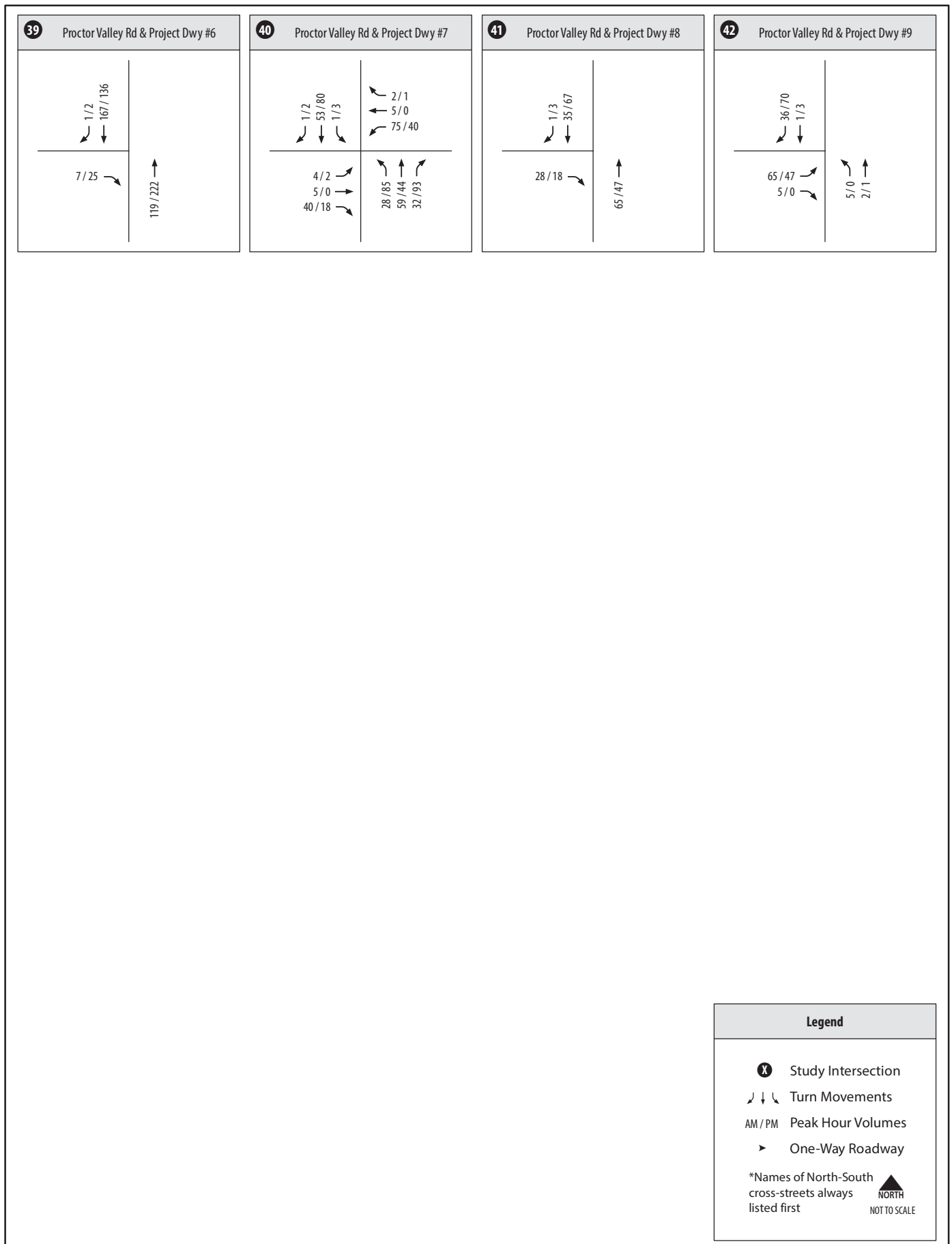


Table 5.1 Peak Hour Intersection LOS Results – Existing Plus Land Exchange Alternative Conditions

#IntersectionControl			Existing + Project				Existing		Impact Criteria by Jurisdiction				Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego	Chula Vista	County		
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM		
1	SR-94 & Lyons Valley Road	SSSC	87.6	F	84.4	F	81.5 / 79.7	F / F	6.1 / 4.7			Yes (Direct)	
2	Proctor Valley Road/Jefferson Road & SR-94	Signal	10.9	B	10.2	B	10.6 / 10.0	B / B	0.3 / 0.2			No	
3	Proctor Valley Road & Maxfield Road	SSSC	9.1	A	9.4	A	9.0 / 9.0	A / A				No	
4	Proctor Valley Road & Melody Road	SSSC	8.7	A	8.7	A	8.4 / 8.4	A / A				No	
5	SR-94 & Melody Road	SSSC	13.6	B	18.1	C	13.6 / 18.1	B / C	0.0 / 0.0			No	
6	San Miguel Ranch Road & SR-125 SB Ramps	Signal	21.7	C	18.9	B	21.7 / 18.8	C / B		13.6% / 11.0%		No	
7	San Miguel Ranch Road & SR-125 NB Ramp	Signal	16.7	B	13.4	B	16.7 / 13.3	B / B		10.4% / 10.5%		No	
8	I-805 SB Ramp & East H Street	Signal	9.8	A	11.2	B	7.8 / 9.7	A / A		3.1% / 2.7%		No	
9	I-805 NB Ramp & East H Street	Signal	10.4	B	13.3	B	9.8 / 11.4	A / B		3.9% / 4.0%		No	
10	Terra Nova Drive & East H Street	Signal	14.5	B	12.4	B	13.0 / 11.0	B / B		5.1% / 5.4%		No	
11	East H Street & Del Rey Boulevard	Signal	12.1	B	8.9	A	11.1 / 8.5	B / A		5.4% / 5.6%		No	
12	Pasel Del Rey & East H Street	Signal	21.0	C	28.9	C	19.9 / 25.7	B / C		5.4% / 5.2%		No	
13	Paseo Ranchero & East H Street	Signal	53.1	D	51.0	D	50.8 / 42.6	D / D		5.2% / 6.0%		No	
14	Otay Lakes Road & East H Street	Signal	46.4	D	35.6	D	37.2 / 29.2	D / C		6.4% / 7.1%		No	
15	SR-125 SB Ramp & East H Street	Signal	5.5	A	6.9	A	5.0 / 6.1	A / A		20.3% / 21.7%		No	
16	SR-125 NB Ramp & East H Street	Signal	3.6	A	5.5	A	3.4 / 4.0	A / A		23.2% / 27.8%		No	
17	Mt Miguel Road & East H Street	Signal	48.1	D	31.5	C	23.7 / 20.3	C / C		21.8% / 25.5%		No	
18	Lane Avenue & East H Street	Signal	22.9	C	51.1	D	16.8 / 23.0	B / C		29.2% / 33.3%		No	

Table 5.1 Peak Hour Intersection LOS Results – Existing Plus Land Exchange Alternative Conditions

#	Intersection	Control	Existing + Project				Existing		Impact Criteria by Jurisdiction				Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego	Chula Vista	County		
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM		
19	Hunte Parkway & East H Street	Signal	26.3	C	14.4	B	18.9 / 13.6	B / B		32.3% / 48.8%		No	
20	Northwoods Drive / Agua Vista Drive & Proctor Valley Road	AWSC	59.7	F	40.5	E	8.6 / 8.4	A / A		75.0% / 81.0%		Yes (Direct)	
21	East Lake Parkway & Fenton Street	Signal	18.7	B	33.2	C	18.2 / 31.4	B / C		2.1% / 1.6%		No	
22	Lane Avenue & Fenton Street	Signal	17.9	B	26.0	C	17.8 / 24.9	B / C		3.1% / 2.0%		No	
23	Heritage Road/Paseo Ranchero & Telegraph Canyon Road	Signal	46.6	D	25.3	C	45.4 / 24.9	D / C		0.6% / 0.9%		No	
24	La Media Road & Telegraph Canyon Road / Otay Lakes Road	Signal	27.5	C	27.1	C	27.1 / 26.8	C / C		0.4% / 0.5%		No	
25	SR-125 SB Ramps & Otay Lakes Road	Signal	9.6	A	10.9	B	9.6 / 10.9	A / B		1.5% / 1.0%		No	
26	SR-125 NB Ramps & Otay Lakes Road	Signal	8.5	A	8.9	A	8.4 / 8.8	A / A		1.7% / 1.6%		No	
27	East Lake Parkway & Otay Lakes Road	Signal	32.9	C	33.3	C	31.9 / 32.6	C / C		2.1% / 1.6%		No	
28	Lane Avenue & Otay Lakes Road	Signal	11.7	B	37.3	D	11.3 / 25.4	B / C		2.7% / 2.7%		No	
29	Fenton Street & Otay Lakes Road	Signal	8.9	A	9.7	A	8.8 / 9.0	A / A		4.4% / 4.5%			
30	Hunte Parkway & Otay Lakes Road	Signal	23.9	C	18.1	B	23.1 / 17.2	C / B		4.1% / 6.6%		No	
31	East Lake Parkway & Olympic Parkway	Signal	17.0	B	19.7	B	17.0 / 19.7	B / B		0.8% / 0.7%		No	
32	Hunte Parkway & Olympic Parkway	Signal	16.0	B	14.2	B	15.8 / 13.9	B / B		3.8% / 4.5%		No	
33	East Lake Parkway & Hunte Parkway	Signal	Does Not Exist				Does Not Exist			-		No	
34	Proctor Valley Road & Project Driveway #1	RA	7.4	A	12.5	B	Does Not Exist					No	
35	Proctor Valley Road & Project Driveway #2	SSSC	10.7	B	14.1	B	Does Not Exist					No	

Table 5.1 Peak Hour Intersection LOS Results – Existing Plus Land Exchange Alternative Conditions

#	Intersection	Control	Existing + Project				Existing		Impact Criteria by Jurisdiction			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego	Chula Vista	County	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM	
36	Proctor Valley Road & Project Driveway #3	RA	6.4	A	8.5	A	Does Not Exist					No
37	Proctor Valley Road & Project Driveway #4	RA	5.5	A	6.5	A	Does Not Exist					No
38	Proctor Valley Road & Project Driveway #5	RA	4.3	A	4.7	A	Does Not Exist					No
39	Proctor Valley Road & Project Driveway #6	SSSC	9.2	A	9.1	A	Does Not Exist					No
40	Proctor Valley Road & Project Driveway #7	RA	3.8	A	4.0	A	Does Not Exist					No
41	Proctor Valley Road & Project Driveway #8	SSSC	8.6	A	8.7	A	Does Not Exist					No
42	Proctor Valley Road & Project Driveway #9	AWSC	7.3	A	7.1	A	Does Not Exist					No

Source: Chen Ryan Associates; August 2015

Notes:

AWSC: All-way stop controlled intersection.

SSSC: Side Street stop controlled intersection, the delay shown is the worst delay experienced by any of the approaches.

RA: Roundabout.

Bold Indicates LOS E or F.

As shown in the table, all study area intersections are projected to operate at LOS D or better under Existing Plus Land Exchange Alternative conditions with the exception of the following:

- SR-94 & Lyons Valley Road (LOS F during the AM and PM peak hours); and
- Northwoods Drive / Agua Vista Drive & Proctor Valley Road (LOS F - AM peak hour / LOS E - PM peak hour).

Based on the significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would cause a significant direct impact at SR-94 & Lyons Road and a significant project-specific impact at Northwoods Drive / Agua Vista Drive & Proctor Valley Road.

Roadway Segment Analysis

Table 5.2a displays the Level of Service analysis results for the study area roadway segments located within the County of San Diego under Existing Plus Land Exchange Alternative conditions.

Table 5.2a Roadway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions – County of San Diego

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS D)	LOS w/ Project	LOS w/o Project	Project ADT	Significant Impact?
Proctor Valley Rd	City of Chula Vista boundary to Project Driveway #1	2-Ln w/ RM	13,100	13,500	D	A	12,900	No
	Project Driveway #1 to Project Driveway #2	2-Ln w/ RM	12,100	13,500	D	A	11,900	No
	Project Driveway #2 to Project Driveway #3	2-Ln w/ RM	11,400	13,500	D	A	11,200	No
	Project Driveway #3 to Project Driveway #4	2-Ln w/ RM	9,500	13,500	D	A	9,300	No
	Project Driveway #4 to Project Driveway #5	2-Ln w/ RM	5,600	13,500	B	A	5,400	No
	Project Driveway #5 to Project Driveway #6	2-Ln w/ RM	3,600	13,500	B	A	3,400	No
	Project Driveway #6 to Project Driveway #7	2-Ln	3,200	10,900	B	A	3,000	No
	Project Driveway #7 to Project Driveway #8	2-Ln	1,800	10,900	A	A	1,600	No
	Project Driveway #8 to Project Driveway #9	2-Ln	1,200	10,900	A	A	1,000	No
	Project Driveway #9 to Melody Rd	2-Ln	1,200	8,700	A	A	1,000	No
	Melody Rd to Schlee Canyon Rd	2-Ln	2,400	8,700	A	A	700	No
	Schlee Canyon Rd to Maxfield Rd	2-Ln	2,500	8,700	A	A	400	No
	Maxfield Rd to SR-94	2-Ln	3,100	8,700	A	A	600	No
Melody Rd	Proctor Valley Rd to SR-94	2-Ln	600	8,700	A	A	300	No

Table 5.2a Roadway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions – County of San Diego

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS D)	LOS w/ Project	LOS w/o Project	Project ADT	Significant Impact?
Jefferson Rd	SR-94 to Olive Vista Dr	2-Ln	2,300	8,700	A	B	100	No
Lyons Valley Rd	SR-94 to Olive Vista Dr	2-Ln	6,300	8,700	B	B	100	No

Source: Chen Ryan Associates; August 2015

As shown in the table, all study area roadway segments within the County of San Diego are projected to operate at LOS D or better within the addition of project traffic.

Based on the County of San Diego significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in roadway segment operations under Existing Plus Land Exchange Alternative conditions. Therefore, no significant project related impacts were identified and no mitigation is required.

Table 5.2b displays the Level of Service analysis results for study area roadway segments within the City of Chula Vista under Existing Plus Land Exchange Alternative conditions. As shown in the table, all study area roadway segments are anticipated to continue to operate at LOS C or better with the exception of the following segments, with the Project resulting in a significant impact at one of the segments:

- *East H Street between I-805 SB Ramps and I-805 NB Ramps (LOS D):*
 - Proposed buildout project trips would comprise 1.88% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 1,000 ADT (more than 800 ADT);
 - The intersections of East H Street / I-805 SB Ramps and East H Street / I-805 NB Ramps are both projected to operate at LOS B or better during peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant** impact to this segment.
- *East H Street between Terra Nova Drive and Del Rey Boulevard (LOS D):*
 - Proposed buildout project trips would comprise 2.73% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 1,400 ADT (more than 800 ADT);
 - The intersections of East H Street / Terra Nova Drive and East H Street / Del Rey Boulevard are both projected to operate at LOS B or better during peak hours.
 - Therefore, the Land Exchange Alternative would not have a significant impact to this segment.
- *Proctor Valley Road between Northwoods Drive to the City of Chula Vista Boundary (LOS D):*
 - Proposed buildout project trips would comprise 98.46% (more than 5%) of the total segment volume;
 - Proposed buildout project trips would add 12,800 ADT (more than 800 ADT);
 - The intersection of Northwoods Drive/Agua Vista Drive & Proctor Valley Road is projected to operate at LOS F during the AM peak hour and LOS E during the PM peak hour;
 - Therefore, the Land Exchange Alternative would **have a significant direct impact** to this segment.

Table 5.2b Roadway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions – City of Chula Vista

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project	Project ADT > 800?	Project Traffic ≥ 5%?	Peak Hour Operations	Significant Impact?
San Miguel Ranch Rd	Proctor Valley Rd to SR-125 SB Ramp	4-Ln w/ RM	9,600	22,000	A	1,300	13.54%	-	No
	SR-125 SB Ramp to SR-125 NB Ramp	4-Ln w/ RM	10,800	22,000	A	1,300	12.04%	-	No
San Miguel Ranch / Mt Miguel Rd	SR-125 NB Ramp to Proctor Valley Rd	4-Ln w/ RM	11,400	22,000	A	1,300	11.40%	-	No
Mt Miguel Rd	Proctor Valley Rd to Mackenzie Creek Rd	4-Ln w/ CLTL	5,500	22,000	A	400	7.27%	-	No
H St	I-805 SB Ramps to I-805 NB Ramps	6-Ln w/ RM	53,200	50,000	D	1,000	1.88%	Yes	No
	I-805 NB Ramps to Terra Nova Dr	7-Ln w/ RM	53,600	70,000	B	1,300	2.43%		No
	Terra Nova Dr to Del Rey Blvd	6-Ln w/ RM	51,300	50,000	D	1,400	2.73%	Yes	No
	Del Rey Blvd to Paseo Del Rey	6-Ln w/ RM	48,700	50,000	C	1,400	2.87%	-	No
	Paseo Del Rey to Paseo Ranchero	6-Ln w/ RM	46,400	50,000	C	1,700	3.66%	-	No
	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	39,200	50,000	B	1,700	4.34%	-	No
	Otay Lakes Rd to SR-125 SB Ramps	4-Ln w/ RM	26,300	30,000	C	1,900	7.22%	-	No
Proctor Valley Rd	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	23,300	50,000	A	3,200	13.73%	-	No
	SR-125 NB Ramps to Mt Miguel Rd	6-Ln w/ RM	26,300	50,000	A	4,600	17.49%	-	No
	Mt Miguel Rd to Lane Ave	6-Ln w/ RM	26,500	50,000	A	6,500	24.53%	-	No
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	24,200	50,000	A	10,000	41.32%	-	No
	Hunte Pkwy to Northwood Dr	4-Ln w/ RM	16,400	30,000	A	10,600	64.63%	-	No
	Northwoods Dr to County of San Diego Boundary	2-Ln w/ RM	13,000	12,000	D	12,800	98.46%	No	Yes (Direct)

Table 5.2b Roadway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions – City of Chula Vista

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project	Project ADT > 800?	Project Traffic ≥ 5%?	Peak Hour Operations	Significant Impact?
Telegraph Canyon Rd	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	35,900	50,000	A	400	1.11%	-	No
Otay Lakes Rd	Ridgeback Rd to E. H St	6-Ln w/ RM	26,300	50,000	A	100	0.38%	-	No
	E. H St to Otay Lakes Rd	6-Ln w/ RM	29,000	50,000	A	100	0.34%	-	No
	Telegraph Canyon to SR-125 SB Ramps	6-Ln w/ RM	42,000	50,000	B	100	0.24%	-	No
	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	46,800	50,000	C	400	0.85%	-	No
	SR-125 NB Ramps to Eastlake Pkwy	6-Ln w/ RM	40,700	50,000	B	400	0.98%	-	No
	Eastlake Pkwy to Lane Ave	6-Ln w/ RM	26,500	50,000	A	400	1.51%	-	No
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	19,800	50,000	A	1,000	5.05%	-	No
	Hunte Pkwy to Woods Dr	6-Ln w/ RM	9,800	50,000	A	100	1.02%	-	No
Olympic Pkwy	SR-125 NB Ramps to Eastlake Pkwy	8-Ln w/ RM	43,800	70,000	A	300	0.68%	-	No
	Eastlake Pkwy to Hunte Pkwy	6-Ln w/ RM	16,900	50,000	A	600	3.55%	-	No
	Hunte Pkwy to Olympic Vista Rd	4-Ln w/ RM	9,900	30,000	A	0	0.00%	-	No
Paseo Del Rey	E. H St to E. J St	4-Ln w/ CLTL	11,500	22,000	A	100	0.87%	-	No
Heritage Rd	Telegraph Canyon Rd to E. Palomar St	6-Ln w/ RM	21,200	50,000	A	100	0.47%	-	No
La Media Rd	Otay Lakes Rd to E. Palomar St	6-Ln w/ RM	26,500	50,000	A	100	0.38%	-	No
Eastlake Pkwy	Miller Rd to Otay Lakes Rd	4-Ln w/ RM	24,700	30,000	B	600	2.43%	-	No
	Otay Lakes Rd to Olympic Pkwy	6-Ln w/ RM	29,800	50,000	A	0	0.00%	-	No

Table 5.2b Roadway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions – City of Chula Vista

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project	Project ADT > 800?	Project Traffic ≥ 5%?	Peak Hour Operations	Significant Impact?
Eastlake Pkwy	Olympic Pkwy to Hunte Pkwy	6-Ln w/ RM	17,900	40,000	A	100	0.56%	-	No
Old Trail Dr	N Trail Ct to Proctor Valley Rd	2-Ln	2,900	7,500	A	100	3.45%	-	No
Lane Ave	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ SM	11,500	22,000	A	700	6.09%	-	No
Hunte Pkwy	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ RM	9,100	30,000	A	2,800	30.77%	-	No
	Otay Lakes Rd to Olympic Pkwy	4-Ln w/ RM	12,400	30,000	A	1,500	12.10%	-	No
	Olympic Pkwy to Eastlake Pkwy	6-Ln w/ RM	2,400	50,000	A	400	16.67%	-	No
Northwoods Dr	Proctor Valley Rd to Blue Ridge Dr	2-Ln	2,000	7,500	A	600	30.00%	-	No

Source: Chen Ryan Associates; August 2015

Notes:

Peak Hour Operations: Do intersections along the roadway segment operate at LOS D or better during the peak hours? – For segments operating at D, E or F.

Bold Indicates LOS D, E or F.

Two-Lane Highway Segment Analysis

Table 5.3 displays two-lane highway Level of Service analysis results for SR-94 under Existing Plus Land Exchange Alternative conditions. This analysis was performed using the County of San Diego methodologies as described in Chapter 2.0.

Table 5.3 Two-Lane Highway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions

Highway	Segment	LOS Threshold (LOS D)	ADT	LOS w/ Project	LOS w/o Project	Project ADT	Significant Impact?
SR-94	Vista Sage Ln to Lyons Valley Rd	16,200	17,400	E	E	300	No
	Lyons Valley Rd to Jefferson Rd		11,100	D or better	D or better	300	No
	Jefferson Rd to Maxfield Rd		9,000	D or better	D or better	0	No
	Maxfield Rd to Melody Rd		8,100	D or better	D or better	100	No
	Melody Rd to Otay Lakes Rd		7,300	D or better	D or better	400	No

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

As shown, all two-lane highway segments within the County of San Diego are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, which would operate at LOS E.

However, based on the County of San Diego significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in two-lane highway operations under Existing Plus Land Exchange Alternative conditions. Therefore, no significant project related impacts were identified and no mitigation is required.

Freeway Mainline Analysis

Table 5.4 displays freeway Level of Service analysis results for the study area freeway mainline facilities under Existing Plus Land Exchange Alternative conditions. The freeway/state highway segment Level of Service analysis was performed utilizing the methodology presented in Section 2.5. The percent of traffic during the peak hour (K), directional split (D) and percent of heavy vehicles (HV) are expected to be the same as those under Existing conditions (see **Table 3.4**).

As shown in the table, all study area freeway mainline segments are projected to operate at LOS D or better with the addition of project traffic, with the exception of the following:

- I-805 between Home Avenue and SR-94 (LOS F);
- I-805 between SR-94 and Market Street (LOS F);
- I-805 between Market Street and Imperial Avenue (LOS F); and
- I-805 between SR-54 and Bonita Road (LOS F).

Table 5.4 Freeway/State Highway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
I-805	Home Ave to SR-94	220,100	7.9%	17,300	0.58	4M	0.95	6.0%	2,814	1.173	F	0.001	F	No
	SR-94 to Market St	219,300	8.0%	17,610	0.60	4M	0.95	6.0%	2,947	1.228	F	0.002	F	No
	Market St to Imperial Ave	227,400	8.0%	18,260	0.60	4M + 1 HOV + 1 Aux	0.95	6.0%	2,444	1.018	F	0.002	F	No
	Imperial Ave to E Division St	209,600	8.0%	16,831	0.60	5M + 1 HOV	0.95	6.0%	2,048	0.853	D	0.002	D	No
	E Division St to Plaza Blvd	198,700	8.0%	15,975	0.60	5M + 1 HOV + 1 Aux	0.95	6.0%	1,800	0.750	D	0.003	D	No
	Plaza Blvd to SR-54	206,800	8.0%	16,627	0.60	5M + 1 HOV	0.95	6.0%	2,043	0.851	D	0.003	D	No
	SR-54 to Bonita Rd	263,000	8.0%	21,066	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	2,712	1.130	F	0.004	F	No
	Bonita Rd to East H St	208,100	8.0%	16,669	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	2,146	0.894	D	0.005	D	No
	East H St to Telegraph Canyon Rd	193,300	8.0%	15,483	0.57	5M + 1 HOV	0.95	7.3%	1,812	0.755	D	0.005	D	No
SR-125	SR-94 Junction to Jamacha Rd	113,400	8.8%	9,934	0.56	3M	0.95	4.4%	2,029	0.845	D	0.010	D	No
	Jamacha Rd to Paradise Valley Rd	94,500	8.8%	8,278	0.56	3M	0.95	4.4%	1,691	0.705	C	0.011	C	No
	Paradise Valley Rd to SR-54 Junction	100,700	8.8%	8,821	0.56	3M + 1 HOV	0.95	4.4%	1,544	0.643	C	0.011	C	No
	SR-54 to Mt. Miguel Rd	19,300	7.0%	1,351	0.59	2M	0.95	1.9%	428	0.178	A	0.017	A	No
	Mt. Miguel Rd to Proctor Valley Rd	18,200	7.0%	1,274	0.59	2M	0.95	1.9%	403	0.168	A	0.018	A	No
	Proctor Valley Rd to Otay Lakes Rd	14,700	7.0%	1,029	0.59	2M	0.95	1.9%	326	0.136	A	0.019	A	No
	Otay Lakes Rd to Olympic Pkwy	6,900	7.0%	483	0.59	2M	0.95	1.9%	153	0.064	A	0.020	A	No
	Olympic Pkwy to Birch Rd	6,700	7.0%	469	0.59	2M	0.95	1.9%	148	0.062	A	0.022	A	No
	Birch Rd to Main St	7,100	7.0%	497	0.59	2M	0.95	1.9%	157	0.066	A	0.023	A	No
	Main St to Otay Valley Rd	7,200	7.0%	504	0.59	2M	0.95	1.9%	160	0.066	A	0.024	A	No

Table 5.4 Freeway/State Highway Segment LOS Results – Existing Plus Land Exchange Alternative Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
SR-125	Otay Valley Rd to Lone Star Rd	7,400	7.0%	518	0.59	2M	0.95	1.9%	164	0.068	A	0.026	A	No
	Lone Star Rd to Otay Mesa Rd	7,500	7.0%	525	0.59	2M	0.95	1.9%	166	0.069	A	0.027	A	No
SR-54	I-805 to Reo Dr/Plaza Bonita Center Wy	119,300	8.2%	9,818	0.58	3M	0.95	1.9%	2,027	0.845	D	0.009	D	No
	Reo Dr/Plaza Bonita Center Wy to Woodman St	119,300	8.3%	9,926	0.55	3M	0.95	1.9%	1,957	0.815	D	0.009	D	No
	Woodman St to Briarwood Rd	107,300	8.3%	8,874	0.55	3M	0.95	1.9%	1,749	0.729	C	0.009	C	No
	Briarwood Rd to SR-125 Junction	98,600	8.5%	8,332	0.52	3M + 1 HOV	0.95	1.9%	1,321	0.550	C	0.003	C	No

Source: Chen Ryan Associates; August 2015

Notes:

K = Percent of Traffic during the peak hour.

D = Directional split.

HVF = Percent of heavy vehicles.

PHF =Peak Hour Factor

M = Mainline lane.

HOV = High Occupancy Vehicle Lane.

Aux = Auxiliary lane.

Bold Indicates LOS E or F.

Based on the Freeway Mainline significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would comprise less than 5% of the projected traffic volume on any freeway segments operating at LOS E or F under Existing Plus Land Exchange Alternative conditions. Therefore, no significant project related impacts were identified and no mitigation is required.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized ramp intersections within the project study area were analyzed using ILV procedures, as described in Section 2.6. ILV analysis results are displayed in **Table 5.5** and analysis worksheets for Existing Plus Land Exchange Alternative conditions are provided in Appendix F.

Table 5.5 Ramp Intersection Capacity Analysis – Existing Plus Land Exchange Alternative Conditions

Intersection	Peak Hour	ILV/hour	Capacity
SR-125 SB / Mt. Miguel	AM	237	Under Capacity
	PM	456	Under Capacity
SR-125 NB / Mt. Miguel	AM	334	Under Capacity
	PM	356	Under Capacity
I-805 SB / H Street	AM	1,434	At Capacity
	PM	1,944	Over Capacity
I-805 NB / H Street	AM	923	Under Capacity
	PM	844	Under Capacity
SR-125 SB / H Street	AM	584	Under Capacity
	PM	582	Under Capacity
SR-125 NB / H Street	AM	463	Under Capacity
	PM	397	Under Capacity
SR-125 SB / Mt. Miguel	AM	600	Under Capacity
	PM	796	Under Capacity
SR-125 NB / Otay Lakes Road	AM	540	Under Capacity
	PM	759	Under Capacity

Source: Chen Ryan Associates; August 2015

As shown, with the addition of project traffic all study area ramp interchanges will continue to operate at or under capacity, with the exception of the intersection of I-805 SB / H Street during the PM peak hour, which would be considered over capacity.

Ramp Meter Analysis

Table 5.6 displays the ramp metering analysis conducted at study area freeway ramps under Existing Plus Land Exchange Alternative conditions. Existing ramp meter rates were obtained from Caltrans and are expected to be the same under Existing Plus Land Exchange Alternative conditions. Ramp meter excess

demand, delay and queuing results were calculated using the methodologies outlined in Section 2.7.

Table 5.6 Ramp Metering Analysis – Existing Plus Land Exchange Alternative Conditions

Location	Peak Hour	Peak Hour Volume	Meter Rate ¹	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)	Existing Delay/ Queue	S?
I-805 NB On-Ramp @ WB H Street	AM	625	934	0	0	0	0	No
I-805 NB On-Ramp @ EB H Street	AM	330	369	0	0	0	0	No

Source: Chen Ryan Associates; August 2015

Notes:

1. Meter Rate is the peak hour capacity expected to be processed through the ramp meter (veh/hr).

This value was obtained from Caltrans.

2. Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater (veh/hr).

3. Delay = (Excess Demand / Meter Rate) X 60 min/hr.

4. Queue = (Excess Demand) X 29 ft/veh.

S?: Significant Impact?

As shown in the table, the projected peak hour ramp volumes under Existing Plus Land Exchange Alternative conditions are not anticipated to exceed the current ramp meter rates at either metered study area freeway ramp. Based on the City of Chula Vista significance criteria, outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant change or further deterioration in ramp meter operations under Existing Plus Land Exchange Alternative conditions. Therefore, no significant project related impacts were identified and no mitigation is required.

5.1.2 Impact Significance and Mitigation

This section identifies required mitigation measures for intersection and roadway facilities that would be significantly impacted by project-related traffic under Existing Plus Land Exchange Alternative conditions.

Intersections

The Land Exchange Alternative would have a direct impact on one (1) intersection in the County of San Diego, as well as one (1) project-specific impact on an intersection in the City of Chula Vista. The following intersection improvements would be required to mitigate the identified significant traffic impacts:

- *SR-94 & Lyons Valley Road (Caltrans)* – Signalization by the 854th EDU would mitigate the direct impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. The signal warrant worksheet is provided in **Appendix G**. However, this intersection is a Caltrans facility in which the County does not have jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impacts would remain significant and unavoidable. However, it should be noted that this improvement is part of the improvement project analyzed in the *Caltrans’ State Route 94 Improvement Project Draft EIR, July 2015*. According to the EIR, this improvement is scheduled for implementation in summer 2016. In addition, this

improvement is also included as a mitigation measure in the Jamul Indian Village Final Environmental Evaluation.

- *Northwoods Drive / Agua Vista Drive & Proctor Valley Road (City of Chula Vista)* – Signalization by the 926th EDU would mitigate the direct impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. The signal warrant worksheet is provided in **Appendix G**. However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impacts would remain significant and unavoidable. However, it should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

The City of Chula Vista does not consider impacts to its facilities under the Existing Plus Land Exchange Alternative conditions to be significant impacts requiring mitigation when used in connection with a long-range development project such as the proposed Proctor Valley Village 14 project, which is not anticipated to reach full buildout until approximately 2025. Because the Existing Plus Land Exchange Alternative analysis does not take into consideration cumulative traffic growth, it may understate impacts by assuming capacity that is not available, while at the same time it may overstate impacts by failing to account for future road improvements that would provide increased capacity. As a result, the Existing Plus Land Exchange Alternative analysis may be misleading to the public and decision makers. As such, the analysis of the project’s potential impacts to facilities located within the City of Chula Vista as measured against the existing conditions baseline is presented for disclosure, information, and comparison purposes only. The identification of the project’s significant impacts, with recommended mitigation, will be based on the future year analyses that take into account cumulative traffic growth, as well as the changing roadway network and land uses that accompany a long-range development project such as this. Therefore, the mitigation, including mitigation trigger identified above is provided for informational purpose only. As shown in the table, after implementation of the identified improvements, the impacted intersections would operate at acceptable LOS D or better during both peak hours. **Table 5.7** displays Level of Service analysis results for the mitigated intersection under Existing Plus Land Exchange Alternative conditions. Calculation worksheets for the intersection analysis are provided in **Appendix G**.

As shown in the table, after implementation of the identified improvements, the impacted intersections would operate at acceptable LOS D or better during both peak hours.

Table 5.7 Mitigated Intersection LOS Existing Plus Land Exchange Alternative Conditions

Intersection	Before Mitigation				After Mitigation			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Avg. Delay (Sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
SR-94 & Lyons Valley Road	85.8	F	81.2	F	42.6	D	15.9	B
<i>Northwoods Drive / Agua Vista Drive & Proctor Valley Road</i>	59.7	F	40.5	E	15.9	B	14.4	B

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

Roadway Segments

The Land Exchange Alternative would have a significant project specific impact on one (1) roadway segment, located in the City of Chula Vista, under Existing Plus Land Exchange Alternative conditions. The following roadway improvements would be required to mitigate this impact:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific Impact, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector. With widening to a Class I Collector, the Project's significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS A once widened and no further mitigation would be required.

Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which identifies the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street. Widening the segment from the 2-lane configuration to four lanes, as recommended by the mitigation measure, would not conflict with the City's long-range road widening plans (four lanes) because the mitigation improvement (widen from two to four lanes) does not foreclose or conflict with the City's ultimate build-out plans or programs, and would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if future traffic conditions warrant such action.

As shown in **Table 5.8**, the proposed improvement would fully mitigate the Land Exchange Alternative's project specific impact to the segment of Proctor Valley Road, between Northwoods Drive and the City of Chula Vista boundary. However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

Table 5.8 Mitigated Roadway Segment LOS Existing Plus Land Exchange Alternative Conditions

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project
Proctor Valley Road	Northwoods Drive and the City of Chula Vista Boundary	Class I Collector	13,000	22,000	A

Source: Chen Ryan Associates; August 2015

6.0 Year 2025 Traffic Conditions

This section provides an analysis of Year 2025 traffic conditions both with and without the Land Exchange Alternative.

6.1 Year 2025 Project Trip Generation, Distribution and Assignment

To be conservative, it is assumed that the Land Exchange Alternative will be fully built out and occupied under Year 2025 conditions. Year 2025 Project trip assignments were derived by assigning the Land Exchange Alternative buildout trip generation estimates (Table 4.1) to the surrounding roadway network, based on the Year 2025 project trip distribution patterns displayed in Error! Reference source not found.. The Year 2025 Land Exchange Alternative trip distribution patterns were derived based upon a SANDAG Series 11 Year 2025 Select Zone Assignment, which is provided in **Appendix C**. Error! Reference source not found. and Error! Reference source not found. display the Year 2025 project trip assignment for study area roadway segments and intersections, respectively.

6.2 Year 2025 Roadway Network and Traffic Volumes

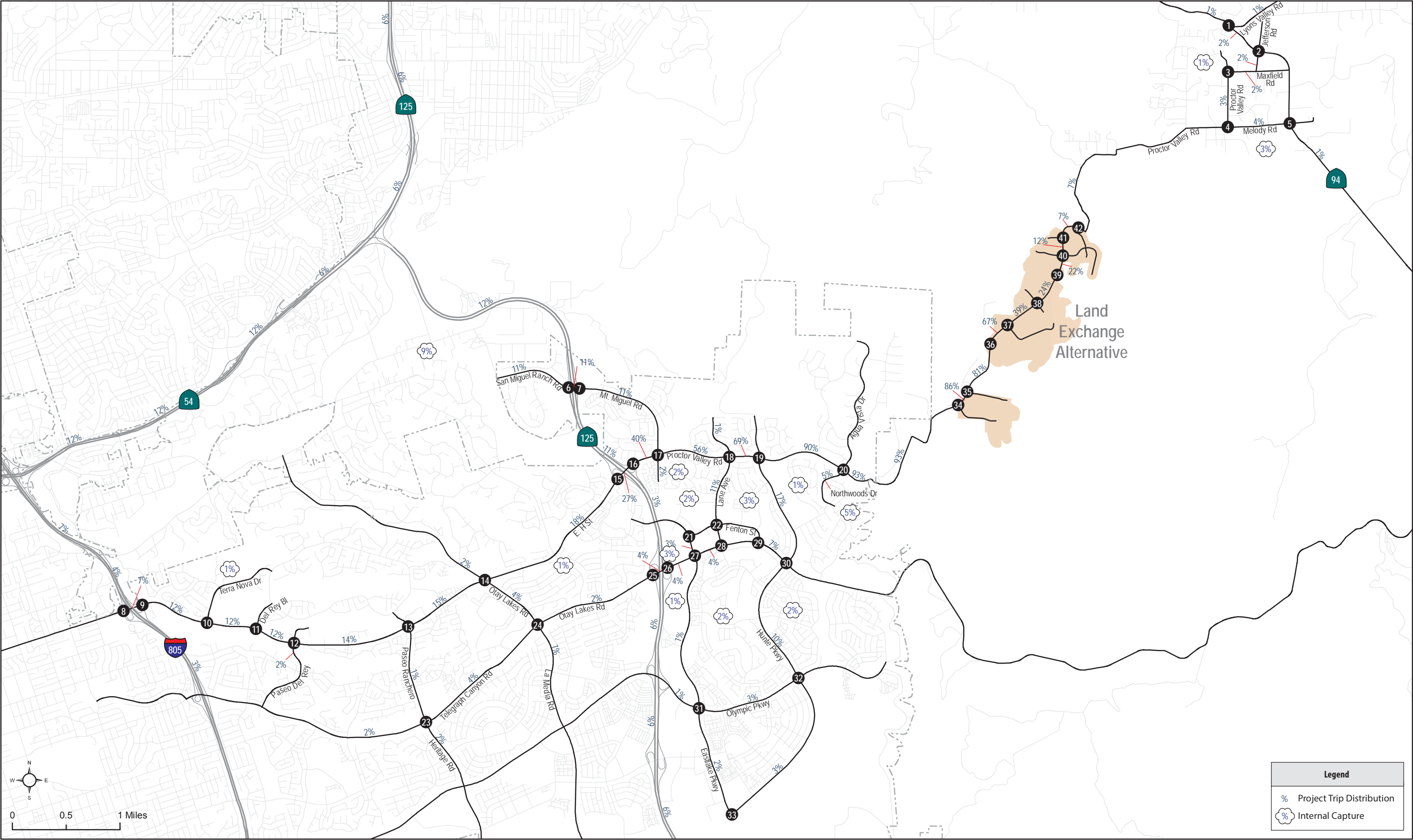
The Year 2025 roadway network is similar to the existing network with the following exceptions:

To Be Constructed by the Project:

- The Proposed Project will construct Proctor Valley Road as follows:
 - A Light Collector with a Raised Median (2.2A) between its current eastern terminus within the City of Chula Vista to Project Driveway 6;
 - A Light Collector between Project Driveway 6 and the Village 14 Boundary; and
 - As a two-lane interim roadway (28 feet paved on a 40-foot right-of-way) between the Village 14 Boundary and its current western terminus point located in the community of Jamul.
- The Proposed Project will extend Whispering Meadows Lane to the South, as a Rural Road, to provide a secondary access point for Planning Area 16.
- All Project Driveways and access points.

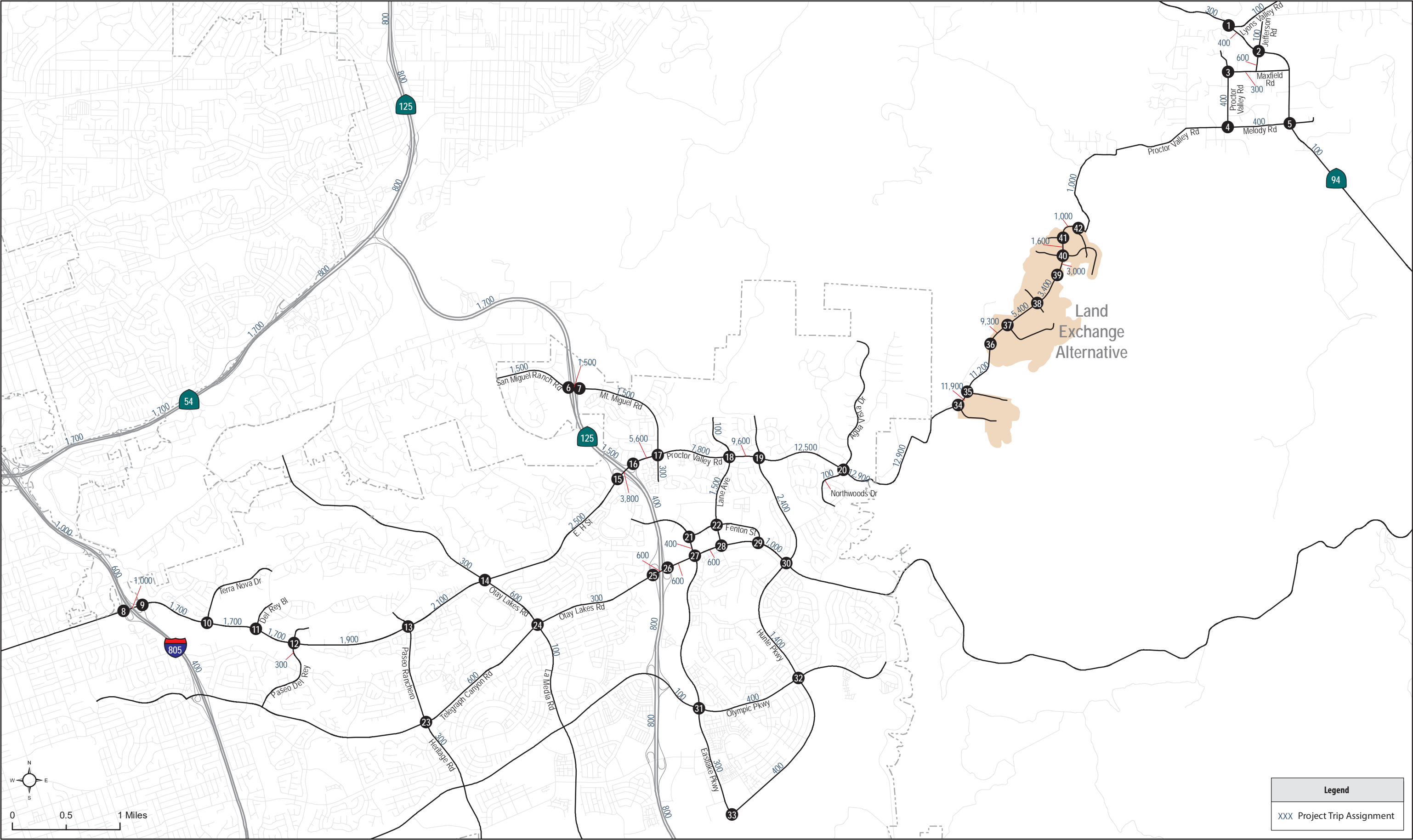
To Be Constructed by Others:

- Heritage Road, south of Main Street to the City of Chula Vista city limit – this facility is included as its ultimate classification by 2020. As indicated in the City’s currently adopted General Plan Circulation Element, the ultimate classification designed for Heritage Road south of Main Street is a 6-lane Prime Arterial. This improvement project (STM364 - Heritage Road Bridge Replacement) is included in the Chula Vista adopted FY 2012-13 through FY 2016-17 Capital Improvement Program (CIP) and will be funded by a mix of the Highway Bridge Program, Transportation Development Impact Fees, and other miscellaneous transportation grants. For additional information, see **Appendix H**. (Assumptions consistent with traffic analyses prepared by and for the City of Chula Vista.)



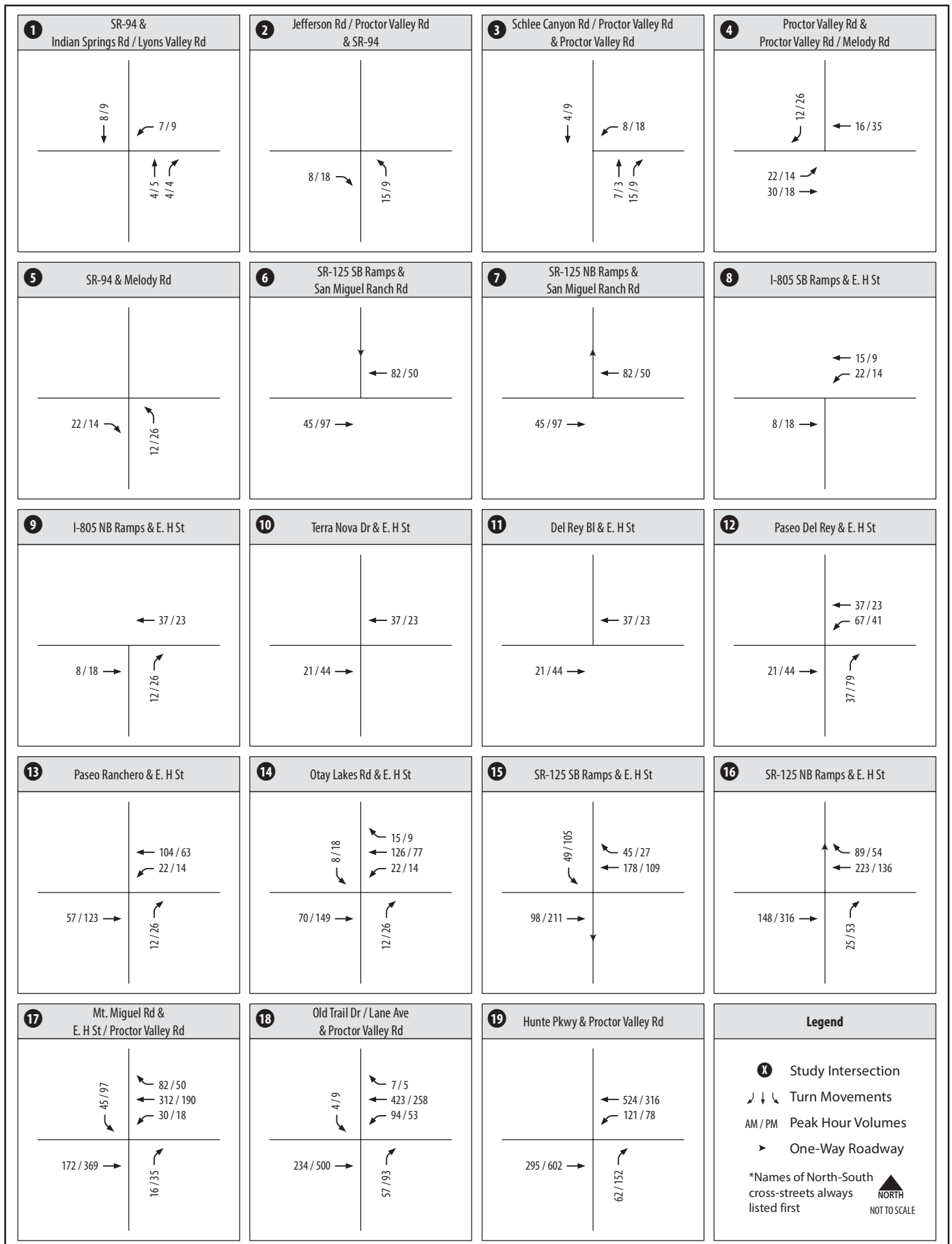
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 6-1
Project Trip Distribution (Year 2025 Conditions)



Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 6-2
Proposed Project Daily Roadway Trip Assignment (Year 2025 Conditions - Project Buildout)

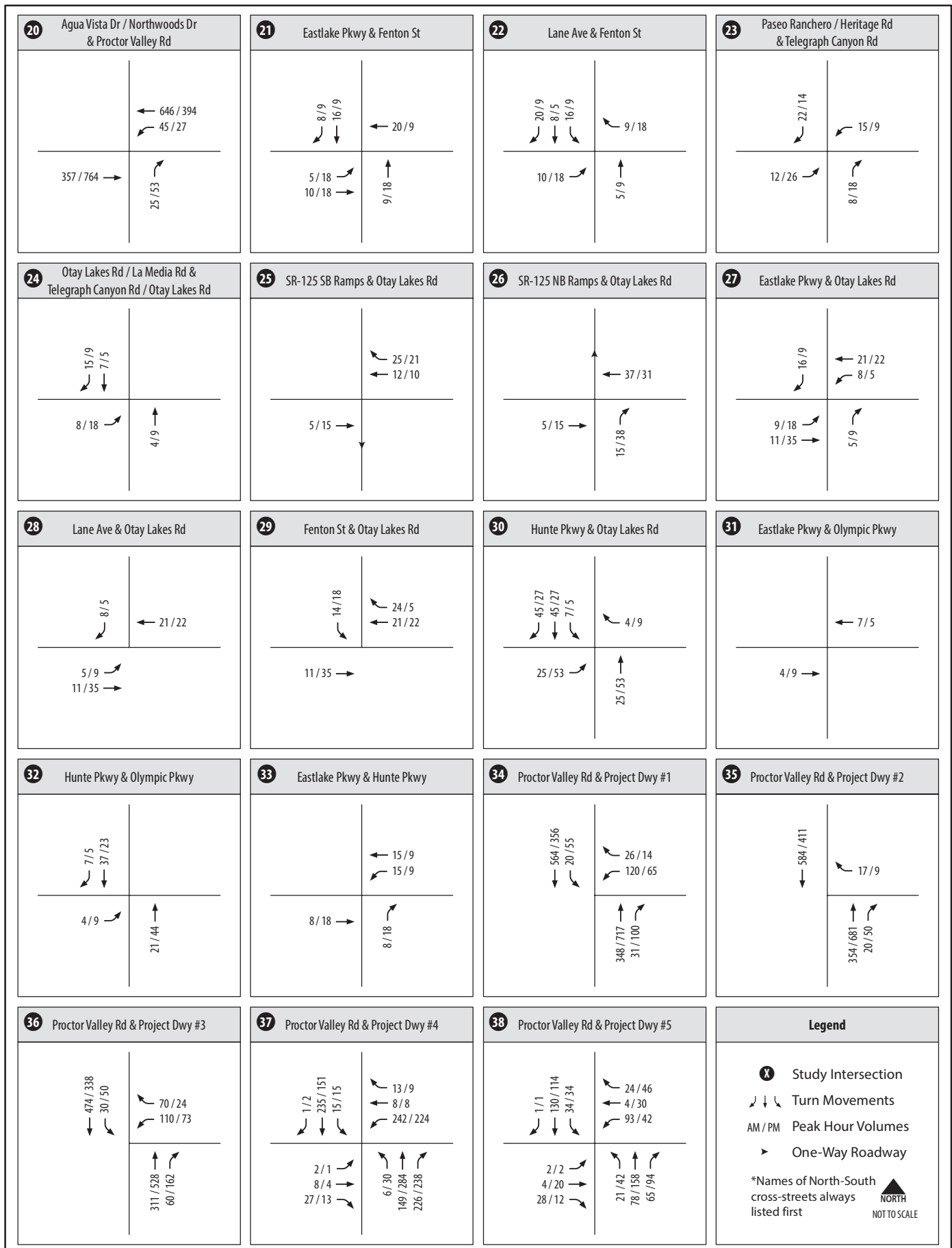


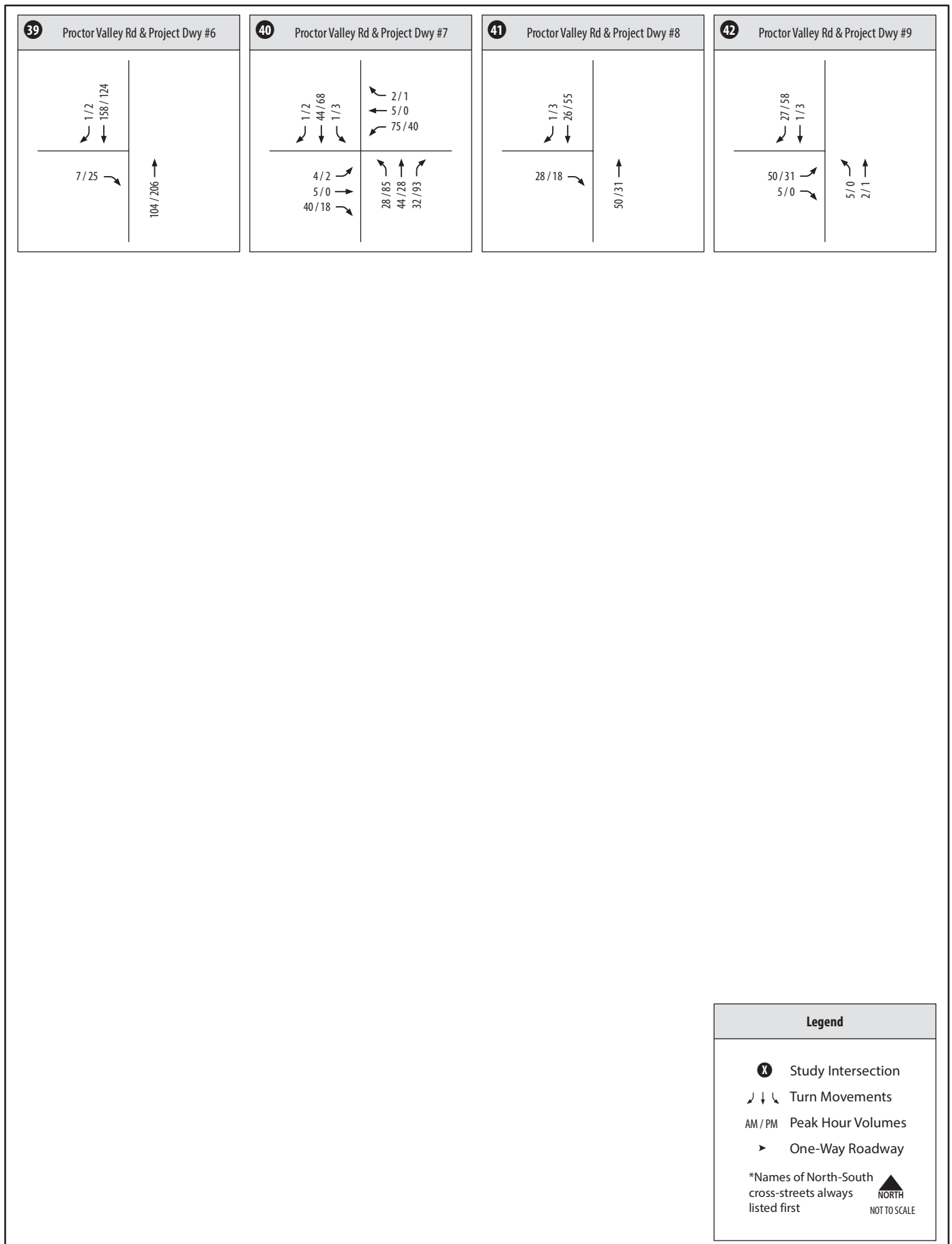
Otay Ranch Village 14 and PA 16/19 - Land Exchange EIR

Figure 6-3

Alternative Transportation Impact Study

Proposed Project Peak Hour Intersection Trip Assignment -
Year 2025 Conditions - Project Buildout (Intersections 1-19)





-
- Otay Lakes Road, between H Street and Telegraph Canyon Road – this facility is included as being widened from a 4-lane Major Road to a 6-lane Prime Arterial consistent with the classification identified in the City’s currently adopted General Plan Circulation Element. This improvement project (STM355 – Otay Lakes Road Widening) is included in the Chula Vista adopted FY 2012-13 through FY 2016-17 Capital Improvement Program (CIP) and will be funded by the Transportation Development Impact Fees. For additional information, see **Appendix H**. (Assumptions consistent with traffic analyses prepared by and for the City of Chula Vista.)

The Year 2025 roadway segment and intersection geometrics are displayed in **Figure 6-4** and **Figure 6-5**, respectively.

6.3 Year 2025 Traffic Volumes

Figure 6-6 and **Figure 6-7** show the daily roadway segment and peak hour intersection volumes, respectively, under Year 2025 with project conditions. Traffic volumes for the Year 2025 scenario were developed utilizing the SANDAG Series 11 “Southbay 2” Year 2025 model. Thus, the most recent City of Chula Vista approved model (developed for the Otay Ranch Village Two Comprehensive SPA Amendment project) was utilized as a starting point to ensure the accuracy of the modeling assumptions within the City’s jurisdiction. Land use assumptions for the Otay Ranch Village Two Comprehensive SPA Amendment project model were developed in coordination with City of Chula Vista’s staff, and include estimated growth for all of the Otay Ranch villages, as well as the future university, the eastern urban center, and other developments. Year 2025 model land use assumptions are provided in **Appendix I**.

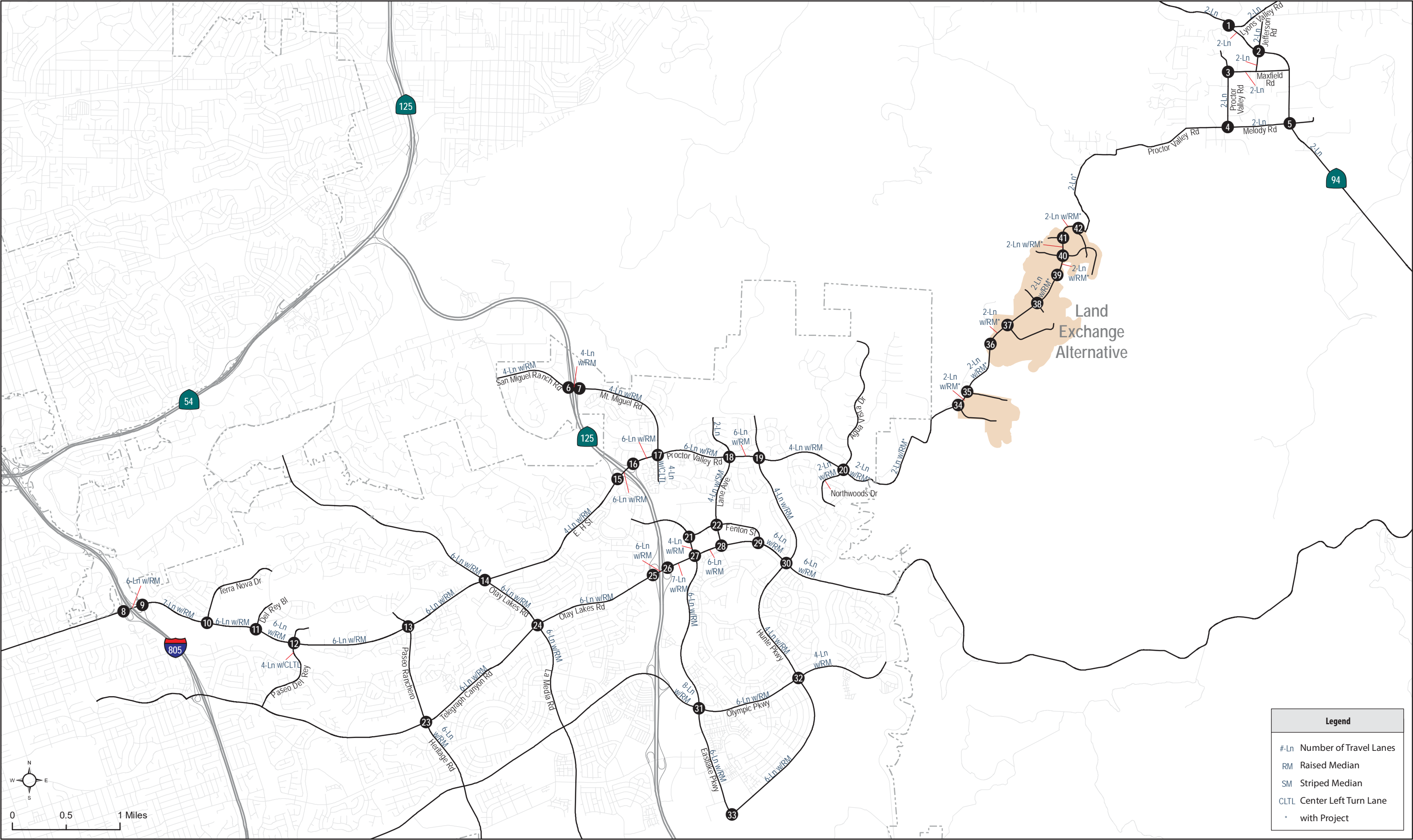
Outside of Chula Vista, SANDAG Year 2025 land use assumptions were examined and updated to ensure that anticipated land development projects identified by both the County and City of San Diego in the vicinity of the Land Exchange Alternative were accurately reflected in the model. Cumulative projects shown in **Table 6.2** were incorporated into the Year 2025 model.

6.4 Year 2025 Traffic Conditions

Level of service analyses for the Year 2025 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway segment, two-lane highway segment, and freeway mainline level of service results, as well as ramp intersection capacity and ramp meter analyses, are discussed below.

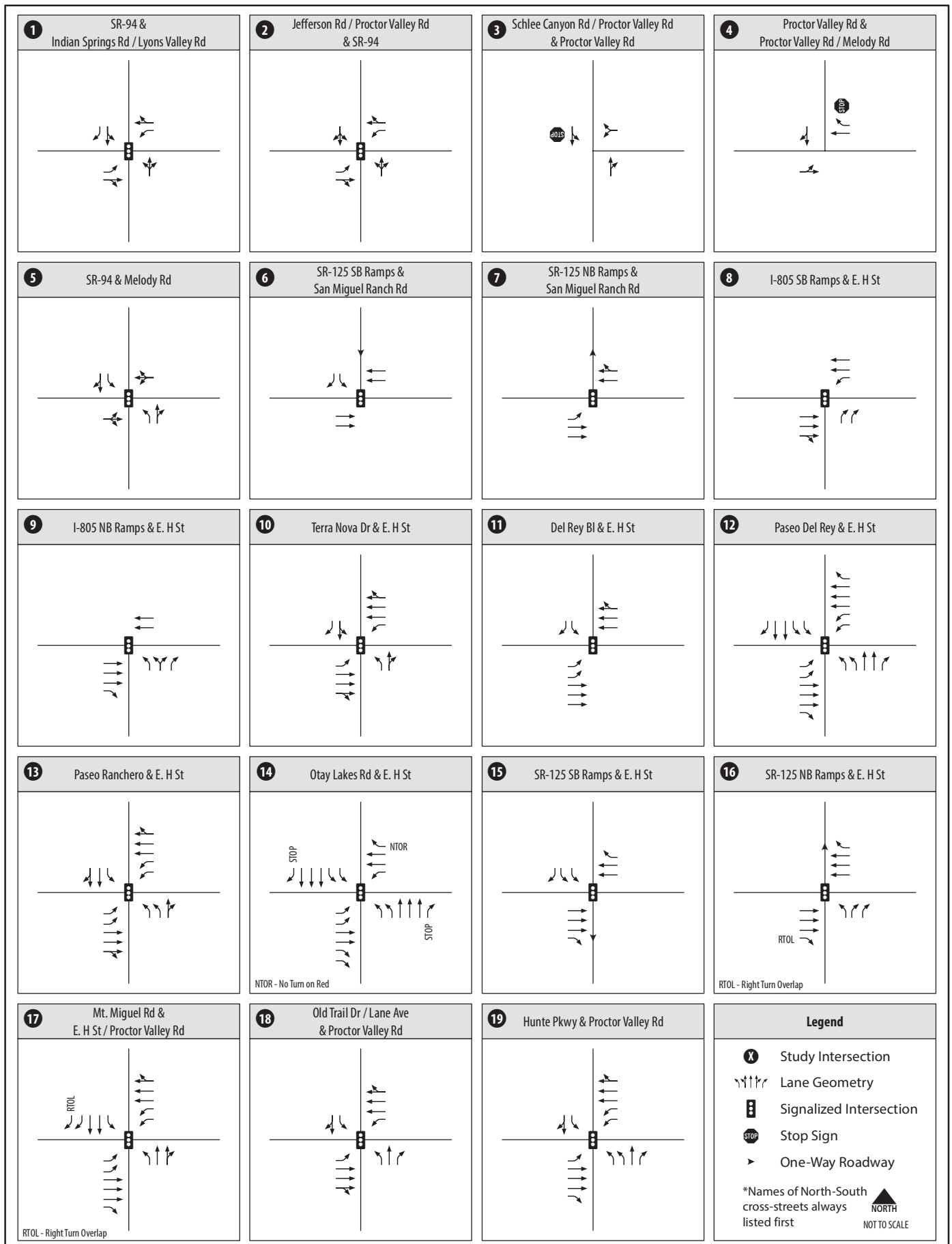
6.4.1 Intersection Analysis

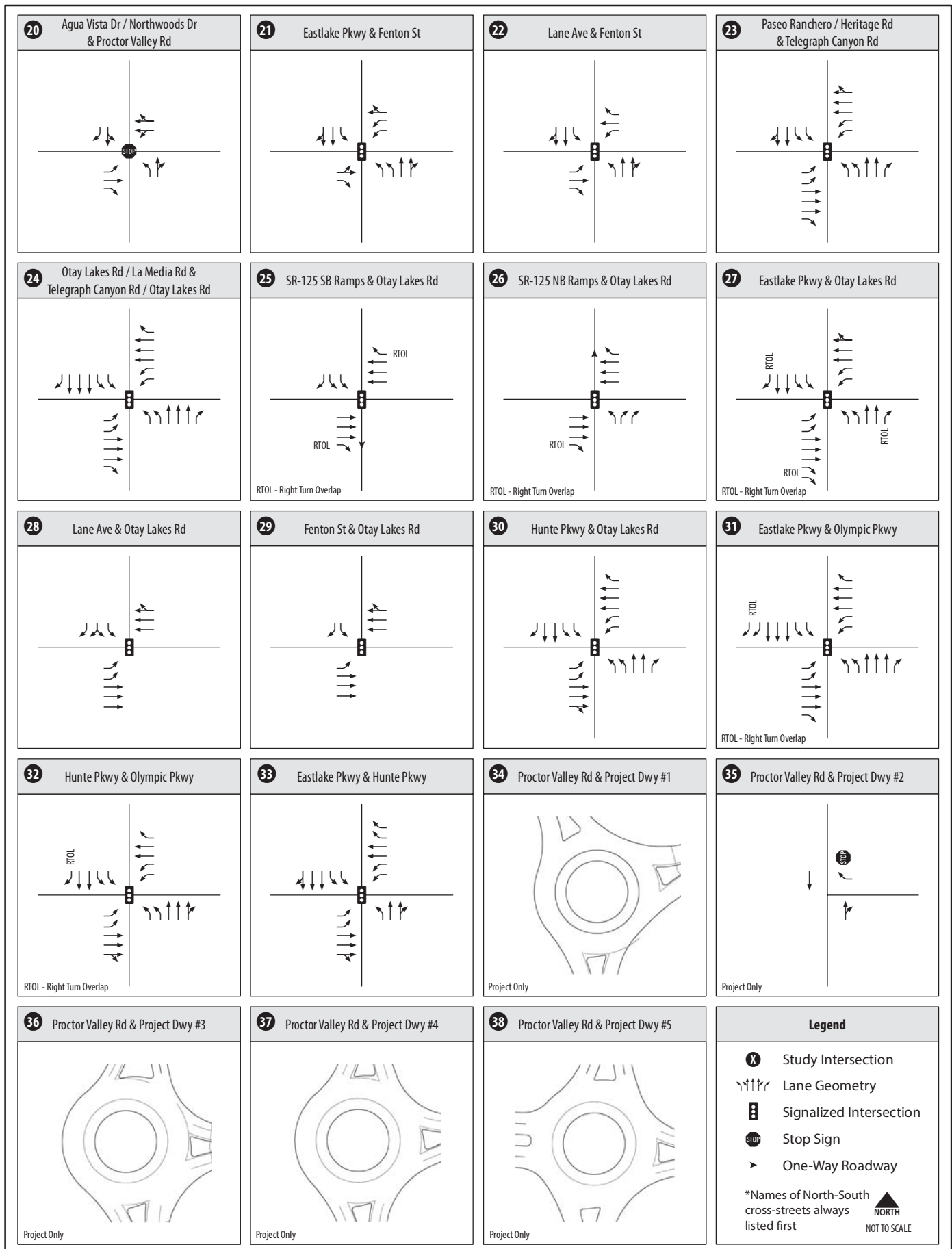
Table 6.1 displays intersection Level of Service and average vehicle delay results for the study area intersections under Year 2025 conditions. All intersections are signalized unless otherwise noted. Level of Service calculation worksheets for Year 2025 conditions are provided in **Appendix J**.



Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
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Figure 6-4
Year 2025 Roadway Geometry





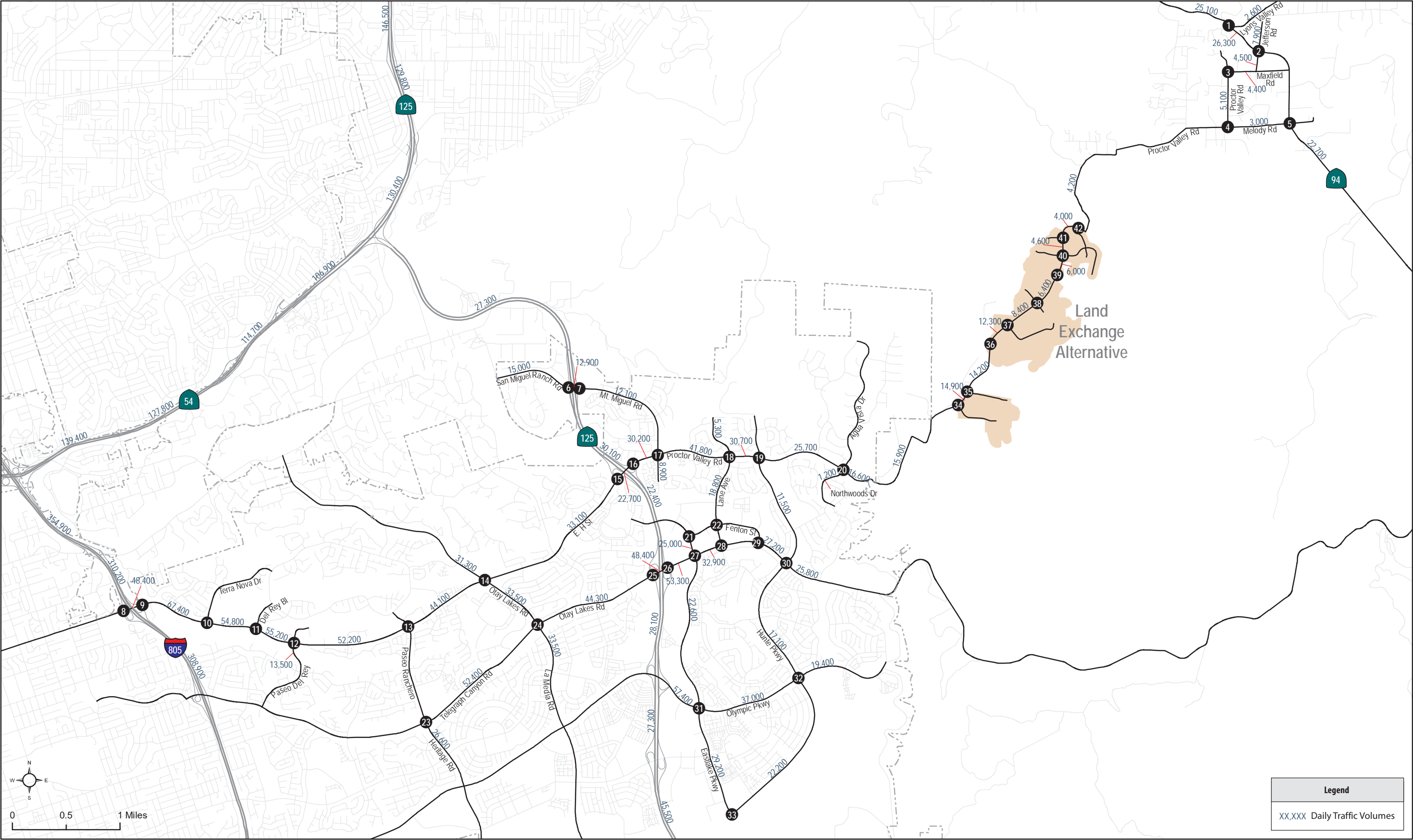
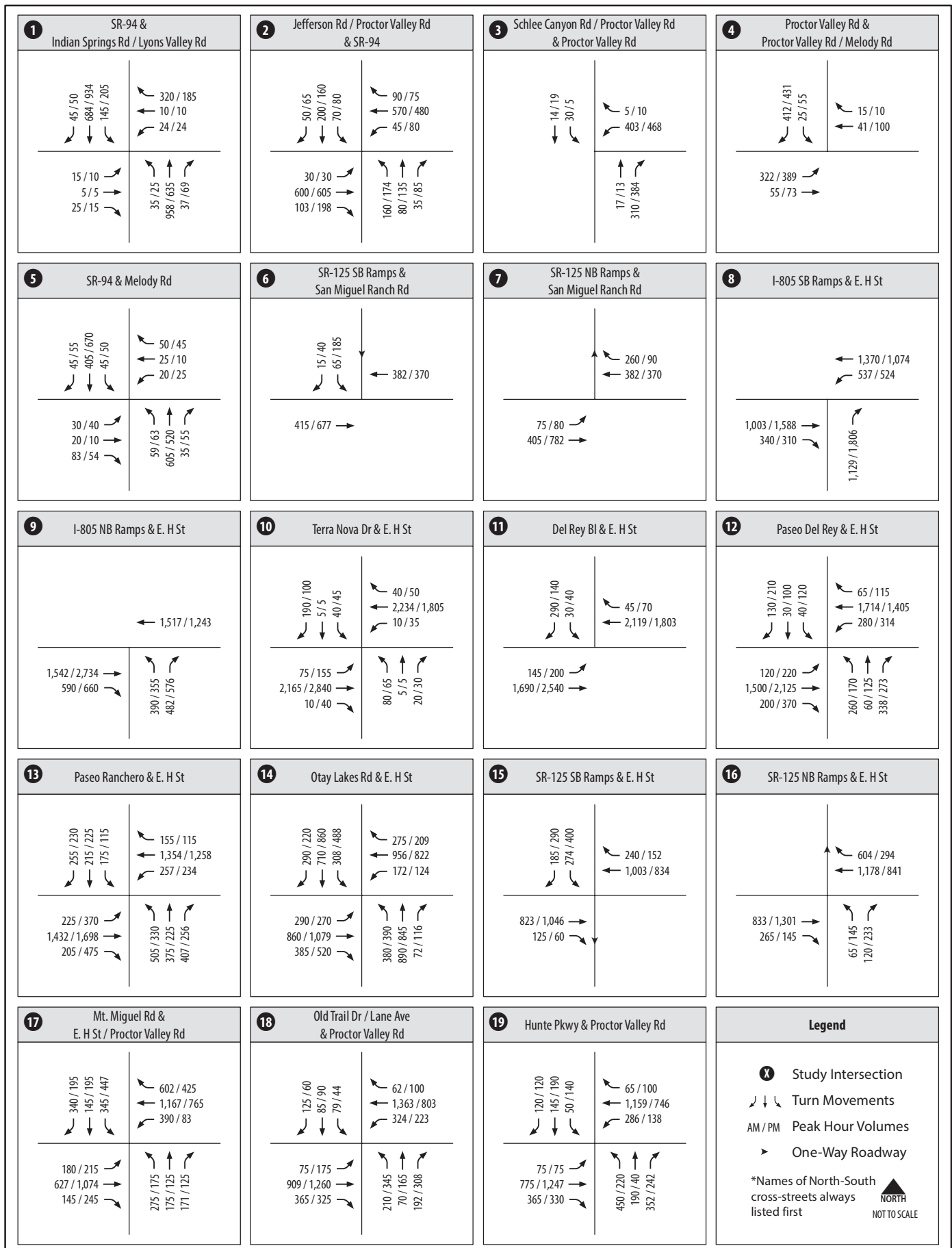
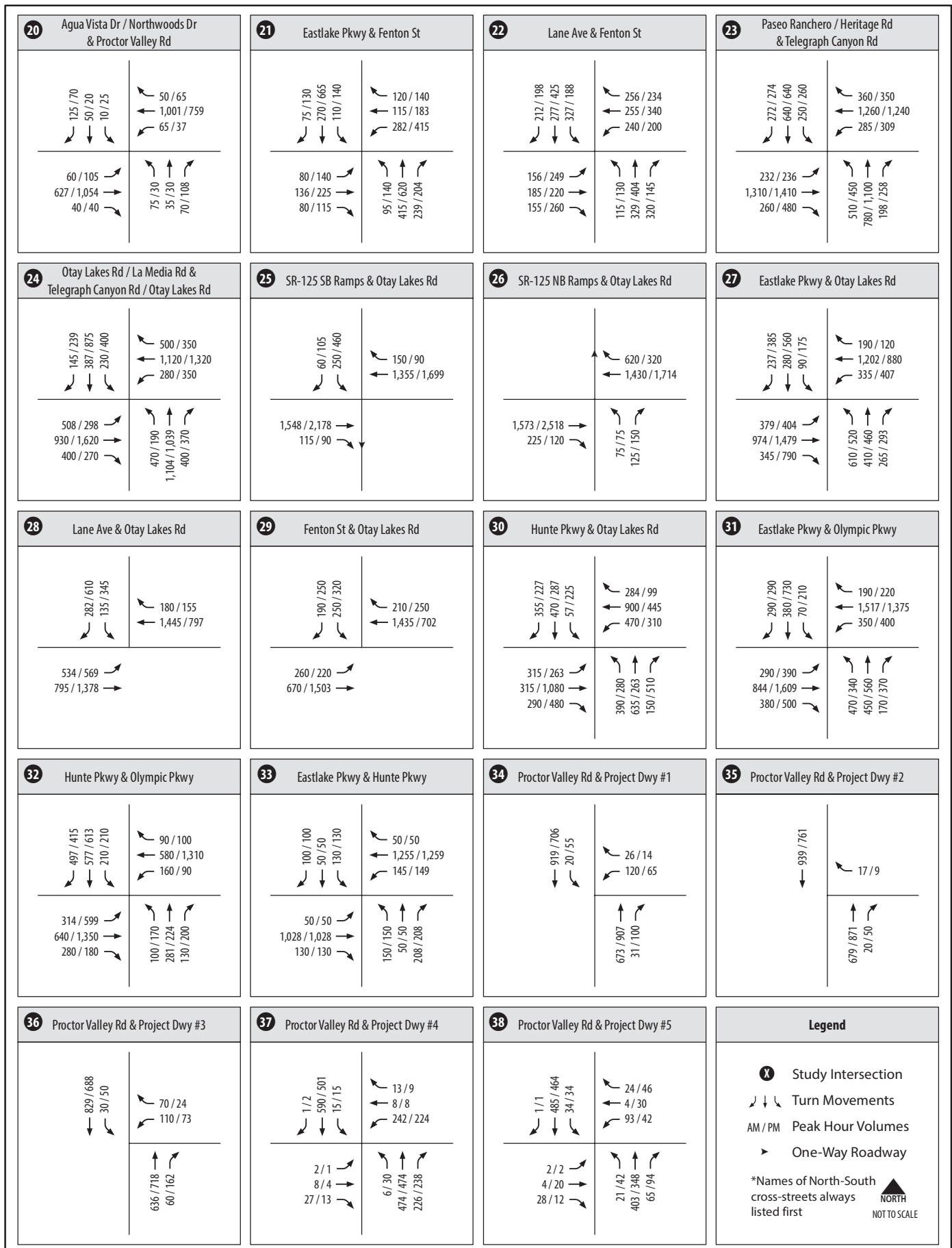


Figure 6-6
Daily Roadway Traffic Volumes - Year 2025 Conditions





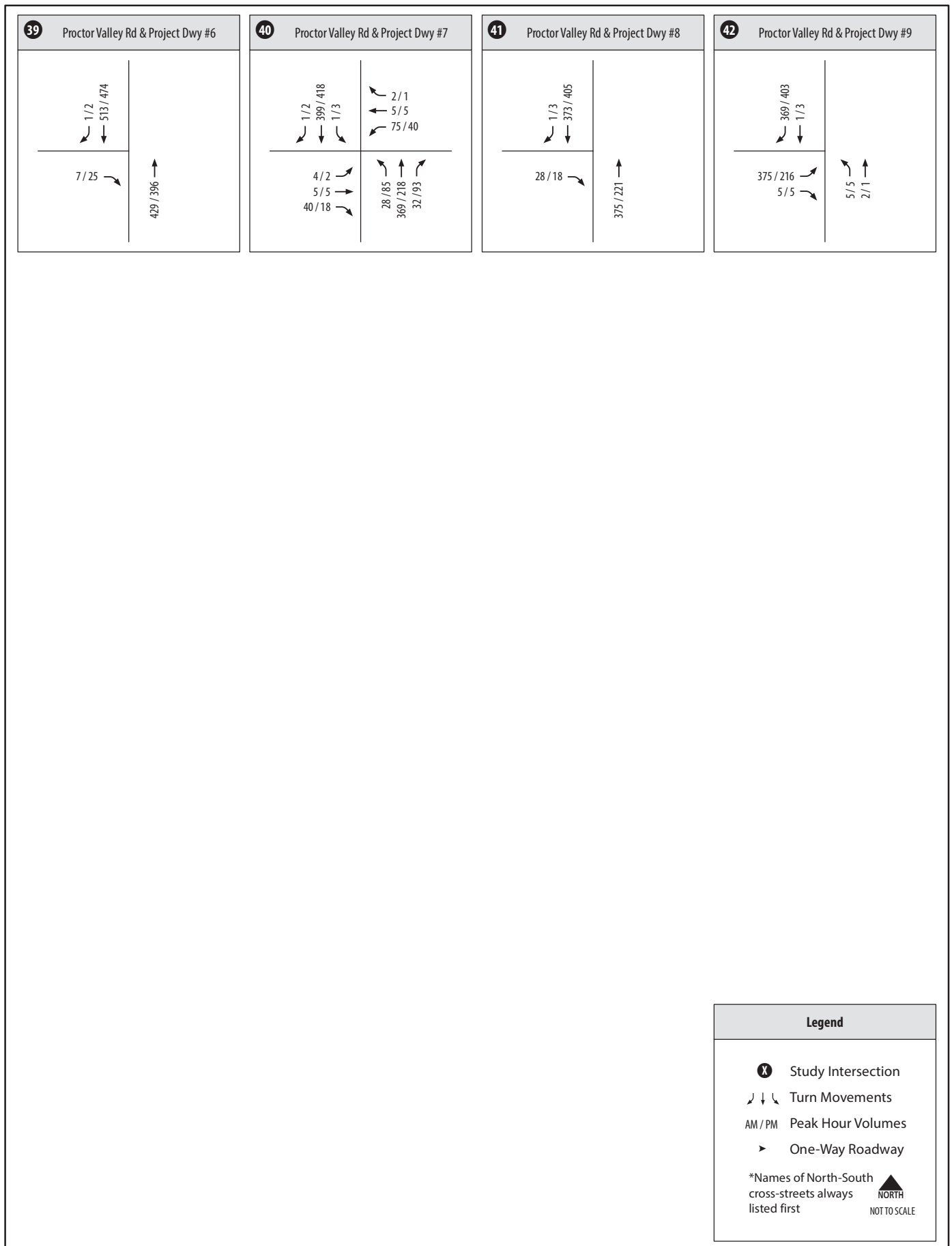


Table 6.1 Peak Hour Intersection LOS Results – Year 2025 Conditions

			Year 2025				Existing		Impact Criteria by Jurisdiction			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego (Change in Delay (seconds))	Chula Vista (Project % of Entering Volume)	County	
Intersection	Control		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM	
1 SR-94 & Lyons Valley Road	SSSC		>500	F	>500	F	81.5 / 79.7	F / F	-			Yes
2 Proctor Valley Road/Jefferson Road & SR-94	Signal		22.6	C	38.7	D	10.6 / 10.0	B / B	12.0 / 28.7			No
3 Proctor Valley Road & Maxfield Road	SSSC		12.5	B	13.7	B	9.0 / 9.0	A / A				No
4 Proctor Valley Road & Melody Road	SSSC		8.8	A	9.1	A	8.4 / 8.4	A / A				No
5 SR-94 & Melody Road	Signal		11.8	B	11.6	B	13.6 / 18.1	B / C	-1.8 / - 6.5			No
6 San Miguel Ranch Road & SR-125 SB Ramps	Signal		21.9	C	19.4	B				14.5% / 11.2%		No
7 San Miguel Ranch Road & SR-125 NB Ramp	Signal		17.0	B	14.5	B				11.3% / 11.9%		No
8 I-805 SB Ramp & East H Street	Signal		10.2	B	13.4	B				1.0% / 0.8%		No
9 I-805 NB Ramp & East H Street	Signal		10.3	B	13.9	B				1.3% / 1.2%		No
10 Terra Nova Drive & East H Street	Signal		14.3	B	16.6	B				1.2% / 1.3%		No
11 East H Street & Del Rey Boulevard	Signal		13.0	B	9.2	A				1.3% / 1.4%		No
12 Pasel Del Rey & East H Street	Signal		22.5	C	33.9	C				3.4% / 3.4%		No
13 Paseo Ranchero & East H Street	Signal		53.6	D	50.1	D				3.5% / 4.1%		No
14 Otay Lakes Road & East H Street	Signal		39.7	D	44.3	D				4.5% / 5.0%		No
15 SR-125 SB Ramp & East H Street	Signal		6.4	A	7.6	A				14.0% / 15.9%		No
16 SR-125 NB Ramp & East H Street	Signal		3.8	A	5.4	A				15.8% / 19.8%		No

Table 6.1 Peak Hour Intersection LOS Results – Year 2025 Conditions

			Year 2025				Existing		Impact Criteria by Jurisdiction			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego (Change in Delay (seconds))	Chula Vista (Project % of Entering Volume)	County	
Intersection	Control		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM	
17	Mt Miguel Road & East H Street	Signal	45.8	D	33.7	C				14.4% / 19.3%		No
18	Lane Avenue & East H Street	Signal	38.3	D	39.8	D				21.2% / 21.7%		No
19	Hunte Parkway & East H Street	Signal	29.3	C	25.4	C				24.9% / 32.0%		No
20	Northwoods Drive / Agua Vista Drive & Proctor Valley Road	AWSC	60.5	F	58.3	F				48.6% / 52.1%		Yes
21	East Lake Parkway & Fenton Street	Signal	25.7	C	46.3	D				3.4% / 2.7%		No
22	Lane Avenue & Fenton Street	Signal	36.0	D	35.2	D				2.4% / 2.3%		No
23	Heritage Road/Paseo Ranchero & Telegraph Canyon Road	Signal	52.9	D	53.5	D				0.9% / 1.0%		No
24	La Media Road & Telegraph Canyon Road / Otay Lakes Road	Signal	47.2	D	53.8	D				0.5% / 0.6%		No
25	SR-125 SB Ramps & Otay Lakes Road	Signal	11.6	B	11.3	B				1.2% / 0.9%		No
26	SR-125 NB Ramps & Otay Lakes Road	Signal	9.3	A	12.5	B				1.4% / 1.8%		No
27	East Lake Parkway & Otay Lakes Road	Signal	42.7	D	49.9	D				1.3% / 1.5%		No
28	Lane Avenue & Otay Lakes Road	Signal	20.8	C	35.3	D				1.3% / 1.9%		No
29	Hunte Parkway & Otay Lakes Road	Signal	19.8	B	26.3	C				2.3% / 2.5%		No
30	Fenton Street & Otay Lakes Road	Signal	30.1	C	41.7	D				3.3% / 3.9%		No
31	East Lake Parkway & Olympic Parkway	Signal	27.3	C	33.4	C				0.2% / 0.2%		No

Table 6.1 Peak Hour Intersection LOS Results – Year 2025 Conditions

		Control	Year 2025				Existing		Impact Criteria by Jurisdiction			Significant Impact?
			AM Peak Hour		PM Peak Hour		Avg. Delay (sec.)	LOS	Caltrans/ San Diego (Change in Delay (seconds))	Chula Vista (Project % of Entering Volume)	County	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	AM/PM	AM/PM	AM/PM	AM/PM	AM/PM	
32	Hunte Parkway & Olympic Parkway	Signal	20.7	C	45	D				1.8% / 1.5%		No
33	East Lake Parkway & Hunte Parkway	Signal	30.2	C	30.3	C	Does Not Exist			1.4%/1.6%		No
34	Proctor Valley Road & Project Driveway #1	RA	32.6	D	34.8	D	Does Not Exist					No
35	Proctor Valley Road & Project Driveway #2	SSSC	13.8	B	16.7	C	Does Not Exist					No
36	Proctor Valley Road & Project Driveway #3	RA	17.3	C	15.9	C	Does Not Exist					No
37	Proctor Valley Road & Project Driveway #4	RA	11.2	B	10.2	B	Does Not Exist					No
38	Proctor Valley Road & Project Driveway #5	RA	7.0	A	6.7	A	Does Not Exist					No
39	Proctor Valley Road & Project Driveway #6	SSSC	10.7	B	13.6	B	Does Not Exist					No
40	Proctor Valley Road & Project Driveway #7	RA	5.7	A	5.8	A	Does Not Exist					No
41	Proctor Valley Road & Project Driveway #8	SSSC	10.7	B	10.9	B	Does Not Exist					No
42	Proctor Valley Road & Project Driveway #9	AWSC	12.8	B	10.4	B	Does Not Exist					No

Source: Chen Ryan Associates; August 2015

Notes:

AWSC: All-way stop controlled intersection.

SSSC: Side Street stop controlled intersection, the delay shown is the worst delay experienced by any of the approaches.

RA: Roundabout.

Bold Indicates LOS E or F.

As shown in the table, all study area intersections are projected to operate at LOS D or better under Year 2025 conditions with the exception of the following:

- SR-94 & Lyons Valley Road (LOS F – during both the AM & PM peak hours).
- Northwoods Drive/Agua Vista Drive & Proctor Valley Road (LOS F – during both the AM and PM peak hours).

Based on the significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would cause a significant direct impact to the intersection listed above.

6.4.2 Roadway Segment Analysis

As to County of San Diego roadway segments, **Table 6.2a** displays the Level of Service analysis results for the study area roadway segments located within the County of San Diego under Year 2025 conditions.

Table 6.2a Roadway Segment LOS Results – Year 2025 Conditions – County of San Diego

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS D)	LOS w/ Project	Project ADT	Significant Impact?
Proctor Valley Rd	City of Chula Vista boundary to Project Driveway #1	2-Ln w/ RM	15,900	13,500	E	12,900	Yes (Cumulative)
	Project Driveway #1 to Project Driveway #2	2-Ln w/ RM	14,900	13,500	E	11,900	Yes (Cumulative)
	Project Driveway #2 to Project Driveway #3	2-Ln w/ RM	14,200	13,500	E	11,200	Yes (Cumulative)
	Project Driveway #3 to Project Driveway #4	2-Ln w/ RM	12,300	13,500	D	9,300	No
	Project Driveway #4 to Project Driveway #5	2-Ln w/ RM	8,400	13,500	C	5,400	No
	Project Driveway #5 to Project Driveway #6	2-Ln w/ RM	6,400	13,500	C	3,400	No
	Project Driveway #6 to Project Driveway #7	2-Ln	6,000	10,900	C	3,000	No
	Project Driveway #7 to Project Driveway #8	2-Ln	4,600	10,900	C	1,600	No
	Project Driveway #8 to Project Driveway #9	2-Ln	4,000	10,900	C	1,000	No
	Project Driveway #9 to Melody Rd	2-Ln	4,200	8,700	A	1,000	No
	Melody Rd to Schlee Canyon Rd	2-Ln	5,100	8,700	A	400	No
	Schlee Canyon Rd to Maxfield Rd	2-Ln	4,400	8,700	A	300	No
	Maxfield Rd to SR-94	2-Ln	4,200	8,700	A	300	No
Melody Rd	Lyons Valley Rd to Jefferson Rd	2-Ln	3,000	8,700	A	400	No
Jefferson Rd	Jefferson Rd to Maxfield Rd	2-Ln	7,900	8,700	D	100	No
Lyons Valley Rd	Maxfield Rd to Melody Rd	2-Ln	2,600	8,700	A	100	No

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

As shown, all study area roadway segments within the County of San Diego are projected to operate at LOS D or better within the addition of Land Exchange Alternative traffic, with the exception of the following:

- Proctor Valley Road, between City of Chula Vista boundary to Project Driveway #1 (LOS E);
- Proctor Valley Road, between Project Driveway #1 to Project Driveway #2 (LOS E); and
- Proctor Valley Road, between Project Driveway #2 to Project Driveway #3 (LOS E).

Based on the County of San Diego significance criteria outlined in Section 2.8, the addition of trips generated by the Land Exchange Alternative would cause significant cumulative impacts under Year 2025 conditions along the following roadway segments:

- Proctor Valley Road, between City of Chula Vista boundary to Project Driveway #1;
- Proctor Valley Road, between Project Driveway #1 to Project Driveway #2; and
- Proctor Valley Road, between Project Driveway #2 to Project Driveway #3.

As to City of Chula Vista roadway segments, **Table 6.2b** displays the Level of Service analysis results for study area roadway segments within the City of Chula Vista under Year 2025 conditions. As shown in the table, all study area roadway segments within the City of Chula Vista are projected to operate at LOS C or better under Year 2025 conditions within the exception of the following segments. Whether the Project would result in a significant impact at each segment is identified.

- *East H Street between Terra Nova Drive and Del Rey Boulevard (LOS D):*
 - Proposed buildout project trips would comprise 3.10% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 1,700 ADT (more than 800 ADT);
 - The intersections of E. H Street / Terra Nova Drive and E. H Street / Del Rey Boulevard are both projected to operate at LOS B or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *East H Street between Del Rey Boulevard and Paseo Del Rey (LOS D):*
 - Proposed buildout project trips would comprise 3.08% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 1,700 ADT (more than 800 ADT);
 - The intersections of E. H Street / Del Rey Boulevard and E. H Street / Paseo Del Rey are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *East H Street between Paseo Del Rey and Paseo Ranchero (LOS D):*
 - Proposed buildout project trips would comprise 3.64% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 1,900 ADT (more than 800 ADT);
 - The intersections of East H Street / Del Rey Boulevard and East H Street / Paseo Del Rey are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.

Table 6.2b Roadway Segment LOS Results – Year 2025 Conditions – City of Chula Vista

Roadway	From	Cross-Section	ADT w/ Project	ADT Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Peak Hour Operations	Significant Impact?
San Miguel Ranch Rd	Proctor Valley Rd to SR-125 SB Ramp	4-Ln w/ RM	15,000	22,000	A	1,500	10.00%	-	No
	SR-125 SB Ramp to SR-125 NB Ramp	4-Ln w/ RM	12,900	22,000	A	1,500	11.63%	-	No
San Miguel Ranch / Mt Miguel Rd	SR-125 NB Ramp to Proctor Valley Rd	4-Ln w/ RM	12,100	22,000	A	1,500	12.40%	-	No
Mt Miguel Rd	Proctor Valley Rd to Mackenzie Creek Rd	4-Ln w/ CLTL	8,900	22,000	A	300	3.37%	-	No
H St	I-805 SB Ramps to I-805 NB Ramps	6-Ln w/ RM	48,400	50,000	C	1,000	2.07%	-	No
	I-805 NB Ramps to Terra Nova Dr	7-Ln w/ RM	67,400	70,000	C	1,700	2.52%	-	No
	Terra Nova Dr to Del Rey Blvd	6-Ln w/ RM	54,800	50,000	D	1,700	3.10%	Yes	No
	Del Rey Blvd to Paseo Del Rey	6-Ln w/ RM	55,200	50,000	D	1,700	3.08%	Yes	No
	Paseo Del Rey to Paseo Ranchero	6-Ln w/ RM	52,200	50,000	D	1,900	3.64%	Yes	No
	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	44,100	50,000	C	2,100	4.76%	-	No
	Otay Lakes Rd to SR-125 SB Ramps	4-Ln w/ RM	33,100	30,000	D	2,500	7.55%	Yes	No
Proctor Valley Rd	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	22,700	50,000	A	3,800	16.74%	-	No
	SR-125 NB Ramps to Mt Miguel Rd	6-Ln w/ RM	30,000	50,000	A	5,400	18.00%	-	No
	Mt Miguel Rd to Lane Ave	6-Ln w/ RM	41,400	50,000	B	7,400	17.87%	-	No
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	30,700	50,000	A	9,600	31.27%	-	No
	Hunte Pkwy to Northwood Dr	4-Ln w/ RM	25,300	30,000	B	12,100	47.83%	-	No
	Northwoods Dr to City of Chula Vista/County Boundary	2-Ln w/ RM	16,500	12,000	F	12,800	77.58%	No	Yes (Direct)

Table 6.2b Roadway Segment LOS Results – Year 2025 Conditions – City of Chula Vista

Roadway	From	Cross-Section	ADT w/ Project	ADT Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Peak Hour Operations	Significant Impact?
Telegraph Canyon Rd	Paseo Ranchero to Otay Lakes Rd	6-Ln w/ RM	52,400	50,000	D	600	1.15%	Yes	No
Otay Lakes Rd	Ridgeback Rd to E. H St	6-Ln w/ RM	31,300	50,000	A	300	0.96%	-	No
	E. H St to Otay Lakes Rd	6-Ln w/ RM	32,900	50,000	A	0	0.00%	-	No
	Telegraph Canyon to SR-125 SB Ramps	6-Ln w/ RM	44,300	50,000	C	300	0.68%	-	No
	SR-125 SB Ramps to SR-125 NB Ramps	6-Ln w/ RM	48,400	50,000	C	600	1.24%	-	No
	SR-125 NB Ramps to Eastlake Pkwy	6-Ln w/ RM	53,300	50,000	D	600	1.13%	Yes	No
	Eastlake Pkwy to Lane Ave	6-Ln w/ RM	32,900	50,000	A	600	1.82%	-	No
	Lane Ave to Hunte Pkwy	6-Ln w/ RM	27,200	50,000	A	1,000	3.68%	-	No
	Hunte Pkwy to Woods Dr	6-Ln w/ RM	25,800	50,000	A	0	0.00%	-	No
Olympic Pkwy	SR-125 NB Ramps to Eastlake Pkwy	8-Ln w/ RM	57,400	70,000	B	100	0.17%	-	No
	Eastlake Pkwy to Hunte Pkwy	6-Ln w/ RM	37,000	50,000	A	400	1.08%	-	No
	Hunte Pkwy to Olympic Vista Rd	4-Ln w/ RM	19,400	30,000	A	0	0.00%	-	No
Paseo Del Rey	E. H St to E. J St	4-Ln w/ CLTL	13,500	22,000	A	300	2.22%	-	No
Heritage Rd	Telegraph Canyon Rd to E. Palomar St	6-Ln w/ RM	26,600	50,000	A	300	1.13%	-	No
La Media Rd	Otay Lakes Rd to E. Palomar St	6-Ln w/ RM	33,500	50,000	A	100	0.30%	-	No
Eastlake Pkwy	Miller Rd to Otay Lakes Rd	4-Ln w/ RM	25,000	30,000	B	400	1.60%	-	No
	Otay Lakes Rd to Olympic Pkwy	6-Ln w/ RM	22,600	50,000	A	0	0.00%	-	No
	Olympic Pkwy to Hunte Pkwy	6-Ln w/ RM	29,200	40,000	A	300	1.03%	-	No

Table 6.2b Roadway Segment LOS Results – Year 2025 Conditions – City of Chula Vista

Roadway	From	Cross-Section	ADT w/ Project	ADT Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution ($\geq 5\%$)	Peak Hour Operations	Significant Impact?
Old Trail Dr	N Trail Ct to Proctor Valley Rd	2-Ln	5,300	7,500	A	100	1.89%	-	No
Lane Ave	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ SM	18,800	22,000	B	1,500	7.98%	-	No
Hunte Pkwy	Proctor Valley Rd to Otay Lakes Rd	4-Ln w/ RM	11,500	30,000	A	2,400	20.87%	-	No
	Otay Lakes Rd to Olympic Pkwy	4-Ln w/ RM	17,400	30,000	A	1,700	9.77%	-	No
	Olympic Pkwy to Eastlake Pkwy	6-Ln w/ RM	22,200	50,000	A	400	1.80%	-	No
Northwoods Dr	Proctor Valley Rd to Blue Ridge Dr	2-Ln	1,200	7,500	A	700	58.33%	-	No

Source: Chen Ryan Associates; August 2015

Notes:

Peak Hour Operations: Do intersections along the roadway segment operate at LOS D or better during the peak hours? – For segments operating at D, E or F.

Bold Indicates LOS D, E, or F.

-
- *East H Street between Otay Lakes Road and SR-125 SB Ramps (LOS D):*
 - Proposed buildout project trips would comprise 7.55% (more than 5%) of the total segment volume;
 - Proposed buildout project trips would add 2,500 ADT (more than 800 ADT);
 - The intersections of East H Street / Otay Lakes Road and East H Street / SR-125 SB are both projected to operate at LOS D or better during both peak hours.
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
 - *Proctor Valley Road between Northwoods Drive to the City of Chula Vista Boundary (LOS F):*
 - Proposed buildout project trips would comprise 77.58% (more than 5%) of the total segment volume;
 - Proposed buildout project trips would add 12,800 ADT (more than 800 ADT);
 - The intersections of Northwoods Drive/Agua Vista Drive & Proctor Valley Road is projected to operate at LOS F during both the AM and PM peak hours;
 - Therefore, the Land Exchange Alternative **would have a significant direct impact** to this roadway segment.
 - *Telegraph Canyon Road between Paseo Ranchero to Otay Lakes Road (LOS D):*
 - Proposed buildout project trips would comprise 1.15% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 600 ADT (less than 800 ADT);
 - The intersections of Telegraph Canyon Road / Paseo Ranchero and Telegraph Canyon Road / Otay Lakes Road are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
 - *Otay Lakes Road between SR-125 NB Ramps and Eastlake Parkway (LOS D):*
 - Proposed buildout project trips would comprise 1.13% (less than 5%) of the total segment volume;
 - Proposed buildout project trips would add 600 ADT (less than 800 ADT);
 - The intersections of Otay Lakes Road / SR-125 NB and Otay Lakes Road / Eastlake Parkway are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.

6.4.3 Two-Lane Highway Segment Analysis

Table 6.3 displays two-lane highway Level of Service analysis results for SR-94 under Year 2025 conditions. This analysis was performed using the County of San Diego methodologies as described in Chapter 2.0. Three segments of SR-94 (between Lyons Valley Road and Jefferson Road, between Jefferson Road and Maxfield Road, and between Maxfield Road and Melody Road) were not included as a part of this analysis, since the distance between these signalized intersections is less than one mile, the Level of Service for these highway segments is determined based on the intersections' Level of Service along these segments.

Table 6.3 Two-Lane Highway Segment LOS Results – Year 2025 Conditions

Highway	Segment	LOS Threshold (LOS D)	ADT	LOS w/ Project	LOS w/o Project	Project ADT	Significant Impact?
SR-94	Vista Sage Ln to Lyons Valley Rd	16,200	25,200	F	F	100	No
	Lyons Valley Rd to Jefferson Rd		24,900	F	F	100	No
	Melody Rd to Otay Lakes Rd		16,000	D or better	D or better	100	No

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

As shown, all two-lane highway segments within the County of San Diego are projected to operate at LOS D or better with the addition of Proposed Project traffic, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, and SR-94 between Lyons Valley Road and Jefferson Road, both of which are projected to operate at LOS F.

Based on the County of San Diego significance criteria outlined in Section 2.8, the traffic associated with the Proposed Project would not have a significant cumulative impact on SR-94 within the project study area (Proposed Project will add less than 225 daily trips).

6.4.4 Freeway Mainline Analysis

Table 6.4 displays freeway Level of Service analysis results for the study area freeway mainline facilities under Year 2025 conditions. The freeway/state highway segment Level of Service analysis was performed utilizing the methodology presented in Section 2.5.

As shown in the table, the following 12 study area freeway mainline segments are projected to operate at LOS E or F under Year 2025 conditions.

- I-805, between Home Avenue and SR-94 (LOS F);
- I-805, between SR-94 and Market Street (LOS F);
- I-805, between Market Street and Imperial Avenue (LOS F);
- I-805, between Imperial Avenue and E Division Street (LOS F);
- I-805, between E Division Street and Plaza Boulevard (LOS F);
- I-805, between Plaza Boulevard to SR-54 (LOS F);
- I-805, between SR-54 and Bonita Road (LOS F);
- I-805, between Bonita Road and East H Street (LOS F);
- I-805, between East H Street and Telegraph Canyon Road (LOS F);
- SR-125, between SR-94 Junction and Jamacha Road (LOS F);
- SR-125, between Jamacha Road and Paradise Valley Road (LOS E); and
- SR-54, between I-805 and Reo Drive/Plaza Bonita Center Way (LOS E).

Based on the Freeway Mainline significance criteria outlined in Section 2.5, the traffic associated with the Land Exchange Alternative would comprise less than 5% of the projected traffic volume on any freeway segments operating at LOS E or F under Year 2025 conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

Table 6.4 Freeway/State Highway Segment LOS Results – Year 2025 Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
I-805	Home Ave to SR-94	286,200	7.9%	22,495	0.58	4M	0.95	6.0%	3,660	1.525	F	0.007	F	No
	SR-94 to Market St	286,200	8.0%	22,982	0.60	4M	0.95	6.0%	3,846	1.602	F	0.008	F	No
	Market St to Imperial Ave	349,900	8.0%	28,097	0.60	4M + 1 HOV + 1 Aux	0.95	6.0%	3,761	1.567	F	0.007	F	No
	Imperial Ave to E Division St	348,600	8.0%	27,993	0.60	5M + 1 HOV	0.95	6.0%	3,407	1.419	F	0.006	F	No
	E Division St to Plaza Blvd	334,200	8.0%	26,870	0.60	5M + 1 HOV + 1 Aux	0.95	6.0%	3,027	1.261	F	0.006	F	No
	Plaza Blvd to SR-54	324,500	8.0%	26,090	0.60	5M + 1 HOV	0.95	6.0%	3,206	1.336	F	0.007	F	No
	SR-54 to Bonita Rd	354,900	8.0%	28,427	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	3,660	1.525	F	0.004	F	No
	Bonita Rd to East H St	310,200	8.0%	24,847	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	3,199	1.333	F	0.003	F	No
	East H St to Telegraph Canyon Rd	308,900	8.0%	24,743	0.57	5M + 1 HOV	0.95	7.3%	2,896	1.207	F	0.002	F	No
SR-125	SR-94 Junction to Jamacha Rd	146,500	8.8%	12,833	0.56	3M	0.95	4.4%	2,621	1.092	F	0.006	F	No
	Jamacha Rd to Paradise Valley Rd	129,800	8.8%	11,370	0.56	3M	0.95	4.4%	2,322	0.968	E	0.006	E	No
	Paradise Valley Rd to SR-54 Junction	130,400	8.8%	11,423	0.56	3M + 1 HOV	0.95	4.4%	2,000	0.833	D	0.005	D	No
	SR-54 to Mt. Miguel Rd	27,300	7.0%	1,911	0.59	2M	0.95	1.9%	605	0.252	A	0.016	A	No
	Mt. Miguel Rd to Proctor Valley Rd	30,100	7.0%	2,107	0.59	2M	0.95	1.9%	667	0.278	A	0.014	A	No
	Proctor Valley Rd to Otay Lakes Rd	22,400	7.0%	1,568	0.59	2M	0.95	1.9%	496	0.207	A	0.004	A	No
	Otay Lakes Rd to Olympic Pkwy	28,100	7.0%	1,967	0.59	2M	0.95	1.9%	623	0.259	A	0.007	A	No
	Olympic Pkwy to Birch Rd	27,300	7.0%	1,911	0.59	2M	0.95	1.9%	605	0.252	A	0.007	A	No

Table 6.4 Freeway/State Highway Segment LOS Results – Year 2025 Conditions

Freeway	Segment	ADT	K	Peak Hour Volume	D	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
SR-125	Birch Rd to Main St	45,500	7.0%	3,185	0.59	2M	0.95	1.9%	1,008	0.420	B	0.007	B	No
	Main St to Otay Valley Rd	45,500	7.0%	3,185	0.59	2M	0.95	1.9%	1,008	0.420	B	0.007	B	No
	Otay Valley Rd to Lone Star Rd	45,900	7.0%	3,213	0.59	2M	0.95	1.9%	1,017	0.424	B	0.007	B	No
	Lone Star Rd to Otay Mesa Rd	45,900	7.0%	3,213	0.59	2M	0.95	1.9%	1,017	0.424	B	0.007	B	No
SR-54	I-805 to Reo Dr/Plaza Bonita Center Wy	139,400	8.2%	11,473	0.58	3M	0.95	1.9%	2,369	0.987	E	0.012	E	No
	Reo Dr/Plaza Bonita Center Wy to Woodman St	127,800	8.3%	10,633	0.55	3M	0.95	1.9%	2,096	0.873	D	0.012	D	No
	Woodman St to Briarwood Rd	114,700	8.3%	9,486	0.55	3M	0.95	1.9%	1,870	0.779	D	0.012	D	No
	Briarwood Rd to SR-125 Junction	106,900	8.5%	9,033	0.52	3M + 1 HOV	0.95	1.9%	1,432	0.597	C	0.004	C	No

Source: Chen Ryan Associates; August 2015

Notes:

K = Percent of Traffic during the peak hour.

D = Directional split.

HVF = Percent of heavy vehicles.

PHF = Peak Hour Factor

M = Mainline lane.

HOV = High Occupancy Vehicle lane.

Aux = Auxiliary lane.

Bold Indicates LOS E or F.

6.4.5 Ramp Intersection Capacity Analysis

Consistent with Caltrans' requirements, the signalized ramp intersections within the project study area were analyzed using ILV procedures, as described in Section 2.6. ILV analysis results are displayed in **Table 6.5** and analysis worksheets for Year 2025 conditions are provided in **Appendix J**.

Table 6.5 Ramp Intersection Capacity Analysis – Year 2025 Conditions

Intersection	Peak Hour	ILV/hour	Capacity
SR-125 SB / Mt. Miguel	AM	273	Under Capacity
	PM	524	Under Capacity
SR-125 NB / Mt. Miguel	AM	396	Under Capacity
	PM	391	Under Capacity
I-805 SB / H Street	AM	1,549	Over Capacity
	PM	2,060	Over Capacity
I-805 NB / H Street	AM	1,049	Under Capacity
	PM	932	Under Capacity
SR-125 SB / H Street	AM	687	Under Capacity
	PM	707	Under Capacity
SR-125 NB / H Street	AM	458	Under Capacity
	PM	425	Under Capacity
SR-125 SB / Mt. Miguel	AM	641	Under Capacity
	PM	956	Under Capacity
SR-125 NB / Otay Lakes Road	AM	695	Under Capacity
	PM	914	Under Capacity

Source: Chen Ryan Associates; August 2015

As shown, all freeway ramp interchange intersections are projected to operate at or under capacity under Year 2025 conditions, with the exception of the intersection of I-805 SB / H Street, which would be over capacity during both the AM and PM peak hours.

6.4.6 Ramp Meter Analysis

Table 6.6 displays the ramp metering analysis conducted at study area freeway ramps under Year 2025 conditions. Ramp meter rates are expected to be the same in Year 2025 as under Existing conditions. Ramp meter excess demand, delay, and queuing results were calculated using the methodologies outlined in Section 2.7.

As shown in the table, under Year 2025 conditions, the peak hour ramp volumes are anticipated to exceed the current ramp meter rate at the I-805 NB On-Ramp @ EB H Street during the AM peak hour, resulting in approximately 17 minutes of delay. However, since the Land Exchange Alternative is located to the east of this ramp, Land Exchange Alternative traffic would access northbound I-805 from the westbound

direction only. Therefore, the Land Exchange Alternative would not add any additional traffic to the I-805 NB On-Ramp @ EB H Street and, as a result, would not contribute to impacts at this ramp.

Table 6.6 Ramp Metering Analysis – Year 2025 Conditions

Location	Peak Hour	With Project					Without Project				S?
		Peak Hour Volume	Meter Rate ¹	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)	Peak Hour Volume	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)	
I-805 NB On-Ramp @ WB H Street	AM	821	934	0	0	0	795	0	0	0	No
I-805 NB On-Ramp @ EB H Street	AM	472	369	103	16.75	2,987	472	103	16.75	2,987	No

Source: Chen Ryan Associates; August 2015

Notes:

1. Meter Rate is the peak hour capacity expected to be processed through the ramp meter (veh/hr). This value was obtained from Caltrans.
2. Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater (veh/hr).
3. Delay = (Excess Demand / Meter Rate) X 60 min/hr.
4. Queue = (Excess Demand) X 29 ft/veh.

6.5 Impact Significance and Mitigation

This section identifies required mitigation measures for intersection and roadway facilities that would be significantly impacted by Land Exchange Alternative-related traffic under Year 2025 conditions.

6.5.1 Intersection

The Proposed Project would have a cumulative impact on one (1) intersection within the County of San Diego that is under the jurisdiction and control of Caltrans, as well as a project-specific impact on one (1) intersection, in the City of Chula Vista. The following intersection improvements would be required to mitigate the identified traffic impact:

- *SR-94 & Lyons Valley Road (Direct Impact, County of San Diego)* – Signalization by the 741st EDU would mitigate the direct impact at this intersection. A traffic signal warrant was conducted, and based upon MUTCD 2012 Figure 4C-103 (CA), this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants (provided in Appendix K). This intersection is a Caltrans facility in which the County does not have jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that this improvement is part of the improvement project analyzed in the Caltrans’ State Route 94 Improvement Project Draft EIR, July 2015. In addition, this improvement is also included as a mitigation measure in the Jamul Indian Village Final Environmental Evaluation.
- *Northwoods Drive/Agua Vista Drive & Proctor Valley Road (City of Chula Vista)* – Signalization by the 327th EDU would mitigate the significant project-specific impact at this intersection. A traffic signal warrant was conducted, and based upon MUTCD 2012 Figure 4C-103 (CA), this intersection would

satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. The signal warrant worksheet is provided in **Appendix K**. However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. However, it should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

Table 6.7 displays Level of Service analysis results for the mitigated intersection under Year 2025 conditions. Calculation worksheets for the intersection analysis are provided in **Appendix K**.

As shown in the table, after implementation of the identified improvements, the impacted intersections would operate at acceptable LOS D or better during both peak hours, which would reduce the Land Exchange Alternative related impacts to less than significant.

Table 6.7 Mitigated Intersection LOS Year 2025 Conditions

Intersection	Before Mitigation				After Mitigation			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Avg. Delay (Sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
SR-94 & Lyons Valley Road	>500	F	>500	F	37.9	D	22.9	C
Northwoods Drive / Agua Vista Drive & Proctor Valley Road	60.5	F	58.3	F	18.9	B	16.8	B

Source: Chen Ryan Associates; June 2015

Note:

Bold Indicates LOS E or F.

6.5.2 Roadway Segments

The Land Exchange Alternative would significantly impact one (1) roadway segment located in the City of Chula Vista and three (3) roadway segments within the County of San Diego under Year 2025 conditions. The following improvements would be required to mitigate these impacts:

Segments in the City of Chula Vista

The Land Exchange Alternative would impact one (1) roadway segments located in the City of Chula Vista under Year 2025 conditions. The following roadway improvements would be required to mitigate these impacts:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific Impact, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector. With widening to a Class I Collector, the Project’s significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS A once widened and no further mitigation would be required.

Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which identifies the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street. Widening the segment from the 2-lane configuration to four lanes, as recommended by the mitigation measure, would not conflict with the City’s long-range road widening plans (four lanes) because the mitigation improvement (widen from two to four lanes) does not foreclose or conflict with the City’s ultimate build-out plans or programs, and would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if future traffic conditions warrant such action.

As shown in **Table 6.8**, the proposed improvement would fully mitigate the Land Exchange Alternative’s project specific impact to the segment of Proctor Valley Road, between Northwoods Drive and the City of Chula Vista boundary. However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

Table 6.8 Mitigated Roadway Segment LOS Year 2025 Conditions

Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project
Proctor Valley Road	Northwoods Drive and the City of Chula Vista Boundary	Class I Collector	16,500	22,000	A

Source: Chen Ryan Associates; August 2015

Cumulative Impacts

County of San Diego – The Land Exchange Alternative was identified to have a significant cumulative impact along the following three (3) segments of Proctor Valley Road along the Land Exchange Alternative frontage:

- *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; and*
- *Proctor Valley Road, between Project Driveway #2 and Project Driveway #3.*

As mitigation, the Land Exchange Alternative applicant will pay the appropriate Transportation Impact Fee (TIF). However, based on the daily roadway segment volume to capacity analysis method, the three identified segments are projected to continue to operate at substandard LOS E under Year 2025 conditions even after the segments are constructed to their ultimate classification as a 2.2A facility. Based on the arterial analysis shown in **Appendix K**, and summarized in **Table 6.9** below, when constructed to 2.2A, the average travel speed along these segments will be around 30 mph, which is just under the roadway design speed of 35 mph since there are minimal to no interruptions along this corridor.

Table 6.9 Arterial LOS Results After Mitigation Year 2025 Conditions

Arterial	AM Peak Hour		PM Peak Hour	
	Speed (mph)	Design Speed (mph)	Speed (mph)	Design Speed (mph)
Proctor Valley Road, between the City of Chula Vista Boundary and Project Driveway #1	22.0	40	28.0	40
Proctor Valley Road, between Project Driveway #1 and Project Driveway #2	30.1	40	28.4	40
Proctor Valley Road, between Project Driveway #2 and Project Driveway #3	30.1	40	29.6	40

Source: Chen Ryan Associates; August 2015

Due to the minimal interruptions along Proctor Valley Road, and the distance between Northwood Drive and Project Driveway #1 as greater than 1 mile, it was determined that a more detailed arterial analysis of the three segments would be conducted to further assess future operating conditions. Specifically, the Highway Capacity Software (HCS) 2000 developed by McTrans was utilized to conduct a supplemental arterial analysis. The HCS arterial analysis methodology is based upon Chapter 20 (2-Lane Highway) of the Highway Capacity Manual (HCM) 2000, which determines average travel speed and facility level of service according to the roadway functional classification. Based on the analysis, the average travel speed along these segments would be LOS D when constructed to ultimate classification as a 2.2A facility since there are minimal to no interruptions along this corridor.

In addition, implementation of the Land Exchange Alternative traffic control along Proctor Valley Road would include a number of roundabouts. It has been well documented by the La Jolla Bird Rock roundabouts and other national-level research that 2 lanes of travel with roundabouts can carry up to 25,000 cars per day, which exceeds the projected 15,900 ADT for Proctor Valley Road. Additionally, multi-purpose trail would be provided along the eastside of Proctor Valley Road, which would greatly improve safety and comfort for pedestrians and bicyclists. Therefore, based on the supplemental analysis, the cumulative impact at the three identified segments of Proctor Valley Road, between the City of Chula Vista boundary and Project Driveway #3, is expected to be reduced to less than significant with construction of the segments to a 2.2A facility. However, based on the results of the volume to capacity analysis, and to be conservative, this impact is considered significant and unavoidable.

7.0 Year 2030 Conditions

This section provides an analysis of Year 2030 traffic conditions with the Land Exchange Alternative. Since the Land Exchange Alternative land uses are less than those provided for in the County of San Diego General Plan, the Land Exchange Alternative is necessarily consistent with the General Plan and no long-range General Plan consistency assessment is required for the Land Exchange Alternative. Therefore, intersection, roadway segment, freeway mainline, and ramp analyses in this section are limited to facilities within the City of Chula Vista.

7.1 Year 2030 Project Trip Generation, Distribution and Assignment

Year 2030 Project trip assignment was derived by assigning the Land Exchange Alternative buildout trip generation estimates (Table 4.1) to the surrounding roadway network based on the Year 2030 Land Exchange Alternative trip distribution patterns displayed in Figure 7-1. The Year 2030 Land Exchange Alternative trip distribution patterns were derived using the SANDAG Series 11 Year 2030 Select Zone assignment, which is provided in **Appendix C. Figure 7-2** and **Figure 7-3** display the Year 2030 project trip assignment at study area roadway segments and intersections, respectively.

7.2 Year 2030 Roadway Network

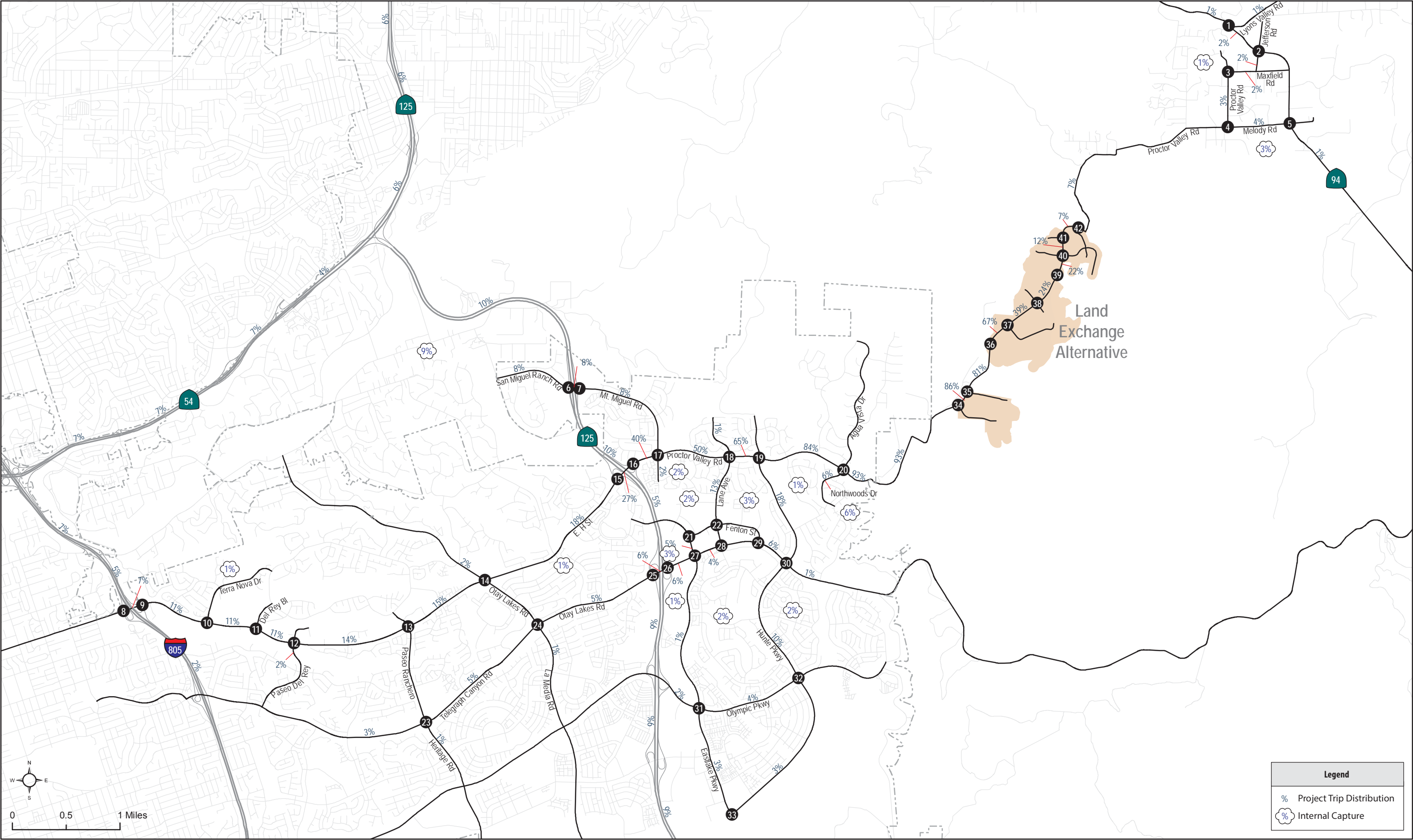
The Year 2030 roadway network is based on buildout of the County Circulation Element, the proposed City of Chula Vista General Plan Circulation Element, as well as the City of San Diego's adopted Community Plan Circulation Element. The following additional network specific improvements were also assumed:

To Be Constructed by the Project:

- The Land Exchange Alternative will construct Proctor Valley Road as a Light Collector with a Raised Median (2.2A) between its current eastern terminus point within the City of Chula Vista to Project Driveway 6.
- The Land Exchange Alternative will construct Proctor Valley Road as a Light Collector (2.2E) between Driveway #6 and Driveway #9.
- The Land Exchange Alternative will construct Proctor Valley Road as a two-lane interim roadway (28 feet paved on a 40-foot right-of-way) between Project Driveway #9 and its current western terminus point located in the Jamul Community.

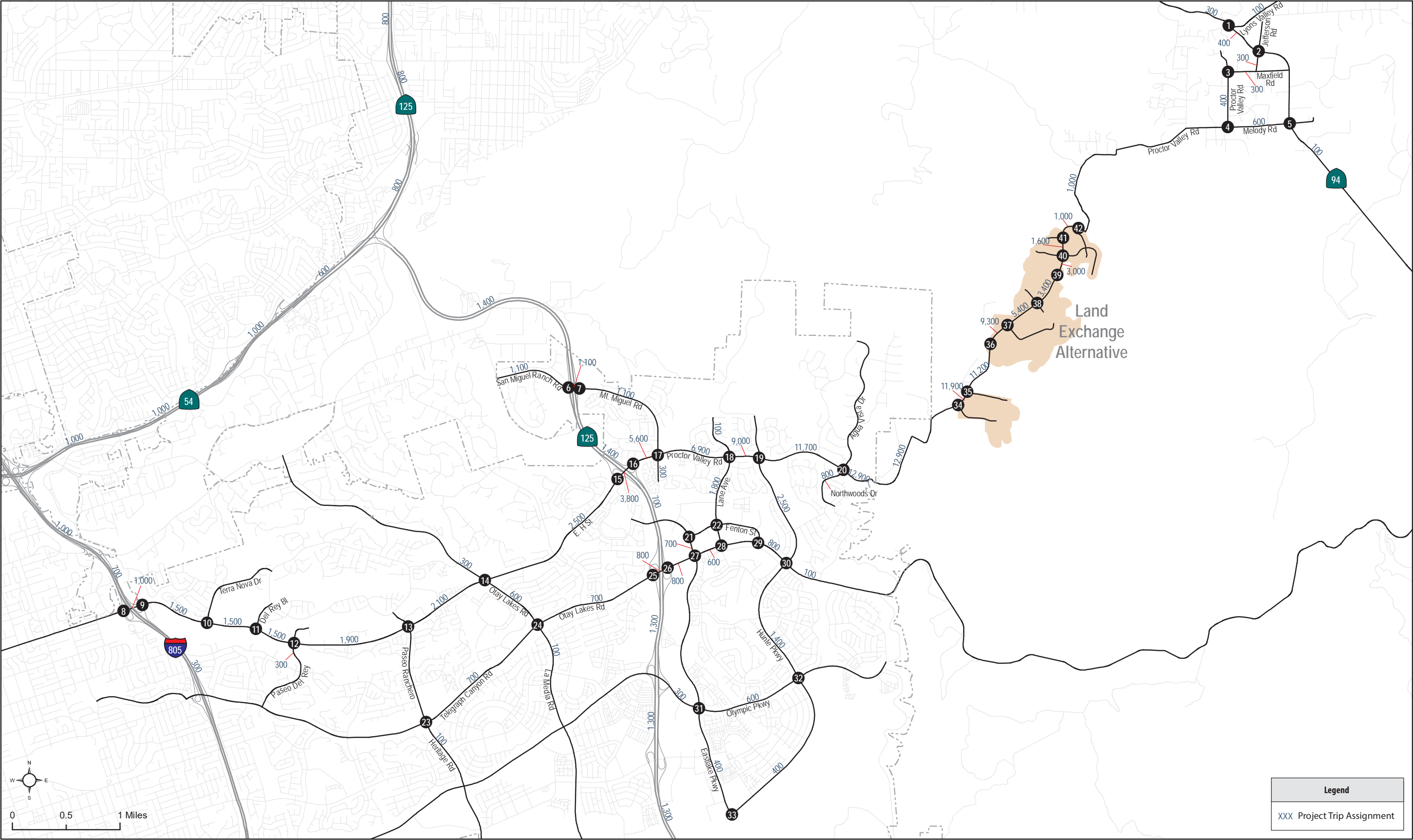
To Be Constructed by Others:

- All Improvements assumed under Year 2025 Conditions.
- Main Street is constructed as a 6-Lane Gateway between the SR-125 SB ramps and Eastlake Parkway (City of Chula Vista 2014-2015 TDIF – Facility #64)
- The SR-125 / Main Street interchange is included as a full interchange with partial clover leaf. (City of Chula Vista 2014-2015 TDIF – Facility # 67)
- Otay Valley Road is constructed as a 4-Lane Major Arterial between Main Street and Village 9 Street "B". (City of Chula Vista 2014 – 2015 TDIF – Facility #56C & 72)
- The Otay Valley Road / SR-125 interchange is included as south facing half diamond interchange. (City of Chula Vista 2014-2015 TDIF – Facility #68)



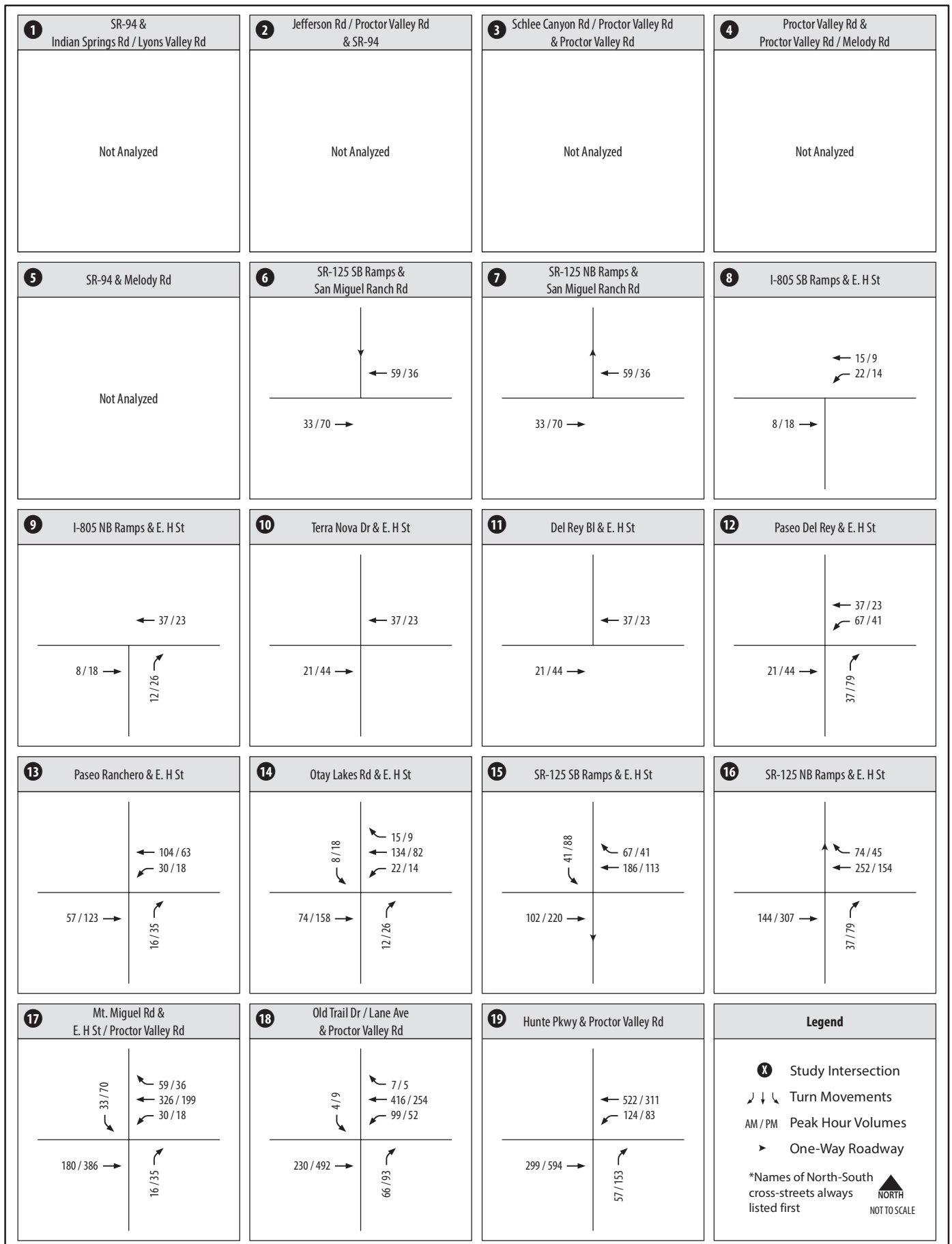
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 7-1
Project Trip Distribution (Year 2030 Conditions)



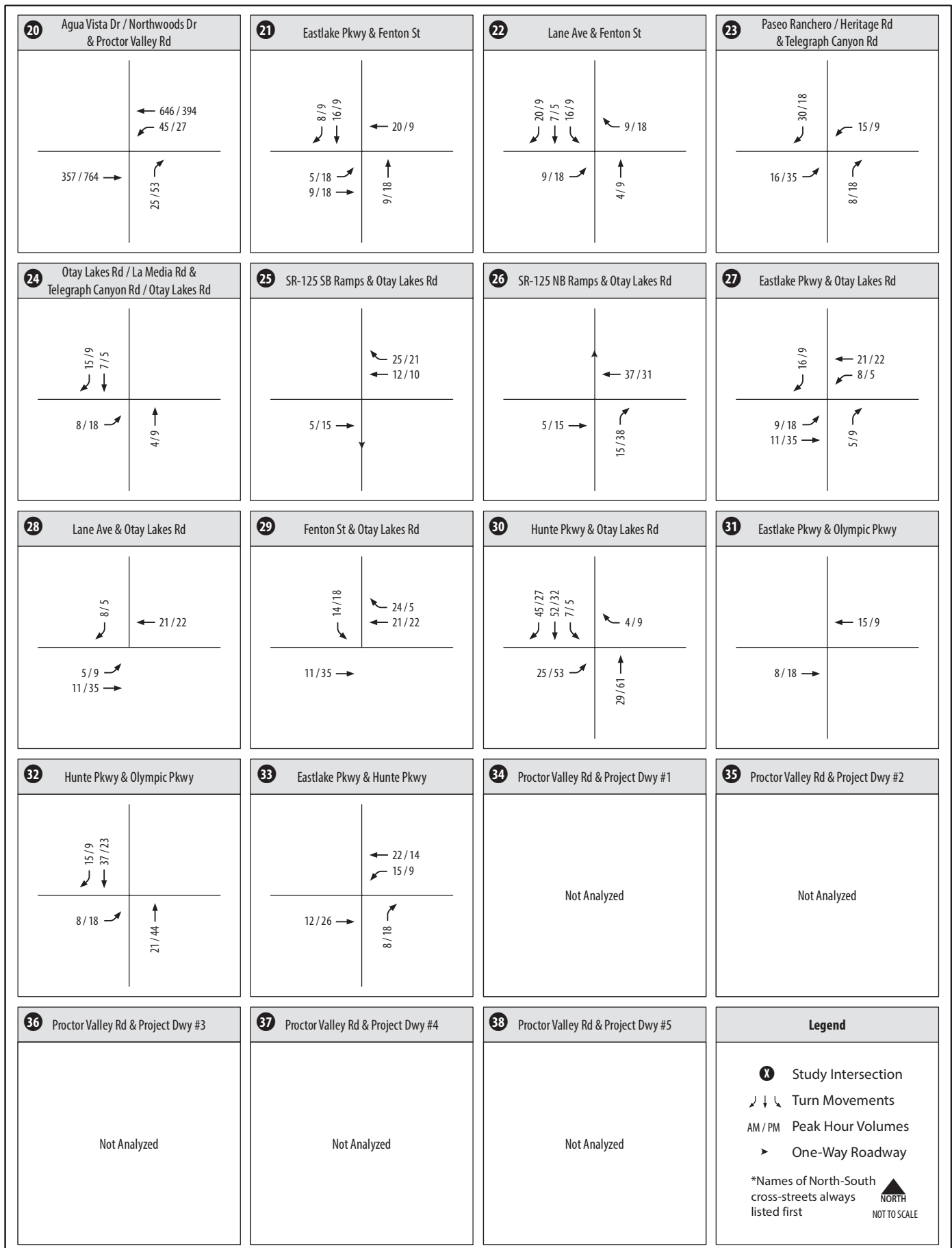
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 7-2
Proposed Project Daily Roadway Trip Assignment (Year 2030 Conditions - Project Buildout)



Otay Ranch Village 14 and PA 16/19 - Land Exchange EIR

Figure 7-3



39	Proctor Valley Rd & Project Dwy #6
Not Analyzed	

40	Proctor Valley Rd & Project Dwy #7
Not Analyzed	

41	Proctor Valley Rd & Project Dwy #8
Not Analyzed	

42	Proctor Valley Rd & Project Dwy #9
Not Analyzed	

Legend

- Study Intersection
- Turn Movements
- AM / PM Peak Hour Volumes
- One-Way Roadway

*Names of North-South cross-streets always listed first

 NORTH
NOT TO SCALE

Figure 7-3

The Year 2030 conditions analysis is based on full buildout of the City of Chula Vista's General Plan land uses. Correspondingly, all improvements listed above that are included in the City of Chula Vista General Plan Circulation Element and its TDIF program are expected to be fully funded and completed by 2030.

If the assumed roadway improvements are not in place as modeled for the Year 2030 scenario, additional significant traffic impacts could occur beyond those identified here.

Mitigation carried forward from 2025:

None.

The Year 2030 roadway classifications and intersection geometrics are displayed in **Figure 7-4** and **Figure 7-5**, respectively.

7.3 Year 2030 Traffic Volumes

Year 2030 scenario traffic volumes were developed utilizing the SANDAG Series 11 "Southbay 2" Year 2030 model. **Figure 7-6** and **Figure 7-7** show the daily roadway segment and peak hour intersection volumes under Year 2030 with project conditions.

7.4 Year 2030 Traffic Operations

Level of service analyses under Year 2030 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway segment, and freeway mainline level of service results, as well as freeway ramp intersection ILV analysis and ramp meter results, are discussed separately below.

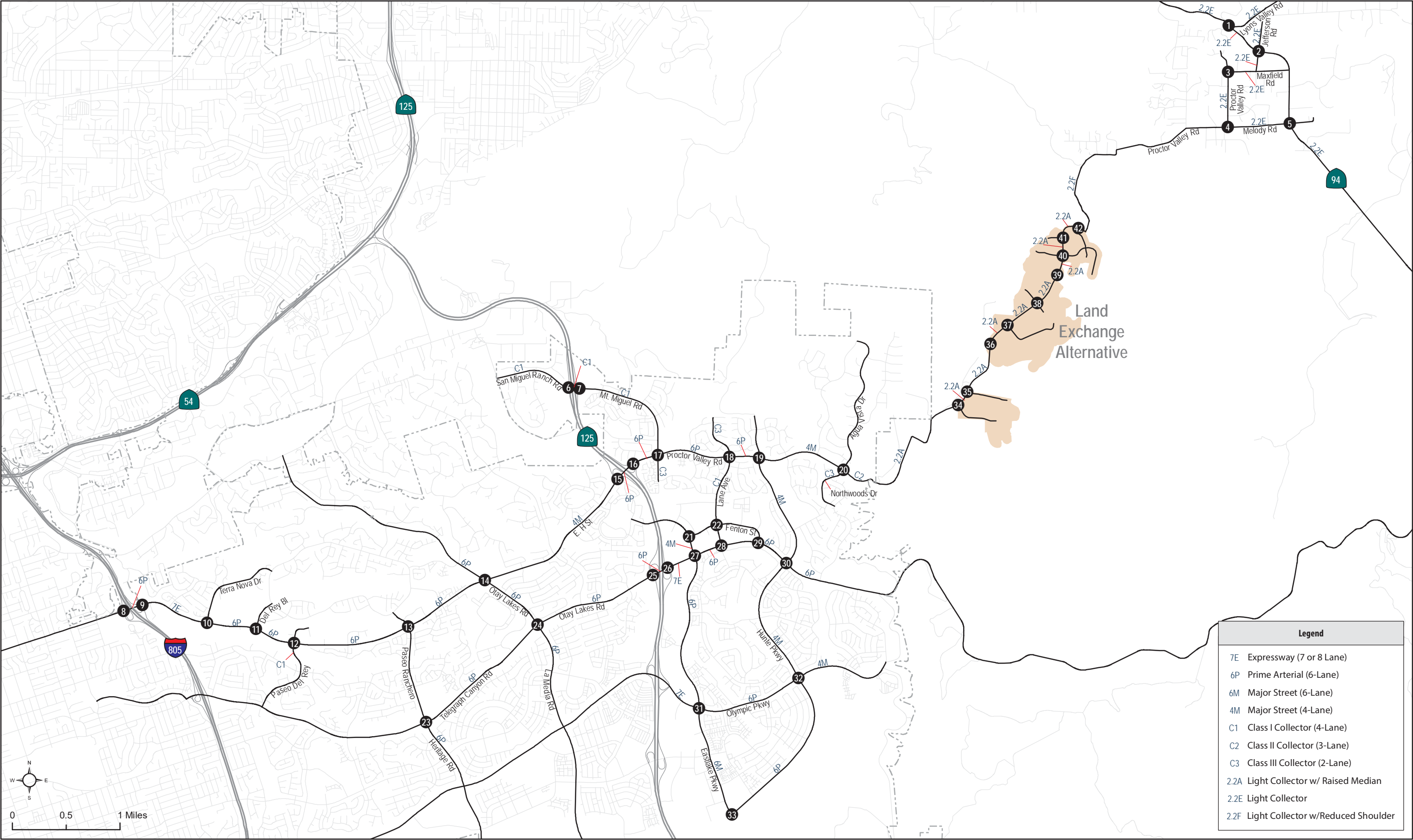
7.4.1 Intersection Analysis

Table 7.1 displays intersection Level of Service and average vehicle delay results for the study area intersections under Year 2030 conditions. All intersections are signalized. Level of Service calculation worksheets for Year 2030 conditions are provided in **Appendix L**.

As shown, all study area intersections within the City of Chula Vista are anticipated to operate at LOS D or better under Year 2030 conditions, with the exception of the following:

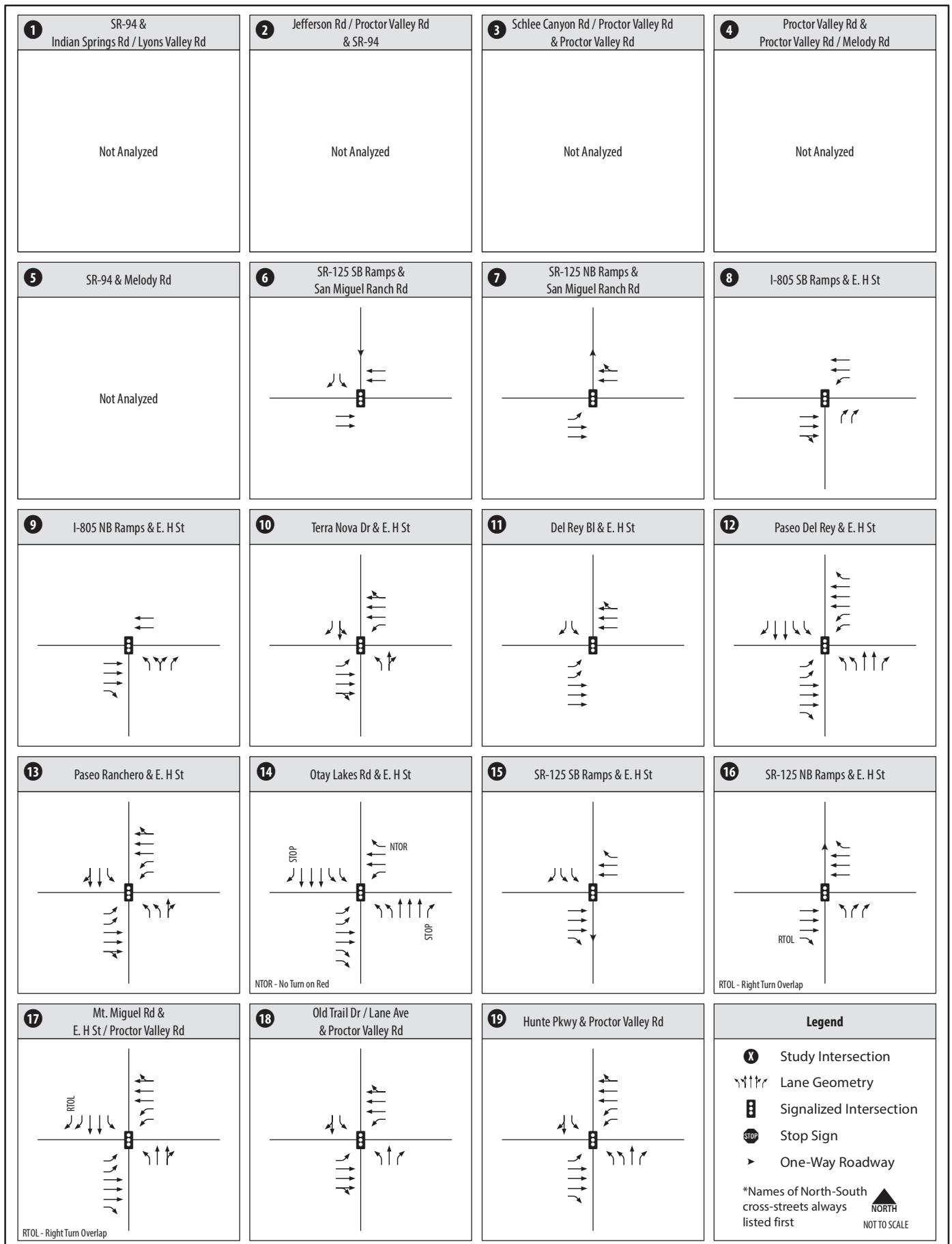
- Northwoods Drive/Agua Vista Drive & Proctor Valley Road (LOS F – during both the AM and PM peak hours).

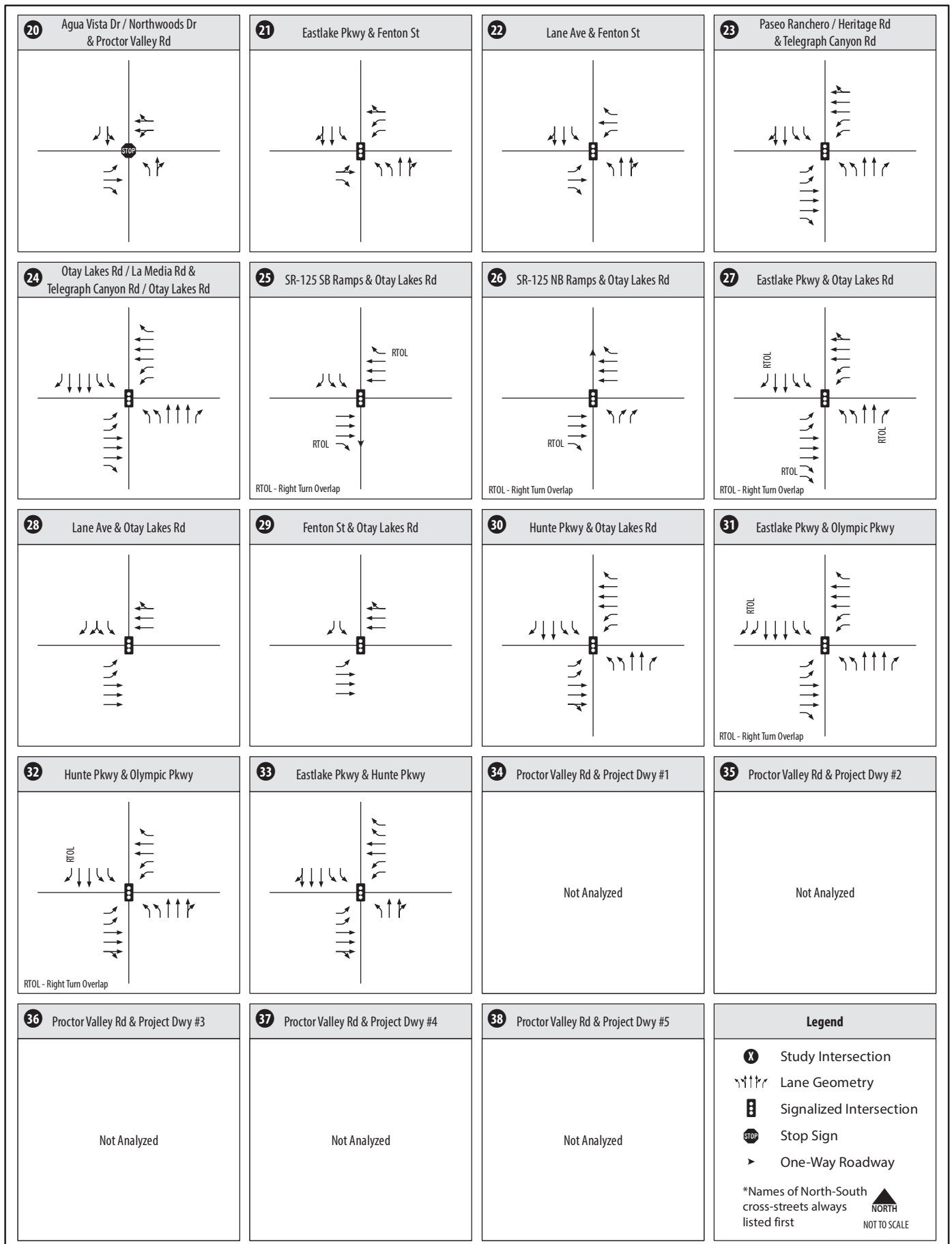
Based on the City of Chula Vista traffic impact standards outlined in Section 2.8, the Land Exchange Alternative traffic would cause a significant direct impact at this intersection.

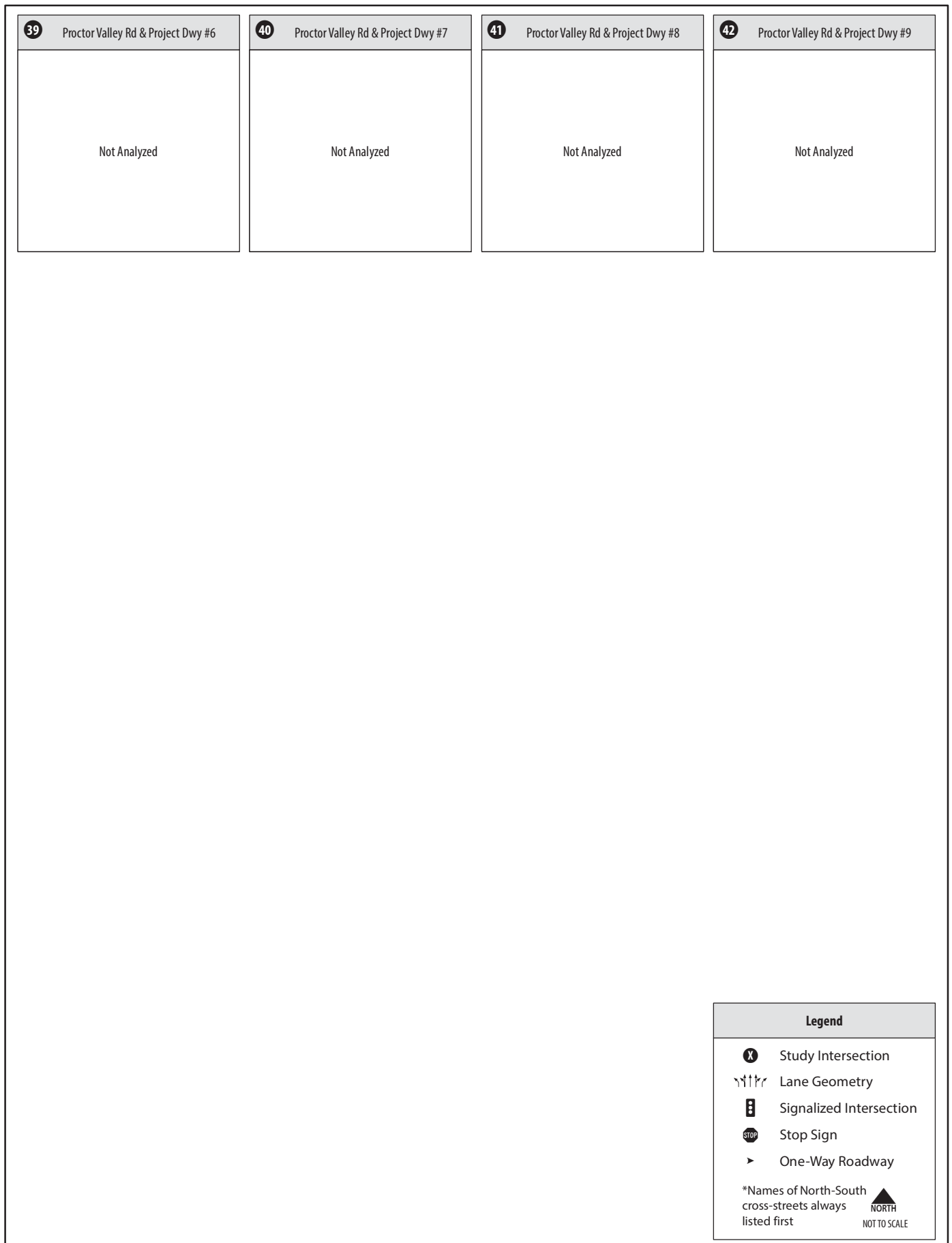


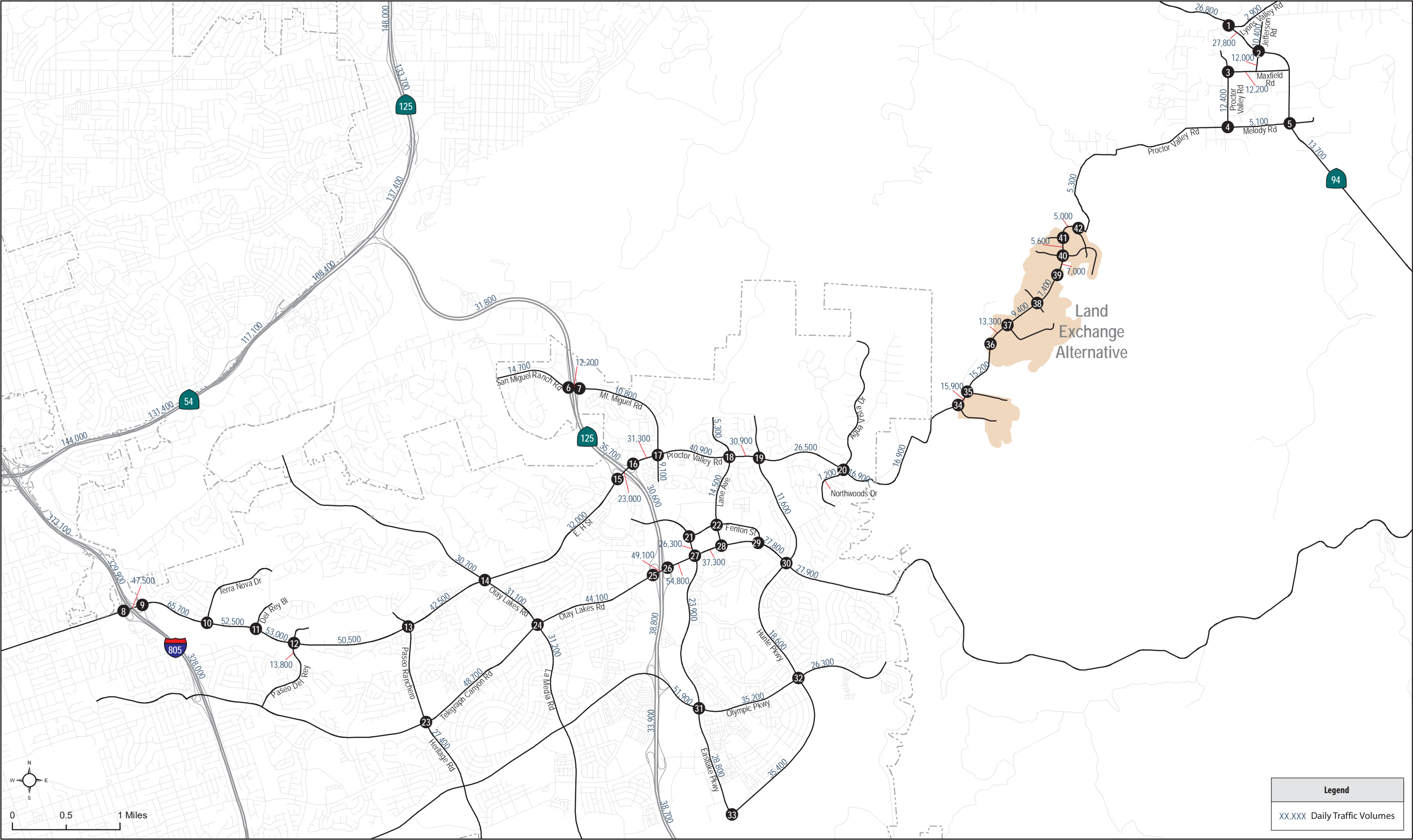
Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
CHEN RYAN

Figure 7-4
Year 2030 Roadway Classifications



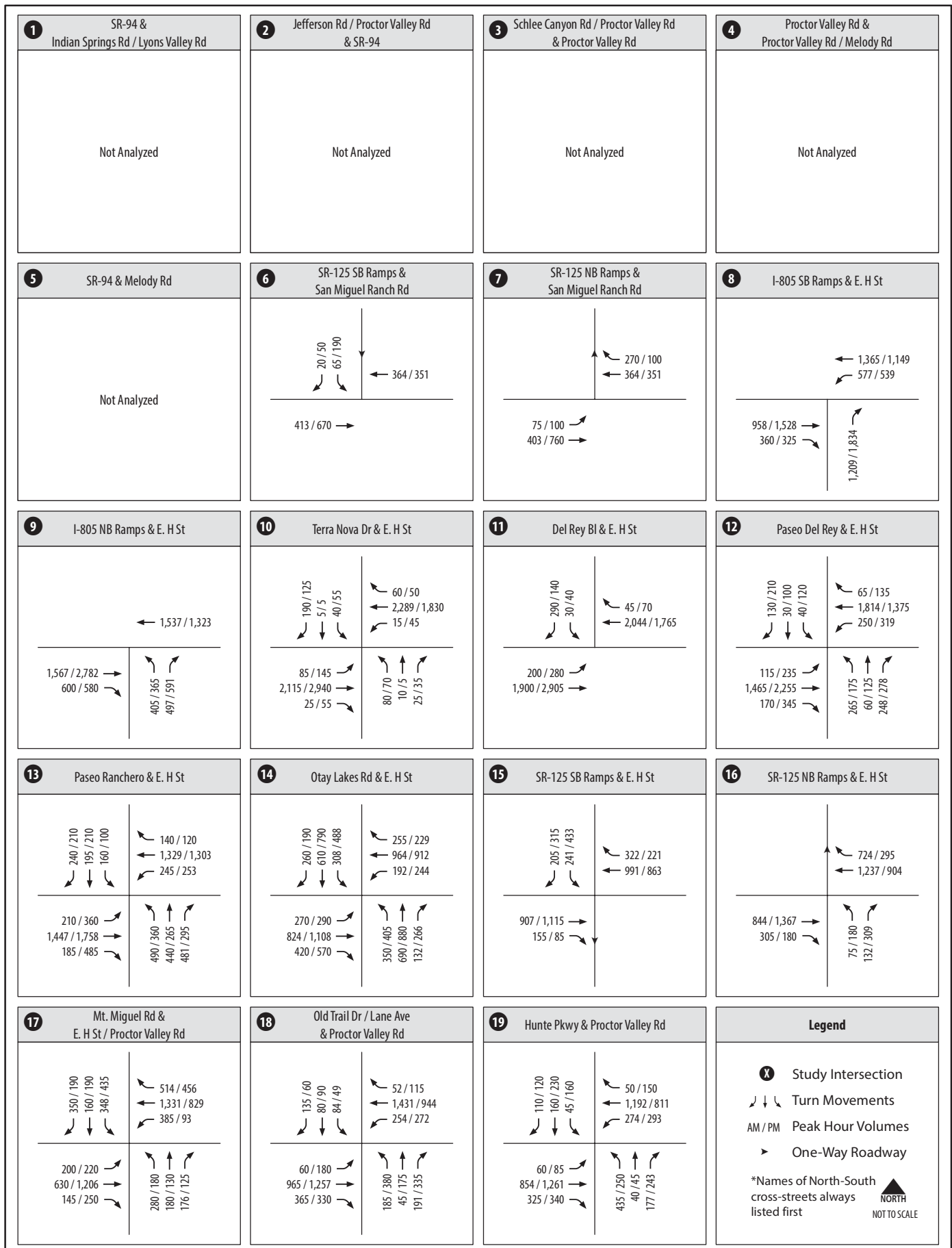


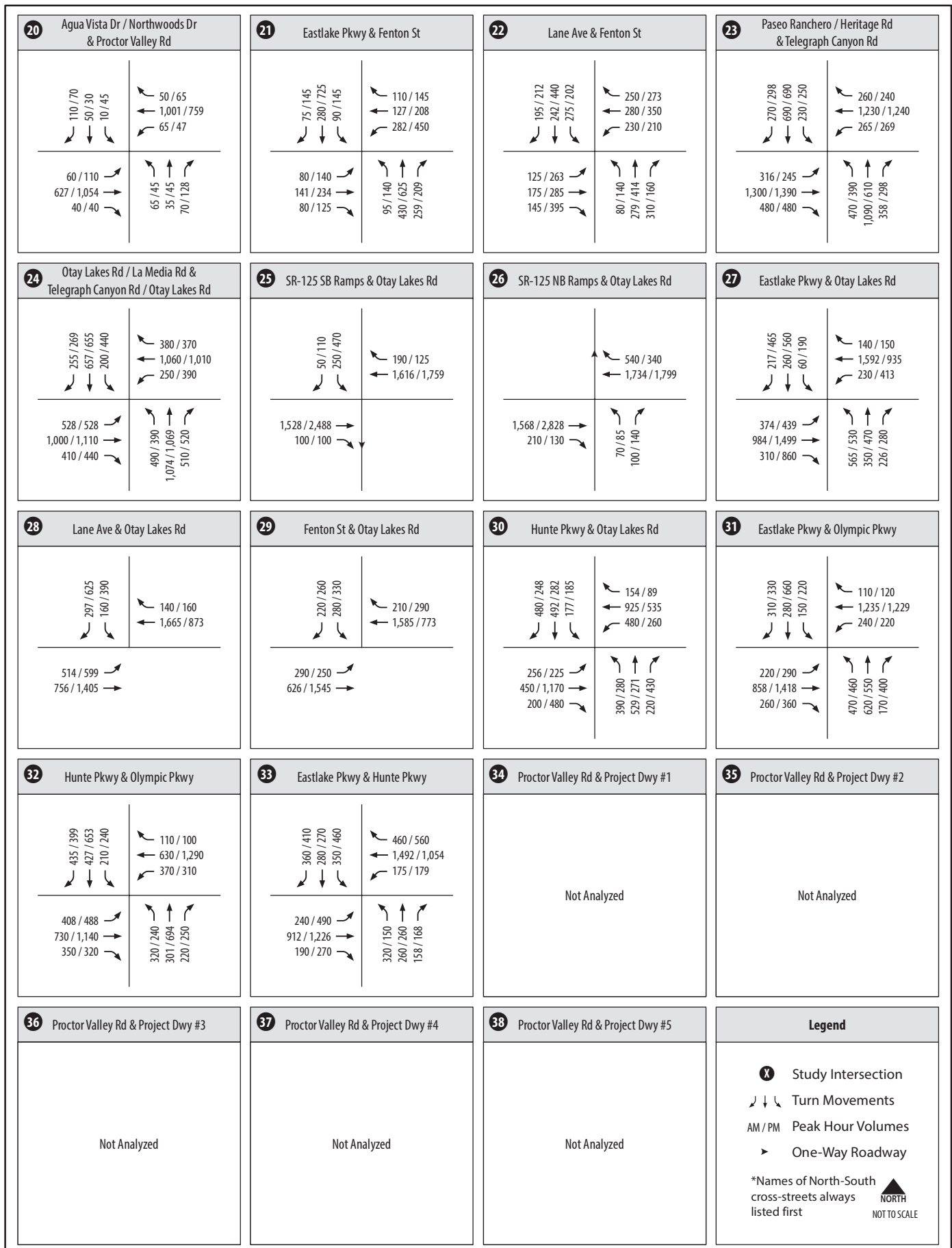




Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative
Transportation Impact Study
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Figure 7-6
Daily Roadway Traffic Volumes - Year 2030 Conditions





39	Proctor Valley Rd & Project Dwy #6
Not Analyzed	

40	Proctor Valley Rd & Project Dwy #7
Not Analyzed	

41	Proctor Valley Rd & Project Dwy #8
Not Analyzed	

42	Proctor Valley Rd & Project Dwy #9
Not Analyzed	

Legend

- X Study Intersection
- ↘ ↓ ↙ Turn Movements
- AM / PM Peak Hour Volumes
- One-Way Roadway
- *Names of North-South cross-streets always listed first
- NORTH
NOT TO SCALE

Table 7.1 Peak Hour Intersection LOS Results – Year 2030 Conditions

#	Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume AM/PM	Significant Impact?
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
6	San Miguel Ranch Road & SR-125 SB Ramps	22.0	C	19.6	B	10.7% / 8.4%	No
7	San Miguel Ranch Road & SR-125 NB Ramp	17.0	B	14.9	B	8.3% / 8.1%	No
8	I-805 SB Ramp & East H Street	13.5	B	13.5	B	1.0% / 0.8%	No
9	I-805 NB Ramp & East H Street	10.7	B	15.0	B	1.2% / 1.2%	No
10	Terra Nova Drive & East H Street	16.3	B	21.6	C	1.2% / 1.3%	No
11	East H Street & Del Rey Boulevard	13.1	B	11.1	B	1.3% / 1.3%	No
12	Paseo Del Rey & East H Street	22.7	C	43.2	D	3.5% / 3.3%	No
13	Paseo Ranchero & East H Street	53.7	D	52.5	D	3.7% / 4.2%	No
14	Otay Lakes Road & East H Street	42.1	D	53.3	D	5.0% / 4.8%	No
15	SR-125 SB Ramp & East H Street	6.6	A	8.0	A	14.0% / 15.2%	No
16	SR-125 NB Ramp & East H Street	3.9	A	6.3	A	15.3% / 18.1%	No
17	Mt Miguel Road & East H Street	51.1	D	36.0	D	13.7% / 17.3%	No
18	Lane Avenue & East H Street	39.3	D	46.3	D	21.4% / 21.6%	No
19	Hunte Parkway & East H Street	29.9	C	37.1	D	26.9% / 28.6%	No
20	Northwoods Drive / Agua Vista Drive & Proctor Valley Road	60.4	F	61.4	F	49.2% / 50.8%	Yes
21	East Lake Parkway & Fenton Street	26.0	C	51.2	D	3.3% / 2.5%	No
22	Lane Avenue & Fenton Street	36.3	D	45.3	D	2.5% / 2.0%	No
23	Heritage Road/Paseo Ranchero & Telegraph Canyon Road	53.8	D	53.9	D	1.0% / 1.3%	No
24	La Media Road & Telegraph Canyon Road / Otay Lakes Road	49.4	D	53.9	D	0.5% / 0.6%	No
25	SR-125 SB Ramps & Otay Lakes Road	11.9	B	13.1	B	1.1% / 0.9%	No
26	SR-125 NB Ramps & Otay Lakes Road	9.5	A	20.8	C	1.4% / 1.6%	No
27	East Lake Parkway & Otay Lakes Road	48.3	D	51.9	D	1.3% / 1.4%	No
28	Lane Avenue & Otay Lakes Road	22.9	C	42.8	D	1.3% / 1.8%	No
29	Fenton Street & Otay Lakes Road	25.3	C	29.8	C	2.2% / 2.3%	No
30	Hunte Parkway & Otay Lakes Road	42.5	D	44.7	D	3.4% / 4.2%	No
31	East Lake Parkway & Olympic Parkway	28.5	C	34.1	C	0.5% / 0.4%	No
32	Hunte Parkway & Olympic Parkway	34.7	C	51.7	D	1.8% / 1.5%	No
33	East Lake Parkway & Hunte Parkway	52.1	D	44.9	D	1.1% / 1.2%	No

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

7.4.2 Roadway Segment Analysis

Table 7.2 displays the Level of Service analysis results for study area roadway segments within the City of Chula Vista under Year 2030 conditions.

Table 7.2 Roadway Segment LOS Results – Year 2030 Conditions – City of Chula Vista

Roadway	Segment	Classification	ADT w/ Project	ADT Threshold (LOS C)	LOS	Project ADT (< 800)	Project Contribution ($\geq 5\%$)	Peak Hour Operations	Significant Impact?
San Miguel Ranch Rd	Proctor Valley Rd to SR-125 SB Ramp	Class I Collector (4-lane)	14,700	22,000	A	1,100	7.48%	-	No
	SR-125 SB Ramp to SR-125 NB Ramp	Class I Collector (4-lane)	12,200	22,000	A	1,100	9.02%	-	No
San Miguel Ranch / Mt Miguel Rd	SR-125 NB Ramp to Proctor Valley Rd	Class I Collector (4-lane)	10,800	22,000	A	1,100	10.19%	-	No
Mt Miguel Rd	Proctor Valley Rd to Mackenzie Creek Rd	Class I Collector (4-lane)	9,100	22,000	A	300	3.30%	-	No
H St	I-805 SB Ramps to I-805 NB Ramps	Prime Arterial (6-lane)	47,500	50,000	C	1,000	2.11%	-	No
	I-805 NB Ramps to Terra Nova Dr	Expressway (7-lane)	65,700	70,000	C	1,500	2.28%	-	No
	Terra Nova Dr to Del Rey Blvd	Prime Arterial (6-lane)	52,500	50,000	D	1,500	2.86%	Yes	No
	Del Rey Blvd to Paseo Del Rey	Prime Arterial (6-lane)	53,000	50,000	D	1,500	2.83%	Yes	No
	Paseo Del Rey to Paseo Ranchero	Prime Arterial (6-lane)	50,500	50,000	D	1,900	3.76%	Yes	No
	Paseo Ranchero to Otay Lakes Rd	Prime Arterial (6-lane)	42,500	50,000	B	2,100	4.94%	-	No
	Otay Lakes Rd to SR-125 SB Ramps	Major Street (4-lane)	32,000	30,000	D	2,500	7.81%	Yes	No
Proctor Valley Rd	SR-125 SB Ramps to SR-125 NB Ramps	Prime Arterial (6-lane)	23,000	50,000	A	3,800	16.52%	-	No
	SR-125 NB Ramps to Mt Miguel Rd	Prime Arterial (6-lane)	31,100	50,000	A	5,400	17.36%	-	No
	Mt Miguel Rd to Lane Ave	Prime Arterial (6-lane)	40,900	50,000	B	6,900	16.87%	-	No
	Lane Ave to Hunte Pkwy	Prime Arterial (6-lane)	30,900	50,000	A	9,000	29.13%	-	No

Table 7.2 Roadway Segment LOS Results – Year 2030 Conditions – City of Chula Vista

Roadway	Segment	Classification	ADT w/ Project	ADT Threshold (LOS C)	LOS	Project ADT (< 800)	Project Contribution ($\geq 5\%$)	Peak Hour Operations	Significant Impact?
Proctor Valley Rd	Hunte Pkwy to Northwood Dr	Major Street (4-lane)	26,500	30,000	C	11,700	44.15%	-	No
	Northwoods Dr to City of Chula Vista/County Boundary	Class II Collector (3-lane)	16,800	12,000	F	12,800	76.19%	No	Yes (Direct)
Telegraph Canyon Rd	Paseo Ranchero to Otay Lakes Rd	Prime Arterial (6-lane)	48,700	50,000	C	700	1.44%	-	No
Otay Lakes Rd	Ridgeback Rd to E. H St	Prime Arterial (6-lane)	30,700	50,000	A	300	0.98%	-	No
	E. H St to Otay Lakes Rd	Prime Arterial (6-lane)	30,500	50,000	A	0	0.00%	-	No
	Telegraph Canyon to SR-125 SB Ramps	Prime Arterial (6-lane)	44,100	50,000	C	700	1.59%	-	No
	SR-125 SB Ramps to SR-125 NB Ramps	Prime Arterial (6-lane)	49,100	50,000	C	800	1.63%	-	No
	SR-125 NB Ramps to Eastlake Pkwy	Prime Arterial (6-lane)	54,800	50,000	D	800	1.46%	Yes	No
	Eastlake Pkwy to Lane Ave	Prime Arterial (6-lane)	37,300	50,000	A	600	1.61%	-	No
	Lane Ave to Hunte Pkwy	Prime Arterial (6-lane)	27,800	50,000	A	800	2.88%	-	No
	Hunte Pkwy to Woods Dr	Prime Arterial (6-lane)	27,900	50,000	A	100	0.36%	-	No
Olympic Pkwy	SR-125 NB Ramps to Eastlake Pkwy	Expressway (7 or 8-lane)	51,900	70,000	A	300	0.58%	-	No
	Eastlake Pkwy to Hunte Pkwy	Prime Arterial (6-lane)	35,200	50,000	A	600	1.70%	-	No
Olympic Pkwy	Hunte Pkwy to Olympic Vista Rd	Major Street (4-lane)	26,300	30,000	C	0	0.00%	-	No
Paseo Del Rey	E. H St to E. J St	Class I Collector (4-lane)	13,800	22,000	A	300	2.17%	-	No

Table 7.2 Roadway Segment LOS Results – Year 2030 Conditions – City of Chula Vista

Roadway	Segment	Classification	ADT w/ Project	ADT Threshold (LOS C)	LOS	Project ADT (< 800)	Project Contribution ($\geq 5\%$)	Peak Hour Operations	Significant Impact?
Heritage Rd	Telegraph Canyon Rd to E. Palomar St	Prime Arterial (6-lane)	27,400	50,000	A	100	0.36%	-	No
La Media Rd	Otay Lakes Rd to E. Palomar St	Prime Arterial (6-lane)	31,200	50,000	A	100	0.32%	-	No
Eastlake Pkwy	Miller Rd to Otay Lakes Rd	Major Street (4-lane)	26,300	30,000	C	700	2.66%	-	No
	Otay Lakes Rd to Olympic Pkwy	Prime Arterial (6-lane)	23,900	50,000	A	0	0.00%	-	No
	Olympic Pkwy to Hunte Pkwy	Major Street (6-lane)	28,800	40,000	A	400	1.39%	-	No
Old Trail Dr	N Trail Ct to Proctor Valley Rd	Class III Collector (2-lane)	5,300	7,500	A	100	1.89%	-	No
Lane Ave	Proctor Valley Rd to Otay Lakes Rd	Class I Collector (4-lane)	14,500	22,000	A	1,800	12.41%	-	No
Hunte Pkwy	Proctor Valley Rd to Otay Lakes Rd	Major Street (4-lane)	11,600	30,000	A	2,500	21.55%	-	No
	Otay Lakes Rd to Olympic Pkwy	Major Street (4-lane)	18,700	30,000	A	1,500	8.02%	-	No
	Olympic Pkwy to Eastlake Pkwy	Prime Arterial (6-lane)	35,400	50,000	A	400	1.13%	-	No
Northwoods Dr	Proctor Valley Rd to Blue Ridge Dr	Class III Collector (2-lane)	1,200	7,500	A	800	66.67%	-	No

Source: Chen Ryan Associates; August 2015

Notes:

Peak Hour Operations: Do intersections along the roadway segment operate at LOS D or better during the peak hours? – For segments operating at D, E or F.

Bold Indicates LOS D, E, or F.

As shown in the table, all study area roadway segments within the City of Chula Vista are projected to operate at LOS C or better under Year 2025 conditions within the exception of the following segments. Whether the Project would result in a significant impact at each segment is identified.

- *East H Street, between Terra Nova Drive and Del Rey Boulevard (LOS D):*
 - Proposed buildout project trips would comprise 2.86% (less than 5%) of the total segment volume;
 - Proposed buildout project trips add 1,500 ADT (more than 800 ADT);
 - The intersections of East H Street / Terra Nova Drive and East H Street / Del Rey Boulevard are both projected to operate at LOS B or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *East H Street, between Del Rey Boulevard and Paseo Del Rey (LOS D):*
 - Proposed buildout project trips would comprise 2.83% (less than 5%) of the total segment volume;
 - Proposed buildout project trips add 1,500 ADT (more than 800 ADT);
 - The intersections of East H Street / Del Rey Boulevard and East H Street / Paseo Del Rey are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *East H Street between Paseo Del Rey and Paseo Ranchero (LOS D):*
 - Proposed buildout project trips would comprise 3.76% (less than 5%) of the total segment volume;
 - Proposed buildout project trips add 1,900 ADT (more than 800 ADT);
 - The intersections of East H Street / Del Rey Boulevard and East H Street / Paseo Del Rey are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *East H Street, between Otay Lakes Road and SR-125 SB Ramps (LOS D):*
 - Proposed buildout project trips would comprise 7.81% (more than 5%) of the total segment volume;
 - Proposed buildout project trips add 2,500 ADT (more than 800 ADT);
 - The intersections of East H Street / Otay Lakes Road and East H Street / SR-125 SB are both projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this roadway segment.
- *Proctor Valley Road, between Northwoods Drive to the City of Chula Vista Boundary (LOS F):*
 - Proposed buildout project trips would comprise 76.19% (more than 5%) of the total segment volume;
 - Proposed buildout project trips add 12,800 ADT (more than 800 ADT);

-
- The intersections of Northwoods Drive/Agua Vista Drive & Proctor Valley Road is projected to operate at LOS F during both the AM and PM peak hours;
 - Therefore, the Land Exchange Alternative **would have a significant direct impact** to this roadway segment.
 - *Otay Lakes Road, between SR-125 NB Ramps and Eastlake Parkway (LOS D):*
 - Proposed buildout project trips would comprise 1.46% (less than 5%) of the total segment volume;
 - Proposed buildout project trips add 800 ADT (not exceeding 800 ADT);
 - The intersections of Otay Lakes Road / SR-125 NB and Otay Lakes Road / Eastlake Parkway are projected to operate at LOS D or better during both peak hours;
 - Therefore, the Land Exchange Alternative **would not have a significant impact** to this segment.

7.4.3 Freeway Mainline Analysis

Table 7.3 displays freeway Level of Service analysis results for the study area freeway mainline facilities under Year 2030 conditions. The freeway/state highway segment Level of Service analysis was performed utilizing the methodology presented in Section 2.5.

As shown in the table, the following 12 study area freeway mainline segments are projected to operate at LOS E or F under Year 2030 conditions.

- I-805, between Home Avenue and SR-94 (LOS F);
- I-805, between SR-94 and Market Street (LOS F);
- I-805, between Market Street and Imperial Avenue (LOS F);
- I-805, between Imperial Avenue and E Division Street (LOS F);
- I-805, between E Division Street and Plaza Boulevard (LOS F);
- I-805, between Plaza Boulevard to SR-54 (LOS F);
- I-805, between SR-54 and Bonita Road (LOS F);
- I-805, between Bonita Road and East H Street (LOS F);
- I-805, between East H Street and Telegraph Canyon Road (LOS F);
- SR-125, between SR-94 Junction and Jamacha Road (LOS F);
- SR-125, between Jamacha Road and Paradise Valley Road (LOS E); and
- SR-54, between I-805 and Reo Drive/Plaza Bonita Center Way (LOS F).

Based on the Freeway Mainline significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would comprise less than 5% of the projected traffic volume on any freeway segments operating at LOS E or F under Year 2030 conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

Table 7.3 Freeway/State Highway Segment LOS Results – Year 2030 Conditions

Freeway	Segment	ADT	Peak Hour Percent	Peak Hour Volume	Directional Split	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
I-805	Home Ave to SR-94	297,600	7.9%	23,391	0.58	4M	0.95	6.0%	3,805	1.586	F	0.006	F	No
	SR-94 to Market St	297,600	8.0%	23,897	0.60	4M	0.95	6.0%	3,999	1.666	F	0.006	F	No
	Market St to Imperial Ave	354,300	8.0%	28,450	0.60	4M + 1 HOV + 1 Aux	0.95	6.0%	3,808	1.587	F	0.005	F	No
	Imperial Ave to E Division St	352,400	8.0%	28,298	0.60	5M + 1 HOV	0.95	6.0%	3,444	1.435	F	0.004	F	No
	E Division St to Plaza Blvd	339,800	8.0%	27,320	0.60	5M + 1 HOV + 1 Aux	0.95	6.0%	3,078	1.282	F	0.005	F	No
	Plaza Blvd to SR-54	330,800	8.0%	26,596	0.60	5M + 1 HOV	0.95	6.0%	3,269	1.362	F	0.006	F	No
	SR-54 to Bonita Rd	373,100	8.0%	29,885	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	3,848	1.603	F	0.004	F	No
	Bonita Rd to East H St	329,900	8.0%	26,425	0.57	4M + 1 HOV + 1 Aux	0.95	7.3%	3,402	1.418	F	0.003	F	No
	East H St to Telegraph Canyon Rd	328,000	8.0%	26,273	0.57	5M + 1 HOV	0.95	7.3%	3,075	1.281	F	0.001	F	No
SR-125	SR-94 Junction to Jamacha Rd	148,000	8.8%	12,965	0.56	3M	0.95	4.4%	2,648	1.103	F	0.006	F	No
	Jamacha Rd to Paradise Valley Rd	133,700	8.8%	11,712	0.56	3M	0.95	4.4%	2,392	0.997	E	0.006	E	No
	Paradise Valley Rd to SR-54 Junction	137,400	8.8%	12,036	0.56	3M + 1 HOV	0.95	4.4%	2,107	0.878	D	0.005	D	No
	SR-54 to Mt. Miguel Rd	31,800	7.0%	2,226	0.59	2M	0.95	1.9%	705	0.294	A	0.013	A	No
	Mt. Miguel Rd to Proctor Valley Rd	35,700	7.0%	2,499	0.59	2M	0.95	1.9%	791	0.330	B	0.013	A	No
	Proctor Valley Rd to Otay Lakes Rd	30,600	7.0%	2,142	0.59	2M	0.95	1.9%	678	0.283	A	0.006	A	No

Table 7.3 Freeway/State Highway Segment LOS Results – Year 2030 Conditions

Freeway	Segment	ADT	Peak Hour Percent	Peak Hour Volume	Directional Split	Lanes Per Direction	PHF	HVF	Volume (pc/h/ln)	V/C	LOS	Δ V/C	LOS w/o Project	Significant Impact?
SR-125	Otay Lakes Rd to Olympic Pkwy	38,800	7.0%	2,716	0.59	2M	0.95	1.9%	860	0.358	B	0.012	B	No
	Olympic Pkwy to Birch Rd	33,900	7.0%	2,373	0.59	2M	0.95	1.9%	751	0.313	A	0.012	A	No
	Birch Rd to Main St	38,700	7.0%	2,709	0.59	2M	0.95	1.9%	858	0.357	B	0.012	B	No
	Main St to Otay Valley Rd	51,800	7.0%	3,626	0.59	2M	0.95	1.9%	1,148	0.478	B	0.012	B	No
	Otay Valley Rd to Lone Star Rd	90,700	7.0%	6,349	0.59	2M	0.95	1.9%	2,010	0.837	D	0.012	D	No
	Lone Star Rd to Otay Mesa Rd	80,200	7.0%	5,614	0.59	2M	0.95	1.9%	1,777	0.740	D	0.007	C	No
SR-54	I-805 to Reo Dr/Plaza Bonita Center Wy	144,000	8.2%	11,851	0.58	3M	0.95	1.9%	2,447	1.020	F	0.007	F	No
	Reo Dr/Plaza Bonita Center Wy to Woodman St	131,400	8.3%	10,932	0.55	3M	0.95	1.9%	2,155	0.898	D	0.007	D	No
	Woodman St to Briarwood Rd	117,100	8.3%	9,684	0.55	3M	0.95	1.9%	1,909	0.796	D	0.007	D	No
	Briarwood Rd to SR-125 Junction	108,400	8.5%	9,160	0.52	3M + 1 HOV	0.95	1.9%	1,452	0.605	C	0.003	C	No

Source: Chen Ryan Associates; August 2015

Notes:

K = Percent of Traffic during the peak hour.

D = Directional split.

HVF = Percent of heavy vehicles.

PHF =Peak Hour Factor

M = Mainline lane.

HOV = High Occupancy Vehicle lane.

Aux = Auxiliary lane.

Bold Indicates LOS E or F.

7.4.4 Ramp Intersection Capacity Analysis

Consistent with Caltrans' requirements, the signalized ramp intersections within the Land Exchange Alternative study area were analyzed using ILV procedures, as described in Section 2.6. ILV analysis results are displayed in **Table 7.4** and analysis worksheets for Year 2030 conditions are provided in Appendix L.

Table 7.4 Ramp Intersection Capacity Analysis – Year 2030 Conditions

Intersection	Peak Hour	ILV/hour	Capacity
SR-125 SB / Mt. Miguel	AM	273	Under Capacity
	PM	524	Under Capacity
SR-125 NB / Mt. Miguel	AM	396	Under Capacity
	PM	391	Under Capacity
I-805 SB / H Street	AM	1,589	Over Capacity
	PM	2,074	Over Capacity
I-805 NB / H Street	AM	1,049	Under Capacity
	PM	932	Under Capacity
SR-125 SB / H Street	AM	687	Under Capacity
	PM	707	Under Capacity
SR-125 NB / H Street	AM	458	Under Capacity
	PM	425	Under Capacity
SR-125 SB / Mt. Miguel	AM	641	Under Capacity
	PM	956	Under Capacity
SR-125 NB / Otay Lakes Road	AM	695	Under Capacity
	PM	914	Under Capacity

Source: Chen Ryan Associates; August 2015

As shown, all freeway ramp interchange intersections are projected to operate under capacity under Year 2030 conditions, with the exception of the intersection of I-805 SB / H Street, which would be over capacity during both the AM and PM peak hours.

7.4.5 Ramp Meter Analysis

Table 7.5 displays the ramp metering analysis conducted at study area freeway ramps under Year 2030 conditions. Ramp meter rates are expected to be the same in 2030 as under Existing conditions. Ramp meter excess demand, delay, and queuing results were calculated using the methodologies outlined in Section 2.7.

Table 7.5 Ramp Metering Analysis – Year 2030 Conditions

Location	Peak Hour	With Project					Without Project				S?
		Peak Hour Volume	Meter Rate ¹	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)	Peak Hour Volume	Excess Demand ²	Delay ³ (min)	Queue ⁴ (ft)	
I-805 NB On-Ramp @ WB H Street	AM	826	934	0	0	0	800	0	0	0	No
I-805 NB On-Ramp @ EB H Street	AM	480	369	111	18.05	3,219	480	111	18.05	3,219	No

Source: Chen Ryan Associates; August 2015

Notes:

1. Meter Rate is the peak hour capacity expected to be processed through the ramp meter (veh/hr).
This value was obtained from Caltrans.
2. Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater (veh/hr).
3. Delay = (Excess Demand / Meter Rate) X 60 min/hr.
4. Queue = (Excess Demand) X 29 ft/veh.

As shown, under Year 2030 conditions, the peak hour ramp volumes are anticipated to exceed the current ramp meter rate at the I-805 NB On-Ramp @ EB H Street during the AM peak hour, resulting in 18-plus minutes of delay. However, since the Land Exchange Alternative is located to the east of this ramp, Land Exchange Alternative traffic would access northbound I-805 from the westbound direction only. Therefore, the Land Exchange Alternative would not add any additional traffic to the I-805 NB On-Ramp @ EB H Street and would not contribute to any impacts at this ramp.

7.5 Impact Significance and Mitigation

This section identifies required mitigation measures for intersection and roadway facilities that would be significantly impacted by Land Exchange Alternative-related traffic under Year 2030 conditions.

7.5.1 Intersection

The Land Exchange Alternative would have a direct significant impact on one (1) intersection, in the City of Chula Vista. The following intersection improvements would be required to mitigate the identified traffic impact:

- *Northwoods Drive/Agua Vista Drive & Proctor Valley Road (City of Chula Vista)* – Signalization by the 327th EDU would mitigate the cumulative impact at this intersection. A traffic signal warrant was conducted, and based upon *MUTCD 2012 Figure 4C-103 (CA)*, this intersection would satisfy both the “Minimum Vehicular Traffic” and “Interruption of Continuous Traffic” warrants. The signal warrant worksheet is provided in **Appendix M**. However, this intersection is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement improvements. Therefore, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable. It should be noted that the signalization of this intersection is a condition of the Rolling Hills Ranch Plan and the signal mast arms have already been constructed at this intersection. Therefore, only minor improvements would be required to implement a signal at this intersection.

Table 7.6 displays Level of Service analysis results for the mitigated intersection under Year 2030 conditions. Calculation worksheets for the intersection analysis are provided in **Appendix M**.

Table 7.6 Mitigated Intersection LOS Year 2030 Conditions

Intersection	Before Mitigation				After Mitigation			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Avg. Delay (Sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
<i>Northwoods Drive / Agua Vista Drive & Proctor Valley Road</i>	60.5	F	58.3	F	18.7	B	19.4	B

Source: Chen Ryan Associates; August 2015

Note:

Bold Indicates LOS E or F.

As shown in the table, after implementation of the identified improvements, the impacted intersection would operate at acceptable LOS B during both peak hours.

7.5.2 Roadway Segments

The Land Exchange Alternative would have a significant impact on one (1) roadway segment, located in the City of Chula Vista, under Year 2030 conditions. The following roadway improvements would be required to mitigate the impacts:

Segments in the City of Chula Vista

The Land Exchange Alternative would significantly impact one (1) roadway segment located in the City of Chula Vista under Year 2030 conditions. The following roadway improvements would be required to mitigate the impacts:

- *Proctor Valley Road, between Northwoods Drive and the City of Chula Vista Boundary (Project Specific Impact, City of Chula Vista)* – widen from a 2-lane roadway to a Class I Collector. With widening to a Class I Collector, the Project’s significant impacts to this roadway segment would be fully mitigated as the segment would operate at LOS B once widened and no further mitigation would be required.

Widening to a Class I Collector is consistent with the City of Chula Vista Circulation Plan, which identifies the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary as a 4-Lane Major Street. Widening the segment from the 2-lane configuration to four lanes, as recommended by the mitigation measure, would not conflict with the City’s long-range road widening plans (four lanes) because the mitigation improvement (widen from two to four lanes) does not foreclose or conflict with the City’s ultimate build-out plans or programs, and would not preclude the City from improving the segment to a 4-Lane Major at a future date when/if future traffic conditions warrant such action.

As shown in **Table 7.7**, the proposed improvement would fully mitigate the Land Exchange Alternative's project specific impact to the segment of Proctor Valley Road, between Northwoods Drive and the City of Chula Vista boundary. However, because this roadway segment is located within the City of Chula Vista and the County does not have the jurisdiction to permit or implement any improvements, for purposes of this analysis, mitigation is considered infeasible and the impact would remain significant and unavoidable.

Table 7.7 Mitigated Roadway Segment LOS Year 2030 Conditions

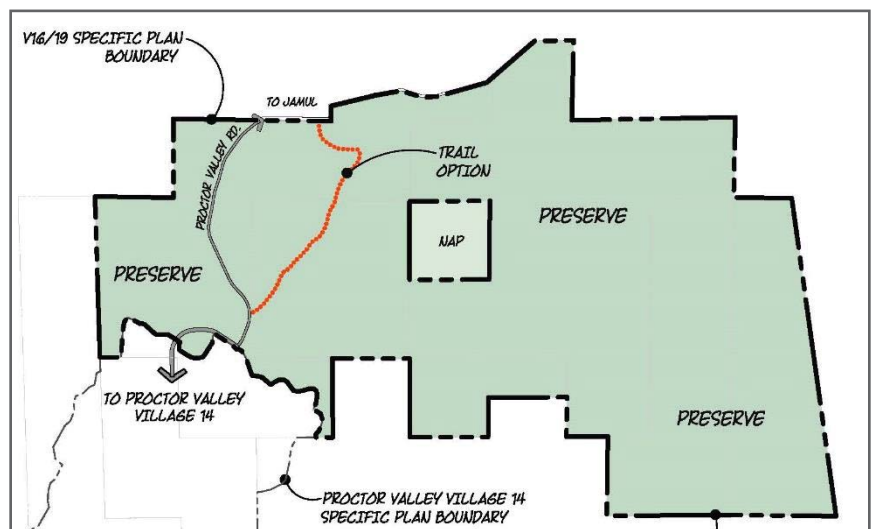
Roadway	Segment	Cross-Section	ADT	LOS Threshold (LOS C)	LOS w/ Project
Proctor Valley Road	Northwoods Drive and the City of Chula Vista Boundary	Class I Collector	16,800	22,000	B

Source: Chen Ryan Associates; August 2015

8.0 Pedestrians and Bicyclists

Many roadways and intersections in the County do not currently have pedestrian or bicycle facilities. The roadways and intersections designed prior to adoption of current road standards may have conditions that may pose an increased risk if traffic volumes, pedestrian volumes, or bicycle volumes substantially increase along the road segment or at the intersection, as a result of the Land Exchange Alternative. Increased traffic generated or redistributed by a Land Exchange Alternative may cause a significant traffic operational impact to pedestrians or bicyclists. Therefore, it is necessary to evaluate potential hazards to pedestrians or bicyclists.

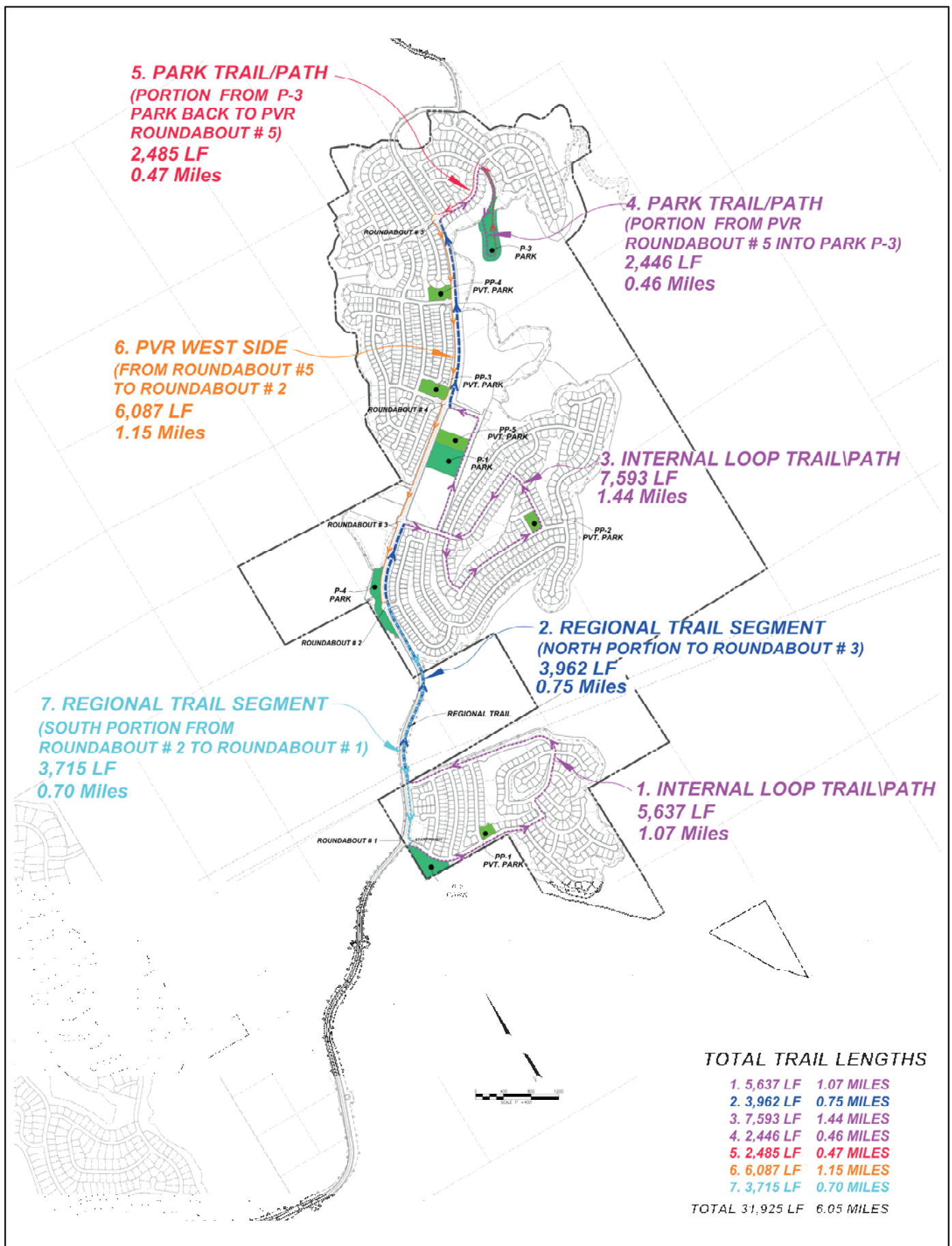
The Land Exchange Alternative will construct approximately 4.6 miles of community pathway are proposed on the Proctor Valley Road. Approximately three miles of Park-to-Park Loop connect to the regional pathway. The trail system will include a regional multi-use trail along Proctor Valley Road between the City of Chula Vista boundary and the northern extent of the Land Exchange Alternative. This trail is included in the County of San Diego General Plan Mobility Element and will be designed to accommodate pedestrian, bicycle and equestrian uses. An additional regional multi-use trail will be constructed through the nature preserve to the north of the Land Exchange Alternative, providing a connection to the Jamul community, as shown in the figure to the right. All regional trails will be designed to County standards approved by the County as set forth in the Specific Plan for the Project to ensure the safety of pedestrians, bicyclists and equestrians.



The Land Exchange Alternative will also implement a series of local trails that circulate throughout each of the neighborhoods, providing connections between the regional trail system (along Proctor Valley Road) and all of the public parks spread throughout the Land Exchange Alternative, as shown in **Figure 8-1**.

In addition to the trails system, five roundabouts are proposed along Proctor Valley Road and the Land Exchange Alternative access points. Roundabouts have been proven to calm traffic, improve safety, and increase roadway capacity when designed correctly, thereby enhancing the comfort and safety of both cyclists and pedestrians. All proposed roundabouts will be designed to meet applicable County safety and design standards.

Therefore, the Land Exchange Alternative would not result in significant hazards to pedestrians or bicyclists and impacts would be less than significant.



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Figure 8-1

Local Trail System

9.0 Project Construction

This chapter identifies potential traffic impacts associated with Project construction.

9.1 Construction Related Traffic Generation

Project construction is expected to be phased over 4 years. As further explained below, it is expected that the greatest potential impacts would occur around Year 2022, when earlier construction would be completed, a portion of the development would be occupied with construction activities continuing. Therefore, a Year 2022 plus construction traffic scenario is presented here. Trip Generation for occupied residential, commercial, and other land uses are provided in **Table 9.1**.

Table 9.1 Project Year 2022 Trip Generation

Area	Land Use	Units		Trip Rate	ADT
Central	Single Family	817	DU	10 / DU	8,170
Central	Neighborhood Park	1.5	AC	5 / AC	8
Central	Mixed-Use Commercial	5	KSF	110 / KSF	550
Central	Elementary School	8.0	AC	90 / AC	720
Central	Neighborhood Park	4.4	AC	5 / AC	22
Central	Fire Station	3.0	Staff	5.33 / Staff	16
North	CPF	1.9	AC	30 / AC	57
North	Single Family	91	DU	10 / DU	910
North	Neighborhood Park	3.1	AC	5 / AC	16
Total Project Trips					10,469

Source: Chen Ryan Associates: October 2015

As shown, the Land Exchange Alternative would generate 10,469 daily trips by the Year 2022.

All earthwork associated with construction of the Land Exchange Alternative would be balanced on-site; therefore, no import or export of soil is anticipated. The construction traffic analyzed in this report mainly focuses on construction material transport activities and trips generated by construction workers. Neither construction material transport activities nor construction workers would generate traffic during the peak commute hours (both AM and PM) since all deliveries and pick-ups are planned to occur during off-peak hours, while construction workers are scheduled to arrive before 7 a.m. and leave by 3:30 p.m. Therefore, it is not necessary to conduct an intersection peak hour analysis to assess potential construction related traffic impacts.

Based upon information provided by Dudek Environmental, Inc., Year 2022 would generate the highest amount of construction worker traffic, including approximately 380 daily truck trips and 1,436 daily construction worker trips. **Table 9.2** displays the expected maximum construction related vehicle trip generation.

Table 9.2 Year 2022 Construction Trip Generation

Type	Daily Trips	Passenger Car Equivalent	Daily Vehicle Trips
Truck	380	2.5	950
Construction Worker	1,436	1.0	1,436
Total	-	-	2,386

Source: Chen Ryan Associates: October 2015

As shown in the table above, a total of 2,386 daily vehicle trips would be generated by the Land Exchange Alternative's construction activities during the Year 2022.

9.2 Construction Related Traffic Impacts

As previously noted, Year 2022 Plus Construction Traffic represents the worst case scenario during which the greatest potential impacts associated with construction traffic would occur. **Table 9.3** displays the total daily trips generated under this scenario.

Table 9.3 Worst Case Trip Generation During Construction – Year 2022

Scenario	Daily Trips
Year 2022 – Project Activities	10,469
Construction	2,386
Total	12,855

Source: Chen Ryan Associates; October 2015

As shown above, the Year 2022 Plus Construction scenario would generate a total of 12,855 daily trips. Project impacts for both Existing Plus Land Exchange Alternative (Buildout) and Year 2025 Plus Land Exchange Alternative (Buildout) were discussed in Chapter 5.0 and Chapter 7.0, respectively. Under each of those scenarios, the Project would generate 13,897 ADT. Therefore, it is reasonable to conclude that potential traffic impacts associated with the worst case scenario during construction would be less than those identified under either the Existing Plus Land Exchange Alternative (Buildout) or Year 2025 Plus Land Exchange Alternative (Buildout) scenarios, since the Year 2022 Plus Construction scenario would generate fewer vehicle trips. Based on the information provided in Table 9.1, the Land Exchange Alternative will have constructed 1,047 EDUs by Year 2022 conditions. Therefore, the Land Exchange Alternative will have already triggered impacts at the Northwoods Drive/Agua Vista Drive & Proctor Valley Road intersection as well as the segment of Proctor Valley Road between Northwoods Drive and the City of Chula Vista boundary, which are triggered at 371 and 861 EDUs, respectively (see Section 7.5). Both impacts will be triggered by Land Exchange Alternative traffic prior to the peak of construction. However, one impact identified under Year 2025 conditions that could be triggered by construction traffic is along Proctor Valley Road between the City of Chula Vista Boundary and Project Driveway #3, which is triggered at 1,300 EDUs.

If we assume that 93% of the Land Exchange Alternative trips will be assigned to the Proctor Valley Road

between the City of Chula Vista Boundary and Project Driveway #3 segment under Year 2022 conditions (see Figure 7-1), a total of 9,737 daily project trips (10,469 trips x 93%) will be added to this segment under Year 2022 conditions. Additionally, as a worst case scenario it is assumed that Proctor Valley Road, between Chula Vista and Jamul, will be fully constructed by Year 2022 conditions (during peak construction). With the completion of Proctor Valley Road, it is anticipated that 3,000 additional non-project related daily trips will also utilize the impacted segment for Proctor Valley Road, for a total daily volume of 15,123 daily trips, which would be 123 daily trips over the LOS D threshold of 15,000.

9.3 Construction Traffic Management Plan

In light of the potential significant temporary traffic impact to Proctor Valley Road between the City of Chula Vista Boundary and Project Driveway #3, associated with construction activities, the Land Exchange Alternative shall implement a ride sharing program for a minimum of 62 workers on days in which construction activities are anticipated to require more than 656¹ on site workers. This will reduce the number of construction related trips on Proctor Valley Road to less than significant levels; therefore, not triggering the impact (15,123 daily trips on Proctor Valley Road – 62 Workers x 2 daily trips = 14,999 daily trips which is less than the 15,000 daily trip LOS D capacity on Proctor Valley Road).

¹ During the peak of construction, it is anticipated that there will be a total of 1,436 daily worker trips using Proctor Valley Road to get to/from the site (see Table 10.2), resulting in 718 total workers on-site (1,436 / 2 trips). Therefore, the identified impact to Proctor Valley Road (123 total trips over its daily capacity) will be triggered if more than 656 workers access the project site in a single day (123 worker trips / 2 = 62 workers, 718 workers – 62 workers = 656 workers).

10.0 Transportation Demand Management (TDM)

The project applicant proposes implementation of a Transportation Demand Management (TDM) measure to reduce vehicle trips in favor of alternative modes of transportation. The TDM program would facilitate increased opportunities for transit, bicycling, and pedestrian travel, as well as provide the resources, means and incentives for ridesharing and carpooling opportunities. The following components are to be included in the TDM program:

1. As shown in Figure 9-1, the Land Exchange Alternative has developed a comprehensive trails network that was designed to provide safe bicycle and pedestrian access between the various Land Exchange Alternative phases, land uses, parks/open spaces, schools and the Village Core area. Where approved by the appropriate jurisdiction, the trail network will also provide connections to the various recreational trails and multi-modal facilities accessing the Land Exchange Alternative site.
2. Provide bicycle racks along main travel corridors, adjacent to commercial developments, and at public parks and open spaces within the Land Exchange Alternative site.
3. Provide bicycle racks at the office, multi-family and live/work buildings within the Land Exchange Alternative site.
4. Coordinate with SANDAG's iCommute program for Carpool, Vanpool, and rideshare programs that are specific to the Land Exchange Alternative.
5. Promote available websites providing transportation options for residents and businesses.
6. Create and distribute a "new resident" information packet addressing alternative modes of transportation.
7. Coordinate with MTS and SANDAG as to the future sighting of transit stops/stations within the Land Exchange Alternative site.
8. Provide a communal shuttle system for the senior communities within the Land Exchange Alternative.
9. Provide a school pool program by coordinating with the local school district and SANDAG. Provide dedicated parking space for the school pool program at the Village Core area.
10. Implement a School Bus Program in coordination with the school district.
11. The project's HOA shall be required to coordinate with the local school district and partner with the on-site elementary school in order to create a "walking school bus program" for neighborhood students to safely walk to and from school. The project applicant also shall coordinate with the local school district to encourage the provision of bicycle storage facilities at the on-site elementary school.

The effect that the above measures will have on the overall Vehicle Miles Traveled generated by the proposed project as well as the Proposed Project compliance with Senate Bill 743 (for informational purpose) was analyzed in a separate memorandum, which is included in **Appendix N**.

11.0 Summary of Findings and Recommendations

This chapter provides a summary of the key findings and study recommendations, including the Level of Service results and traffic mitigation requirements, associated with the various analysis scenarios. Specific recommendations related to mitigation of the Land Exchange Alternative traffic impacts on intersection, roadway and freeway/state highway segments are also summarized.

11.1 Summary of Intersection Analyses

Table 11.1 displays intersection Level of Service results for each of the analyzed scenarios. Significant impacts are identified in bold.

Table 11.1 Summary of Peak Hour Intersection LOS Results

#	Intersection	Jurisdiction	Existing		Existing + Buildout		Year 2025		Year 2030	
			AM	PM	AM	PM	AM	PM	AM	PM
1	SR-94 & Lyons Valley Road	Caltrans	F	F	F	F	F	F	N/A	N/A
2	Proctor Valley Road/Jefferson Road & SR-94	County	B	B	B	B	C	D	N/A	N/A
3	Proctor Valley Road & Maxfield Road	County	A	A	A	A	B	B	N/A	N/A
4	Proctor Valley Road & Melody Road	County	A	A	A	A	A	A	N/A	N/A
5	SR-94 & Melody Road	Caltrans	B	C	B	C	B	B	N/A	N/A
6	San Miguel Ranch Road & SR-125 SB Ramps	Caltrans	C	B	C	B	C	B	C	B
7	San Miguel Ranch Road & SR-125 NB Ramp	Caltrans	B	B	B	B	B	B	B	B
8	I-805 SB Ramp & East H Street	Caltrans	A	A	A	B	B	B	B	B
9	I-805 NB Ramp & East H Street	Caltrans	A	B	B	B	B	B	B	B
10	Terra Nova Drive & East H Street	Chula Vista	B	B	B	B	B	B	B	B
11	East H Street & Del Rey Boulevard	Chula Vista	B	A	B	A	B	A	B	B
12	Pasel Del Rey & East H Street	Chula Vista	B	C	C	C	C	D	C	D
13	Paseo Ranchero & East H Street	Chula Vista	D	D	D	D	D	D	D	D
14	Otay Lakes Road & East H Street	Chula Vista	D	C	D	D	D	D	D	D
15	SR-125 SB Ramp & East H Street	Caltrans	A	A	A	A	A	A	A	A
16	SR-125 NB Ramp & East H Street	Caltrans	A	A	A	A	A	A	A	A
17	Mt Miguel Road & East H Street	Chula Vista	C	C	D	C	D	C	D	D
18	Lane Avenue & East H Street	Chula Vista	B	C	C	D	D	D	D	D
19	Hunte Parkway & East H Street	Chula Vista	B	B	C	B	C	C	C	D

Table 11.1 Summary of Peak Hour Intersection LOS Results

#	Intersection	Jurisdiction	Existing		Existing + Buildout		Year 2025		Year 2030	
			AM	PM	AM	PM	AM	PM	AM	PM
20	Aqua Vista & East H Street	Chula Vista	A	A	F	E	F	F	F	F
21	Eastlake Parkway & Fenton Street	Chula Vista	B	C	B	C	C	D	C	D
22	Lane Avenue & Fenton Street	Chula Vista	B	C	B	C	D	D	D	D
23	Heritage Road/Paseo Ranchero & Telegraph Canyon Road	Chula Vista	D	C	D	C	D	D	D	D
24	La media Road & Telegraph Canyon Road / Otay Lake Road	Chula Vista	C	C	C	C	D	D	D	D
25	SR-125 SB Ramps & Otay Lakes Road	Caltrans	A	B	A	B	B	B	B	B
26	SR-125 NB Ramps & Otay Lakes Road	Caltrans	A	A	A	A	A	B	A	C
27	Eastlake Parkway & Otay Lakes Road	Chula Vista	C	C	C	C	D	D	D	D
28	Lane Avenue & Otay Lakes Road	Chula Vista	B	B	B	B	B	C	B	C
29	Fenton Street & Otay Lakes Road	Chula Vista	A	A	A	A	B	C	C	C
29	Hunte Parkway & Otay Lakes Road	Chula Vista	C	B	C	B	C	D	D	D
30	Eastlake Parkway & Olympic Parkway	Chula Vista	B	B	B	B	C	C	C	C
31	Hunte Parkway & Olympic Parkway	Chula Vista	B	B	B	B	C	D	C	D
32	Eastlake Parkway & Hunte Parkway	Chula Vista	N/A	N/A	N/A	N/A	C	C	D	D
33	Proctor Valley Road & Project Driveway #1	County	N/A	N/A	B	C	D	D	N/A	N/A
34	Proctor Valley Road & Project Driveway #2	County	N/A	N/A	B	B	B	C	N/A	N/A
35	Proctor Valley Road & Project Driveway #3	County	N/A	N/A	A	B	C	C	N/A	N/A
36	Proctor Valley Road & Project Driveway #4	County	N/A	N/A	A	A	B	B	N/A	N/A
37	Proctor Valley Road & Project Driveway #5	County	N/A	N/A	A	A	A	A	N/A	N/A
38	Proctor Valley Road & Project Driveway #6	County	N/A	N/A	A	A	B	B	N/A	N/A
39	Proctor Valley Road & Project Driveway #7	County	N/A	N/A	A	A	A	A	N/A	N/A
40	Proctor Valley Road & Project Driveway #8	County	N/A	N/A	A	A	B	B	N/A	N/A
41	Proctor Valley Road & Project Driveway #9	County	N/A	N/A	A	A	B	B	N/A	N/A

Source: Chen Ryan Associates; August 2015

Table 11.1 illustrates the following:

Existing conditions – All study area intersections currently operate at LOS D or better, with the exception

of the SR-94 / Lyons Valley Road intersection, which operates at LOS F during both the AM and PM peak hours.

Existing Plus Land Exchange Alternative conditions – All study area intersections are projected to operate at LOS D or better under Existing Plus Land Exchange Alternative conditions with the exception of the following:

- SR-94 & Lyons Valley Road (LOS F during the AM and PM peak hours); and
- Northwoods Drive/Agua Vista Drive & Proctor Valley Road (LOS F - AM peak hour / LOS E - PM peak hour)

Based on the significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would cause a significant direct impact to the intersections listed above.

Year 2025 conditions – All study area intersections are projected to operate at LOS D or better under Year 2025 conditions with the exception of the following:

- SR-94 & Lyons Valley Road (LOS F during the AM and PM peak hours)
- Northwoods Drive/Agua Vista Drive & Proctor Valley Road (LOS F - AM and PM peak hours)

Based on the significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would cause a significant direct impact at the intersection listed above.

Year 2030 conditions – All study area intersections analyzed under this scenario are anticipated to operate at LOS D or better under Year 2030 conditions, with the exception of the following:

- Northwoods Drive/Agua Vista Drive & Proctor Valley Road (LOS F - AM and PM peak hours)

Based on the significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would cause a significant direct impact at the intersection listed above.

11.2 Summary of Roadway Segment Analyses

Table 11.2a and **Table 11.2b** display the roadway segment Level of Service results for each of the study scenarios analyzed, for the County of San Diego and the City of Chula Vista, respectively. Significant impacts are identified in bold.

Table 11.2a Summary of Roadway Segment LOS Results – County of San Diego

Roadway	Segment	Existing	Existing +P	Year 2025
Proctor Valley Rd	City of Chula Vista boundary to Project Driveway #1	A	D	E
	Project Driveway #1 to Project Driveway #2	N/A	D	E
	Project Driveway #2 to Project Driveway #3	N/A	D	E
	Project Driveway #3 to Project Driveway #4	N/A	D	D

Table 11.2a Summary of Roadway Segment LOS Results – County of San Diego

Roadway	Segment	Existing	Existing +P	Year 2025
Proctor Valley Rd	Project Driveway #4 to Project Driveway #5	N/A	B	C
	Project Driveway #5 to Project Driveway #6	N/A	B	C
	Project Driveway #6 to Project Driveway #7	N/A	B	C
	Project Driveway #7 to Project Driveway #8	N/A	A	C
	Project Driveway #8 to Project Driveway #9	N/A	A	C
	Project Driveway #9 to Melody Rd	N/A	A	A
	Melody Rd to Schlee Canyon Rd	B	A	A
	Schlee Canyon Rd to Maxfield Rd	B	A	A
	Maxfield Rd to SR-94	B	A	A
Melody Rd	Proctor Valley Rd to SR-94	A	A	A
Jefferson Rd	SR-94 to Olive Vista Dr	B	A	D
Lyons Valley Rd	SR-94 to Olive Vista Dr	B	B	A

Source: Chen Ryan Associates; August 2015

Table 11.2a, Summary of Roadway Segment LOS Results – County of San Diego, illustrates the following:

Existing conditions – All study area roadway segments analyzed within the County of San Diego currently operate at LOS B or better.

Existing Plus Land Exchange Alternative – All study area roadway segments analyzed within the County of San Diego are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic.

Based on the County of San Diego significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in roadway segment operations under Existing Plus Land Exchange Alternative conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

Year 2025 conditions – All study area roadway segments analyzed within the County of San Diego are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic, with the exception of the following:

- Proctor Valley Road, between City of Chula Vista boundary to Project Driveway #1 (LOS E)
- Proctor Valley Road, between Project Driveway #1 to Project Driveway #2 (LOS E)
- Proctor Valley Road, between Project Driveway #2 to Project Driveway #3 (LOS E)

Based on the County of San Diego significance criteria outlined in Section 2.8, the addition of trips generated by the Land Exchange Alternative would cause significant cumulative impacts under Year 2025

conditions along the following roadway segments within the County of San Diego:

- Proctor Valley Road, between City of Chula Vista boundary to Project Driveway #1
- Proctor Valley Road, between Project Driveway #1 to Project Driveway #2
- Proctor Valley Road, between Project Driveway #2 to Project Driveway #3

Table 11.2b Summary of Roadway Segment LOS Results – City of Chula Vista

Roadway	Segment	Existing	Existing +P	Year 2025	Year 2030
San Miguel Ranch Rd	Proctor Valley Rd to SR-125 SB Ramp	A	A	A	A
	SR-125 SB Ramp to SR-125 NB Ramp	A	A	A	A
San Miguel Ranch / Mt Miguel Rd	SR-125 NB Ramp to Proctor Valley Rd	A	A	A	A
Mt Miguel Rd	Proctor Valley Rd to Mackenzie Creek Rd	A	A	A	A
H St	I-805 SB Ramps to I-805 NB Ramps	A	D	A	A
	I-805 NB Ramps to Terra Nova Dr	A	B	C	C
	Terra Nova Dr to Del Rey Blvd	C	D	D	D
	Del Rey Blvd to Paseo Del Rey	C	C	D	D
	Paseo Del Rey to Paseo Ranchero	C	C	D	D
	Paseo Ranchero to Otay Lakes Rd	A	B	C	B
	Otay Lakes Rd to SR-125 SB Ramps	B	C	D	D
Proctor Valley Rd	SR-125 SB Ramps to SR-125 NB Ramps	A	A	A	A
	SR-125 NB Ramps to Mt Miguel Rd	A	A	A	A
	Mt Miguel Rd to Lane Ave	A	A	B	B
	Lane Ave to Hunte Pkwy	A	A	A	A
	Hunte Pkwy to Northwood Dr	A	A	B	C
	Northwoods Dr to County of San Diego Boundary	A	D	F	F
Telegraph Canyon Rd	Paseo Ranchero to Otay Lakes Rd	A	A	D	C
Otay Lakes Rd	Ridgeback Rd to E. H St	A	A	A	A
	E. H St to Otay Lakes Rd	A	A	A	A
	Telegraph Canyon to SR-125 SB Ramps	B	B	C	C
	SR-125 SB Ramps to SR-125 NB Ramps	C	C	C	C
	SR-125 NB Ramps to Eastlake Pkwy	B	B	D	D
	Eastlake Pkwy to Lane Ave	A	A	A	A
Otay Lakes Rd	Lane Ave to Hunte Pkwy	A	A	A	A
	Hunte Pkwy to Woods Dr	A	A	A	A
Olympic Pkwy	SR-125 NB Ramps to Eastlake Pkwy	A	A	B	A

Table 11.2b Summary of Roadway Segment LOS Results – City of Chula Vista

Roadway	Segment	Existing	Existing +P	Year 2025	Year 2030
Olympic Pkwy	Eastlake Pkwy to Hunte Pkwy	A	A	A	A
	Hunte Pkwy to Olympic Vista Rd	A	A	A	C
Paseo Del Rey	E. H St to E. J St	A	A	A	A
Heritage Rd	Telegraph Canyon Rd to E. Palomar St	A	A	A	A
La Media Rd	Otay Lakes Rd to E. Palomar St	A	A	A	A
Eastlake Pkwy	Miller Rd to Otay Lakes Rd	B	B	B	C
	Otay Lakes Rd to Olympic Pkwy	A	A	A	A
	Olympic Pkwy to Hunte Pkwy	A	A	A	A
Old Trail Dr	N Trail Ct to Proctor Valley Rd	A	A	A	A
Lane Ave	Proctor Valley Rd to Otay Lakes Rd	A	A	C	A
Hunte Pkwy	Proctor Valley Rd to Otay Lakes Rd	A	A	A	A
	Otay Lakes Rd to Olympic Pkwy	A	A	A	A
	Olympic Pkwy to Eastlake Pkwy	A	A	A	A
Northwoods Dr	Proctor Valley Rd to Blue Ridge Dr	A	A	A	A

Source: Chen Ryan Associates; August 2015

Table 11.2b Summary of Roadway Segment LOS Results – City of Chula Vista, illustrates the following:

Existing conditions – All study area roadway segments analyzed within the City of Chula Vista currently operate at LOS C or better.

Existing Plus Land Exchange Alternative conditions – All study area roadway segments analyzed within the City of Chula Vista are anticipated to continue to operate at LOS C or better with the exception of the following:

- East H Street, between I-805 SB Ramps and I-805 NB Ramps (LOS D)
- East H Street, between Terra Nova Drive and Del Rey Boulevard (LOS D)
- Proctor Valley Road, between Northwoods Drive to the City of Chula Vista boundary (LOS D)

Based on the City of Chula Vista significance criteria outlined in Section 2.8, the Land Exchange Alternative would have a significant project-specific impact on the following roadway segment under Existing Plus Land Exchange Alternative conditions:

Year 2025 conditions – All study area roadway segments within the City of Chula Vista are projected to operate at LOS C or better under Year 2025 conditions with the exception of the following:

- East H Street, between Terra Nova Drive and Del Rey Boulevard (LOS D)
- East H Street, between Del Rey Boulevard and Paseo Del Rey (LOS D)

- East H Street, between Paseo Del Rey and Paseo Ranchero (LOS D)
- East H Street, between Otay Lakes Road and SR-125 SB Ramps (LOS D)
- Proctor Valley Road, between Northwoods Drive to the City of Chula Vista Boundary (LOS F)
- Telegraph Canyon Road, between Paseo Ranchero to Otay Lakes Road (LOS D)
- Otay Lakes Road, between the SR-125 NB Ramps and Eastlake Parkway (LOS D)

Based on the City of Chula Vista significance criteria outlined in Section 2.8, the Land Exchange Alternative would have a significant project-specific impact on the following roadway segment under Year 2025 conditions:

- Proctor Valley Road, between Northwoods Drive to the City of Chula Vista Boundary (LOS F)

Year 2030 conditions – All study area roadway segments within the City of Chula Vista are projected to operate at LOS C or better under Year 2025 conditions with the exception of the following:

- East H Street, between Terra Nova Drive and Del Rey Boulevard (LOS D)
- East H Street, between Del Rey Boulevard and Paseo Del Rey (LOS D)
- East H Street, between Paseo Del Rey and Paseo Ranchero (LOS D)
- East H Street, between Otay Lakes Road and SR-125 SB Ramps (LOS D)
- Proctor Valley Road, between Northwoods Drive to the City of Chula Vista Boundary (LOS F)
- Otay Lakes Road, between the SR-125 NB Ramps and Eastlake Parkway (LOS D)

Based on the City of Chula Vista significance criteria outlined in Section 2.8, the Land Exchange Alternative would have a significant project-specific impact on the following roadway segments under Year 2030 conditions:

- Proctor Valley Road, between Northwoods Drive to the City of Chula Vista Boundary (LOS F)

11.3 Summary of Two-Lane Highway Analysis

Table 11.3 displays two-lane highway SR-94 Level of Service results for each of the analyzed scenarios utilizing the County LOS Criteria and methodology.

Table 11.3 Summary of Two-Lane Highway Segment LOS Results

Highway	Segment	Existing	Existing + BO	Year 2025
SR-94	Vista Sage Ln to Lyons Valley Rd	E	E	F
	Lyons Valley Rd to Jefferson Rd	D or better	D or better	F
	Jefferson Rd to Maxfield Rd	D or better	D or better	N/A
	Maxfield Rd to Melody Rd	D or better	D or better	N/A
	Melody Rd to Otay Lakes Rd	D or better	D or better	D or better

Source: Chen Ryan Associates; August 2015

Table 11.3 illustrates the following:

Existing conditions – All study area two-lane highway segments analyzed under this scenario currently operate at LOS D or better, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, which operates at LOS E.

Existing Plus Land Exchange Alternative conditions – All two-lane highway segments analyzed under this scenario are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, which operates at LOS E.

Year 2025 Conditions — All two-lane highway segments analyzed under this scenario are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic, with the exception of SR-94 between Vista Sage Lane and Lyons Valley Road, which is projected to operate at LOS E.

11.4 Summary Freeway/State Highway Analyses

Table 11.4 displays freeway and state highway Level of Service results for each of the analyzed scenarios. Significant impacts are identified in bold.

Table 11.4 Summary of Freeway Mainline LOS Results

Freeway	Segment	Existing	Existing +BO	Year 2025	Year 2030
I-805	Home Ave to SR-94	F	F	F	F
	SR-94 to Market St	F	F	F	F
	Market St to Imperial Ave	F	F	F	F
	Imperial Ave to E Division St	D	D	F	F
	E Division St to Plaza Blvd	D	D	F	F
	Plaza Blvd to SR-54	D	D	F	F
	SR-54 to Bonita Rd	F	F	F	F
	Bonita Rd to East H St	D	D	F	F
	East H St to Telegraph Canyon Rd	D	D	F	F
SR-125	SR-94 Junction to Jamacha Rd	D	F	F	F
	Jamacha Rd to Paradise Valley Rd	C	C	E	E
	Paradise Valley Rd to SR-54 Junction	C	D	D	D
	SR-54 to Mt. Miguel Rd	A	A	A	A
	Mt. Miguel Rd to Proctor Valley Rd	A	A	A	B
	Proctor Valley Rd to Otay Lakes Rd	A	A	A	A
	Otay Lakes Rd to Olympic Pkwy	A	A	A	B
	Olympic Pkwy to Birch Rd	A	A	A	A
	Birch Rd to Main St	A	B	B	B
	Main St to Otay Valley Rd	A	B	B	B

Table 11.4 Summary of Freeway Mainline LOS Results

Freeway	Segment	Existing	Existing +BO	Year 2025	Year 2030
SR-125	Otay Valley Rd to Lone Star Rd	A	B	B	D
	Lone Star Rd to Otay Mesa Rd	A	B	B	D
SR-54	I-805 to Reo Dr/Plaza Bonita Center Wy	D	E	E	F
	Reo Dr/Plaza Bonita Center Wy to Woodman St	D	D	D	D
	Woodman St to Briarwood Rd	C	D	D	D
	Briarwood Rd to SR-125 Junction	C	C	C	C

Source: Chen Ryan Associates; August 2015

Existing conditions – All study area freeway segments currently operate at LOS D or better with the exception of the following segments:

- I-805, between Home Avenue and SR-94 (LOS F)
- I-805, between SR-94 and Market Street (LOS F)
- I-805, between Market Street and Imperial Avenue (LOS F)
- I-805, between SR-54 and Bonita Road (LOS F)

Existing Plus Land Exchange Alternative conditions – All study area freeway mainline segments are projected to operate at LOS D or better with the addition of Land Exchange Alternative traffic, with the exception of the following:

- I-805, between Home Avenue and SR-94 (LOS F)
- I-805, between SR-94 and Market Street (LOS F)
- I-805, between Market Street and Imperial Avenue (LOS F)
- I-805, between SR-54 and Bonita Road (LOS F)

Based on the Freeway Mainline significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in roadway segment operations under Existing Plus Land Exchange Alternative conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

Year 2025 conditions – The following study area freeway mainline segments are projected to operate at LOS E or F under Year 2025 conditions.

- I-805, between Home Avenue and SR-94 (LOS F)
- I-805, between SR-94 and Market Street (LOS F)
- I-805, between Market Street and Imperial Avenue (LOS F)
- I-805, between Imperial Avenue and E Division Street (LOS F)
- I-805, between E. Division Street and Plaza Boulevard (LOS F)

-
- I-805, between Plaza Boulevard to SR-54 (LOS F)
 - I-805, between SR-54 and Bonita Road (LOS F)
 - I-805, between Bonita Road and East H Street (LOS F)
 - I-805, between East H Street and Telegraph Canyon Road (LOS F)
 - SR-125, between SR-94 Junction and Jamacha Road (LOS F)
 - SR-125, between Jamacha Road and Paradise Valley Road (LOS E)
 - SR-54, between I-805 and Reo Drive/Plaza Bonita Center Way (LOS E)

Based on the Freeway Mainline significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in roadway segment operations under Year 2025 conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

Year 2030 conditions – The following study area freeway mainline segments are projected to operate at LOS E or F under Year 2030 conditions.

- I-805, between Home Avenue and SR-94 (LOS F)
- I-805, between SR-94 and Market Street (LOS F)
- I-805, between Market Street and Imperial Avenue (LOS F)
- I-805, between Imperial Avenue and E Division Street (LOS F)
- I-805, between E Division Street and Plaza Boulevard (LOS F)
- I-805, between Plaza Boulevard to SR-54 (LOS F)
- I-805, between SR-54 and Bonita Road (LOS F)
- I-805, between Bonita Road and East H Street (LOS F)
- I-805, between East H Street and Telegraph Canyon Road (LOS F)
- SR-125, between SR-94 Junction and Jamacha Road (LOS F)
- SR-125, between Jamacha Road and Paradise Valley Road (LOS E)
- SR-54, between I-805 and Reo Drive/Plaza Bonita Center Way (LOS F)

Based on the Freeway Mainline significance criteria outlined in Section 2.8, the traffic associated with the Land Exchange Alternative would not cause any significant changes in roadway segment operations under Year 2030 conditions. Therefore, no significant Land Exchange Alternative related impacts were identified and no mitigation is required.

11.5 Summary of Freeway Ramp Intersection Capacity Analysis

Table 11.5 displays freeway ramp intersection capacity analysis Level of Service results for each of the scenarios analyzed. This information is provided for informational purposes only as significant impacts are not assessed under this analysis.

Table 11.5 Freeway Ramp Intersection Capacity Analysis Summary

Intersection	Existing	Existing +BO	Year 2025	Year 2030
SR-125 SB / Mt. Miguel	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
SR-125 NB / Mt. Miguel	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
I-805 SB / H Street	At Capacity	At Capacity	Over Capacity	Over Capacity
	Over Capacity	Over Capacity	Over Capacity	Over Capacity
I-805 NB / H Street	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
SR-125 SB / H Street	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
SR-125 NB / H Street	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
SR-125 SB / Mt. Miguel	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity
SR-125 NB / Otay Lakes Road	Under Capacity	Under Capacity	Under Capacity	Under Capacity
	Under Capacity	Under Capacity	Under Capacity	Under Capacity

Source: Chen Ryan Associates; August 2015

Table 11.5 illustrates the following:

Existing conditions – All study area freeway ramp intersections are currently operating either at or under capacity, with the exception of I-805 SB / H Street, which is currently over capacity during the PM peak hour.

Existing Plus Land Exchange Alternative – All study area freeway ramp intersections are currently operating either at or under capacity, with the exception of I-805 SB / H Street, which would be over capacity during the PM peak hour.

Year 2025 conditions – All study area freeway ramp interchange intersections are projected to operate at or under capacity under Year 2025 conditions, with the exception of I-805 SB / H Street, which would be over capacity during both the AM and PM peak hour.

Year 2030 conditions – All study area freeway ramp interchange intersections are projected to operate at or under capacity under Year 2030 conditions, with the exception of I-805 SB / H Street, which would be over capacity during both the AM and PM peak hour.

11.6 Summary of Ramp Metering Analysis

Table 11.6 displays ramp metering analysis results for each of the scenarios analyzed.

Table 11.6 Summary of Ramp Metering Analysis

Location	Peak Hour	Existing	Existing +BO	Year 2025	Year 2030
I-805 NB On-Ramp @ WB H Street	AM	0	0	0	0
I-805 NB On-Ramp @ EB H Street	AM	0	0	16.75	18.05

Source: Chen Ryan Associates; August 2015

Table 11.6 illustrates the following:

Existing conditions – The current peak hour ramp volumes do not exceed the current ramp meter rates at either of the key study ramps that are metered.

Existing Plus Land Exchange Alternative conditions – The current peak hour ramp volumes do not exceed the current ramp meter rates at either of the key study ramps that are metered.

Year 2025 conditions – Under Year 2025 conditions, the peak hour ramp volumes are anticipated to exceed the current ramp meter rate at the I-805 NB On-Ramp @ EB H Street during the AM peak hour, resulting in over 16 minutes of delay. However, since the Land Exchange Alternative is located to the east of this ramp, Land Exchange Alternative traffic would access northbound I-805 from the westbound direction only. Therefore, the Land Exchange Alternative would not add any additional traffic to the I-805 NB On-Ramp @ EB H Street and would not cause or contribute to any impacts at this ramp.

Year 2030 conditions – Under Year 2030 conditions, the peak hour ramp volumes are anticipated to exceed the current ramp meter rate at the I-805 NB On-Ramp @ EB H Street during the AM peak hour, resulting in over 18 minutes of delay. However, since the Land Exchange Alternative is located to the east of this ramp, Land Exchange Alternative traffic would access northbound I-805 from the westbound direction only. Therefore, the Land Exchange Alternative would not add any additional traffic to the I-805 NB On-Ramp @ EB H Street and would not cause or contribute to any impacts at this ramp.

11.7 Summary of Significant Project Impacts and Mitigation Recommendations

Table 11.7 summarizes the identified significant Land Exchange Alternative-related impacts and recommended mitigation to intersections, roadway segments, freeway segments, and two-lane highway segments under each of the scenarios analyzed.

Table 11.7 Summary of Significant Impacts and Mitigation Measures

Location	Existing Plus Land Exchange Alternative	Year 2025	Year 2030
Intersection			
SR-94 & Lyons Valley Road	Direct Caltrans Facility – Significant and Unavoidable Impact	None	N/A
Northwoods Drive / Agua Vista Drive & Proctor Valley Road	Direct City of CV Facility – Significant and Unavoidable Impact	Direct City of CV Facility – Significant and Unavoidable Impact	Direct City of CV Facility – Significant and Unavoidable Impact
Roadway Segment			
Proctor Valley Road between Northwoods Dr to County of San Diego Boundary	Direct City of CV Facility – Significant and Unavoidable Impact	Direct City of CV Facility – Significant and Unavoidable Impact	Direct City of CV Facility – Significant and Unavoidable Impact
Proctor Valley Road between City of Chula Vista boundary to Project Driveway #1	None	Cumulative Significant and Unavoidable Impact	N/A
Proctor Valley Road between Project Driveway #1 to Project Driveway #2	None	Cumulative Significant and Unavoidable Impact	N/A
Proctor Valley Road between Project Driveway #2 to Project Driveway #3	None	Cumulative Significant and Unavoidable Impact	N/A
2-Ln Highway Segment			
None			
Freeway Segment			
None			
Ramp Meter			
None			

Source: Chen Ryan Associates; August 2015