LINSCOTT LAW & GREENSPAN engineers

TRANSPORTATION STUDY

OTAY RANCH TOWN CENTER REIMAGINED

Chula Vista, California

June 6, 2023

LLG Ref. 3-20-3254

Prepared by:

Narasimha Prasad
Senior Transportation Engineer

&

Zahira Chayeb
Transportation Engineer I

Under the Supervision of:

John Boarman, P. E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

EXECUTIVE SUMMARY

The *Final Environmental Impact Report for the Otay Ranch Freeway Commercial Sectional Planning Area Plan Planning Area 12* (FEIR) (identified by the City of Chula Vista as EIR 02-04) contains a comprehensive disclosure and analysis of potential environmental effects associated with the implementation of the SPA Plan and Freeway Commercial (FC) site in the City of Chula Vista (City of Chula Vista 2003). The SPA Plan was developed to refine and implement the land use plans, goals and objectives of the Otay Ranch GDP for the development of Planning Area 12.

The project approval allowed for 960,000 square feet of development on the property according to the Otay Ranch Freeway Commercial SPA Plan and associated Environmental Impact Report (EIR). To date, 669,700 square feet (SF) of building area has been completed at the Town Center.

The proposed land use plan for the property is mixed-use, designated as mixed-use transit center (MUTC). The purpose of the proposed change is to allow the property to develop a mix of residential land uses. The proposed land uses would consist of 840 multi-family residential units and 146,300 square feet of retail uses. Development would be centered within the northern portion of the site.

Project Screening Results

The Proposed residential uses will replace existing and other planned retail uses within the Otay Ranch Town Center and there is no net increase in the number of ADTs compared to the approved Project. Some of the residential trips will be captured within the Otay Ranch Town Center. The Project is screened out from needing a detailed VMT analysis per the City of Chula Vista Transportation Study Guidelines (June 2020, modified January 2022), and is presumed to have a less than significant VMT impact.

The Project's CEQA impacts are presumed to be less than significant and hence no CEQA related mitigation measures are recommended.

Required Improvements from LMA

The LMA identified substantial effects at the Olympic Parkway / Town Center Drive intersection. The following improvements are recommended:

- **Olympic Parkway / Town Center Drive**

  Provide signal optimization and Adaptive signal controller at this intersection. The ultimate intersection geometry at this intersection is being finalized by the City.

The project should also dedicate right-of-way along the project frontages on Birch Road and Olympic Parkway to accommodate future implementation of Class IV Cycle Tracks in accordance with the City's Active Transportation Plan.

Preparer Qualifications for CEQA / or LMA

John Boarman, P.E., T.E., Principal, Linscott, Law and Greenspan, Engineers, 31 years of experience in Transportation Studies.

Narasimha Prasad, Senior Transportation Engineer, Linscott, Law and Greenspan, Engineers, 27 years of experience in Transportation Studies.

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

APPENDIX

LIST OF FIGURES

LIST OF TABLES

TRANSPORTATION STUDY

OTAY RANCH TOWN CENTER REIMAGINED

Chula Vista, California
May 18, 2023

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has prepared this transportation impact analysis to assess the potential impacts associated with the Otay Ranch Town Center Reimagined Project. The Project site is located south of Olympic Parkway, between SR-125 and Eastlake Parkway. This report addresses the potential transportation impacts and effects from the proposed project. The Local Mobility Analysis (LMA) was prepared in accordance with the City of Chula Vista's Transportation Study Guidelines (TSG) dated June 2020, modified in January 2022. The approach for the LMA is a plan-to-ground analysis.

The following sections are included in this report:

- Project Description
- Vehicle Miles Traveled (VMT) Background
- Project VMT Analysis
- Local Mobility Analysis Approach & Methodology
- Existing Mobility Conditions
- Substantial Effect Criteria
- Analysis of Existing Conditions
- Project Trip Generation, Distribution and Assignment
- Analysis of Existing + Project Conditions
- Access Assessment
- Conclusions

The Transportation Study Required Content Checklist and the Approved Project Information Form are included in ***Appendix A***.

2.0 PROJECT DESCRIPTION

Otay Ranch lies within the East Planning Area of the City of Chula Vista. The East Planning Area is bordered by Interstate 805 (I-805) to the west, San Miguel Mountain and State Route 54 to the north, the Otay Reservoir and the Jamul foothills to the east, and the Otay River Valley to the south. The Freeway Commercial Sectional Plan Area (SPA) Plan is located in the northeastern portion of the Otay Valley Parcel of the 22,899-acre Otay Ranch General Development Plan (GDP) project area. The SPA Plan Area is comprised of approximately 120.5 acres of commercial land development, and approximately 12.4 acres for circulation improvements.

The *Final Environmental Impact Report for the Otay Ranch Freeway Commercial Sectional Planning Area Plan Planning Area 12* (FEIR) (identified by the City of Chula Vista as EIR 02-04) contains a comprehensive disclosure and analysis of potential environmental effects associated with the implementation of the SPA Plan and Freeway Commercial (FC) site in the City of Chula Vista (City of Chula Vista 2003). The SPA Plan was developed to refine and implement the land use plans, goals and objectives of the Otay Ranch GDP for the development of Planning Area 12.

The project approval allowed for 960,000 square feet of development on the property according to the Otay Ranch Freeway Commercial SPA Plan and associated Environmental Impact Report (EIR). To date, 669,700 square feet (SF) of building area has been completed at the Town Center.

The proposed land use plan for the property is mixed-use, designated as mixed-use transit center (MUTC). The purpose of the proposed change is to allow the property to develop a mix of residential land uses and densities that will help sustain the existing Town Center while also facilitating new business opportunities. The proposed land uses would consist of 840 multi-family residential units and 146,300 square feet of retail uses. Development would be centered within the northern portion of the site.

Proposed commercial uses would consist of up to 146,300 new square feet of super regional mall/commercial uses. These new commercial uses will be complimentary to the existing Town Center uses as well as to better serve the new residences being delivered to the site. Location and size of individual new spaces will be determined in the future as the market demands.

2.1 Site Access

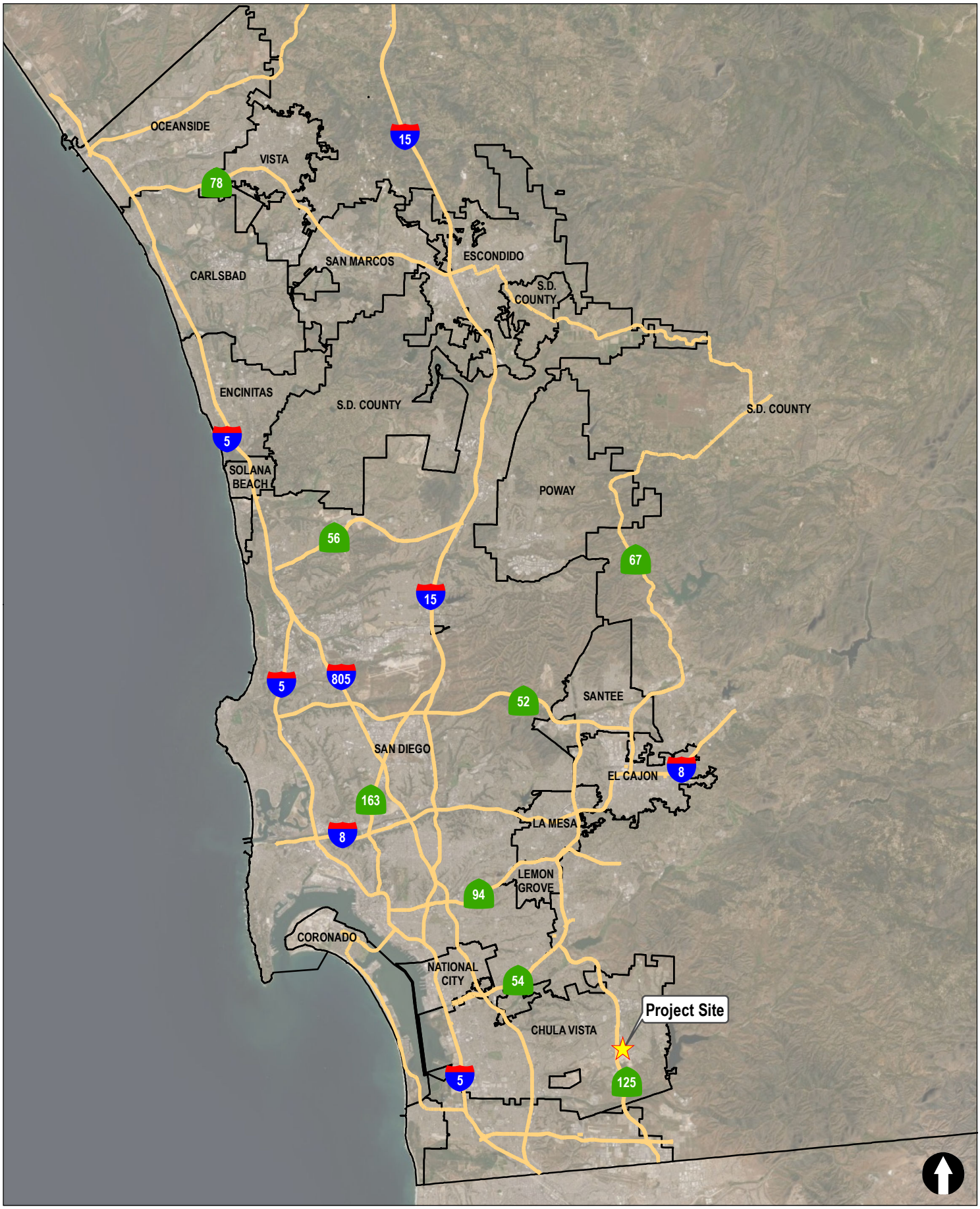
The project site (FC-1) is bounded by Eastlake Parkway, a 6-lane Major Arterial to the East; Birch Road, a 6-lane Prime Arterial to the South; SR-125 to the West, and the FC-2 site to the North. Olympic Parkway, an 8-lane Prime Arterial, forms the northerly boundary of the FC-2 site. The primary access into FC-2 is Town Center Drive, a Commercial Promenade that ties into Olympic Parkway and runs north-south, bisecting the FC-2 site.

The primary access into the FC-1 project site is the proposed southerly extension of Town Center Drive as a private collector road. The three secondary private access drives (one full access and two right turn only) into the site from Eastlake Parkway and the two secondary private access (full access) drives off of Birch Road will remain.

2.2 Internal Circulation

Internal circulation for the FC-1 project site will be provided by the extension of Town Center Drive along with the proposed Private Street B, a private drive that interconnects the residential buildings in an east-west direction before turning north to tie into the main looped access for the commercial development. The proposed Town Center Drive extension and the proposed Private Drive B interconnect to exiting internal private circulation serving the commercial development at multiple locations, carrying traffic to the aforementioned access points at Eastlake Parkway and Birch Road.

Figure 1–1 depicts the Project vicinity and ***Figure 2-2*** depicts the Project area. ***Figure 2–3*** depicts the Project's site plan.



LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 3/1/2022
Time: 10:14 AM

Figure 2-1

Vicinity Map

Otay Ranch Town Center Reimagined

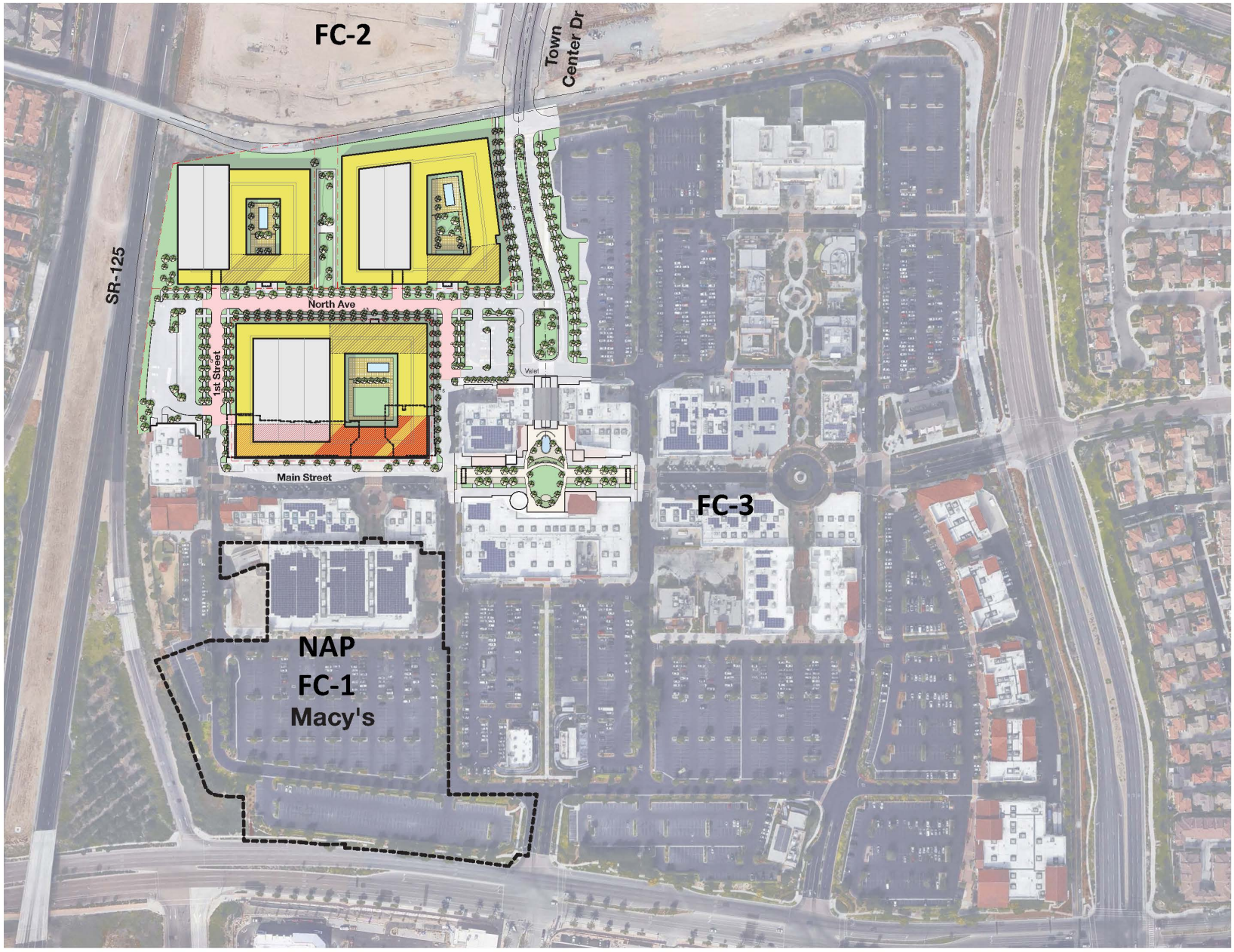
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 02/23/22

Figure 2-2

Project Area Map

Otay Ranch Town Center Reimagined



N:\3254\Figures
Date: 07/20/22

Figure 2-3

Site Plan

Otay Ranch Town Center Reimagined

3.0 VMT ANALYSIS

The Final Environmental Impact Report for the Otay Ranch Freeway Commercial Sectional Planning Area Plan Planning Area 12 (FEIR) (identified by the City of Chula Vista as EIR 02-04) contains a comprehensive disclosure and analysis of potential environmental effects associated with the implementation of the SPA Plan and Freeway Commercial (FC) site in the City of Chula Vista (City of Chula Vista 2003). Following is the Project description and trip generation in the Approved report:

> Specific project development details identify approximately 120.5 acres of the site designated for Freeway Commercial Use, and 12.4 acres designated for circulation. A total of 1,215,000 square feet of commercial uses would be allowed in the SPA area with a Floor Area Ratio (FAR) of 0.25. It would also include room for a light rail alignment or other transitway and a station site to be reserved for the San Diego Trolley, and a park-and-ride component for commuter parking in the commercial area. Development of the area would be phased, dependent upon public facility improvement needs and real estate market conditions.
>
> It is calculated that with ultimate development, the project will generate a total of 48,600 daily trips, with 972 trips (680 inbound and 292 outbound trips) in the AM peak hour and 4,374 trips (2,187 inbound and 2,187 outbound trips) in the PM peak hour. With the reduction due to the pass-by trips, the project is calculated to add a net new total of 44,226 daily trips with 3,586 trips (1,793 inbound and 1,793 outbound trips) in the PM peak hour.

Relevant pages from the above referenced EIR are included in *Appendix A*.

The SPA Plan was developed to refine and implement the land use plans, goals and objectives of the Otay Ranch GDP for the development of Planning Area 12. The total ADT generated by this approved Project is 33,600. The proposed Project is tiering under this REIR that used LOS and with the proposed changes the total Project ADT remains at 33,600.

The Proposed residential uses will replace existing and other planned retail uses within the Otay Ranch Town Center and there is no net increase in the number of ADTs compared to the approved Project. Some of the residential trips will be captured within the Otay Ranch Town Center. Per SANDAG, Residential trip length is 7.9 miles and Regional Shopping Center is 5.1 miles per trip. However, the residential trips replace an equivalent number of retail trips and are not new trips. It may also be noted that some of the retail trips are captured within the mall and hence the total VMT is further reduced.

The Project is screened out from needing a detailed VMT analysis per the City of Chula Vista Transportation Study Guidelines (June 2020, modified January 2022), and is presumed to have a less than significant VMT impact. Therefore, a VMT analysis is not required.

4.0 LOCAL MOBILITY ANALYSIS STUDY AREA, ANALYSIS APPROACH AND METHODOLOGY

A Project-Specific Local Mobility Analysis (LMA) was prepared that focuses on automobile delay and LOS. The LOS analysis was conducted to identify Project effects on the roadway operations in the Project study area and recommend Project improvements to address noted deficiencies.

4.1 Study Area

Since the Project is calculated to generate the same number of ADT as compared to the prior approved Project, an extensive LMA study area is not warranted. The Project will add traffic on a "Plan-to-ground" basis and therefore, a study area consisting of the intersections surrounding the site was determined to be appropriate. Based on the LMA study area scoping criteria (Tables 1 and 2 of the TSG), no intersection analysis would be required. Nevertheless, a study area consisting of eight intersections providing local and regional access to the project was evaluated.

INTERSECTIONS

1. Olympic Parkway / Town Center Drive
2. Olympic Parkway / Eastlake Parkway
3. Eastlake Parkway / Kestrel Falls Road
4. Birch Road / SR-125 Southbound Ramps
5. Birch Road / SR-125 Northbound Ramps
6. Birch Road / Millenia Avenue
7. Birch Road / Orion Avenue
8. Birch Road / Eastlake Parkway

4.2 Analysis Scenarios

The Project does not generate more daily traffic than what was previously approved for the site. Therefore, this study includes analysis of the following scenarios:

- Existing
- Existing + Proposed Residential Land Uses
- Existing + Proposed Residential + Additional Retail square footage

4.3 Analysis Methodology

There are various methodologies used to analyze signalized intersections and unsignalized intersections. The parameters identified in Appendix G of the City's TSG (peak hour factor, saturation flow rate, signal timing, conflicting pedestrian and pedestrian calls, heavy truck percentage, and lane utilization factor) are utilized in the analysis. The measure of effectiveness for intersection operations is Level of Service (LOS), which denotes the operating conditions which occur at a given intersection under various traffic volume loads.

LOS is a qualitative measure used to describe a quantitative analysis considering factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS

provides an index to the operational qualities of a roadway segment or an intersection. Levels of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

LOS designation is reported differently for signalized and unsignalized intersections. In the Highway Capacity Manual (HCM) 6th Edition, LOS for signalized intersections is defined in terms of delay. The LOS analysis results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Table 4–1 summarizes the signalized intersections levels of service descriptions. ***Table 4–2*** depicts the intersection LOS and corresponding delay ranges, which are based on overall intersection delay (signalized intersections) and the average control delay for any particular minor movement (unsignalized intersections), respectively. LOS relative to signalized intersection is further described below.

LOS A describes operations with very low delay, (i.e., less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

LOS C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher volume (demand) / capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

LOS E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

TABLE 4–1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally, occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally, results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally, results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4–2
SIGNALIZED INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)
A	≤ 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	≥ 80.1

Source: Highway Capacity Manual

4.3.1 *Signalized Intersections*

For signalized intersections, LOS criteria are stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Actual traffic signal timing data for each location was obtained from City of Chula Vista records and inputted into the respective intersections.

Effect of Metropolitan Transit System (MTS Rapid Bus)

The MTS Rapid Bus Route 225, operated by Metropolitan Transit System (MTS) connects Downtown San Diego and Otay Mesa. In the Project study area, the Rapid Bus runs parallel to Eastlake Parkway and tracks cross the west legs of the Kestral Falls / Eastlake Parkway and Birch Road / Eastlake Parkway intersections. The following describes how LLG accounted for the additional delay at these intersections due to the train crossings at this location:

The Rapid Bus runs every 15 minutes in each direction during the weekdays. Therefore, during each peak hour, eight buses pass through the intersections. However, based on field observations, buses traveling in opposite directions could arrive concurrently, which results in a reduced number of independent "interruptions" during an hour. To be conservative, the calculation assumed a single bus passing through each time. Therefore, 8 "interruptions" due to the buses were used at each intersection. The effect of the "interruptions" is calculated as follows for each intersection:

Kestral Falls / Eastlake Parkway

- Number of "Interruptions" at the intersection (N_t) = 8
- Average time of "Interruption" (I_c) = 15 seconds
- Total "Interruption" time per hour (L_{gc}) = $N_t * I_c$ = 120 seconds
- Saturation flow reduction = 120 seconds / 3,600 seconds = 3%

Birch Road / Eastlake Parkway

- Number of "Interruptions" at the intersection (N_t) = 8
- Average time of "Interruption" (I_c) = 14 seconds
- Total "Interruption" time per hour (L_{gc}) = $N_t * I_c$ = 112 seconds
- Saturation flow reduction = 112 seconds / 3,600 seconds = 3%

A saturation flow reduction of 3% was applied into the Synchro computer software for movements affected by the train gate closure. This added delay was apportioned among the affected movements at the intersection as a proportion of overall hourly capacity by reducing movement capacity using an adjustment factor within the Synchro software at these intersections for all analysis scenarios. Movements to and from the west legs of the Kestral Falls / Eastlake Parkway and Birch Road / Eastlake Parkway intersections are stopped during the "interruptions".

5.0 EXISTING MOBILITY CONDITIONS

Effective evaluation of the traffic effects associated with the proposed Project requires an understanding of the existing transportation system within the project area. ***Figure 5–1*** shows an existing conditions diagram, including intersections control and lane configurations.

5.1 Existing Roadway Conditions

The following is a description of the major roadways located within the immediate vicinity of the Project site at the time of the existing counts. The following is a description of the existing street network in the study area.

Olympic Parkway

Olympic Parkway is classified as a Prime Arterial and an Expressway in the City of Chula Vista General Plan Land Use and Transportation Element within the project vicinity. Currently, it is constructed as an 8-lane divided roadway with four lanes westbound and four lanes eastbound and a raised median between SR-125 and Eastlake Parkway. East of Eastlake Parkway, Olympic Parkway is built as a 6-lane divided roadway with three lanes westbound and three lanes eastbound and a raised median. Bike lanes are provided on both sides of the street and curbside parking is prohibited. The posted speed limit is 50 mph within the project vicinity.

Eastlake Parkway

Eastlake Parkway is classified as a Prime Arterial and Major Road in the City of Chula Vista General Plan Land Use and Transportation Element within the project vicinity. Currently, it is constructed as a 6-lane divided roadway with three lanes northbound and three lanes southbound and a raised median. Bike lanes are provided on both sides of the street and curbside parking is prohibited. The posted speed limit is 40 mph north of Olympic Parkway and 50 mph south of Olympic Parkway.

Birch Road

Birch Road is classified as a Prime Arterial and a Major Road in the City of Chula Vista General Plan Land Use and Transportation Element within the project vicinity. Currently, it is constructed as a 6-lane divided roadway with three lanes westbound and three lanes eastbound and a raised median. Bike lanes are provided on both sides of the street and curbside parking is prohibited. The posted speed limit is 50 mph within the project vicinity.

Town Center Drive

Town Center Drive is an unclassified 4-lane road within the project vicinity. Currently, it is constructed as a 4-lane divided roadway with two lanes in each direction with a raised median south of Olympic Parkway, narrowing to one lane in each direction and a raised median. Bike lanes are not provided, and curbside parking is permitted in sections. Curb and gutter are provided A noncontiguous sidewalk is provided. There is no posted speed limit.

SR 125

SR 125 is a Four-Lane Tollway. Access to the Project site is provided via ramps at Birch Road and Olympic Boulevard.

5.2 Existing Intersection Traffic Volumes

Weekday daily, and AM and PM peak hour intersection turning movement volume counts were commissioned on Thursday, January 16, 2020. The intersection counts were conducted between the hours of 7:00-9:00 AM and 4:00-6:00 PM to capture peak commuter activity. Area schools were in session during the time of the counts. Signal timing plans were obtained from the City of Chula Vista and used in the intersection analyses.

Figure 5–2 shows the existing traffic volumes. ***Appendix*** B contains the count sheets and signal timing sheets.

5.3 Existing Pedestrian Conditions

Continuous sidewalks are provided along both sides of Olympic Parkway, Eastlake Parkway and Birch Road. There are no missing sidewalks within the Project vicinity. The proposed Project will provide a network of sidewalks onsite for the convenience and safety of residents. There are no obstructions to pedestrian circulation along the project frontage.

Curb ramps and warning strips are present at each corner of the study intersections except the following:

- Olympic Parkway / Town Center Drive – No warning strips
- Olympic Parkway / Eastlake Parkway – No warning strips
- Eastlake Parkway / Kestrel Falls Road – No warning strips on east corners
- Birch Road / Millenia Avenue – No warning strips
- Birch Road / Orion Avenue – No warning strips
- Birch Road / Eastlake Parkway – No warning strips on east corners

Figure 5-3 depicts the existing Pedestrian circulation.

5.4 Existing Bicycle Network

Currently, Class II bike lanes are provided on Olympic Parkway, Eastlake Parkway and Birch Road in the Project vicinity.

Class IV Cycle Tracks are planned to be constructed along Olympic Parkway, Eastlake Parkway, and Birch Road, within the project vicinity.

Figure 5-4 depicts the existing Bicycle circulation.

5.5 Existing Transit Conditions

The Project area is primarily served by transit services provided by the San Diego Metropolitan Transit System (MTS). Below is brief description of the transit services:

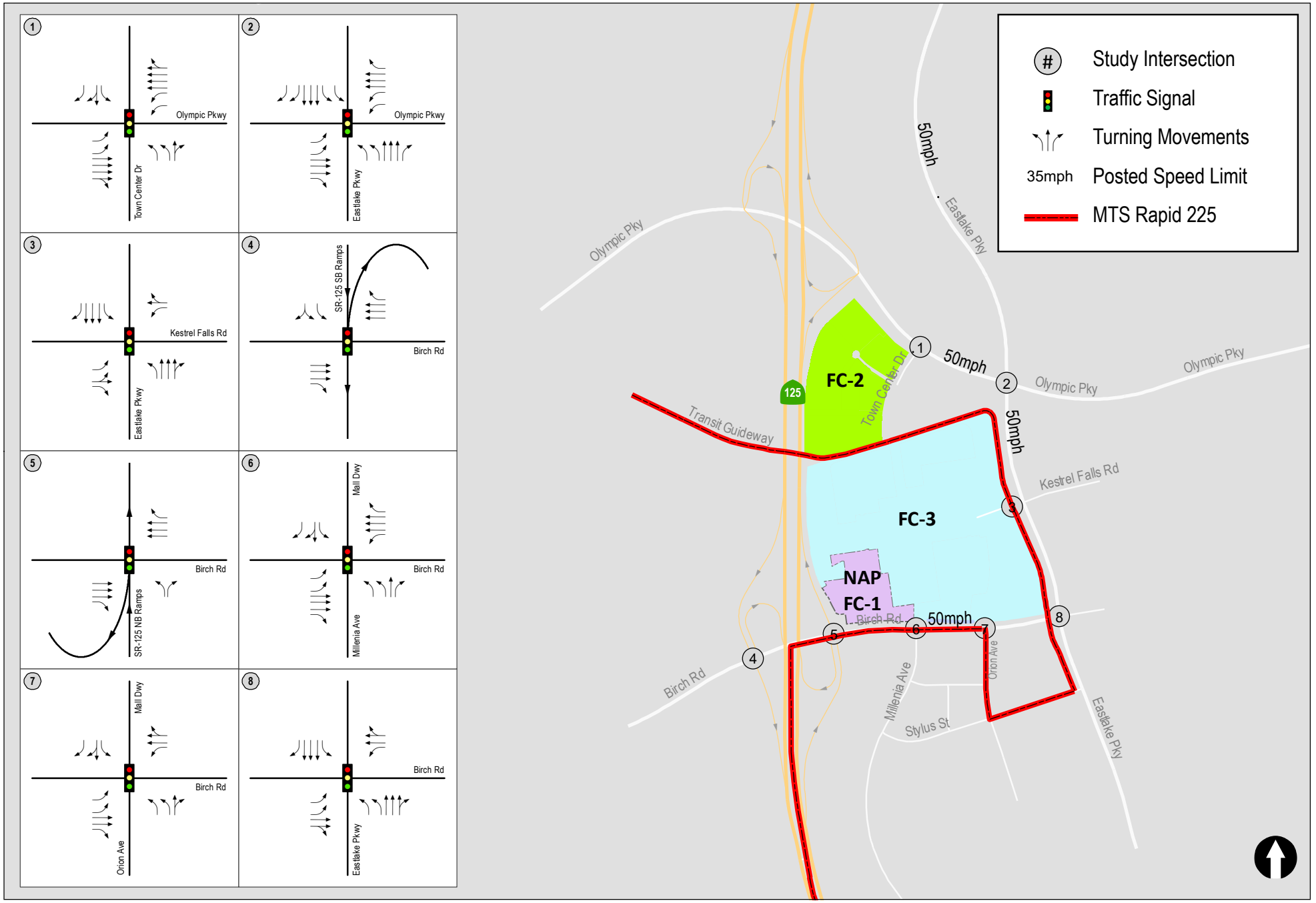
MTS Bus – The MTS bus provides local and regional connections between neighborhoods and cities in the. There are 3 MTS bus routes serving the Project area. The San Diego Metropolitan Transit System (MTS) operates within the study area. A description of the transit services within the Project Vicinity are as follows:

Route 225 (Rapid) begins at Otay Mesa Transit Center and ends at Downtown San Diego. There are 11 stops along this route. Within Chula Vista, Route 225 Rapid runs on its own guideway. It operates on the weekdays from approximately 4:30 AM to 11 PM. Weekend services operates at approximately 5 AM to 10 PM. Services are at 20 to 30-minute frequencies. The nearest bus stop to the project site is located at Otay Ranch Station, northwest of Eastlake Parkway and Kestrel Falls Road intersection.

Route 707 runs from Eastlake Parkway & Olympic Parkway to Southwestern College via East H. Street and Eastlake Parkway. There are 26 stops along this route with destinations to Bonita Vista High School, Eastlake High School, Eastlake Village Center, Otay Ranch Town Center, and Southwestern College. Route 707 currently operates Monday through Friday from 5:02 AM through 7:14 PM departing from Eastlake Parkway & Olympic Parkway and from 6:31 AM through 7:23 PM departing from Southwestern College. Weekday schedules include 30-minute headways. Route 707 does not operate on weekends or observed holidays. The nearest bus stop to the project site is located at Eastlake Parkway, south of Olympic Parkway.

Route 709 runs from the H. Street Transit Center to Eastlake Parkway & Olympic Parkway via East H. Street, East Palomar Street, and La Media Road, as well as other streets that are not near the project study area. There are 22 stops along this route with destinations to Bonita Vista High School, Hilltop High School, Otay Ranch Town Center, Scripps Hospital and Southwestern College. Route 709 currently operates Monday through Friday from 5:49 AM through 10:22 PM departing from the H. Street Transit Center and from 4:52 AM through 10:06 PM departing from Eastlake Parkway & Olympic Parkway. Saturday route schedule begins at 6:22 AM through 9:55 AM departing from the H. Street Transit Center and begins at 5:37 AM to 9:37 PM departing from Eastlake Parkway & Olympic Parkway. Sunday schedule begins at 6:51 AM through 8:07 PM departing from the H. Street Transit Center and begins at 6:37 AM through 7:50 PM departing from Eastlake Parkway & Olympic Parkway. Route 709 operates on observed holidays with a Saturday or Sunday schedule. Weekday schedules include 30-minute headways. Weekend schedules include 1-hour headways. The nearest bus stop to the project site is located at Olympic Parkway, west of Eastlake Parkway.

Figure 5-5 depicts the existing Transit routes in the Project vicinity. ***Appendix C*** contains the MTS bus schedules and maps.



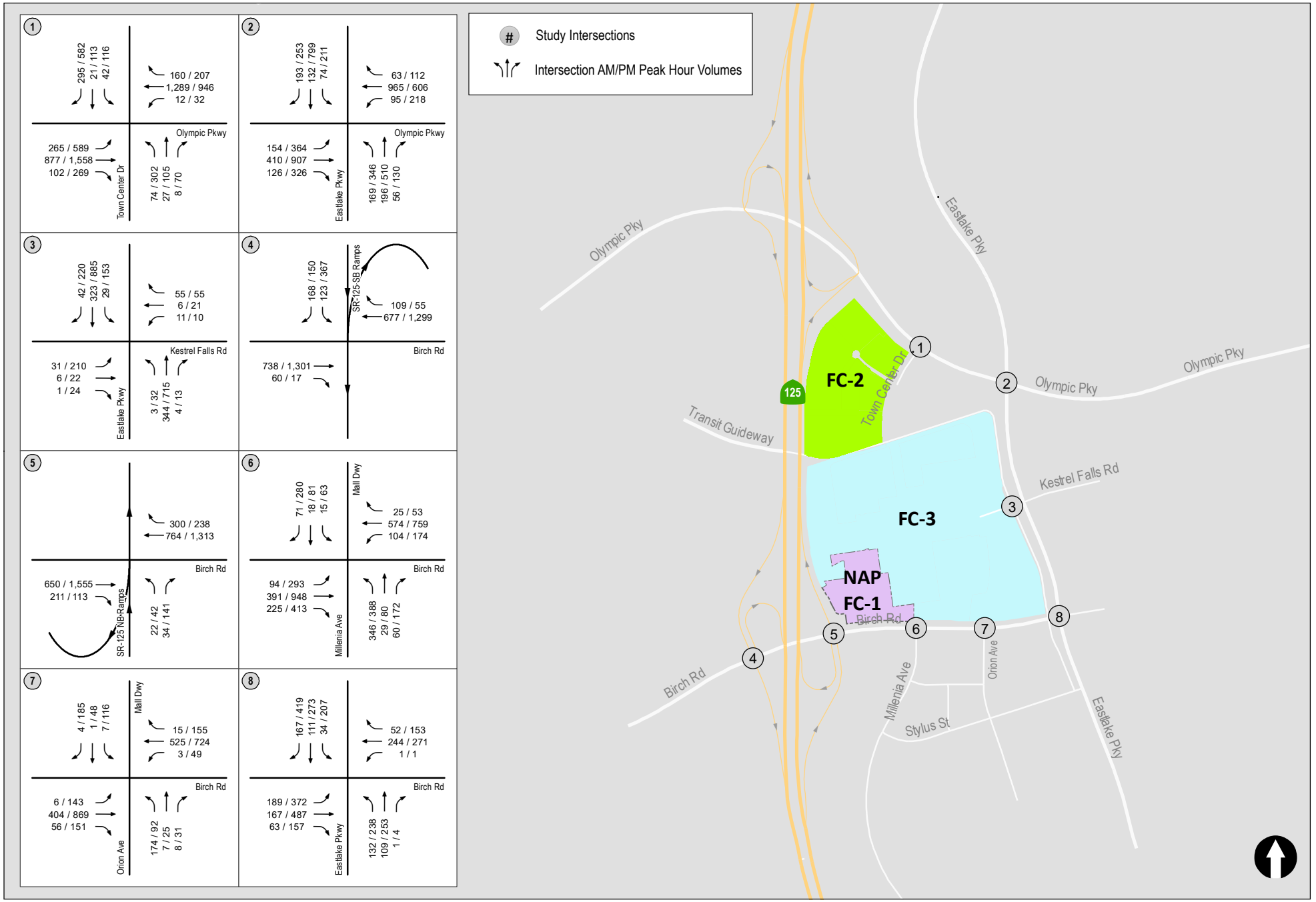
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 7/19/2022
Time: 2:14 PM

Figure 5-1

Existing Conditions Diagram

Otay Ranch Town Center Reimagined

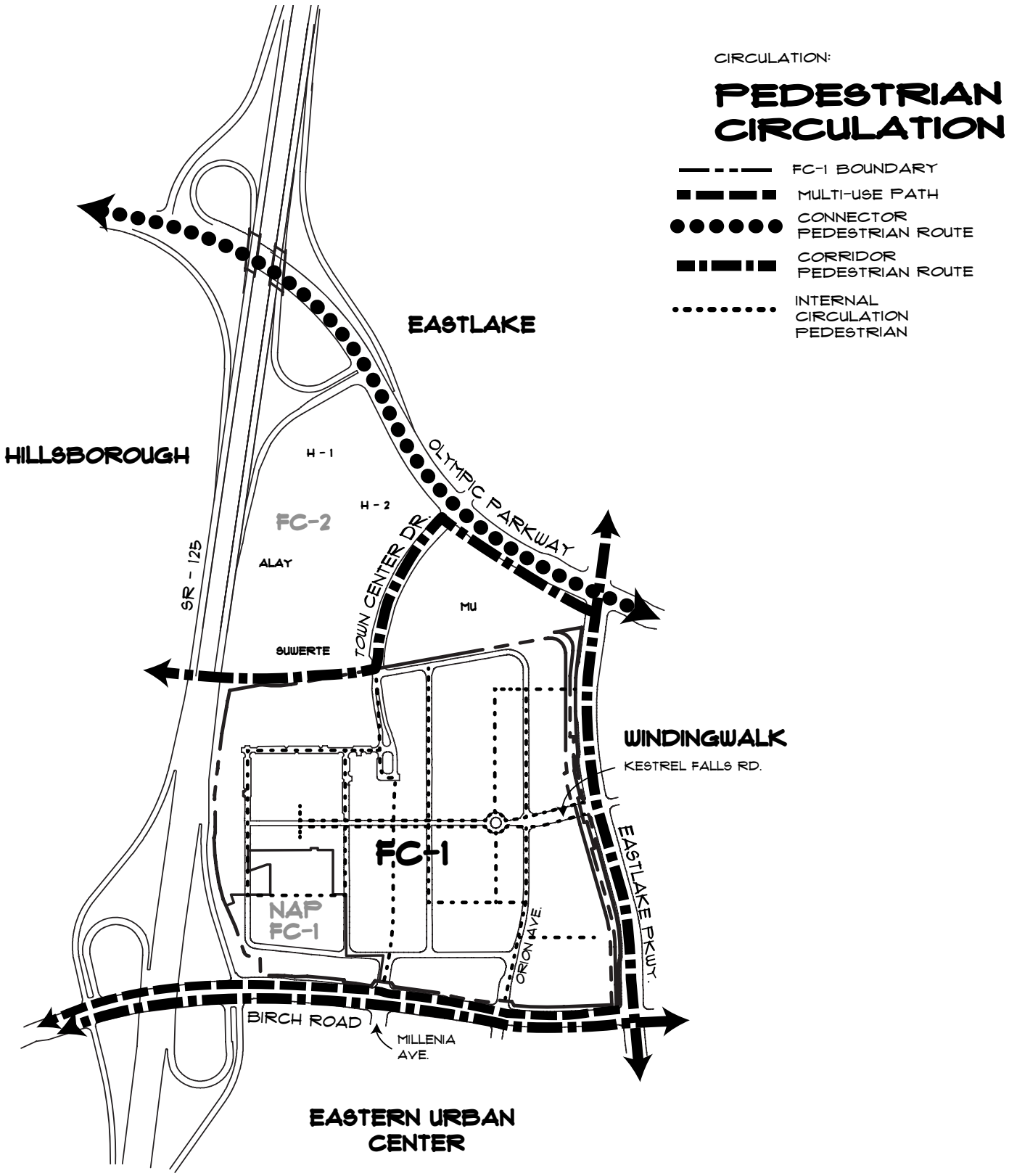


N:\3254\Figures
Date: 7/19/2022
Time: 2:13 PM

Figure 5-2

Existing Traffic Volumes

Otay Ranch Town Center Reimagined



Source: Hunsaker & Associates

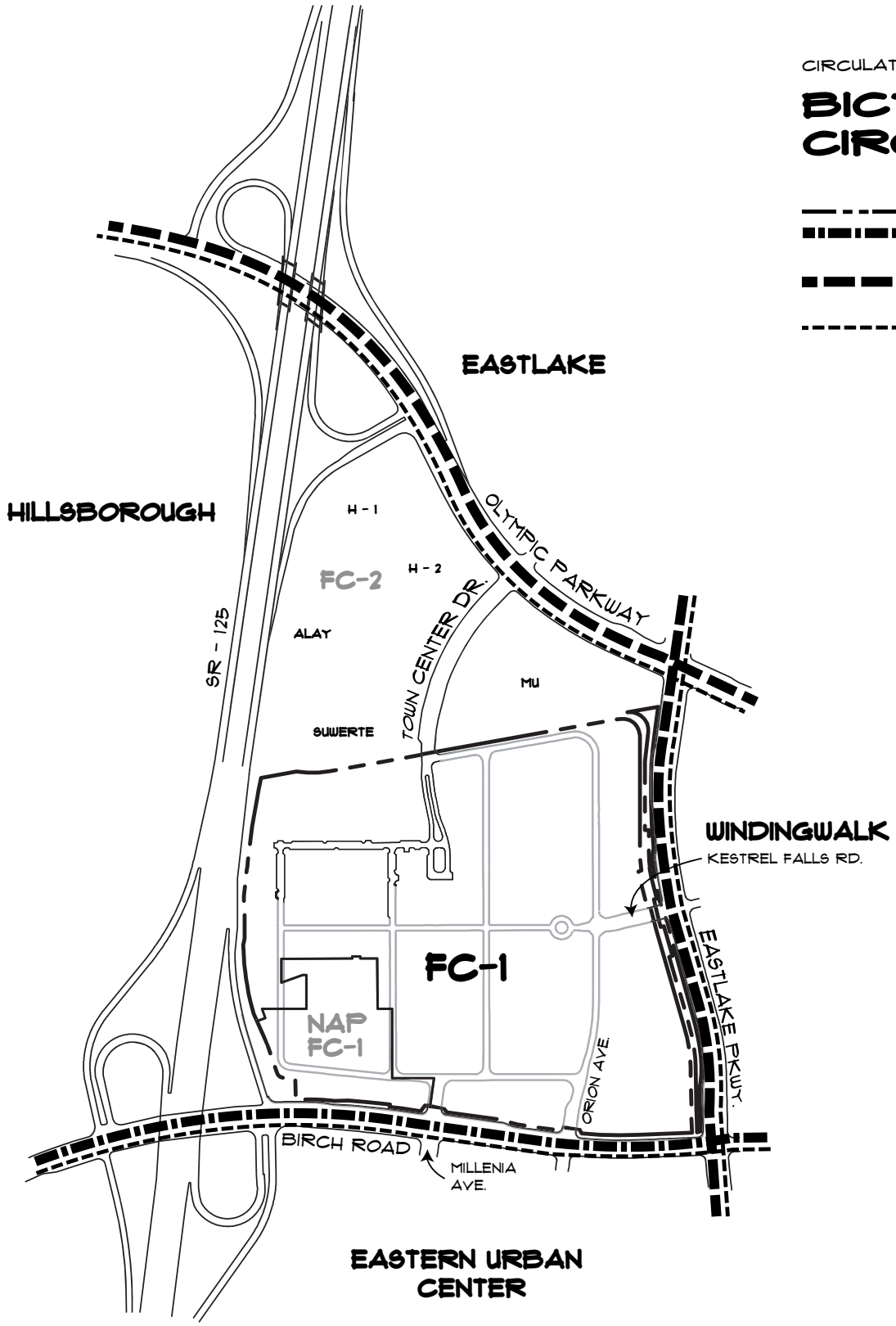
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 02/22/22

Figure 5-3

Pedestrian Circulation

Otay Ranch Town Center Reimagined



Source: Hunsaker & Associates

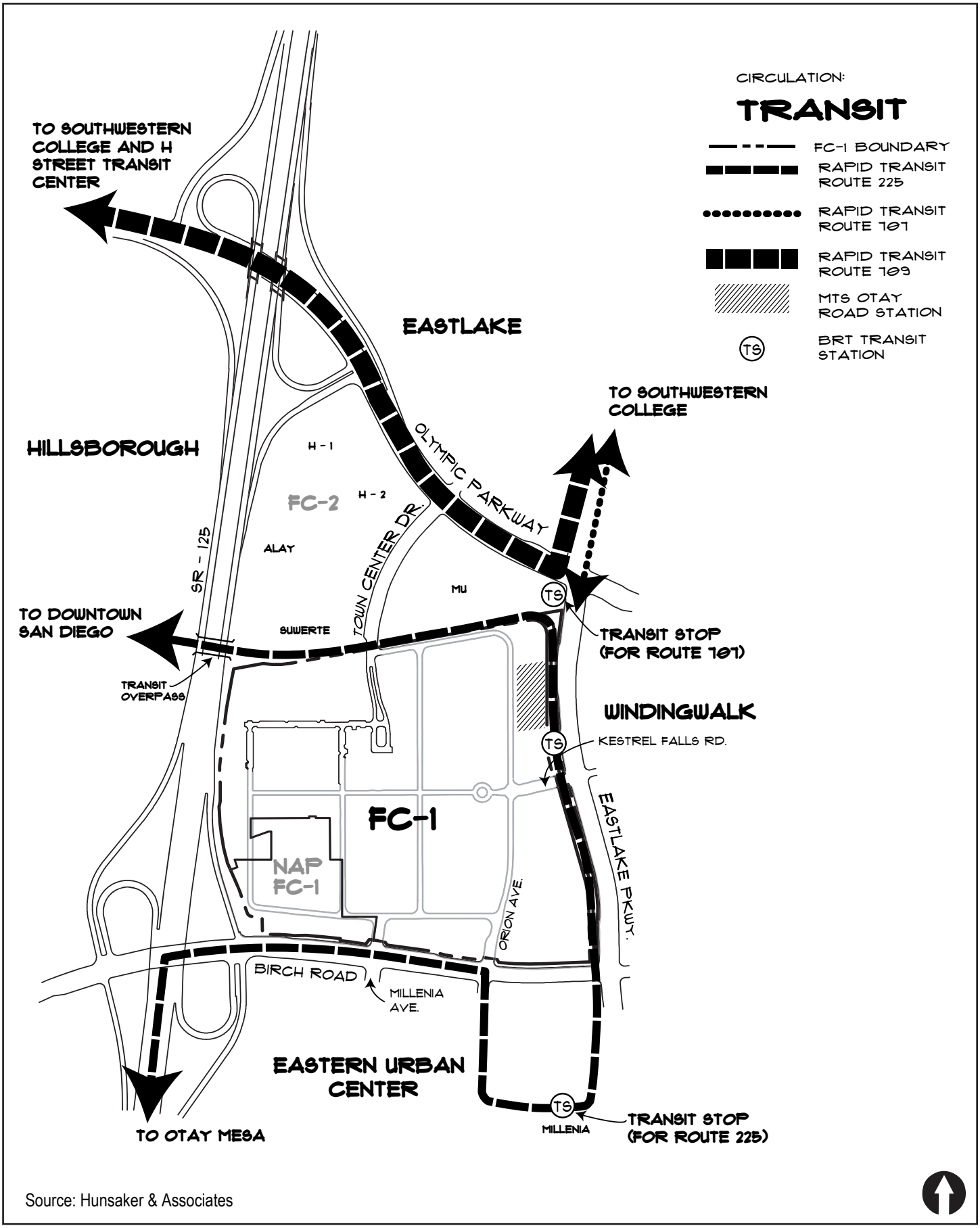
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 02/22/22

Figure 5-4

Bicycle Circulation

Otay Ranch Town Center Reimagined



Source: Hunsaker & Associates

LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 02/22/22

Figure 5-5

Transit Circulation

Otay Ranch Town Center Reimagined

6.0 SUBSTANTIAL EFFECT CRITERIA

Project specific traffic effects are those effects for which the addition of project trips result in an identifiable degradation in LOS on intersections, triggering the need for specific project-related improvement strategies.

The criteria for determining whether the Project results in project specific traffic effects on intersections in the City of Chula Vista are as summarized in ***Table 6-1*** below:

TABLE 6–1
THRESHOLD FOR DETERMINING A PROJECT'S SUBSTANTIAL TRAFFIC EFFECT

Facility	Facility Type	Substantial Traffic Effect
Signal	Whole Intersection	• Proposed project contributes to an intersection that currently operates or is projected to operate at LOS E or below. • Proposed project causes an intersection's operations to degrade to LOS E or below.
	Turning Movement	Proposed project traffic either contributes to or is responsible for the 95th percentile queue length exceeding available storage length.
Freeway Interchange	Off-Ramp	Proposed project traffic either contributes to or is responsible for the 95th percentile queue length exceeding available off-ramp storage length and extending onto the freeway mainline.
All-way Stop Control	Whole Intersection	• Proposed project contributes to an intersection that currently operates, or is projected to operate, at LOS E or below. • Proposed project causes the intersection's operations to LOS E or below during one or more peak hours.
Side-Street Stop Control	Critical movement	• Proposed project contributes to a critical movement of an intersection that currently operates, or is projected to operate, at LOS E or below. • Proposed project causes the intersections critical movement to degrade to LOS E or below.
Pedestrian		All facilities within a project study area
Bicycle		All facilities within a project study area
Transit		All facilities within a project study area

General Notes:

a. Information obtained from Table 3 of the Chula Vista's *Transportation Study Guidelines*

7.0 ANALYSIS OF EXISTING CONDITIONS

7.1 Peak Hour Intersection Analysis

Table 7–1 summarizes the peak hour intersection operations under Existing conditions in the study area. As shown, the study area intersections are calculated to currently operate acceptably at LOS D or better during the AM and PM peak hours.

Appendix D contains the Existing intersection analysis worksheets. The City's TSG parameters (included in the table entitled "Local Mobility Analysis Specification – General" in Appendix G of the TSG) were utilized in the analysis.

TABLE 7–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay[a]	LOS[b]
1. Olympic Pkwy / Town Center Dr	Signal	AM	18.8	B
		PM	48.5	D
2. Olympic Pkwy / Eastlake Pkwy	Signal	AM	37.0	D
		PM	47.8	D
3. Kestrel Falls Rd / Eastlake Pkwy	Signal	AM	12.9	B
		PM	20.2	C
4. Birch Rd / SR-125 SB Ramps	Signal	AM	7.3	A
		PM	11.3	B
5. Birch Rd / SR-125 NB Ramps	Signal	AM	2.4	A
		PM	5.1	A
6. Birch Rd / Millenia Ave	Signal	AM	20.7	C
		PM	34.4	C
7. Birch Rd / Orion Ave	Signal	AM	11.9	B
		PM	21.4	C
8. Birch Rd / Eastlake Pkwy	Signal	AM	29.9	C
		PM	52.6	D

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.

SIGNALIZED

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

8.1 Trip Generation

Trip generation rates were obtained from the (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002 by SANDAG. The existing shopping center plus the proposed retail expansion includes the minimum square footage to be classified as a super-regional mall per SANDAG's "(Not So) Brief guide of Vehicular Traffic Generation Rates for the San Diego Region.

The following rates were used:

- The rates for Super Regional Shopping Center of 35 ADT per 1,000 Square Feet (ksf) was used for the retail since that was the rate used in the approved project.
- The rates for Apartments (or any multifamily units more than 20 Dwelling Unit (DU) per acre) of 6 ADT per unit was used for the Apartments. The density of the Proposed project is 56 DU per acre.

As described previously, the Otay Valley Town Center's entitled ADT is 33,600. Currently 669,700 SF of retail generating 23,440 ADT is built. The Project proposes to build 840 multifamily residential units. The amount of additional retail that could be built was back calculated to generate a total of 33,600 ADT for the entire site.

Due to the proximity and number of the residential units, several residential trips for retail purposes will be captured within the mall (internal trips), thus reducing the number of residential trips to other retail destinations outside of the mall. Thus, the net external trips will be reduced. However, this analysis does not consider the reduction in traffic due to the internal capture.

8.1.1 *Entitled Project*

Table 8–1 summarizes the Entitled trip generation for the approved Project. As seen in *Table 8-1*, the Entitled trip generation for the approved Project is a total of 33,600 daily trips with a total of 1,344 trips during the AM peak hour (941 inbound / 403 outbound trips) and 3,360 trips during PM peak hour (1,680 inbound / 1,680 outbound trips).

8.1.2 *Current Site Trip Generation*

As seen in *Table 8-1*, the current site generates a total of 23,440 daily trips with a total of 938 trips during the AM peak hour (657 inbound / 281 outbound trips) and 2,344 trips during PM peak hour (1,172 inbound / 1,172 outbound trips).

8.1.3 *Project Residential Trips*

Table 8–1 summarizes the trip generation for the Proposed Project. As seen in *Table 8-1*, the proposed residential portion of the Project is estimated to generate a total of 5,040 daily trips with a total of 404 trips during the AM peak hour (81 inbound / 323 outbound trips) and 454 trips during PM peak hour (318 inbound / 136 outbound trips).

8.1.4 *Project Retail Trips*

The proposed retail portion of the Project is estimated to generate a total of 5,120 daily trips with a total of 205 trips during the AM peak hour (144 inbound / 61 outbound trips) and 512 trips during PM peak hour (256 inbound / 256 outbound trips).

8.1.5 *Trip Reduction Due to Mixed-Uses and Transit*

Per footnote "T" in the SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region. (***Appendix E***), A 5% daily trip reduction is allowed for land uses with transit access or near transit stations accessible within 1/4th mile. Also, up to 10% daily trip reduction is allowed for mixed-use developments where residential and commercial retail are combined.

The reduction in trips due to the mixed-use and proximity to transit station are shown in *Table 8-1*. As seen in *Table 8-1*, due to the mixed-use, there is a reduction of 1,016 daily trips, 61 AM peak hour trips and 96 PM peak hour trips. In addition, due to the proximity to transit station, there is an additional reduction of 457 daily trips, 27 AM peak hour trips and 44 PM peak hour trips.

The mixed-use reduction was applied to the Proposed residential and shopping center land uses only. The transit reduction was applied to the total project trips with the mixed-use reduction. The Mixed-Use and Transit reduction shown in the table is not applied to the analysis and hence the analysis in this report is conservative.

8.1.6 *Total Project Trips*

As seen in *Table 8-1*, including the existing super-regional mall, the Project is estimated to generate a total of 33,600 new daily trips with 1,547 trips during the AM peak hour (882 inbound / 665 outbound trips) and 3,310 trips during PM peak hour (1,746 inbound / 1,564 outbound trips).

Comparing the total trip generation to the approved project, the proposed Project will generate the same amount of daily traffic as the Approved Project as described in Section 8.1.1 above.

8.2 Trip Distribution and Assignment

Separate distributions were developed for residential and retail uses. Trips originate from residential land uses and a retail land use is a destination. Therefore, the trip patterns for residential and retail land uses are different.

The Project trip distribution was developed separately for the residential and retail developments.

Residential Distribution

The distribution for the residential portion of this Project is based on the availability of access to the nearest freeways (SR 125 and the non-toll I-805), the site's proximity to major traffic carriers (i.e., Olympic Parkway, Eastlake Parkway, etc.), existing traffic patterns, presence of traffic signals, ingress/egress availability at the project site and the locations of employment centers, schools and other retail opportunities.

Retail Distribution

The distribution for the retail portion of this Project is based on the availability of access to the nearest freeways (SR 125 and the non-toll I 805), the site's proximity to major traffic carriers (i.e., Olympic Parkway, Eastlake Parkway, etc.), existing traffic patterns, presence of traffic signals, and ingress/egress availability at the project site.

As mentioned above in section 8.1.5 Trip Reduction due to Mixed Uses and Transit, the distribution and assignment does not assume any internal interaction between the retail and residential uses for a conservative analysis.

The analysis being performed is a plan-to-ground comparison and does not account for the internal interaction between retail and residential uses. The proposed development is consistent with the entitled uses in terms of traffic generation.

Figure 8–1 depicts the distribution of the Project Residential trips. ***Figure 8–2*** depicts the distribution of the Project Retail trips. ***Figure 8–3*** depicts the Project Residential trips assignment. ***Figure 8–4*** depicts the Project Retail trips assignment. ***Figure 8–5*** depicts the Existing + Project Residential traffic volumes and ***Figure 8–6*** depicts the Existing + Project Residential + Retail traffic volumes.

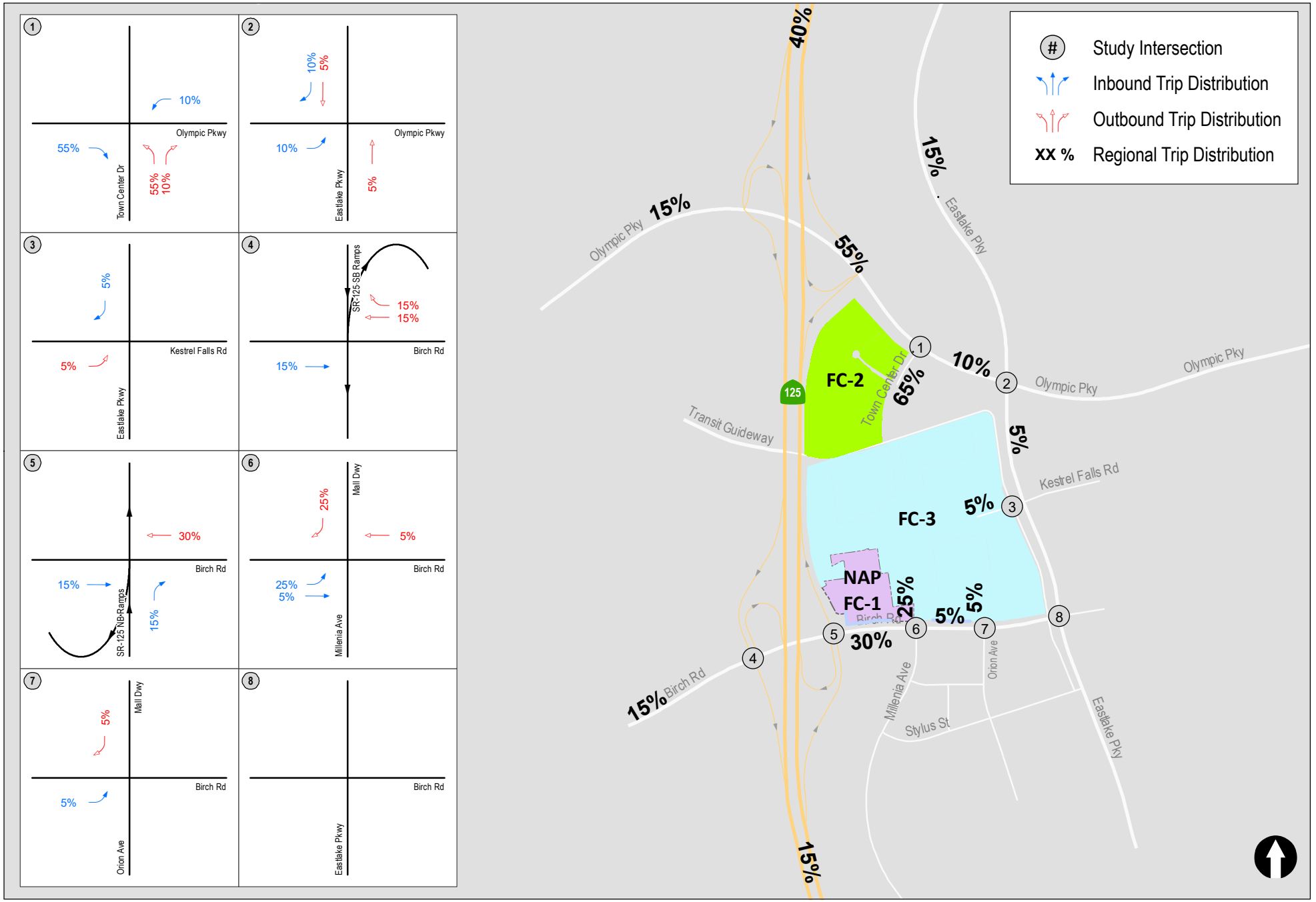
TABLE 8-1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
		Trip Rate [a]	Volume	Rate /KSF	In:Out Split %	Volume			Rate /KSF	In:Out Split %	Volume		
						In	Out	Total			In	Out	Total
Entitled Land Use													
Super Regional Shopping Center	960 KSF	35 / KSF	33,600	4%	70:30	941	403	1,344	10%	50:50	1,680	1,680	3,360
Total Site													
Super Regional Shopping Center													
Existing	669.7 KSF	35 / KSF	23,440	4%	70:30	657	281	938	10%	50:50	1,172	1,172	2,344
Proposed	146.3 KSF	35 / KSF	5,120	4%	70:30	144	61	205	10%	50:50	256	256	512
Proposed Apartments	840 DU	6 / DU	5,040	8%	20:80	81	323	404	9%	70:30	318	136	454
Total Site (Including Existing)		*-*	***33,600***	*-*	*-*	***882***	***665***	***1,547***	*-*	*-*	***1,746***	***1,564***	***3,310***
Mixed Use Reduction [b]		*10%*	*1,016*	10%		23	38	61	10%		57	39	96
Total With Mixed-Use Reduction			*32,584*			*859*	*627*	*1,486*			*1,689*	*1,525*	*3,214*
Transit Reduction [b]		*5%*	*457*	5%		10	17	27	5%		26	18	44
Total With Mixed-Use and Transit Reduction			*32,127*			*849*	*610*	*1,459*			*1,663*	*1,507*	*3,170*
Net Difference (Proposed versus Entitled)		*-*	*-*	*-*	*-*	***(59)***	***262***	***203***	*-*	*-*	***66***	***(116)***	***(50)***

Footnotes:

a. Trip rates from SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region.

b. Per Table 6.2 Unconstrained internal Person Trip Capture Rates for Trip Destinations within a Mixed-Use Development, the average Residential to Restaurant and Residential to Cinema / Entertainment trips are 18.5% in the AM (average of 17% and 20%) and 12% in the PM peak hour (average of 10% and 14%) respectively. See ***Appendix E***. Daily rates are not given and hence not shown. The Mixed-Use reduction shown in the table is not applied in the analysis.



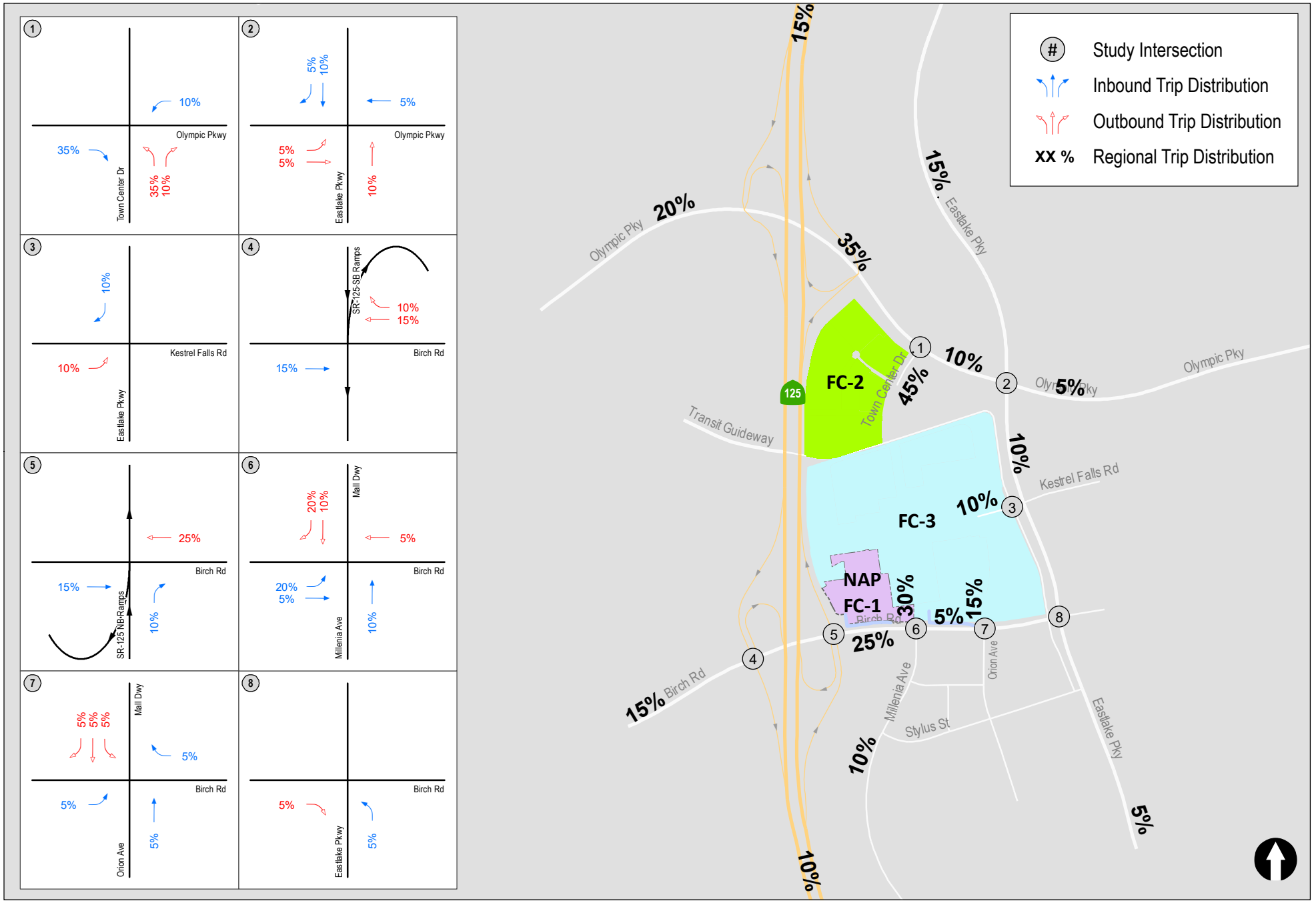
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 7/19/2022
Time: 2:29 PM

Figure 8-1

Project Residential Traffic Distribution

Otay Ranch Town Center Reimagined



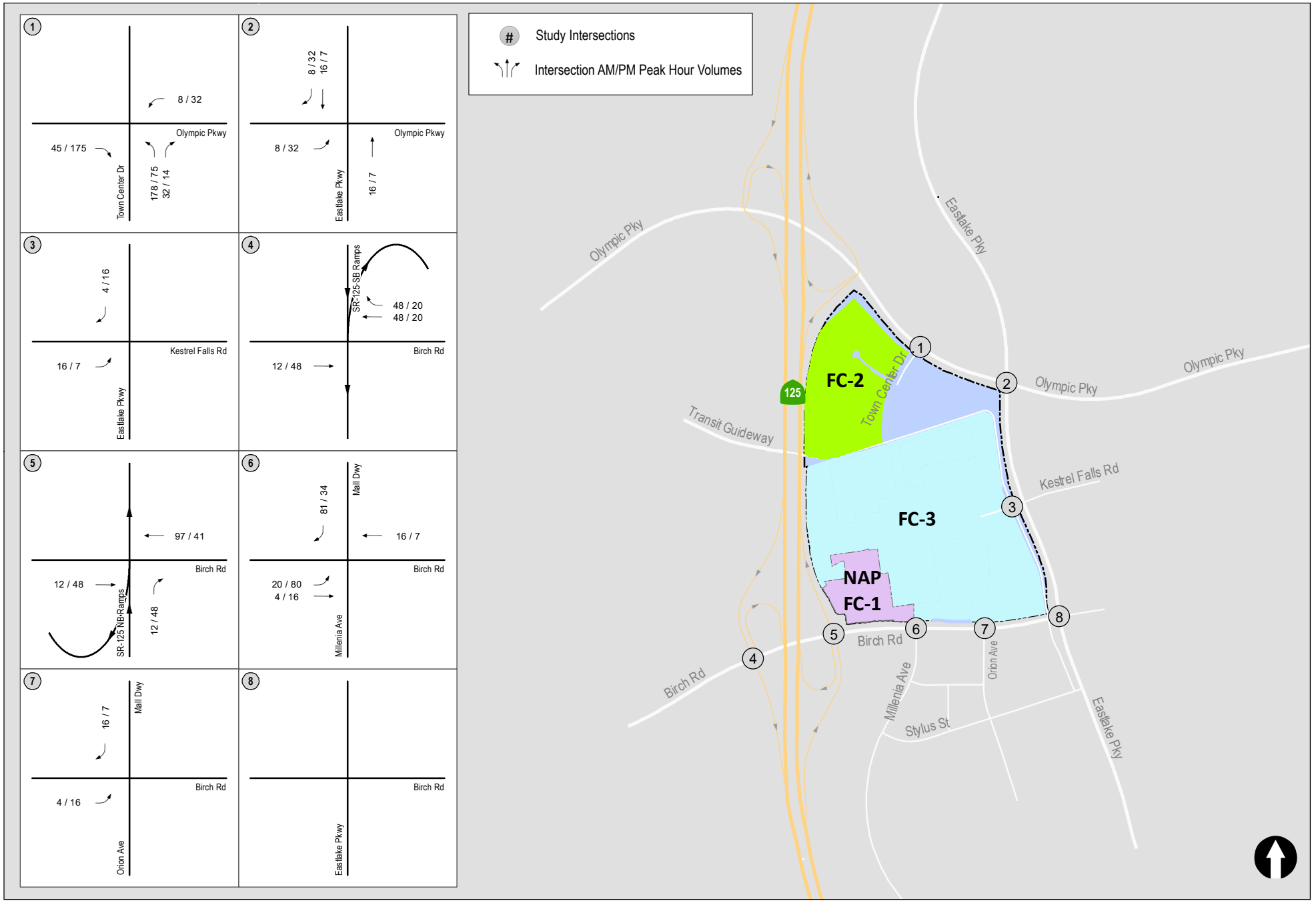
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 7/19/2022
Time: 2:24 PM

Figure 8-2

Project Retail Traffic Distribution

Otay Ranch Town Center Reimagined



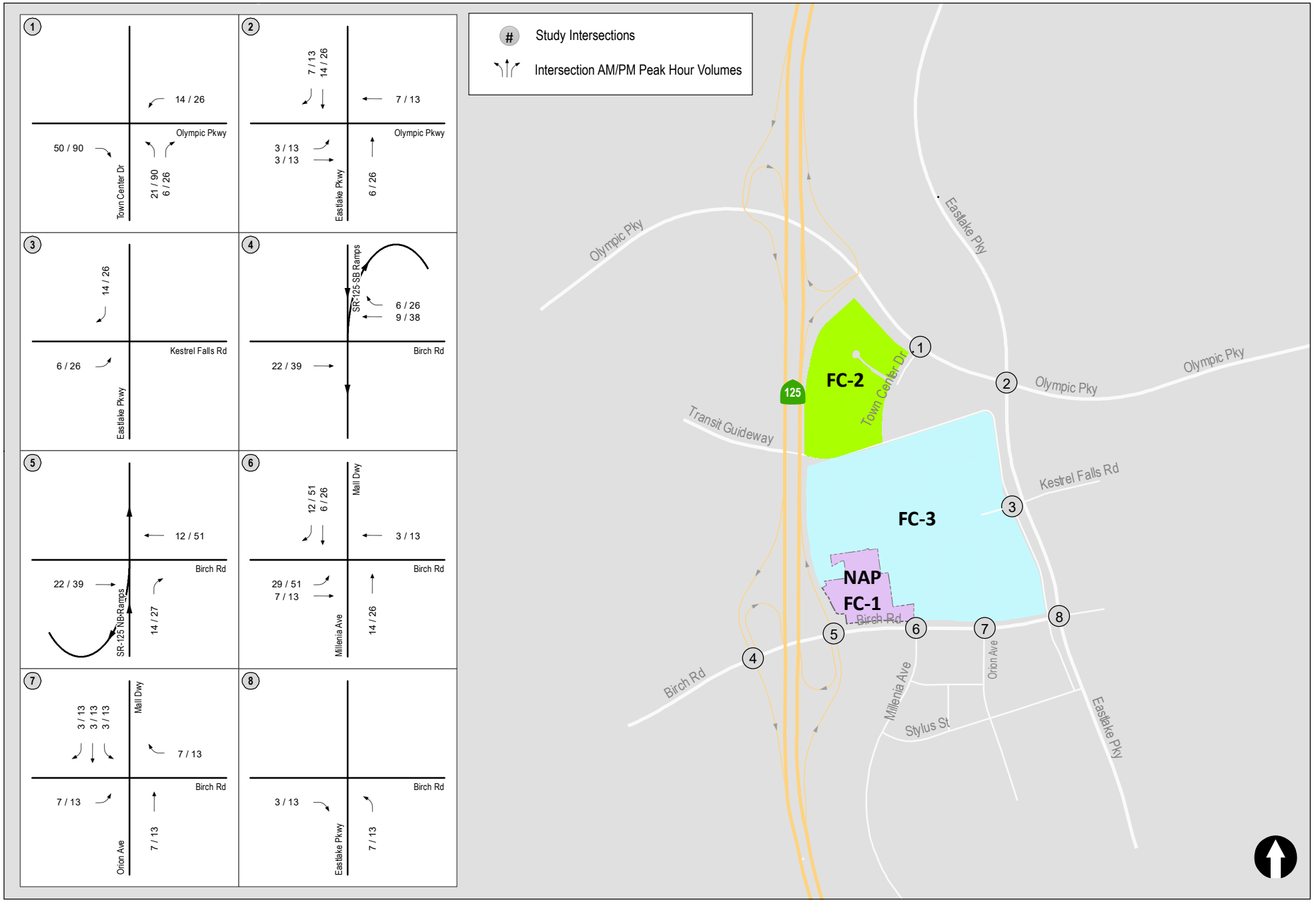
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 7/19/2022
Time: 2:16 PM

Figure 8-3

Project Residential Traffic Volumes

Otay Ranch Town Center Reimagined

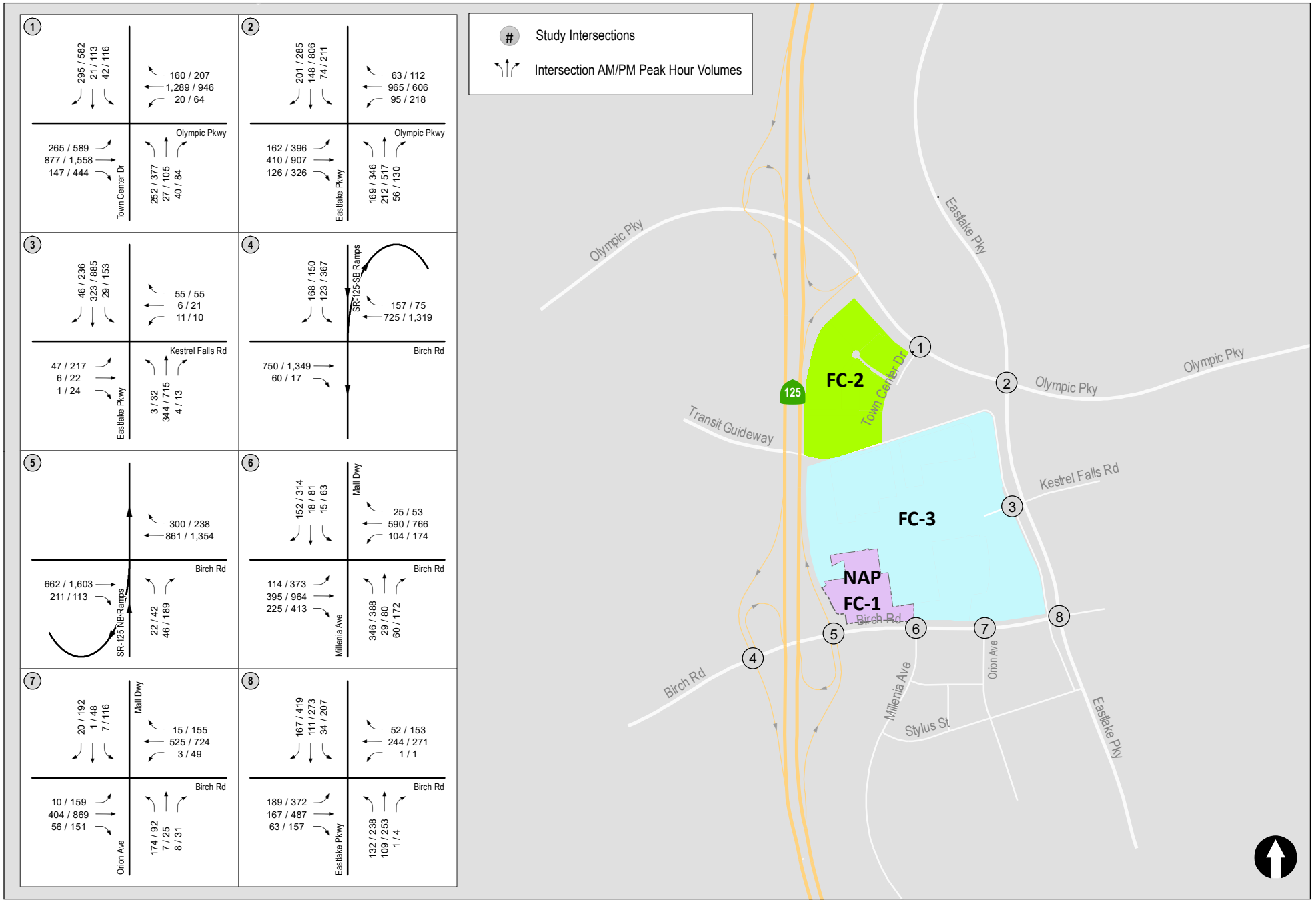


N:\3254\Figures
Date: 7/19/2022
Time: 2:17 PM

Figure 8-4

Project Retail Traffic Volumes

Otay Ranch Town Center Reimagined



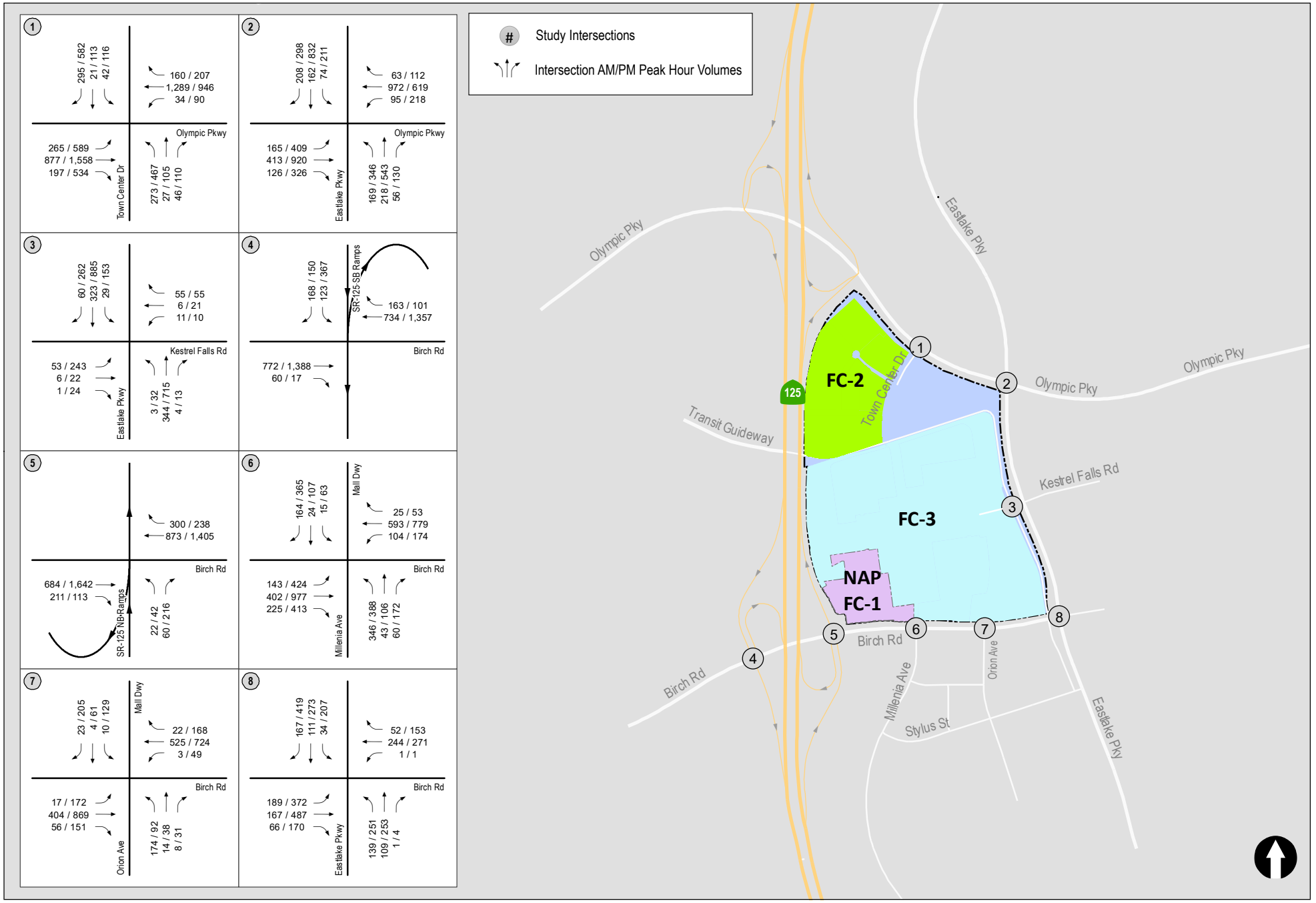
LINSCOTT LAW & GREENSPAN engineers

N:\3254\Figures
Date: 7/19/2022
Time: 2:19 PM

Figure 8-5

Existing + Project Residential Traffic Volumes

Otay Ranch Town Center Reimagined



N:\3254\Figures
Date: 7/19/2022
Time: 2:20 PM

Figure 8-6

Existing + Project Residential + Retail Traffic Volumes

Otay Ranch Town Center Reimagined

9.0 ANALYSIS OF EXISTING + PROJECT CONDITIONS

9.1 Existing + Project Residential Analysis Peak Hour Intersection Analysis

Table 9–1 summarizes the Existing + Project Residential peak hour intersection operations in the study area. As shown in *Table 9-1*, with the addition of Project Residential traffic, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours.

Appendix E contains the Existing + Project Residential peak hour intersection analysis worksheets.

9.2 Existing + Project Residential + Retail Peak Hour Intersection Analysis

Table 9–1 summarizes the Existing + Project Residential + Retail peak hour intersection operations in the study area. As shown in *Table 9-1*, with the addition of Project Residential and Retail traffic, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours except the following:

- Olympic Parkway / Town Center Drive – LOS E during the PM peak hour

The Project has a substantial effect at the Olympic Parkway / Town Center Drive intersection. Provide signal optimization and Adaptive signal controller at this intersection. This is under discussions with the City to finalize any changes to the intersection geometry.

Appendix F contains the Existing + Project Residential + Retail peak hour intersection analysis worksheets.

TABLE 9–1
EXISTING WITH PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Residential Traffic		Project % of Entering Volume	Effect Type	Existing + Project Residential + Retail Traffic		Project % of Entering Volume	Effect Type
			Delay[a]	LOS[b]	Delay	LOS			Delay	LOS		
1. Olympic Pkwy / Town Center Dr	Signal	AM	18.8	B	28.4	C	8%	None	29.1	C	10%	None
		PM	48.5	D	53.7	D	6%	None	**59.7**	**E**	**10%**	**Substantial**
2. Olympic Pkwy / Eastlake Pkwy	Signal	**AM**	37.0	D	37.5	D	2%	None	37.7	D	3%	None
		PM	47.8	D	48.5	D	2%	None	48.7	D	4%	None
3. Kestrel Falls Rd / Eastlake Pkwy	Signal	AM	12.9	B	13.5	B	2%	None	13.6	B	4%	None
		PM	20.2	C	20.4	C	1%	None	20.9	C	3%	None
4. Birch Rd / SR-125 SB Ramps	Signal	AM	7.3	A	7.4	A	5%	None	7.4	A	7%	None
		PM	11.3	B	11.3	B	3%	None	11.4	B	6%	None
5. Birch Rd / SR-125 NB Ramps	Signal	AM	2.4	A	2.7	A	6%	None	3.0	A	8%	None
		PM	5.1	A	6.3	A	4%	None	7.1	A	7%	None
6. Birch Rd / Millenia Ave	Signal	AM	20.7	C	22.5	C	6%	None	23.2	C	9%	None
		PM	34.4	C	37.3	D	4%	None	41.1	D	8%	None
7. Birch Rd / Orion Ave	Signal	AM	11.9	B	12.8	B	2%	None	13.7	B	4%	None
		PM	21.4	C	21.7	C	1%	None	22.7	C	8%	None

CONTINUED ON THE NEXT PAGE

TABLE 9–1
EXISTING WITH PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Residential Traffic		Project % of Entering Volume	Effect Type	Existing + Project Residential + Retail Traffic		Project % of Entering Volume	Effect Type
			Delay[a]	LOS[b]	Delay	LOS			Delay	LOS		
CONTINUED FROM THE PREVIOUS PAGE												
8. Birch Rd / Eastlake Pkwy	Signal	AM PM	29.9 52.6	C D	29.9 53.5	C D	0% 0%	None None	32.9 54.3	C D	1% 1%	None None

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Intersection does not exist under Existing conditions. The Project driveway will be signalized.

SIGNALIZED

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

10.0 ACCESS ASSESSMENT

As described previously, the Project is located within the Otay Ranch Town Center. The site has several access options. Freeway access to SR-125 is provided by Olympic Parkway to the north and Birch Road to the South. Surface road access is provided by Olympic Parkway to the north, Eastlake Parkway to the east and Birch Road to the south.

Adequate access is provided with all access driveways / intersections being signalized and providing signalized pedestrian crossings.

Figure 2-2 Site Plan depicts the project access.

11.0 CONCLUSIONS

As described in Section 3, a VMT analysis is not required for this Project. The Mobility analysis concluded that the Olympic Parkway / Town Center Drive intersection will operate at an unacceptable LOS E with the addition of Project traffic.

- **Olympic Parkway / Town Center Drive**

  Provide signal optimization and Adaptive signal controller at this intersection. The ultimate intersection geometry at this intersection is being finalized by the City.

In addition to the above, the project should dedicate right-of-way along the project frontages on Birch Road and Olympic Parkway to accommodate future implementation of Class IV Cycle Tracks in accordance with the City's Active Transportation Plan.