APPENDIX B

Traffic

Traffic Impact Analysis

V2 Comprehensive SPA

REVISED REPORT

MARCH 4, 2014

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Traffic Impact Analysis

V2 Comprehensive SPA

Revised Report

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Executive Summary

The Village 2 Comprehensive SPA (project or proposed project) is located in the southeastern portion of the City of Chula Vista. The project proposes the addition of approximately 1,562 additional dwelling units, parkland, community purpose facilities (CPF) and an additional elementary school to Village 2 of the Otay Ranch. The proposed project requires amendments to the City of Chula Vista General Plan (GP), the Otay Ranch General Development Plan (GDP), the Otay Ranch Village 2, 3, and a portion of 4 Sectional Planning Area Plan (SPA), and the Otay Ranch Core Master Precise Plan (CMPP). The proposed project also requires four new Tentative Maps.

The proposed project would generate a total of 13,840 external daily trips by buildout of the project, including 1,068 AM peak hour trips and 1,367 PM peak hour trips.

Based on the City of Chula Vista and City of San Diego significance criteria and the respective traffic impact analysis guidelines, the proposed project would result in direct traffic impacts at the following two intersections:

- Heritage Road / Olympic Parkway (City of Chula Vista); and
- Heritage Road / Avenida De Las Vistas (City of San Diego).

Signalization would mitigate the impact at the intersection of Heritage Road / Avenida De Las Vistas in the City of San Diego. The direct impact to the intersection of Heritage Road / Olympic Parkway would be mitigated by making payment to the Transportation Development Impact Fee (TDIF) program, for the construction of Main Street, between Heritage Road and La Media Road (CIP STM 357).

The proposed project would also result in cumulative traffic impacts at the following seven intersections, all of which are located in the City of Chula Vista:

- I-805 SB Ramps / Olympic Parkway – no feasible mitigation, impact remains significant and unmitigable;
- La Media Road / Olympic Parkway - payment towards TDIF for the construction of Main Street, between Heritage Road and La Media Road;
- La Media Road (SB) / Main Street (WB) - payment towards TDIF for traffic signal;
- La Media Road (NB) / Main Street (WB) - payment towards TDIF for traffic signal;
- La Media Road (SB) / Main Street (EB) - payment towards TDIF for traffic signal;
- La Media Road (NB) / Main Street (EB) - payment towards TDIF for traffic signal; and
- Magdalena Avenue / Main Street - payment towards TDIF for traffic signal.

In terms of study area roadway segments, the proposed project would result in direct traffic impact at the following location:

- Heritage Road, between East Palomar Street and Olympic Parkway.

This direct impact would be mitigated by making payment to the TDIF program, for the construction of Main Street, between Heritage Road and La Media Road (CIP STM 357).

Two (2) roadway segments would be cumulatively impacted by the proposed V2 project, including:

- Orange Avenue, between Melrose Avenue and I-805 SB Ramps - no feasible mitigation, impact remains significant and unmitigable; and
- Olympic Parkway, between Heritage Road and Santa Venetia Street - payment towards TDIF for the construction of Main Street, between Heritage Road and La Media Road.

In addition to intersection and roadway impacts, traffic generated by the proposed project would have a cumulative impact on I-805, from SR-94 to Telegraph Canyon Road. However, there is no feasible mitigation available, and the impact would remain significant and unmitigable.

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1.0 Introduction

1.1 Purpose of the Report

The purpose of this Traffic Impact Analysis (TIA) is to identify and document potential traffic impacts related to the development of the Village 2 Comprehensive SPA project. The Village 2 Comprehensive SPA project proposes to increase land use densities from the City approved Village 2 project back in Year 2006, thus this report only focuses on identifying and documenting potential traffic impacts due to the increase. This report also recommends mitigation measures for any identified intersection, roadway or freeway/highway deficiency associated with the Village 2 project.

1.2 Project Location and Description

The Village 2 Comprehensive SPA (project or proposed project) is located in the southeastern portion of the City of Chula Vista. **Figure 1-1** displays the project's location within the region, while **Figure 1-2** illustrates the project study area. The proposed project, Village 2 or the 'Comprehensive' Village of Montecito SPA Plan Amendment (Comprehensive SPA), proposes the addition of approximately 1,562 additional dwelling units, parkland, community purpose facilities (CPF) and an additional elementary school to Village 2 of the Otay Ranch. A summary of the proposed land use changes is included in the table below:

Land Use Type	Quantity
Single Family (DU)	311 du
Multi-Family (DU)	1,251 du
Mixed-Use Commercial (KSF)	30 ksf
CPF (AC)	11.2 ac
Elementary School (AC)	9.5 ac
Light Industrial (AC)	1.7 ac
Neighborhood Park (AC)	7.6 ac

Source: Baldwin & Sons

The proposed project requires amendments to the City of Chula Vista General Plan (GP), the Otay Ranch General Development Plan (GDP), the Otay Ranch Village 2, 3, and a portion of 4 Sectional Planning Area Plan (SPA), and the Otay Ranch Core Master Precise Plan (CMPP). The proposed project also requires four new Tentative Maps.

Most recently, the project applicant has modified the proposed land uses as displayed in the table on the following page. In summary, the project still proposes an additional 1,562 dwelling units with a different mix of single and multi-family units, with increased parkland and the elimination of the additional mixed-use commercial uses. As a result, this land plan proposal would generate approximately 4,000 ADT less than the land plan that was modeled and studied

in the TIA. It is important to note that this traffic impact analysis is based on the previous and more aggressive land uses to represent the worst case scenario, the most recent land use proposal is only utilized for internal roadway and intersection assessments as reflected in Chapter 12.

Land Use Type	Quantity *(modified, only used for internal roadway assessment, Chapter 12 of the TIA)*
Single Family (DU)	-70 du
Multi-Family (DU)	1,632 du
Mixed-Use Commercial (KSF)	0 ksf
CPF (AC)	11.0ac
Elementary School (AC)	9.5 ac
Light Industrial (AC)	1.7 ac
Neighborhood Park (AC)	12.8 ac

Source: Baldwin & Sons

Figures 1-3 display the site plan for Village 2. Detailed land use and trip generation information is described in Chapter 4.

1.3 Study Scenarios

A total of six (6) 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 Project (Buildout) Conditions** – represents the existing transportation network with the addition of traffic from buildout of the proposed project, which is expected to be complete by 2025.

3. **Year 2015 Traffic Conditions** – represents 2015 conditions including traffic generated from the proposed project. The proposed project trip generation was determined based upon an estimate of project land development phasing by the Year 2015.

4. **Year 2020 Traffic Conditions** – represents 2020 conditions including traffic generated from the proposed project. The proposed project trip generation was determined based upon an estimate of project land development phasing by the Year 2020.

5. **Year 2025 Traffic Conditions** – represents 2025 conditions including traffic generated from the proposed project. The proposed project trip generation was determined based upon the buildout of the project by the Year 2025.

6. **Buildout Year 2030 Traffic Conditions** – represents projected long-range cumulative conditions for the Year 2030 with the addition of traffic from buildout of the proposed project.

1.4 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 state highway/freeway traffic conditions. This chapter also documents the traffic forecast modeling process and assumptions for this project.

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 Project Description – This chapter describes the proposed project including project traffic generation, trip distribution patterns, and roadway assignments. The project trip distribution was developed via a computer generated "Select Zone" analysis utilizing the Series 11 SANDAG transportation model.

5.0 Existing Plus Project (Buildout) Conditions - This chapter describes the existing traffic network with the addition of full development of the proposed project. Mitigation measures, if necessary, for project-related impacts are also identified.

6.0 Year 2015 Traffic Conditions – This chapter includes near-term development projects anticipated to generate additional study area trips by the Year 2015. Analysis results are provided for the Year 2015 traffic conditions, along with recommended mitigation measures (if necessary).

7.0 Year 2020 Traffic Conditions – This chapter includes near-term development projects anticipated to generate additional study area trips by the Year 2020. Analysis results are provided for the Year 2020 traffic conditions, along with recommended mitigation measures (if necessary).

8.0 Year 2025 Traffic Conditions – This chapter includes near-term development projects 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).

9.0 Year 2030 Traffic Conditions – This chapter describes projected long-range future traffic conditions. Traffic analysis results are presented for the Year 2030 traffic conditions, along with recommended mitigation measures for project-related impacts, as appropriate.

10.0 Findings and Recommendations – This chapter summarizes the overall study findings and identifies recommended project-related mitigation measures.

11.0 Plan-to-Plan (Proposed vs. Adopted) Analysis – This chapter provides a plan-to-plan analysis assessing potential impacts to the adopted City's General Plan Circulation Element roadways within the project study area resulting from proposed changes in the transportation network, land uses, densities, and/or intensities associated with the proposed project.

12.0 Site Access and On-Site Circulation – This chapter presents an assessment of transportation facilities providing access to the proposed project. It also recommends functional classifications for all roadways internal to the project.

13.0 Public Facilities Financing Plan (PFFP) Assessment - This chapter describes necessary roadway and intersection improvements based on access, frontage, and residential unit counts.

2.0 Analysis Methodology

The traffic analyses prepared for this study were performed in accordance with City of Chula Vista and City of San Diego traffic impact analysis guidelines, the enhanced California Environmental Quality Act (CEQA) project review process, and SANTEC/ITE Guidelines for TIA in the San Diego region.

As to the analysis study area, the City of Chula Vista's guidelines require that a project study area be established as follows:

- All freeway mainline segments to which the proposed project will add 2,400 total trips (Average Daily Traffic - ADT) or 150 or more peak hour trips in either direction must be analyzed.

- All arterial segments and intersections (including freeway on/off ramp intersections), to which the proposed project will add 800 or more total trips (ADT) or 50 or more peak-hour trips in either direction must be analyzed.

2.1 Level of Service Definition

The concept of level of service (LOS) is defined as a quantitative stratification of a performance measure or measures that represent quality of service. Quality of service describes how well a transportation facility or service operates from a traveler's perspective. A level of service definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort, convenience, and safety. LOS A represents the best operating conditions from a traveler's perspective, while LOS F the worst.

Table 2.1 describes generalized definitions of urban transportation systems at LOS A through F.

2.2 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.

TABLE 2.1
LEVEL OF SERVICE DEFINITIONS

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual 2010, Chapter 16.

2.2.1 Signalized Intersection Analysis

The signalized intersection analysis utilized in this study conforms to the operational analysis methodology outlined in Chapter 18 of the *Highway Capacity Manual 2010 (HCM 2010)*. The *HCM 2010* methodology defines intersection level of service as a function of intersection control delay in terms of seconds per vehicle (sec/veh).

The *HCM 2010* methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the ideal saturation flow rate at signalized intersections based upon the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared lane movements (e.g. through and right-turn movements sharing the same lane). The level of service criteria used for this technique are described in **Table 2.2**. The computerized analysis of intersection operations was performed utilizing the *Synchro 8.0 Build 802* traffic analysis software (by Trafficware).

TABLE 2.2
SIGNALIZED INTERSECTION LEVEL OF SERVICE
HIGHWAY CAPACITY MANUAL OPERATIONAL ANALYSIS METHOD

Average Stopped Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤10.0	*LOS A* occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	*LOS B* occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
20.1 – 35.0	*LOS C* occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	*LOS D* occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	*LOS E* occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	*LOS F* occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: 2010 Highway Capacity Manual, Chapter 18.

2.2.2 Unsignalized Intersection Analysis

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the methodology set forth in Chapters 19 and 20 of the *HCM 2010*. The level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay at each minor-street movement. LOS F would occur when the volume-to-capacity ratio exceeds 1.0, regardless of the control delay. **Table 2.3** summarizes the level of service criteria for unsignalized intersections.

TABLE 2.3
LEVEL OF SERVICE CRITERIA FOR
STOP CONTROLLED UNSIGNALIZED INTERSECTIONS

Average Control Delay (sec/veh)	Level of Service (LOS)
≤10.0	A
10.1 – 15.0	B
15.1 – 25.0	C
25.1 – 35.0	D
35.1 – 50.0	E
>50.0	F

Source: 2010 Highway Capacity Manual, Chapters 19 & 20.

Both City of Chula Vista and City of San Diego consider LOS D during the AM and PM peak hours to be the minimum standard for intersection level of service.

2.3 Roadway Segment Level of Service Standards and Thresholds

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. **Tables 2.4** and **2.5** present the roadway segment capacity and level of service standards utilized to analyze roadway segments within the City of Chula Vista and City of San Diego, respectively.

TABLE 2.4
CITY OF CHULA VISTA
ROADWAY SEGMENT DAILY CAPACITY AND LEVEL OF SERVICE 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 is heavily influenced by the ability of the arterial intersections to accommodate peak hour volumes.

For the purposes of this traffic analysis, LOS C is considered acceptable for Circulation Element roadway segments within the City of Chula Vista. Per the *Otay Ranch General Development Plan* (Page 104), LOS D is permitted on Circulation Element roads within the Otay Ranch Villages. LOS D is considered acceptable for Circulation Element roadway segments within the City of San Diego.

TABLE 2.5
CITY OF SAN DIEGO
ROADWAY SEGMENT DAILY CAPACITY AND LEVEL OF SERVICE STANDARDS

Roadway Functional Classification	Level of Service				
	A	B	C	D	E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Prime Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Arterial (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Arterial (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Secondary Arterial / Collector (4-lane w/ center lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (4-lane w/o center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane w/ continuous left-turn lane)					
Collector (2-lane no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane w/ commercial fronting)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane multi-family)					
Sub-Collector (2-lane single-family)	-	-	< 2,200	-	-

Source: SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region

Note:
Bold numbers indicate the ADT thresholds for acceptable LOS.

2.4 Growth Management Oversight Committee (GMOC) Analysis

The City of Chula Vista's Growth Management Oversight Committee (GMOC) requires an additional analysis of roadway segment performance under near-term conditions (Years 0-4) utilizing the methodology described in Chapter 17 (Urban Street Segment) of the *HCM 2010*. This methodology determines roadway segment level of service based upon functional classification, roadway segment length and travel speeds. Current information relating to roadway functional classifications, segment lengths, and travel speeds are maintained by the City's Growth Management Traffic Monitoring Program.

The GMOC level of service standard requires the maintenance of LOS C or better, or LOS D for no more than any two (2) hours of the day. If LOS D occurs for any period greater than two (2) hours, additional analyses may be required along the respective high volume segments based upon direction provided by the City Engineer.

For planned arterial facilities that are not included in the current Traffic Monitoring Program, the definition of segment length and facility classification will be based on direction provided by the City Engineer.

2.5 Freeway/State Highway Level of Service Standards and Thresholds

Freeway level of service and performance was 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 2.6**. 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 2.6
CALTRANS DISTRICT 11
FREEWAY AND STATE HIGHWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LOS	V/C	Congestion/Delay	Traffic Description
Free Flow Speed = 65 mi/h			
"A"	<0.41	None	Free flow.
"B"	0.42-0.62	None	Free to stable flow, light to moderate volumes.
"C"	0.63-0.79	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	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: SANTEC/ITE Guidelines for TIA in the San Diego Region

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 and, as a result, does not provide an accurate assessment of ramp intersection operations. For this reason, the ILV analysis is presented for information purposes only. **Table 2.7** provides values of ILV/hr associated with various traffic flow thresholds.

TABLE 2.7
TRAFFIC FLOW CONDITIONS AT RAMP INTERSECTIONS
AT VARIOUS LEVELS OF OPERATION

ILV/hr	Description
<1200: (Under Capacity)	Stable flow with slight, but acceptable delay. Occasional signal loading may develop. Free midblock operations.
1200-1500: (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.
>1500: (Over Capacity)	Stop-and-go operation with severe delay and heavy congestion(1). Traffic volume is limited by maximum discharges 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:
(1) The amount of congestion depends on how much the ILV/hr value exceeds 1500. Observed flow rates will normally not exceed 1500ILV/hr, and the excess will be delayed in a queue.

2.7 Ramp Metering Analysis

Ramp metering analysis was conducted based upon SANDAG Congestion Management Plan and 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. Within the project study area, the I-805 northbound on-ramp at Olympic Parkway and the I-805 northbound on-ramp at Main Street have activated ramp meters. Based upon data provided by Caltrans District 11, the ramp meter at these locations are only activated between 5:30am and 9:30am, thus ramp metering analysis was conducted during the AM peak hour under the various study scenarios.

2.8 Determination of Significant Impacts

This section outlines the thresholds for determination of significant project-related impacts to roadways and intersections in the City of Chula Vista and City of San Diego.

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 project 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:
   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. 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.

City of San Diego

In general, a significant impact would be identified when the addition of project traffic results in a level of service dropping from LOS D or better to substandard LOS E or F. **Table 2.8** summarizes the impact significance thresholds for facilities operating at substandard level of service with and without the project. These thresholds as applied to roadway segments are based upon an acceptable increase in the Volume / Capacity (V/C) ratio.

TABLE 2.8
CITY OF SAN DIEGO
MEASURES OF SIGNIFICANT PROJECT TRAFFIC IMPACTS

LOS with Project	Allowable Change Due to Impact					
	Freeways		Roadway Segments		Intersections	Ramp Metering*
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec)	Delay (min)
E	0.01	1.0	0.02	1.0	2.0	2.0
F	0.005	0.5	0.01	0.5	1.0	1.0

Source: CEQA Significance Determination Thresholds, City of San Diego Development Services Department; January 2007

Note:
* For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

2.9 SANDAG Modeling

This traffic study uses the SANDAG Series 11 "Southbay 2" traffic forecast model with specific land use and network modifications based upon the nature of the proposed project and the most current relevant information available from the City. The City of Chula Vista, SANDAG and Chen Ryan Associates have worked through extensive coordination and review of the model to ensure accurate model outcomes.

Table 2.9 displays a list of four (4) modeling scenarios (2015, 2020, 2025 & 2030) for this project. Detailed land use information as well as forecast volume plot for each scenario is included in **Appendix A.**

The SANDAG model volumes for each scenario were used as indicated on the model output plots with the following two (2) manual adjustments:

1. For the purpose of balancing the utilization of similar parallel facilities within close proximity, 10,000 ADT (in year 2030) was shifted from Main Street between I-805 and Heritage Road to Olympic Parkway. This manual adjustment was approved by the City and is consistent with all recent studies in the area.
2. La Media Road, between Santa Luna Street and Main Street, as well as a portion of Main Street that provides access to Village 8 West, Village 8 East, and Village 9 were assumed to be constructed by others in Year 2020. As a result, 60% (approximately 17,400 ADT) of the traffic on Magdalena Avenue between Birch Road and Main Street was manually shifted to La Media Road. This shift also included a reduction of 17,400 ADT along Birch Road between La Media Road and Magdalena Avenue.

TABLE 2.9
VILLAGE 2 COMPREHENSIVE SPA TRAFFIC MODELING SCENARIOS

A EIR Study Scenario	B Horizon Year	C Land Use Assumptions	D City of SD/ County LU	E Network	F SR-125 Toll vs. Freeway	G Otay Valley I/C?	H Heritage Road	I La Media Bridge	J Main St over Wolf Canyon	K Select Zone Analysis
2015 Plus Project	2015	B&S proposed V2 2015 LU; and OLC Alt. 7 2015 and JPB University Villages proposal	Same as OLC Alt. 7 assumptions for 2015	2015	Toll	Does Not Exist	2-Ln between Olympic Pkwy and Main St	Out	Does Not Exist	V2 (TAZs 4331 & 4363)
2020 Plus Project	2020	B&S proposed V2 2020 LU; and OLC Alt. 7 2020 and JPB University Villages proposal	Same as OLC Alt. 7 assumptions for 2020	2020	Toll	Does Not Exist	6-Ln Prime between Olympic Pkwy and Main St	Out	Does Not Exist	V2 (TAZs 4331 & 4363)
2025 Plus Project	2025	B&S proposed V2 2025 LU; and OLC Alt. 7 2025 and JPB University Villages proposal	Same as OLC Alt. 7 assumptions for 2025	2025	Toll	Does Not Exist	6-Ln Prime between Olympic Pkwy and Main St	Out	Does Not Exist	V2 (TAZs 4331 & 4363)
2030 Plus Project	2030	B&S proposed V2 2030 LU; and OLC Alt. 7 2030 and JPB University Villages proposal	Same as OLC Alt. 7 assumptions for 2030	CE	Toll	Full Interchange	6-Ln Prime between Olympic Pkwy and Main St	Out	6-Ln Prime	V2 (TAZs 4331 & 4363)

Source: Chen Ryan Associates; December 2013

3.0 Existing Conditions

This section describes the study area intersections, roadway and freeway segments, as well as existing peak hour intersection traffic volumes, and daily roadway and freeway traffic volumes. Level of service (LOS) analysis results for all study area facilities under Existing conditions are presented.

3.1 Existing Roadway Network

Several regionally and locally significant roadways and freeways traverse the study area. Each of these transportation facilities, as well as associated study intersections within the study area, is discussed below.

Study Intersections

The SANDAG Series 11 Transportation Model ("Southbay 2, Village 2" with updated Project land use and network) 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 proposed project would add 800 or more daily trips or 50 or more peak hour trips in either direction to the existing traffic were included as study intersections for analysis, as well as all freeway segments where the proposed project would add 2,400 or more daily trips or 150 or more peak hour trips in either direction.

A total of thirty-six (36) study area intersections, including 33 in the City of Chula Vista and 3 in the City of San Diego, were analyzed in this study, as shown below:

1) Paseo Ranchero/Heritage Road / Telegraph Canyon Road
2) La Media Road / Telegraph Canyon Road/Otay Lakes Road
3) Heritage Road / East Palomar Street
4) La Media Road / East Palomar Street
5) Melrose Avenue / Orange Avenue
6) I-805 SB Ramps / Olympic Parkway
7) I-805 NB Ramps / Olympic Parkway
8) Oleander Avenue / Olympic Parkway
9) Brandywine Avenue / Olympic Parkway
10) Santa Victoria Road / Olympic Parkway*
11) Heritage Road / Olympic Parkway*
12) Santa Venetia Street / Olympic Parkway
13) La Media Road / Olympic Parkway
14) East Palomar Street / Olympic Parkway
15) SR-125 SB Ramps / Olympic Parkway
16) SR-125 NB Ramps / Olympic Parkway
17) Eastlake Parkway / Olympic Parkway
18) Heritage Road / Santa Victoria Road*
19) La Media Road / Santa Venetia Street

20) La Media Road / Birch Road
21) Magdalena Avenue / Birch Road
22) SR-125 SB Ramps / Birch Road
23) SR-125 NB Ramps / Birch Road
24) Eastlake Parkway / Birch Road
25) Heritage Road / Santa Liza Street*
26) Heritage Road / Main Street
27) La Media Road (SB) / Main Street (WB) *
28) La Media Road (NB) / Main Street (WB) *
29) La Media Road (SB) / Main Street (EB) *
30) La Media Road (NB) / Main Street (EB) *
31) Magdalena Avenue / Main Street *
32) SR-125 SB Ramps / Main Street*
33) SR-125 NB Ramps / Main Street*
34) Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD)
35) Heritage Road / Otay Mesa Road (SD)
36) Cactus Road / Otay Mesa Road (SD)

Eleven (11) of the above study area intersections are not currently constructed, but were included in future year assessments. These intersections are denoted with an asterisk (*) in the above list. Four (4) of the intersections will be constructed by the project applicant as part of the project, including the conversion of Heritage Road / Olympic Parkway from a signalized T-intersection to a signalized 4-way intersection. The remaining seven (7) intersections are identified in the Circulation Element of the respective jurisdiction's General Plan and are to be developed over the project buildout period, with some of the improvements constructed or partially constructed by the project applicant as mitigation. Additional information is provided in Sections 6.0 through 9.0. **Figure 3-1A** displays study area intersection lane geometrics under Existing conditions within the study area.

East-West Roadway Facilities

City of Chula Vista

L Street/Telegraph Canyon Road – L Street is a 4-lane roadway west of I-805. L Street becomes Telegraph Canyon Road at I-805, where it is a 7-lane roadway between I-805 and Oleander Avenue, and a 6-lane roadway with a raised median and Class II bike lanes between Oleander Avenue and Otay Lakes Road. The posted speed limit is 50 mph. This facility is classified in the City of Chula Vista General Plan Circulation Element as a 4-lane Class I Collector west of I-805, 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 – The east/west portion of Otay Lakes Road runs from Telegraph Canyon Road/La Media Road to SR-94 in the unincorporated County. Within the study area, this facility is a 6-lane roadway with a raised median and is classified as a 6-lane Prime Arterial in the City of Chula Vista General Plan Circulation Element.

East Palomar Street – East Palomar Street is currently a 4-lane roadway with a raised median and on-street parking on both sides. The posted speed limit along this facility is 35 mph. East Palomar Street east of I-805 is classified as a 4-lane Major Road in the City of Chula Vista General Plan Circulation Element. The future BRT is proposed to travel along the median of East Palomar Street and access I-805 via Direct Access Ramps (DAR).

Orange Avenue/Olympic Parkway – Orange Avenue between Melrose Avenue and I-805 is a 4-lane roadway with a raised median. Orange Avenue becomes Olympic Parkway at I-805 and widens to a 6-lane roadway with a raised median until Hunte Parkway, with the exception of the segment between SR-125 and Eastlake Parkway which carries 8 lanes. Between Hunte Parkway and Wueste Drive, Olympic Parkway narrows to a 4-lane roadway with a raised median. Orange Avenue is classified as a 4-lane Major Road in the Chula Vista General Plan Circulation Element. Olympic Avenue is classified as an 8-lane Expressway between SR-125 and Eastlake Parkway, a 6-lane Prime Arterial between I-805 and SR-125 & between Eastlake Parkway and Hunte Parkway, and a 4-lane Major Road between Hunte Parkway and Wueste Road.

Birch Road – Birch Road is a 6-lane roadway with a raised median, Class II bike lanes, and a posted speed of 45 mph between La Media Road and Eastlake Parkway. This facility is classified as a 6-lane Major Road between La Media Road and SR-125, and a 6-lane Prime Arterial between SR-125 and Eastlake Parkway in the City of Chula Vista General Plan Circulation Element.

Main Street – Main Street is a 4-lane roadway with a continuous left-turn lane and a 40 mph posted speed limit between 4th Avenue and I-805. East of I-805, Main Street becomes a 6-lane roadway with a raised median and Class II bikes. The posted speed limits along this section of the roadway vary between 45 mph and 50 mph. Main Street currently terminates at Heritage Road. This facility is classified as primarily a 6-lane Prime Arterial with a couple of exceptions: between SR-125 and Eastlake Parkway being a Gateway Street; and at the couplets (2-lane each direction) at La Media Road.

Otay Valley Road – This road is not currently constructed, but is classified as a 4-lane Major Road in the City of Chula Vista General Plan Circulation Element.

City of San Diego

Lone Star Road – Lone Star Road is currently an unpaved road, and is classified as a 4-lane Major Arterial in the City of San Diego's currently adopted Community Plan Circulation Element.

Otay Mesa Road – Otay Mesa Road is a 6-lane roadway with a raised median and a 50 mph posted speed limit. It is classified as a 6-lane Prime Arterial in the City of San Diego's currently adopted Community Plan Circulation Element.

North-South Roadway Facilities

City of Chula Vista

Paseo Ranchero / Heritage Road – Paseo Ranchero runs from East H Street to Telegraph Canyon Road, where it becomes Heritage Road and continues to its current southern terminus south of Olympic Parkway. Paseo Ranchero is a 4-lane roadway with a continuous left-turn lane/striped median and Class II bike lanes, and Heritage Road is a 6-lane roadway with a raised median and Class II bike lanes. The posted speed limit along this facility is 40 mph. South of Main Street (to Chula Vista city limit), Heritage Road is a 2-lane roadway with a continuous left-turn lane, Class II bike lanes, and a posted speed limit of 45 mph. Paseo Ranchero is classified as a Class I Collector, while Heritage Road is classified as a 6-lane Prime Arterial.

Otay Lakes Road / La Media 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 study area, Otay Lakes Road between East H Street and Telegraph Canyon Road is a 4-lane roadway with striped/raised median and discontinuous Class II bike lanes. The posted speed limit is 40 mph. Otay Lakes Road is classified as a 6-lane Prime Arterial within the study area. La Media Road is a 6-lane roadway with a raised median and Class II bike lanes between Telegraph Canyon Road and its current southern terminus at Santa Luna Street. The posted speed limit is 45 mph. La Media Road is classified as a 6-lane Prime Arterial in the City of Chula Vista General Plan Circulation Element, with the exception of the couplets (2-lane each direction) at Main Street.

Magdalena Avenue - Magdalena Avenue is generally a 4-lane roadway with a raised median between Santa Venetia Street and Main Street, with the exception of the segment between Wolf Canyon Loop and Santa Luna Street, which is a 2-lane roadway with a raised median. The posted speed limit is 25 mph. This facility is not classified as a Circulation Element road in the City of Chula Vista General Plan.

City of San Diego

Heritage Road – Heritage Road, from the Chula Vista city limit to Otay Mesa Road, is currently a 2-lane roadway with a partial continuous left-turn lane. This facility is classified as a 6-lane Prime Arterial in the City of San Diego's currently adopted Community Plan Circulation Element.

Otay Mesa Road – Otay Mesa Road is currently a 6-lane roadway with raised median and a posted speed limit of 65 mph. This facility is classified as a 6-lane Prime Arterial in the City of San Diego's currently adopted Community Plan Circulation Element.

Figure 3-1B displays existing roadway geometrics for roadway facilities within the project study area.

Freeway and State Highway Facilities

Two (2) Caltrans freeway and state highway facilities traverse the study area, as follows:

I-805 – I-805 ranges from 8-lanes to 10-lanes between Home Avenue and SR-905 within the study area. Caltrans currently has plans to widen I-805 within the study area by adding four managed HOV lanes.

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.

3.2 Existing Intersection and Roadway Volumes

Figure 3-2A shows existing AM/PM peak hour traffic volumes for the study area intersections. **Figure 3-2B** displays Average Daily Traffic (ADT) volumes for study area roadway and freeway segments. With limited exception, the roadway segment and study area intersection counts were collected in May 2011 and are provided in **Appendix B**. Freeway counts are based on the most current information available from Caltrans.

3.3 Existing Level of Service Analysis

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

Intersection Analysis

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

TABLE 3.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour	
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	36.9	D	22.5	C
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	31.5	C	28.4	C
3. Heritage Road / East Palomar Street	25.6	C	22.8	C
4. La Media Road / East Palomar Street	35.1	D	26.5	C
5. Melrose Avenue / Orange Avenue	17.5	B	24.0	C
6. I-805 SB Ramps / Olympic Parkway	29.4	C	52.3	D
7. I-805 NB Ramps / Olympic Parkway	45.7	D	33.2	C
8. Oleander Avenue / Olympic Parkway	49.4	D	35.5	D

TABLE 3.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour	
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
9. Brandywine Avenue / Olympic Parkway	46.0	D	49.9	D
10. Santa Victoria Road / Olympic Parkway	Does Not Exist			
11. Heritage Road / Olympic Parkway	15.9	B	11.8	B
12. Santa Venetia Street / Olympic Parkway	3.0	A	1.8	A
13. La Media Road / Olympic Parkway	28.6	C	18.8	B
14. East Palomar Street / Olympic Parkway	27.5	C	23.7	C
15. SR-125 SB Ramps / Olympic Parkway	4.0	A	4.7	A
16. SR-125 NB Ramps / Olympic Parkway	1.0	A	3.8	A
17. Eastlake Parkway / Olympic Parkway	16.9	B	19.7	B
18. Heritage Road / Santa Victoria Road	Does Not Exist			
19. La Media Road / Santa Venetia Street	43.2	D	14.9	B
20. La Media Road / Birch Road	27.1	C	26.4	C
21. Magdalena Avenue / Birch Road	23.3	C	16.3	B
22. SR-125 SB Ramps / Birch Road	3.4	A	3.7	A
23. SR-125 NB Ramps / Birch Road	0.8	A	2.0	A
24. Eastlake Parkway / Birch Road	21.9	C	24.7	C
25. Heritage Road / Santa Liza Avenue	Does Not Exist			
26. Heritage Road / Main Street* (one-way stop controlled)	10.6	B	12.7	B
27. La Media Road (SB) / Main Street (WB)	Does Not Exist			
28. La Media Road (NB) / Main Street (WB)	Does Not Exist			
29. La Media Road (SB) / Main Street (EB)	Does Not Exist			
30. La Media Road (NB) / Main Street (EB)	Does Not Exist			
31. Magdalena Avenue / Main Street	Does Not Exist			
32. SR-125 SB Ramps / Main Street	Does Not Exist			
33. SR-125 NB Ramps / Main Street	Does Not Exist			
34. Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD) (All-way stop controlled)	38.0	E	20.1	C
35. Heritage Road / Otay Mesa Road (SD)	21.6	C	22.2	C
36. Cactus Road / Otay Mesa Road (SD)	10.5	B	11.5	B

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.

As shown in the table, all of the study area intersections are currently operating at acceptable LOS D or better, with the exception of the Heritage Road / Avenida De Las Vistas intersection which operates at substandard LOS E during the AM peak hour. This intersection is an all-way stop controlled intersection located in the City of San Diego.

Roadway Segment Analysis

Table 3.2A displays the level of service analysis results for the study area roadway segments located within the City of Chula Vista under Existing conditions.

TABLE 3.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	Average Daily Traffic (ADT)	LOS Threshold (LOS C)	Level of Service (LOS)
Telegraph Canyon Road	Medical Center Drive	Heritage Road/Paseo Ranchero	6-Ln w/RM	45,077	50,000	C
Telegraph Canyon Road	Heritage Road/Paseo Ranchero	La Media Road/Otay Lakes Road	6-Ln w/RM	36,074	50,000	A
Otay Lakes Road	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	26,321	30,000	C
Otay Lakes Road	La Media Road	Rutgers Avenue	6-Ln w/RM	41,612	50,000	B
East Palomar Street	Medical Center Drive	Heritage Road	4-Ln w/RM	13,420	30,000	A
East Palomar Street	Heritage Road	La Media Road	4-Ln w/RM	20,122	30,000	A
East Palomar Street	La Media Road	Olympic Parkway	4-Ln w/RM	12,371	30,000	A
Orange Avenue	Hilltop Drive	Melrose Avenue	4-Ln w/RM	23,117	30,000	B
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-Ln w/RM	29,025	30,000	C
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-Ln	39,453	50,000	B
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-Ln w/RM	48,508	50,000	C
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-Ln w/RM	52,262	50,000	D
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-Ln w/RM	52,690	50,000	D
Olympic Parkway	Santa Victoria Road	Heritage Road	6-Ln w/RM	52,690	50,000	D
Olympic Parkway	Heritage Road	Santa Venetia Street	6-Ln w/RM	48,232	50,000	C
Olympic Parkway	Santa Venetia Street	La Media Road	6-Ln w/RM	45,805	50,000	C
Olympic Parkway	La Media Road	East Palomar Street	6-Ln w/RM	31,038	50,000	A

TABLE 3.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	Average Daily Traffic (ADT)	LOS Threshold (LOS C)	Level of Service (LOS)
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-Ln w/RM	35,555	50,000	A
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-Ln w/RM	33,827	70,000	A
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-Ln w/RM	35,608	70,000	A
Birch Road	La Media Road	Magdalena Avenue	6-Ln w/RM	9,160	40,000	A
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-Ln w/RM	10,740	40,000	A
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-Ln w/RM	11,997	50,000	A
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-Ln w/RM	10,734	50,000	A
Main Street	Brandywine Avenue	Heritage Road	6-Ln w/RM	10,865	50,000	A
Main Street	Heritage Road	La Media Road	Does Not Exist			
Main Street	La Media Road	SR-125 SB Ramps	Does Not Exist			
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	Does Not Exist			
Main Street	SR-125 NB Ramps	Eastlake Parkway	Does Not Exist			
Otay Valley Road	Main Street	SR-125 SB Ramps	Does Not Exist			
Paseo Ranchero	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	13,257	22,000	A
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	19,010	50,000	A
Heritage Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	12,877	50,000	A
Heritage Road	Olympic Parkway	Santa Victoria Road	Does Not Exist			
Heritage Road	Santa Victoria Road	Santa Liza Avenue	Does Not Exist			
Heritage Road	Santa Liza Avenue	Main Street	Does Not Exist			
Heritage Road	Main Street	Avenida De Las Vistas	2-Ln w/TWLTL	8,787	12,000	A
La Media Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	22,569	50,000	A
La Media Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	14,666	50,000	A
La Media Road	Olympic Parkway	Santa Venetia Street	6-Ln w/RM	16,408	50,000	A
La Media Road	Santa Venetia Street	Birch Road	6-Ln w/RM	11,515	50,000	A
La Media Road	Birch Road	Santa Luna Street	6-Ln w/RM	2,072	50,000	A
La Media Road	Santa Luna Street	Main Street	Does Not Exist			

TABLE 3.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	Average Daily Traffic (ADT)	LOS Threshold (LOS C)	Level of Service (LOS)
Magdalena Avenue	Birch Road	Wolf Canyon Loop	4-Ln w/RM	8,283	22,000	A
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	2-Ln w/RM	3,300[1]	12,000	A
Magdalena Avenue	Santa Luna Street	Main Street	4-Ln w/RM	3,300[1]	22,000	A
Eastlake Parkway	Olympic Parkway	Birch Road	6-Ln w/RM	11,843	40,000	A
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-Ln w/RM	1,890	40,000	A

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.
[1]ADT was obtained from SANDAG (2008).

As shown in the table, the following three (3) study area roadway segments within the City of Chula Vista are currently operating at substandard LOS D under Existing conditions:

- Olympic Parkway, between Oleander Avenue and Brandywine Avenue (LOS D);
- Olympic Parkway, between Brandywine Avenue and Santa Victoria Road (LOS D); and
- Olympic Parkway, between Santa Victoria Road and Heritage Road (LOS D).

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

As shown in the table, all study roadways in the City of San Diego are operating at acceptable LOS D or better under Existing conditions.

TABLE 3.2B
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS
(City of San Diego)

Roadway	From	To	Cross-Section	Average Daily Traffic (ADT)	LOS Threshold (LOS D)	Level of Service (LOS)
Otay Mesa Road	Ocean View Hills Parkway	Heritage Road	6-Ln w/RM	35,212	55,000	C
Otay Mesa Road	Heritage Road	Cactus Road	6-Ln w/RM	31,682	55,000	B
Otay Mesa Road	Cactus Road	Britannia Boulevard	6-Ln w/RM	50,978	55,000	D
Heritage Road	Avenida De Las Vistas	Otay Mesa Road	2-Ln	7,984	9,000	D

Source: Chen Ryan Associates; August 2013

Note:
RM = Raised Median.

Freeway/State Highway Segment Analysis

Table 3.3 displays freeway level of service analysis results for I-805 and SR-125 under Existing conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodology presented in Chapter 2.0.

As shown in the table, all study area I-805 and SR-125 segments currently operate at acceptable LOS C or better under Existing conditions.

TABLE 3.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Freeway / State Highway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	Peak Hour Factor (PHF)	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS
I-805	Home Street to SR-94	167,100	6.9%	11,530	0.51	4	0.97	4.2%	1,547	0.645	C
I-805	SR-94 to Market Street	162,200	8.0%	12,976	0.50	4	0.97	4.2%	1,705	0.710	C
I-805	Market Street to Imperial Avenue	162,200	8.0%	12,976	0.50	5	0.97	4.2%	1,368	0.570	B
I-805	Imperial Avenue to E Division Street	181,300	8.0%	14,504	0.50	5	0.97	4.2%	1,526	0.636	C
I-805	E Division Street to Plaza Boulevard	188,800	7.2%	13,594	0.51	5	0.95	3.8%	1,491	0.621	B
I-805	Plaza Boulevard to SR-54	191,500	8.1%	15,512	0.52	5	0.96	2.2%	1,696	0.707	C
I-805	SR-54 to Bonita Road	181,300	7.2%	13,054	0.52	4+1Aux	0.96	1.7%	1,586	0.661	C
I-805	Bonita Road to East H Street	181,300	7.8%	14,141	0.50	5	0.95	1.7%	1,497	0.624	B
I-805	East H Street to Telegraph Canyon Road	174,100	7.8%	13,580	0.50	5	0.95	1.9%	1,445	0.602	B
I-805	Telegraph Canyon Road to East Palomar Street	153,200	7.1%	10,877	0.51	4+1Aux	0.92	1.7%	1,348	0.562	B
I-805	East Palomar Street to Olympic Parkway	153,200	7.1%	10,877	0.51	4+1Aux	0.92	1.7%	1,348	0.562	B
I-805	Olympic Parkway to Main Street	121,500	6.9%	8,384	0.51	4+1Aux	0.93	5.4%	1,049	0.437	B
I-805	Main Street to Palm Avenue	116,300	7.1%	8,257	0.58	4+1Aux	0.95	10.3%	1,173	0.489	B
I-805	Palm Avenue to SR-905	111,200	7.1%	7,895	0.58	4+1Aux	0.95	10.3%	1,129	0.470	B
SR-125	Telegraph Canyon Road to Olympic Parkway	6,200	7.0%	434	0.58	2	0.95	10.3%	144	0.060	A

TABLE 3.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Freeway / State Highway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	Peak Hour Factor (PHF)	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS
SR-125	Olympic Parkway to Birch Road	4,300	7.0%	301	0.58	2	0.95	10.3%	100	0.042	A
SR-125	Birch Road to Main Street	4,800	7.0%	336	0.58	2	0.95	10.3%	111	0.046	A
SR-125	Main Street to Otay Valley Road	4,800	7.0%	336	0.58	2	0.95	10.3%	111	0.046	A
SR-125	Otay Valley Road to Lone Star Road	4,800	7.0%	336	0.58	2	0.95	10.3%	111	0.046	A
SR-125	Lone Star Road to Otay Mesa Road	4,800	7.0%	336	0.58	2	0.95	10.3%	111	0.046	A
SR-125	Otay Mesa Road to SR-905	4,800	7.0%	336	0.58	2	0.95	10.3%	111	0.046	A

Source: Chen Ryan Associates; August 2013

Notes:
*ADT was obtained from SANDAG base year (2008) Regional Transportation Model.
M = Mainline.
Aux = Auxiliary Lane.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized freeway ramp intersections along I-805 and SR-125 within the study area were analyzed under Existing conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 3.4** and analysis worksheets for the Existing conditions are provided in **Appendix D**.

TABLE 3.4
RAMP INTERSECTION CAPACITY ANALYSIS
EXISTING CONDITIONS

Ramp Intersection	Peak Hour	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,124	*<1200: (Under Capacity)*
	PM	1,633	*>1500: (Over Capacity)*
I-805 NB Ramps / Olympic Parkway	AM	2,019	*>1500: (Over Capacity)*
	PM	1,213	*1200-1500: (At Capacity)*
SR-125 SB Ramps / Olympic Parkway	AM	372	*<1200: (Under Capacity)*
	PM	576	*<1200: (Under Capacity)*
SR-125 NB Ramps / Olympic Parkway	AM	350	*<1200: (Under Capacity)*
	PM	481	*<1200: (Under Capacity)*
SR-125 SB Ramps / Birch Road	AM	297	*<1200: (Under Capacity)*
	PM	262	*<1200: (Under Capacity)*
SR-125 NB Ramps / Birch Road	AM	147	*<1200: (Under Capacity)*
	PM	208	*<1200: (Under Capacity)*
SR-125 SB Ramps / Main Street	AM	Does Not Exist	
	PM		
SR-125 NB Ramps / Main Street	AM	Does Not Exist	
	PM		

Source: Chen Ryan Associates; August 2013

As shown in the table, under this informational analysis all of the ramp intersections along I-805 operate at "Under Capacity" or "At Capacity", with the following two (2) exceptions:

- I-805 SB Ramps / Olympic Parkway – "Over Capacity" during the PM peak hour; and
- I-805 NB Ramps / Olympic Parkway – "Over Capacity" during the AM peak hour.

All of the existing SR-125 ramp intersections currently operate at "Under Capacity".

Ramp Metering Analysis

Table 3.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramp at Olympic Parkway under Existing conditions. As discussed in the methodology section (Section 2.7), based upon data provided by Caltrans District 11, the ramp meters at these locations are

only activated between 5:30am and 9:30am, and thus ramp metering analysis was conducted during the AM peak hour under the various study scenarios.

The I-805 NB on-ramp currently has three (3) lanes including one High Occupancy Vehicle (HOV) lane. Based upon field observation, approximately 20% of the total northbound on-ramp traffic was utilizing the HOV lane which results in 80% of the total arrival traffic (demand) utilizing the two non-HOV lanes.

TABLE 3.5
RAMP METERING ANALYSIS
EXISTING CONDITIONS

Location	Peak Hour	Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)
I-805 NB On-Ramp @ Olympic Parkway	AM	741	887	0	0	0

Source: Chen Ryan Associates; August 2013

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

As shown in the table, the peak hour capacity expected to be processed through the ramp meter is greater than the peak hour demand at both the I-805 northbound on-ramps at Olympic Parkway. Therefore, there is no queuing issue at the I-805 NB On-Ramp at Olympic Parkway.

3.4 Existing Transit Service

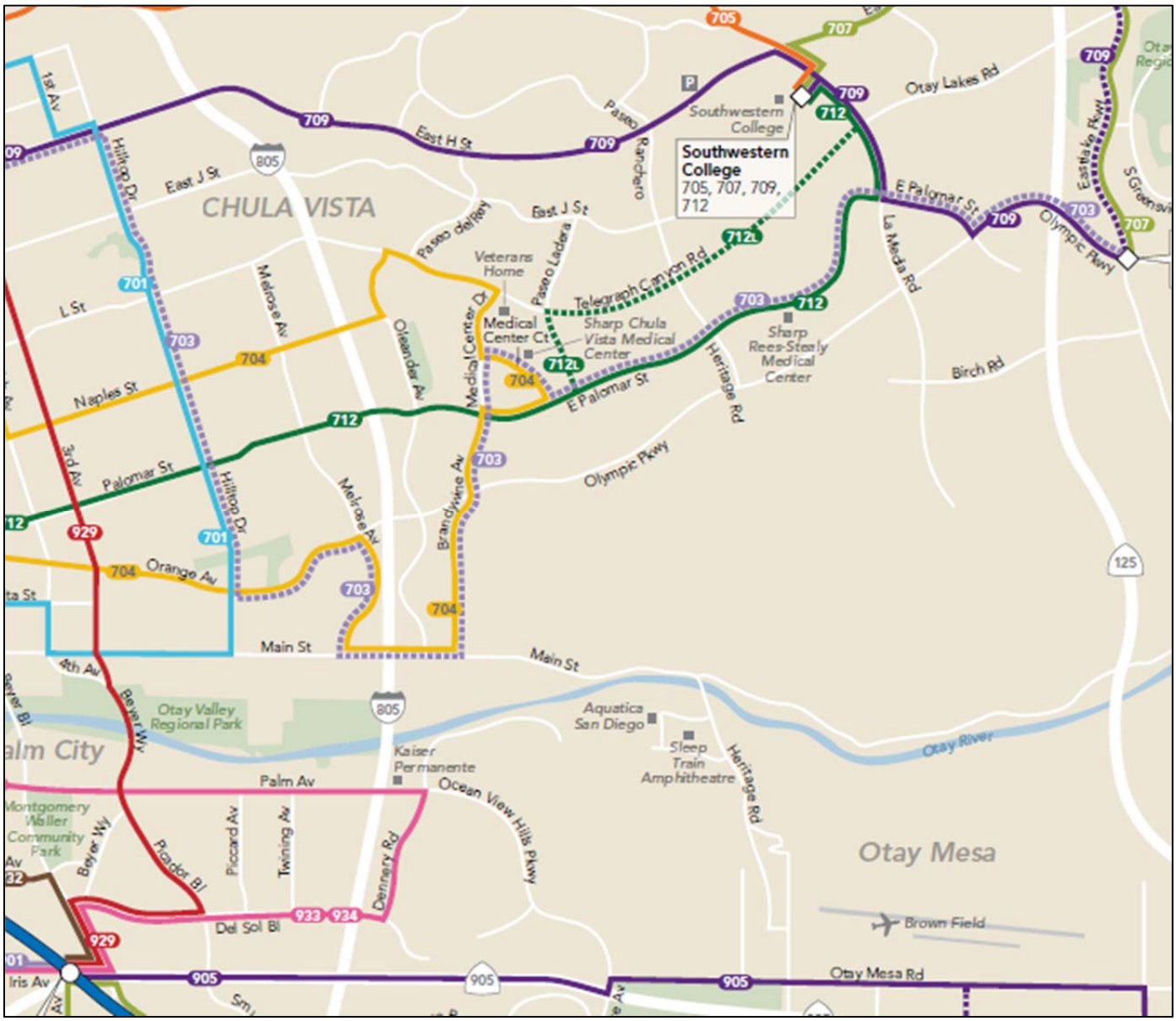
The project study area is currently served by ten (10) Metropolitan Transit System (MTS) routes, including:

- Route 701 – runs between the H Street and the Palomar Street Trolley Stations via Main Street, Hilltop Drive, and F Street. Route 701 currently provides services during weekdays and Saturdays, but not on Sundays.
- Route 703 – runs between the H Street Trolley Station and the Otay Ranch Town Center via Hilltop Drive and East Palomar Street. Route 703 currently provides services on Sundays only.
- Route 704 – runs between the H Street and the Palomar Street Trolley Stations via 4th Avenue, Sharp Medical Center, and Orange Avenue. Route 704 currently provides services during weekdays and Saturdays, but not on Sundays.
- Route 705 – runs between the E Street Trolley Station and Southwestern College via Plaza Bonita and Otay Lakes Road. Route 705 currently provides services during weekdays and Saturdays, but not on Sundays.

- Route 707 – runs between Southwestern College and the Otay Ranch Town Center via East H Street and Eastlake Parkway. Route 707 currently provides services during weekdays (Monday – Friday) only.
- Route 709 – runs between the H Street Trolley Station and Southwestern College via East H Street. Route 709 currently provides services during weekdays and Saturdays, but not on Sundays.
- Route 712 – runs between the Palomar Street Trolley Station and Southwestern College via Palomar Street. Route 712 currently provides services both during weekdays and on the weekends.
- Route 905 – runs between the Iris Avenue Trolley Station and Otay Mesa Port of Entry via SR-905 and Airway Road. Route 905 currently provides services both during weekdays and on the weekends.
- Route 929 – runs between Downtown San Diego and the Iris Avenue Trolley Station via Highland Avenue and 3rd Avenue. Route 929 currently provides services both during weekdays and on the weekends.
- Route 933/934 - runs in a two-way loop from the Iris Avenue Trolley Station in Otay Mesa, to the Palm Avenue Trolley Station in Palm City, then Imperial Beach, Nestor, and back to the Iris Avenue Trolley Station. Route 934 travels clockwise, while Route 933 travels counter clockwise. Both routes currently provide services both during weekdays and on the weekends.

In addition, the San Diego Trolley's Blue Line light rail is located west of the project study area providing regional connections to many local bus routes within the study area, with stations located at E Street, H Street, Palmar Street, Palm Avenue, and Iris Avenue. The Blue Line provides service between Qualcomm Stadium and San Ysidro/Tijuana and travels parallel to and on the east side of I-5. The Blue Line covers 18.8 miles with 15-minute service seven days-a-week. During weekday rush-hours, the Blue Line operates every 7.5 minutes between Old Town and San Ysidro, with 30-minute service during the late-evenings.

The figure below displays the bus routes discussed above.



Southwestern College
705, 707, 709, 712
CHULA VISTA
Otay Mesa
Otay Valley Regional Park
Kaiser Permanente
Aquatica San Diego
Sleep Train Amphitheatre
Sharp Chula Vista Medical Center
Sharp Rees-Stealy Medical Center
Veterans Home
Medical Center Ct
Otay River
Brown Field
Otay Mesa Rd
Otay Lakes Rd
East H St
East J St
E Palomar St
Telegraph Canyon Rd
Olympic Pkwy
Heritage Rd
Birch Rd
La Media Rd
Paseo Ranchero
Paseo Ladera
Paseo del Rey
Medical Center Dr
Oleander Av
Melrose Av
Brandywine Av
Hilltop Dr
Naples St
Palomar St
Orange Av
Main St
Palm Av
Ocean View Hills Pkwy
Dennery Rd
Twining Av
Piccard Av
Picador Bl
Beyer Wy
Del Sol Bl
Iris Av
Montgomery Waller Community Park
1st Av
3rd Av
4th Av
L St
805
905
125

4.0 Project Traffic

This section describes the proposed project, including land uses and estimated trip generation, trip distribution, and trip assignment.

4.1 Project Description

The Village 2 Comprehensive SPA (project or proposed project) is located in the southeastern portion of the City of Chula Vista. The project proposes the addition of approximately 1,562 additional dwelling units, parkland, community purpose facilities (CPF) and an additional elementary school to Village 2 of the Otay Ranch, including 311 single-family dwelling units, 1,251 multi-family dwelling units, up to 30,000 square feet of mixed-use commercial uses, 11.2 acres of community purpose facilities, a 9.5-acre elementary school site, 1.7 acres of light industrial uses, and approximately 7.6 acres of neighborhood park facilities. **Table 4.1** displays the proposed project land use assumptions by study year.

TABLE 4.1
PROJECT LAND USE BY STUDY YEAR

Land Use	Village 2			
	2015	2020	2025	2030
Single Family (DU)	138	225	311	311
Multi-Family (DU)	556	904	1,251	1,251
Mixed-Use Commercial (KSF)	13	22	30	30
CPF (AC)	5.0	8.1	11.2	11.2
Elementary School (AC)	0.0	9.5	9.5	9.5
Light Industrial (AC)	0.8	1.2	1.7	1.7
Neighborhood Park (AC)	3.4	5.5	7.6	7.6

Source: Chen Ryan Associates; August 2013

Table 4.2 displays the proposed project land use assumptions by study year as Single Family Equivalent Dwelling Unit.

TABLE 4.2
PROJECT LAND USE BY EDU BY STUDY YEAR

Land Use	Year			
	2015	2020	2025	2030
Village 2 Comprehensive SPA	753	1,310	1,780	1,780

Source: Chen Ryan Associates; February 2014

The Village 2 Comprehensive SPA was determined by calculating the difference between the currently proposed buildout of Village 2 land uses and the previously adopted Village 2 land

uses. The land use assumptions for the interim years (2015, 2020, and 2025) were derived using the straight-line growth of the Village 2 Comprehensive SPA land uses over an 18-year period assuming that Village 2 would be buildout by the year 2025.

4.2 Project Trip Generation, Distribution, and Assignment

4.2.1 Project Trip Generation

Trip generation associated with the proposed Village 2 project was developed utilizing SANDAG's *Guide to Vehicular Traffic Generation Rates for the San Diego Region* (SANDAG, April 2002). **Tables 4.3** through **4.5** display daily, as well as AM and PM peak hour project trips for each of the four development phases (2015, 2020, 2025, and 2030), respectively.

TABLE 4.3
VILLAGE 2 COMPREHENSIVE SPA PROJECT TRIP GENERATION
YEAR 2015

Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	138 DU	10 / DU	1,380	8	110 33-in / 77-out	10	138 97-in / 41-out
Multi-Family	556 DU	8 / DU	4,448	8	356 71-in / 285-out	10	445 312-in / 134-out
Mixed-Use Commercial	13.3 KSF	110 / KSF	1,463	3	44 26-in / 18-out	9	132 66-in / 66-out
CPF	5 AC	30 / AC	150	5	8 5-in / 3-out	8	12 6-in / 6-out
Elementary School	0 AC	90 / AC	0	32	0 0-in / 0-out	9	0 0-in / 0-out
Light Industrial	0.8 AC	90 / AC	72	11	8 7-in / 1-out	12	9 2-in / 7-out
Neighborhood Park	3.4 AC	5 / AC	17	4	1 1-in / 1-out	8	2 1-in / 1-out
Total by 2015			7,530		527 143-in / 385-out		738 484-in / 255-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; August 2013

As shown in Table 4.3, the proposed project would generate a total of 7,530 daily trips by Year 2015, including 527 AM peak hour trips and 738 PM peak hour trips.

TABLE 4.4
VILLAGE 2 COMPREHENSIVE SPA PROJECT TRIP GENERATION
YEAR 2020

Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	225 DU	10 / DU	2,250	8	180 54-in / 126-out	10	225 158-in / 68-out
Multi-Family	904 DU	8 / DU	7,232	8	579 116-in / 463-out	10	723 506-in / 217-out
Mixed-Use Commercial	21.7 KSF	110 / KSF	2,387	3	72 43-in / 29-out	9	215 107-in / 107-out
CPF	8.1 AC	30 / AC	243	5	12 7-in / 5-out	8	19 10-in / 10-out
Elementary School	9.5 AC	90 / AC	855	32	274 164-in / 109-out	9	77 31-in / 46-out
Light Industrial	1.2 AC	90 / AC	108	11	12 11-in / 1-out	12	13 3-in / 10-out
Neighborhood Park	5.5 AC	5 / AC	28	4	1 1-in / 1-out	8	2 1-in / 1-out
Total by 2020			13,103		1,129 396-in / 734-out		1,275 816-in / 459-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; August 2013

As shown in Table 4.4, the proposed project would generate a total of 13,103 daily trips by the Year 2020, including 1,129 AM peak hour trips and 1,275 PM peak hour trips.

TABLE 4.5
VILLAGE 2 COMPREHENSIVE SPA PROJECT TRIP GENERATION
YEAR 2025 AND 2030

Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	311 DU	10 / DU	3,110	8	249 75-in / 174-out	10	311 218-in / 93-out
Multi-Family	1251 DU	8 / DU	10,008	8	801 160-in / 641-out	10	1,001 701-in / 300-out
Mixed-Use Commercial	30 KSF	110 / KSF	3,300	3	99 59-in / 40-out	9	297 149-in / 149-out
CPF	11.2 AC	30 / AC	336	5	17 10-in / 7-out	8	27 13-in / 13-out
Elementary School	9.5 AC	90 / AC	855	32	274 164-in / 109-out	9	77 31-in / 46-out
Light Industrial	1.7 AC	90 / AC	153	11	17 15-in / 2-out	12	18 4-in / 15-out
Neighborhood Park	7.6 AC	5 / AC	38	4	2 1-in / 1-out	8	3 2-in / 2-out
Total by 2025 and 2030			17,800		1,457 484-in / 974-out		1,734 1,118-in / 618-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; August 2013

As shown in Table 4.5, the proposed project would generate a total of 17,800 daily trips by Year 2025 and Year, including 1,457 AM peak hour trips and 1,734 PM peak hour trips. All of the proposed land uses would be fully developed by Year 2025.

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 and intersections.

Each trip generation rate includes a number of trip purposes, generally categorized as home based work (HBW), home based other (HBO, consists of shopping, school, recreation, etc.) and non-home based (NHB) trips. For developments with mixed land uses, many of the trips generated would have been served on-site. For example, shopping trips (a part of HBO) 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 utilize 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.

The proposed project includes residential, commercial, office/light industrial, school, and park uses, and not all of the trips generated by these uses would leave the project site given the nature of the land uses. Estimates for internal versus external trip generation percentages

were developed based upon likely origins/destinations of each land use type in combination with standard traffic engineering practice. On that basis, it was determined that approximately 10% of the trips generated by residential uses (single-family and multi-family), office, and light industrial are projected to remain internal to the project site. Other proposed land uses, including shopping, school, recreational, etc. would be supported primarily by residents of the Village 2 project and, as a result, higher internal capture rates were projected for these land uses, including a 50% rate for commercial uses and 80% for schools, CPF sites and parks.

Tables 4.6 through **4.8** displays the proportion of internal and external project trips for the Village 2 Comprehensive SPA project under all study timeframes. As shown in the tables, while each study timeframe has a different internal/external trip percentage due to the various land use mixes and related trip reduction characteristics, an overall internal capture rate for Village was calculated and applied for each analysis scenario. Specifically, an approximate 19% trip reduction was applied to Year 2015, 23% to Year 2020, and 22% to Years 2025 and 2030 to reflect adjustments attributable to internal capture. For comparison purposes, an ITE Multi-Use Trip Generation Calculation was also performed and as shown in **Appendix E**, the worksheet indicated an internal capture rate of 25% at the full development (by Year 2025) of the project.

4.2.2 Project Trip Distribution

The distribution of the external project trips was based upon a computer generated "Select Zone" analysis utilizing the Series 11 Year 2030 SANDAG Transportation Model, "Southbay 2, Village 2". Five (5) different trip distributions were developed in conjunction with the anticipated roadway networks under the various analysis scenarios and timeframes, as follows:

- Existing
- Year 2015
- Year 2020
- Year 2025
- Year 2030

Figures 4-1A display the external project trip distribution patterns associated with the existing network for Village 2. **Figure 4-1B** displays the external project trip distribution patterns associated with the Year 2015 network for Village 2. **Figures 4-1C** display the external project trip distribution patterns associated with the Year 2020 network for Village 2. **Figures 4-1D** and **Figure 4-1E** display the external project trip distribution patterns associated with the Year 2025 and 2030 networks, respectively for Village 2.

TABLE 4.6
VILLAGE 2 COMPREHENSIVE SPA INTERNAL AND EXTERNAL PROJECT TRIPS
YEAR 2015

Land Use	Quantity	Total Trips			Internal Trips				External Trips			
		Daily	AM Peak Hour	PM Peak Hour	% Internal	Daily	AM Peak Hour	PM Peak Hour	% External	Daily	AM Peak Hour	PM Peak Hour
Single Family	138 DU	1,380	110 33-in / 77-out	138 97-in / 41-out	10	138	11 3-in / 8-out	14 10-in / 4-out	90	1,242	99 30-in / 70-out	124 87-in / 37-out
Multi-Family	556 DU	4,448	356 71-in / 285-out	445 312-in / 134-out	10	445	36 7-in / 29-out	44 31-in / 13-out	90	4,003	320 64-in / 256-out	400 280-in / 120-out
Mixed-Use Commercial	13.3 KSF	1,463	44 26-in / 18-out	132 66-in / 66-out	50	732	22 13-in / 9-out	66 33-in / 33-out	50	732	22 13-in / 9-out	66 33-in / 33-out
CPF	5 AC	150	8 5-in / 3-out	12 6-in / 6-out	80	120	6 4-in / 2-out	10 5-in / 5-out	20	30	2 1-in / 1-out	2 1-in / 1-out
Elementary School	0 AC	0	0 0-in / 0-out	0 0-in / 0-out	80	0	0 0-in / 0-out	0 0-in / 0-out	20	0	0 0-in / 0-out	0 0-in / 0-out
Light Industrial	0.8 AC	72	8 7-in / 1-out	9 2-in / 7-out	10	7	1 1-in / 0-out	1 0-in / 1-out	90	65	7 6-in / 1-out	8 2-in / 6-out
Neighborhood Park	3.4 AC	17	1 1-in / 1-out	2 1-in / 1-out	80	14	1 1-in / 1-out	1 1-in / 1-out	20	3	0 0-in / 0-out	0 0-in / 0-out
Total		7,530	527 143-in / 385-out	738 484-in / 255-out		1,455	77 29-in / 48-out	136 79-in / 57-out		6,075	450 114-in / 336-out	600 402-in / 198-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; December 2013

TABLE 4.7
VILLAGE 2 COMPREHENSIVE SPA INTERNAL AND EXTERNAL PROJECT TRIPS
YEAR 2020

Land Use	Quantity	Total Trips			Internal Trips				External Trips			
		Daily	AM Peak Hour	PM Peak Hour	% Internal	Daily	AM Peak Hour	PM Peak Hour	% External	Daily	AM Peak Hour	PM Peak Hour
Single Family	225 DU	2,250	180 54-in / 126-out	225 158-in / 68-out	10	225	18 5-in / 13-out	23 16-in / 7-out	90	2,025	162 49-in / 113-out	203 142-in / 61-out
Multi-Family	904 DU	7,232	579 116-in / 463-out	723 506-in / 217-out	10	723	58 12-in / 46-out	72 51-in / 22-out	90	6,509	521 104-in / 417-out	651 456-in / 195-out
Mixed-Use Commercial	21.7 KSF	2,387	72 43-in / 29-out	215 107-in / 107-out	50	1,194	36 21-in / 14-out	107 54-in / 54-out	50	1,194	36 21-in / 14-out	107 54-in / 54-out
CPF	8.1 AC	243	12 7-in / 5-out	19 10-in / 10-out	80	194	10 6-in / 4-out	16 8-in / 8-out	20	49	2 1-in / 1-out	4 2-in / 2-out
Elementary School	9.5 AC	855	274 164-in / 109-out	77 31-in / 46-out	80	684	219 131-in / 88-out	62 25-in / 37-out	20	171	55 33-in / 22-out	15 6-in / 9-out
Light Industrial	1.2 AC	108	12 11-in / 1-out	13 3-in / 10-out	10	11	1 1-in / 0-out	1 0-in / 1-out	90	97	11 10-in / 1-out	12 2-in / 9-out
Neighborhood Park	5.5 AC	28	1 1-in / 1-out	2 1-in / 1-out	80	22	1 0-in / 0-out	2 1-in / 1-out	20	6	0 0-in / 0-out	0 0-in / 0-out
Total		13,103	1,129 396-in / 734-out	1,275 816-in / 459-out		3,053	342 177-in / 165-out	282 154-in / 129-out		10,050	787 218-in / 568-out	992 662-in / 330-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; December 2013

TABLE 4.8
VILLAGE 2 COMPREHENSIVE SPA INTERNAL AND EXTERNAL PROJECT TRIPS
YEAR 2025 AND YEAR 2030

Land Use	Quantity	Total Trips			Internal Trips				External Trips			
		Daily	AM Peak Hour	PM Peak Hour	% Internal	Daily	AM Peak Hour	PM Peak Hour	% External	Daily	AM Peak Hour	PM Peak Hour
Single Family	311 DU	3,110	249 75-in / 174-out	311 218-in / 93-out	10	311	24.88 7-in / 17-out	31 22-in / 9-out	90	2,799	224 67-in / 157-out	280 196-in / 84-out
Multi-Family	1,251 DU	10,008	801 160-in / 641-out	1,001 701-in / 300-out	10	1,001	80 16-in / 64-out	100 70-in / 30-out	90	9,007	721 144-in / 576-out	901 631-in / 270-out
Mixed-Use Commercial	30 KSF	3,300	99 59-in / 40-out	297 149-in / 149-out	50	1,650	50 30-in / 20-out	149 74-in / 74-out	50	1,650	50 30-in / 20-out	149 74-in / 74-out
CPF	11.2 AC	336	17 10-in / 7-out	27 13-in / 13-out	80	269	13 8-in / 5-out	22 11-in / 11-out	20	67	3 2-in / 1-out	5 3-in / 3-out
Elementary School	9.5 AC	855	274 164-in / 109-out	77 31-in / 46-out	80	684	219 131-in / 88-out	62 25-in / 37-out	20	171	55 33-in / 22-out	15 6-in / 9-out
Light Industrial	1.7 AC	153	17 15-in / 2-out	18 4-in / 15-out	10	15	2 2-in / 0-out	2 0-in / 1-out	90	138	15 14-in / 2-out	17 3-in / 13-out
Neighborhood Park	7.6 AC	38	2 1-in / 1-out	3 2-in / 2-out	80	30	1 1-in / 1-out	2 1-in / 1-out	20	8	0 0-in / 0-out	1 0-in / 0-out
Total		17,800	1,457 484-in / 974-out	1,734 1,118-in / 618-out		3,960	390 195-in / 195-out	367 203-in / 164-out		13,840	1,068 290-in / 778-out	1,367 913-in / 454-out

Source: SANDAG Trip Generation Manual, Chen Ryan Associates; December 2013

4.2.3 Project Trip Assignment

Based upon the project trip distributions, the external daily and AM/PM peak hour project trips were assigned to the various roadway networks. The following five (5) separate sets of trip assignments were developed:

- Buildout land uses on the Existing network
- 2015 land uses on the Year 2015 network
- 2020 land uses on the Year 2020 network
- 2025 land uses on the Year 2025 network
- Buildout land uses on the Year 2030 network

Figures 4-2A.1 and **4-2A.2** display the assignment of project trips to the Existing roadway networks and study area intersections. Similarly, **4-2B.1** through **4-2E.2** display the assignment of project trips to the respective (2015, 2020, 2025, and 2030) roadway networks and study area intersections.

5.0 Existing Plus Project (Buildout) Conditions

This section provides an analysis of existing traffic conditions with the addition of project trips from buildout of the proposed project. Under this scenario, the proposed project's buildout traffic volumes are added to the existing traffic volumes and roadway configuration, and impacts are assessed. This scenario is regarded as hypothetical when used in connection with a long-range development project such as the proposed project, which is not anticipated to reach full buildout until approximately 2030. The scenario is hypothetical because it assumes that the proposed project would be fully built out immediately and the corresponding full buildout traffic volumes added to existing roadway volumes and infrastructure. Thus, the existing plus project analysis presumes that the existing environment (existing traffic volumes, existing roadway infrastructure, and existing land uses) will not change over the long-term buildout of the project.

As a result of this presumption, future increases in traffic volumes attributable to other development projects (i.e., cumulative traffic volumes) are not accounted for in the analysis. This results in the analysis potentially *understating* project impacts because capacity that otherwise would be utilized by future development that precedes the proposed project buildout is now available to the project. On the other hand, because the scenario does not account for future planned roadway network improvements that would increase roadway capacities, the analysis potentially results in *overstating* project impacts. Furthermore, because the analysis does not take into account future development and related changing land uses, the analysis does not account for the corresponding change in trip distribution patterns that accompany changing land uses, which could result in either understating or overstating impacts.

For these reasons, the analysis of the project's potential impacts as measured against the existing conditions baseline that follows is presented for information 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.

5.1 Existing Plus Project (Buildout) Roadway Network and Traffic Volumes

This scenario includes existing traffic volumes with the addition of the Village 2 project buildout traffic. Intersection and roadway geometrics under Existing Plus Project conditions are generally identical to Existing conditions, with the addition of the following roadways to provide necessary access for the proposed project:

- Heritage Road along the frontage of Village 2 – this facility is included as a 6-lane Prime Arterial providing necessary access to Village 2.

In addition, the following three (3) project driveways necessary to providing access were analyzed under the "Plus Project" conditions:

- Santa Victoria Road / Olympic Parkway – signalized intersection;
- Heritage Road / Olympic Parkway – signalized intersection; and
- Heritage Road / Santa Victoria Road – signalized intersection.

Intersection and roadway geometrics under Existing Plus Project conditions are displayed in **Figures 5-1A** and **5-1B**, respectively.

5.2 Existing Plus Project (Buildout) Traffic Conditions

Analyses were conducted using the methodologies described previously in Chapter 2.0. Intersection, roadway segment, and freeway/state highway level of service results are discussed in the following sections.

Peak hour traffic volumes at the study area intersections are displayed in **Figure 5-2A**, while average daily traffic volumes on study area roadway segments are displayed in **Figure 5-2B**.

Intersection Analysis

Table 5.1 displays intersection level of service and average vehicle delay results under Existing Plus Project (Buildout) conditions. Level of service calculation worksheets for the Existing Plus Project (Buildout) conditions are provided in **Appendix F**.

As shown in the table, the following two (2) study intersections, including 1 in Chula Vista and 1 in San Diego, would operate at substandard LOS E under Existing Plus Project (Buildout) conditions:

<u>City of Chula Vista</u>

- I-805 SB Ramps / Olympic Parkway (signalized) – LOS E during the PM peak hour, and the project traffic would comprise less than 5% of the total intersection entering volume.

Per Chula Vista significant impact criteria discussed in Section 2.8, the additional trips generated by buildout of the proposed project would result in significant cumulative impacts at the identified intersection because the buildout project traffic would comprise less than 5% of the total entering volumes at this intersection.

<u>City of San Diego</u>

- Heritage Road / Avenida De Las Vistas (SD) (all-way stop controlled) – LOS E during the AM peak hour and project would add more than 2 seconds of delay.

Per San Diego significant impact criteria discussed in Section 2.8, the addition of trips generated by buildout of the proposed project would result in significant direct impacts to this intersection.

TABLE 5.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	37.7	D	24.3	C			3.8% / 2.9%		No
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	32.5	C	32.9	C			4.4% / 2.8%		No
3. Heritage Road / East Palomar Street	27.2	C	22.9	C			13.3% / 10.9%		No
4. La Media Road / East Palomar Street	37.6	D	26.6	C			6.6% / 6.0%		No
5. Melrose Avenue / Orange Avenue	24.9	C	30.8	C			3.5% / 1.8%		No
6. I-805 SB Ramps / Olympic Parkway	46.2	D	59.6	E			9.9% / 4.8%		Yes (Cumulative)
7. I-805 NB Ramps / Olympic Parkway	54.0	D	35.1	D			11.7% / 7.8%		No
8. Oleander Avenue / Olympic Parkway	49.7	D	45.2	D			13.9% / 9.3%		No
9. Brandywine Avenue / Olympic Parkway	54.8	D	52.6	D			12.9% / 8.9%		No
10. Santa Victoria Road / Olympic Parkway	0.8	A	0.6	A			12.% / 10.1%		No
11. Heritage Road / Olympic Parkway	33.2	C	21.0	C			16.% / 12.7%		No
12. Santa Venetia Street / Olympic Parkway	11.3	B	2.7	A			10.1% / 7.2%		No
13. La Media Road / Olympic Parkway	45.5	D	33.0	C			11.7% / 9.3%		No
14. East Palomar Street / Olympic Parkway	28.4	C	24.4	C			0.9% / 0.5%		No
15. SR-125 SB Ramps / Olympic Parkway	4.3	A	4.9	A			0.5% / 0.2%		No
16. SR-125 NB Ramps / Olympic Parkway	1.1	A	4.2	A			0.3% / 0.1%		No
17. Eastlake Parkway / Olympic Parkway	18.5	B	19.8	B			1.9% / .9%		No

TABLE 5.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
18. Heritage Road / Santa Victoria Road	18.0	B	11.4	B			100.0% / 100.0%		No
19. La Media Road / Santa Venetia Street	44.9	D	16.2	B			19.% / 25.6%		No
20. La Media Road / Birch Road	40.6	D	27.7	C			41.6% / 46.0%		No
21. Magdalena Avenue / Birch Road	26.4	C	19.1	B			16.6% / 15.8%		No
22. SR-125 SB Ramps / Birch Road	6.0	A	3.9	A			22.5% / 17.6%		No
23. SR-125 NB Ramps / Birch Road	0.9	A	2.2	A			23.7% / 16.7%		No
24. Eastlake Parkway / Birch Road	23.5	C	34.0	C			8.5% / 5.5%		No
25. Heritage Road / Santa Liza Avenue	7.1	A	7.4	A			100.0% / 100.0%		No
26. Heritage Road / Main Street* (one-way stop controlled)	10.8	B	13.0	B			14.1% / 3.1%		No
27. La Media Road (SB) / Main Street (WB)	Does Not Exist								
28. La Media Road (NB) / Main Street (WB)	Does Not Exist								
29. La Media Road (SB) / Main Street (EB)	Does Not Exist								
30. La Media Road (NB) / Main Street (EB)	Does Not Exist								
31. Magdalena Avenue / Main Street	Does Not Exist								
32. SR-125 SB Ramps / Main Street	Does Not Exist								
33. SR-125 NB Ramps / Main Street	Does Not Exist								
34. Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD) (all-way stop controlled)	40.8	E	21.8	C	38.0 / 20.1	E / C		2.8 / 1.7	Yes (Direct)

TABLE 5.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
35. Heritage Road / Otay Mesa Road (SD)	24.1	B	23.5	C	21.6 / 22.2	C / C		2.5 / 1.3	No
36. Cactus Road / Otay Mesa Road (SD)	10.6	B	12.7	B	10.5 / 11.5	B / B		0.1 / 1.2	No

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.
As per Section 2.8, significant criteria for determining impacts are different for the Cities of Chula Vista and San Diego. Therefore, only applicable and appropriate data is included in this table in the effort of impact evaluation for intersections in the respective jurisdictions.

Roadway Segment Analysis

Tables 5.2A and **5.2B** display the level of service analysis results for roadway segments under Existing Plus Project (Buildout) conditions in the City of Chula Vista and City of San Diego, respectively.

As shown in the tables, of the following four (4) roadway segments in the City of Chula Vista would operate at substandard LOS D or E under Existing Plus Project (Buildout) conditions:

<u>City of Chula Vista</u>

- Olympic Parkway, between I-805 NB Ramps and Oleander Avenue (LOS D) - Proposed project trips would comprise more than 5% of the total segment volume and would add more than 800 ADT. However, the intersections (I-805 NB Ramps / Olympic Parkway and Oleander Avenue / Olympic Parkway) along this segment would operate at acceptable LOS D/D and LOS D/D during the peak hours, respectively. Therefore, the proposed project would not result in a direct impact at this location.
- Olympic Parkway, between Oleander Avenue and Brandywine Avenue (LOS E) – Proposed project trips would comprise more than 5% of the total segment volume and would add more than 800 ADT. However, the intersections (Oleander Avenue / Olympic Parkway and Brandywine Avenue / Olympic Parkway) along this segment would operate at acceptable LOS D/D and LOS D/D during the peak hours, respectively. Therefore, the proposed project would not result in a direct impact at this location.
- Olympic Parkway, between Brandywine Avenue and Santa Victoria Road (LOS E) – Proposed project trips would comprise more than 5% of the total segment volume and would add more than 800 ADT. However, the intersections (Brandywine Avenue / Olympic Parkway and Santa Victoria Road / Olympic Parkway) along this segment would operate at acceptable LOS D/D and LOS A/A during the peak hours, respectively. Therefore, the proposed project would not result in a direct impact at this location.
- Olympic Parkway, between Santa Victoria Road and Heritage Road (LOS E) – Proposed project trips would comprise more than 5% of the total segment volume and would add more than 800 ADT. However, the intersections (Santa Victoria Road / Olympic Parkway and Heritage Road / Olympic Parkway) along this segment would operate at acceptable LOS A/A and LOS C/C during the peak hours, respectively. Therefore, the proposed project would not result in a direct impact at this location.

TABLE 5.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Telegraph Canyon Road	Medical Center Drive	Heritage Road/ Paseo Ranchero	6-Ln w/RM	46,145	50,000	C	1,068	2.31%	-	No
Telegraph Canyon Road	Heritage Road/ Paseo Ranchero	La Media Road/ Otay Lakes Road	6-Ln w/RM	36,252	50,000	A	178	0.49%	-	No
Otay Lakes Road	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	27,033	50,000	C	712	2.63%	-	No
Otay Lakes Road	La Media Road	Rutgers Avenue	6-Ln w/RM	42,680	50,000	B	1,068	2.50%	-	No
East Palomar Street	Medical Center Drive	Heritage Road	4-Ln w/RM	15,022	30,000	A	1,602	10.66%	-	No
East Palomar Street	Heritage Road	La Media Road	4-Ln w/RM	20,656	30,000	A	534	2.59%	-	No
East Palomar Street	La Media Road	Olympic Parkway	4-Ln w/RM	12,549	30,000	A	178	1.42%	-	No
Orange Avenue	Hilltop Drive	Melrose Avenue	4-Ln w/RM	23,473	30,000	B	356	1.52%	-	No
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-Ln w/RM	29,381	30,000	C	356	1.21%	-	No
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-Ln	43,725	50,000	B	4,272	9.77%	-	No
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-Ln w/RM	53,670	50,000	D	5,162	9.62%	Yes	No

TABLE 5.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-Ln w/RM	57,602	50,000	E	5,340	9.27%	Yes	No
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-Ln w/RM	58,208	50,000	E	5,518	9.48%	Yes	No
Olympic Parkway	Santa Victoria Road	Heritage Road	6-Ln w/RM	58,208	50,000	E	5,518	9.48%	Yes	No
Olympic Parkway	Heritage Road	Santa Venetia Street	6-Ln w/RM	48,410	50,000	C	178	0.37%	-	No
Olympic Parkway	Santa Venetia Street	La Media Road	6-Ln w/RM	45,983	50,000	C	178	0.39%	-	No
Olympic Parkway	La Media Road	East Palomar Street	6-Ln w/RM	31,750	50,000	A	712	2.24%	-	No
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-Ln w/RM	36,089	50,000	A	534	1.48%	-	No
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-Ln w/RM	34,183	70,000	A	356	1.04%	-	No
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-Ln w/RM	35,964	70,000	A	356	0.99%	-	No
Birch Road	La Media Road	Magdalena Avenue	6-Ln w/RM	12,720	40,000	A	3,560	27.99%	-	No
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-Ln w/RM	13,588	40,000	A	2,848	20.96%	-	No
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-Ln w/RM	14,667	50,000	A	2,670	18.20%	-	No
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-Ln w/RM	13,048	50,000	A	2,314	17.73%	-	No

TABLE 5.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Main Street	Brandywine Avenue	Heritage Road	6-Ln w/RM	11,399	50,000	A	534	4.68%	-	No
Main Street	Heritage Road	La Media Road	Does Not Exist							
Main Street	La Media Road	SR-125 SB Ramps	Does Not Exist							
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	Does Not Exist							
Main Street	SR-125 NB Ramps	Eastlake Parkway	Does Not Exist							
Otay Valley Road	Main Street	SR-125 SB Ramps	Does Not Exist							
Paseo Ranchero	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	14,681	22,000	A	1,424	9.70%	-	No
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	21,680	50,000	A	2,670	12.32%	-	No
Heritage Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	17,683	50,000	A	4,806	27.18%	-	No
Heritage Road	Olympic Parkway	Santa Victoria Road	6-Ln w/RM*	6,408	50,000	A	6,408	100.00%	-	No
Heritage Road	Santa Victoria Road	Santa Liza Avenue	6-Ln w/RM*	1,780	50,000	A	1,780	100.00%	-	No
Heritage Road	Santa Liza Avenue	Main Street	Does Not Exist							
Heritage Road	Main Street	Avenida De Las Vistas	2-Ln w/TWLTL	9,321	50,000	A	534	5.73%	-	No
La Media Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	24,349	50,000	A	1,780	7.31%	-	No
La Media Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	16,624	50,000	A	1,958	11.78%	-	No

TABLE 5.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
La Media Road	Olympic Parkway	Santa Venetia Street	6-Ln w/RM	18,900	50,000	A	2,492	13.19%	-	No
La Media Road	Santa Venetia Street	Birch Road	6-Ln w/RM	14,897	50,000	A	3,382	22.70%	-	No
La Media Road	Birch Road	Santa Luna Street	6-Ln w/RM	2,606	50,000	A	534	20.49%	-	No
La Media Road	Santa Luna Street	Main Street	Does Not Exist							
Magdalena Avenue	Birch Road	Wolf Canyon Loop	4-Ln w/RM	8,995	22,000	A	712	7.92%	-	No
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	2-Ln w/RM	3,656	12,000	A	356	9.74%	-	No
Magdalena Avenue	Santa Luna Street	Main Street	4-Ln w/RM	3,478	22,000	A	178	5.12%	-	No
Eastlake Parkway	Olympic Parkway	Birch Road	6-Ln w/RM	12,199	40,000	A	356	2.92%	-	No
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-Ln w/RM	2,246	40,000	A	356	15.85%	-	No

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.
*Facility is required for project access.

TABLE 5.2B
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS
(City of San Diego)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS D)	LOS w/ Project	ADT w/o Project	LOS w/o Project	Change in V/C	Significant Impact?
Otay Mesa Road	Ocean View Hills Parkway	Heritage Road	6-Ln w/RM	35,390	55,000	C	35,212	C	0.003	No
Otay Mesa Road	Heritage Road	Cactus Road	6-Ln w/RM	31,860	55,000	B	31,682	B	0.003	No
Otay Mesa Road	Cactus Road	Britannia Boulevard	6-Ln w/RM	51,156	55,000	D	50,978	D	0.003	No
Heritage Road	Avenida De Las Vistas	Otay Mesa Road	2-Ln	8,340	9,000	D	7,984	D	0.036	No

Source: Chen Ryan Associates; August 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
RM = Raised Median.

Freeway/State Highway Segment Analysis

The freeway/state highway segment level of service analysis was performed utilizing the methodology presented in Chapter 2.0. **Table 5.3** displays the resulting level of service for I-805 and SR-125 under Existing Plus Project (Buildout) conditions.

As shown in the table, all of the study freeway/state highway segments would operate at acceptable LOS D or better under Existing Plus Project (Buildout) conditions. The addition of trips generated by full development of the proposed project would not cause any significant traffic impacts to the current study area freeway/state highway segments.

TABLE 5.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Freeway / State Highway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS w/ Project	Project Contribution (≥ 5%)	Significant Impact?
I-805	Home Street to SR-94	168,346	6.9%	11,616	0.51	4	0.97	4.2%	1,558	0.649	C	0.2%	No
I-805	SR-94 to Market Street	163,624	8.0%	13,090	0.50	4	0.97	4.2%	1,726	0.719	C	0.3%	No
I-805	Market Street to Imperial Avenue	163,980	8.0%	13,118	0.50	5	0.97	4.2%	1,379	0.575	B	0.3%	No
I-805	Imperial Avenue to E Division Street	183,258	8.0%	14,661	0.50	5	0.97	4.2%	1,547	0.645	C	0.3%	No
I-805	E Division Street to Plaza Boulevard	190,936	7.2%	13,747	0.51	5	0.95	3.8%	1,502	0.626	B	0.3%	No
I-805	Plaza Boulevard to SR-54	193,636	8.1%	15,685	0.52	5	0.96	2.2%	1,717	0.715	C	0.3%	No
I-805	SR-54 to Bonita Road	184,326	7.2%	13,271	0.52	4+1Aux	0.96	1.7%	1,607	0.670	C	0.5%	No
I-805	Bonita Road to East H Street	184,326	7.8%	14,377	0.50	5	0.95	1.7%	1,529	0.637	C	0.5%	No
I-805	East H Street to Telegraph Canyon Road	177,126	7.8%	13,816	0.50	5	0.95	1.9%	1,466	0.611	B	0.5%	No
I-805	Telegraph Canyon Road to East Palomar Street	155,692	7.1%	11,054	0.51	4+1Aux	0.92	1.7%	1,370	0.571	B	0.5%	No
I-805	East Palomar Street to Olympic Parkway	155,692	7.1%	11,054	0.51	4+1Aux	0.92	1.7%	1,370	0.571	B	0.4%	No
I-805	Olympic Parkway to Main Street	124,704	6.9%	8,605	0.51	4+1Aux	0.93	5.4%	1,082	0.451	B	0.0%	No
I-805	Main Street to Palm Avenue	118,258	7.1%	8,396	0.58	4+1Aux	0.95	10.3%	1,195	0.498	B	0.3%	No
I-805	Palm Avenue to SR-905	113,158	7.1%	8,034	0.58	4+1Aux	0.95	10.3%	1,151	0.480	B	0.3%	No

TABLE 5.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Freeway / State Highway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS w/ Project	Project Contribution (≥ 5%)	Significant Impact?
SR-125	Telegraph Canyon Road to Olympic Parkway	6,378	7.0%	446	0.58	2	0.95	10.3%	144	0.060	A	0.7%	No
SR-125	Olympic Parkway to Birch Road	4,300	7.0%	301	0.58	2	0.95	10.3%	100	0.042	A	0.0%	No
SR-125	Birch Road to Main Street	5,156	7.0%	361	0.58	2	0.95	10.3%	111	0.046	A	1.1%	No
SR-125	Main Street to Otay Valley Road	5,156	7.0%	361	0.58	2	0.95	10.3%	111	0.046	A	1.1%	No
SR-125	Otay Valley Road to Lone Star Road	5,156	7.0%	361	0.58	2	0.95	10.3%	111	0.046	A	1.1%	No
SR-125	Lone Star Road to Otay Mesa Road	5,156	7.0%	361	0.58	2	0.95	10.3%	111	0.046	A	1.1%	No
SR-125	Otay Mesa Road to SR-905	4,978	7.0%	348	0.58	2	0.95	10.3%	111	0.046	A	1.4%	No

Source: Chen Ryan Associates; August 2013

Notes:
M = Mainline.
Aux = Auxiliary Lane.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized ramp intersections along I-805 and SR-125 within the study area were analyzed under Existing Plus Project (Buildout) conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 5.4** and analysis worksheets for the Existing Plus Project (Buildout) conditions are provided in **Appendix G**.

TABLE 5.4
RAMP INTERSECTION CAPACITY ANALYSIS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Ramp Intersection	Peak Hour	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,382	1200-1500: (At Capacity)
	PM	1,688	>1500: (Over Capacity)
I-805 NB Ramps / Olympic Parkway	AM	2,237	>1500: (Over Capacity)
	PM	1,361	1200-1500: (At Capacity)
SR-125 SB Ramps / Olympic Parkway	AM	372	<1200: (Under Capacity)
	PM	285	<1200: (Under Capacity)
SR-125 NB Ramps / Olympic Parkway	AM	194	<1200: (Under Capacity)
	PM	226	<1200: (Under Capacity)
SR-125 SB Ramps / Birch Road	AM	376	<1200: (Under Capacity)
	PM	578	<1200: (Under Capacity)
SR-125 NB Ramps / Birch Road	AM	350	<1200: (Under Capacity)
	PM	481	<1200: (Under Capacity)
SR-125 SB Ramps / Main Street	AM	Does Not Exist	
	PM		
SR-125 NB Ramps / Main Street	AM	Does Not Exist	
	PM		

Source: Chen Ryan Associates; August 2013

As shown in the table, for information purposes all of the I-805 ramp intersections would operate "At Capacity" or "Under Capacity", with the exception of the following:

- I-805 SB Ramps / Olympic Parkway – "Over Capacity" during the PM peak hour; and
- I-805 NB Ramps / Olympic Parkway – "Over Capacity" during the AM peak hour.

All of the SR-125 ramp intersections within the study area would operate at "Under Capacity" during both the AM and PM peak hours under the Existing Plus Project (Buildout) conditions.

Ramp Metering Analysis

Table 5.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramps at Olympic Parkway under Existing Plus Project (Buildout) conditions. Based on observed conditions, it is expected that approximately 80% of the total arrival traffic (demand) would utilize the two non-HOV lanes.

TABLE 5.5
RAMP METERING ANALYSIS
EXISTING PLUS PROJECT (BUILDOUT) CONDITIONS

Location	Peak Hour	Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay w/ Project[4] (min)	Queue[5] (ft)	Delay w/o Project (min)	Significant Impact?
I-805 NB On-Ramp @ Olympic Parkway	AM	806	887	0	0	0	0	No

Source: Chen Ryan Associates; August 2013

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

As shown in Table 5.5, the peak hour capacity expected to be processed through the ramp meter would continue to be greater than the peak hour demand at the I-805 northbound on-ramps at Olympic Parkway. Therefore, there would be no queuing issue at the I-805 northbound on-ramp at Olympic Parkway under the Existing Plus Project (Buildout) conditions.

Recommended Mitigation

This section identifies mitigation measures for intersection and roadway facilities that would be significantly impacted by project-related traffic under Existing Plus Project (Buildout) conditions.

Intersections

The proposed project would have a cumulative impact at the intersection of I-805 SB Ramps / Olympic Parkway (Chula Vista) and a project direct impact at the intersection of Heritage Road / Avenida De Las Vistas (San Diego). If implemented, the following intersection improvements would mitigate the identified traffic impacts to less than significant:

<u>Direct Impact Mitigation</u>

- *Heritage Road / Avenida De Las Vistas* (all-way stop controlled) (SD) – Signalization would be required at this intersection to mitigate project impacts. A traffic signal warrant was conducted. Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this intersection would satisfy both

the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in **Appendix H**.

Cumulative Impact Mitigation

- *I-805 SB Ramps / Olympic Parkway* (CV) – Construction of an additional left-turn lane at the I-805 southbound off-ramp, as well as a 3rd through lane along the Olympic Parkway eastbound approach. The recommended improvements would require widening of Orange Avenue/Olympic Parkway; however, there are right-of-way constraints that would make such improvements infeasible. Therefore, the impact will remain significant and unavoidable at this location. Nonetheless, traffic operations at this intersection may be improved by better coordination with adjacent intersections and/or other Intelligent Transportation Systems (ITS) measures.

Table 5.6 displays level of service analysis results for the mitigated intersections under Existing Plus Project (Buildout) conditions. Calculation worksheets for the intersection analysis are provided in **Appendix I**.

TABLE 5.6
MITIGATED INTERSECTION LEVEL OF SERVICE
EXISTING PLUS PROJECT (BUILDOUT) 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
6. I-805 SB Ramps / Olympic Parkway	46.2	D	59.6	E	No Feasible Mitigation			
34. Heritage Road / Avenida De Las Vistas (SD)	40.8	E	21.8	C	5.9	A	7.6	A

Source: Chen Ryan Associates; August 2013

Note: Bold letter indicates unacceptable LOS E or F.

As shown in Table 5.6, after implementation of the identified improvements, the impacted intersections would operate at acceptable LOS D or better during both the AM and PM peak hours, with the exception of intersection of I-805 SB Ramps / Olympic Parkway. The impacts at the intersection of I-805 SB Ramps / Olympic Parkway would remain significant and unmitigable.

Roadway Segments

The proposed project would not have significant direct impacts at on any roadway segment within the City of Chula Vista and the City of San Diego, therefore no mitigation measures would be required under Existing Plus Project (Buildout) conditions.

Direct Impact Mitigation
None.

Cumulative Impact Mitigation

None.

Freeways/State Highways

None of the study area freeway/state highway facilities would be significantly impacted, and therefore, no mitigation measures would be required under Existing Plus Project (Buildout) conditions.

Ramp Metering

The I-805 northbound on-ramp at Olympic Parkway would not be significantly impacted, and therefore no mitigation measures would be required under Existing Plus Project (Buildout) conditions.

As discussed at the outset of this section, the Existing Plus Project analysis, including the identification of mitigation, was conducted for information purposes to determine the theoretical impacts of the project as required by CEQA. An accurate assessment of the project's potential impacts, along with recommended mitigation, is presented in following Sections 6.0 through 10.0.

6.0 Year 2015 Traffic Conditions

This section provides an analysis of Year 2015 traffic conditions with the proposed project. Intersection and roadway segment analyses in this section focus on facilities within the City of Chula Vista as interim year information (2015, 2020 & 2025) for facilities within the City of San Diego is not available. Facilities within both the cities of Chula Vista and San Diego are analyzed in the buildout Year 2030 scenario.

6.1 Year 2015 Roadway Network and Traffic Volumes

The Year 2015 roadway network would be similar to the existing network with the following exceptions:

<u>To be constructed by the Project</u>

- Heritage Road between Olympic Parkway and Main Street – this facility was included as a 6-lane Prime Arterial providing frontage and access for Village 2.
- Santa Victoria Road / Olympic Parkway Intersection – signalized intersection (will provide necessary access to Village 2, which will be partially developed by Year 2015).
- Heritage Road / Olympic Parkway Intersection – signalized intersection, conversion of Heritage Road / Olympic Parkway from a signalized T intersection to a signalized 4-legged intersection (will provide necessary access to Village 2, which will be partially developed by Year 2015).
- Heritage Road / Santa Victoria Road Intersection – signalized intersection (will provide necessary access to Village 2, which will be partially developed by Year 2015).
- Heritage Road / Santa Liza Street Intersection – signalized intersection (will provide necessary access to Village 2, which will be partially developed by Year 2015).

<u>To be constructed by others</u>

- I-805 South Project, between Home Avenue and East Palomar Street – The I-805 South Project area is roughly 11 miles, between East Palomar Street in Chula Vista and the I-805/SR-15 interchange in San Diego. The project includes the addition of HOV/Express / BRT Lanes within the freeway median. Additionally, the project includes the construction of a Direct Access Ramp (DAR) at East Palomar Street in Chula Vista that will connect to the HOV/Express Lanes, as well as intermediate access points, direct connectors, in-line transit stations, and park & ride locations. The I-805 South Project will be constructed in two (2) major phases:
    - *Phase 1 (2012-2014)* – Phase 1 includes building one HOV lane in each direction, and the construction of a DAR, Transit Station and Park & Ride at East Palomar Street in Chula Vista. Phase 1 is currently under construction.

- *Phase 2 (2015-2020)* – The second phase of the I-805 South Project would further expand transportation choices by building out the HOV lanes into Express Lanes for a total of four lanes, two in each direction. Phase 2 also includes the addition of in-line transit stations and freeway-to-freeway direct connectors. However, on December 16th, 2011, SANDAG Board of Directors approved the purchase of SR-125 and the Addendum to SANDAG's 2030 RTP EIR. The Addendum consists of a swap of the two planned HOV lanes on I-805 between SR-54 and SR-905 (Phase 2 of the I-805 South Project discussed above) for the purchase costs of SR-125, which requires an amendment to the TransNet Extension Ordinance. It also concluded that while the reduction in tolls would result in a shift of traffic from I-805 to SR-125, freeway operations on both facilities would remain acceptable. The proposed Village 2 project was modeled with Phase 2, however in order to remain consistent with the 2030 RTP Addendum, the TIA is analyzed with one HOV lane in each direction (Phase 1) along I-805.

See **Appendix J** for additional information in regard to the I-805 South Project as well as the SANDAG's 2030 RTP EIR Addendum.

- Heritage Road, south of Main Street to Chula Vista city limit – this facility is included as a 4-lane Major Road in 2015. As indicated in the City's currently adopted General Plan Circulation Element, the ultimate classification designation 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 J.

- Heritage Road / Main Street Intersection – signalized intersection.

If the assumed roadway improvements are not in place as modeled for the Year 2015 scenario, additional traffic impacts could occur. Therefore, a potentially significant impact could occur if assumed improvements are not developed as prescribed in the traffic impact analysis.

The Year 2015 intersection and roadway geometrics are displayed in **Figures 6-1A** and **6-1B**, respectively.

Figures 6-2A and **6-2B** show peak hour intersection and average daily roadway volumes for the study intersections and roadway segments, respectively, under the Year 2015 scenario with project intersection and roadway volumes. Traffic volumes for the Year 2015 scenario were developed utilizing the SANDAG Series 11 "Southbay 2, Village 2" Year 2015 model.

6.2 Year 2015 Traffic Conditions

Level of service analyses for the Year 2015 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway, and freeway/state highway level of service results are discussed below.

Intersection Analysis

Table 6.1 displays intersection level of service and average vehicle delay results for the study area intersections under the Year 2015 Base Plus Project conditions. Level of service calculation worksheets for the Year 2015 conditions are provided in **Appendix K.**

As shown in the table, all of the study area intersections would operate at acceptable LOS D or better under Year 2015 conditions.

TABLE 6.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	37.1	D	31.5	C	0.8% / 1.1%	No
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	33.7	C	37.6	D	1.0% / 1.1%	No
3. Heritage Road / East Palomar Street	30.4	C	24.2	C	2.2% / 2.9%	No
4. La Media Road / East Palomar Street	40.3	D	38.2	D	1.4% / 1.7%	No
5. Melrose Avenue / Orange Avenue	38.0	D	34.4	C	0.8% / 0.8%	No
6. I-805 SB Ramps / Olympic Parkway	45.7	D	52.7	D	1.4% / 1.8%	No
7. I-805 NB Ramps / Olympic Parkway	46.0	D	34.6	C	2.2% / 2.5%	No
8. Oleander Avenue / Olympic Parkway	50.7	D	36.5	D	2.5% / 2.8%	No
9. Brandywine Avenue / Olympic Parkway	51.1	D	53.3	D	2.5% / 3.0%	No
10. Santa Victoria Road / Olympic Parkway	1.9	A	2.1	A	2.7% / 3.3%	No
11. Heritage Road / Olympic Parkway	42.6	D	50.9	D	3.4% / 4.2%	No
12. Santa Venetia Street / Olympic Parkway	13.5	B	2.9	A	1.9% / 2.3%	No
13. La Media Road / Olympic Parkway	31.9	C	32.4	C	2.3% / 2.8%	No
14. East Palomar Street / Olympic Parkway	27.6	C	23.8	C	0.3% / 0.3%	No
15. SR-125 SB Ramps / Olympic Parkway	4.7	A	7.0	A	0.1% / 0.1%	No
16. SR-125 NB Ramps / Olympic Parkway	4.0	A	4.7	A	0.1% / 0.0%	No
17. Eastlake Parkway / Olympic Parkway	23.8	C	27.0	C	0.2% / 0.2%	No
18. Heritage Road / Santa Victoria Road	15.6	B	18.3	B	8.5% / 8.2%	No
19. La Media Road / Santa Venetia Street	47.0	D	28.4	C	3.1% / 4.3%	No
20. La Media Road / Birch Road	39.2	D	42.9	D	8.2% / 8.1%	No

TABLE 6.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
21. Magdalena Avenue / Birch Road	25.7	C	22.3	C	3.3% / 4.5%	No
22. SR-125 SB Ramps / Birch Road	3.5	A	6.9	A	4.2% / 4.7%	No
23. SR-125 NB Ramps / Birch Road	3.9	A	4.5	A	3.4% / 4.6%	No
24. Eastlake Parkway / Birch Road	22.3	B	25.2	C	1.0% / 1.1%	No
25. Heritage Road / Santa Liza Avenue	3.5	A	2.6	A	2.4% / 2.3%	No
26. Heritage Road / Main Street	23.8	C	17.4	B	1.3% / 2.2%	No
27. La Media Road (SB) / Main Street (WB)	Does Not Exist					
28. La Media Road (NB) / Main Street (WB)	Does Not Exist					
29. La Media Road (SB) / Main Street (EB)	Does Not Exist					
30. La Media Road (NB) / Main Street (EB)	Does Not Exist					
31. Magdalena Avenue / Main Street	Does Not Exist					
32. SR-125 SB Ramps / Main Street	Does Not Exist					
33. SR-125 NB Ramps / Main Street	Does Not Exist					
34. Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD)	Not Analyzed					
35. Heritage Road / Otay Mesa Road (SD)	Not Analyzed					
36. Cactus Road / Otay Mesa Road (SD)	Not Analyzed					

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.

Roadway Segment Analysis

Table 6.2 displays the level of service analysis results for the study area roadway segments under the Year 2015 conditions.

As shown in the table, two (2) roadway segments would operate at substandard LOS D the City of Chula Vista:

- Telegraph Canyon Road, between Medical Center Drive and Heritage Road/Paseo Ranchero (LOS D) – the proposed 2015 project traffic would comprise approximately 0.8% (less than 5%) of the total segment volume and would add 452 (less than 800 ADT).

- Orange Avenue, between Melrose Avenue and I-805 SB Ramps (LOS D) – the proposed 2015 project traffic would comprise approximately 0.5% (less than 5%) of the total segment volume and would add 151 ADT (less than 800 ADT).

As stated in the City of Chula Vista's traffic impact criteria (Section 2.8), if the roadway segment planning analysis shows LOS D, E, or F, then the GMOC method should be utilized for roadway segment analysis under short-term conditions (year 0-4). The impact criteria are:

(a) Direct impact if all of 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 five percent or more of segment volume; and
    iii. Project adds greater than 800 ADT to segment

(b) Cumulative impact if only (i) is met.

Since project traffic would not comprise more than 5% of the total segment volume and would not add more than 800 ADT, direct impacts would not result along any of the roadway segments identified above.

As to cumulative impacts, based upon a review of the City's 2013 GMOC Annual Report (dated 4/25/2013) and discussion with City Staff, all four (4) segments above are considered as GMOC compliant and would continue to operate satisfactorily with the addition of project traffic generated by 2015. Thus, the proposed 2015 project traffic would not result in direct or cumulative impacts to the project study area roadway segments within Chula Vista.

In addition, as a part of the City's Growth Management Program (GMP), the City monitors the operating conditions along Olympic Parkway on an annual basis. In 2011, an expanded traffic analysis was prepared, the Olympic Parkway Capacity Enhancement Analysis (LLG, 2011), to monitor new development in the Eastern Territories with respect to available capacity on Olympic Parkway east of I-805. The study determined whether GMO thresholds are projected to be reached or exceeded, and whether mitigation measures are necessary to remain compliant with the requirements of the GMP.

TABLE 6.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	GMOC Analysis	Significant Impact?
Telegraph Canyon Road	Medical Center Drive	Heritage Road/ Paseo Ranchero	6-Ln w/RM	55,600	50,000	D	452	0.81%	Acceptable	No
Telegraph Canyon Road	Heritage Road/ Paseo Ranchero	La Media Road/ Otay Lakes Road	6-Ln w/RM	47,800	50,000	C	75	0.16%	-	No
Otay Lakes Road	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	28,800	50,000	C	301	1.05%	-	No
Otay Lakes Road	La Media Road	Rutgers Avenue	6-Ln w/RM	40,900	50,000	B	452	1.10%	-	No
East Palomar Street	Medical Center Drive	Heritage Road	4-Ln w/RM	20,200	30,000	A	678	3.35%	-	No
East Palomar Street	Heritage Road	La Media Road	4-Ln w/RM	22,800	30,000	B	226	0.99%	-	No
East Palomar Street	La Media Road	Olympic Parkway	4-Ln w/RM	19,300	30,000	A	75	0.39%	-	No
Orange Avenue	Hilltop Drive	Melrose Avenue	4-Ln w/RM	26,400	30,000	C	151	0.57%	-	No
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-Ln w/RM	31,800	30,000	D	151	0.47%	Acceptable	No
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-Ln	40,200	50,000	B	452	1.12%	-	No
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-Ln w/RM	41,900	50,000	B	828	1.98%	-	No
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-Ln w/RM	34,300	50,000	A	904	2.63%	-	No
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-Ln w/RM	24,300	50,000	A	979	4.03%	-	No

TABLE 6.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	GMOC Analysis	Significant Impact?
Olympic Parkway	Santa Victoria Road	Heritage Road	6-Ln w/RM	23,200	50,000	A	979	4.22%	-	No
Olympic Parkway	Heritage Road	Santa Venetia Street	6-Ln w/RM	41,200	50,000	B	75	0.18%	-	No
Olympic Parkway	Santa Venetia Street	La Media Road	6-Ln w/RM	33,600	50,000	A	75	0.22%	-	No
Olympic Parkway	La Media Road	East Palomar Street	6-Ln w/RM	25,800	50,000	A	301	1.17%	-	No
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-Ln w/RM	45,000	50,000	C	226	0.50%	-	No
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-Ln w/RM	46,200	70,000	A	151	0.33%	-	No
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-Ln w/RM	48,000	70,000	A	151	0.31%	-	No
Birch Road	La Media Road	Magdalena Avenue	6-Ln w/RM	27,600	40,000	A	1,506	5.46%	-	No
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-Ln w/RM	23,000	40,000	A	1,205	5.24%	-	No
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-Ln w/RM	24,200	50,000	A	1,130	4.67%	-	No
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-Ln w/RM	26,000	50,000	A	979	3.77%	-	No
Main Street	Brandywine Avenue	Heritage Road	6-Ln w/RM	30,100	50,000	A	828	2.75%	-	No
Main Street	Heritage Road	La Media Road	Does Not Exist							
Main Street	La Media Road	SR-125 SB Ramps	Does Not Exist							
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	Does Not Exist							

TABLE 6.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	GMOC Analysis	Significant Impact?
Main Street	SR-125 NB Ramps	Eastlake Parkway	Does Not Exist							
Otay Valley Road	Main Street	SR-125 SB Ramps	Does Not Exist							
Paseo Ranchero	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	15,900	22,000	A	602	3.79%	-	No
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	20,800	50,000	A	1,130	5.43%	-	No
Heritage Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	37,800	50,000	B	2,033	5.38%	-	No
Heritage Road	Olympic Parkway	Santa Victoria Road	6-Ln w/RM*	17,800	50,000	A	2,711	15.23%	-	No
Heritage Road	Santa Victoria Road	Santa Liza Avenue	6-Ln w/RM*	24,200	50,000	A	1,355	5.60%	-	No
Heritage Road	Santa Liza Avenue	Main Street	6-Ln w/RM*	28,100	50,000	A	1,205	4.29%	-	No
Heritage Road	Main Street	Avenida De Las Vistas	4-Ln w/RM**	22,600	50,000	B	377	1.67%	-	No
La Media Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	22,000	50,000	A	753	3.42%	-	No
La Media Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	16,300	50,000	A	828	5.08%	-	No
La Media Road	Olympic Parkway	Santa Venetia Street	6-Ln w/RM	26,200	50,000	A	1,054	4.02%	-	No
La Media Road	Santa Venetia Street	Birch Road	6-Ln w/RM	25,600	50,000	A	1,431	5.59%	-	No
La Media Road	Birch Road	Santa Luna Street	6-Ln w/RM	12,700	50,000	A	226	1.78%	-	No
La Media Road	Santa Luna Street	Main Street	Does Not Exist							

TABLE 6.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	GMOC Analysis	Significant Impact?
Magdalena Avenue	Birch Road	Wolf Canyon Loop	4-Ln w/RM	12,900	22,000	A	301	2.33%	-	No
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	2-Ln w/RM	6,800	12,000	A	151	2.21%	-	No
Magdalena Avenue	Santa Luna Street	Main Street	4-Ln w/RM	11,600	22,000	A	151	1.30%	-	No
Eastlake Parkway	Olympic Parkway	Birch Road	6-Ln w/RM	21,000	40,000	A	151	0.72%	-	No
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-Ln w/RM	24,700	40,000	A	151	0.61%	-	No

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.
*Facility is required for project access.
**Facility improvement is assumed to be implemented by others, including City's CIP.

In conformance with the requirements of the GMP, a peak-hour arterial analysis was conducted on the segment of westbound Olympic Parkway between Heritage Road and Oleander Avenue under near-term conditions (Years 0-4) based on the City of Chula Vista's Traffic Monitoring Program (TMP) methodology. The Chula Vista TMP is used to assess the operating performance of the City's arterial street system in order to determine compliance with the Threshold Standards of the GMP.

Based on the LLG study, the segment of westbound Olympic Parkway between Heritage Road and Oleander Avenue during a.m. peak hours would be the first to fall below GMO traffic threshold standards as traffic volumes increase over time with this project and other projects east of I-805. However, the analysis also demonstrated that GMO thresholds would not be reached along Olympic Parkway until building permits for 2,463 dwelling units have been issued for projects east of I-805. The projected 2,463rd dwelling unit threshold is used by the City to determine when cumulative impacts may occur along the corridor. The following mitigation measure has been identified in the event the GMO threshold is reached:

1) ***GMOC Compliance***: Prior to the issuance of the building permit for the 2,463rd dwelling unit for development east of I-805 (commencing from April 4, 2011), the applicant may:

    a. Prepare a traffic study that demonstrates, to the satisfaction of the City Engineer, that the circulation system has additional capacity without exceeding the GMO traffic threshold standards, or

    b. Demonstrate that other improvements are constructed which provide the additional necessary capacity to comply with the GMO traffic threshold to the satisfaction of the City Engineer, or

    c. Agree to the City Engineer's selection of an alternative method of maintaining GMO traffic threshold compliance, or

    d. Enter into agreement, approved by the City, with other Otay Ranch developers that alleviates congestion and achieves GMO traffic threshold compliance for Olympic Parkway. The Agreement will identify the deficiencies in transportation infrastructure that will need to be constructed, the parties that will construct said needed infrastructure, a timeline for such construction, and provides assurances for construction, in accordance with the City's customary requirements, for said infrastructure.

2) If GMO compliance cannot be achieved through 1)a, b, c or d above, then the City may, in its sole discretion, stop issuing new building permits within the project area, after building permits for 2,463 dwelling units have been issued for any development east of I-805 after April 4, 2011, until such time that GMO traffic threshold standard compliance can be assured to the satisfaction of the City Manager.

3) These measures shall constitute full compliance with growth management objectives and policies in accordance with the requirements of the General Plan, Chapter 10 with regard to traffic thresholds set forth in the GMO.

Freeway/State Highway Segment Analysis

Table 6.3 displays freeway level of service analysis results for I-805 and SR-125 under Year 2015 conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodologies presented in Chapter 2.0.

As shown in the table, all study freeway/state highway segments along I-805 and SR-125 would operate at acceptable LOS D or better under Year 2015 conditions. The addition of trips generated by the proposed project would not cause any significant traffic impacts to study area freeway/state highway segments.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized ramp intersections along I-805 and SR-125 within the study area were analyzed under Year 2015 conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 6.4** and analysis worksheets for the Year 2015 conditions are provided in **Appendix L**.

As shown on Table 6.4, for information purposes, all of the I-805 ramp intersections would operate "At Capacity" or "Under Capacity", with the following one (1) exception:

- I-805 SB Ramps / Olympic Parkway – "Over Capacity" during the PM peak hour

All of the SR-125 ramp intersections within the study area would continue to operate at "Under Capacity" during both the AM and PM peak hours under Year 2015 conditions.

Ramp Metering Analysis

Table 6.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramp at Olympic Parkway under Year 2015 conditions. Based on observed existing conditions, it is expected that approximately 80% of the total arrival traffic (demand) would utilize the two non-HOV lanes.

As shown in the table, the peak hour demand at the I-805 northbound on-ramp at Olympic Parkway would be less than the capacity that the ramp meter provides. Therefore, the proposed project would not result in a significant impact at the I-805 northbound on-ramp at Olympic Parkway.

TABLE 6.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Home Street to SR-94	262,600	6.9%	18,119	0.51	4+1ML	0.97	4.2%	1,621	0.675	C	261,600	C	0.4%	No
I-805	SR-94 to Market Street	259,400	8.0%	20,752	0.50	4+1ML	0.97	4.2%	1,821	0.759	C	258,200	C	0.5%	No
I-805	Market Street to Imperial Avenue	330,300	8.0%	26,424	0.50	5+1ML	0.97	4.2%	1,989	0.829	D	329,000	D	0.4%	No
I-805	Imperial Avenue to E Division Street	328,900	8.0%	26,312	0.50	5+1ML	0.97	4.2%	1,979	0.825	D	327,300	D	0.5%	No
I-805	E Division Street to Plaza Boulevard	312,100	7.2%	22,471	0.51	5+1ML	0.95	3.8%	1,759	0.733	C	310,500	C	0.5%	No
I-805	Plaza Boulevard to SR-54	301,300	8.1%	24,405	0.52	5+1ML	0.96	2.2%	1,906	0.794	C	299,700	C	0.5%	No
I-805	SR-54 to Bonita Road	325,700	7.2%	23,450	0.52	4+1Aux+ 1ML	0.96	1.7%	1,975	0.823	D	323,700	D	0.6%	No
I-805	Bonita Road to East H Street	280,400	7.8%	21,871	0.50	5+1ML	0.95	1.7%	1,656	0.690	C	278,200	C	0.8%	No
I-805	East H Street to Telegraph Canyon Road	277,400	7.8%	21,637	0.50	5+1ML	0.95	1.9%	1,647	0.686	C	275,200	C	0.8%	No
I-805	Telegraph Canyon Road to East Palomar Street	231,600	7.1%	16,444	0.51	4+1Aux+ 1ML	0.92	1.7%	1,414	0.589	B	229,400	B	0.9%	No
I-805	East Palomar Street to Olympic Parkway	208,100	7.1%	14,775	0.51	4+1Aux	0.92	1.7%	1,831	0.763	C	206,800	C	0.6%	No

TABLE 6.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2015 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Olympic Parkway to Main Street	200,700	6.9%	13,848	0.51	4+1Aux	0.93	5.4%	1,734	0.723	C	200,600	C	0.0%	No
I-805	Main Street to Palm Avenue	201,700	7.1%	14,321	0.58	4+1Aux	0.95	10.3%	2,048	0.853	D	200,900	D	0.4%	No
I-805	Palm Avenue to SR-905	178,700	7.1%	12,688	0.58	4+1Aux	0.95	10.3%	1,815	0.756	C	178,000	C	0.4%	No
SR-125	Telegraph Canyon Road to Olympic Parkway	18,400	7.0%	1,288	0.60	2M	0.92	2.0%	428	0.178	A	18,400	A	0.0%	No
SR-125	Olympic Parkway to Birch Road	14,800	7.0%	1,036	0.60	2M	0.92	2.0%	340	0.142	A	14,800	A	0.0%	No
SR-125	Birch Road to Main Street	25,400	7.0%	1,778	0.60	2M	0.92	2.0%	582	0.243	A	25,000	A	1.6%	No
SR-125	Main Street to Otay Valley Road	25,400	7.0%	1,778	0.60	2M	0.92	2.0%	582	0.243	A	25,000	A	1.6%	No
SR-125	Otay Valley Road to Lone Star Road	25,400	7.0%	1,778	0.60	2M	0.92	2.0%	582	0.243	A	25,000	A	1.6%	No
SR-125	Lone Star Road to Otay Mesa Road	25,400	7.0%	1,778	0.60	2M	0.92	2.0%	582	0.243	A	25,000	A	1.6%	No
SR-125	Otay Mesa Road to SR-905	8,500	7.0%	595	0.60	2M	0.92	2.0%	198	0.083	A	8,400	A	1.2%	No

Source: Chen Ryan Associates; August 2013

Notes:
M = Mainline.
Aux = Auxiliary Lane.
ML = Managed Lane.

TABLE 6.4
RAMP INTERSECTION CAPACITY ANALYSIS
YEAR 2015 CONDITIONS

Ramp Intersection	Peak Hour	With Project		Without Project	
		ILV / Hour	Description	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,351	1200-1500: (At Capacity)	1,340	1200-1500: (At Capacity)
	PM	1,675	>1500: (Over Capacity)	1,660	>1500: (Over Capacity)
I-805 NB Ramps / Olympic Parkway	AM	1,373	1200-1500: (At Capacity)	1,330	1200-1500: (At Capacity)
	PM	1,328	1200-1500: (At Capacity)	1,295	1200-1500: (At Capacity)
SR-125 SB Ramps / Olympic Parkway	AM	366	<1200: (Under Capacity)	353	<1200: (Under Capacity)
	PM	518	<1200: (Under Capacity)	507	<1200: (Under Capacity)
SR-125 NB Ramps / Olympic Parkway	AM	446	<1200: (Under Capacity)	437	<1200: (Under Capacity)
	PM	440	<1200: (Under Capacity)	420	<1200: (Under Capacity)
SR-125 SB Ramps / Birch Road	AM	536	<1200: (Under Capacity)	535	<1200: (Under Capacity)
	PM	694	<1200: (Under Capacity)	693	<1200: (Under Capacity)
SR-125 NB Ramps / Birch Road	AM	520	<1200: (Under Capacity)	520	<1200: (Under Capacity)
	PM	633	<1200: (Under Capacity)	633	<1200: (Under Capacity)
SR-125 SB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				
SR-125 NB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				

Source: Chen Ryan Associates; August 2013

TABLE 6.5
RAMP METERING ANALYSIS
YEAR 2015 CONDITIONS

Location	Peak Hour	With Project					Without Project				Significant Impact?
		Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	
I-805 NB On-Ramp @ Olympic Parkway	AM	520	887	0	0	0	504	0	0	0	No

Source: Chen Ryan Associates; August 2013

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

Recommended Mitigation

This section identifies required mitigation measures for intersection and roadway facilities that would be significantly impacted by project-related traffic under the Year 2015 conditions.

Intersections

None of the study area intersections in the City of Chula Vista would be significantly impacted, and therefore, no mitigation measures would be required under the Year 2015 conditions.

Roadway Segments

None of the study area roadway segments in the City of Chula Vista would be significantly impacted, and therefore, no mitigation measures would be required under the Year 2015 conditions.

Freeways/State Highways

None of the study area freeway/state highway facilities would be significantly impacted, and therefore, no mitigation measures would be required under the Year 2015 conditions.

Ramp Metering

The I-805 northbound on-ramp at Olympic Parkway would not be significantly impacted, and therefore no mitigation measures would be required under Year 2015 conditions.

Circulation System Assumptions

The Year 2015 scenario assumes the following roadway improvements:

a) Phase 1 of the I-805 South Project, including improvements to I-805 between Home Avenue and East Palomar Street, and

b) Heritage Road widened from south of Main Street to the City limit.

If the project equivalent dwelling unit limit for study year 2015 (753 EDU) is exceeded prior to these roadway segments being constructed and open to traffic, then one of the following steps shall be taken:

i. Development within the Village 2 Comprehensive SPA project shall stop until those assumed future roadways are constructed by others; or

ii. City and the applicant shall meet to determine the need for the incomplete roadway segments. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or

iii. Applicant shall construct the missing roadway links and receive a transportation development impact fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the city in accordance with the city of Chula Vista Growth Management Ordinance.

v. All to the satisfaction of the City Engineer.

7.0 Year 2020 Traffic Conditions

This section provides an analysis of Year 2020 traffic conditions both with and without the proposed project. Intersection and roadway segment analyses in this section focus on facilities within the City of Chula Vista; facilities within the City of San Diego, along with Chula Vista facilities, are analyzed in the buildout Year 2030 scenario.

7.1 Year 2020 Roadway Network and Traffic Volumes

The Year 2020 roadway network is similar to the Year 2015 network with the following exceptions:

<u>To be constructed by the Project</u>

None

<u>To be constructed by Others</u>

- Heritage Road, south of Main Street to 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 designation 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 J.
- Otay Lakes Road, between H Street and Telegraph Canyon Road – this facility is included as 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 J.
- Construction of La Media Road, between Santa Luna Street and Main Street, as well as a portion of Main Street that provides access to Village 8 West, Village 8 East, and Village 9.

If the assumed roadway improvements are not in place as modeled for the Year 2020 scenario, additional traffic impacts could occur. Therefore, a potentially significant impact could occur if assumed improvements are not developed as prescribed in the traffic impact analysis.

The Year 2020 intersection and roadway geometrics are displayed in **Figures 7-1A** and **7-1B**, respectively.

Figures 7-2A and **7-2B** show peak hour intersection and average daily roadway volumes for the study intersections and roadway segments, respectively, under Year 2020 with project conditions. Traffic volumes for the Year 2020 scenario were developed utilizing the SANDAG Series 11 "Southbay 2, Village 2" Year 2020 model.

7.2 Year 2020 Traffic Conditions

Level of service analyses for the Year 2020 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway, and freeway/state highway level of service results are discussed below.

Intersection Analysis

Table 7.1 displays intersection level of service and average vehicle delay results for the study area intersections under both Year 2020 with and without project conditions. Level of service calculation worksheets for the Year 2020 conditions are provided in **Appendix M.**

As shown in the table, all of the study area intersections would operate at acceptable LOS D or better under Year 2020 conditions with the following one (1) exception in the City of Chula Vista:

- I-805 SB Ramps / Olympic Parkway – LOS D during the AM peak hour and LOS F during the PM peak hour. The 2020 project traffic would comprise approximately 1.9% and 2.2% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a cumulative impact at this intersection.

Roadway Segment Analysis

Table 7.2 displays the level of service analysis results for the study area roadway segments within the City of Chula Vista under the Year 2020 conditions.

TABLE 7.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	46.1	D	41.9	D	1.1% / 1.4%	No
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	34.9	C	46.4	D	1.6% / 1.6%	No
3. Heritage Road / East Palomar Street	38.2	D	30.9	C	2.9% / 3.5%	No
4. La Media Road / East Palomar Street	44.4	D	51.7	D	2.3% / 2.5%	No
5. Melrose Avenue / Orange Avenue	50.7	D	52.0	D	1.0% / 0.9%	No
6. I-805 SB Ramps / Olympic Parkway	50.2	D	95.2	F	1.9% / 2.2%	Yes (Cumulative)
7. I-805 NB Ramps / Olympic Parkway	46.9	D	51.9	D	3.2% / 3.3%	No
8. Oleander Avenue / Olympic Parkway	51.0	D	50.2	D	3.8% / 3.8%	No
9. Brandywine Avenue / Olympic Parkway	53.9	D	48.4	D	3.7% / 4.2%	No
10. Santa Victoria Road / Olympic Parkway	2.0	A	2.2	A	4.8% / 5.5%	No
11. Heritage Road / Olympic Parkway	48.9	D	51.9	D	4.5% / 5.1%	No
12. Santa Venetia Street / Olympic Parkway	16.5	B	2.9	A	2.4% / 3.4%	No
13. La Media Road / Olympic Parkway	47.1	D	33.2	C	3.3% / 3.9%	No
14. East Palomar Street / Olympic Parkway	28.8	C	24.6	C	0.4% / 0.4%	No
15. SR-125 SB Ramps / Olympic Parkway	4.9	A	7.1	A	0.3% / 0.3%	No
16. SR-125 NB Ramps / Olympic Parkway	4.0	A	6.7	A	0.2% / 0.1%	No
17. Eastlake Parkway / Olympic Parkway	33.1	C	30.8	C	0.3% / 0.3%	No
18. Heritage Road / Santa Victoria Road	31.5	C	39.8	D	8.9% / 9.9%	No
19. La Media Road / Santa Venetia Street	47.7	D	37.6	D	4.1% / 5.2%	No

TABLE 7.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
20. La Media Road / Birch Road	44.8	D	54.6	D	9.0% / 8.3%	No
21. Magdalena Avenue / Birch Road	36.0	D	43.8	D	4.6% / 5.3%	No
22. SR-125 SB Ramps / Birch Road	3.5	A	12.8	B	5.2% / 5.3%	No
23. SR-125 NB Ramps / Birch Road	6.8	A	9.0	A	4.8% / 5.1%	No
24. Eastlake Parkway / Birch Road	33.8	C	36.9	D	1.1% / 1.2%	No
25. Heritage Road / Santa Liza Avenue	9.6	A	4.6	A	4.6% / 5.6%	No
26. Heritage Road / Main Street	28.3	C	28.2	C	3.6% / 3.9%	No
27. La Media Road (SB) / Main Street (WB) (all-way stop controlled)	10.4	B	26.0	D	3.1% / 0.6%	No
28. La Media Road (NB) / Main Street (WB) (all-way stop controlled)	28.0	D	24.1	C	0.9% / 2.4%	No
29. La Media Road (SB) / Main Street (EB) (all-way stop controlled)	13.8	B	31.7	D	4.0% / 0.9%	No
30. La Media Road (NB) / Main Street (EB) (all-way stop controlled)	13.7	B	21.9	C	2.1% / 0.6%	No
31. Magdalena Avenue / Main Street (all-way stop controlled)	16.7	C	18.5	C	3.2% / 3.1%	No
32. SR-125 SB Ramps / Main Street	Does Not Exist					
33. SR-125 NB Ramps / Main Street	Does Not Exist					

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.

TABLE 7.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Telegraph Canyon Road	Medical Center Drive	Heritage Road/ Paseo Ranchero	6-Ln w/RM	55,700	50,000	D	393	0.71%	Yes	No
Telegraph Canyon Road	Heritage Road/ Paseo Ranchero	La Media Road/ Otay Lakes Road	6-Ln w/RM	49,400	50,000	C	131	0.27%	-	No
Otay Lakes Road	H Street	Telegraph Canyon Road	6-Ln w/RM**	30,500	50,000	A	524	1.72%	-	No
Otay Lakes Road	La Media Road	Rutgers Avenue	6-Ln w/RM	42,500	50,000	B	786	1.85%	-	No
East Palomar Street	Medical Center Drive	Heritage Road	4-Ln w/RM	22,900	30,000	B	786	3.43%	-	No
East Palomar Street	Heritage Road	La Media Road	4-Ln w/RM	23,100	30,000	B	393	1.70%	-	No
East Palomar Street	La Media Road	Olympic Parkway	4-Ln w/RM	20,600	30,000	A	131	0.64%	-	No
Orange Avenue	Hilltop Drive	Melrose Avenue	4-Ln w/RM	27,100	30,000	C	262	0.97%	-	No
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-Ln w/RM	31,800	30,000	D	262	0.82%	No	Yes (Cumulative)

TABLE 7.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-Ln	41,000	50,000	B	786	1.92%	-	No
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-Ln w/RM	42,700	50,000	B	1,703	3.99%	-	No
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-Ln w/RM	35,900	50,000	A	1,834	5.11%	-	No
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-Ln w/RM	24,500	50,000	A	2,228	9.09%	-	No
Olympic Parkway	Santa Victoria Road	Heritage Road	6-Ln w/RM	20,900	50,000	A	2,228	10.66%	-	No
Olympic Parkway	Heritage Road	Santa Venetia Street	6-Ln w/RM	46,300	50,000	C	131	0.28%	-	No
Olympic Parkway	Santa Venetia Street	La Media Road	6-Ln w/RM	37,900	50,000	B	131	0.35%	-	No
Olympic Parkway	La Media Road	East Palomar Street	6-Ln w/RM	27,700	50,000	A	524	1.89%	-	No
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-Ln w/RM	48,400	50,000	C	262	0.54%	-	No

TABLE 7.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-Ln w/RM	50,600	70,000	A	262	0.52%	-	No
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-Ln w/RM	53,200	70,000	B	262	0.49%	-	No
Birch Road	La Media Road	Magdalena Avenue	6-Ln w/RM	26,700	40,000	A	2,464	9.22%	-	No
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-Ln w/RM	28,500	40,000	A	2,096	7.36%	-	No
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-Ln w/RM	30,000	50,000	A	1,965	6.55%	-	No
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-Ln w/RM	32,300	50,000	A	1,834	5.68%	-	No
Main Street	Brandywine Avenue	Heritage Road	6-Ln w/RM	34,600	50,000	A	1,441	4.17%	-	No
Main Street	Heritage Road	La Media Road	Does Not Exist							
Main Street	La Media Road	SR-125 SB Ramps	Does Not Exist							
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	Does Not Exist							
Main Street	SR-125 NB Ramps	Eastlake Parkway	Does Not Exist							
Otay Valley Road	Main Street	SR-125 SB Ramps	Does Not Exist							

TABLE 7.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Paseo Ranchero	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	16,200	22,000	A	917	5.66%	-	No
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	23,900	50,000	A	1,441	6.03%	-	No
Heritage Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	45,100	50,000	C	2,621	5.81%	-	No
Heritage Road	Olympic Parkway	Santa Victoria Road	6-Ln w/RM	29,455	50,000	A	4,455	47.11%	-	No
Heritage Road	Santa Victoria Road	Santa Liza Avenue	6-Ln w/RM	38,100	50,000	B	2,621	6.88%	-	No
Heritage Road	Santa Liza Avenue	Main Street	6-Ln w/RM	43,900	50,000	C	2,359	5.37%	-	No
Heritage Road	Main Street	Avenida De Las Vistas	6-Ln w/RM**	28,800	50,000	A	786	2.73%	-	No
La Media Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	26,800	50,000	A	1,179	4.40%	-	No
La Media Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	20,000	50,000	A	1,310	6.55%	-	No
La Media Road	Olympic Parkway	Santa Venetia Street	6-Ln w/RM	32,400	50,000	A	1,834	5.66%	-	No
La Media Road	Santa Venetia Street	Birch Road	6-Ln w/RM	29,800	50,000	A	1,965	6.60%	-	No

TABLE 7.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
La Media Road	Birch Road	Santa Luna Street	6-Ln w/RM	7,800	50,000	A	131	1.68%	-	No
La Media Road	Santa Luna Street	Main Street	6-Ln w/RM	17,400	50,000	A	550	3.16%	-	No
Magdalena Avenue	Birch Road	Wolf Canyon Loop	4-Ln w/RM	11,600	22,000	A	364	3.13%	-	No
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	2-Ln w/RM	8,700	12,000	A	210	2.42%	-	No
Magdalena Avenue	Santa Luna Street	Main Street	4-Ln w/RM	13,400	22,000	A	105	0.78%	-	No
Eastlake Parkway	Olympic Parkway	Birch Road	6-Ln w/RM	25,100	40,000	A	262	1.04%	-	No
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-Ln w/RM	16,600	40,000	A	131	0.79%	-	No

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.
**Facility improvement is assumed to be implemented by others, including City's CIP.

As shown in Table 7.2, the following two (2) roadway segments would operate at unacceptable LOS D, E, or F in the City of Chula Vista under Year 2020 conditions:

- Telegraph Canyon Road, between Medical Center Drive and Heritage Road/Paseo Ranchero (LOS D) – the proposed 2020 project traffic would comprise approximately 0.7% (less than 5%) of the total segment volume and would not add more than 800 ADT. In addition, the intersection (Paseo Ranchero/Heritage Road / Telegraph Canyon Road) along this segment would operate at LOS D/D during the peak hours. Therefore, the project traffic would not result in a significant impact at this location.
- Orange Avenue, between Melrose Avenue and I-805 SB Ramps (LOS D) – the proposed 2020 project traffic would comprise approximately 0.8% (less than 5%) of the total segment volume and would add 262 ADT (less than 800 ADT). However, one of the intersections (I-805 SB Ramps / Olympic Parkway) along this segment would operate at substandard LOS D/F during the AM/PM peak hours, respectively. Therefore, the project traffic would result in a significant cumulative impact at this location.

Freeway/State Highway Segment Analysis

Table 7.3 displays freeway level of service analysis results for I-805 and SR-125 under the Year 2020 conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodologies presented in Chapter 2.0.

TABLE 7.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Home Street to SR-94	278,600	6.9%	19,223	0.51	4+1ML	0.97	4.2%	1,937	0.807	D	277,500	C	0.40%	No
I-805	SR-94 to Market Street	273,900	8.0%	21,912	0.50	4+12ML	0.97	4.2%	2,179	0.908	D	272,700	D	0.40%	No
I-805	Market Street to Imperial Avenue	347,400	8.0%	27,792	0.50	5+1ML	0.97	4.2%	2,516	1.048	F	346,000	E	0.40%	Yes (Cumulative)
I-805	Imperial Avenue to E Division Street	345,700	8.0%	27,656	0.50	5+1ML	0.97	4.2%	2,295	0.956	E	344,300	D	0.40%	Yes (Cumulative)
I-805	E Division Street to Plaza Boulevard	329,900	7.2%	23,753	0.51	5+1ML	0.95	3.8%	2,038	0.849	D	328,500	C	0.40%	No
I-805	Plaza Boulevard to SR-54	319,500	8.1%	25,880	0.52	5+1ML	0.96	2.2%	2,212	0.922	D	317,400	D	0.70%	No
I-805	SR-54 to Bonita Road	295,300	7.2%	21,262	0.52	4+1Aux+ 1ML	0.96	1.7%	2,122	0.884	D	292,800	C	0.80%	No
I-805	Bonita Road to East H Street	345,200	7.8%	26,926	0.50	5+1ML	0.95	1.7%	1,921	0.800	D	342,700	C	0.70%	No
I-805	East H Street to Telegraph Canyon Road	280,000	7.8%	21,840	0.50	5+1ML	0.95	1.9%	1,902	0.793	C	277,500	C	0.90%	No
I-805	Telegraph Canyon Road to East Palomar Street	249,300	7.1%	17,700	0.51	4+1Aux+ 1ML	0.92	1.7%	1,655	0.690	C	247,000	C	0.90%	No
I-805	East Palomar Street to Olympic Parkway	223,700	7.1%	15,883	0.51	4+1Aux	0.92	1.7%	1,820	0.758	C	222,100	C	0.70%	No

TABLE 7.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2020 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Olympic Parkway to Main Street	218,300	6.9%	15,063	0.51	4+1Aux	0.93	5.4%	1,734	0.723	C	218,100	C	0.10%	No
I-805	Main Street to Palm Avenue	216,900	7.1%	15,400	0.58	4+1Aux	0.95	10.3%	2,037	0.849	D	215,800	C	0.50%	No
I-805	Palm Avenue to SR-905	193,800	7.1%	13,760	0.58	4+1Aux	0.95	10.3%	1,804	0.752	C	193,100	C	0.40%	No
SR-125	Telegraph Canyon Road to Olympic Parkway	22,700	7.0%	1,589	0.60	2M	0.92	2.0%	527	0.220	A	22,300	A	1.8%	No
SR-125	Olympic Parkway to Birch Road	18,600	7.0%	1,302	0.60	2M	0.92	2.0%	428	0.178	A	18,600	A	0.0%	No
SR-125	Birch Road to Main Street	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Main Street to Otay Valley Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Otay Valley Road to Lone Star Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Lone Star Road to Otay Mesa Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Otay Mesa Road to SR-905	10,800	7.0%	756	0.60	2M	0.92	2.0%	253	0.105	A	10,400	A	3.7%	No

Source: Chen Ryan Associates; February 2014

Notes:
M = Mainline.
Aux = Auxiliary Lane.
ML = Managed Lane.

As shown in the table, all study freeway/state highway segments along I-805 and SR-125 would operate at acceptable LOS D or better under Year 2020 conditions, with the following two (2) exceptions:

- I-805, from Market Street to Imperial Avenue (LOS F) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Imperial Avenue to E Division Street (LOS E) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized ramp intersections along I-805 and SR-125 within the study area were analyzed under Year 2020 conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 7.4** and analysis worksheets for the Year 2020 conditions are provided in **Appendix N**.

As shown in the table, for information purposes all of the I-805 ramp intersections would operate "At Capacity" or "Under Capacity", with one exception:

- I-805 NB Ramps / Olympic Parkway – "Over Capacity" during the AM peak hours.

All of the SR-125 ramp intersections within the study area would continue to operate at "Under Capacity" during both the AM and PM peak hours under Year 2020 conditions.

Ramp Metering Analysis

Table 7.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramps at Olympic Parkway and at Main Street under the Year 2020 conditions. Based on observed existing conditions, it is expected that approximately 80% of the total arrival traffic (demand) would utilize the two non-HOV lanes.

As shown in the table, the peak hour demand at the I-805 northbound on-ramp at Olympic Parkway would be less than the capacity that the ramp meter provides. Therefore, the proposed project would not result in a significant impact at the on-ramp I-806 northbound on-ramp at Olympic Parkway.

TABLE 7.4
RAMP INTERSECTION CAPACITY ANALYSIS
YEAR 2020 CONDITIONS

Ramp Intersection	Peak Hour	With Project		Without Project	
		ILV / Hour	Description	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,455	*1200-1500: (At Capacity)*	1,440	*1200-1500: (At Capacity)*
	PM	1,899	*>1500: (Over Capacity)*	1,880	*>1500: (Over Capacity)*
I-805 NB Ramps / Olympic Parkway	AM	1,432	*1200-1500: (At Capacity)*	1,362	*1200-1500: (At Capacity)*
	PM	1,516	*>1500: (Over Capacity)*	1,455	*1200-1500: (At Capacity)*
SR-125 SB Ramps / Olympic Parkway	AM	702	*<1200: (Under Capacity)*	690	*<1200: (Under Capacity)*
	PM	625	*<1200: (Under Capacity)*	607	*<1200: (Under Capacity)*
SR-125 NB Ramps / Olympic Parkway	AM	629	*<1200: (Under Capacity)*	610	*<1200: (Under Capacity)*
	PM	712	*<1200: (Under Capacity)*	657	*<1200: (Under Capacity)*
SR-125 SB Ramps / Birch Road	AM	516	*<1200: (Under Capacity)*	513	*<1200: (Under Capacity)*
	PM	603	*<1200: (Under Capacity)*	600	*<1200: (Under Capacity)*
SR-125 NB Ramps / Birch Road	AM	433	*<1200: (Under Capacity)*	433	*<1200: (Under Capacity)*
	PM	743	*<1200: (Under Capacity)*	743	*<1200: (Under Capacity)*
SR-125 SB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				
SR-125 NB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				

Source: Chen Ryan Associates; August 2013

TABLE 7.5
RAMP METERING ANALYSIS
YEAR 2020 CONDITIONS

Location	Peak Hour	With Project					Without Project				Significant Impact?
		Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	
I-805 NB On-Ramp @ Olympic Parkway	AM	539	887	0	0	0	512	0	0	0	No

Source: Chen Ryan Associates; August 2013

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

Recommended Mitigation

This section identifies recommended mitigation measures for intersection and roadway facilities that would be significantly impacted by project-related traffic under Year 2020 conditions.

Intersections

The proposed project would have cumulatively significant impacts at one (1) of the study area intersections in the City of Chula Vista. Unless otherwise noted, the following intersection improvements would mitigate the identified traffic impacts to less than significant:

Direct Impact Mitigation

None.

Cumulative Impact Mitigation

- *I-805 SB Ramps / Olympic Parkway* (CV) – Prior to issuance of the final map that contains the 753rd equivalent dwelling unit (EDU) of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share toward the construction of an additional left-turn lane at the I-805 southbound off-ramp, as well as a 3rd through lane along the Olympic Parkway eastbound approach.

  However, as previously noted, there are right-of-way constraints that would make such widening infeasible and, in addition, there is no plan or program in place into which the project applicant could pay its fair-share towards such improvement. Therefore, mitigation is infeasible and the impact will remain cumulatively significant and unavoidable at this location.

Roadway Segments

One (1) roadway segments would be cumulatively impacted by the proposed project traffic in the City of Chula Vista under Year 2020 conditions.

Direct Impact Mitigation

None

Cumulative Impact Mitigation

If implemented, the following mitigation would reduce the identified significant cumulative impacts to less than significant:

- *Orange Avenue, between Melrose Avenue and I-805 SB Ramps* (CV) – Prior to issuance of the final map that contains the 753rd equivalent dwelling unit (EDU) of the Village 2 Comprehensive SPA the project applicant or its designee shall pay its fair-share towards

the cost of widening Orange Avenue between Melrose Avenue and the I-805 SB Ramps from 4 lanes to 6 lanes (Major Road).

The recommended improvements would require widening Orange Avenue/Olympic Parkway; however, there are right-of-way constraints that would make such improvements infeasible. In addition, there is no plan or program in place into which the project applicant could pay its fair-share towards the cost of such improvement. Therefore, the impact will remain cumulatively significant and unavoidable at this location.

Freeways/State Highways

The following two (2) freeway/state highway segments would be cumulatively impacted by the proposed project in the Year 2020:

- I-805, from Market Street to Imperial Avenue; and
- I-805, from Imperial Avenue to E Division Street

The second phase of the I-805 South Project would further expand transportation choices by building out the HOV lanes into Express Lanes for a total of four lanes, two in each direction. Phase 2 also includes the addition of in-line transit stations and freeway-to-freeway direct connectors. However, on December 16th, 2011, SANDAG Board of Directors approved the purchase of SR-125 and the Addendum to SANDAG's 2030 RTP EIR. The Addendum consists of a swap of the two planned HOV lanes on I-805 between SR-54 and SR-905 (Phase 2 of the I-805 South Project discussed above) for the purchase costs of SR-125, which requires an amendment to the TransNet Extension Ordinance. It also concluded that while the reduction in tolls would result in a shift of traffic from I-805 to SR-125, freeway operations on both facilities would remain acceptable. The proposed Village 2 project was modeled with Phase 2, however in order to remain consistent with the 2030 RTP Addendum, the TIA is analyzed with one HOV lane in each direction (Phase 1) along I-805. At this time, neither Caltrans nor SANDAG has plans to construct additional lanes on the impacted facilities, nor is there a plan or program in place into which the project applicant could pay its fair-share towards the cost of such improvements. Therefore, mitigation is infeasible and the impacts would remain significant and unavoidable.

Ramp Metering

The I-805 northbound on-ramp at Olympic Parkway would not be significantly impacted, and therefore no mitigation measures would be required under Year 2020 conditions.

Circulation System Assumptions

The Year 2020 scenario assumes the following roadway improvements:

a) Heritage Road widened from south of Main Street to the City limit as a 6-lane Prime Arterial with raised median; and

b) Otay Lakes Road widened from H Street to Telegraph Canyon Road as a 6-lane Prime Arterial with raised median.

c) Construction of La Media Road, between Santa Luna Street and Main Street, as well as a portion of Main Street that provides access to Village 8 West, Village 8 East, and Village 9.

If the project equivalent dwelling unit limit for study year 2020 (1,311 EDU) is exceeded prior to these roadway segments being constructed and open to traffic, then one of the following steps shall be taken:

i. Development within the Village Two Comprehensive SPA project shall stop until those assumed future roadways are constructed by others; or

ii. City and the applicant shall meet to determine the need for the incomplete roadway segments. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or

iii. Applicant shall construct the missing roadway links and receive a transportation development impact fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the city in accordance with the city of Chula Vista Growth Management Ordinance.

v. All to the satisfaction of the City Engineer.

8.0 Year 2025 Traffic Conditions

This section provides an analysis of Year 2025 traffic conditions with the proposed project. Intersection and roadway segment analyses in this section focus on only facilities within the City of Chula Vista; facilities within the City of San Diego, along with Chula Vista facilities, are analyzed in the buildout Year 2030 scenarios.

8.1 Year 2025 Roadway Network and Traffic Volumes

The Year 2025 roadway network is similar to the Year 2020 network with the following exceptions:

<u>To be constructed by the Project</u>

None

<u>To be constructed by Others</u>

None

<u>Mitigation carried forward from 2020</u>

None

The Year 2025 intersection and roadway geometrics are displayed in **Figures 8-1A** and **8-1B**, respectively.

Figures 8-2A and **8-2B** show peak hour intersection and average daily roadway volumes for the study intersections and roadway segments, respectively, under Year 2025 with project conditions. Traffic volumes for the Year 2025 scenario were developed utilizing the SANDAG Series 11 "Southbay 2, Village 2" Year 2025 model .

8.2 Year 2025 Traffic Conditions

Level of service analyses for Year 2025 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway, and freeway/state highway level of service results are discussed below.

Intersection Analysis

Table 8.1 displays intersection level of service and average vehicle delay results for the study area intersections under both the Year 2025 with and without project conditions. Level of service calculation worksheets for the Year 2025 conditions are provided in **Appendix O.**

TABLE 8.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	52.6	D	51.3	D	1.4% / 1.7%	No
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	43.1	D	50.7	D	1.6% / 1.7%	No
3. Heritage Road / East Palomar Street	48.6	D	31.5	C	4.0% / 4.9%	No
4. La Media Road / East Palomar Street	47.8	D	52.5	D	2.8% / 2.8%	No
5. Melrose Avenue / Orange Avenue	52.9	D	53.2	D	1.5% / 1.4%	No
6. I-805 SB Ramps / Olympic Parkway	51.2	D	112.2	F	2.3% / 2.8%	Yes (Cumulative)
7. I-805 NB Ramps / Olympic Parkway	47.2	D	52.1	D	3.6% / 3.9%	No
8. Oleander Avenue / Olympic Parkway	51.9	D	50.5	D	4.0% / 4.3%	No
9. Brandywine Avenue / Olympic Parkway	53.5	D	54.3	D	4.0% / 4.5%	No
10. Santa Victoria Road / Olympic Parkway	3.4	A	11.9	B	4.1% / 5.3%	No
11. Heritage Road / Olympic Parkway	61.6	E	66.6	E	5.3% / 5.8%	Yes (Direct)
12. Santa Venetia Street / Olympic Parkway	17.0	B	2.9	A	2.6% / 4.3%	No
13. La Media Road / Olympic Parkway	63.8	E	51.9	D	3.5% / 4.6%	Yes (Cumulative)
14. East Palomar Street / Olympic Parkway	29.0	C	28.2	C	0.6% / 0.7%	No
15. SR-125 SB Ramps / Olympic Parkway	5.2	A	7.1	A	0.3% / 0.3%	No
16. SR-125 NB Ramps / Olympic Parkway	4.8	A	7.3	A	0.2% / 0.1%	No
17. Eastlake Parkway / Olympic Parkway	33.3	C	32.3	C	0.4% / 0.4%	No
18. Heritage Road / Santa Victoria Road	31.9	C	52.7	D	8.2% / 9.6%	No

TABLE 8.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Project % of Entering Volume (> 5%)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS		
19. La Media Road / Santa Venetia Street	48.4	D	50.9	D	5.0% / 6.5%	No
20. La Media Road / Birch Road	48.7	D	53.5	D	9.2% / 10.7%	No
21. Magdalena Avenue / Birch Road	53.0	D	48.6	D	5.3% / 6.9%	No
22. SR-125 SB Ramps / Birch Road	3.8	A	5.8	A	5.7% / 7.7%	No
23. SR-125 NB Ramps / Birch Road	9.5	A	9.4	A	5.6% / 7.6%	No
24. Eastlake Parkway / Birch Road	42.1	D	48.0	D	1.4% / 1.7%	No
25. Heritage Road / Santa Liza Avenue	10.2	B	5.0	A	3.0% / 3.6%	No
26. Heritage Road / Main Street	31.5	C	30.9	C	2.2% / 2.6%	No
27. La Media Road (SB) / Main Street (WB) (all-way stop controlled)	35.9	E	45.5	E	3.0% / 1.3%	Yes (Cumulative)
28. La Media Road (NB) / Main Street (WB) (all-way stop controlled)	46.1	E	41.7	E	0.7% / 3.1%	Yes (Cumulative)
29. La Media Road (SB) / Main Street (EB) (all-way stop controlled)	43.8	E	43.6	E	3.8% / 1.3%	Yes (Cumulative)
30. La Media Road (NB) / Main Street (EB) (all-way stop controlled)	28.0	D	38.1	E	2.7% / 1.5%	Yes (Cumulative)
31. Magdalena Avenue / Main Street (all-way stop controlled)	47.9	E	46.3	E	3.5% / 2.7%	Yes (Cumulative)
32. SR-125 SB Ramps / Main Street	Does Not Exist					
33. SR-125 NB Ramps / Main Street	Does Not Exist					

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.

As shown in the table, all of the study area intersections would operate at acceptable LOS D or better under Year 2025 conditions, with the exceptions of the following eight (8) intersections within the City of Chula Vista:

- I-805 SB Ramps / Olympic Parkway – LOS F during the PM peak hour. The 2025 project traffic would comprise approximately 2.3% and 2.8% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5% but the resulting LOS is F, the project would result in a significant cumulative impact at this intersection.
- Heritage Road / Olympic Parkway – LOS E during both the AM and PM peak hours. The 2025 project traffic would comprise approximately 5.3% and 5.8% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is more than 5%, the project would result in a direct impact at this intersection.
- La Media Road / Olympic Parkway – LOS E during the AM peak hour. The 2025 project traffic would comprise approximately 3.5% and 4.6% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.
- La Media Road (SB) / Main Street (WB) (all-way stop controlled) – LOS E during both the AM and PM peak hours. The 2025 project traffic would comprise approximately 3.0% and 1.3% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.
- La Media Road (NB) / Main Street (WB) (all-way stop controlled) – LOS E during both the AM and PM peak hours. The 2025 project traffic would comprise approximately 0.7% and 3.1% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.
- La Media Road (SB) / Main Street (EB) (all-way stop controlled) – LOS E during both the AM and PM peak hours. The 2025 project traffic would comprise approximately 3.8% and 1.3% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.
- La Media Road (NB) / Main Street (EB) (all-way stop controlled) – LOS E during the PM peak hour. The 2025 project traffic would comprise approximately 2.7% and 1.5% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.
- Magdalena Avenue / Main Street (one-way stop controlled) – LOS E during both the AM and PM peak hours. The 2025 project traffic would comprise approximately 3.5% and 2.7% of the total intersection entering volume in the AM and PM peak hours,

respectively. Since the project contribution is less than 5%, the project would result in a significant cumulative impact at this intersection.

Roadway Segment Analysis

Table 8.2 displays the level of service analysis results for the study area roadway segments within the City of Chula Vista under the Year 2025 conditions.

As shown in the table, the following seven (7) roadway segments would operate at unacceptable LOS D, E, or F under Year 2025 conditions:

- Telegraph Canyon Road, between Medical Center Drive and Heritage Road/Paseo Ranchero (LOS D) – the proposed 2025 project traffic would comprise approximately 0.7% (less than 5%) of the total segment volume and would add 393 ADT (less than 800 ADT). Additionally, the intersection of Paseo Ranchero/Heritage Road / Telegraph Canyon Road would operate at acceptable LOS D/D during the AM/PM peak hours, respectively. Therefore, the project traffic would not result in a significant impact at this location.
- Telegraph Canyon Road, between Heritage Road/Paseo Ranchero and La Media Road/Otay Lakes Road (LOS D) – the proposed 2025 project traffic would comprise approximately 0.3 % (less than 5%) of the total segment volume and would add 178 ADT (less than 800 ADT). Additionally, the intersection of Paseo Ranchero/Heritage Road / Telegraph Canyon Road would operate at acceptable LOS D/D during the AM/PM peak hours, respectively. Therefore, the project traffic would not result in a significant impact at this location.
- Orange Avenue, between Melrose Avenue and I-805 SB Ramps (LOS D) – the proposed 2020 project traffic would comprise approximately 1.1% (less than 5%) of the total segment volume and would add 356 ADT (less than 800 ADT). However, one of the intersections (I-805 SB Ramps / Olympic Parkway) along this segment would operate at substandard LOS D/F during the AM/PM peak hours, respectively. Therefore, the project traffic would result in a significant cumulative impact at this location.
- Olympic Parkway, between Heritage Road and Santa Venetia Street (LOS D) – the proposed 2025 project traffic would comprise approximately 0.34% (less than 5%) of the total segment volume and would add 178 ADT (less than 800 ADT). However, one of the intersections (Heritage Road / Olympic Parkway) along this segment would operate at substandard LOS E/E during the AM/PM peak hours, respectively. Therefore, the project traffic would result in a significant cumulative impact at this location.
- Olympic Parkway, between East Palomar Street and SR-125 SB Ramps (LOS D) – the proposed 2025 project traffic would comprise approximately 1.0% (less than 5%) of the total segment volume and would add 534 ADT (more than 800 ADT). Additionally, the intersections (East Palomar Street / Olympic Parkway and SR-125 SB Ramps / Olympic Parkway) along this segment would operate at acceptable LOS C/C and LOS A/A during

the peak hours, respectively. Therefore, the project traffic would not result in a significant impact at this location.

- Birch Road, between Magdalena Avenue and SR-125 SB Ramps (LOS D) – the proposed 2025 project traffic would comprise approximately 7.5% (more than 5%) of the total segment volume and would add 3,026 ADT (more than 800 ADT). However, the intersections (Magdalena Avenue / Birch Road and SR-125 SB Ramps / Birch Road) along this segment would operate at acceptable LOS D/D and LOS A/A during the peak hours, respectively. Therefore, the project traffic would not result in a significant impact at this location.
- Heritage Road, between East Palomar Street and Olympic Parkway (LOS D) – the proposed 2025 project traffic would comprise approximately 6.9% (more than 5%) of the total segment volume and would add 3,560 ADT (more than 800 ADT). In addition, one of the intersections (Heritage Road / Olympic Parkway) along this segment would operate at LOS E during both peak hours. Therefore, the project traffic would result in a direct impact at this location.

Freeway/State Highway Segment Analysis

Table 8.3 displays freeway level of service analysis results for I-805 and SR-125 under Year 2025 conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodologies presented in Chapter 2.0.

TABLE 8.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Telegraph Canyon Road	Medical Center Drive	Heritage Road/ Paseo Ranchero	6-Ln w/RM	55,900	50,000	D	534	0.96%	Yes	No
Telegraph Canyon Road	Heritage Road/ Paseo Ranchero	La Media Road/ Otay Lakes Road	6-Ln w/RM	52,500	50,000	D	178	0.34%	Yes	No
Otay Lakes Road	H Street	Telegraph Canyon Road	6-Ln w/RM**	32,600	50,000	A	534	1.64%	-	No
Otay Lakes Road	La Media Road	Rutgers Avenue	6-Ln w/RM	44,700	50,000	C	890	1.99%	-	No
East Palomar Street	Medical Center Drive	Heritage Road	4-Ln w/RM	25,600	30,000	B	1,068	4.17%	-	No
East Palomar Street	Heritage Road	La Media Road	4-Ln w/RM	23,600	30,000	B	356	1.51%	-	No
East Palomar Street	La Media Road	Olympic Parkway	4-Ln w/RM	22,300	30,000	A	178	0.80%	-	No
Orange Avenue	Hilltop Drive	Melrose Avenue	4-Ln w/RM	27,900	30,000	C	356	1.28%	-	No
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-Ln w/RM	32,500	30,000	D	356	1.10%	No	Yes (Cumulative)
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-Ln	43,100	50,000	B	1,246	2.89%	-	No
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-Ln w/RM	47,200	50,000	C	2,136	4.53%	-	No
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-Ln w/RM	40,900	50,000	B	2,314	5.66%	-	No

TABLE 8.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-Ln w/RM	32,600	50,000	A	3,026	9.28%	-	No
Olympic Parkway	Santa Victoria Road	Heritage Road	6-Ln w/RM	32,100	50,000	A	3,026	12.25%	-	No
Olympic Parkway	Heritage Road	Santa Venetia Street	6-Ln w/RM	52,000	50,000	D	178	0.34%	No	Yes (Cumulative)
Olympic Parkway	Santa Venetia Street	La Media Road	6-Ln w/RM	41,900	50,000	B	178	0.42%	-	No
Olympic Parkway	La Media Road	East Palomar Street	6-Ln w/RM	32,100	50,000	A	712	2.22%	-	No
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-Ln w/RM	52,800	50,000	D	534	1.01%	Yes	No
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-Ln w/RM	55,100	70,000	B	356	0.65%	-	No
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-Ln w/RM	58,300	70,000	B	356	0.61%	-	No
Birch Road	La Media Road	Magdalena Avenue	6-Ln w/RM	33,800	40,000	B	3,382	10.01%	-	No
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-Ln w/RM	40,400	40,000	D	3,026	7.49%	Yes	No
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-Ln w/RM	43,300	50,000	B	2,670	6.17%	-	No
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-Ln w/RM	45,200	50,000	C	2,492	5.51%	-	No
Main Street	Brandywine Avenue	Heritage Road	6-Ln w/RM	40,600	50,000	B	1,602	3.95%	-	No
Main Street	Heritage Road	La Media Road	Does Not Exist							

TABLE 8.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Main Street	La Media Road	SR-125 SB Ramps	6-Ln w/RM	24,800	50,000	A	890	3.59%	-	No
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	Does Not Exist							
Main Street	SR-125 NB Ramps	Eastlake Parkway	Does Not Exist							
Otay Valley Road	Main Street	SR-125 SB Ramps	Does Not Exist							
Paseo Ranchero	H Street	Telegraph Canyon Road	4-Ln w/SM/RM	19,700	22,000	C	1,246	6.32%	-	No
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	26,200	50,000	A	1,958	7.47%	-	No
Heritage Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	51,400	50,000	D	3,560	6.93%	No	Yes (Direct)
Heritage Road	Olympic Parkway	Santa Victoria Road	6-Ln w/RM	43,100	50,000	B	6,052	16.95%	-	No
Heritage Road	Santa Victoria Road	Santa Liza Avenue	6-Ln w/RM	40,900	50,000	B	3,204	7.83%	-	No
Heritage Road	Santa Liza Avenue	Main Street	6-Ln w/RM	47,700	50,000	C	2,848	5.97%	-	No
Heritage Road	Main Street	Avenida De Las Vistas	6-Ln w/RM**	32,300	50,000	A	1,068	3.31%	-	No
La Media Road	Telegraph Canyon Road	East Palomar Street	6-Ln w/RM	33,200	50,000	A	1,424	4.29%	-	No
La Media Road	East Palomar Street	Olympic Parkway	6-Ln w/RM	26,200	50,000	A	1,602	6.11%	-	No
La Media Road	Olympic Parkway	Santa Venetia Street	6-Ln w/RM	41,800	50,000	B	2,314	5.54%	-	No

TABLE 8.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Cross-Section	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (< 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
La Media Road	Santa Venetia Street	Birch Road	6-Ln w/RM	39,400	50,000	B	1,780	4.52%	-	No
La Media Road	Birch Road	Santa Luna Street	6-Ln w/RM	29,000	50,000	A	1,246	4.30%	-	No
La Media Road	Santa Luna Street	Main Street	4-Ln w/RM	25,500	30,000	B	1,068	4.19%	-	No
Magdalena Avenue	Birch Road	Wolf Canyon Loop	4-Ln w/RM	19,200	22,000	B	356	1.85%	-	No
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	2-Ln w/RM	10,300	12,000	B	178	1.73%	-	No
Magdalena Avenue	Santa Luna Street	Main Street	4-Ln w/RM	21,100	22,000	C	178	0.84%	-	No
Eastlake Parkway	Olympic Parkway	Birch Road	6-Ln w/RM	32,400	40,000	B	356	1.10%	-	No
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-Ln w/RM	29,500	40,000	A	356	1.21%	-	No

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.
**Facility improvement is assumed to be implemented by others, including City's CIP.

TABLE 8.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Home Street to SR-94	278,600	6.9%	19,223	0.51	4+1ML	0.97	4.2%	2,063	0.860	D	277,500	D	0.40%	No
I-805	SR-94 to Market Street	273,900	8.0%	21,912	0.50	4+1ML	0.97	4.2%	2,305	0.960	E	272,700	E	0.40%	Yes (Cumulative)
I-805	Market Street to Imperial Avenue	347,400	8.0%	27,792	0.50	5+1ML	0.97	4.2%	2,663	1.110	F	346,000	F	0.40%	Yes (Cumulative)
I-805	Imperial Avenue to E Division Street	345,700	8.0%	27,656	0.50	5+1ML	0.97	4.2%	2,421	1.009	F	344,300	F	0.40%	Yes (Cumulative)
I-805	E Division Street to Plaza Boulevard	329,900	7.2%	23,753	0.51	5+1ML	0.95	3.8%	2,167	0.903	D	328,500	D	0.40%	No
I-805	Plaza Boulevard to SR-54	319,500	8.1%	25,880	0.52	5+1ML	0.96	2.2%	2,359	0.983	E	317,400	E	0.70%	Yes (Cumulative)
I-805	SR-54 to Bonita Road	295,300	7.2%	21,262	0.52	4+1Aux+1 ML	0.96	1.7%	1,933	0.805	D	292,800	D	0.80%	No
I-805	Bonita Road to East H Street	345,200	7.8%	26,926	0.50	5+1ML	0.95	1.7%	2,378	0.991	E	342,700	E	0.70%	Yes (Cumulative)
I-805	East H Street to Telegraph Canyon Road	280,000	7.8%	21,840	0.50	5+1ML	0.95	1.9%	1,934	0.806	D	277,500	C	0.90%	No
I-805	Telegraph Canyon Road to East Palomar Street	249,300	7.1%	17,700	0.51	4+1Aux+1 ML	0.92	1.7%	1,798	0.749	C	247,000	C	0.90%	No
I-805	East Palomar Street to Olympic Parkway	223,700	7.1%	15,883	0.51	4+1Aux	0.92	1.7%	1,973	0.822	D	222,100	D	0.70%	No

TABLE 8.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2025 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Olympic Parkway to Main Street	218,300	6.9%	15,063	0.51	4+1Aux	0.93	5.4%	1,888	0.787	C	218,100	C	0.10%	No
I-805	Main Street to Palm Avenue	216,900	7.1%	15,400	0.58	4+1Aux	0.95	10.3%	2,192	0.913	D	215,800	D	0.50%	No
I-805	Palm Avenue to SR-905	193,800	7.1%	13,760	0.58	4+1Aux	0.95	10.3%	1,959	0.816	D	193,100	D	0.40%	No
SR-125	Telegraph Canyon Road to Olympic Parkway	22,700	7.0%	1,589	0.60	2M	0.92	2.0%	527	0.220	A	22,300	A	1.8%	No
SR-125	Olympic Parkway to Birch Road	18,600	7.0%	1,302	0.60	2M	0.92	2.0%	428	0.178	A	18,600	A	0.0%	No
SR-125	Main Street to Otay Valley Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Otay Valley Road to Lone Star Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Main Street to Lone Star Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Lone Star Road to Otay Mesa Road	33,400	7.0%	2,338	0.60	2M	0.92	2.0%	768	0.320	A	33,000	A	1.2%	No
SR-125	Otay Mesa Road to SR-905	10,800	7.0%	756	0.60	2M	0.92	2.0%	253	0.105	A	10,400	A	3.7%	No

Source: Chen Ryan Associates; February 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
M = Mainline.
Aux = Auxiliary Lane.
ML = Managed Lane.

As shown in the table, all study freeway/state highway segments along I-805 and SR-125 would operate at acceptable LOS D or better under Year 2025 conditions, with the following five (5) exceptions:

- I-805, from SR-94 to Market Street (LOS E) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Market Street to Imperial Avenue (LOS F) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Imperial Avenue to E Division Street (LOS F) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Plaza Boulevard to SR-54 (LOS E) – The proposed project would comprise 0.7% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Bonita Road to East H Street (LOS E) – The proposed project would comprise 0.7% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, for information purposes, the signalized ramp intersections along I-805 and SR-125 within the study area were analyzed under the Year 2025 conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 8.4** and analysis worksheets for the Year 2025 conditions are provided in **Appendix P**.

As shown in the table, all of the I-805 ramp intersections would operate “At Capacity” or “Under Capacity”, with the following the one (1) exception:

- I-805 SB Ramps / Olympic Parkway – "Over Capacity" during the PM peak hour.

All of the SR-125 ramp intersections within the study area would continue to operate at "Under Capacity" during both the AM and PM peak hours under Year 2025 conditions.

Ramp Metering Analysis

Table 8.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramps at Olympic Parkway under Year 2025 conditions. Based on observed existing conditions, it is expected that approximately 80% of the total arrival traffic (demand) would utilize the two non-HOV lanes.

As shown in the table, the peak hour demand at the I-805 northbound on-ramp at Olympic Parkway would be less than the capacity that the ramp meter provides. Therefore, the proposed project would not result in a significant impact at the I-805 northbound on-ramp at Olympic Parkway.

TABLE 8.4
RAMP INTERSECTION CAPACITY ANALYSIS
YEAR 2025 CONDITIONS

Ramp Intersection	Peak Hour	With Project		Without Project	
		ILV / Hour	Description	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,368	*1200-1500: (At Capacity)*	1,350	*1200-1500: (At Capacity)*
	PM	1,981	*>1500: (Over Capacity)*	1,955	*>1500: (Over Capacity)*
I-805 NB Ramps / Olympic Parkway	AM	1,561	*>1500: (Over Capacity)*	1,480	*1200-1500: (At Capacity)*
	PM	1,582	*>1500: (Over Capacity)*	1,505	*>1500: (Over Capacity)*
SR-125 SB Ramps / Olympic Parkway	AM	951	*<1200: (Under Capacity)*	933	*<1200: (Under Capacity)*
	PM	657	*<1200: (Under Capacity)*	600	*<1200: (Under Capacity)*
SR-125 NB Ramps / Olympic Parkway	AM	813	*<1200: (Under Capacity)*	787	*<1200: (Under Capacity)*
	PM	875	*<1200: (Under Capacity)*	793	*<1200: (Under Capacity)*
SR-125 SB Ramps / Birch Road	AM	584	*<1200: (Under Capacity)*	580	*<1200: (Under Capacity)*
	PM	675	*<1200: (Under Capacity)*	670	*<1200: (Under Capacity)*
SR-125 NB Ramps / Birch Road	AM	657	*<1200: (Under Capacity)*	657	*<1200: (Under Capacity)*
	PM	730	*<1200: (Under Capacity)*	730	*<1200: (Under Capacity)*
SR-125 SB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				
SR-125 NB Ramps / Main Street	AM	Does Not Exist		Does Not Exist	
	PM				

Source: Chen Ryan Associates; August 2013

TABLE 8.5
RAMP METERING ANALYSIS
YEAR 2025 CONDITIONS

Location	Peak Hour	With Project					Without Project				Significant Impact?
		Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	
I-805 NB On-Ramp @ Olympic Parkway	AM	591	887	0	0	0	560	0	0	0	No

Source: Chen Ryan Associates; August 2013

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

Recommended Mitigation

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

Intersections

The proposed project would have significant impacts at eight (8) of the Chula Vista study area intersections, including 1 direct and 7 cumulatively impacted locations. The following intersection improvements would mitigate the identified significant impacts to less than significant:

Direct Impact Mitigation

- *Heritage Road / Olympic Parkway* (CV) – Prior to the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay Transportation Development Impact Fees (TDIF), for the construction of Main Street, between Heritage Road and La Media Road, as a 6-lane Prime Arterial, including the construction of Main Street bridge.

  The construction of this segment of Main Street is included within the City's TDIF program Transportation and the first phase of the construction is included in the City's CIP Program for 2013-2016 (STM357). Based on direction provided by the City, the project applicant shall pay TDIF to mitigate this direct impact.

Cumulative Impact Mitigation

- *I-805 SB Ramps / Olympic Parkway* (CV) – Prior to the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share toward the construction of an additional left-turn lane at the I-805 southbound off-ramp, as well as a 3rd through lane along the Olympic Parkway eastbound approach. However, as previously noted, there are right-of-way constraints that would make such widening infeasible and, in addition, there is no plan or program in place into which the project applicant could pay its fair-share towards such improvement. Therefore, mitigation is infeasible and the impact will remain cumulatively significant and unavoidable at this location.

- *La Media Road / Olympic Parkway* (CV) – Prior to the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall, through the payment of Transportation Development Impact Fees (TDIF), the construction of Main Street, between Heritage Road and La Media Road, as a 6-lane Prime Arterial.

The construction of this segment of Main Street, which is included within the City's TDIF program and will be constructed by the City, would provide a direct east-west route along Main Street and mitigate the identified direct project impact.

- *La Media Road (SB) / Main Street (WB)* (all-way stop controlled) (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share towards the cost of signalizing the intersection of La Media Road (SB) / Main Street (WB). Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this intersection would satisfy both the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in **Appendix Q**.

- *La Media Road (NB) / Main Street (WB)* (all-way stop controlled) (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share towards the cost of signalizing the intersection of La Media Road (NB) / Main Street (WB). Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this intersection would satisfy both the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in Appendix Q.

- *La Media Road (SB) / Main Street (EB)* (all-way stop controlled) (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share towards the cost of signalizing the intersection of La Media Road (SB) / Main Street (EB). Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this intersection would satisfy both the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in Appendix Q.

- *La Media Road (NB) / Main Street (EB)* (all-way stop controlled) (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share towards the cost of signalizing the intersection of La Media Road (NB) / Main Street (EB). Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this intersection would satisfy both the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in Appendix Q.

- *Magdalena Avenue / Main Street* (one-way stop controlled) (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay its fair-share towards the cost of signalizing the intersection of Magdalena Avenue / Main Street. Based upon *California Manual of Uniformed Traffic Control Devices (MUTCD) 2012 Edition Figure 4C-103 (CA),* this

intersection would satisfy both the "Minimum Vehicular Volume" and "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in Appendix Q.

Table 8.6 displays level of service analysis results for the mitigated intersection under Year 2025 conditions. Calculation worksheets for the intersection analysis are provided in **Appendix R**.

TABLE 8.6
MITIGATED INTERSECTION LEVEL OF SERVICE
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
6. I-805 SB Ramps / Olympic Parkway	51.2	D	112.2	F	No Feasible Mitigation			
11. Heritage Road / Olympic Parkway	61.6	E	66.6	E	44.8	D	45.4	D
13. La Media Road / Olympic Parkway	63.8	E	51.9	D	49.5	D	35.6	D
27. La Media Road (SB) / Main Street (WB)	35.9	E	45.5	E	3.8	A	6.9	A
28. La Media Road (NB) / Main Street (WB)	46.1	E	41.7	E	5.0	A	3.7	A
29. La Media Road (SB) / Main Street (EB)	43.8	E	43.6	E	1.2	A	0.5	A
30. La Media Road (NB) / Main Street (EB)	39.8	E	38.1	E	2.5	A	1.9	A
31. Magdalena Avenue / Main Street	47.9	E	46.3	E	18.2	B	12.7	B

Source: Chen Ryan Associates; August 2013

Note: Bold letter indicates unacceptable LOS E or F.

As shown in the table, with the construction of Main Street between Heritage Road and La Media Road, and the signalization of the impacted intersections, all impacted intersections would operate at acceptable LOS D or better during both the AM and PM peak hours under Year 2025 conditions.

Roadway Segments

Three (3) roadway segments in Chula Vista would be significantly impacted by project traffic under Year 2025 conditions, one (1) directly impacted and two (2) cumulatively impacted:

Direct Impact Mitigation

- *Heritage Road, between East Palomar Street and Olympic Parkway* (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay Transportation Development Impact Fees (TDIF) for the construction of Main Street, between Heritage Road and La Media Road, as a 6-lane Prime Arterial, including the construction of Main Street bridge.

  The construction of this segment of Main Street is included within the City's TDIF program Transportation and the first phase of the construction is included in the City's CIP Program for 2013-2016 (STM357). Based on direction provided by the City, the project applicant shall pay TDIF to mitigate this direct impact.

  This connection will provide an important direct east-west linkage and reduce traffic along Heritage Road – Olympic Parkway – La Media Road, thereby reducing the identified significant impact on Olympic Parkway between Heritage Road and Santa Venetia Street to less than significant.

Cumulative Impact Mitigation

If implemented, the following mitigation would reduce the identified significant cumulative impacts to less than significant:

- *Orange Avenue, between Melrose Avenue and I-805 SB Ramps* (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, or issuance of an occupancy permit for the overall 2,463rd EDU, whichever comes first, the project applicant or its designee shall pay its fair share towards the cost of widening Orange Avenue between Melrose Avenue and the I-805 SB Ramps from 4 lanes to 6 lanes (Major Road).

  The recommended improvements would require widening Orange Avenue/Olympic Parkway between Melrose Avenue and the I-805 SB Ramps; however, as previously noted, there are right-of-way constraints that would make such improvements infeasible and, in addition, there is no plan or program in place into which the project applicant could pay its fair-share towards such improvement. Therefore, mitigation is infeasible and the impact will remain cumulatively significant and unavoidable at this location.

- *Olympic Parkway, between Heritage Road and Santa Venetia Street* (CV) – Prior the issuance of the final map that contains the 1,311th EDU of the Village 2 Comprehensive SPA, the project applicant or its designee shall pay Transportation Development Impact Fees (TDIF), for the construction of Main Street, between Heritage Road and La Media Road, as a 6-lane Prime Arterial, including the construction of Main Street bridge.

  The construction of this segment of Main Street is included within the City's TDIF program Transportation and the first phase of the construction is included in the City's

CIP Program for 2013-2016 (STM357). Based on direction provided by the City, the project applicant shall pay TDIF to mitigate this direct impact.

This connection will provide an important direct east-west linkage and reduce traffic along Heritage Road – Olympic Parkway – La Media Road, thereby reducing the identified significant impact on Olympic Parkway between Heritage Road and Santa Venetia Street to less than significant.

Table 8.7 displays level of service analysis results for the mitigated roadway segments under Year 2025 conditions. As shown in the table, with the construction of Main Street between Heritage Road and La Media Road, Olympic Parkway between Heritage Road and Santa Venetia would operate at acceptable LOS B; while Heritage Road between East Palomar Street and Olympic Parkway would continue to operate at substandard LOS D. However, the construction of Main Street, between Heritage Road and La Media Road would improve the intersection operations at Heritage Road / Olympic Parkway to acceptable LOS D during the peak hours, and indirectly improve operations along the connecting roadway segment of Heritage Road, between East Palomar Street and Olympic Parkway. As a result, the project impact to Heritage Road, between East Palomar Street and Olympic Parkway, would no longer be significant.

Also as shown on Table 8.7, Main Street, between Heritage Road and La Media Road (14,300 ADT) would operate at acceptable LOS A as a 6-lane Prime Arterial. *It is important to note that Main Street would operate at acceptable LOS A as a 4-lane Major Arterial in 2025.*

TABLE 8.7
MITIGATED ROADWAY SEGMENT LEVEL OF SERVICE
YEAR 2025 CONDITIONS

Roadway Segment	Before Mitigation			After Mitigation		
	ADT	Cross-Section	LOS	ADT	Cross-Section	LOS
Olympic Parkway, between Heritage Road and Santa Venetia Street	52,000	6-Ln w/RM	D	37,700	No Change	B
Heritage Road, between East Palomar Street and Olympic Parkway	51,400	6-Ln w/RM	D	51,400	No Change	D
Main Street, between Heritage Road and La Media Road *(New)*	Does Not Exist			14,300	6-Ln Prime Arterial	A

Source: Chen Ryan Associates; August 2013

Note: Bold letter indicates unacceptable LOS D, E or F.

Freeways/State Highways

The following five (5) freeway/state highway segments would be cumulatively impacted by the proposed project in the Year 2025:

- I-805, from SR-94 to Market Street;

- I-805, from Market Street to Imperial Avenue;
- I-805, from Imperial Avenue to E Division Street;
- I-805, from Plaza Boulevard to SR-54; and
- I-805, from Bonita Road to East H Street.

The second phase of the I-805 South Project would further expand transportation choices by building out the HOV lanes into Express Lanes for a total of four lanes, two in each direction. Phase 2 also includes the addition of in-line transit stations and freeway-to-freeway direct connectors. However, on December 16th, 2011, SANDAG Board of Directors approved the purchase of SR-125 and the Addendum to SANDAG's 2030 RTP EIR. The Addendum consists of a swap of the two planned HOV lanes on I-805 between SR-54 and SR-905 (Phase 2 of the I-805 South Project discussed above) for the purchase costs of SR-125, which requires an amendment to the TransNet Extension Ordinance. It also concluded that while the reduction in tolls would result in a shift of traffic from I-805 to SR-125, freeway operations on both facilities would remain acceptable. The proposed Village 2 project was modeled with Phase 2, however in order to remain consistent with the 2030 RTP Addendum, the TIA is analyzed with one HOV lane in each direction (Phase 1) along I-805. At this time, neither Caltrans nor SANDAG has plans to construct additional lanes on the impacted facilities, nor is there a plan or program in place into which the project applicant could pay its fair-share towards the cost of such improvements. Therefore, mitigation is infeasible and the impacts would remain significant and unavoidable.

Ramp Metering

The I-805 northbound on-ramp at Olympic Parkway would not be significantly impacted, and therefore no mitigation measures would be required under Year 2025 conditions.

Circulation System Assumptions

No roadway improvement was assumed for the Year 2025 scenario

9.0 Year 2030 Traffic Conditions

This section provides an analysis of Year 2030 traffic conditions both with and without the proposed project.

9.1 Year 2030 Roadway Network and Traffic Volumes

The Year 2030 roadway network is based on buildout of the proposed City of Chula Vista General Plan Circulation Element, as well as the City of San Diego's adopted Community Plan Circulation Element.

Within the City of Chula Vista

When compared to the Year 2025 network, the 2030 network includes the following additional roadways:

<u>To be constructed by the project</u>

None

<u>To be constructed by others</u>

- Main Street is constructed as a 6-Lane Gateway between SR-125 SB ramps and Eastlake Parkway.
- SR-125 / Main Street interchange is included as a full interchange with partial clover leaf.
- Otay Valley Road is constructed as a 4-Lane Major Arterial between Main Street and Village 9 Street "B".
- Otay Valley Road / SR-125 interchange is included as south facing half diamond interchange.

If the assumed roadway improvements are not in place as modeled for the Year 2030 scenario, additional traffic impacts could occur. Therefore, a potentially significant impact could occur if assumed improvements are not developed as prescribed in the traffic impact analysis.

<u>Mitigation carried forward from 2025</u>

- Construction of Main Street, between Heritage Road and La Media Road, as a 6-lane Prime Arterial;
- La Media Road (SB) / Main Street (WB) – signalized;
- La Media Road (NB) / Main Street (WB) – signalized;
- La Media Road (SB) / Main Street (EB) – signalized;

- La Media Road (NB) / Main Street (EB) – signalized; and
- Magdalena Avenue / Main Street – signalized.

Within the City of San Diego

The 2030 network is based on the road improvements included in the City of San Diego's *Otay Mesa Public Facilities Financing Plan (PFFP) FY 2007 for Transportation Projects*. For additional detailed information regarding the Otay Mesa PFFP, see Appendix J.

The Year 2030 intersection geometrics and roadway classifications are displayed in **Figures 9-1A** and **9-1B**, respectively.

Figures 9-2A and **9-2B** show peak hour intersection and average daily roadway volumes for the study intersections and roadway segments, respectively, under Year 2030 with project conditions. Traffic volumes for the Year 2030 scenario were developed utilizing the SANDAG Series 11 "Southbay 2, Village 2" Year 2030 model. For the purpose of balancing the utilization of similar parallel facilities within close proximity, 10,000 ADT (in year 2030) was shifted from Main Street between I-805 and Heritage Road to Olympic Parkway. This manual adjustment was approved by the City and is consistent with all recent studies in the area.

9.2 Year 2030 Traffic Conditions

Level of service analyses for Year 2030 conditions were conducted using the methodologies described in Chapter 2.0. Intersection, roadway, and freeway/state highway level of service results are discussed below.

Intersection Analysis

Table 9.1 displays intersection level of service and average vehicle delay results for the study area intersections under both Year 2030 with and without project conditions. Level of service calculation worksheets for Year 2030 conditions are provided in **Appendix S.**

As shown in the table, all of the study area intersections would operate at acceptable LOS D or better under Year 2030 conditions with the following one (1) exception located in the City of Chula Vista:

<u>City of Chula Vista</u>

- I-805 SB Ramps / Olympic Parkway – LOS F during the PM peak hour. The buildout project traffic would comprise approximately 2.1% and 2.7% of the total intersection entering volume in the AM and PM peak hours, respectively. Since the project contribution is less than 5% but the resulting LOS is F, the project would result in a significant cumulative impact at this intersection.

TABLE 9.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	54.2	D	53.9	D			1.2% / 1.5%		No
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	43.3	D	50.7	D			1.3% / 1.6%		No
3. Heritage Road / East Palomar Street	51.1	D	35.7	D			2.0% / 2.8%		No
4. La Media Road / East Palomar Street	53.6	D	53.5	D			2.0% / 2.8%		No
5. Melrose Avenue / Orange Avenue	51.4	D	53.7	D			1.3% / 1.4%		No
6. I-805 SB Ramps / Olympic Parkway	54.3	D	93.9	F			2.1% / 2.7%		Yes (Cumulative)
7. I-805 NB Ramps / Olympic Parkway	53.2	D	39.1	D			2.8% / 3.5%		No
8. Oleander Avenue / Olympic Parkway	51.6	D	48.2	D			3.0% / 4.2%		No
9. Brandywine Avenue / Olympic Parkway	54.0	D	53.7	D			4.3% / 5.5%		No
10. Santa Victoria Road / Olympic Parkway	3.0	A	13.0	B			4.8% / 6.2%		No
11. Heritage Road / Olympic Parkway	48.6	D	52.9	D			3.5% / 4.6%		No
12. Santa Venetia Street / Olympic Parkway	11.4	B	3.1	A			2.8% / 3.7%		No
13. La Media Road / Olympic Parkway	53.6	D	51.5	D			3.4% / 4.0%		No
14. East Palomar Street / Olympic Parkway	35.5	D	54.0	D			0.6% / 0.6%		No
15. SR-125 SB Ramps / Olympic Parkway	6.6	A	10.7	B			0.3% / 0.3%		No
16. SR-125 NB Ramps / Olympic Parkway	9.5	A	9.5	A			0.2% / 0.1%		No

TABLE 9.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
17. Eastlake Parkway / Olympic Parkway	32.6	C	32.8	C			0.2% / 0.2%		No
18. Heritage Road / Santa Victoria Road	46.7	D	49.3	D			7.2% / 8.9%		No
19. La Media Road / Santa Venetia Street	48.1	D	44.9	D			4.3% / 6.7%		No
20. La Media Road / Birch Road	46.6	D	51.6	D			12.2% / 14.3%		No
21. Magdalena Avenue / Birch Road	47.0	D	41.8	D			7.2% / 9.4%		No
22. SR-125 SB Ramps / Birch Road	12.1	B	6.9	A			8.4% / 9.6%		No
23. SR-125 NB Ramps / Birch Road	9.7	A	11.1	B			7.7% / 8.8%		No
24. Eastlake Parkway / Birch Road	51.2	D	51.5	D			1.6% / 1.7%		No
25. Heritage Road / Santa Liza Avenue	21.0	C	6.0	A			4.4% / 5.1%		No
26. Heritage Road / Main Street	46.2	D	51.8	D			1.9% / 2.2%		No
27. La Media Road (SB) / Main Street (WB)	4.1	A	16.1	B			2.6% / 1.4%		No
28. La Media Road (NB) / Main Street (WB)	4.5	A	7.8	A			0.9% / 2.7%		No
29. La Media Road (SB) / Main Street (EB)	2.6	A	16.3	B			3.0% / 1.1%		No
30. La Media Road (NB) / Main Street (EB)	12.7	B	6.5	A			2.6% / 1.3%		No
31. Magdalena Avenue / Main Street	30.0	C	25.7	C			1.5% / 1.8%		No
32. SR-125 SB Ramps / Main Street	8.6	A	9.8	A			1.4% / 1.8%		No
33. SR-125 NB Ramps / Main Street	9.6	A	13.0	B			0.1% / 0.3%		No

TABLE 9.1
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS

Intersection	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec.) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (> 5%)	Change in Delay (sec.)	Significant Impact?
	Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS					
34. Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD)	22.8	C	22.5	C	14.0 / 21.0	B / C		8.8 / 1.5	No
35. Heritage Road / Otay Mesa Road (SD)	36.1	D	42.7	D	35.6 / 40.9	D / D		0.5 / 1.8	No
36. Cactus Road / Otay Mesa Road (SD)	44.3	D	53.3	D	43.6 / 51.8	D / D		0.7 / 1.5	No

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS E or F.
* For one or two-way stop controlled intersections, the delay shown is the worst delay experienced by any of the approaches.
As per Section 2.8, significant criteria for determining impacts are different for the Cities of Chula Vista and San Diego. Therefore, only applicable and appropriate data is included in this table in the effort of impact evaluation for intersections in the respective jurisdictions.

Roadway Segment Analysis

Table 9.2A displays the level of service analysis results for the study area roadway segments within the City of Chula Vista under Year 2030 conditions; while **Table 9.2B** displays the level of service results for roadway segments within the City of San Diego.

As shown in the tables, all study area roadway segments within the City of San Diego would operate at acceptable LOS D or better. As to the City of Chula Vista, the following eight (8) roadway segments would operate at unacceptable LOS D, E, or F under Year 2030 conditions:

- Telegraph Canyon Road, between Medical Center Drive and Heritage Road/Paseo Rancher (LOS D) – the proposed buildout project traffic would comprise approximately 1.0% (less than 5%) of the total segment volume and would add 534 ADT (less than 800 ADT). In addition, the intersection (Paseo Ranchero/Heritage Road / Telegraph Canyon Road) along this segment would operate at acceptable LOS D/D during the peak hours. Therefore, the project traffic would not result in a significant impact at this location.

- Orange Avenue, between Melrose Avenue and I-805 SB Ramps (LOS E) – the proposed buildout project traffic would comprise approximately 1.5% (less than 5%) of the total segment volume and would add 534 ADT (less than 800 ADT). However, the intersection (I-805 SB Ramps / Olympic Parkway) along this segment would operate at LOS F during the PM peak hour. Therefore, the project traffic would result in a significant cumulative impact at this location.
- Olympic Parkway, between I-805 NB Ramps and Oleander Avenue (LOS E) – the proposed buildout project traffic would comprise approximately 4.4% (less than 5%) of the total segment volume and would add 2,492 ADT (more than 800 ADT). However, the intersections (I-805 NB Ramps / Olympic Parkway and Oleander Avenue / Olympic Parkway) along this segment would both operate at acceptable LOS D/D and LOS D/D during the peak hours respectively. Therefore, the project traffic would not result in a significant impact at this location.
- Main Street, between Brandywine Avenue and Heritage Road (LOS D) – the proposed buildout project traffic would comprise approximately 1.4% (less than 5%) of the total segment volume and would add 712 ADT (less than 800 ADT). Additionally, the intersection of Heritage Road / Main Street would operate at acceptable LOS D/D during the AM/PM peak hours respectively. Therefore, the project traffic would not result in a significant impact at this location.
- Main Street, between La Media Road and SR-125 SB Ramps (LOS D) – the proposed buildout project traffic would comprise approximately 0.7% (less than 5%) of the total segment volume and would add 360 ADT (less than 800 ADT). Additionally, the intersections (Magdalena Avenue / Main Street and SR-125 SB Ramps / Main Street, as well as the 4 intersections located in the couplet) along this segment would all operate at acceptable LOS D or better during the peak hours. Therefore, the project traffic would not result in a significant impact at this location.

TABLE 9.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Classification	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Telegraph Canyon Road	Medical Center Drive	Heritage Road/ Paseo Ranchero	6-ln Prime	55,200	50,000	D	534	0.97%	Yes	No
Telegraph Canyon Road	Heritage Road/ Paseo Ranchero	La Media Road/ Otay Lakes Road	6-ln Prime	48,300	50,000	C	178	0.37%	-	No
Otay Lakes Road	H Street	Telegraph Canyon Road	6-ln Prime	30,500	50,000	A	356	1.17%	-	No
Otay Lakes Road	La Media Road	Rutgers Avenue	6-ln Prime	43,900	50,000	C	890	2.03%	-	No
East Palomar Street	Medical Center Drive	Heritage Road	4-ln Major	22,900	30,000	B	890	3.89%	-	No
East Palomar Street	Heritage Road	La Media Road	4-ln Major	23,000	30,000	B	534	2.32%	-	No
East Palomar Street	La Media Road	Olympic Parkway	4-ln Major	25,700	30,000	B	356	1.39%	-	No
Orange Avenue	Hilltop Drive	Melrose Avenue	4-ln Major	28,600	30,000	C	356	1.24%	-	No
Orange Avenue	Melrose Avenue	I-805 SB Ramps	4-ln Major	36,800	30,000	E	534	1.45%	No	Yes (Cumulative)
Olympic Parkway	I-805 SB Ramps	I-805 NB Ramps	6-ln Prime	47,100	50,000	C	1,602	3.40%	-	No
Olympic Parkway	I-805 NB Ramps	Oleander Avenue	6-ln Prime	56,600	50,000	E	2,492	4.40%	Yes	No
Olympic Parkway	Oleander Avenue	Brandywine Avenue	6-ln Prime	48,800	50,000	C	2,670	5.47%	-	No

TABLE 9.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Classification	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Olympic Parkway	Brandywine Avenue	Santa Victoria Road	6-ln Prime	42,600	50,000	B	3,204	7.52%	-	No
Olympic Parkway	Santa Victoria Road	Heritage Road	6-ln Prime	42,700	50,000	B	3,204	7.50%	-	No
Olympic Parkway	Heritage Road	Santa Venetia Street	6-ln Prime	39,300	50,000	B	178	0.45%	-	No
Olympic Parkway	Santa Venetia Street	La Media Road	6-ln Prime	32,100	50,000	A	178	0.55%	-	No
Olympic Parkway	La Media Road	East Palomar Street	6-ln Prime	26,800	50,000	A	712	2.66%	-	No
Olympic Parkway	East Palomar Street	SR-125 SB Ramps	6-ln Prime	47,000	50,000	C	534	1.14%	-	No
Olympic Parkway	SR-125 SB Ramps	SR-125 NB Ramps	8-ln Expressway	49,100	70,000	A	356	0.73%	-	No
Olympic Parkway	SR-125 NB Ramps	Eastlake Parkway	8-ln Expressway	51,800	70,000	A	178	0.34%	-	No
Birch Road	La Media Road	Magdalena Avenue	6-ln Major	31,700	40,000	B	4,450	14.04%	-	No
Birch Road	Magdalena Avenue	SR-125 SB Ramps	6-ln Major	32,100	40,000	B	3,738	11.64%	-	No
Birch Road	SR-125 SB Ramps	SR-125 NB Ramps	6-ln Prime	32,100	50,000	A	3,204	9.98%	-	No
Birch Road	SR-125 NB Ramps	Eastlake Parkway	6-ln Prime	32,400	50,000	A	3,204	9.89%	-	No
Main Street	Brandywine Avenue	Heritage Road	6-ln Prime	50,300	50,000	D	712	1.42%	Yes	No
Main Street	Heritage Road	La Media Road	6-ln Prime	49,200	50,000	C	100	0.20%	-	No

TABLE 9.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Classification	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
Main Street	La Media Road	SR-125 SB Ramps	6-ln Prime	54,800	50,000	D	356	0.65%	Yes	No
Main Street	SR-125 SB Ramps	SR-125 NB Ramps	6-ln Gateway**	54,900	61,200	D	178	0.32%	-	No
Main Street	SR-125 NB Ramps	Eastlake Parkway	6-ln Gateway**	60,500	61,200	D	178	0.29%	-	No
Otay Valley Road	Main Street	SR-125 SB Ramps	4-ln Major	21,300	30,000	A	356	1.67%	-	No
Paseo Ranchero	H Street	Telegraph Canyon Road	Class I Collector	22,500	22,000	D	1,068	4.75%	Yes	No
Heritage Road	Telegraph Canyon Road	East Palomar Street	6-ln Prime	27,600	50,000	A	1,780	6.45%	-	No
Heritage Road	East Palomar Street	Olympic Parkway	6-ln Prime	53,800	50,000	D	3,204	5.96%	Yes	No
Heritage Road	Olympic Parkway	Santa Victoria Road	6-ln Prime	42,100	50,000	B	5,874	13.95%	-	No
Heritage Road	Santa Victoria Road	Santa Liza Avenue	6-ln Prime	41,500	50,000	B	3,204	7.72%	-	No
Heritage Road	Santa Liza Avenue	Main Street	6-ln Prime	47,900	50,000	C	2,670	5.57%	-	No
Heritage Road	Main Street	Avenida De Las Vistas	6-ln Prime	61,700	50,000	E	1,958	3.17%	Yes	No
La Media Road	Telegraph Canyon Road	East Palomar Street	6-ln Prime	31,400	50,000	A	1,246	3.97%	-	No
La Media Road	East Palomar Street	Olympic Parkway	6-ln Prime	26,800	50,000	A	1,424	5.31%	-	No
La Media Road	Olympic Parkway	Santa Venetia Street	6-ln Prime	33,100	50,000	A	2,136	6.45%	-	No

TABLE 9.2A
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS
(City of Chula Vista)

Roadway	From	To	Classification	ADT w/ Project	LOS Threshold (LOS C)	LOS w/ Project	Project ADT (> 800)	Project Contribution (≥ 5%)	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
La Media Road	Santa Venetia Street	Birch Road	6-ln Prime	33,300	50,000	A	2,314	6.95%	-	No
La Media Road	Birch Road	Santa Luna Street	6-ln Prime	18,600	50,000	A	890	4.78%	-	No
La Media Road	Santa Luna Street	Main Street	4-ln Major	18,500	30,000	A	712	3.85%	-	No
Magdalena Avenue	Birch Road	Wolf Canyon Loop	Class I Collector	12,800	22,000	A	712	5.56%	-	No
Magdalena Avenue	Wolf Canyon Loop	Santa Luna Street	Class II Collector	4,900	12,000	A	178	3.63%	-	No
Magdalena Avenue	Santa Luna Street	Main Street	Class I Collector	12,100	22,000	A	178	1.47%	-	No
Eastlake Parkway	Olympic Parkway	Birch Road	6-ln Major	28,800	40,000	A	534	1.85%	-	No
Eastlake Parkway	Birch Road	Main Street/Hunte Parkway	6-ln Major	22,900	40,000	A	178	0.78%	-	No

Source: Chen Ryan Associates; December 2013

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
**Facility improvement is assumed to be implemented by others, including City's Circulation Element which is funding by the TDIF program.

TABLE 9.2B
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS
(City of San Diego)

Roadway	From	To	Classification	ADT w/ Project	LOS Threshold (LOS D)	LOS w/ Project	ADT w/o Project	LOS w/o Project	Change in V/C	Significant Impact?
Otay Mesa Road	Ocean View Hills Parkway	Heritage Road	6-ln Prime	48,700	55,000	C	47,900	C	0.013	No
Otay Mesa Road	Heritage Road	Cactus Road	6-ln Prime	45,800	55,000	C	42,800	C	0.050	No
Otay Mesa Road	Cactus Road	Britannia Boulevard	6-ln Prime	48,800	55,000	C	47,000	C	0.030	No
Heritage Road	Avenida De Las Vistas	Otay Mesa Road	6-ln Prime	54,200	55,000	D	49,100	C	0.085	No

Source: Chen Ryan Associates; August 2013

- Paseo Ranchero, between H Street and Telegraph Canyon Road (LOS D) – the proposed buildout project traffic would comprise approximately 4.8% (less than 5%) of the total segment volume and would add 1,068 ADT (more than 800 ADT). However, the intersection (Paseo Ranchero / Telegraph Canyon Road) along this segment would operate at acceptable LOS D/D during the peak hours. Therefore, the project traffic would not result in a significant impact at this location.
- Heritage Road, between East Palomar Street and Olympic Parkway (LOS D) – the proposed buildout project traffic would comprise approximately 6.0% (more than 5%) of the total segment volume and would add 3,204 ADT (more than 800 ADT). However, the intersections (Heritage Road / East Palomar Street and Heritage Road / Olympic Parkway) along this segment would both operate at acceptable LOS D/D during the peak hours. Therefore, the project traffic would not result in a significant impact at this location.
- Heritage Road, between Main Street and Avenida De Las Vistas (LOS E) – the proposed buildout project traffic would comprise approximately 3.2% (less than 5%) of the total segment volume and would add 1,958 ADT (more than 800 ADT). Additionally, the intersections (Heritage Road / Main Street and Heritage Road / Avenida De Las Vistas) along this segment would operate at acceptable LOS C/D and LOS A/C during the peak hours, respectively. Therefore, the project traffic would not result in a significant impact at this location.

Freeway/State Highway Segment Analysis

Table 9.3 displays freeway level of service analysis results for I-805 and SR-125 under Year 2030 conditions. The freeway/state highway segment level of service analysis was performed utilizing the methodologies presented in Chapter 2.0.

As shown in the table, all study freeway/state highway segments along I-805 and SR-125 would operate at acceptable LOS D or better under Year 2030 conditions, with the following seven (7) exceptions:

- I-805, from SR-94 to Market Street (LOS F) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Market Street to Imperial Avenue (LOS F) – The proposed project would comprise 0.3% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

TABLE 9.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Home Street to SR-94	296,800	6.9%	20,479	0.51	4+1ML	0.97	4.2%	2,200	0.917	D	295,700	D	0.40%	No
I-805	SR-94 to Market Street	286,400	8.0%	22,912	0.50	4+1ML	0.97	4.2%	2,410	1.004	F	285,300	F	0.40%	Yes (Cumulative)
I-805	Market Street to Imperial Avenue	353,400	8.0%	28,272	0.50	5+1ML	0.97	4.2%	2,705	1.127	F	352,200	F	0.30%	Yes (Cumulative)
I-805	Imperial Avenue to E Division Street	351,500	8.0%	28,120	0.50	5+1ML	0.97	4.2%	2,463	1.026	F	350,300	F	0.30%	Yes (Cumulative)
I-805	E Division Street to Plaza Boulevard	338,700	7.2%	24,386	0.51	5+1ML	0.95	3.8%	2,220	0.925	D	337,300	D	0.40%	No
I-805	Plaza Boulevard to SR-54	329,800	8.1%	26,714	0.52	5+1ML	0.96	2.2%	2,443	1.018	F	328,400	F	0.40%	Yes (Cumulative)
I-805	SR-54 to Bonita Road	372,200	7.2%	26,798	0.52	4+1Aux+1 ML	0.96	1.7%	2,437	1.015	F	370,100	F	0.60%	Yes (Cumulative)
I-805	Bonita Road to East H Street	329,100	7.8%	25,670	0.50	5+1ML	0.95	1.7%	2,272	0.947	E	327,000	E	0.60%	Yes (Cumulative)
I-805	East H Street to Telegraph Canyon Road	327,500	7.8%	25,545	0.50	5+1ML	0.95	1.9%	2,263	0.943	E	325,200	E	0.70%	Yes (Cumulative)
I-805	Telegraph Canyon Road to East Palomar Street	286,300	7.1%	20,327	0.51	4+1Aux+1 ML	0.92	1.7%	2,061	0.859	D	284,000	D	0.80%	No
I-805	East Palomar Street to Olympic Parkway	271,500	7.1%	19,277	0.51	4+1Aux+1 ML	0.92	1.7%	1,962	0.818	D	269,900	D	0.60%	No

TABLE 9.3
FREEWAY/STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2030 CONDITIONS

Freeway / State Highway	Segment	With Project										Without Project		Project Contribution (≥ 5%)	Significant Impact?
		ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	PHF	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS	ADT	LOS		
I-805	Olympic Parkway to Main Street	266,400	6.9%	18,382	0.51	4+1Aux+1 ML	0.93	5.4%	1,877	0.782	C	265,900	C	0.20%	No
I-805	Main Street to Palm Avenue	258,700	7.1%	18,368	0.58	4+1Aux+1 ML	0.95	10.3%	2,147	0.895	D	258,000	D	0.30%	No
I-805	Palm Avenue to SR-905	237,600	7.1%	16,870	0.58	4+1Aux+1 ML	0.95	10.3%	1,970	0.821	D	236,900	D	0.30%	No
SR-125	Telegraph Canyon Road to Olympic Parkway	38,900	7.0%	2,723	0.60	2M	0.92	2.0%	900	0.375	A	38,500	A	1.0%	No
SR-125	Olympic Parkway to Birch Road	33,900	7.0%	2,373	0.60	2M	0.92	2.0%	779	0.325	A	33,700	A	0.6%	No
SR-125	Birch Road to Main Street	38,700	7.0%	2,709	0.60	2M	0.92	2.0%	889	0.370	A	37,800	A	2.3%	No
SR-125	Main Street to Otay Valley Road	94,700	7.0%	6,629	0.60	2M	0.92	2.0%	2,185	0.910	D	93,800	D	1.0%	No
SR-125	Otay Valley Road to Lone Star Road	94,700	7.0%	6,629	0.60	2M	0.92	2.0%	2,185	0.910	D	93,800	D	1.0%	No
SR-125	Lone Star Road to Otay Mesa Road	94,700	7.0%	6,629	0.60	2M	0.92	2.0%	2,185	0.910	D	93,800	D	1.0%	No
SR-125	Otay Mesa Road to SR-905	33,500	7.0%	2,345	0.60	2M	0.92	2.0%	768	0.320	A	32,600	A	2.7%	No

Source: Chen Ryan Associates; February 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
M = Mainline.
Aux = Auxiliary Lane.
ML = Managed Lane.

- I-805, from Imperial Avenue to E Division Street (LOS F) – The proposed project would comprise 0.3% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Plaza Boulevard to SR-54 (LOS F) – The proposed project would comprise 0.4% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from SR-54 to Bonita Road (LOS F) – The proposed project would comprise 0.6% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS F, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from Bonita Road to East H Street (LOS E) – The proposed project would comprise 0.6% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

- I-805, from East H Street to Telegraph Canyon Road (LOS E) – The proposed project would comprise 0.7% (less than 5%) of the total freeway segment volume and, therefore, project traffic would not result in a significant direct impact. However, because the segment would operate at LOS E, the addition of trips generated by the proposed project would result in a significant cumulative impact to this segment.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, for information purposes, the signalized ramp intersections along I-805 and SR-125 within the study area were analyzed under the Year 2030 conditions using the ILV procedures as described in Chapter 2.0. ILV analysis results are displayed in **Table 9.4** and analysis worksheets for the Year 2030 conditions are provided in **Appendix T**.

TABLE 9.4
RAMP INTERSECTION CAPACITY ANALYSIS
YEAR 2030 CONDITIONS

Ramp Intersection	Peak Hour	With Project		Without Project	
		ILV / Hour	Description	ILV / Hour	Description
I-805 SB Ramps / Olympic Parkway	AM	1,533	*>1500: (Over Capacity)*	1,515	*>1500: (Over Capacity)*
	PM	1,896	*>1500: (Over Capacity)*	1,870	*>1500: (Over Capacity)*
I-805 NB Ramps / Olympic Parkway	AM	2,210	*>1500: (Over Capacity)*	2,140	*>1500: (Over Capacity)*
	PM	1,502	*>1500: (Over Capacity)*	1,450	*1200-1500: (At Capacity)*
SR-125 SB Ramps / Olympic Parkway	AM	565	*<1200: (Under Capacity)*	510	*<1200: (Under Capacity)*
	PM	558	*<1200: (Under Capacity)*	527	*<1200: (Under Capacity)*
SR-125 NB Ramps / Olympic Parkway	AM	522	*<1200: (Under Capacity)*	503	*<1200: (Under Capacity)*
	PM	668	*<1200: (Under Capacity)*	610	*<1200: (Under Capacity)*
SR-125 SB Ramps / Birch Road	AM	640	*<1200: (Under Capacity)*	637	*<1200: (Under Capacity)*
	PM	875	*<1200: (Under Capacity)*	870	*<1200: (Under Capacity)*
SR-125 NB Ramps / Birch Road	AM	660	*<1200: (Under Capacity)*	658	*<1200: (Under Capacity)*
	PM	790	*<1200: (Under Capacity)*	790	*<1200: (Under Capacity)*
SR-125 SB Ramps / Main Street	AM	684	*<1200: (Under Capacity)*	675	*<1200: (Under Capacity)*
	PM	823	*<1200: (Under Capacity)*	795	*<1200: (Under Capacity)*
SR-125 NB Ramps / Main Street	AM	667	*<1200: (Under Capacity)*	868	*<1200: (Under Capacity)*
	PM	687	*<1200: (Under Capacity)*	1,063	*<1200: (Under Capacity)*

Source: Chen Ryan Associates; August 2013

As shown in the table, all of the I-805 ramp intersections would operate "At Capacity" or "Under Capacity", with the following the two (2) exceptions:

- I-805 SB Ramps / Olympic Parkway – "Over Capacity" during the AM & PM peak hour;
- I-805 NB Ramps / Olympic Parkway – "Over Capacity" during the AM peak hour.

All of the SR-125 ramp intersections within the study area would continue to operate at "Under Capacity" during both the AM and PM peak hours under Year 2025 conditions.

Ramp Metering Analysis

Table 9.5 displays the ramp metering analysis conducted at the I-805 northbound on-ramp at Olympic Parkway under Year 2030 conditions. Based on observed existing conditions, it is expected that approximately 80% of the total arrival traffic (demand) would utilize the two non-HOV lanes.

As shown in the table, the peak hour demand at the I-805 northbound on-ramp at Olympic Parkway would be less than the capacity that the ramp meter provides. Therefore, the proposed project would not result in a significant impact at the I-805 northbound on-ramp at Olympic Parkway.

TABLE 9.5
RAMP METERING ANALYSIS
YEAR 2030 CONDITIONS

Location	Peak Hour	With Project					Without Project				Significant Impact?
		Demand[1] (veh/hr)	Meter Rate[2] (veh/hr)	Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	
I-805 NB On-Ramp @ Olympic Parkway	AM	862	887	0	0	0	836	0	0	0	No

Source: Chen Ryan Associates; August 2013

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

Recommended Mitigation

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

Intersections

The proposed project would result in a significant cumulative impact at a one (1) intersection, which is located in the City of Chula Vista. The following intersection improvements would mitigate the identified impacts:

Direct Impact Mitigation

None.

Cumulative Impact Mitigation

- *I-805 SB Ramps / Olympic Parkway* (CV) – Prior to project buildout, the project applicant or its designee shall pay its fair-share toward the construction of an additional left-turn lane at the I-805 southbound off-ramp, as well as a 3rd through lane along the Olympic Parkway eastbound approach.

  However, as previously noted, there are right-of-way constraints that would make such widening infeasible and, in addition, there is no plan or program in place into which the project applicant could pay its fair-share towards such improvement. Therefore, mitigation is infeasible and the impact will remain cumulatively significant and unavoidable at this location.

Roadway Segments

One (1) roadway segment in the City of Chula Vista would be cumulatively impacted by the proposed project traffic under the Year 2030 conditions:

Direct Impact Mitigation

None.

Cumulative Impact Mitigation

- *Orange Avenue, between Melrose Avenue and I-805 SB Ramps* (CV) – Prior to project buildout, the project applicant or its designee shall pay its fair share toward the costs of widening Orange Avenue between Melrose Avenue and the I-805 SB Ramps from 4 lanes to 6 lanes (Major Road).

  The recommended improvements would require widening Orange Avenue/Olympic Parkway; however, as previously noted, there are right-of-way constraints that would make such improvements infeasible and, in addition, there is no plan or program in

place into which the project applicant could pay its fair-share towards such improvement. Therefore, mitigation is infeasible and the impact will remain cumulatively significant and unavoidable at this location.

Freeways/State Highways

The following seven (7) freeway/state highway segments would be cumulatively impacted by the proposed project in the Year 2030:

- I-805, from SR-94 to Market Street;
- I-805, from Market Street to Imperial Avenue;
- I-805, from Imperial Avenue to E Division Street;
- I-805, from Plaza Boulevard to SR-54;
- I-805, from SR-54 to Bonita Road;
- I-805, from Bonita Road to East H Street; and
- I-805, from East H Street to Telegraph Canyon Road.

The second phase of the I-805 South Project would further expand transportation choices by building out the HOV lanes into Express Lanes for a total of four lanes, two in each direction. Phase 2 also includes the addition of in-line transit stations and freeway-to-freeway direct connectors. However, on December 16th, 2011, SANDAG Board of Directors approved the purchase of SR-125 and the Addendum to SANDAG's 2030 RTP EIR. The Addendum consists of a swap of the two planned HOV lanes on I-805 between SR-54 and SR-905 (Phase 2 of the I-805 South Project discussed above) for the purchase costs of SR-125, which requires an amendment to the TransNet Extension Ordinance. It also concluded that while the reduction in tolls would result in a shift of traffic from I-805 to SR-125, freeway operations on both facilities would remain acceptable. The proposed Village 2 project was modeled with Phase 2, however in order to remain consistent with the 2030 RTP Addendum, the TIA is analyzed with one HOV lane in each direction (Phase 1) along I-805. At this time, neither Caltrans nor SANDAG has plans to construct additional lanes on the impacted facilities, nor is there a plan or program in place into which the project applicant could pay its fair-share towards the cost of such improvements. Therefore, mitigation is infeasible and the impacts would remain significant and unavoidable.

Ramp Metering

The I-805 northbound on-ramp at Olympic Parkway would not be significantly impacted, and therefore no mitigation measures would be required under Year 2030 conditions.

Circulation System Assumptions

The Year 2030 scenario assumes the following roadway improvements:

a) Main Street is constructed as a 6-Lane Gateway between SR-125 SB ramps and Eastlake Parkway.

b) SR-125 / Main Street interchange is constructed as a full interchange with partial clover leaf.

c) Otay Valley Road is constructed as a 4-Lane Major Arterialbetween Main Street and Village 9 Street "B".

d) Otay Valley Road / SR-125 interchange is constructed as a south facing half diamond interchange.

The proposed project is expected to be build out by the Year 2025, if the project equivalent dwelling unit limit for study year 2030 (1,780 EDU) is exceeded prior to these roadway segments being constructed and open to traffic, then one of the following steps shall be taken:

i. Development within the Village Two Comprehensive SPA project shall stop until those assumed future roadways are constructed by others; or

ii. City and the applicant shall meet to determine the need for the incomplete roadway segments. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or

iii. Applicant shall construct the missing roadway links and receive a transportation development impact fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the city in accordance with the city of Chula Vista Growth Management Ordinance.

v. All to the satisfaction of the City Engineer.

9.4 Transit Planning

Public transportation is an integral part of the Otay Ranch Community, including Village Two. The design of Otay Ranch promotes access to public transit and locates land uses in proximity to proposed transit stations. Transit stop locations and design within Otay Ranch are based on the following principles:

- Locate transit stops where there are a number of major pedestrian generators.
- Locate transit stops and pedestrian walkways to provide access while respecting the privacy of residential areas.
- At the intersection of two or more transit routes, locate bus stops to minimize walking distance between transfer stations.
- Locate bus turn-outs on the far side of the intersections to avoid conflicts between transit vehicles and automobile traffic, permitting right-turning vehicles to continue turning movements.
- Transit stops should be provided with adequate walkway lighting and well designated shelters.

- Walkway ramps should be provided at transit stops to ensure accessibility.

As noted in Section 3.4, MTS currently provides bus service through the East Planning Area of the City; this service can be extended to serve the proposed project areas as development, and corresponding transit ridership demands, increase. Regional transit plans also provide for commuter lines to serve villages in Otay Ranch, as well as to connect Otay Ranch to other activity centers in the region. The San Diego Association of Government's *2050 Regional Transportation Plan* Revenue Constrained scenario identifies several public transit improvements that will potentially serve the study area, such as Bus Rapid Transit (BRT) Route 628, 680, and rapid bus Route 635.

The Planned South Bay BRT will provide significant transit opportunities for those who live or work in Otay Ranch. It will follow a long-planned transit route as vehicles will travel north on State Route 125 from the Otay Mesa border crossing, then west through eastern Chula Vista, head north on Interstate 805 utilizing the carpool, or High Occupancy Vehicle (HOV), lanes, and then travel west on State Route 94 into Downtown San Diego. The South Bay BRT will have a direct connection to the carpool lanes on I-805 via a Direct Access Ramp (DAR) at East Palomar Street. The BRT project will include 11 stations along the 21-mile BRT route, connecting South Bay residents to employment and activity centers in Downtown San Diego and other areas within the South Bay. The South Bay BRT will serve offices, shopping centers, recreational facilities, transit-oriented residential communities, schools, and Park & Ride lots, as well as the U.S.-Mexico port of entry at Otay Mesa.

Based on the existing bus and trolley transit services, as described in Section 3.4, in combination with both planned transit improvements to serve the project study area and the transit features that are part of the Otay Ranch community, the proposed project would not conflict with public transit programs nor would it decrease the performance or safety of such facilities. As such, the project's transit related impacts would be less than significant.

10.0 Summary of Analyses

This chapter provides a summary of the analyses findings and recommendations presented in Sections 5.0 through 9.0, including the level of service results and recommended mitigation measures associated with each of the various analysis scenarios.

10.1 Summary of Intersection Analysis

Table 10.1 displays the intersection level of service results for each of the analyzed scenarios.

10.2 Summary of Roadway Segment Analysis

Tables 10.2A and **10.2B** display the roadway segment level of service results for the City of Chua Vista and City of San Diego, respectively, for each of the study analyzed scenarios.

10.3 Summary Freeway/State Highway Analysis

Table 10.3 displays the freeway and state highway segment level of service results for each of the analyzed scenarios.

10.4 Summary of Freeway Ramp Intersection Capacity Analysis

Table 10.4 displays the freeway ramp intersection capacity analysis (ILV) level of service results for each of the scenarios analyzed.

10.5 Summary of Ramp Metering Analysis

Table 10.5 displays the ramp metering analysis results for each of the scenarios analyzed.

10.6 Summary of Significant Impacts and Mitigation Recommendations

Based upon the significant impact criteria discussed in Section 2.8, **Table 10.6** summarizes the identified significant impacts, recommended mitigation measures and mitigation triggers, and before and after mitigation LOS for the intersections, roadway segments, and freeway/state highway segments under each of the scenarios analyzed. **Figures 10-1** through **10-5** illustrate the proposed land uses by village and network assumptions, as well as the significantly impacted locations for each of the study scenarios, excluding the Existing conditions.

TABLE 10.1
SUMMARY OF INTERSECTION PEAK HOUR LEVEL OF SERVICE RESULTS

Intersection	Existing		Existing Plus Project (Buildout)		Year 2015 Plus Project		Year 2020 Plus Project		Year 2025 Plus Project		Year 2030 Plus Project	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. Paseo Ranchero/Heritage Road / Telegraph Canyon Road	D	C	D	C	D	C	D	D	D	D	D	D
2. La Media Road / Telegraph Canyon Road/Otay Lakes Road	C	C	C	C	C	D	C	D	D	D	D	D
3. Heritage Road / East Palomar Street	C	C	C	C	C	C	D	C	D	C	D	D
4. La Media Road / East Palomar Street	D	C	D	C	D	D	D	D	D	D	D	D
5. Melrose Avenue / Orange Avenue	B	C	C	C	D	C	D	D	D	D	D	D
6. I-805 SB Ramps / Olympic Parkway	C	D	D	E	D	D	D	F	D	F	D	F
7. I-805 NB Ramps / Olympic Parkway	D	C	D	D	D	C	D	D	D	D	D	D
8. Oleander Avenue / Olympic Parkway	D	D	D	D	D	D	D	D	D	D	D	D
9. Brandywine Avenue / Olympic Parkway	D	D	D	D	D	D	D	D	D	D	D	D
10. Santa Victoria Road / Olympic Parkway	DNE	DNE	A	A	A	A	A	A	A	B	A	B
11. Heritage Road / Olympic Parkway	B	B	C	C	D	D	D	D	E	E	D	D
12. Santa Venetia Street / Olympic Parkway	A	A	B	A	B	A	B	A	B	A	B	A
13. La Media Road / Olympic Parkway	C	B	D	C	C	C	D	C	E	D	D	D
14. East Palomar Street / Olympic Parkway	C	C	C	C	C	C	C	C	C	C	D	D
15. SR-125 SB Ramps / Olympic Parkway	A	A	A	A	A	A	A	A	A	A	A	B
16. SR-125 NB Ramps / Olympic Parkway	A	A	A	A	A	A	A	A	A	A	A	A
17. Eastlake Parkway / Olympic Parkway	B	B	B	B	C	C	C	C	C	C	C	C
18. Heritage Road / Santa Victoria Road	DNE	DNE	B	B	B	B	C	D	C	D	D	D
19. La Media Road / Santa Venetia Street	D	B	D	B	D	C	D	D	D	D	D	D

TABLE 10.1
SUMMARY OF INTERSECTION PEAK HOUR LEVEL OF SERVICE RESULTS

Intersection	Existing		Existing Plus Project (Buildout)		Year 2015 Plus Project		Year 2020 Plus Project		Year 2025 Plus Project		Year 2030 Plus Project	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
20. La Media Road / Birch Road	C	C	D	C	D	D	D	D	D	D	D	D
21. Magdalena Avenue / Birch Road	C	B	C	B	C	C	D	D	D	D	D	D
22. SR-125 SB Ramps / Birch Road	A	A	A	A	A	A	A	B	A	A	B	A
23. SR-125 NB Ramps / Birch Road	A	A	A	A	A	A	A	A	A	A	A	B
24. Eastlake Parkway / Birch Road	C	C	C	C	B	C	C	D	D	D	D	D
25. Heritage Road / Santa Liza Avenue	DNE	DNE	A	A	A	A	A	A	B	A	C	A
26. Heritage Road / Main Street	B	B	B	B	C	B	C	C	C	C	D	D
27. La Media Road (SB) / Main Street (WB)	DNE	DNE	DNE	DNE	DNE	DNE	B	D	E	E	A	B
28. La Media Road (NB) / Main Street (WB)	DNE	DNE	DNE	DNE	DNE	DNE	D	C	E	E	A	A
29. La Media Road (SB) / Main Street (EB)	DNE	DNE	DNE	DNE	DNE	DNE	B	D	E	E	A	B
30. La Media Road (NB) / Main Street (EB)	DNE	DNE	DNE	DNE	DNE	DNE	B	C	D	E	B	A
31. Magdalena Avenue / Main Street	DNE	DNE	DNE	DNE	DNE	DNE	C	C	E	E	C	C
32. SR-125 SB Ramps / Main Street	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	A	A
33. SR-125 NB Ramps / Main Street	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	DNE	A	B
34. Heritage Road/Otay Valley Road / Avenida De Las Vistas (SD)	E	C	E	C	Not Analyzed						C	C
35. Heritage Road / Otay Mesa Road (SD)	C	C	B	C	Not Analyzed						D	D
36. Cactus Road / Otay Mesa Road (SD)	B	B	B	B	Not Analyzed						D	D

Source: Chen Ryan Associates; March 2014

Notes:
DNE = Does Not Exist.
Bold letter indicates unacceptable LOS E or F.

TABLE 10.2A
SUMMARY OF ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
(City of Chula Vista)

Roadway	Segment	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
Telegraph Canyon Road	Medical Center Drive to Heritage Road/Paseo Ranchero	C	C	D	D	D	D
Telegraph Canyon Road	Heritage Road/Paseo Ranchero to La Media Road/Otay Lakes Road	A	A	C	C	D	C
Otay Lakes Road	H Street to Telegraph Canyon Road	C	C	C	A	A	A
Otay Lakes Road	La Media Road to Rutgers Avenue	B	B	B	B	C	C
East Palomar Street	Medical Center Drive to Heritage Road	A	A	A	B	B	B
East Palomar Street	Heritage Road to La Media Road	A	A	B	B	B	B
East Palomar Street	La Media Road to Olympic Parkway	A	A	A	A	A	B
Orange Avenue	Hilltop Drive to Melrose Avenue	B	B	C	C	C	C
Orange Avenue	Melrose Avenue to I-805 SB Ramps	C	C	D	D	D	E
Olympic Parkway	I-805 SB Ramps to I-805 NB Ramps	B	B	B	B	B	C
Olympic Parkway	I-805 NB Ramps to Oleander Avenue	C	D	B	B	C	E
Olympic Parkway	Oleander Avenue to Brandywine Avenue	D	E	A	A	B	C
Olympic Parkway	Brandywine Avenue to Santa Victoria Road	D	E	A	A	A	B
Olympic Parkway	Santa Victoria Road to Heritage Road	D	E	A	A	A	B
Olympic Parkway	Heritage Road to Santa Venetia Street	C	C	B	C	D	B
Olympic Parkway	Santa Venetia Street to La Media Road	C	C	A	B	B	A
Olympic Parkway	La Media Road to East Palomar Street	A	A	A	A	A	A
Olympic Parkway	East Palomar Street to SR-125 SB Ramps	A	A	C	C	D	C
Olympic Parkway	SR-125 SB Ramps to SR-125 NB Ramps	A	A	A	A	B	A

TABLE 10.2A
SUMMARY OF ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
(City of Chula Vista)

Roadway	Segment	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
Olympic Parkway	SR-125 NB Ramps to Eastlake Parkway	A	A	A	B	B	A
Birch Road	La Media Road to Magdalena Avenue	A	A	A	A	B	B
Birch Road	Magdalena Avenue to SR-125 SB Ramps	A	A	A	A	D	B
Birch Road	SR-125 SB Ramps to SR-125 NB Ramps	A	A	A	A	B	A
Birch Road	SR-125 NB Ramps to Eastlake Parkway	A	A	A	A	C	A
Main Street	Brandywine Avenue to Heritage Road	A	A	A	A	B	D
Main Street	Heritage Road to La Media Road	DNE	DNE	DNE	DNE	DNE	C
Main Street	La Media Road to SR-125 SB Ramps	DNE	DNE	DNE	DNE	A	D
Main Street	SR-125 SB Ramps to SR-125 NB Ramps	DNE	DNE	DNE	DNE	DNE	D
Main Street	SR-125 NB Ramps to Eastlake Parkway	DNE	DNE	DNE	DNE	DNE	D
Otay Valley Road	Main Street to SR-125 SB Ramps	DNE	DNE	DNE	DNE	DNE	A
Paseo Ranchero	H Street to Telegraph Canyon Road	A	A	A	A	C	D
Heritage Road	Telegraph Canyon Road to East Palomar Street	A	A	A	A	A	A
Heritage Road	East Palomar Street to Olympic Parkway	A	A	B	C	D	D
Heritage Road	Olympic Parkway to Santa Victoria Road	DNE	A	A	A	B	B
Heritage Road	Santa Victoria Road to Santa Liza Avenue	DNE	A	A	B	B	B
Heritage Road	Santa Liza Avenue to Main Street	DNE	DNE	A	C	C	C
Heritage Road	Main Street to Avenida De Las Vistas	A	A	B	A	A	E
La Media Road	Telegraph Canyon Road to East Palomar Street	A	A	A	A	A	A

TABLE 10.2A
SUMMARY OF ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
(City of Chula Vista)

Roadway	Segment	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
La Media Road	East Palomar Street to Olympic Parkway	A	A	A	A	A	A
La Media Road	Olympic Parkway to Santa Venetia Street	A	A	A	A	B	A
La Media Road	Santa Venetia Street to Birch Road	A	A	A	A	B	A
La Media Road	Birch Road to Santa Luna Street	A	A	A	A	A	A
La Media Road	Santa Luna Street to Main Street	DNE	DNE	DNE	DNE	B	A
Magdalena Avenue	Birch Road to Wolf Canyon Loop	A	A	A	A	B	A
Magdalena Avenue	Wolf Canyon Loop to Santa Luna Street	A	A	A	A	B	A
Magdalena Avenue	Santa Luna Street to Main Street	A	A	A	A	C	A
Eastlake Parkway	Corte Vista to Olympic Parkway	A	A	A	A	B	A
Eastlake Parkway	Olympic Parkway to Birch Road	A	A	A	A	A	A

Source: Chen Ryan Associates; March 2014

Notes:
DNE = Does Not Exist.
Bold letter indicates unacceptable LOS D, E or F.

TABLE 10.2B
SUMMARY OF ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
(City of San Diego)

Roadway	Segment	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
Otay Mesa Road	Ocean View Hills Parkway to Heritage Road	C	C	-	-	-	C
Otay Mesa Road	Heritage Road to Cactus Road	B	B	-	-	-	C
Otay Mesa Road	Cactus Road to Britannia Boulevard	D	D	-	-	-	C
Heritage Road	Avenida De Las Vistas to Otay Mesa Road	D	D	-	-	-	D

Source: Chen Ryan Associates; August 2013

Notes:
DNE = Does Not Exist.
- = Not analyze under the interim years.
Bold letter indicates unacceptable LOS E or F.

TABLE 10.3
SUMMARY OF FREEWAY/ STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS

Freeway/State Highway	Segment	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
I-805	Home Street to SR-94	C	C	C	D	D	D
	SR-94 to Market Street	C	C	C	D	E	F
	Market Street to Imperial Avenue	B	B	D	F	F	F
	Imperial Avenue to E Division Street	C	C	D	E	F	F
	E Division Street to Plaza Boulevard	B	B	C	D	D	D
	Plaza Boulevard to SR-54	C	C	C	D	E	F
	SR-54 to Bonita Road	C	C	D	D	D	F
	Bonita Road to East H Street	B	C	C	D	E	E
	East H Street to Telegraph Canyon Road	B	B	C	C	D	E
	Telegraph Canyon Road to East Palomar Street	B	B	B	C	C	D
	East Palomar Street to Olympic Parkway	B	B	C	C	D	D
	Olympic Parkway to Main Street	B	B	C	C	C	C
	Main Street to Palm Avenue	B	B	D	D	D	D
	Palm Avenue to SR-905	B	B	C	C	D	D
SR-125	Telegraph Canyon Road to Olympic Parkway	A	A	A	A	A	A
	Olympic Parkway to Birch Road	A	A	A	A	A	A
	Birch Road to Main Street	A	A	A	A	A	A
	Main Street to Otay Valley Road	A	A	A	A	A	D
	Otay Valley Road to Lone Star Road	A	A	A	A	A	D
	Lone Star Road to Otay Mesa Road	A	A	A	A	A	D
	Otay Mesa Road to SR-905	A	A	A	A	A	A

Source: Chen Ryan Associates; February 2014

Note:
Bold letter indicates unacceptable LOS E or F.

TABLE 10.4
SUMMARY OF RAMP INTERSECTION CAPACITY ANALYSIS

Ramp Intersection	Peak Hour	Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
I-805 SB Ramps / Olympic Parkway	AM	Under	At	At	At	At	Over
	PM	Over	Over	Over	Over	Over	Over
I-805 NB Ramps / Olympic Parkway	AM	Over	Over	At	At	Over	Over
	PM	At	At	At	Over	Over	Over
SR-125 SB Ramps / Olympic Parkway	AM	Under	Under	Under	Under	Under	Under
	PM	Under	Under	Under	Under	Under	Under
SR-125 NB Ramps / Olympic Parkway	AM	Under	Under	Under	Under	Under	Under
	PM	Under	Under	Under	Under	Under	Under
SR-125 SB Ramps / Birch Road	AM	Under	Under	Under	Under	Under	Under
	PM	Under	Under	Under	Under	Under	Under
SR-125 NB Ramps / Birch Road	AM	Under	Under	Under	Under	Under	Under
	PM	Under	Under	Under	Under	Under	Under
SR-125 SB Ramps / Main Street	AM	DNE	DNE	DNE	DNE	DNE	Under
	PM	DNE	DNE	DNE	DNE	DNE	Under
SR-125 NB Ramps / Main Street	AM	DNE	DNE	DNE	DNE	DNE	Under
	PM	DNE	DNE	DNE	DNE	DNE	Under
	PM	DNE	DNE	DNE	DNE	DNE	Under

Source: Chen Ryan Associates; August 2013

Notes:
DNE = Does Not Exist.
- = Not analyze under the interim years.

TABLE 10.5
SUMMARY OF RAMP METERING ANALYSIS

Location	Peak Hour	Delay (min.)					
		Existing	Existing Plus Project (Buildout)	Year 2015 Plus Project	Year 2020 Plus Project	Year 2025 Plus Project	Year 2030 Plus Project
I-805 NB On-Ramp @ Olympic Parkway	AM	0	0	0	0	0	0

Source: Chen Ryan Associates; August 2013

TABLE 10.6
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Impacted Facility	Note	E+P	2015	2020	2025	2030
Intersection						
6. I-805 SB Ramps / Olympic Parkway	Type of Impact	Cumulative	-	Cumulative	Cumulative	Cumulative
	Mitigation Measure	No feasible mitigation, impact remains significant and unmitigable	-	No feasible mitigation, impact remains significant and unmitigable	No feasible mitigation, impact remains significant and unmitigable	No feasible mitigation, impact remains significant and unmitigable
	Pre-Mitigation LOS (AM / PM)	D / E	-	E / F	D / F	D / F
	Trigger	-	-	-	-	-
	Post Mitigation LOS (AM / PM)	-	-	-	-	-
11. Heritage Road / Olympic Parkway	Type of Impact	-	-	-	Direct	-
	Mitigation Measure	-	-	-	Payment towards TDIF for the construction of Main Street	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	D / D	-
13. La Media Road / Olympic Parkway	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for the construction of Main Street	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / D	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	D / D	-
27. La Media Road (SB) / Main Street (WB)	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for Signalization	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	A / A	-
28. La Media Road (NB) / Main Street (WB)	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for Signalization	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	A / A	-

TABLE 10.6
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Impacted Facility	Note	E+P	2015	2020	2025	2030
29. La Media Road (SB) / Main Street (EB)	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for Signalization	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	A / A	-
30. La Media Road (NB) / Main Street (EB)	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for Signalization	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	A / A	-
31. Magdalena Avenue / Main Street	Type of Impact	-	-	-	Cumulative	-
	Mitigation Measure	-	-	-	Payment towards TDIF for Signalization	-
	Pre-Mitigation LOS (AM / PM)	-	-	-	E / E	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS (AM / PM)	-	-	-	B / B	-
34. Heritage Road / Avenida De Las Vistas (SD)	Type of Impact	Direct				-
	Mitigation Measure	Signalization				-
	Pre-Mitigation LOS (AM / PM)	E / C				-
	Trigger	-				-
	Post Mitigation LOS (AM / PM)	A / A				-
Roadway Segment						
Orange Avenue, between Melrose Avenue and I-805 SB Ramps	Type of Impact	-	-	Cumulative	Cumulative	Cumulative
	Mitigation Measure	-	-	No feasible mitigation, impact remains significant and unmitigable	No feasible mitigation, impact remains significant and unmitigable	No feasible mitigation, impact remains significant and unmitigable
	Pre-Mitigation LOS	-	-	D	D	E
	Trigger	-	-	-	-	-
	Post Mitigation LOS	-	-	-	-	-
Olympic Parkway, between Heritage Road and	Type of Impact	-	-	-	Cumulative	-

TABLE 10.6
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Impacted Facility	Note	E+P	2015	2020	2025	2030
Santa Venetia Street	Mitigation Measure	-	-	-	Payment towards TDIF for the construction of Main Street, between Heritage Road and La Media Road	-
	Pre-Mitigation LOS	-	-	-	D	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS	-	-	-	B	-
Heritage Road, between East Palomar Street and Olympic Parkway	Type of Impact	-	-	-	Direct	-
	Mitigation Measure	-	-	-	Payment towards TDIF for the construction of Main Street, between Heritage Road and La Media Road	-
	Pre-Mitigation LOS	-	-	-	D	-
	Trigger	-	-	-	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA	-
	Post Mitigation LOS	-	-	-	D (Intersection along segment operating @ LOS D or better)	-
Freeway/State Highway Segment						
I-805, from SR-94 to Market Street	-	-	-	-	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from Market Street to Imperial Avenue				Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from Imperial Avenue to E Division Street				Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from Plaza Boulevard to SR-54					Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from SR-54 to Bonita Road						Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from Bonita Road to East H Street					Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable	Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable
I-805, from East H Street to Telegraph Canyon Road						Cumulative Impact: No feasible mitigation, impact remains significant and unmitigable

TABLE 10.6
SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Impacted Facility	Note	E+P	2015	2020	2025	2030
Freeway/State Highway Ramp Metering						
None						

Source: Chen Ryan Associates; March 2014

Note: Mitigation from "E+P" were not assumed to carried forward, but feasible mitigation measures from all other scenarios were assumed to be carried forward to the next time frame.

11.0 Plan-to-Plan (Proposed vs. Adopted) Analysis

This chapter provides a plan-to-plan analysis assessing potential impacts to the City of Chula Vista's General Plan Circulation Element roadways within the project study area, that result from changes in the transportation network, land uses, densities, and/or intensities associated with the proposed project.

11.1 Circulation Element Networks and Traffic Volumes

Adopted Plan

The City Council recently certified the Supplemental Environmental Impact Report (SEIR) and adopted the related Amendments to the City of Chula Vista General Plan (GPA-09-01) and Otay Ranch General Development Plan (PCM-09-11). The adopted Circulation Element (Adopted Plan) is shown in Figure 1-4.

Average Daily Traffic (ADT) volumes for study area roadway and freeway segments under the Adopted Plan are displayed in **Figure 11-1**. These volumes were obtained from the TIA prepared by LLG Engineers (dated May 11, 2012) as part of the SEIR.

Proposed Plan

Figure 9-2B shows average daily roadway and freeway traffic volumes for the Proposed Plan.

11.2 Plan-to-Plan Impact Assessments

Roadway Segment Analysis

Table 11.1 displays the level of service analysis results for the study area roadway segments within the City of Chula Vista under both the Adopted and Proposed Plans.

As shown in the tables and based upon the impact criteria discussed in Section 2.8, the Proposed Plan results in a significant impact to one (1) roadway segment when compared to the Adopted Plan:

- *Orange Avenue, between Melrose Avenue and I-805 SB Ramps* - Under the Proposed Plan, the ADT along this roadway segment would remain the same as the Adopted Plan. However the intersection of I-805 SB Ramps / Olympic Parkway would operate at LOS D/F during the AM/PM peak, respectively. Thus the project would have a significant cumulative impact to this location. This impact also was identified previously under the Existing plus Project, Year 2020, 2025, and 2030 scenarios. The recommended improvements would require widening of Orange Avenue/Olympic Parkway; however, there are right-of-way constraints that would make such improvements infeasible. Therefore, mitigation is considered infeasible and the impact will remain cumulatively significant and unavoidable at this location.

TABLE 11.1
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Roadway	Segment	Proposed Plan				Adopted Plan				Delta	Change in %	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
		Classification	ADT	LOS Threshold (LOS C)	LOS	Classification	ADT	LOS Threshold (LOS C)	LOS				
Telegraph Canyon Road	Medical Center Drive to Heritage Road/Paseo Ranchero	6-ln Prime	55,200	50,000	D	6-ln Prime	54,400	50,000	D	800	1.47%	Yes	No
Telegraph Canyon Road	Heritage Road/Paseo Ranchero to La Media Road/Otay Lakes Road	6-ln Prime	48,300	50,000	C	6-ln Prime	47,100	50,000	C	1,200	2.55%		No
Otay Lakes Road	H Street to Telegraph Canyon Road	6-ln Prime	30,500	50,000	A	6-ln Prime	29,800	50,000	A	700	2.35%		No
Otay Lakes Road	La Media Road to Rutgers Avenue	6-ln Prime	43,900	50,000	C	6-ln Prime	41,100	50,000	B	2,800	6.81%		No
East Palomar Street	Medical Center Drive to Heritage Road	4-ln Major	22,900	30,000	B	4-ln Major	21,000	30,000	A	1,900	9.05%		No
East Palomar Street	Heritage Road to La Media Road	4-ln Major	23,000	30,000	B	4-ln Major	22,500	30,000	B	500	2.22%		No
East Palomar Street	La Media Road to Olympic Parkway	4-ln Major	25,700	30,000	B	4-ln Major	24,700	30,000	A	1,000	4.05%		No
Orange Avenue	Hilltop Drive to Melrose Avenue	4-ln Major	28,600	30,000	C	4-ln Major	28,200	30,000	C	400	1.42%		No
Orange Avenue	Melrose Avenue to I-805 SB Ramps	4-ln Major	35,800	30,000	E	4-ln Major	34,300	30,000	E	1,500	4.37%	No	Yes
Olympic Parkway	I-805 SB Ramps to I-805 NB Ramps	6-ln Prime	47,100	50,000	C	6-ln Prime	42,500	50,000	B	4,600	10.82%		No
Olympic Parkway	I-805 NB Ramps to Oleander Avenue	6-ln Prime	56,600	50,000	E	6-ln Prime	50,700	50,000	D	5,900	11.64%	Yes	No

TABLE 11.1
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Roadway	Segment	Proposed Plan				Adopted Plan				Delta	Change in %	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
		Classification	ADT	LOS Threshold (LOS C)	LOS	Classification	ADT	LOS Threshold (LOS C)	LOS				
Olympic Parkway	Oleander Avenue to Brandywine Avenue	6-ln Prime	48,800	50,000	C	6-ln Prime	42,800	50,000	B	6,000	14.02%		No
Olympic Parkway	Brandywine Avenue to Santa Victoria Road	6-ln Prime	42,600	50,000	B	6-ln Prime	34,800	50,000	A	7,800	22.41%		No
Olympic Parkway	Santa Victoria Road to Heritage Road	6-ln Prime	42,700	50,000	B	6-ln Prime	34,800	50,000	A	7,900	22.70%		No
Olympic Parkway	Heritage Road to Santa Venetia Street	6-ln Prime	39,300	50,000	B	6-ln Prime	33,300	50,000	A	6,000	18.02%		No
Olympic Parkway	Santa Venetia Street to La Media Road	6-ln Prime	32,100	50,000	A	6-ln Prime	27,500	50,000	A	4,600	16.73%		No
Olympic Parkway	La Media Road to East Palomar Street	6-ln Prime	26,800	50,000	A	6-ln Prime	24,800	50,000	B	2,000	8.06%		No
Olympic Parkway	East Palomar Street to SR-125 SB Ramps	6-ln Prime	47,000	50,000	C	6-ln Prime	43,900	50,000	C	3,100	7.06%		No
Olympic Parkway	SR-125 SB Ramps to SR-125 NB Ramps	8-ln Expressway	49,100	70,000	A	8-ln Expressway	46,400	70,000	A	2,700	5.82%		No
Olympic Parkway	SR-125 NB Ramps to Eastlake Parkway	8-ln Expressway	51,800	70,000	A	8-ln Expressway	49,400	70,000	A	2,400	4.86%		No
Birch Road	La Media Road to Magdalena Avenue	6-ln Major	31,700	40,000	B	6-ln Major	26,200	40,000	A	5,500	20.99%		No
Birch Road	Magdalena Avenue to SR-125 SB Ramps	6-ln Major	32,100	40,000	B	6-ln Major	26,000	40,000	A	6,100	23.46%		No
Birch Road	SR-125 SB Ramps to SR-125 NB Ramps	6-ln Prime	32,100	50,000	A	6-ln Prime	27,400	50,000	A	4,700	17.15%		No

TABLE 11.1
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Roadway	Segment	Proposed Plan				Adopted Plan				Delta	Change in %	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
		Classification	ADT	LOS Threshold (LOS C)	LOS	Classification	ADT	LOS Threshold (LOS C)	LOS				
Birch Road	SR-125 NB Ramps to Eastlake Parkway	6-ln Prime	32,400	50,000	A	6-ln Prime	28,500	50,000	A	3,900	13.68%		No
Main Street	Brandywine Avenue to Heritage Road	6-ln Prime	50,300	50,000	D	6-ln Prime	50,200	50,000	D	100	0.20%	Yes	No
Main Street	Heritage Road to La Media Road	6-ln Prime	49,200	50,000	C	6-ln Prime	44,900	50,000	C	4,300	9.58%		No
Main Street	La Media Road to SR-125 SB Ramps	6-ln Prime	54,800	50,000	D	6-ln Prime	33,100	50,000	A	21,700	65.56%	Yes	No
Main Street	SR-125 SB Ramps to SR-125 NB Ramps	6-ln Gateway*	54,900	61,200*	D	6-ln Gateway*	35,000	61,200*	A	19,900	56.86%		No
Main Street	SR-125 NB Ramps to Eastlake Parkway	6-ln Gateway*	60,500	61,200*	D	6-ln Gateway*	43,400	61,200*	B	17,100	39.40%		No
Otay Valley Road	Main Street to SR-125	4-ln Major	21,300	30,000	A	4-ln Major	31,400	30,000	D	-4,700	-32.17%		No
Paseo Ranchero	H Street to Telegraph Canyon Road	Class I Collector	22,500	22,000	D	Class I Collector	22,200	22,000	D	300	1.35%	Yes	No
Heritage Road	Telegraph Canyon Road to East Palomar Street	6-ln Prime	27,600	50,000	A	6-ln Prime	26,600	50,000	A	1,000	3.76%		No
Heritage Road	East Palomar Street to Olympic Parkway	6-ln Prime	53,800	50,000	D	6-ln Prime	50,700	50,000	D	3,100	6.11%	Yes	No
Heritage Road	Olympic Parkway to Santa Victoria Road	6-ln Prime	38,900	50,000	B	6-ln Prime	38,600	50,000	B	300	0.78%		No
Heritage Road	Santa Victoria Road to Santa Liza Avenue	6-ln Prime	41,500	50,000	B	6-ln Prime	38,600	50,000	B	2,900	7.51%		No

TABLE 11.1
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Roadway	Segment	Proposed Plan				Adopted Plan				Delta	Change in %	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
		Classification	ADT	LOS Threshold (LOS C)	LOS	Classification	ADT	LOS Threshold (LOS C)	LOS				
Heritage Road	Santa Liza Avenue to Main Street	6-ln Prime	47,900	50,000	C	6-ln Prime	42,300	50,000	B	5,600	13.24%		No
Heritage Road	Main Street to Avenida De Las Vistas	6-ln Prime	61,700	50,000	E	6-ln Prime	61,400	50,000	E	300	0.49%	Yes	No
La Media Road	Telegraph Canyon Road to East Palomar Street	6-ln Prime	31,400	50,000	A	6-ln Prime	29,900	50,000	A	1,500	5.02%		No
La Media Road	East Palomar Street to Olympic Parkway	6-ln Prime	26,800	50,000	A	6-ln Prime	26,600	50,000	A	200	0.75%		No
La Media Road	Olympic Parkway to Santa Venetia Street	6-ln Prime	33,100	50,000	A	6-ln Prime	27,500	50,000	A	5,600	20.36%		No
La Media Road	Santa Venetia Street to Birch Road	6-ln Prime	33,300	50,000	A	6-ln Prime	28,300	50,000	A	5,000	17.67%		No
La Media Road	Birch Road to Santa Luna Street	6-ln Prime	18,600	50,000	A	6-ln Prime	18,000	50,000	A	600	3.33%		No
La Media Road	Santa Luna Street to Main Street	4-ln Town Center Arterial	18,500	30,000	A	4-ln Town Center Arterial	18,000	50,000	A	500	2.78%		No
Magdalena Avenue	Birch Road to Wolf Canyon Loop	Class I Collector	12,800	22,000	A	Class I Collector	12,300	22,000	A	500	4.07%		No
Magdalena Avenue	Wolf Canyon Loop to Santa Luna Street	Class II Collector	4,900	12,000	A	Class II Collector	5,000	12,000	A	-100	-2.00%		No
Magdalena Avenue	Santa Luna Street to Main Street	Class I Collector	12,100	22,000	A	Class I Collector	11,100	22,000	A	1,000	9.01%		No
Eastlake Parkway	Olympic Parkway to Birch Road	6-ln Major	28,800	40,000	A	6-ln Major	27,600	40,000	A	1,200	4.35%		No

TABLE 11.1
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Roadway	Segment	Proposed Plan				Adopted Plan				Delta	Change in %	Intersection along Segment Operating @ LOS D or Better?	Significant Impact?
		Classification	ADT	LOS Threshold (LOS C)	LOS	Classification	ADT	LOS Threshold (LOS C)	LOS				
Eastlake Parkway	Birch Road to Main Street/Hunte Parkway	6-ln Major	22,900	40,000	A	6-ln Major	22,800	40,000	A	100	0.44%		No

Source: Chen Ryan Associates; March 2014

Notes:
Bold letter indicates unacceptable LOS (D), E or F.
* LOS D is considered acceptable for a 6-lane Gateway.

Freeway/State Highway Segment Analysis

Table 11.2 displays freeway level of service analysis results for I-805 and SR-125 under both the Adopted and Proposed Plans.

Based upon the impact criteria discussed in Section 2.8, the Proposed Plan would have a cumulative impact to the following seven (7) freeway segments when compared to the Adopted Plan:

- I-805, from SR-94 to Market Street;
- I-805, from Market Street to Imperial Avenue;
- I-805, from Imperial Avenue to E Division Street;
- I-805, from Plaza Boulevard to SR-54;
- I-805, from SR-54 to Bonita Road;
- I-805, from Bonita Road to East H Street; and
- I-805, from East H Street to Telegraph Canyon Road.

These impacts were identified previously under the Year 2030 scenario. The second phase of the I-805 South Project would further expand transportation choices by building out the HOV lanes into Express Lanes for a total of four lanes, two in each direction. Phase 2 also includes the addition of in-line transit stations and freeway-to-freeway direct connectors. However, on December 16th, 2011, SANDAG Board of Directors approved the purchase of SR-125 and the Addendum to SANDAG's 2030 RTP EIR. The Addendum consists of a swap of the two planned HOV lanes on I-805 between SR-54 and SR-905 (Phase 2 of the I-805 South Project discussed above) for the purchase costs of SR-125, which requires an amendment to the TransNet Extension Ordinance. It also concluded that while the reduction in tolls would result in a shift of traffic from I-805 to SR-125, freeway operations on both facilities would remain acceptable. The proposed Village 2 project was modeled with Phase 2, however in order to remain consistent with the 2030 RTP Addendum, the TIA is analyzed with one HOV lane in each direction (Phase 1) along I-805. At this time, neither Caltrans nor SANDAG has plans to construct additional lanes on the impacted facilities, nor is there a plan or program in place into which the project applicant could pay its fair-share towards the cost of such improvements. Therefore, mitigation is infeasible and the impacts would remain significant and unavoidable.

TABLE 11.2
FREEWAY/ STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Freeway/ State Highway	Segment	# of Lanes Per Direction	Proposed Plan		Adopted Plan		Project Contribution (≥ 5%)	Significant Impact?
			ADT	LOS	ADT	LOS		
I-805	Home Street to SR-94	4M+1ML	296,800	D	256,400	C	15.76%	No
I-805	SR-94 to Market Street	4M+1ML	286,400	F	284,200	E	0.77%	Yes
I-805	Market Street to Imperial Avenue	5M+1ML	353,400	F	351,700	F	0.48%	Yes
I-805	Imperial Avenue to E Division Street	5M+1ML	351,500	F	350,200	F	0.37%	Yes
I-805	E Division Street to Plaza Boulevard	5M+1ML	338,700	D	337,300	D	0.42%	No
I-805	Plaza Boulevard to SR-54	5M+1ML	329,800	F	328,300	F	0.46%	Yes
I-805	SR-54 to Bonita Road	4M+1Aux+1ML	372,200	F	370,500	F	0.46%	Yes
I-805	Bonita Road to East H Street	5M+1ML	329,100	E	327,400	E	0.52%	Yes
I-805	East H Street to Telegraph Canyon Road	5M+1ML	327,500	E	325,800	E	0.52%	Yes
I-805	Telegraph Canyon Road to East Palomar Street	4M+1Aux+1ML	286,300	D	285,800	D	0.17%	No
I-805	East Palomar Street to Olympic Parkway	4M+1Aux+1ML	271,500	D	272,200	D	-0.26%	No
I-805	Olympic Parkway to Main Street	4M+1Aux+1ML	266,400	C	268,000	C	-0.60%	No
I-805	Main Street to Palm Avenue	4M+1Aux+1ML	258,700	D	258,100	D	0.23%	No
I-805	Palm Avenue to SR-905	4M+1Aux+1ML	237,600	D	201,800	C	17.74%	No
SR-125	Telegraph Canyon Road to Olympic Parkway	2M	38,900	A	34,500	A	12.75%	No
SR-125	Olympic Parkway to Birch Road	2M	33,900	A	28,100	A	20.64%	No
SR-125	Birch Road to Main Street	2M	38,700	A	30,200	A	28.15%	No
SR-125	Main Street to Otay Valley Road	2M	94,700	D	46,300	B	104.54%	No
SR-125	Otay Valley Road to Lone Star Road	2M	94,700	D	90,700	D	4.41%	No

TABLE 11.2
FREEWAY/ STATE HIGHWAY SEGMENT LEVEL OF SERVICE RESULTS
PROPOSED PLAN VS. ADOPTED PLAN

Freeway/ State Highway	Segment	# of Lanes Per Direction	Proposed Plan		Adopted Plan		Project Contribution (≥ 5%)	Significant Impact?
			ADT	LOS	ADT	LOS		
SR-125	Lone Star Road to Otay Mesa Road	2M	94,700	C	80,600	C	17.49%	No
SR-125	Otay Mesa Road to SR-905	2M	33,500	A	33,700	A	-0.59%	No

Source: Chen Ryan Associates; February 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
M = Mainline.
Aux = Auxiliary Lane.
ML = Managed Lane.

12.0 Site Access and On-Site Circulation

This chapter presents an assessment of transportation facilities providing access to the proposed project. It also recommends functional classifications for all roadways internal to the project.

12.1 Site Access

The Village 2 project is located in the southeastern portion of the City of Chula Vista. Site access to Village 2 is proposed via the following six (6) driveways:

- Santa Victoria Road – accessing Olympic Parkway (signalized);
- Santa Victoria Road – accessing Heritage Road (signalized);
- Santa Liza Street – accessing Heritage Road (signalized);
- Santa Venetia – accessing Olympic Parkway (signalized);
- Santa Venetia – accessing La Media Road (signalized); and
- State Street – accessing La Media Road (signalized).

12.2 On-Site Circulation

Based upon the Chapter 2 of the Otay Ranch General GDP, Section B, page 209, which states that "Each village will provide a complex integrated system of roads, low-speed electric vehicles and bike paths, and pedestrian ways. The system is defined by individual road types that may be found in all villages except for the rural standard. However, the actual pattern of roads varies within each village in response to site features, circulation element roads, topography, land use organization, etc. While circulation element roads must adhere to prescribed levels of service, these interior roads are permitted to operate at less than established LOS. This is done to further encourage use of alternative modes of transportation."

Internal roadway analysis as well as internal intersection analysis was not conducted for the proposed project as a part of the TIA. However for informational purpose, the internal roadway analysis as well as the internal intersection analysis will be provided as a separate memo.

13.0 PFFP Assessment

The purpose of this Public Facilities Financing Plan (PFFP) assessment is to determine on-site and off-site improvement triggers required for the proposed project. Section 13.1 generally discusses on-site and adjacent facilities needed based on access and frontage, and Section 13.2 discusses Equivalent Dwelling Units (EDUs) associated with each of the mitigation measures identified in previous Chapters 6.0 through 9.0 (analysis years 2015, 2020, 2025, and 2030).

13.1 Access/Frontage Thresholds

The facilities discussed in this section are needed, not based on traffic generation, but on frontage development. These roadways need to be built when the land uses fronting the roads are developed in order to provide sufficient number of access points according to the City's Subdivision Manual.

The Subdivision Manual requires that "single family residential development shall not exceed 120 residential lots unless two points of access are provided and shall not exceed 200 residential lots unless three points of access are provided". The project applicant will conduct a traffic study (prior to the 201st EDU) which shows traffic operations with one or two access points are sufficient from an LOS perspective to serve the village and to the satisfaction of the City Engineer, prior to the issuance of first EDU from the Village 2 Comprehensive SPA in any Neighborhood listed below

Table 13.1 displays the project frontage street, primary access, as well secondary access for each of the individual neighborhoods within the Village 2 project area.

TABLE 13.1
VILLAGE 2 PROJECT FRONTAGE AND ACCESS

Nbhd	Frontage/Internal Streets	Primary Access[1]	Secondary Access[2,3]
R-4B(a)	• Occidental Rd (Brinkerhoff to east terminus) • Barranca Ave • Concow Valley Ct • Terstal Ct • Natoma Road • Santa Victoria Rd (entry street to Brinkerhoff Ave)	• Santa Victoria Rd (Heritage Rd to Natoma Rd)	• Brinkerhoff Ave • Santa Victoria (Brinkerhoff Ave to Olympic Pkwy)
R-4B(b)	• R-4B(a) plus • Internal private streets	• entry street • Santa Victoria Rd (Heritage Rd to entry street)	• Hope Ranch Road (Occidental Rd to nbhd boundary) • Occidental Rd (Hope Ranch Rd to Brinkerhoff Ave) • Brinkerhoff Ave • Santa Victoria (Brinkerhoff Ave to Olympic Pkwy)

TABLE 13.1
VILLAGE 2 PROJECT FRONTAGE AND ACCESS

Nbhd	Frontage/Internal Streets	Primary Access[1]	Secondary Access[2,3]
R-5B	• Pershing Road (Santa Alexia Ave to Stow Grove Ave) • Alley along expanded area	• existing	• existing
R-8C	• Stow Grove Ave (R-8a boundary to Pershing Road)	• existing	• Pershing Rd (Santa Alexia Ave to Stow Grove Ave)
R-9B	• Santa Alexia Avenue (Pershing Rd to Carpinteria St) • Pershing Road (Santa Alexia Ave to Stow Grove Ave)	• existing	• existing
R-10a/b	• Alley along expanded area	• existing	• existing
R-11	• Santa Alexia Ave (Santa Diana Rd to Santa Victoria Rd) • Santa Victoria Rd (Santa Alexia Ave to eastern boundary of nbhd)	• existing	• existing
R-12	• Internal private streets	• existing	• existing
R-15B	• Ortega Road (western nbhd boundary to Anapamu Ave)	• existing	• existing
R-16B	• Santa Victoria Rd (Santa Ivy Ave to Santa Alexia Ave) • South alley (Santa Ivy Ave to Santa Alexia Ave) • Santa Ivy Ave (Santa Victoria Rd to south alley) • Santa Alexia Ave (Santa Victoria Rd to south alley)	• Santa Victoria Rd (Santa Alexia Ave to Anapamu Ave)	• Santa Victoria Rd (Santa Ivy Ave to Santa Carolina Rd)
R-17B(a)	• Ortega Rd (Santa Ivy Ave to Santa Alexia Ave) • Keck St (Santa Ivy Ave to Santa Alexia Ave) • Northern alley • Central alley • Santa Ivy Ave (Santa Victoria Rd to Keck St) • Santa Alexia Ave (Santa Victoria Rd to Keck St)	• Santa Victoria Rd (Santa Alexia Ave to Anapamu Ave)	• Santa Victoria Rd (Santa Ivy Ave to Santa Carolina Rd)
R-17B(b)	• Santa Victoria Rd (Santa Christina Ave to Santa Ivy Ave) • Keck St (Santa Christina Ave to Santa Ivy Ave) • Santa Christina Ave (Santa Victoria Rd to Keck St) • Santa Ivy Ave (Santa Victoria Rd to Keck St)	• Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd)	• Santa Victoria Rd (Santa Ivy Ave to Anapamu Ave)

TABLE 13.1
VILLAGE 2 PROJECT FRONTAGE AND ACCESS

Nbhd	Frontage/Internal Streets	Primary Access[1]	Secondary Access[2,3]
R-18A(b)	• Keck St (Santa Alexia Ave to La Cumbre Ave) • Mulligan Hill St (western nbhd boundary to La Cumbre Ave) • La Cumbre (Mulligan Hill St to Keck St)	• Ortega Rd (La Cumbre Ave to Anapamu Ave) • La Cumbre (Keck St to Ortega Rd)	• Santa Alexia Ave (Santa Diana Rd to Keck St)
R-18B(b)	• Stearns Wharf St (western nbhd boundary to La Cumbre Ave) • La Cumbre (Stearns Wharf St to Mulligan Hill St)	• La Cumbre (Mulligan Hill St to Ortega Rd) • Ortega Rd (La Cumbre Ave to Anapamu Ave)	• Stearns Wharf St (western nbhd boundary to Santa Christina Ave) • Santa Christina Ave (Stearns Wharf St to Santa Liza St) • Santa Liza St
R-19B	• Santa Christina Ave (Keck St to Stearns Wharf Rd) • Keck St (Santa Christina Ave to eastern nbhd boundary) • Stearns Wharf St (Santa Christina Ave to eastern nbhd boundary) • Tuckers Grove Ave • Internal alleys	• Santa Christina Ave (Keck St to Santa Victoria Rd) • Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd)	• Santa Christina Ave (Stearns Wharf St to Santa Liza St) • Santa Liza St • Heritage Rd (Santa Liza St to Santa Victoria Rd)
R-20	• Santa Christina Ave (south of Stearns Wharf St) • Ashley Ave • Lavigia Dr • Gibraltar St (Lavigia Dr to Santa Christina Ave) • Santa Liza St (Lavigia Dr to Santa Christina Ave)	• Santa Liza St (Lavigia Dr to Heritage Rd) • Heritage Rd (Santa Liza St to Santa Victoria Rd)	• Santa Christina Ave (Stearns Wharf St to Santa Victoria Rd) • Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd)
R-21B	• Solvang Rd • Copper Creek Ave (south of Solvang Rd) • Paterna Dr (west terminus to northern nbhd boundary) • Gibraltar St (west of Copper Creek Road)	• Gibraltar St (Copper Creek Ave to Lavigia Dr) • Lavigia Dr (north of Gibraltar St) • Santa Liza Street (Lavigia Dr to Heritage Rd) • Heritage Rd (Santa Liza St to Santa Victoria Rd)	• Santa Christina Ave (Santa Victoria Rd to Paterna Dr) • Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd)

TABLE 13.1
VILLAGE 2 PROJECT FRONTAGE AND ACCESS

Nbhd	Frontage/Internal Streets	Primary Access[1]	Secondary Access[2,3]
R-23	• Belvedere St • Birnam Wood Rd • El Paso Pl • Solvang Rd • Copper Creek Ave • Karpeles Rd • Gibraltar St (Copper Creek Ave to Lavigia Dr) • Santa Carolina Ave (Birnam Wood Rd to Solvang Rd) • Lavigia Dr (Santa Liza St to Birnam Wood Rd)	• Santa Liza Street (Lavigia Dr to Heritage Rd) • Heritage Rd (Santa Liza St to Santa Victoria Rd)	• Gibraltar St (Copper Creek Ave to Santa Christina Ave) • Santa Christina Ave (Santa Victoria Rd to Copper Creek Ave) • Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd)
R-24	• Santa Liza St (Lavigia Dr to western nbhd boundary) • Belvedere Street • Central alley	• Santa Liza St (western nbhd boundary to Heritage Rd) • Heritage Rd (Santa Liza St to Santa Victoria Rd)	• No secondary access required
R-25A	• Santa Liza St (Santa Carolina Rd to Heritage Rd) • Santa Carolina Rd (Santa Liza St to Santa Victoria Rd)	• Provided by frontage	• Heritage Rd (Santa Liza St to Santa Victoria Rd)
R-27	• Santa Victoria Rd (Santa Christina Ave to Santa Carolina Rd) • Santa Carolina Rd (Santa Victoria Rd to southern nbhd boundary) • Santa Christina Ave (Santa Victoria Rd to Keck St)	• Provided by frontage	• Santa Victoria Rd (Santa Christina Ave to Anapamu Ave)
R-31	• Existing	• Existing	• Existing
Ind 1b	• Santa Victoria Rd (Olympic Pkwy to eastern boundary)	• Provided by frontage	• Santa Victoria Rd (eastern boundary to Heritage Rd)
Ind 2	• Heritage Rd (Santa Liza St to Santa Victoria Rd) • Santa Liza St (Heritage Rd to Santa Carolina Rd)	• Provided by frontage	• Provided by frontage
Ind 3	• Heritage Rd (Santa Liza St to southern boundary) • Santa Liza St (Heritage Rd to Santa Carolina Rd)	• Provided by frontage	• Provided by frontage

Source: Baldwin & Sons; February 2014

Notes:
[1] Primary access identified is one possible route. Alternative access may be provided subject to the approval of the Director of Development Services.
[2] Secondary accesses is required when more than 120 units are served by the primary access. The identified secondary access is one possible route; alternative secondary access may be provided subject to the approval of the Director of Development Services.
[3] If total units utilizing either the primary or secondary routes of access exceed 200, a third access may be required, subject to the approval of the Director of Development Services.

13.2 Equivalent Dwelling Units Thresholds

The off-site roadway and intersection improvements discussed in this section are needed primarily based on traffic generation and are associated with each of the mitigation measures identified from the Year 2015, 2020, 2025, and 2030 analyses.

The EDU triggers were derived utilizing the following steps:

1. Determine project trip distribution percentages at each of the impacted locations
    a. Intersection – peak hour (worst operation) percentage by movement
    b. Roadway – daily percent by segment

2. Establish a trip generation threshold by adding peak hour and corresponding daily project traffic to the subject location until a direct or cumulative impact occurs.

3. Convert the identified project trip generation from Step 2 into EDU.

Appendix U documents how EDU triggers are determined for each of the recommended mitigation measures.

Table 13.2 summarizes the required mitigation measures and their associated EDU triggers.

TABLE 13.2
EDU TRIGGERS TO RECOMMENDED MITIGATION MEASURES

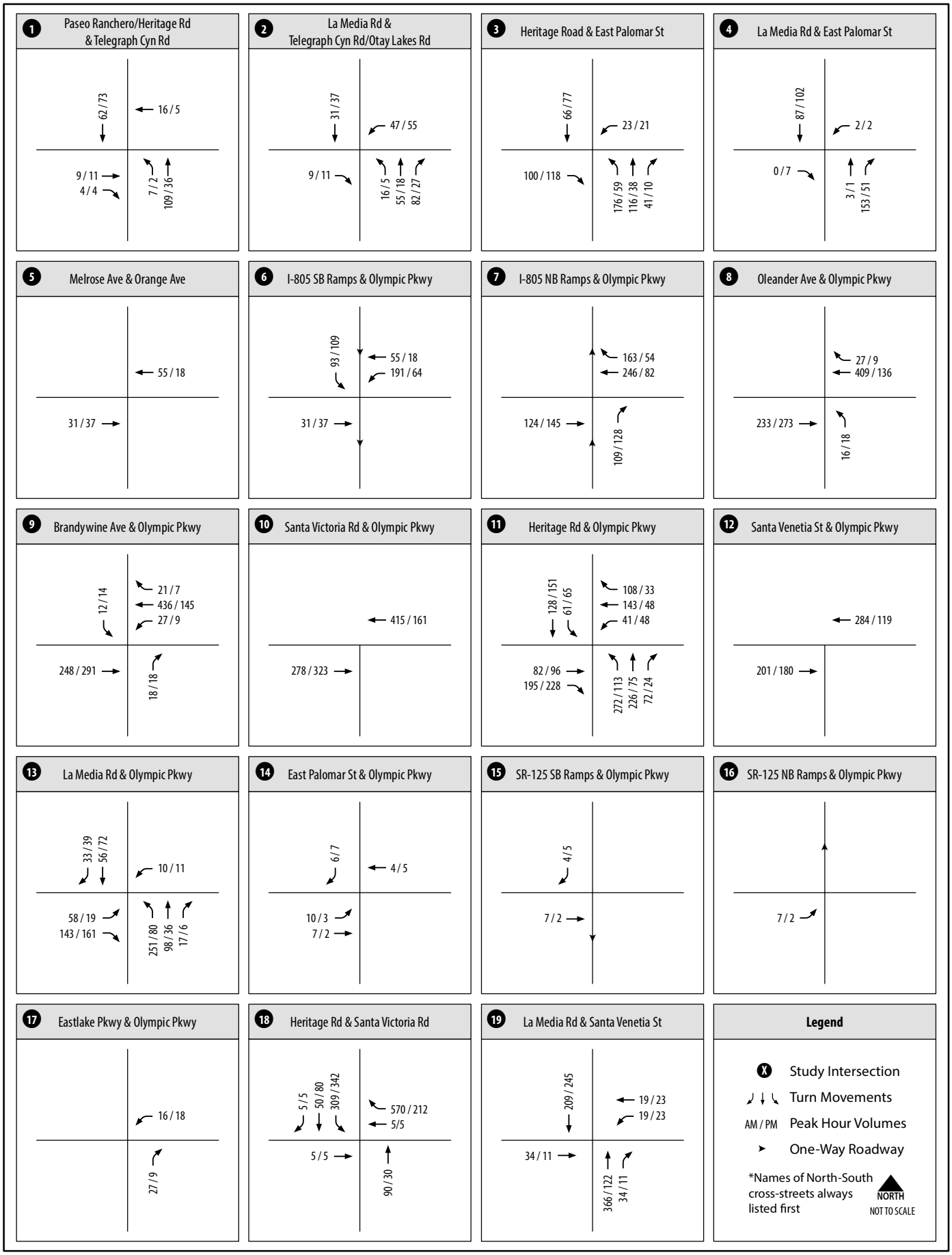
Location	Mitigation Measure	Analysis Year	EDU Trigger
Intersection			
11. Heritage Road / Olympic Parkway	Payment towards TDIF (for the construction of Main Street)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
13. La Media Road / Olympic Parkway	Payment towards TDIF (for the construction of Main Street)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
26. Heritage Road / Main Street	Payment towards TDIF (for Signalization)	2015	First final map that contain the 1st EDU of Village 2 Comprehensive SPA with Heritage Road connection to Main Street
27. La Media Road (SB) / Main Street (WB)	Payment towards TDIF (for Signalization)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA

TABLE 13.2
EDU TRIGGERS TO RECOMMENDED MITIGATION MEASURES

Location	Mitigation Measure	Analysis Year	EDU Trigger
28. La Media Road (NB) / Main Street (WB)	Payment towards TDIF (for Signalization)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
29. La Media Road (SB) / Main Street (EB)	Payment towards TDIF (for Signalization)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
30. La Media Road (NB) / Main Street (EB)	Payment towards TDIF (for Signalization)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
31. Magdalena Avenue / Main Street	Payment towards TDIF (for Signalization)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
Roadway Segment			
Olympic Parkway between Heritage Road and Santa Venetia Street	Payment towards TDIF (for construction of Main Street)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA
Heritage Road between East Palomar Street and Olympic Parkway	Payment towards TDIF (for construction of Main Street)	2025	First final map that contain the 1,311th EDU of Village 2 Comprehensive SPA

Source: Chen Ryan Associates; March 2014

Graphics

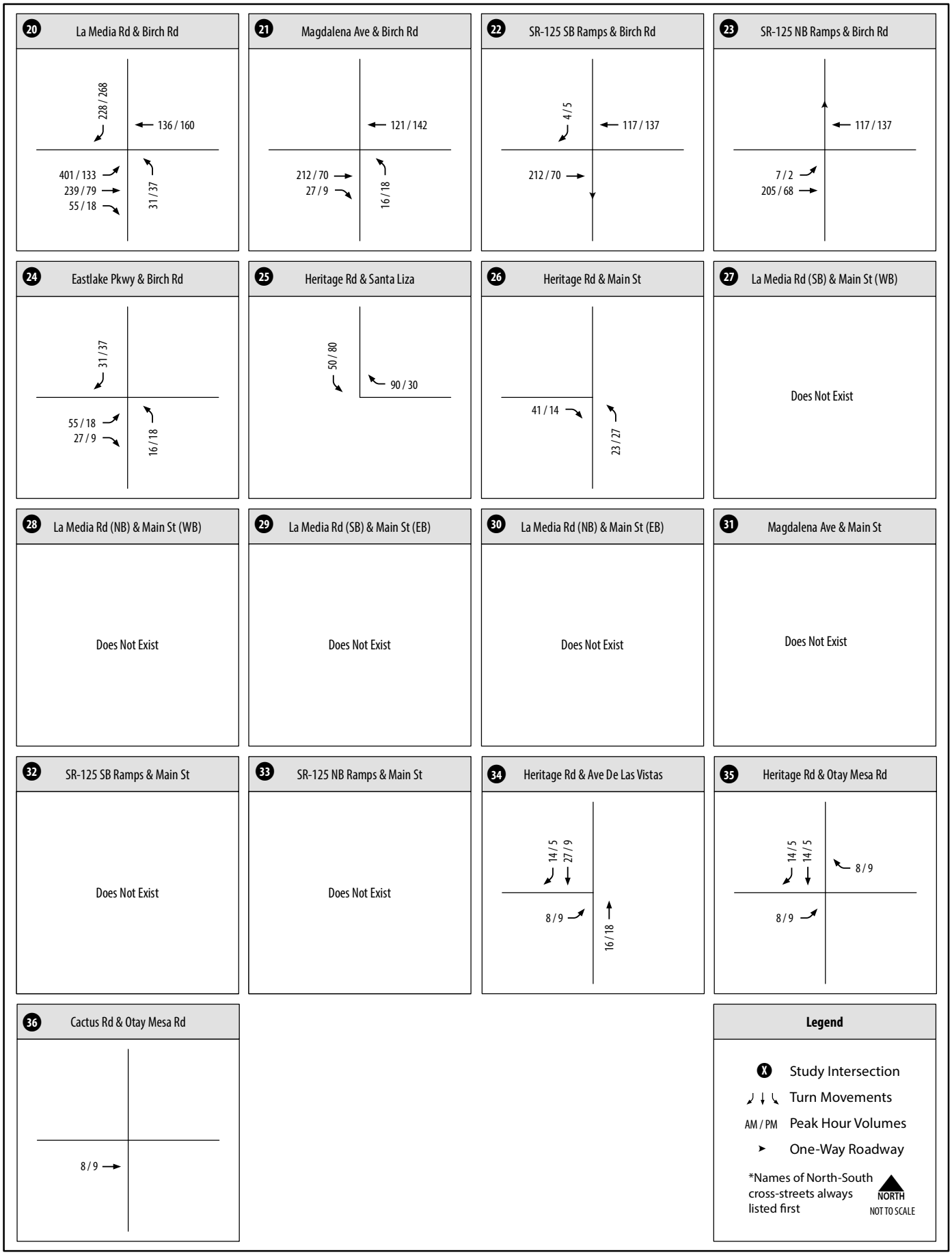


Otay Ranch Village Two TIA

Figure 4-2A.2

CHEN RYAN

Project (Buildout) Trip Assignment (Intersection) - Existing Network (Intersections 1-19)

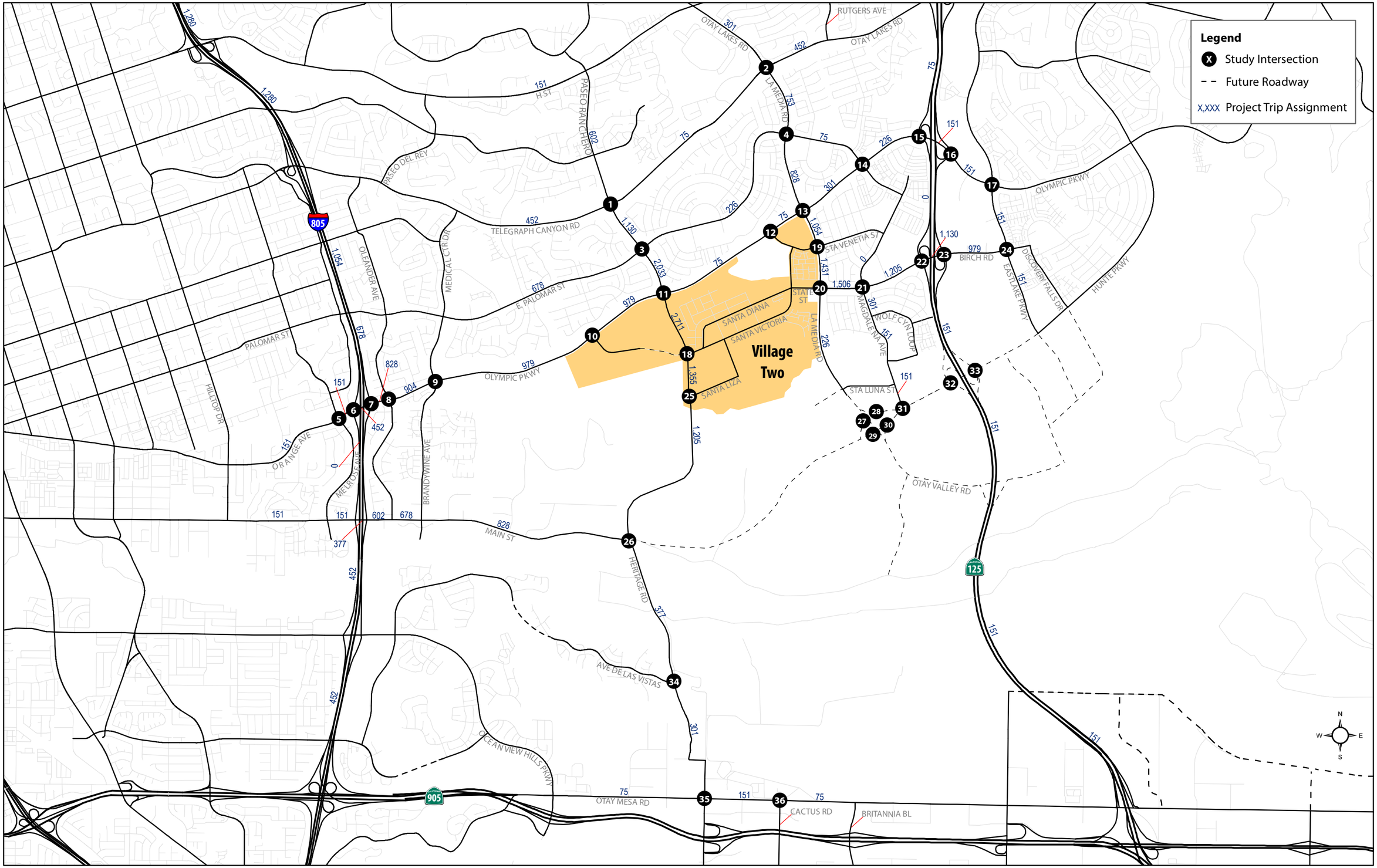


Otay Ranch Village Two TIA

Figure 4-2A.2

CHEN RYAN

Project Trip Assignment (Intersection) - Existing Network (Intersections 20-34)

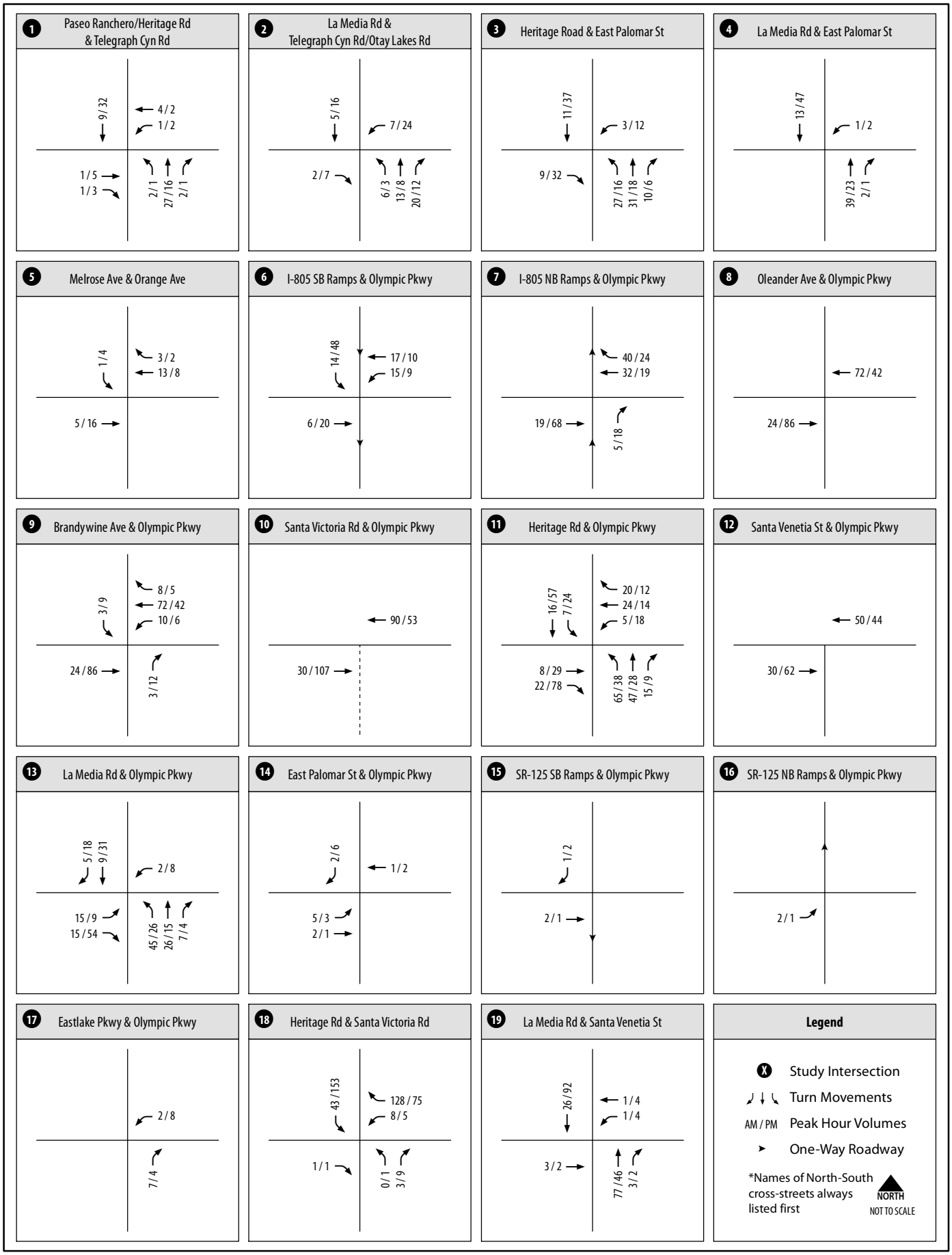


Otay Ranch Village Two TIA

CHEN RYAN

Figure 4-2B.1

Project Trip Assignment (Roadway) - Year 2015 Network

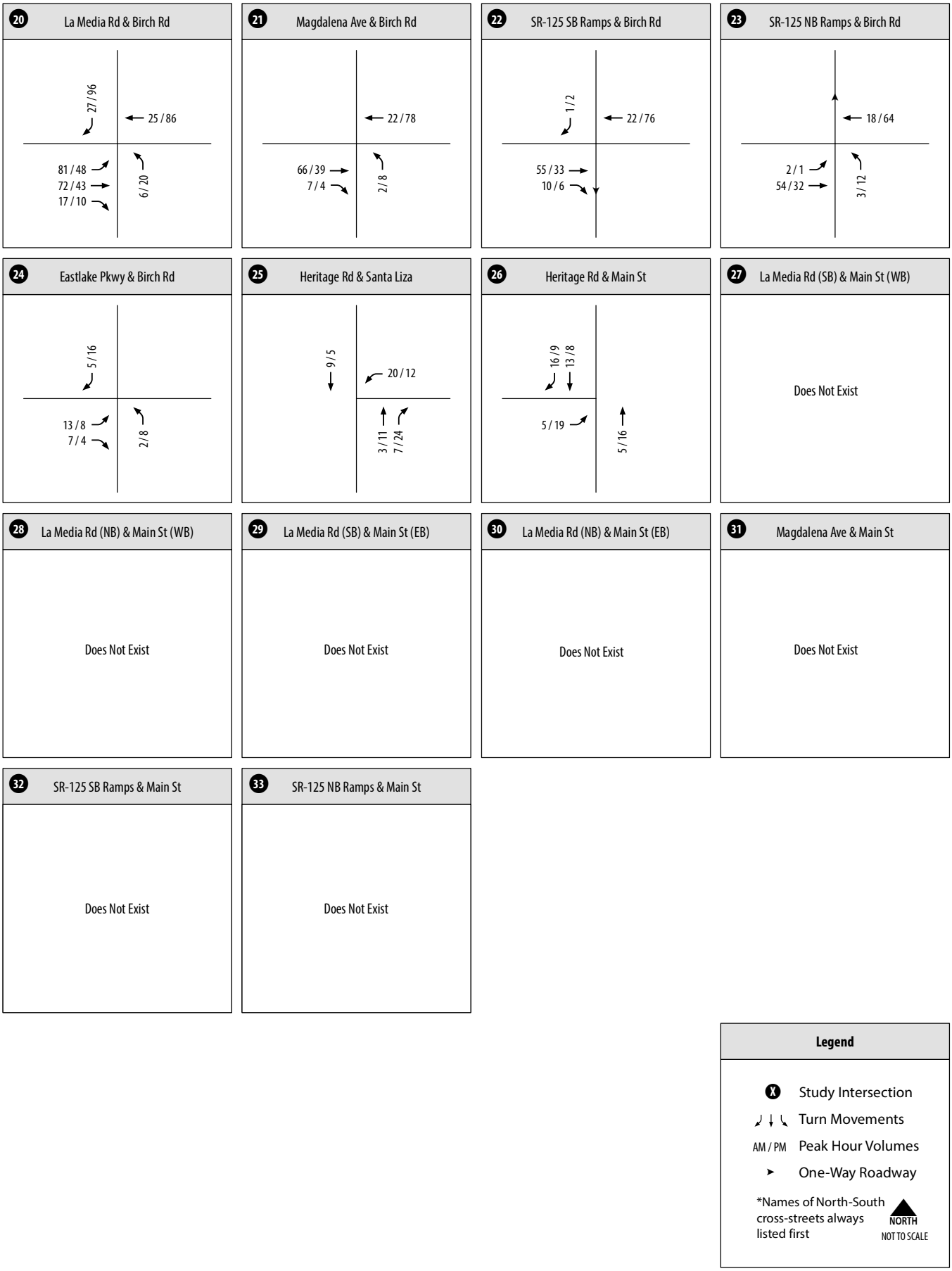


Otay Ranch Village Two TIA

Figure 4-2B.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2015 Network (Intersections 1-19)

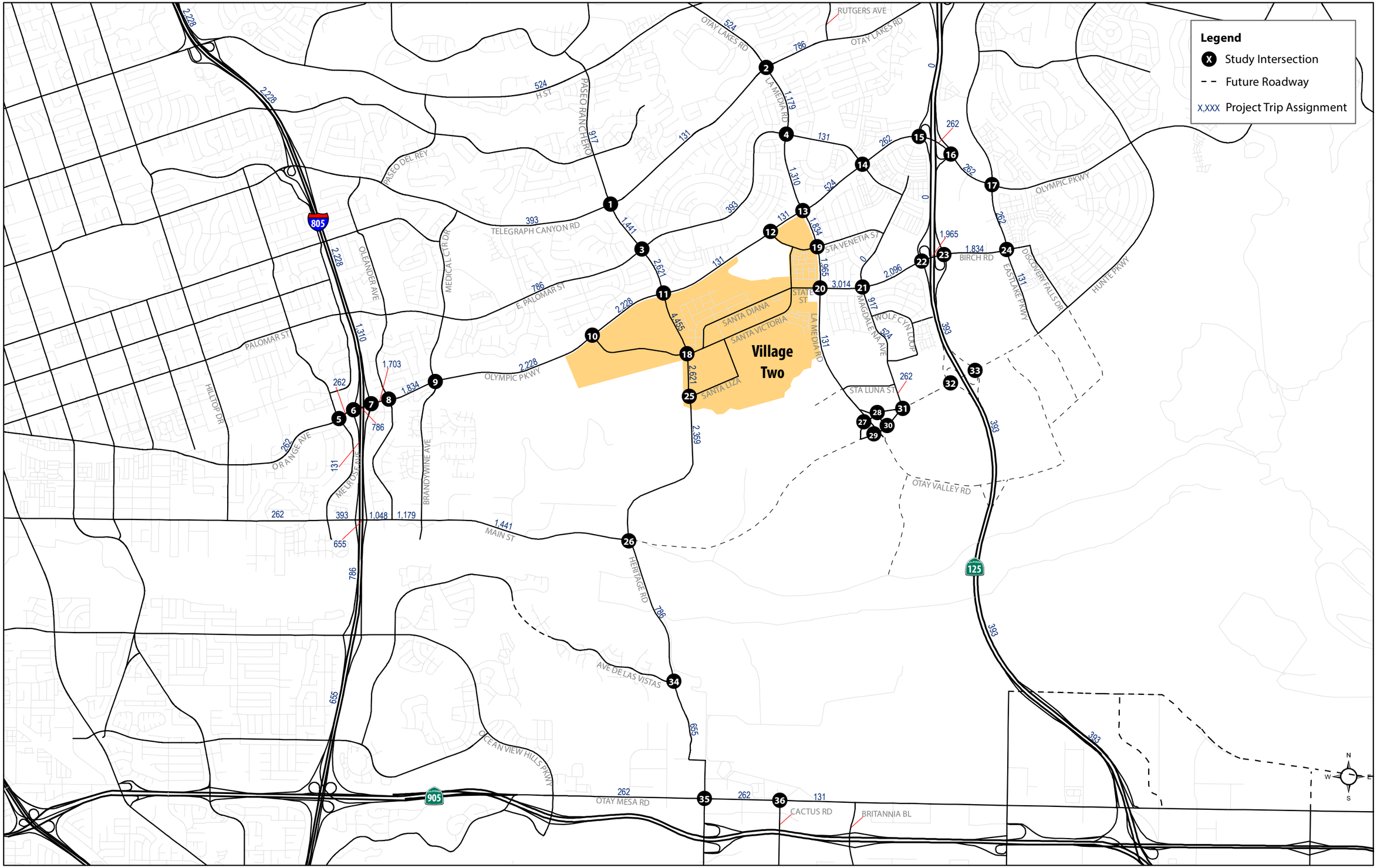


Otay Ranch Village Two TIA

Figure 4-2B.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2015 Network (Intersections 20-34)

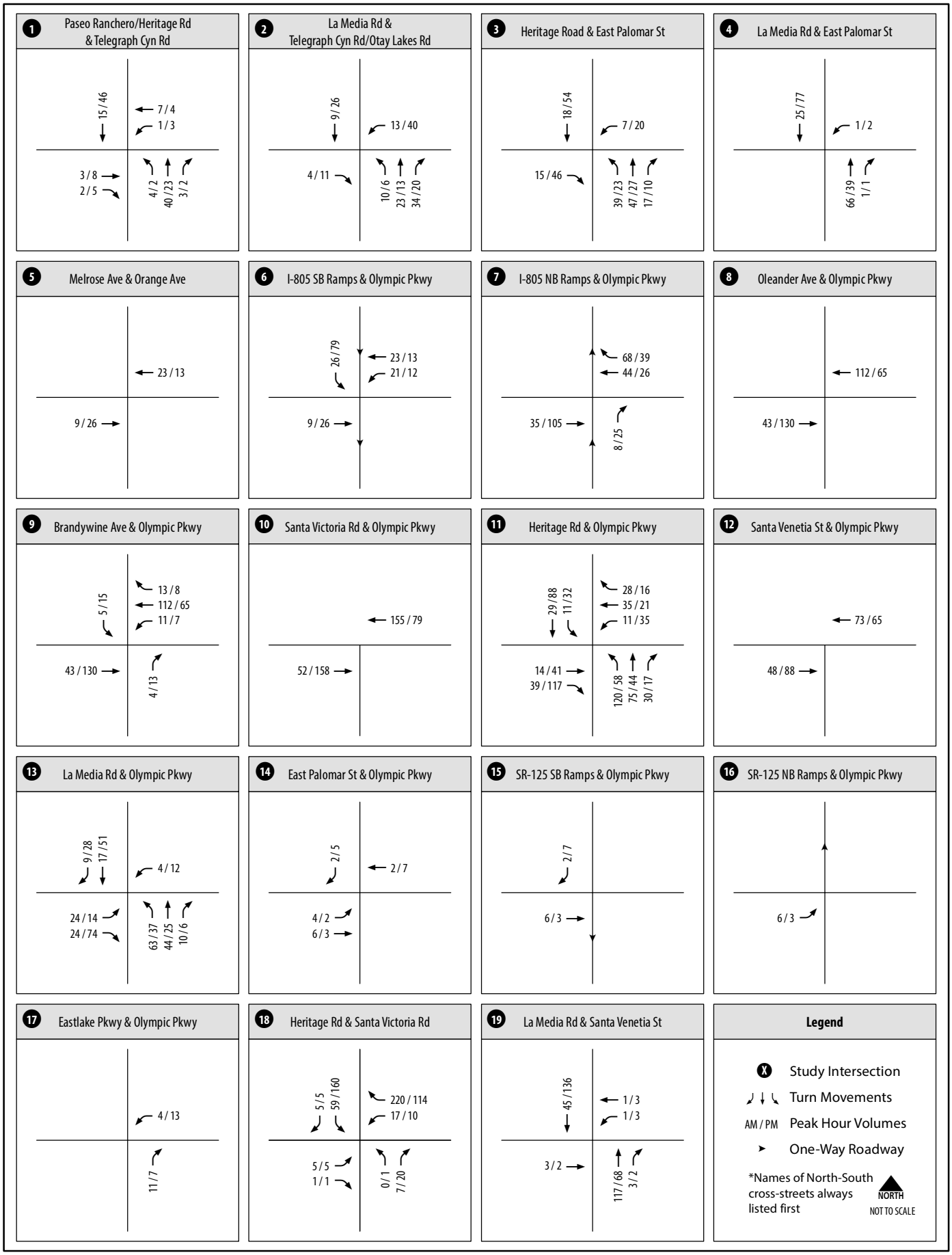


Otay Ranch Village Two TIA

CHEN RYAN

Figure 4-2C.1

Project Trip Assignment (Roadway) - Year 2020 Network

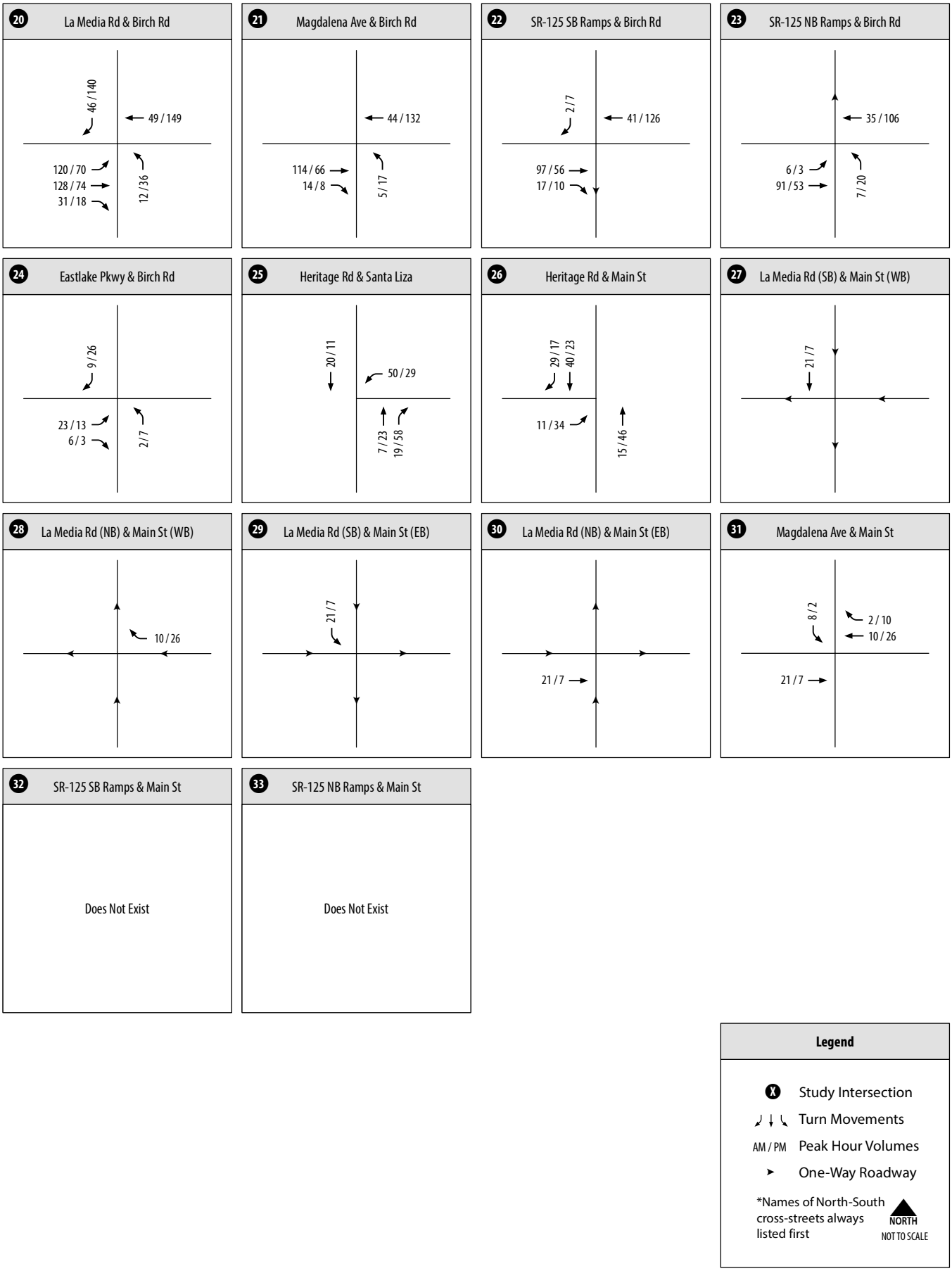


Otay Ranch Village Two TIA

Figure 4-2C.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2020 Network (Intersections 1-19)

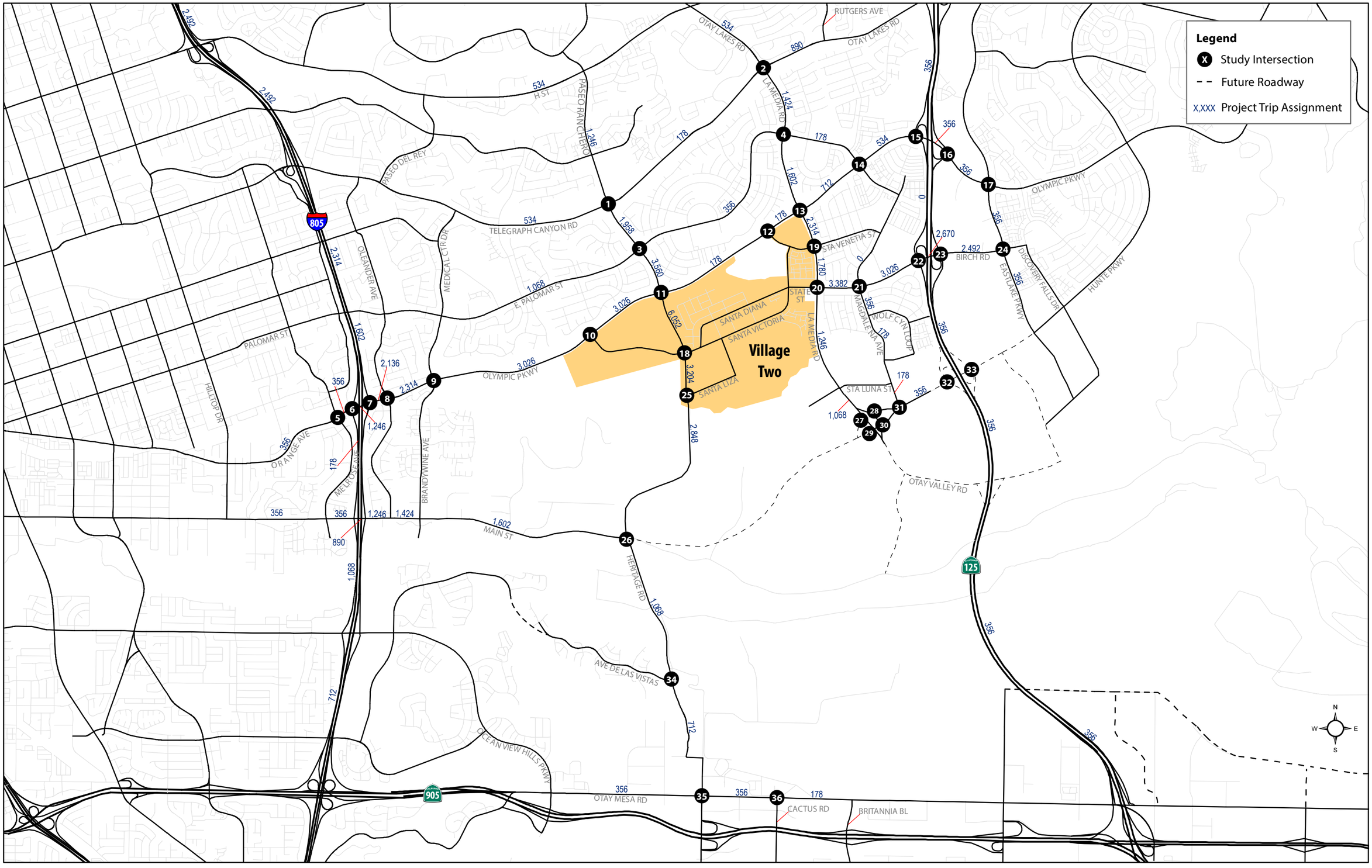


Otay Ranch Village Two TIA

Figure 4-2C.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2020 Network (Intersections 20-34)

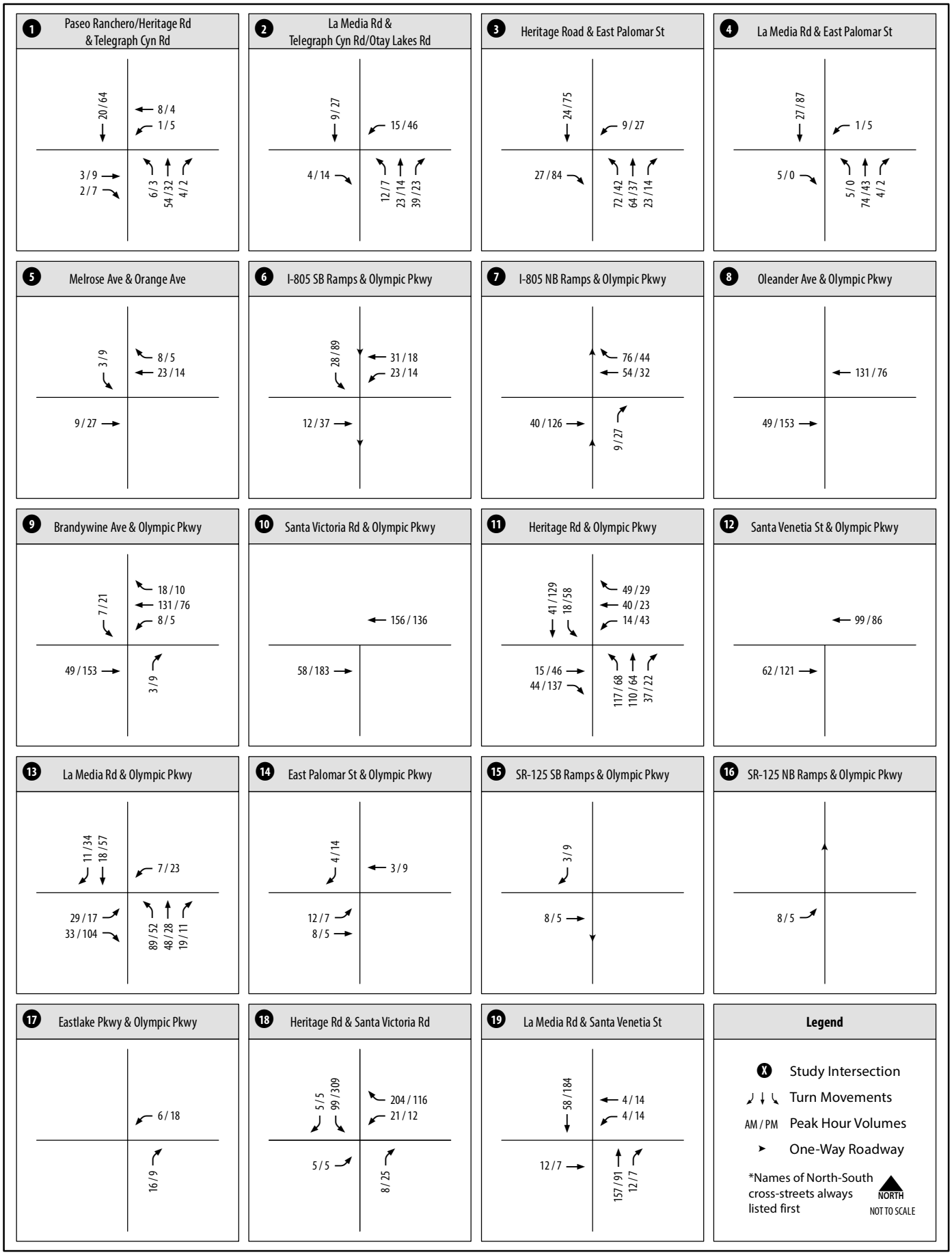


Otay Ranch Village Two TIA

CHEN RYAN

Figure 4-2D.1

Project Trip Assignment (Roadway) - Year 2025 Network

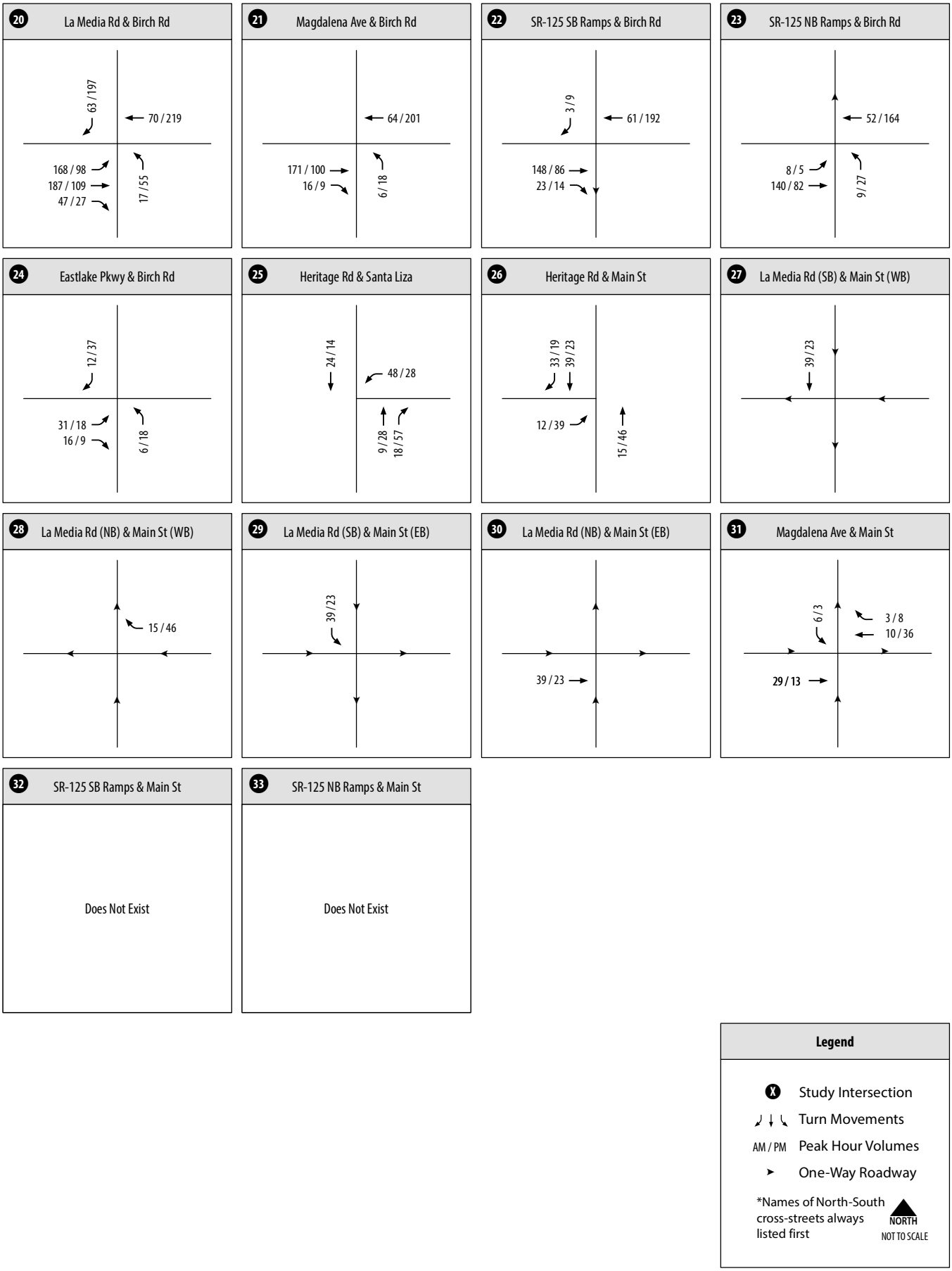


Otay Ranch Village Two TIA

Figure 4-2D.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2025 Network (Intersections 1-19)

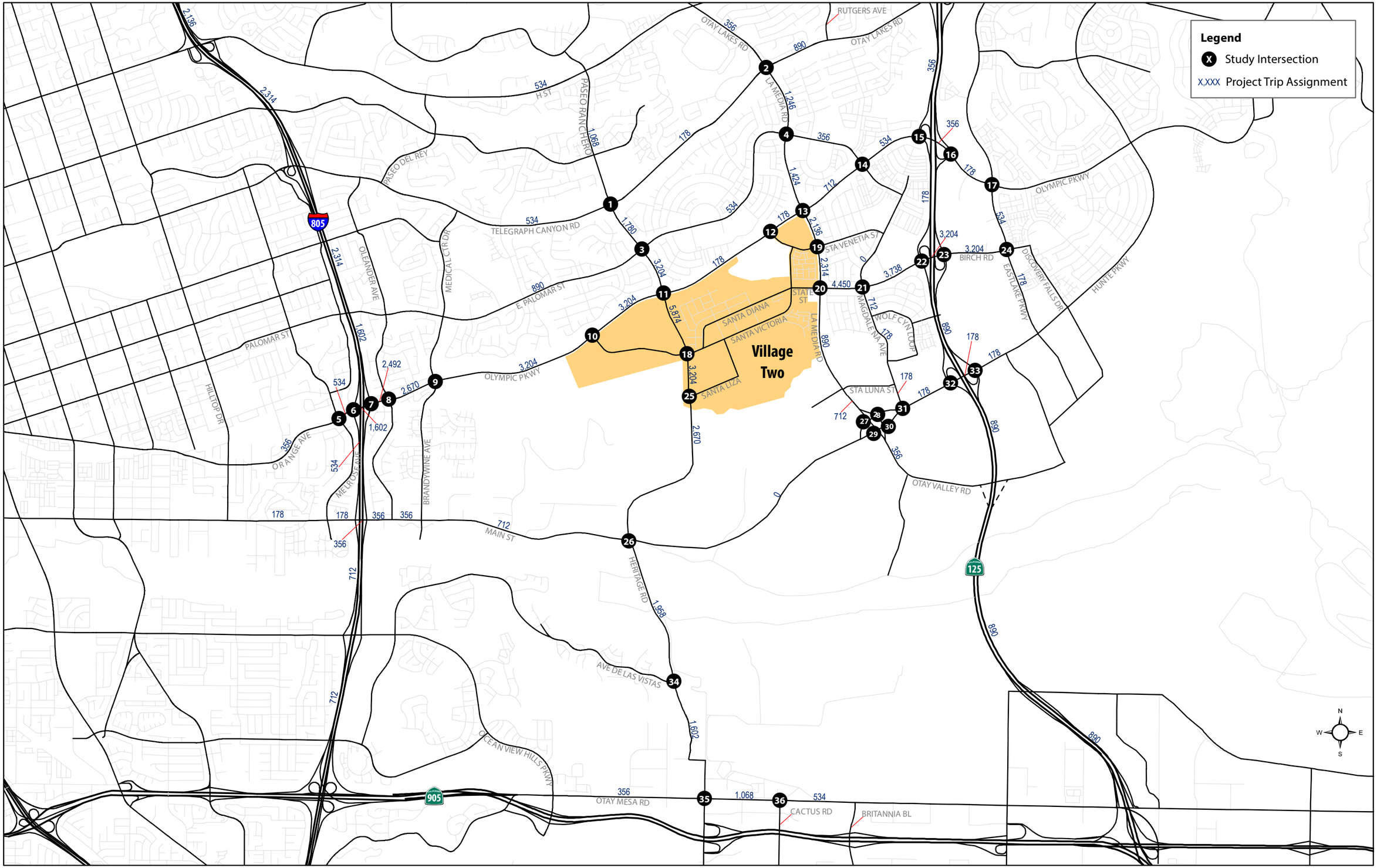


Otay Ranch Village Two TIA

Figure 4-2D.2

CHEN RYAN

Project Trip Assignment (Intersection) - Year 2025 Network (Intersections 20-34)

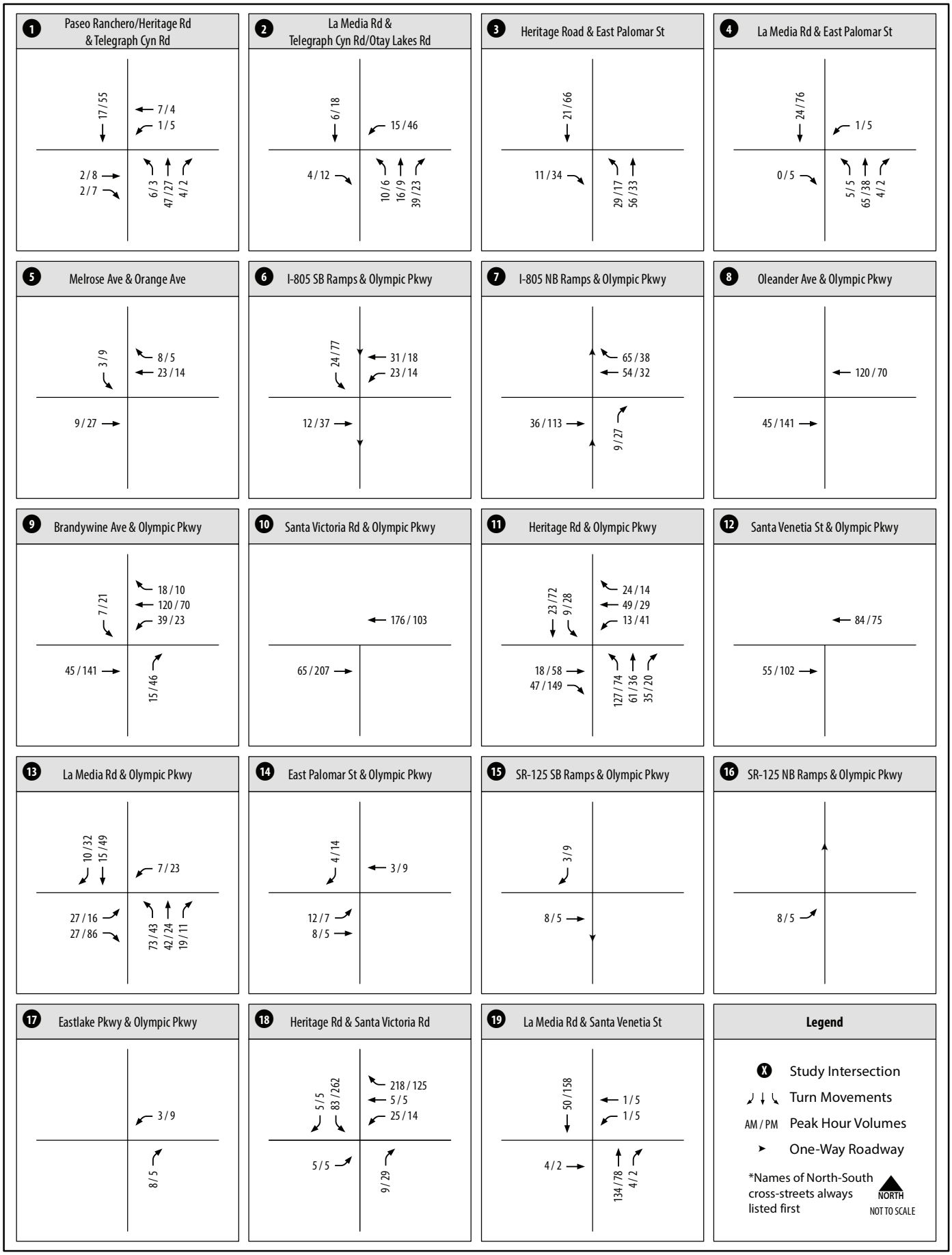


Otay Ranch Village Two TIA

CHEN RYAN

Figure 4-2E.1

Project (Buildout) Trip Assignment (Roadway) - Year 2030 Network

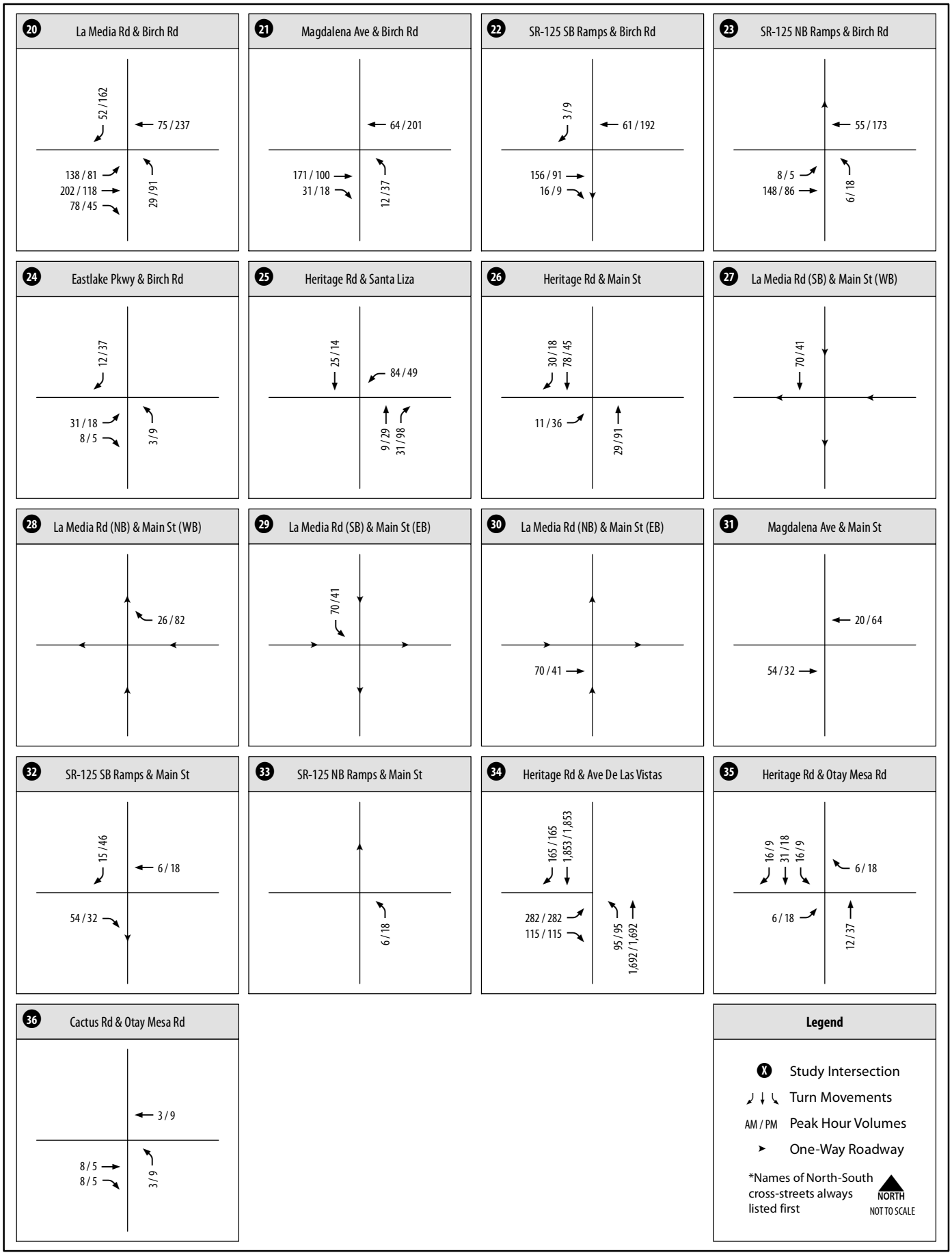


Otay Ranch Village Two TIA

Figure 4-2E.2

CHEN RYAN

Project (Buildout) Trip Assignment (Intersection) - Year 2030 Network (Intersections 1-19)

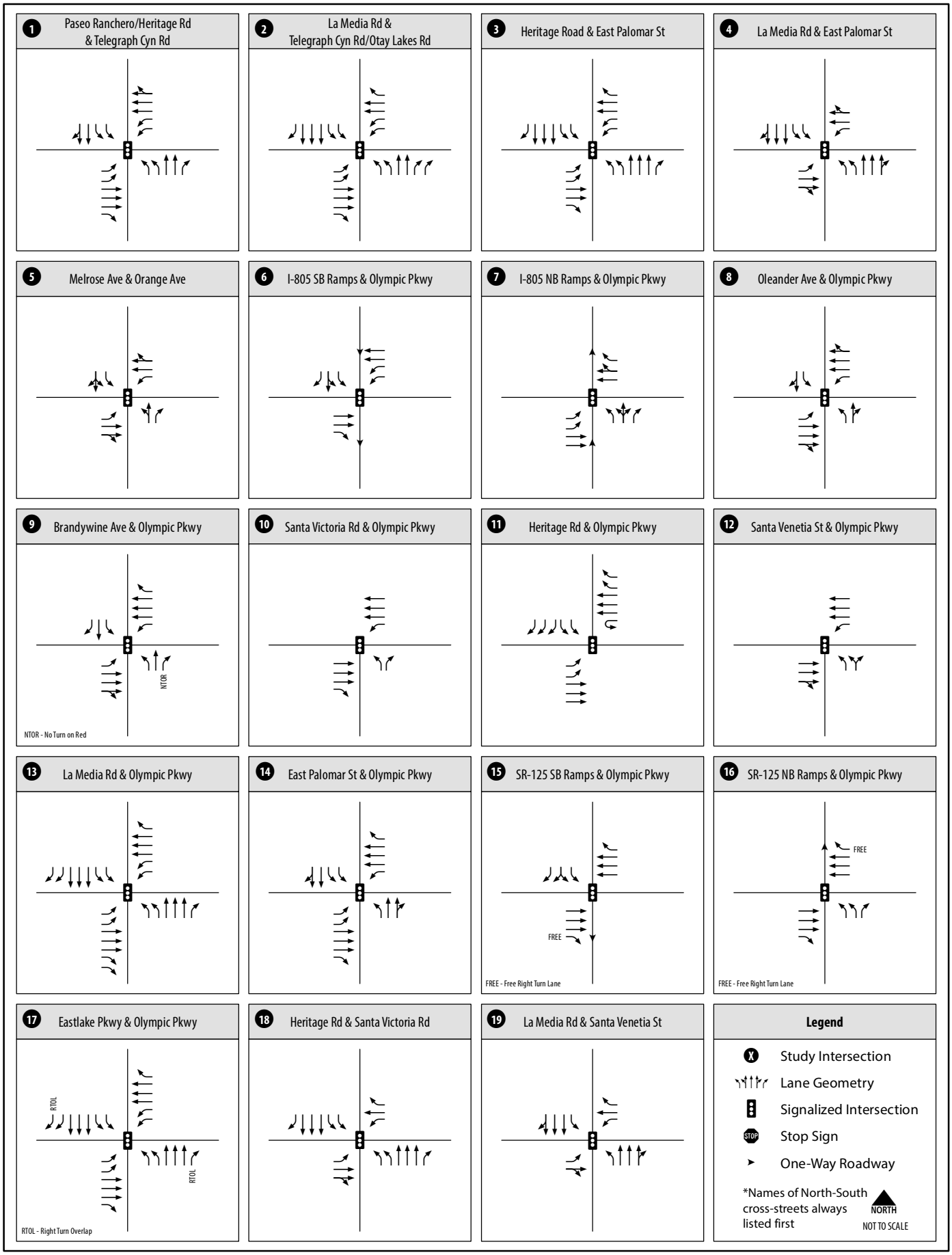


Otay Ranch Village Two TIA

Figure 4-2E.2

CHEN RYAN

Project (Buildout) Trip Assignment (Intersection) - Year 2030 Network (Intersections 20-36)

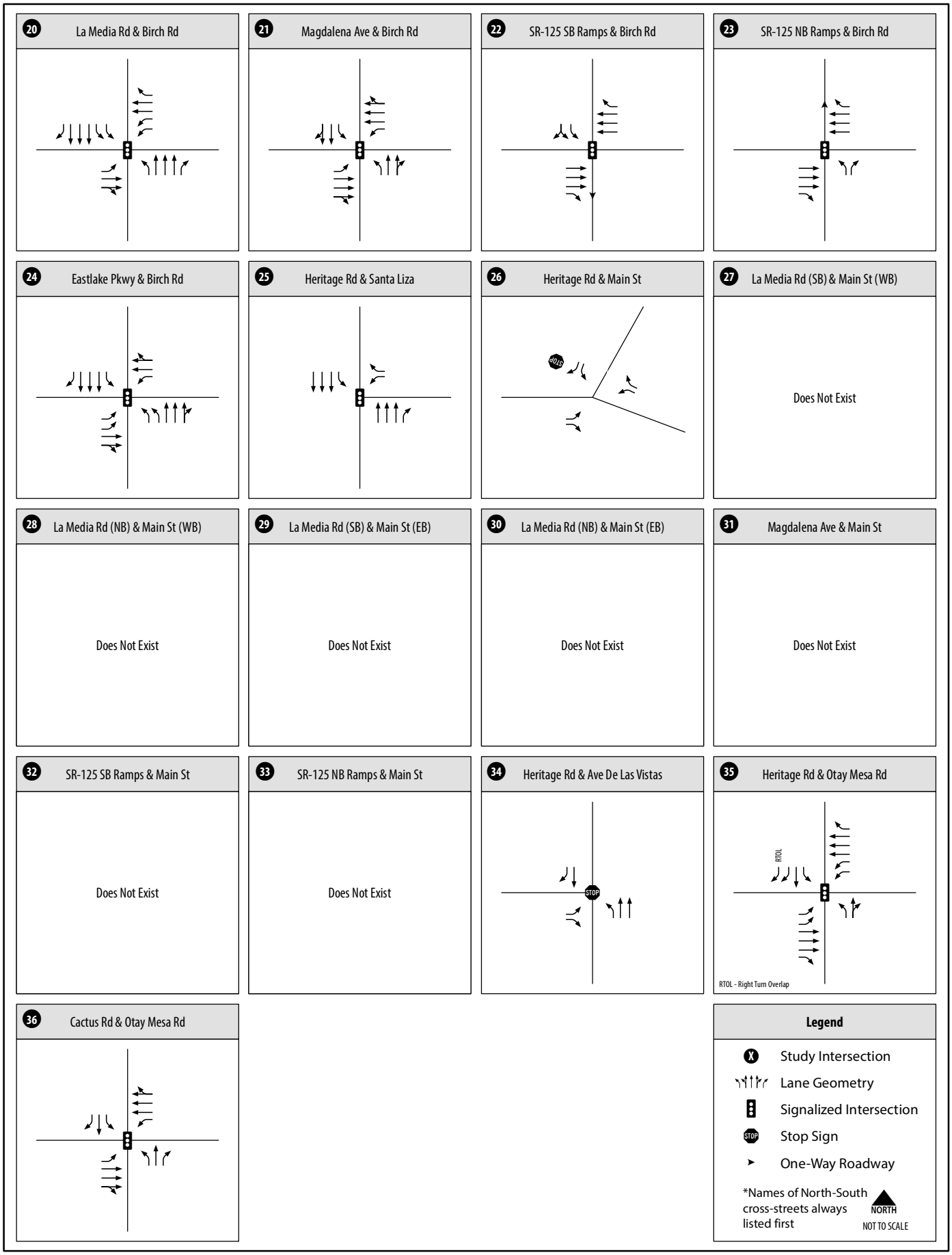


Otay Ranch Village Two TIA

Figure 5-1A

Intersection Geometrics - Existing Plus Project Conditions (Intersections 1-19)

CHEN RYAN

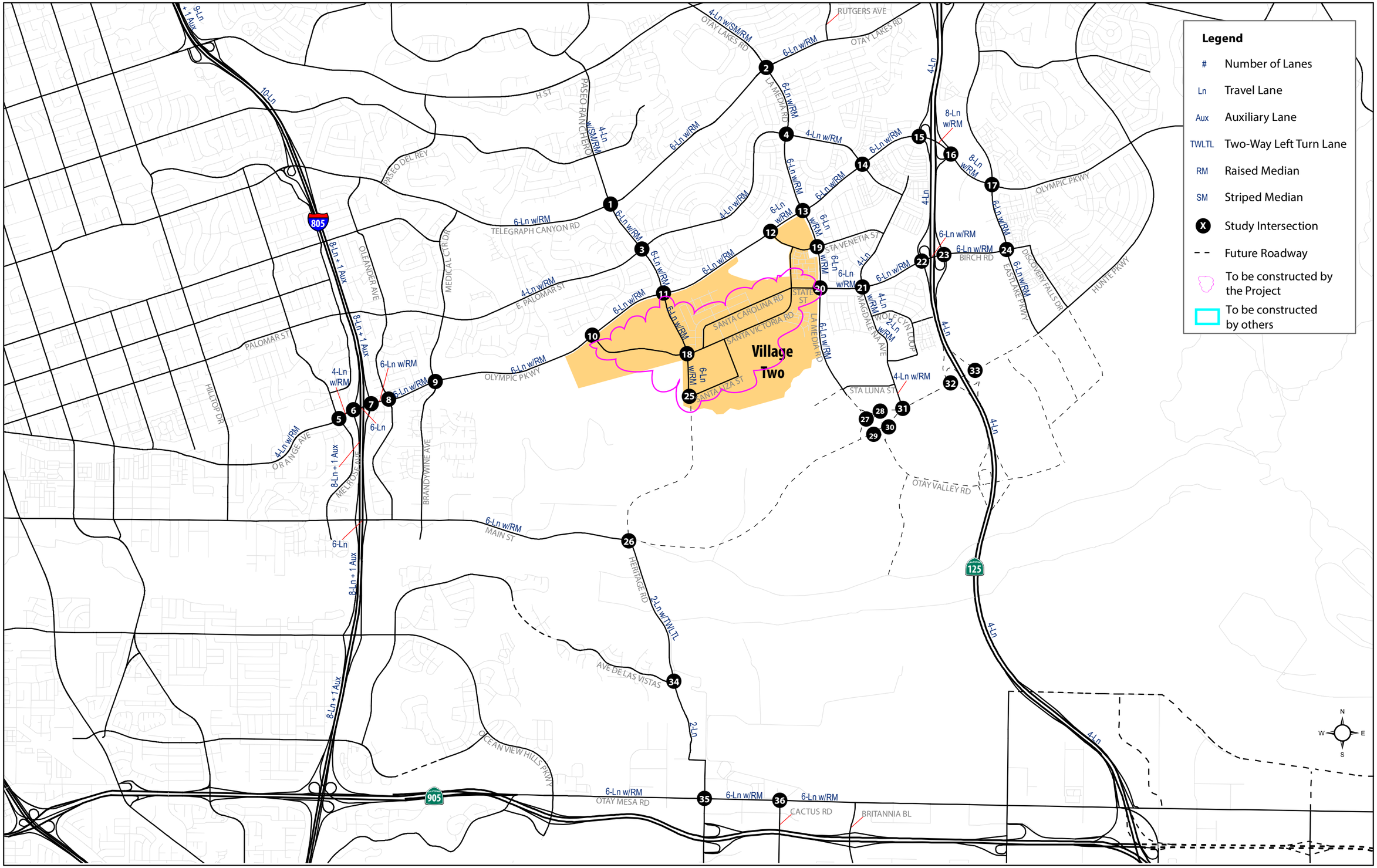


Otay Ranch Village Two TIA

CHEN RYAN

Figure 5-1A

Intersection Geometrics - Existing Plus Project Conditions (Intersections 20-36)

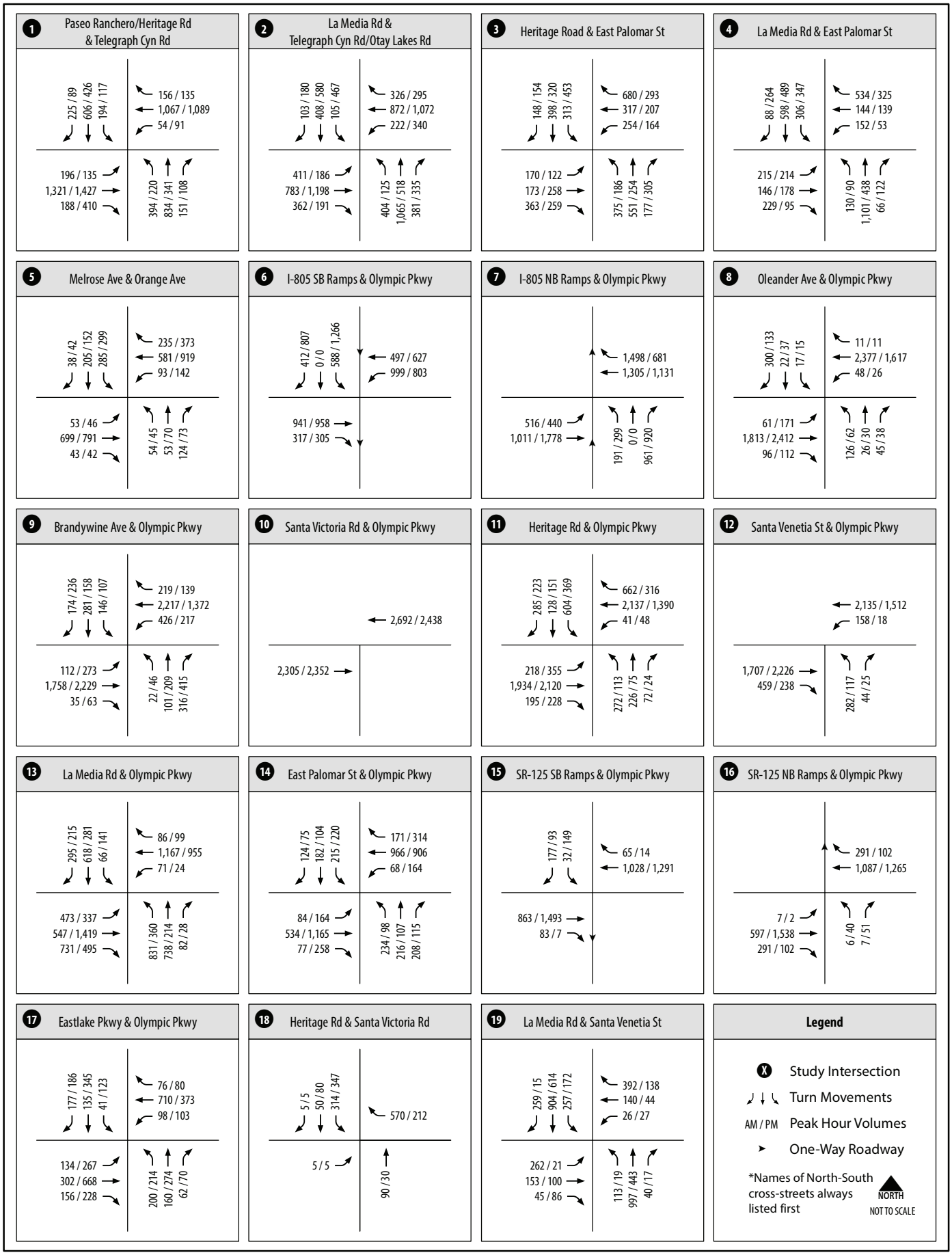


Otay Ranch Village Two TIA

CHEN RYAN

Figure 5-1B

Roadway Geometrics - Existing Plus Project Conditions

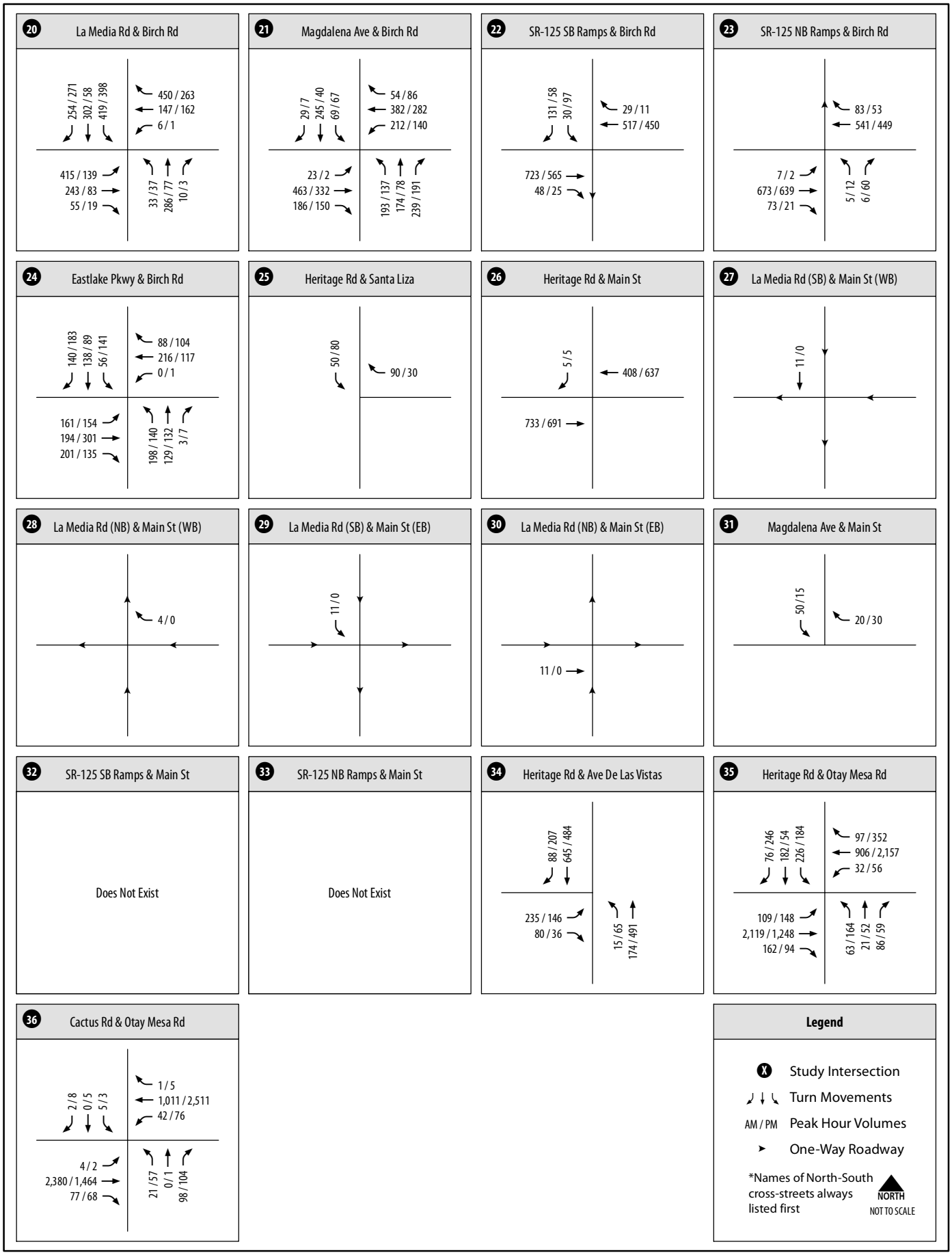


Otay Ranch Village Two TIA

Figure 5-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Existing Plus Project (Buildout) Conditions (Intersections 1-19)

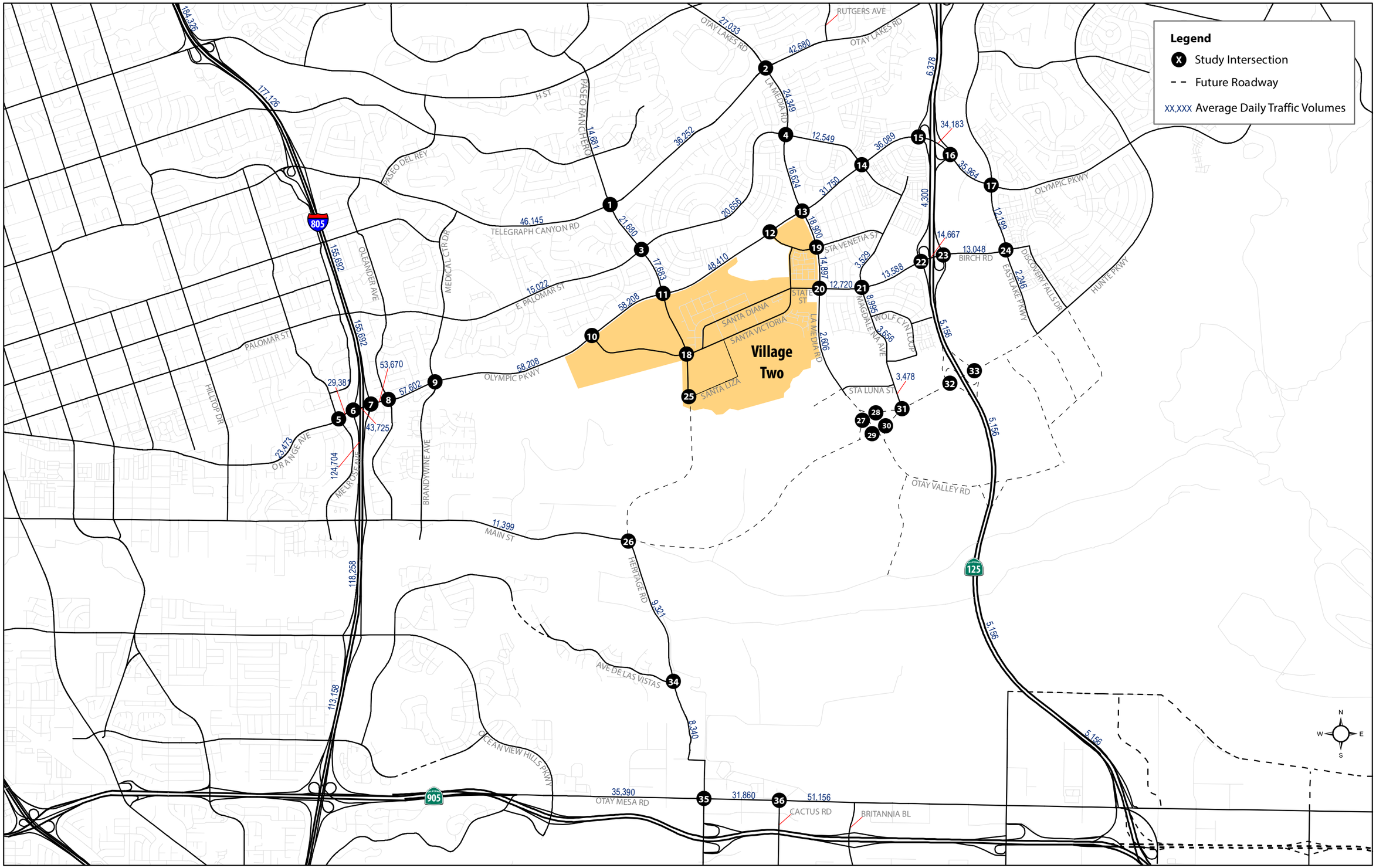


Otay Ranch Village Two TIA

Figure 5-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Existing Plus Project (Buildout) Conditions (Intersections 20-36)

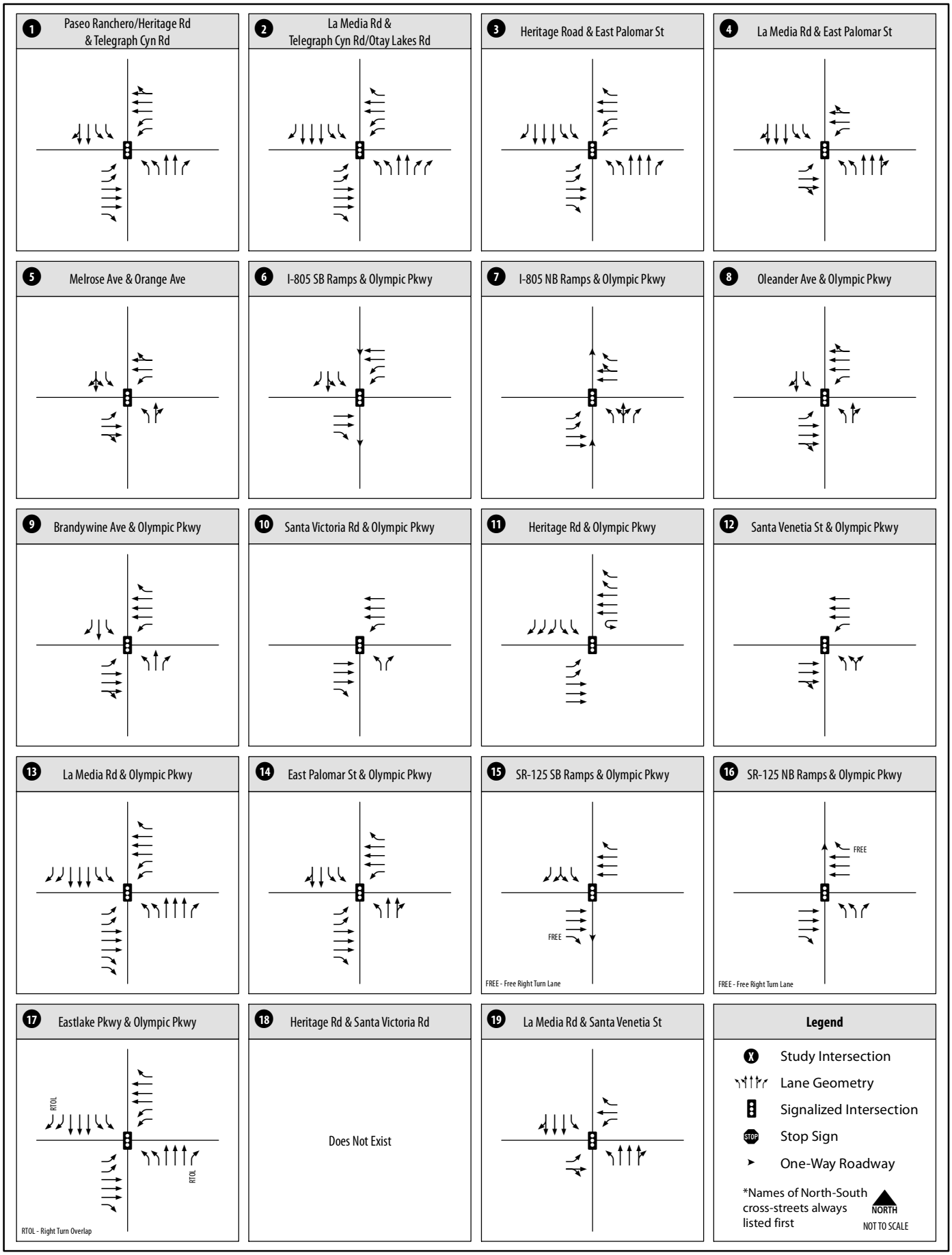


Otay Ranch Village Two TIA

CHEN RYAN

Figure 5-2B

Roadway Average Daily Traffic Volumes - Existing Plus Project (Buildout) Conditions

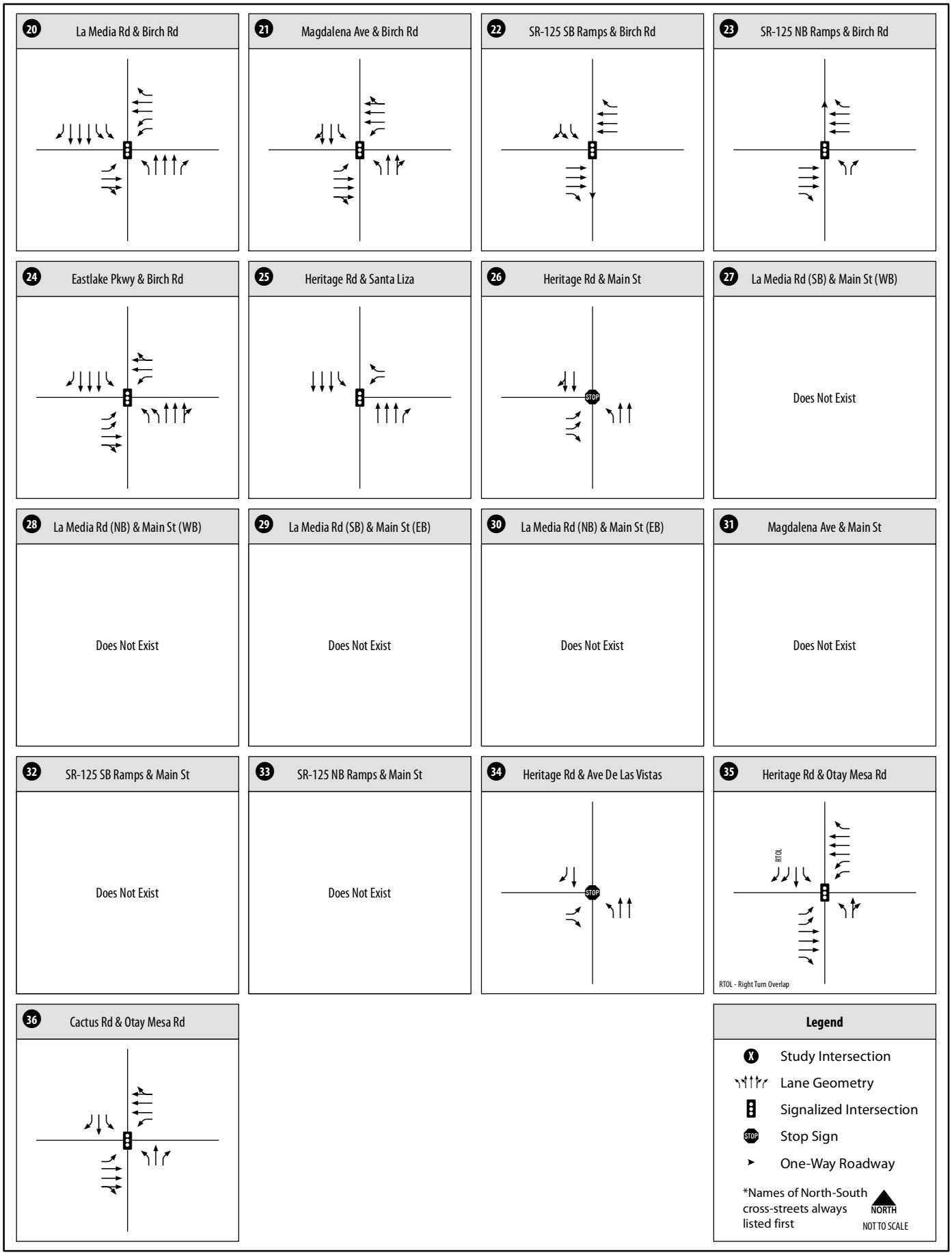


Otay Ranch Village Two TIA

Figure 6-1A

Intersection Geometrics - Year 2015 Conditions (Intersections 1-19)

CHEN RYAN

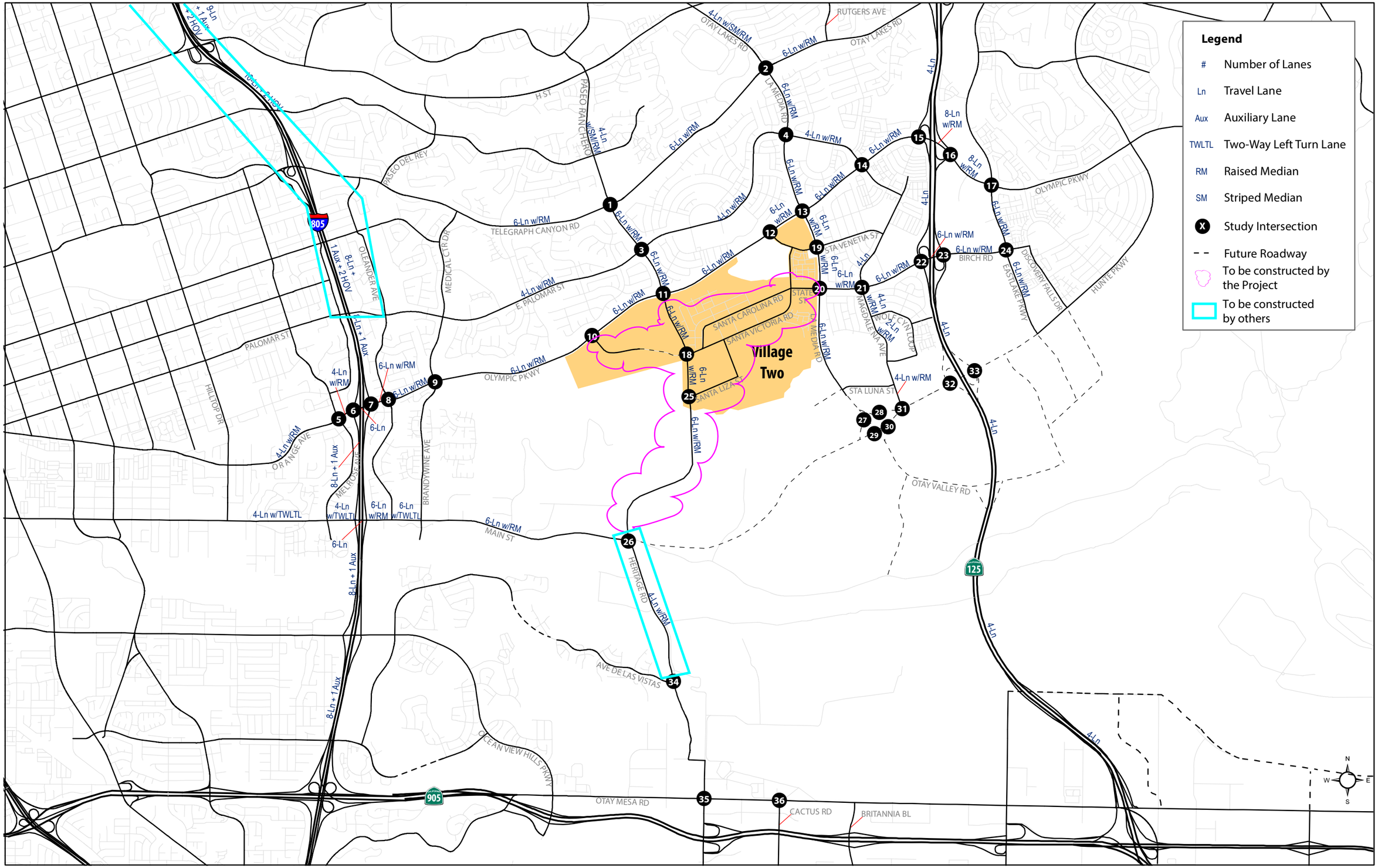


Otay Ranch Village Two TIA

Figure 6-1A

CHEN RYAN

Intersection Geometrics - Year 2015 Conditions (Intersections 20-36)

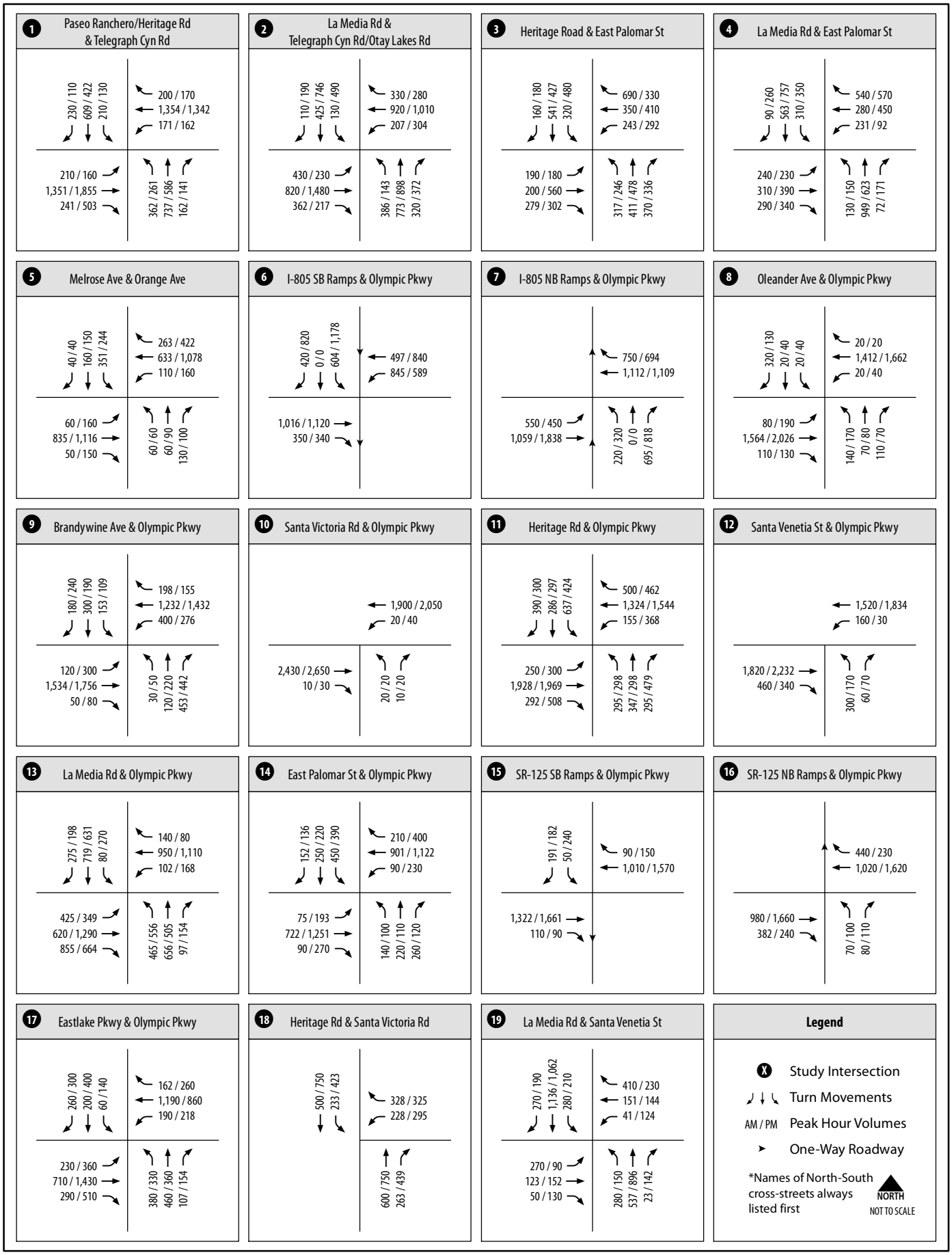


Otay Ranch Village Two TIA

CHEN RYAN

Figure 6-1B

Roadway Geometrics - Year 2015 Conditions

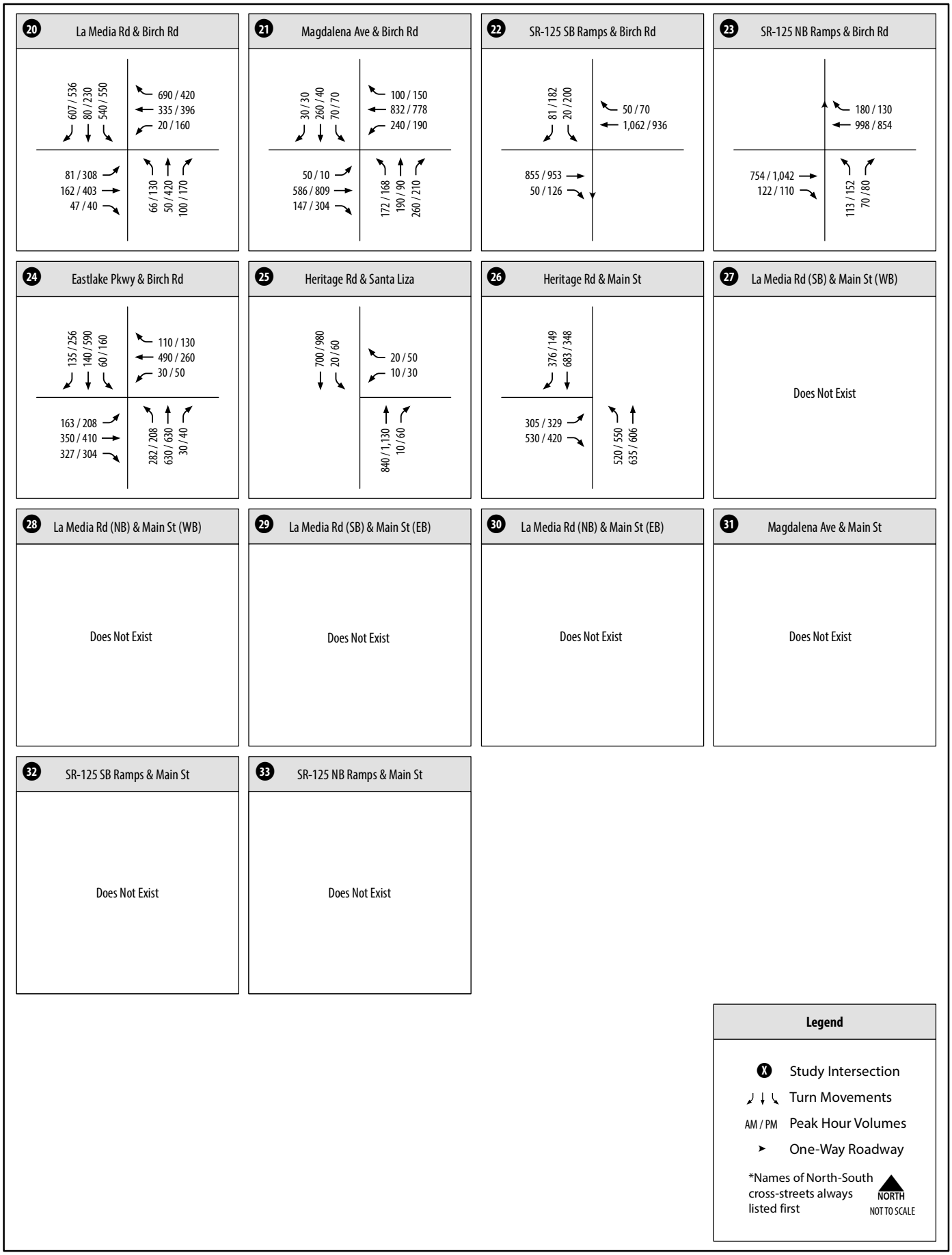


Otay Ranch Village Two TIA

Figure 6-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2015 Base Plus Project Conditions (Intersections 1-19)

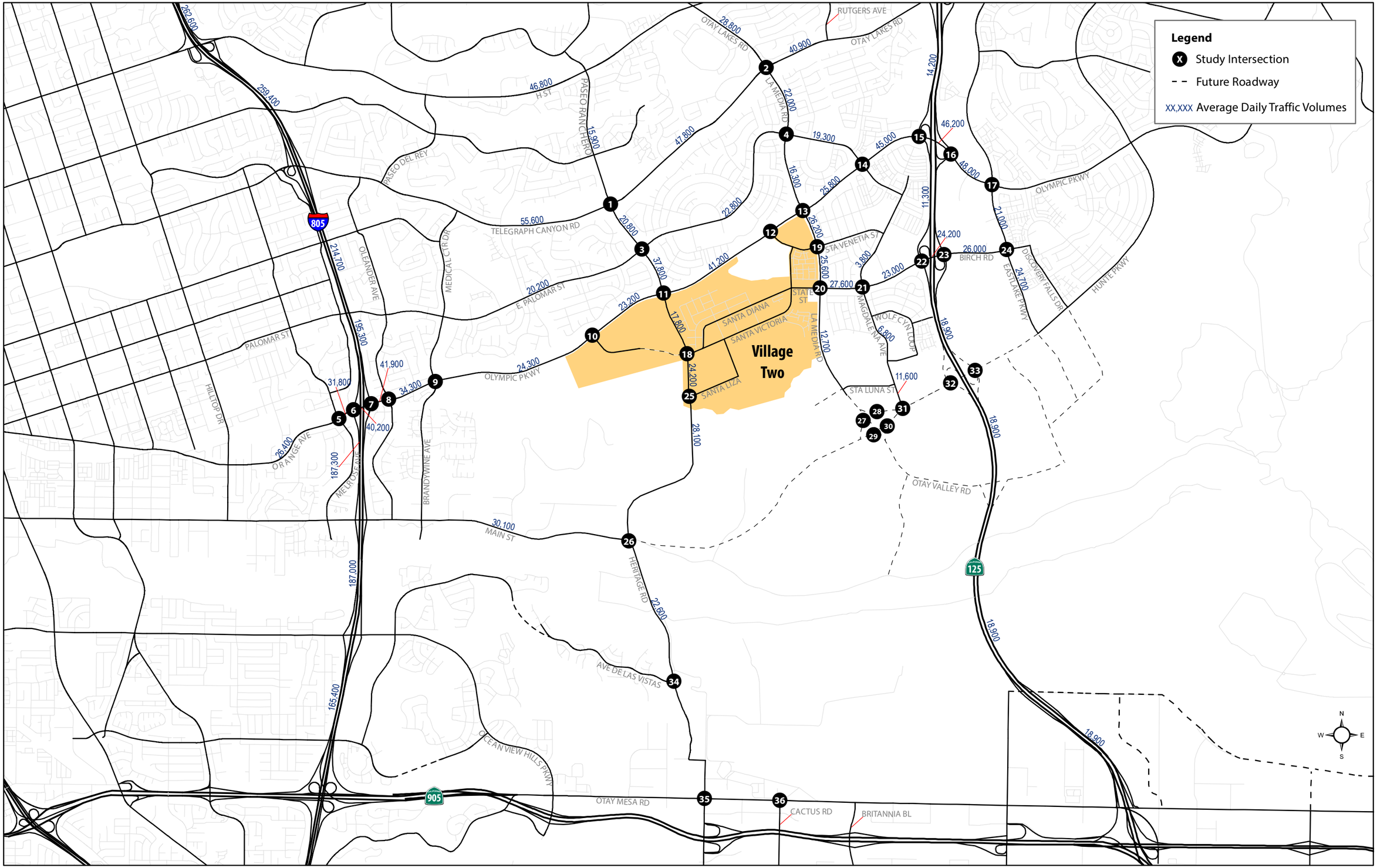


Otay Ranch Village Two TIA

Figure 6-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2015 Base Plus Project Conditions (Intersections 20-34)

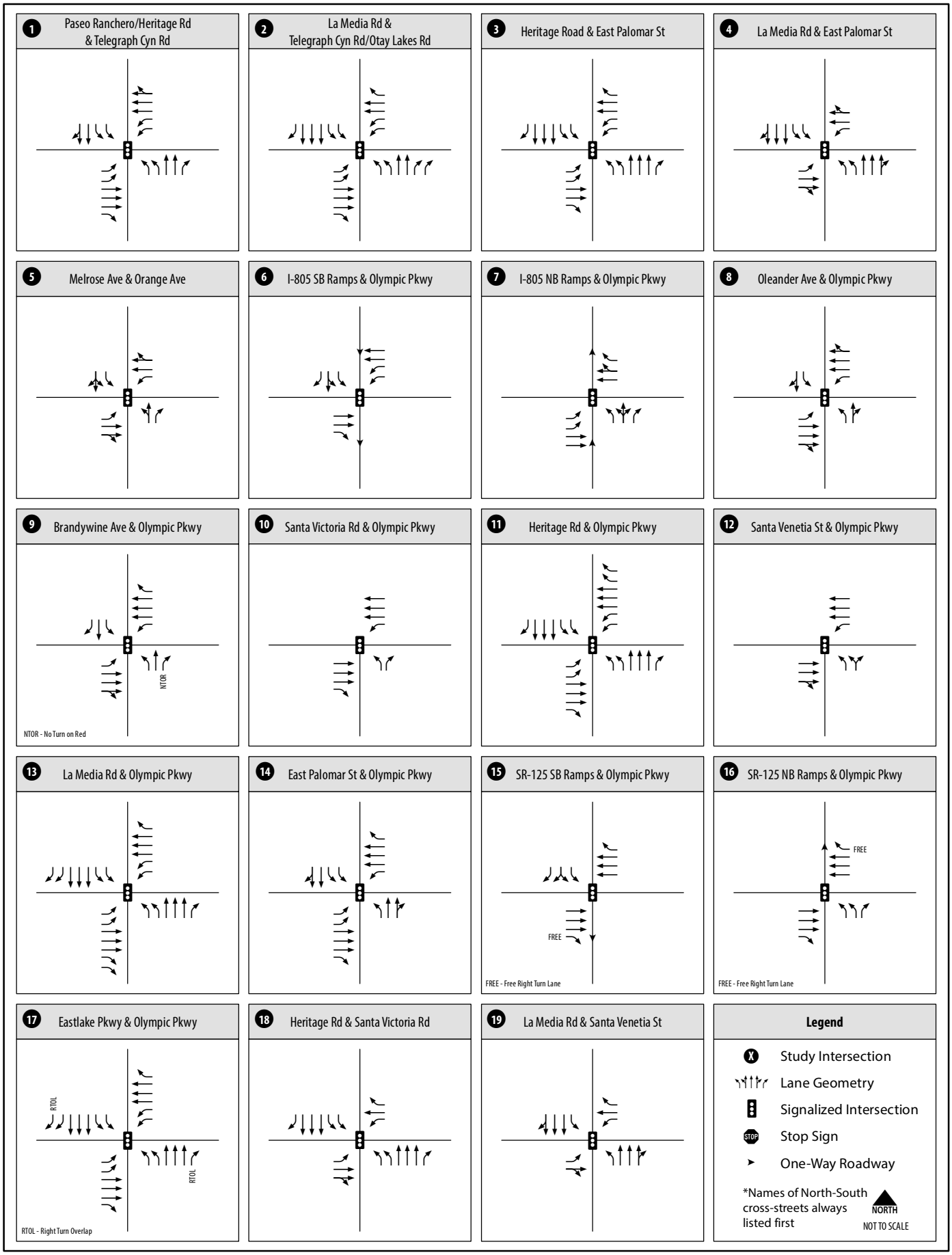


Otay Ranch Village Two TIA

CHEN RYAN

Figure 6-2B

Roadway Average Daily Traffic Volumes - Year 2015 Base Plus Project Conditions

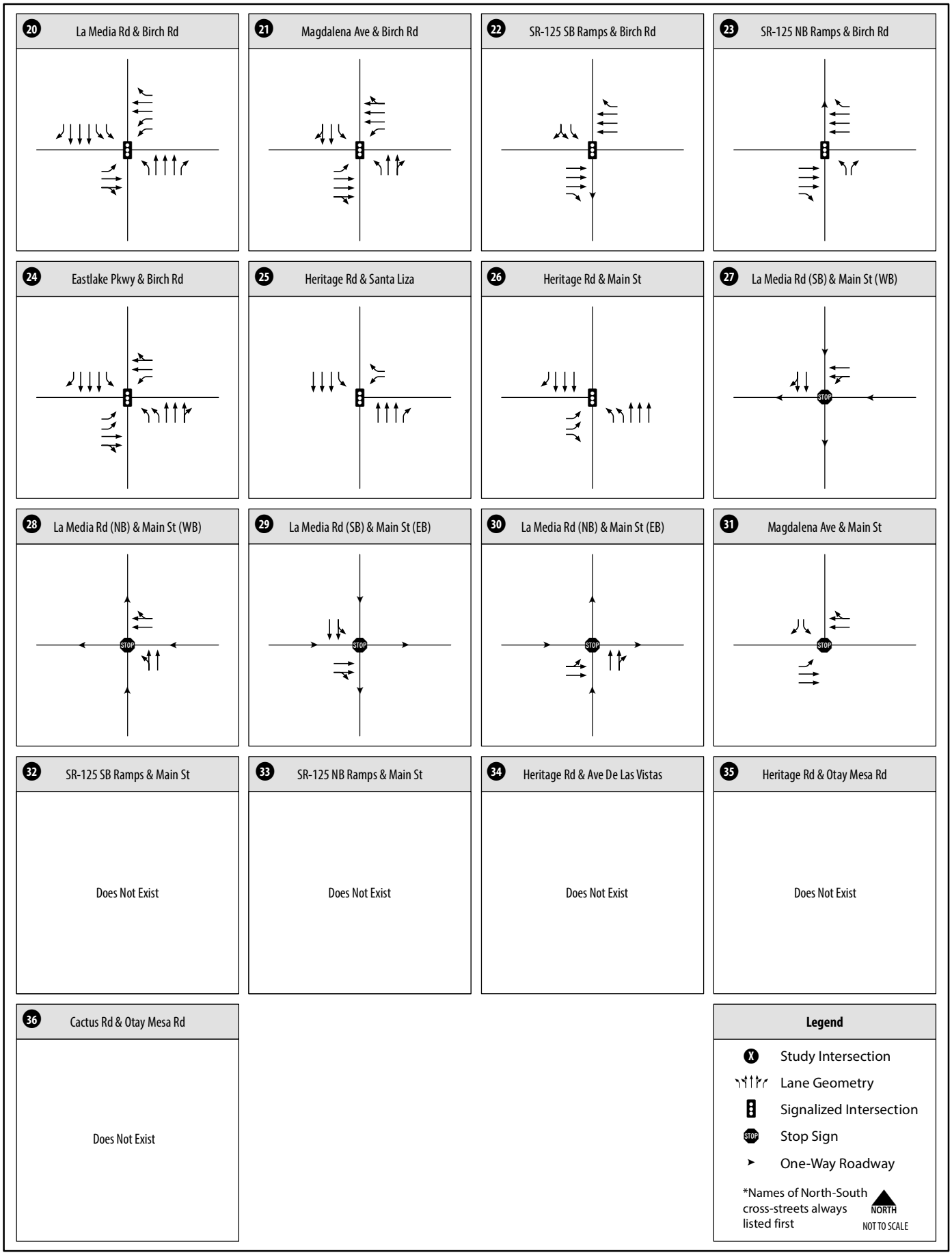


Otay Ranch Village Two TIA

Figure 7-1A

Intersection Geometrics - Year 2020 Conditions (Intersections 1-19)

CHEN RYAN

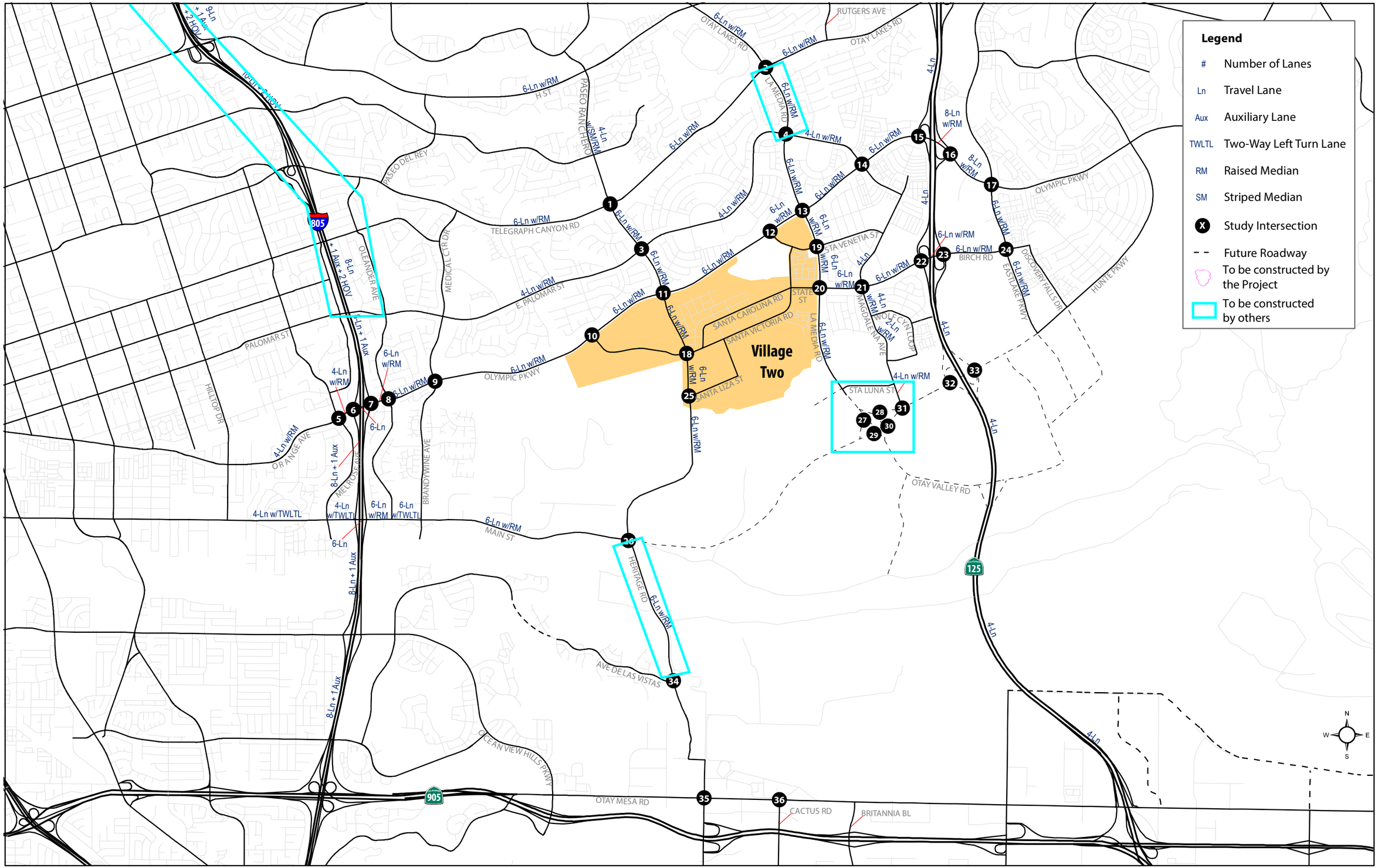


Otay Ranch Village Two TIA

Figure 7-1A

Intersection Geometrics - Year 2020 Conditions (Intersections 20-36)

CHEN RYAN

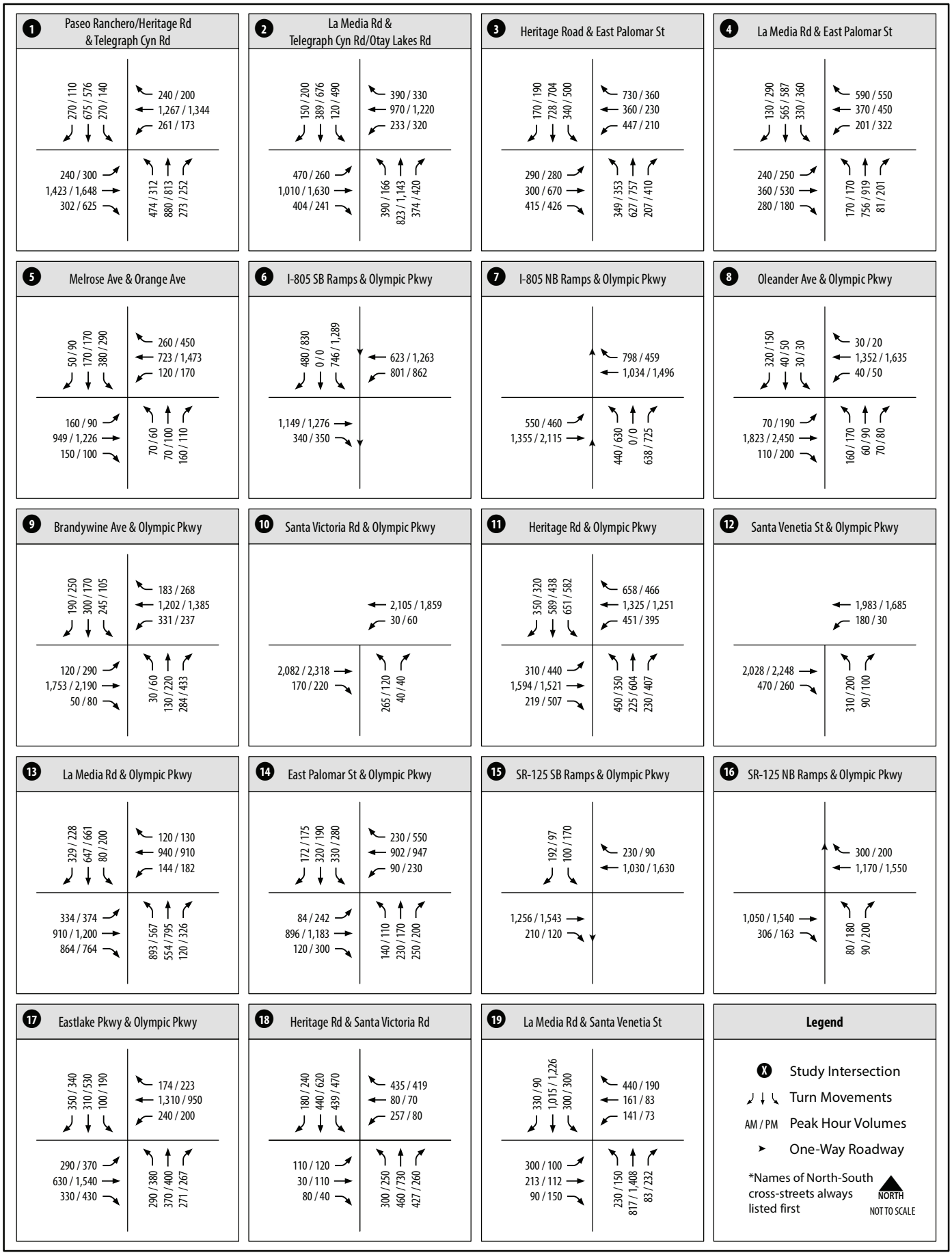


Otay Ranch Village Two TIA

CHEN RYAN

Figure 7-1B

Roadway Geometrics - Year 2020 Conditions

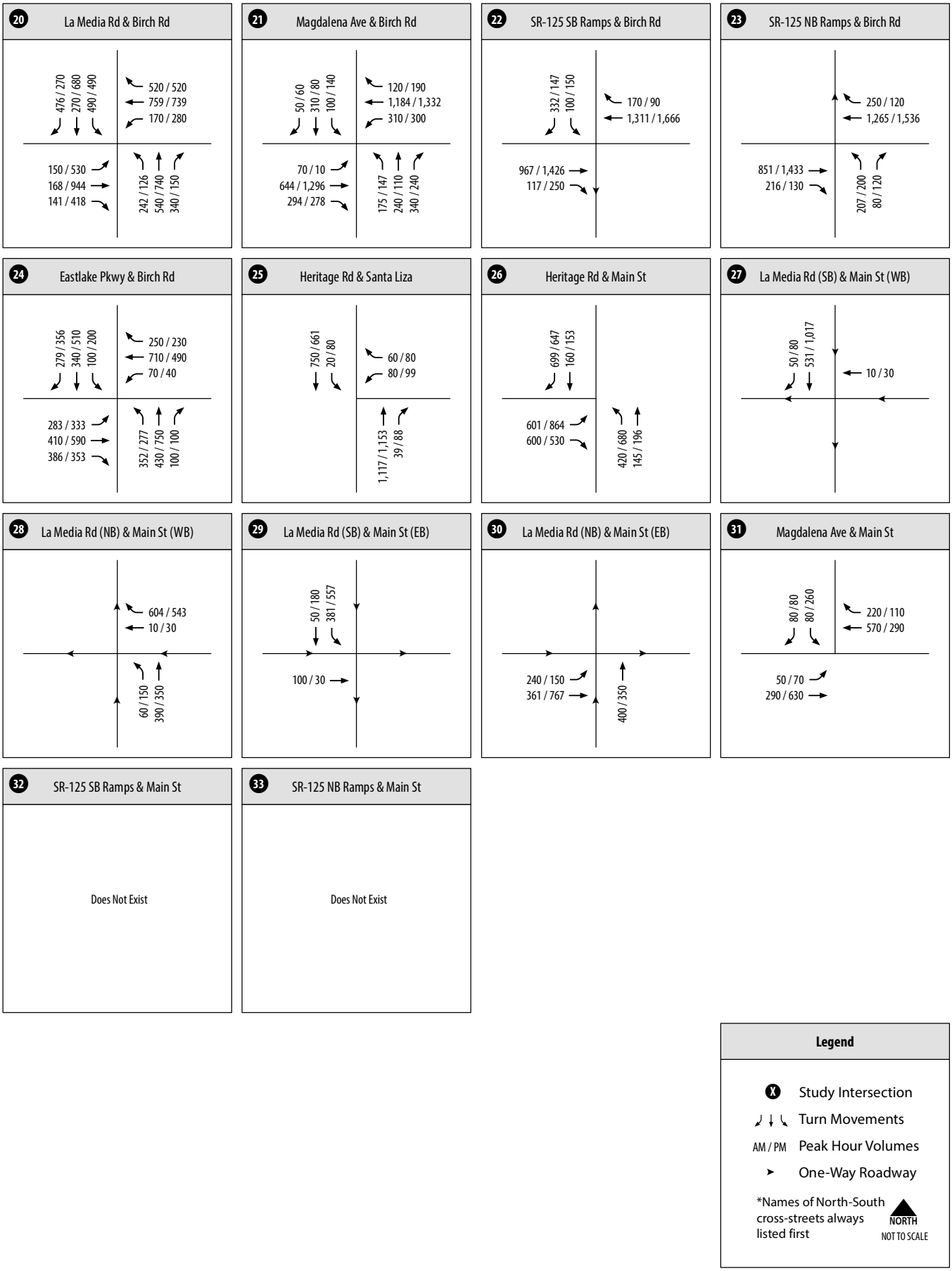


Otay Ranch Village Two TIA

Figure 7-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2020 Base Plus Project Conditions (Intersections 1-19)

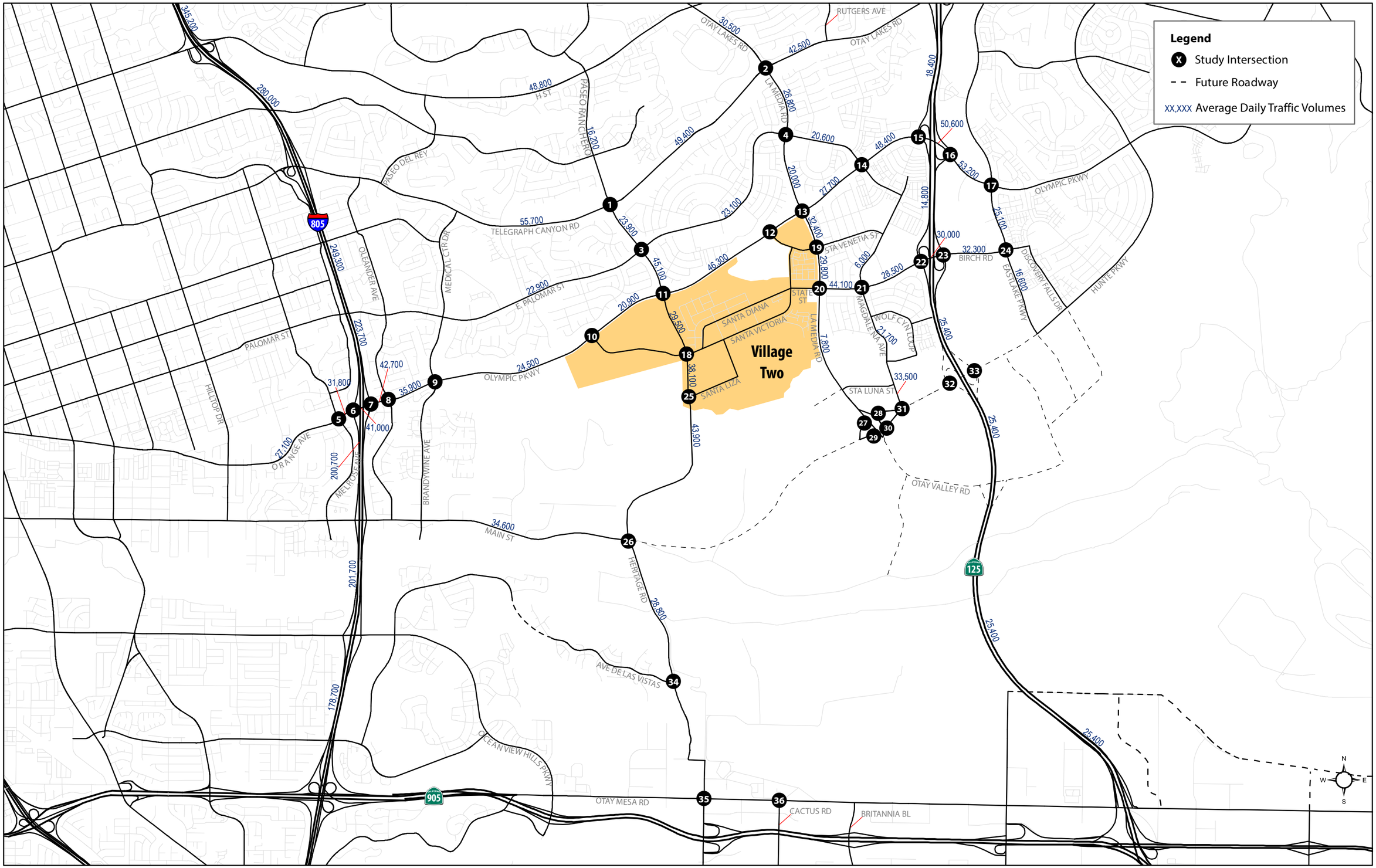


Otay Ranch Village Two TIA

Figure 7-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2020 Base Plus Project Conditions (Intersections 20-34)

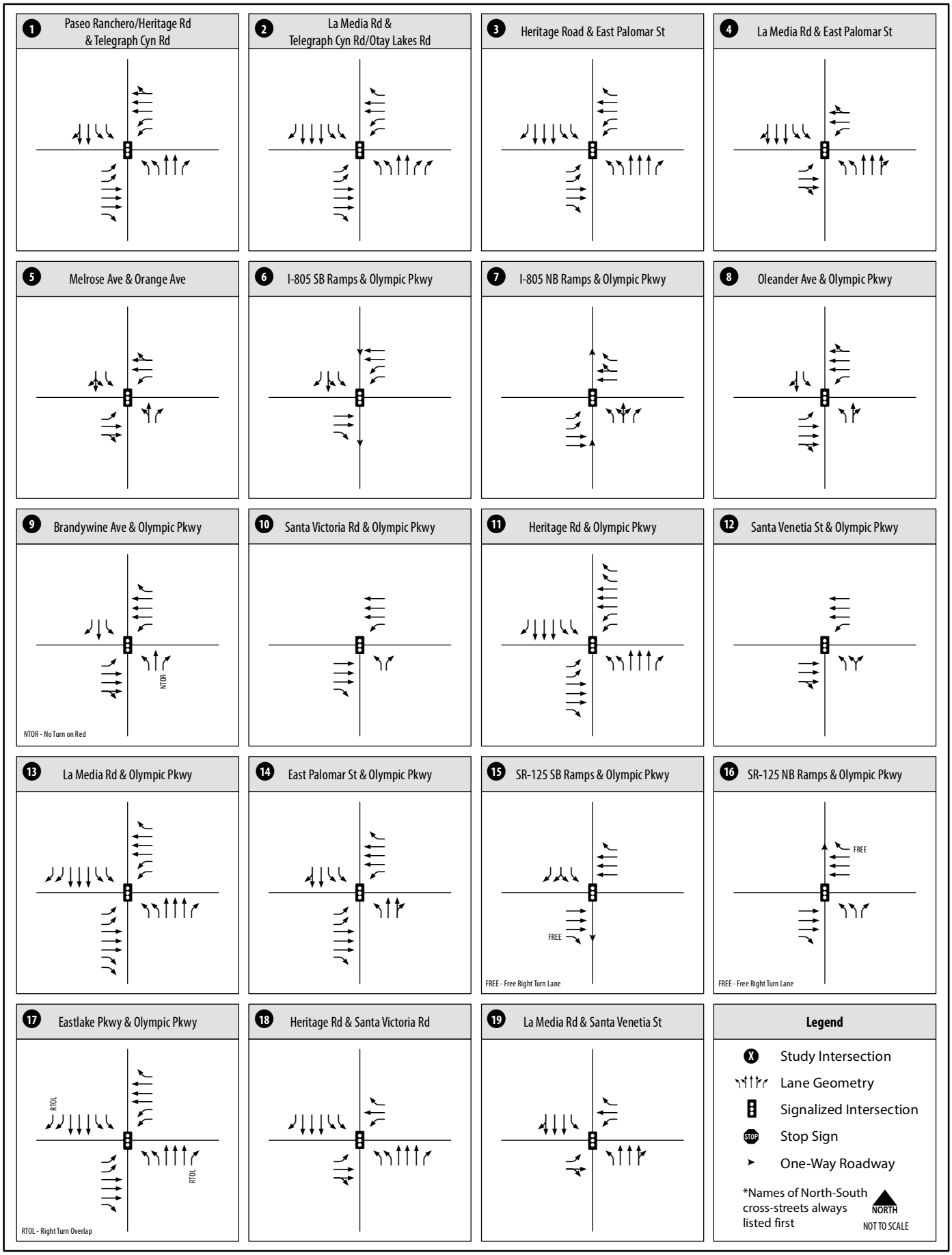


Otay Ranch Village Two TIA

CHEN RYAN

Figure 7-2B

Roadway Average Daily Traffic Volumes - Year 2020 Base Plus Project Conditions

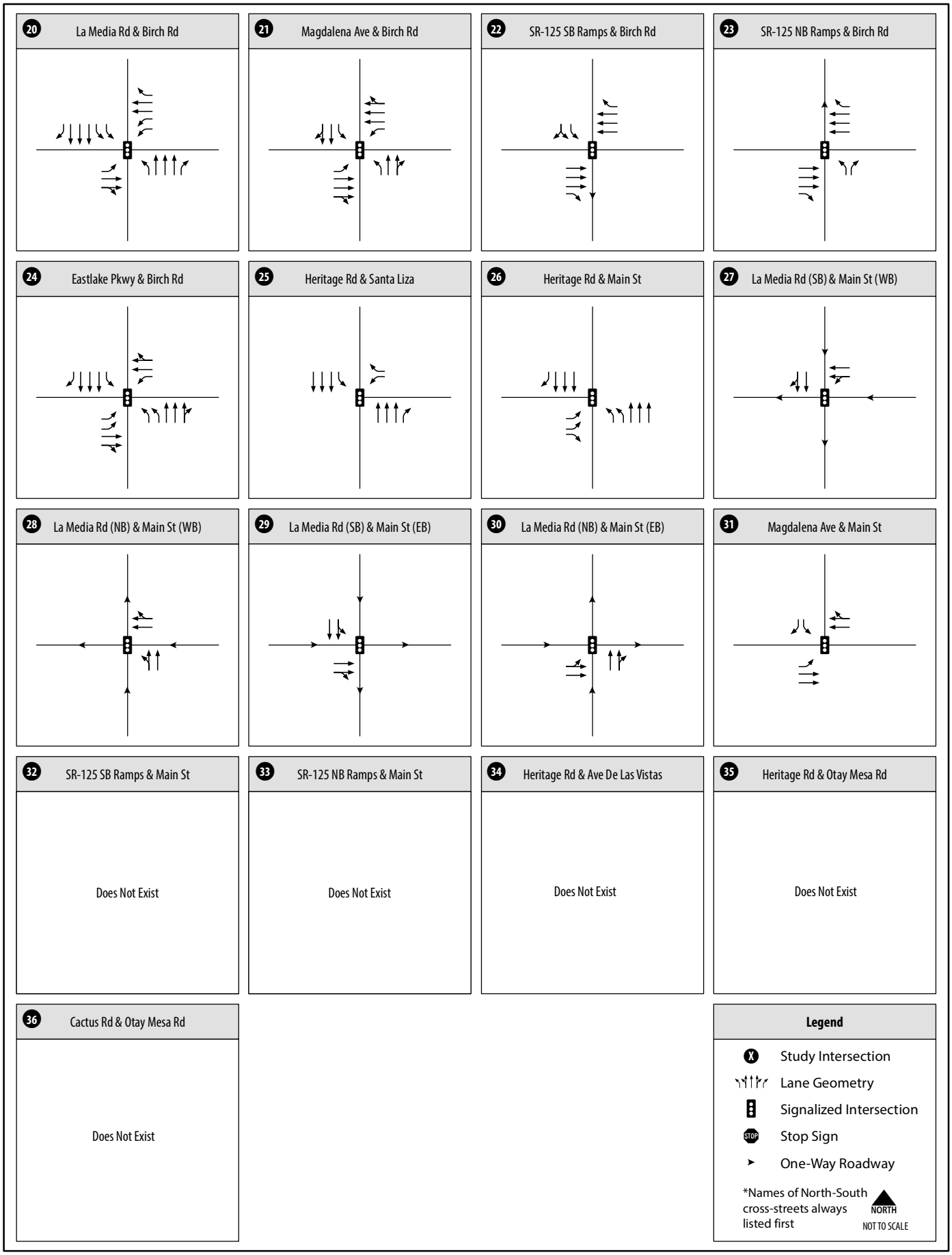


Otay Ranch Village Two TIA

Figure 8-1A

CHEN RYAN

Intersection Geometrics - Year 2025 Conditions (Intersections 1-19)

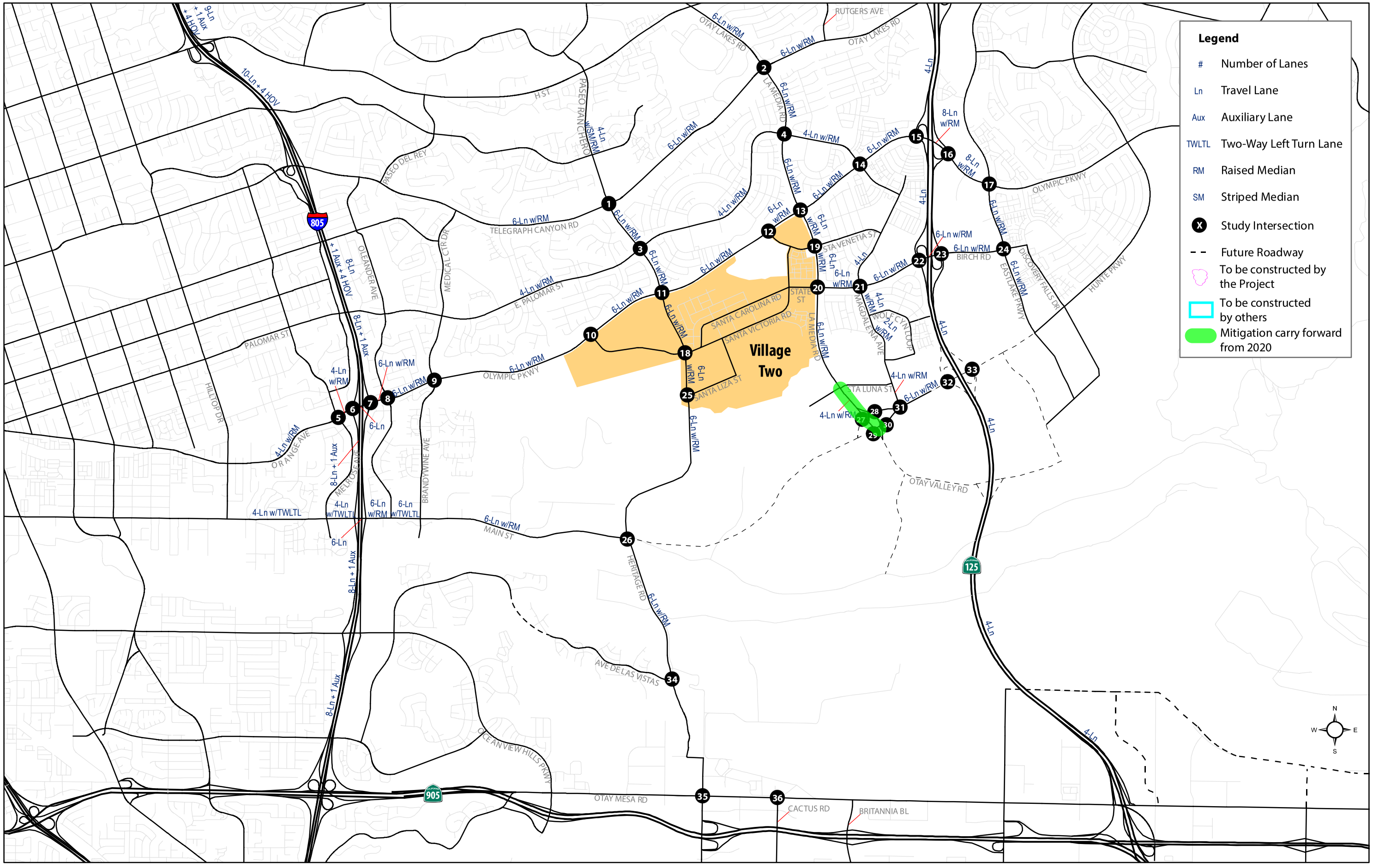


Otay Ranch Village Two TIA

Figure 8-1A

Intersection Geometrics - Year 2025 Conditions (Intersections 20-36)

CHEN RYAN

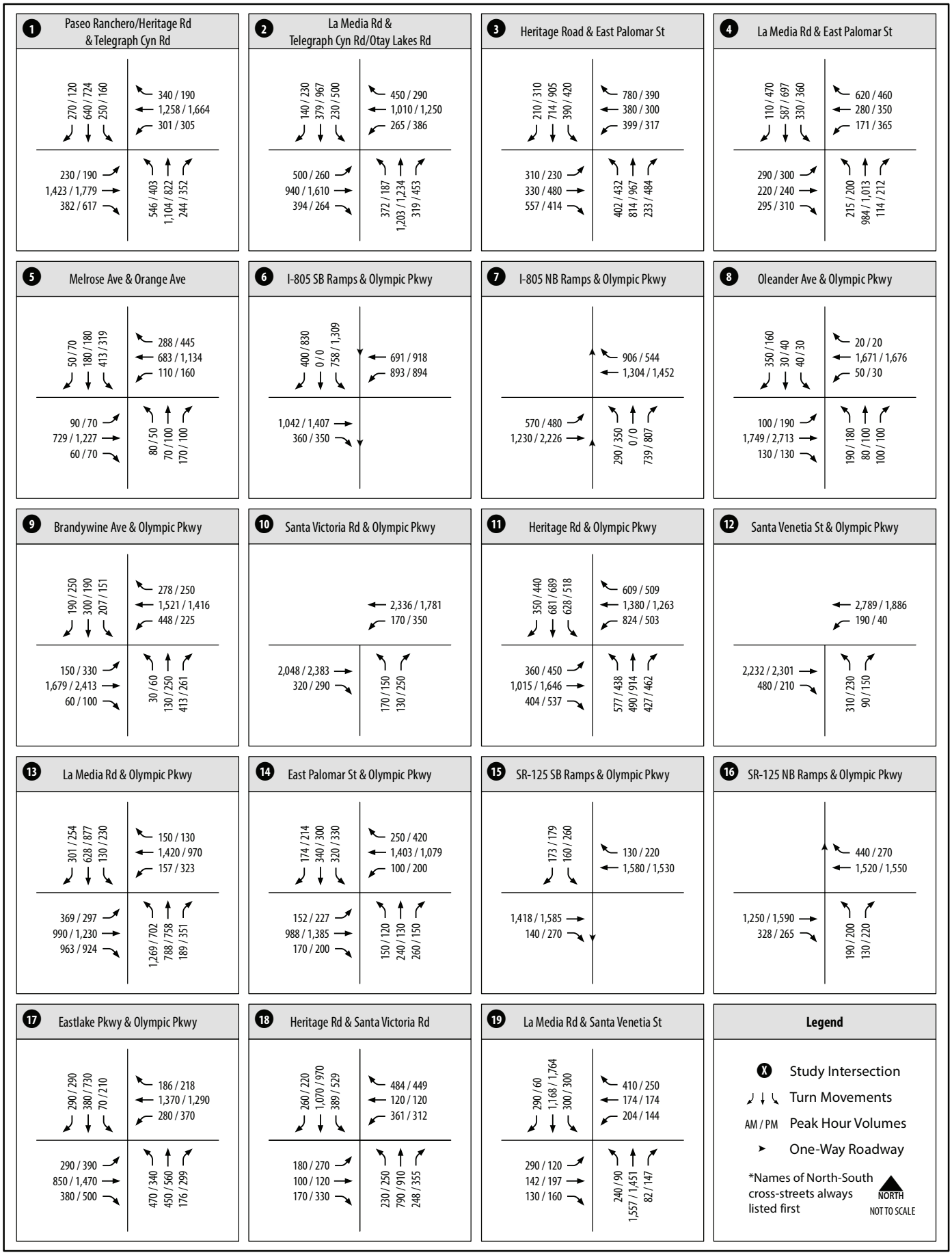


Otay Ranch Village Two TIA

CHEN RYAN

Figure 8-1B

Roadway Geometrics - Year 2025 Conditions

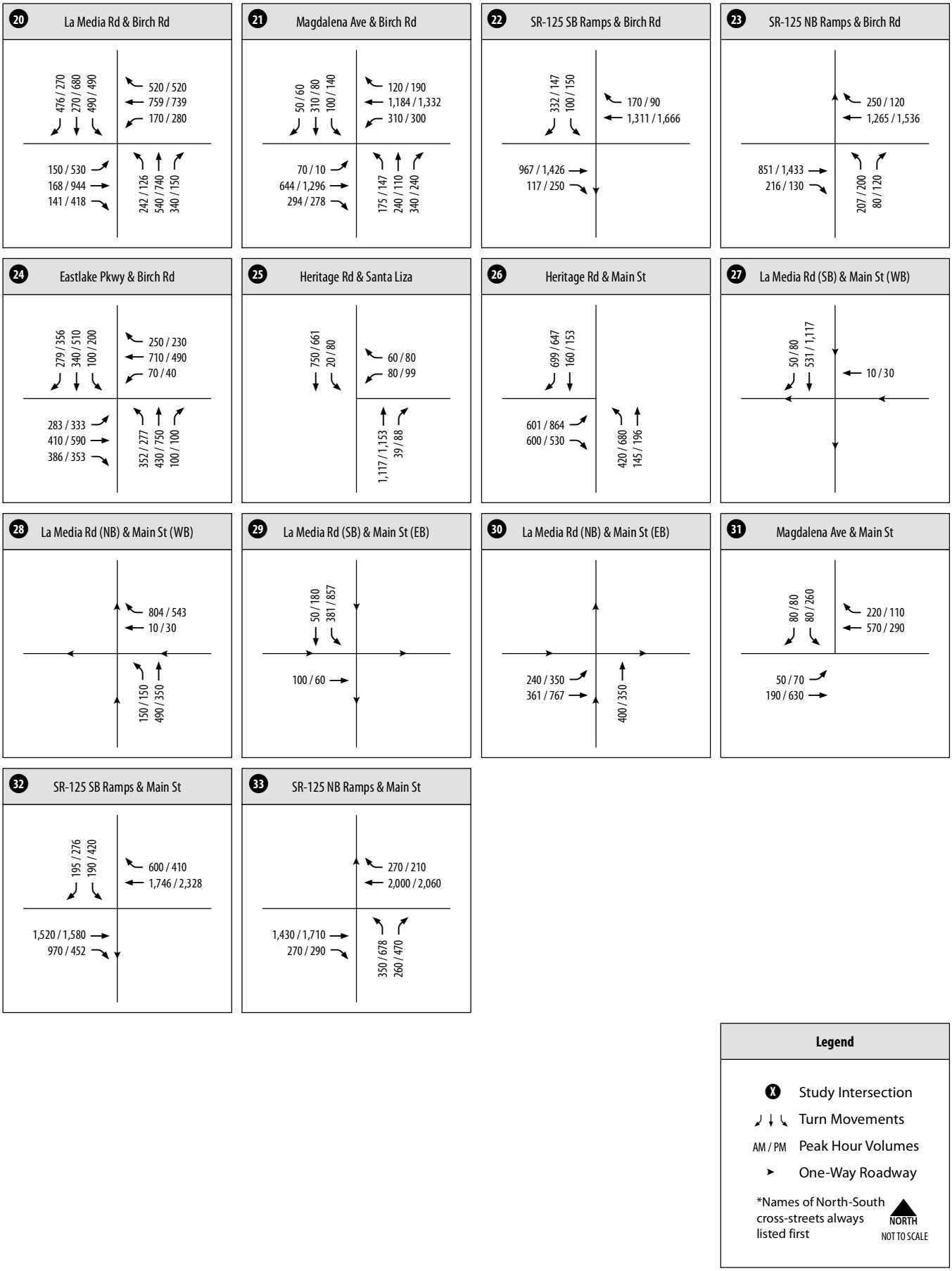


Otay Ranch Village Two TIA

Figure 8-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2025 Base Plus Project Conditions (Intersections 1-19)

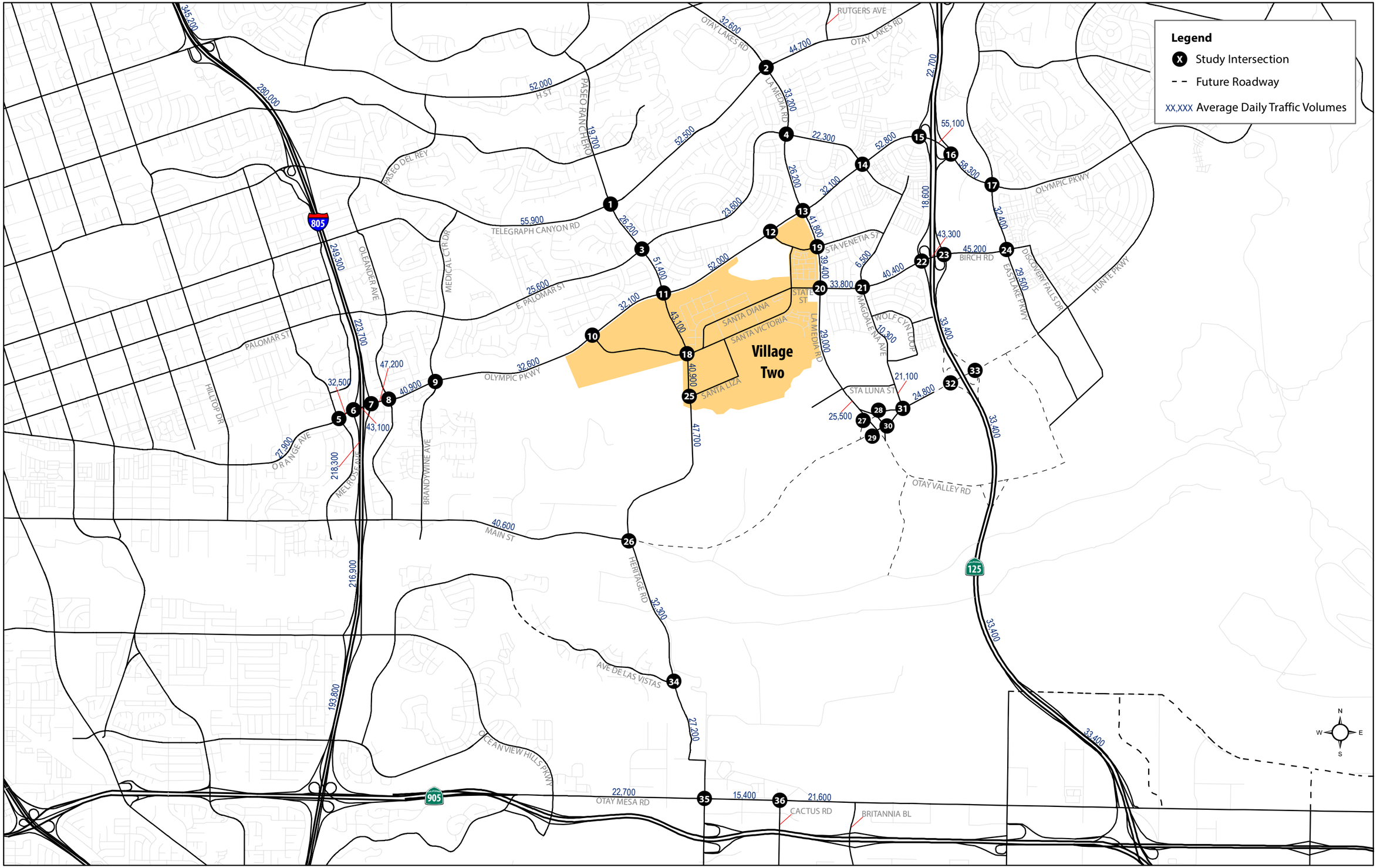


Otay Ranch Village Two TIA

Figure 7-2A

CHEN RYAN

Intersection Peak Hour Traffic Volumes - Year 2025 Base Plus Project Conditions (Intersections 1-19)

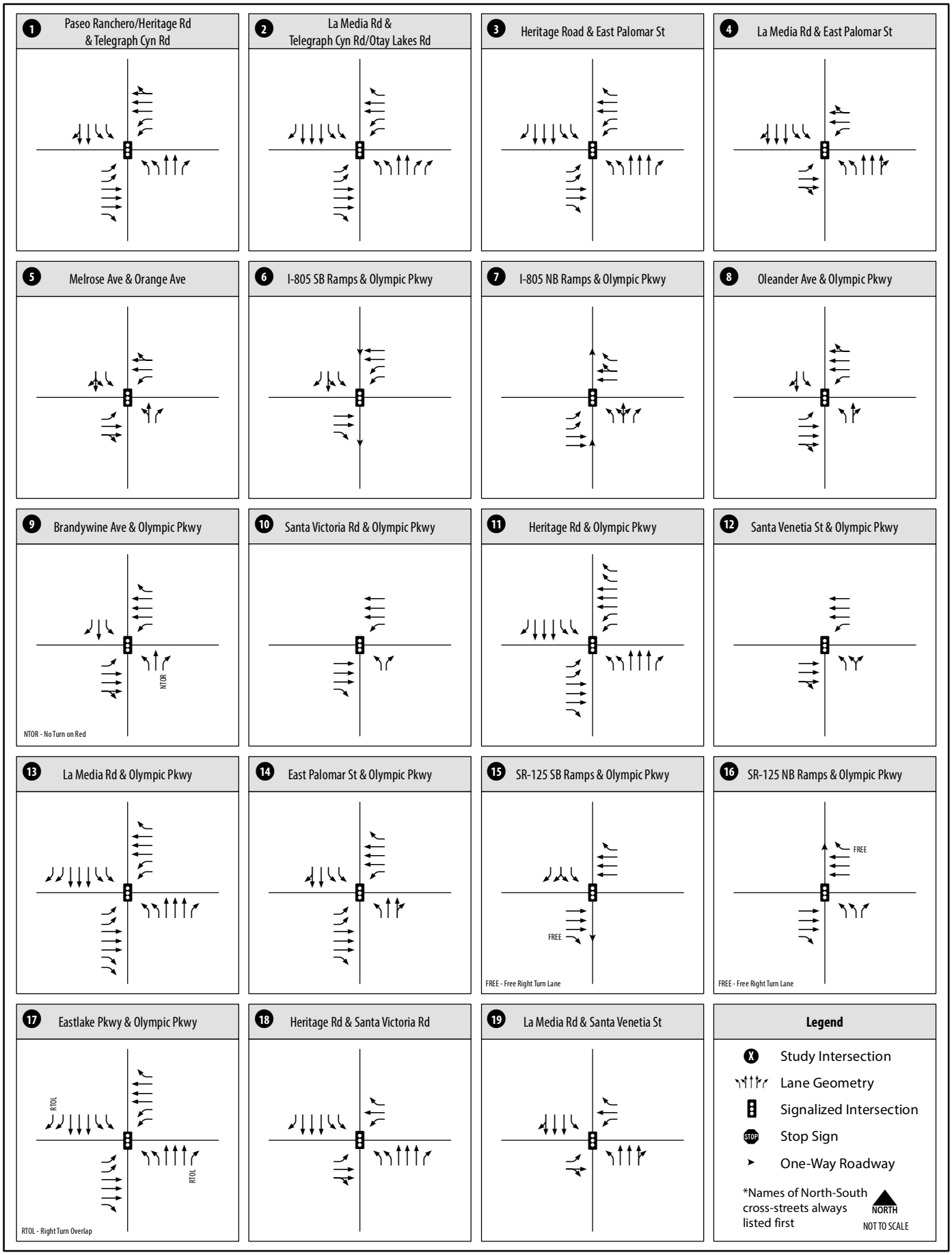


Otay Ranch Village Two TIA

CHEN RYAN

Figure 8-2B

Roadway Average Daily Traffic Volumes - Year 2025 Base Plus Project Conditions

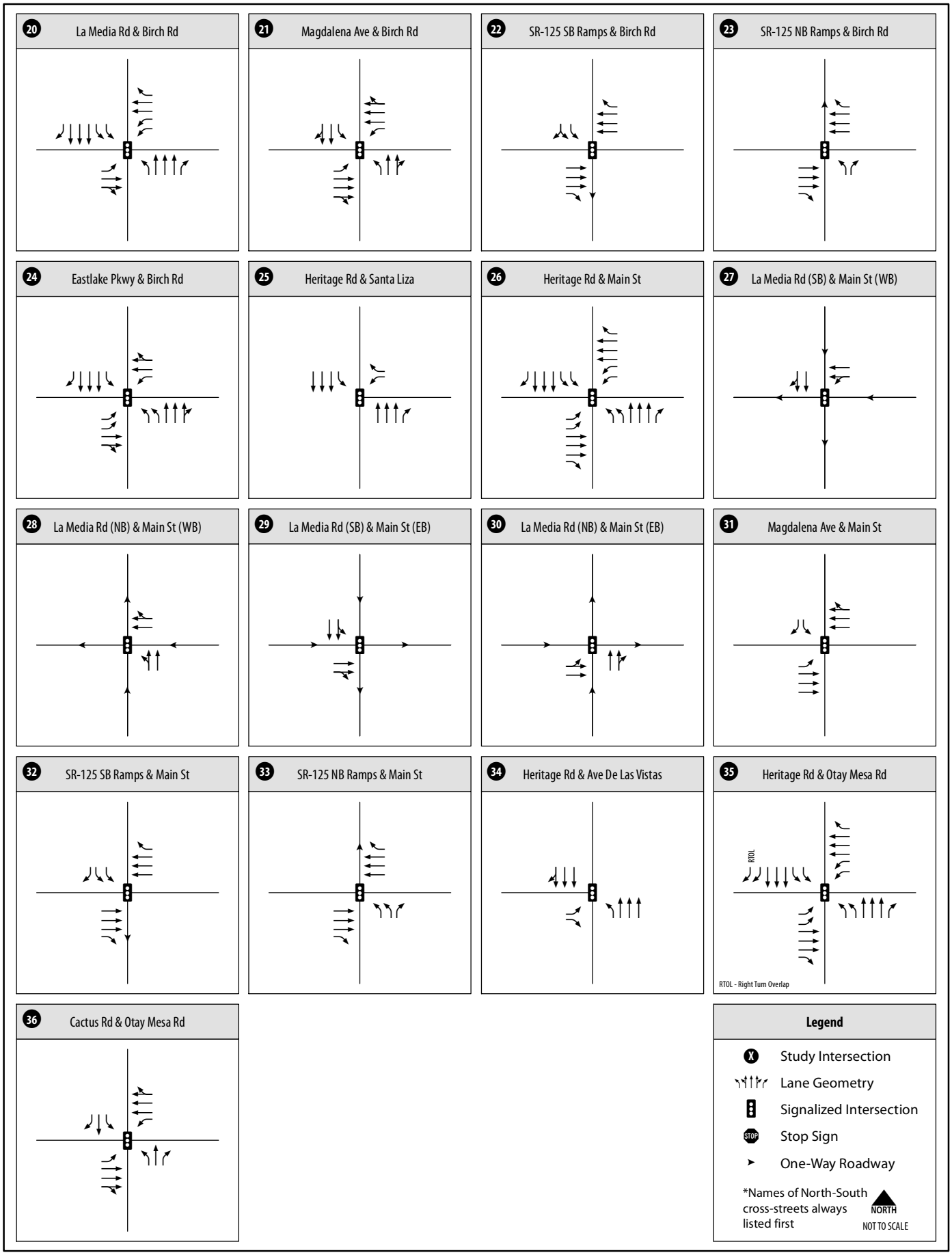


Otay Ranch Village Two TIA

Figure 9-1A

Intersection Geometrics - Year 2030 Conditions (Intersections 1-19)

CHEN RYAN



Otay Ranch Village Two TIA

Figure 9-1A

Intersection Geometries - Year 2030 Conditions (Intersections 20-36)

CHEN RYAN

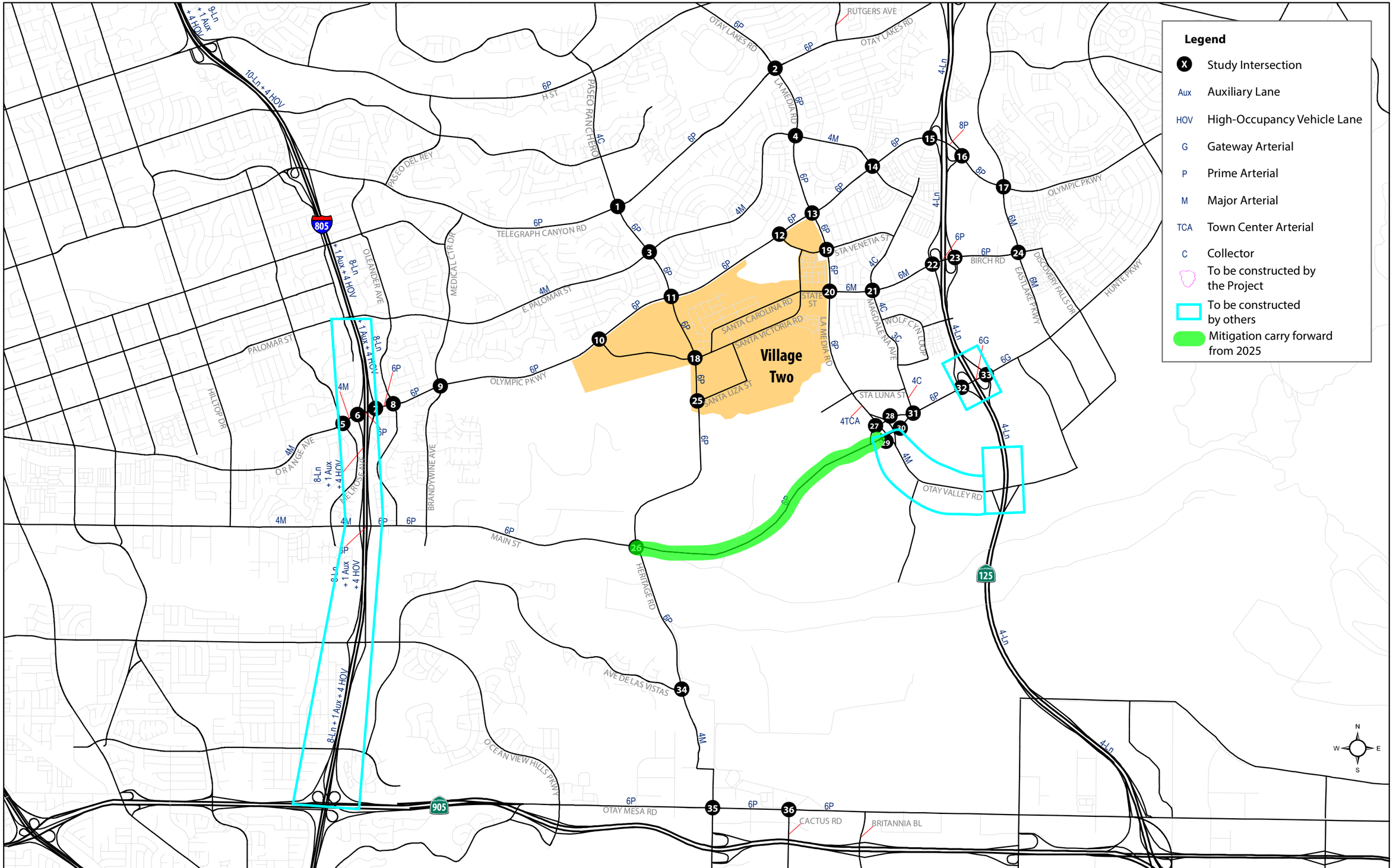


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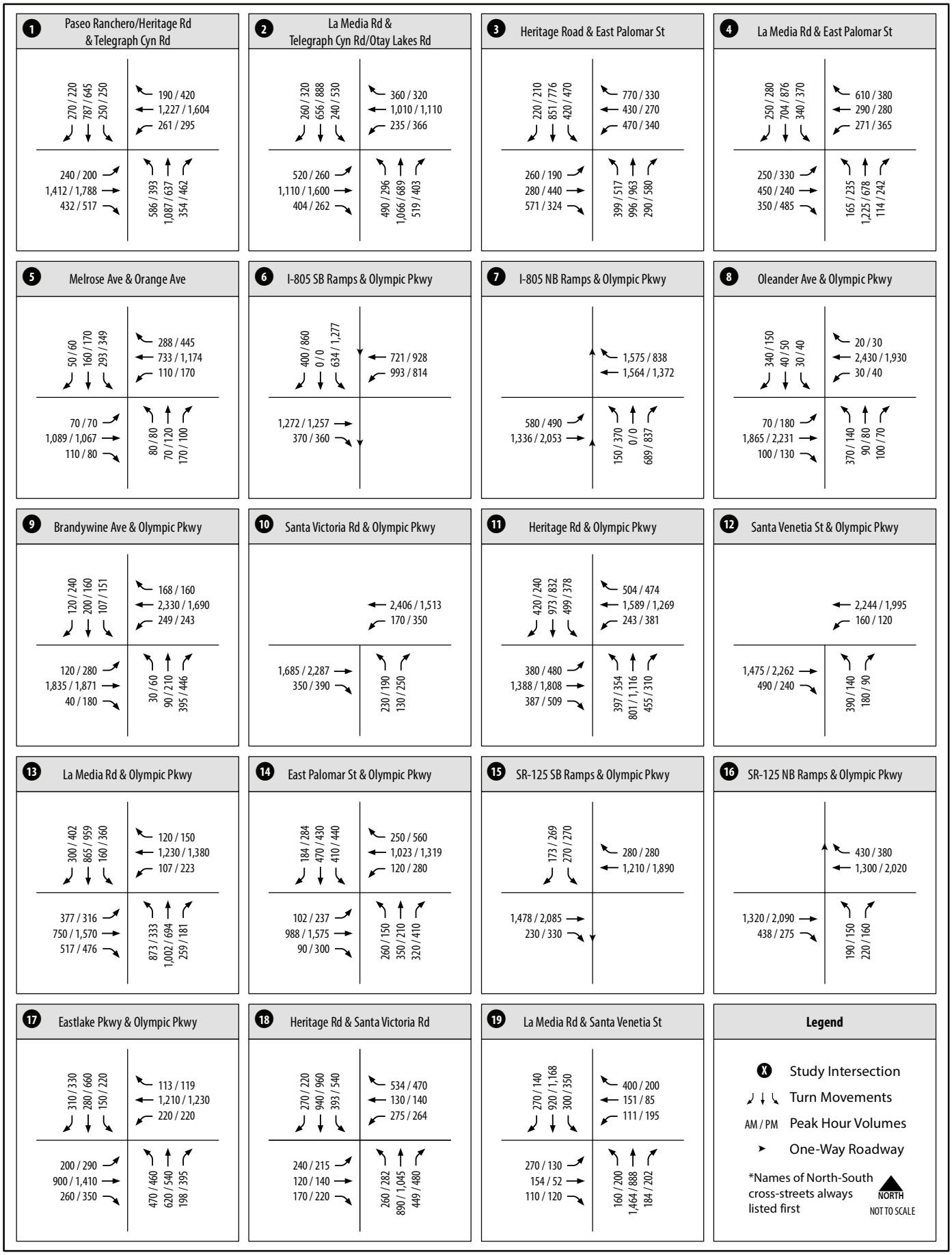
Figure 9-1B

Roadway Geometrics - Year 2030 Conditions



Otay Ranch Village Two TIA

Figure 9-2A

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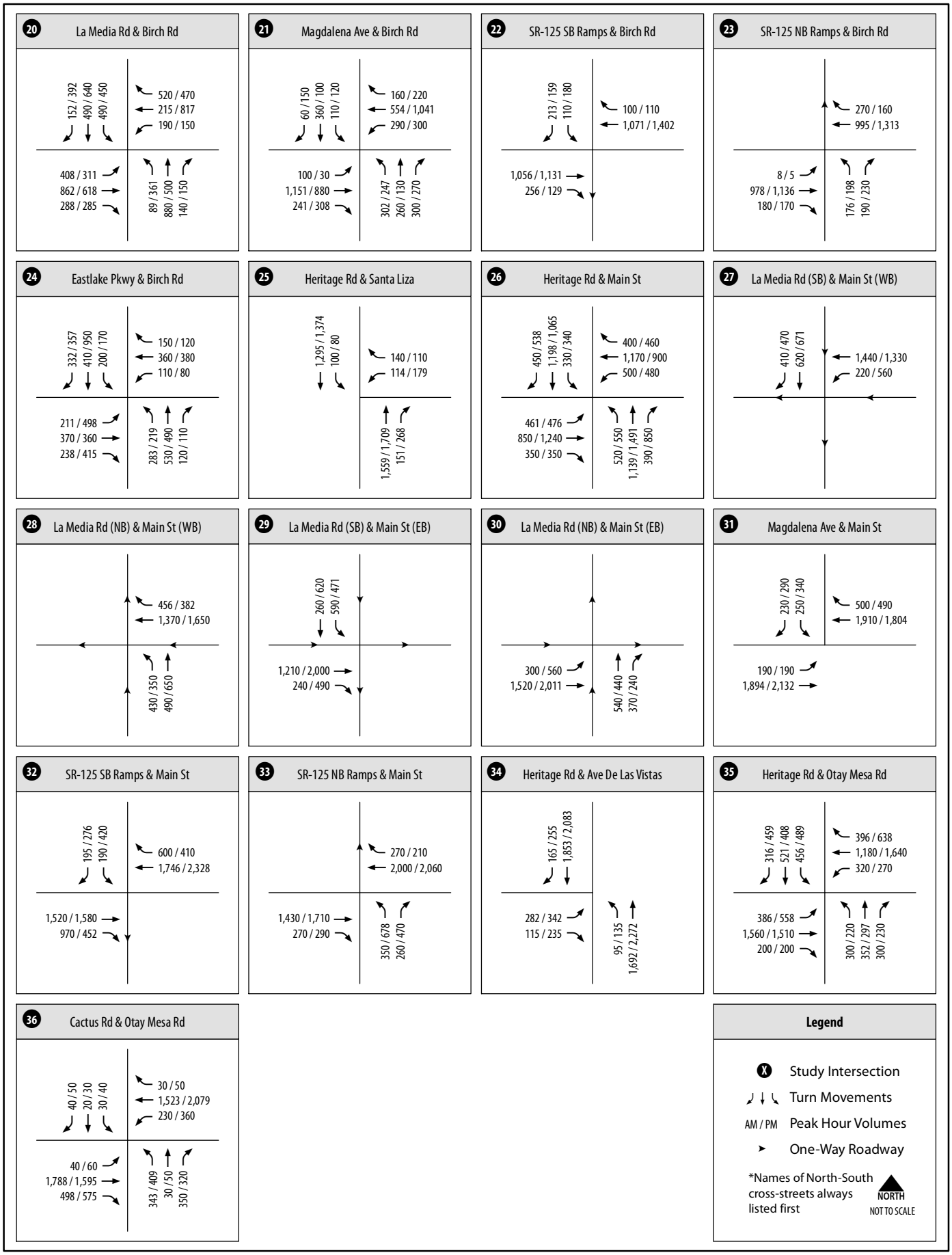
Intersection Peak Hour Traffic Volumes - Year 2030 Base Plus Project Conditions (Intersections 1-19)



Otay Ranch Village Two TIA

Figure 9-2A

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Intersection Peak Hour Traffic Volumes - Year 2030 Base Plus Project Conditions (Intersections 20-36)

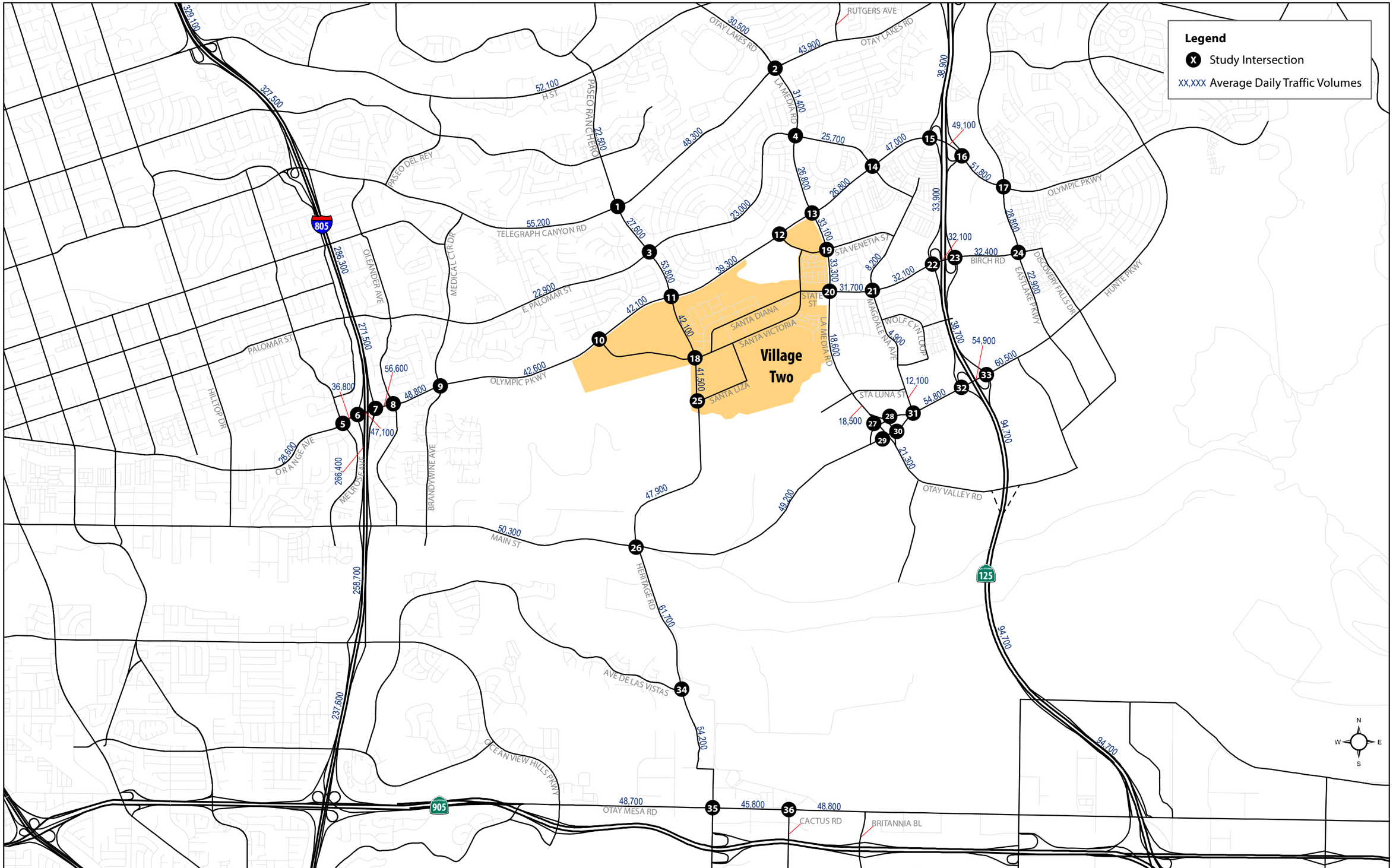

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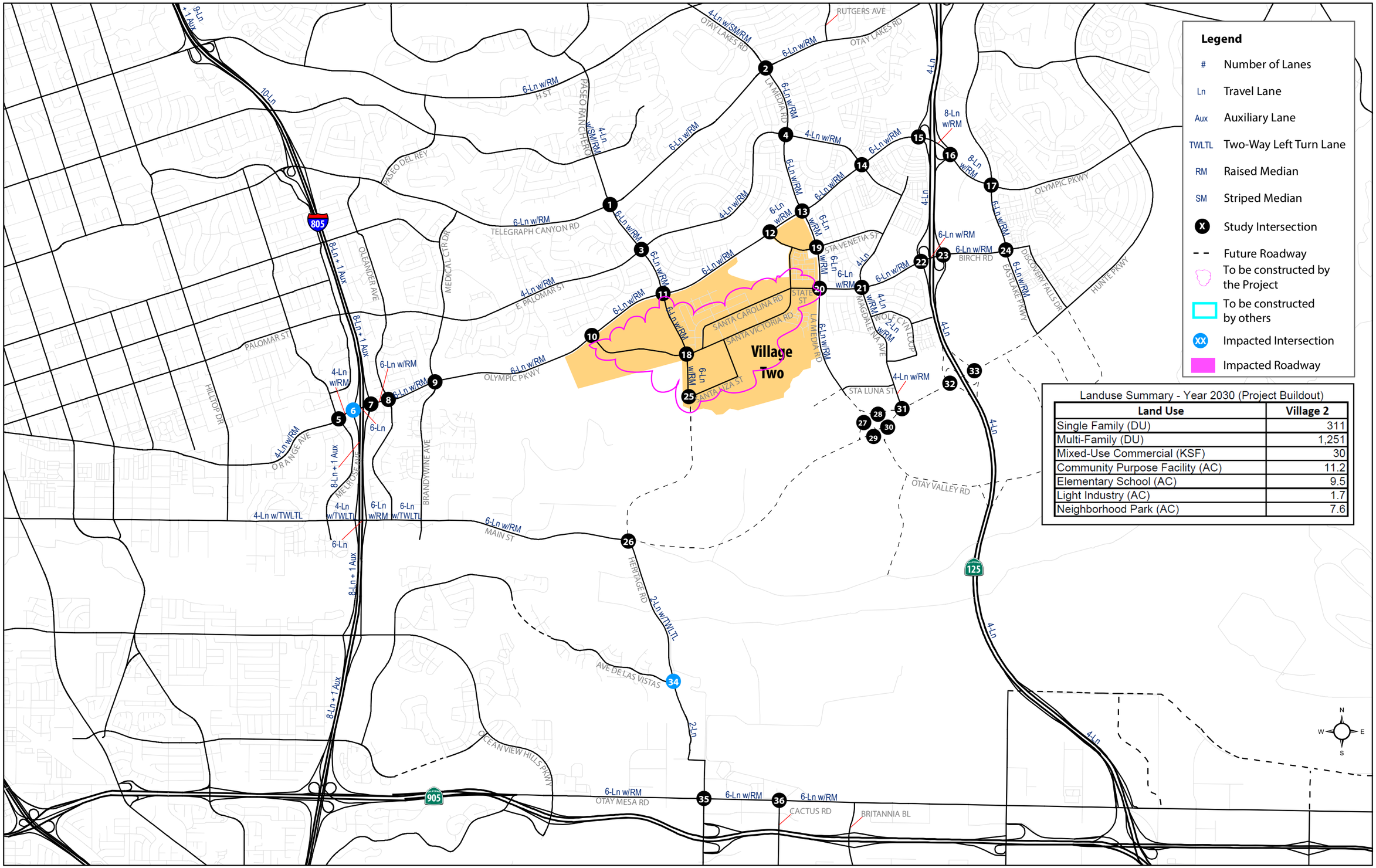
Figure 9-2B

Roadway Average Daily Traffic Volumes - Year 2030 Base Plus Project Conditions



Landuse Summary - Year 2030 (Project Buildout)

Land Use	Village 2
Single Family (DU)	311
Multi-Family (DU)	1,251
Mixed-Use Commercial (KSF)	30
Community Purpose Facility (AC)	11.2
Elementary School (AC)	9.5
Light Industry (AC)	1.7
Neighborhood Park (AC)	7.6

Otay Ranch Village Two TIA

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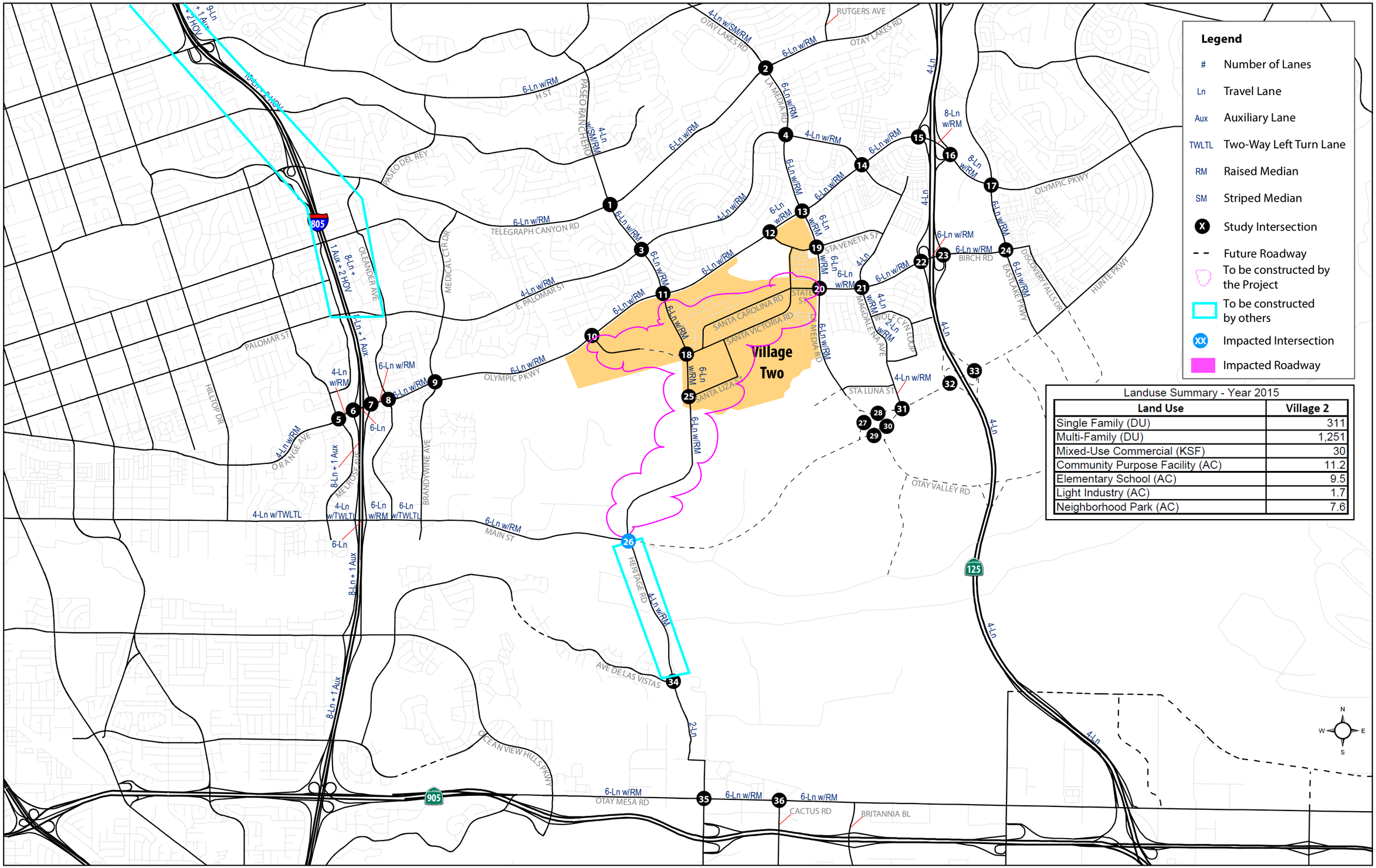
Figure 10-1

Land Use, Network and Mitigation Summary - Existing Plus Project Conditions



Landuse Summary - Year 2015

Land Use	Village 2
Single Family (DU)	311
Multi-Family (DU)	1,251
Mixed-Use Commercial (KSF)	30
Community Purpose Facility (AC)	11.2
Elementary School (AC)	9.5
Light Industry (AC)	1.7
Neighborhood Park (AC)	7.6

Otay Ranch Village Two TIA

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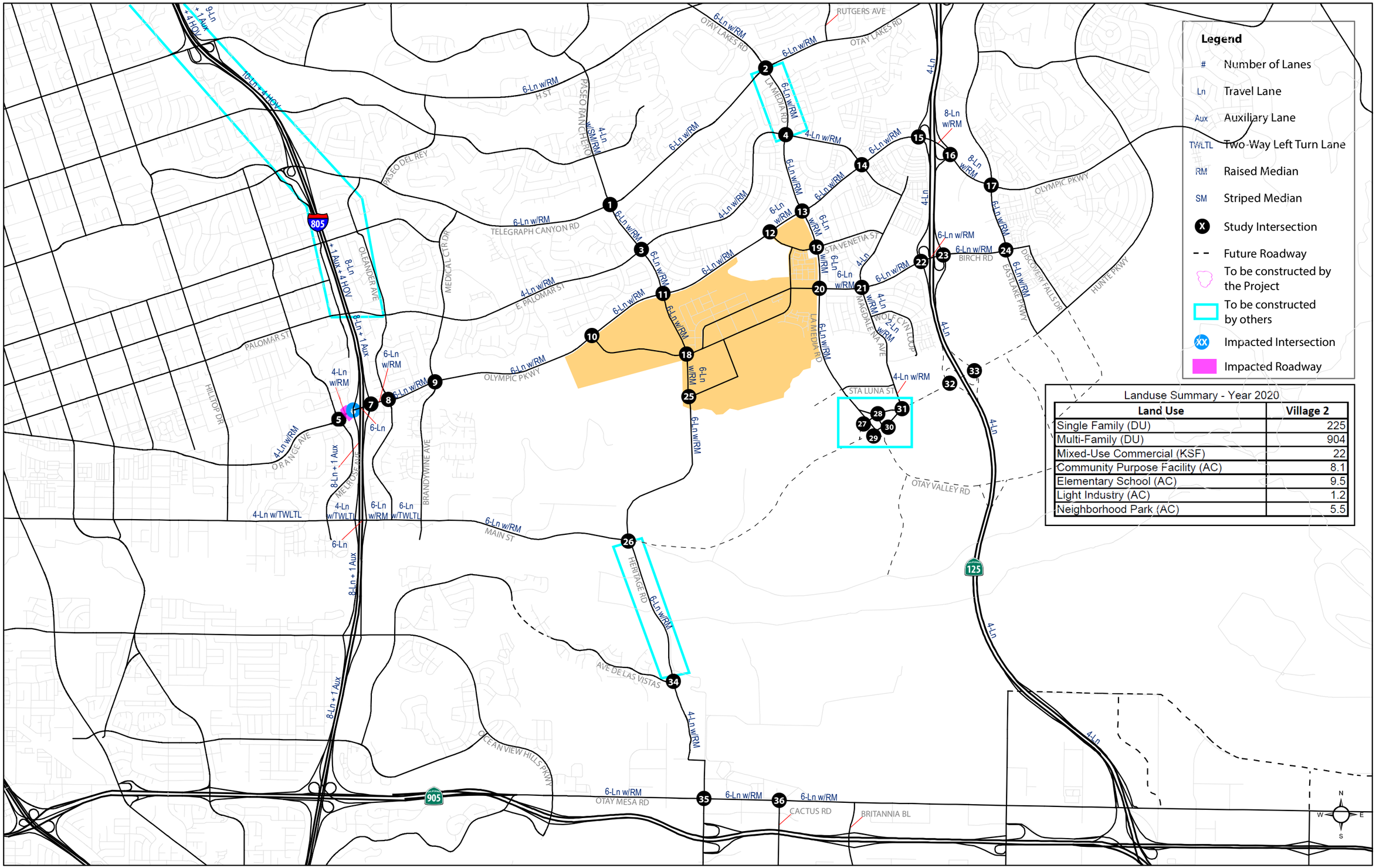
Figure 10-2

Land Use, Network and Mitigation Summary - Year 2015 Conditions



Landuse Summary - Year 2020

Land Use	Village 2
Single Family (DU)	225
Multi-Family (DU)	904
Mixed-Use Commercial (KSF)	22
Community Purpose Facility (AC)	8.1
Elementary School (AC)	9.5
Light Industry (AC)	1.2
Neighborhood Park (AC)	5.5

Otay Ranch Village Two TIA

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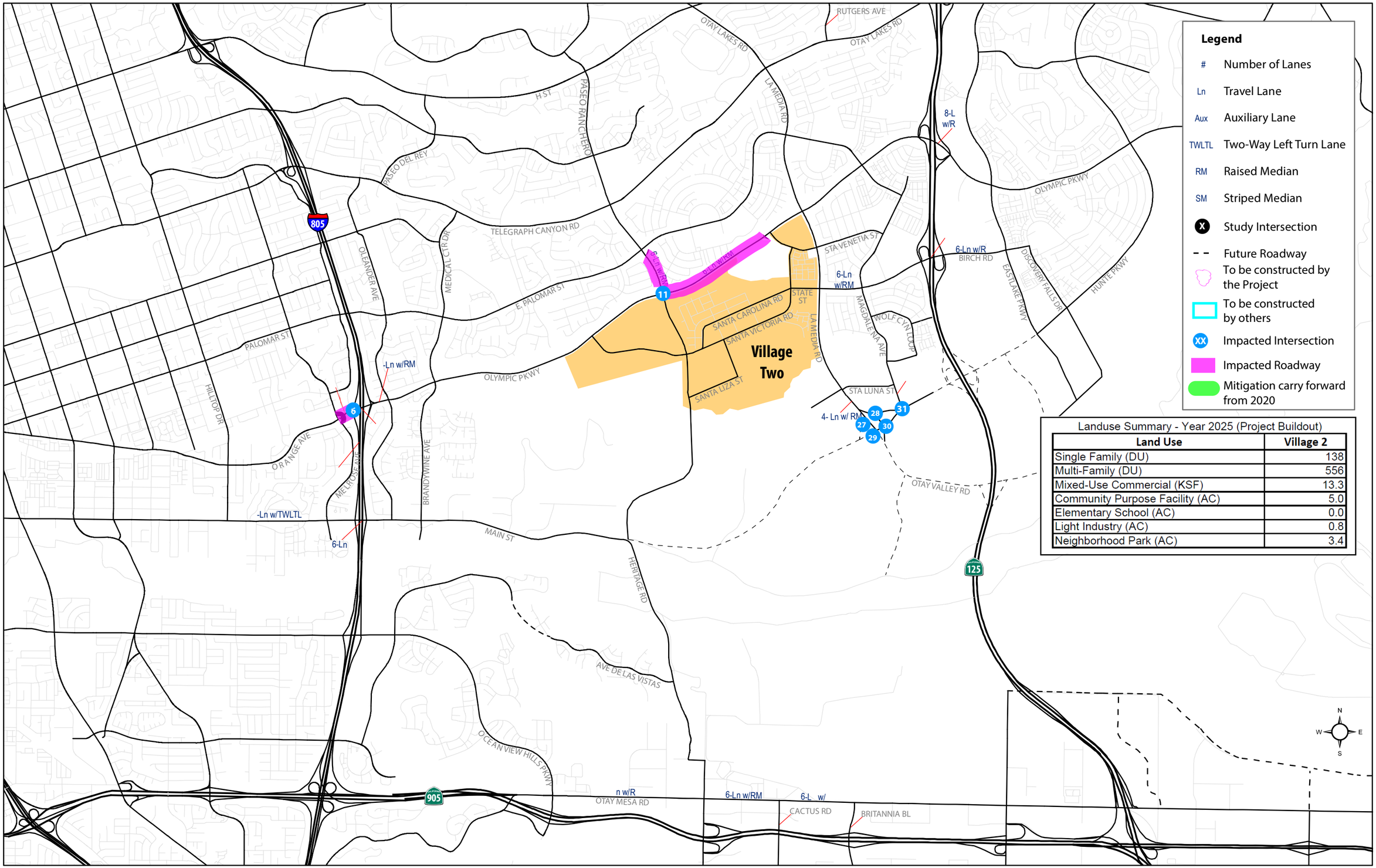
Figure 10-3

Land Use, Network and Mitigation Summary - Year 2020 Conditions



Landuse Summary - Year 2025 (Project Buildout)

Land Use	Village 2
Single Family (DU)	138
Multi-Family (DU)	556
Mixed-Use Commercial (KSF)	13.3
Community Purpose Facility (AC)	5.0
Elementary School (AC)	0.0
Light Industry (AC)	0.8
Neighborhood Park (AC)	3.4

Otay Ranch Village Two TIA

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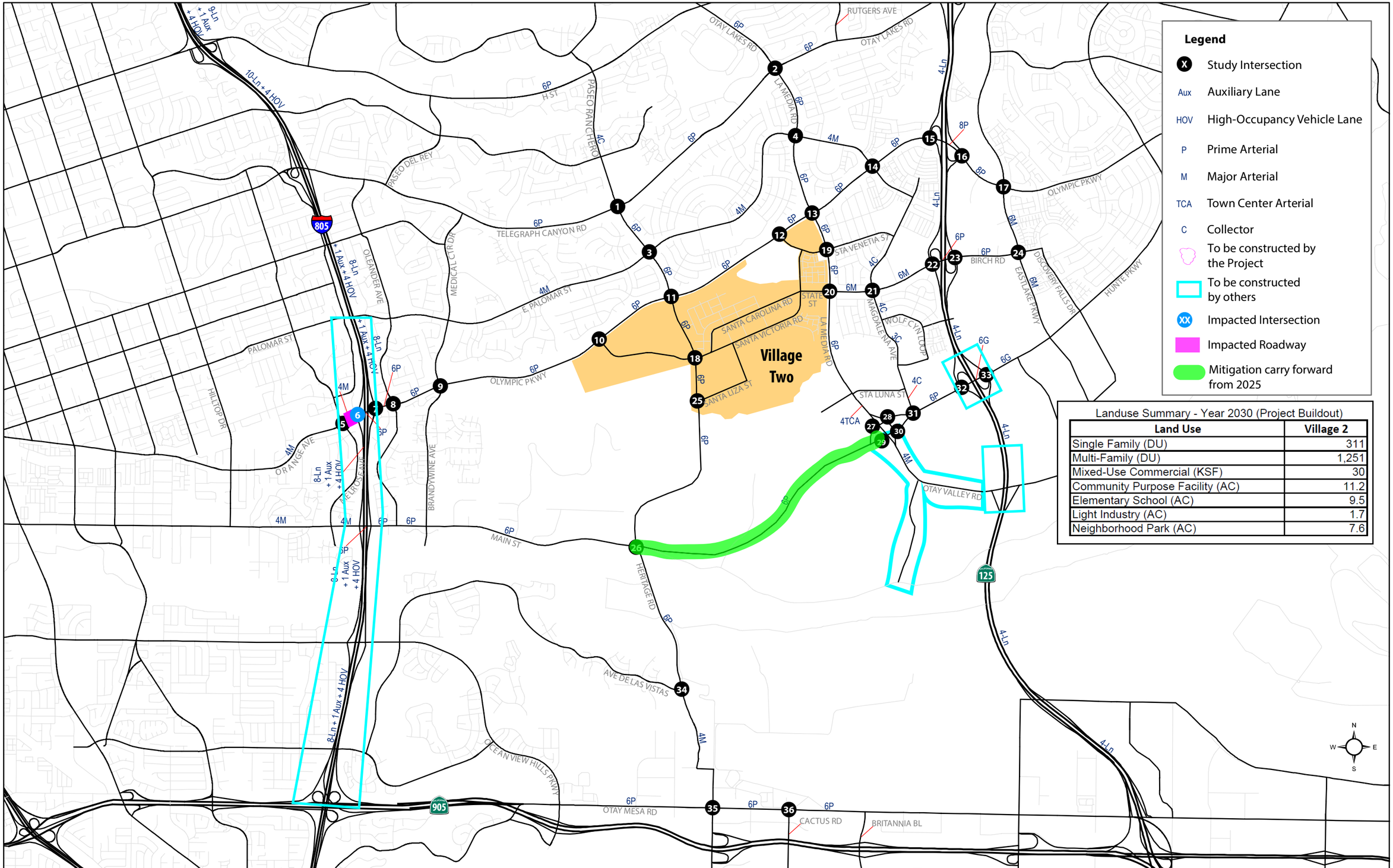
Figure 10-4

Land Use, Network and Mitigation Summary - Year 2025 Conditions



Landuse Summary - Year 2030 (Project Buildout)

Land Use	Village 2
Single Family (DU)	311
Multi-Family (DU)	1,251
Mixed-Use Commercial (KSF)	30
Community Purpose Facility (AC)	11.2
Elementary School (AC)	9.5
Light Industry (AC)	1.7
Neighborhood Park (AC)	7.6

Otay Ranch Village Two TIA

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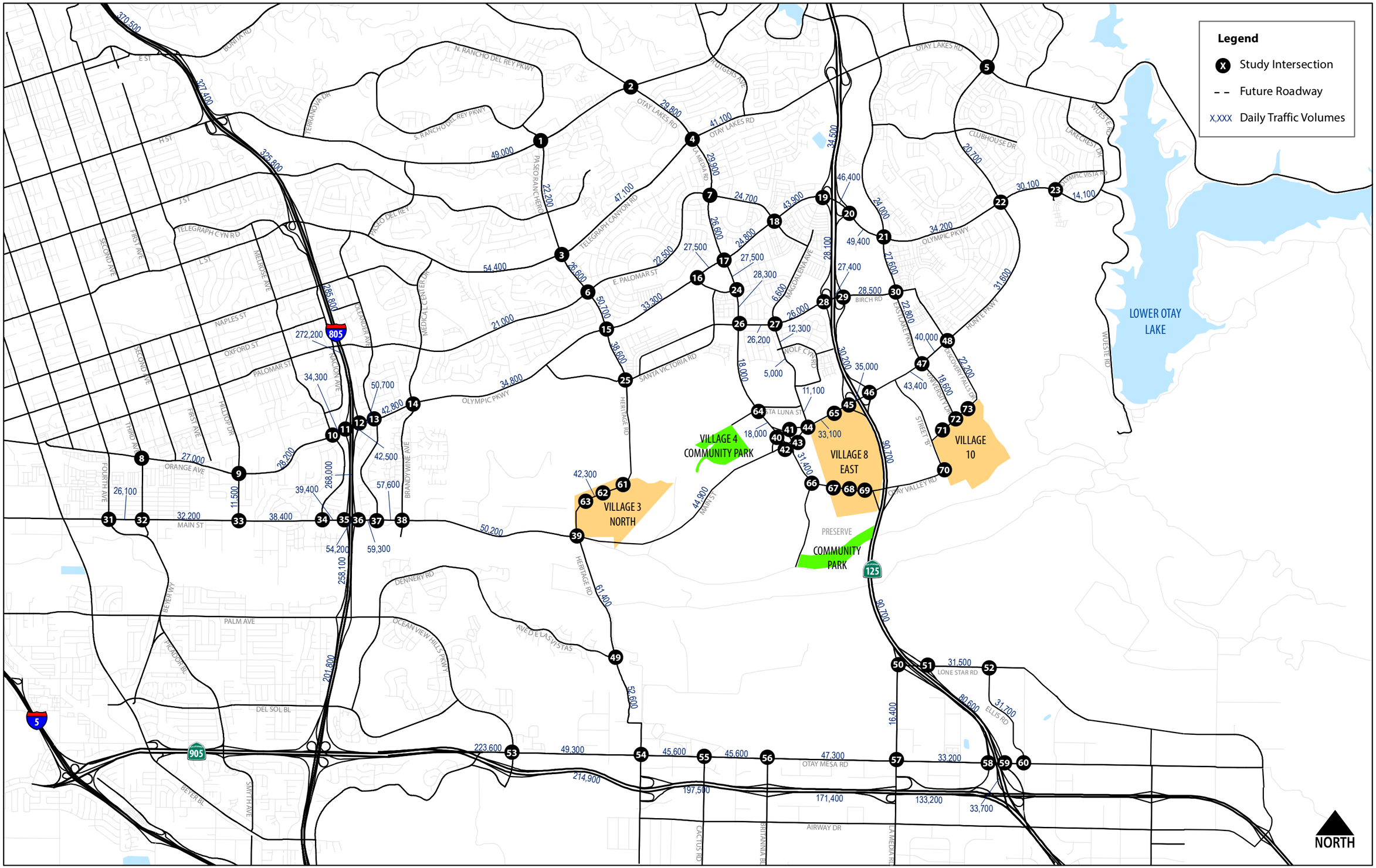
Figure 10-5

Land Use, Network and Mitigation Summary - Year 2030 Conditions



Otay Ranch Village Two TIA

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Figure 11-1

Roadway Average Daily Traffic Volumes - Adopted General Plan