Appendix 5.9

Transportation

Appendix 5.9a

Transportation Analysis

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

June 27, 2024

IN REPLY PLEASE
REFER TO FILE: T-4

Mr. Daryl Zerfass
Stantec
38 TechnologyDrive
Irvine, CA 92618

Dear Mr. Zerfass:

ENTRADA SOUTH (TR53295)
& VALENCIA COMMERCE CENTER (PM18108) (VCC)
TRANSPORTATION IMPACT ANALYSIS (TIA) – APRIL 2024
UNINCORPORATED COUNTY OF LOS ANGELES AREA

Public Works has reviewed the Transportation Impact Analysis (TIA) dated April 2024 for the proposed development located in unincorporated County of Los Angeles in the Santa Clarita Valley. The proposed project reflects minor changes and refinements to the previously approved State-certified 2017 Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan: Final Additional Environmental Analysis therefore it will be referred to as the "Modified Project". Entrada South will consist of residential area and mixed use commercial. Valencia Commerce Center will consist of a business park (office/industrial/warehouse/retail).

Project's Transportation Impact Related to Level of Service

According to TIA Analysis, the Modified Project will not have new significant project transportation impact to the unincorporated County. We generally agree with the findings in the TIA.

Project's Cumulitave Transportation Impact Related to Level of Service

According to TIA Analysis, the Modified Project will not have new significant cumulative transportation impact to the unincorporated County. We generally agree with the findings in the TIA.

Project's Mitigation Related to Level of Service

The previous mitigations identified in the State-certified 2017 Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan: Final Additional Environmental Analysis Documents are still required to be implemented to address the previous project transportation impacts and cumulative transportation impacts of the project. The project shall design and construct or contribute its proportionate share of the cost for the mitigation measures as identified in the Mitigation Monitoring and Reporting Program of the 2017 Newtdmhall Ranch Resource Management and Development Plan and pineflower Conservation Plan: Final Additional Environmental Analysis Documents. We generally agree with the findings in the TIA.

Vehicle Miles Traveled Analysis

For informational purposes, a Vehicle Miles Traveled analysis was conducted. According to the TIA, the modified project would not result in a new significant project transportation impact in the unincorporated County. According to the TIA, the modified project will not result in a new significant cumulative transportation impact to the unincorporated County. We generally agree with the findings in the TIA.

Project's Transportation Demand Management Plan

According to the TIA, the project previously proposed Transportation Demand Management measures (see attached Appendix F of the TIA) to reduce vehicle trips which were required as part of the State-certified 2017 Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan: Final Additional Environmental Analysis. We generally agree with the findings in the TIA.

Site Access Requirements

According to the TIA the project shall provide the improvements as described in Table 4-13, Table 4-14, and Table 4-15 of the TIA (see attached). We generally agree with the findings in the TIA.

The design and construction of the improvements described in Table 4-13, Table 4-14, and Table 4-15 of the TIA shall be the sole responsibility of the project to the satisfaction of Public Works. Detailed signing and striping plans shall be submitted to Public Works for review and approval. Detailed traffic signal plans shall be submitted to Public Works for review and approval.

According to the TIA the project shall provide the following improvements. We generally agree with the findings in the TIA.

- Media Center Lane at Magic Mountain Parkway
    - Extend westbound left turn lane by approximately 21 feet

The design and construction of the improvements shall be the sole responsibility of the project to the satisfaction of Public Works. Detailed signing and striping plans shall be submitted to Public Works for review and approval.

- The Old Road at Turnberry Lane
    - Extend northbound left turn lane by approximately 51 feet

The design and construction of the improvements shall be the sole responsibility of the project to the satisfaction of Public Works. Detailed signing and striping plans shall be submitted to Public Works for review and approval.

Westside Phasing Analysis

In addition to the above mentioned improvements, the following item will be made a condition of approval for the project. A phasing analysis report, known as the Westside Phasing Analysis), evaluated the timing of required improvements commensurate with the proposed phased land development in the WestsideSanta Clarita Valley area. The improvements represent the cumulative impacts and mitigations from the Newhall Ranch Specific Plan as well as other planned devleopments in the Westside Santa Clarita Valley.

A Westside Santa Clarita Phasing Analysis report will evaluate the timing of the requirement improvements necessary to accommodate plannined development in the Westside area of the Santa Clarita Valley commensurate with the proposed project. At a minimum an update to the Westside Santa Clarita Phasing Analysis is expected to occur at the following development thresholds.

1) 3,176 residential units and 13.17 million square feet nonresidential uses
2) 6,066 residential units and 14.87 million square feet nonresidential uses
3) 14,515 residential units and 16.00 million square feet nonresidential uses
4) 21,373 residential units and 17.65 million square feet nonresidential uses
5) 25,001 residential units and 19.78 million square feet nonresidential uses
6) 27,615 residential units and 22.08 million square feet nonresidential uses

If you have any questions, please contact Mr. Kent Tsujii, Traffic Safety and Mobility Division, at (626) 300-4776 or ktsujii@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

AMIR IBRAHIM, PE, LS
Principal Engineer
Traffic Safety and Mobility Division

KT:wm
SP:\TSM\DOC\STU\LTRS MEMOS\5-29-2024-ESTU2021000506 SOUTH & VALENCIA TIA

Enc.

bc: Land Development (Suarez, Lasso)

Entrada South & Valencia Commerce Center Transportation Impact Analysis

County of Los Angeles, California

December 28, 2023

Prepared for:

FivePoint

Prepared by:

Stantec Consulting Services Inc.

Project Number:
2042604600

ENTRADA SOUTH & VALENCIA COMMERCE CENTER TRANSPORTATION IMPACT ANALYSIS

The conclusions in the Report titled *Entrada South & Valencia Commerce Center Transportation Impact Analysis* are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from FivePoint (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by Maria Morris
(signature)
Maria Morris, AICP, PTP

and Sandhya
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Sandhya Perumalla, ENV SP

Reviewed by
(signature)
Daryl Zerfass, PE, PTP

REGISTERED PROFESSIONAL ENGINEER
DARYL J. ZERFASS
No. 1824
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STATE OF CALIFORNIA

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1.0 INTRODUCTION

This report presents the findings of a transportation impact analysis conducted to support the Supplemental Environmental Impact Report (EIR) prepared for the proposed Entrada South and Valencia Commerce Center (VCC) Project, located within unincorporated Los Angeles County in the Santa Clarita Valley.

The proposed development would be located within the planning boundary of the previously approved Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP), which was approved in 2017 and was the subject of an EIR previously certified by the California Department of Fish and Wildlife (CDFW) (SCH No. 2000011025; hereafter referred to as the State-certified EIR). In the State-certified EIR, the development area covered by this report is identified as the “Entrada planning area” and the “VCC planning area.” Figure 1-1 illustrates the previously approved RMDP/SCP area, including the Entrada planning area and the VCC planning area.

Under the California Environmental Quality Act (CEQA), when evaluating project changes relative to a previously certified EIR, the additional CEQA analysis shall focus solely on the incremental changes in the project, changes in circumstances, or new information since the certification of the prior EIR[1]. For purposes of this discussion, the “2017 Approved Project” refers to the resource management activities and development analyzed by CDFW in 2017 in the State-certified EIR for the Entrada and VCC planning areas as part of its RMDP/SCP approval.

The Entrada South and VCC Project as currently proposed reflects minor changes and refinements related to the development of the Entrada and VCC planning areas, as compared to the proposed development evaluated in the State-certified EIR. As such, the proposed Entrada South and VCC Project is referred to herein as the “Modified Project.”

This report analyzes the transportation impacts and site access for the Modified Project based generally on the incremental differences between the 2017 Approved Project and the currently proposed Modified Project. The Modified Project results in a total reduction of trips of approximately 19% (i.e., a reduction in approximately 13,000 daily trips) compared the 2017 Approved Project as analyzed in the State-certified EIR. The Modified Project’s potential impacts related to vehicle miles traveled (VMT) metrics in accordance with the County’s updated Transportation Impact Analysis (TIA) Guidelines[2] and recommendations from the Governor’s Office of Planning and Research (OPR Technical Advisory[3]) were considered. Screening criteria outlined in the TIA Guidelines state that projects that generate less than

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[1] See, e.g., *Friends of the College of San Mateo Gardens v. San Mateo County Community College District* (2016) 1 Cal.4th 937, 949; *Benton v. Board of Supervisors* (1991) 226 Cal.App.3d 1467, 1482.

[2] Transportation Impact Analysis Guidelines, Los Angeles County Public Works, July 23, 2020.

[3] Technical Advisory on Evaluating Transportation Impacts in CEQA, Governor’s Office of Planning and Research, State of California, December 2018.

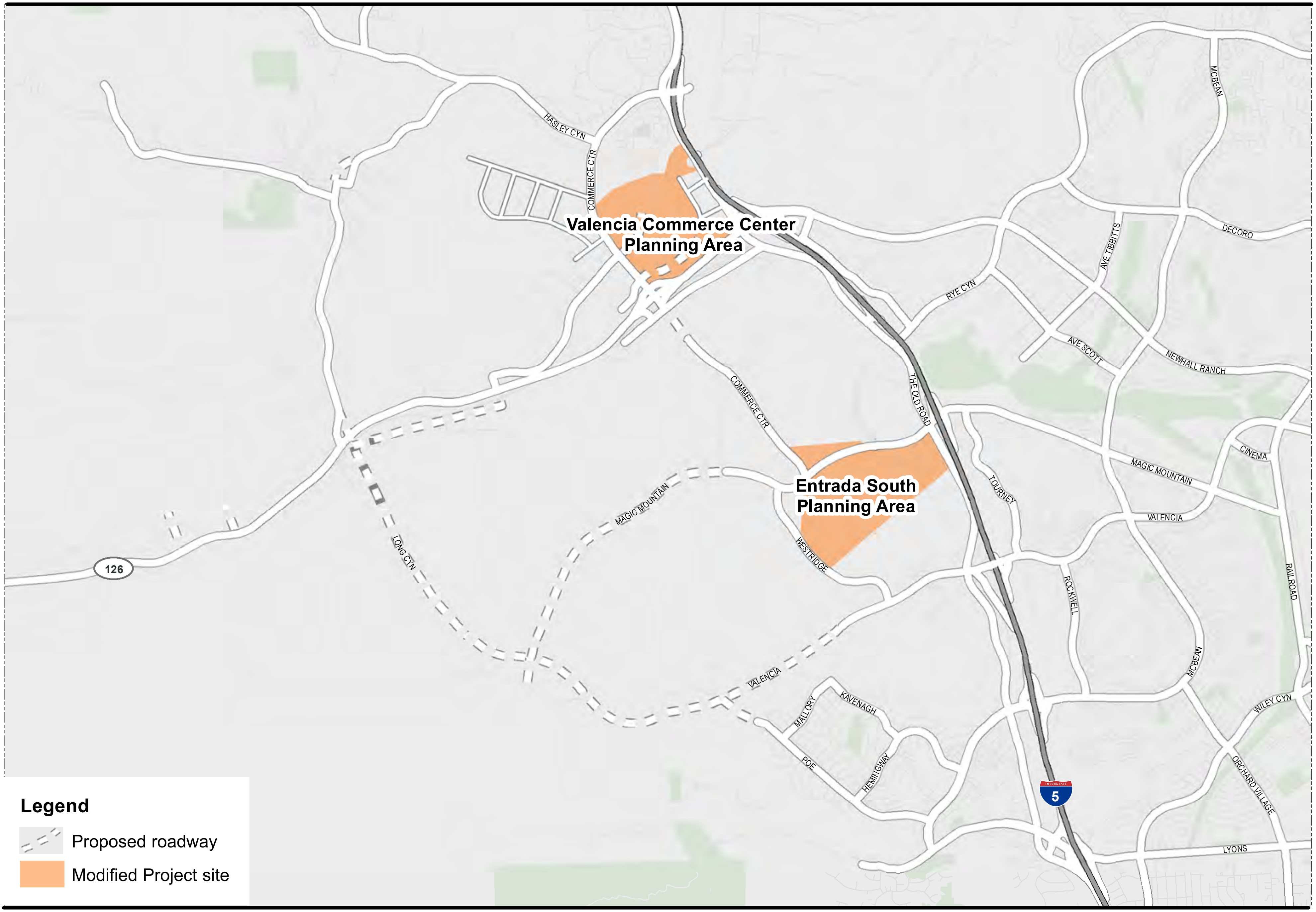

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Figure 1-1

Modified Project Location
Map 1.2

110 net new trips per day are concluded to have a less than significant impact in accordance with OPR's Technical Advisory. The Modified Project, which is predominately non-retail, would not generate more than 110 trips per day in comparison to the 2017 Approved Project as analyzed in the State-certified EIR. Specifically, the Modified Project would generate approximately 13,000 ADT less than the 2017 Approved Project, which is a 19 percent reduction in trips. Therefore, the Modified Project would meet the trip generation screening criteria and would not be subject to further VMT analysis.[4]

Separately, for non-CEQA purposes, operational analysis of the roadways and intersections to be affected by development of the Modified Project have been prepared (see Chapter 4.0).

For analysis that is dependent upon the total number of vehicle trips (as opposed to intersection-level impacts), the incremental change in trips associated with the Modified Project as compared to the 2017 Approved Project is utilized. In this regard, the State-certified EIR previously addressed transportation impacts using the total number of vehicle trips for the following analyses:

- Roadway segment traffic impacts (based on average daily traffic (ADT))
- Construction traffic impacts
- Transit impacts
- State-highway impacts (based on Congestion Management Program criteria in effect at the time)

Therefore, this report evaluates the incremental change in project trips where applicable and unless otherwise explained in the report.

This report has been prepared pursuant to the guidance from the County of Los Angeles and CEQA. Mitigation measures have been recommended as necessary.

1.1 MODIFIED PROJECT DESCRIPTION

The Modified Project consists of a mixed-use residential/commercial component and a commercial-only component to be developed, respectively, on the Entrada South planning area and the VCC planning area. See Figure 1-2 for an illustration of the Entrada South planning area and Figure 1-3 for the VCC planning area.

The Entrada South planning area of the Modified Project (APNs 2826-008-044, 2826-008-039, and 2826-009-106), located along a newly constructed extension of Magic Mountain Parkway, would include a mixed-use master-planned community consisting of 1,574 multi-family condominium units and/or townhome units and approximately 730,000 square feet of non-residential commercial development (approximately 365,000 square feet of local-serving retail and approximately 365,000 square feet of commercial office), and one elementary school[5]. Additional Modified Project features include approximately five acres of parks and recreation centers to serve residents.

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[4] VMT metrics are also provided in Appendix E to provide additional information about pre- and post-Modified Project changes.

[5] Refer to Table 4-2 and Table 4-5 for land use inputs utilized in the modeling analysis.

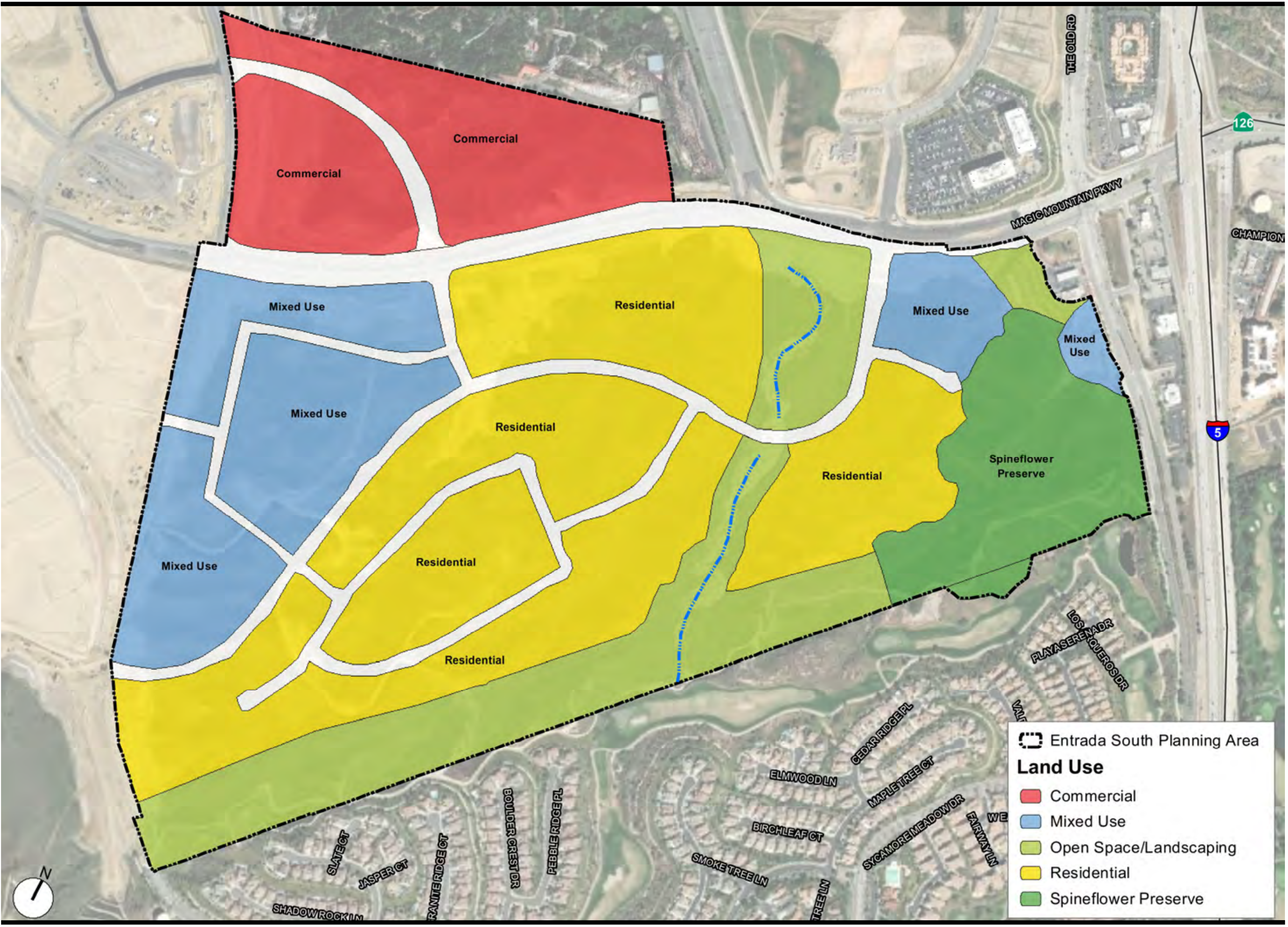

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Figure 1-2

Entrada South Planning Area

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Figure 1-3

VCC Planning Area

The Entrada South planning area is located just west of Interstate 5 (I-5) and The Old Road, north of the existing Westridge community, and directly east of the approved Mission Village development located within the Newhall Ranch Specific Plan. Access to the Entrada South planning area will be provided by Magic Mountain Parkway, Commerce Center Drive, and Westridge Parkway. A new segment of Westridge Parkway from its existing terminus in the Westridge community and extending north to Magic Mountain Parkway is anticipated to be completed in Spring 2022.

The VCC planning area of the Modified Project (APNs 2866-002-061, 2866-002-063, 2866-002-045, 2866-002-052, 2866-001-001, and 3272-001-038), located along Commerce Center Drive, would consist of 3,400,000 square feet of industrial/business park uses[6]. This VCC planning area is located within the business and industrial park development area, just north of State Route 126 (SR 126) and just west of the I-5 freeway. Regional access to the site is provided by SR 126 with an interchange at Commerce Center Drive, and also access by way of I-5 with an interchange at Hasley Canyon Road. Local access to the project site will be available from Commerce Center Drive, Franklin Parkway, Hancock Parkway, and The Old Road. The VCC planning area is located within previously developed portions of the Valencia Commerce Center and across I-5 from the previously developed Valencia Industrial Center, an established industrial/business park.

Table 1-1 compares the amount of development evaluated in the State-certified EIR for the Entrada and VCC planning areas to the amount of development proposed under the Modified Project. Also shown is the amount of ADT forecast to be generated and the related difference in ADT in each case (see detailed analysis in Section 4.1.1 for discussion of ADT calculations).

Table 1-1 State-Certified EIR and Modified Project Land Use and ADT Comparison

	Units	State-Certified EIR (2017 Approved Project)		Modified Project		Difference in Amount	Difference in ADT
		Amount	ADT[1]	Amount	ADT[1]		
Entrada Planning Area							
Residential	DU	1,725	14,613	1,574	12,592	-151	-2,021
Non-residential	TSF	450	20,322	730	18,177	280	-2,145
Other	--	--	521	--	1,422	--	901
VCC Planning Area							
Non-residential	TSF	3,400	31,995	3,400	31,801	0	-194
Sub-Total			67,451		63,992		-3,459
TDM Reduction[2]	--	n/a[3]		-14.9%	-9,535	--	-9,535
Total	--	--	67,451	--	54,457	--	-12,994
% Difference in Total							-19%

2017 Approved Project refers to State-certified EIR Alternative D-2

ADT = Average Daily Traffic DU = Dwelling Units TDM = Transportation Demand Management

TSF = Thousand Square Feet n/a = Not Applicable

[1] See Section 4.1.1 for ADT trip generation calculations

[2] From the Valencia TDM Plan (see Reference 8 in Section 1.3), which was included as part of the State-certified EIR

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[6] ibid.

[3] The traffic analysis used for the State-certified EIR did not apply a reduction in trips due to the TDM measures

As shown in Table 1-1, above, the development of the Modified Project would result in approximately 12,994 fewer ADT (or approximately 19 percent less traffic generation) when compared to the ADT estimate used in the State-certified EIR analysis for the Entrada and VCC planning areas. The reduced amount of ADT can be attributed to a decrease in the number of planned residential units and a change to the type of non-residential land use planned for the Entrada South area. Despite an increase to the amount of non-residential square footage within Entrada South, a change from all high-trip-generating commercial uses to a mix of retail and lower-trip-generating office use results in fewer ADT overall.

A comparison of traffic forecasts for the 2030 horizon year (the Modified Project's anticipated buildout date) that are based on the 2017 Approved Project from the State-certified EIR and based on the Modified Project, respectively, is provided in Table 1-2. As shown in the table, the Modified Project generally results in lower traffic volume forecasts in comparison to the 2017 Approved Project. Refer to Chapter 4.0 for a detailed traffic volume analysis of the Modified Project.

Table 1-2 State-Certified EIR and Modified Project Roadway ADT Comparison

	2030 ADT Volumes (000s)		
Location	With State-Certified EIR (2017 Approved) Project	With Modified Project	Difference
Hasley Cyn w/o Commerce	11,000	11,000	0
Hasley w/o Old Road	25,000	25,000	0
Commerce Cnt s/o Industry	22,000	21,000	-1,000
Commerce Cnt s/o Franklin	34,000	32,000	-2,000
Commerce Cnt n/o SR-126	37,000	34,000	-3,000
Valencia e/o Poe	34,000	34,000	0
Valencia w/o Westridge	30,000	31,000	1,000
Valencia e/o Westridge	53,000	52,000	-1,000
Valencia e/o Old Road	50,000	50,000	0
Magic Mtn w/o Commerce Ctr	39,000	38,000	-1,000
Magic Mtn e/o Commerce Ctr	41,000	39,000	-2,000
Magic Mtn w/o Old Road	70,000	65,000	-5,000
Old Road n/o Hasley	18,000	18,000	0
Old Road n/o Biscailuz	10,000	10,000	0
Old Road n/o Turnberry	11,000	11,000	0
Old Road s/o Henry Mayo	12,000	11,000	-1,000
Old Road n/o of Rye Canyon	40,000	40,000	0

Old Road n/o Magic Mtn	42,000	41,000	-1,000
Old Road s/o Magic Mtn	23,000	23,000	0
Old Road s/o Valencia	26,000	27,000	1,000
SR-126 w/o Commerce Center	54,000	53,000	-1,000
SR-126 e/o Commerce Center	71,000	69,000	-2,000
Franklin Pkwy w/o Commerce	11,000	11,000	0
Hancock e/o Commerce Cnt	11,000	10,000	-1,000
Magic Mtn e/o I-5	47,000	46,000	-1,000
Tourney n/o Valencia	5,000	6,000	1,000
Valencia e/o I-5 NB Ramps	53,000	53,000	0
Valencia e/o Tourney	65,000	65,000	0
Commerce Cnt s/o Henry Mayo	29,000	28,000	-1,000
Commerce Cnt n/o Magic Mtn	25,000	24,000	-1,000
Magic Mtn w/o Westrdige	33,000	33,000	0
Westridge s/o Magic Mtn	17,000	17,000	0
Westridge n/o Valencia	14,000	13,000	-1,000
Henry Mayo w/o The Old Rd	8,000	8,000	0
Magic Mtn e/o The Old Rd	71,000	69,000	-2,000
ADT = Average Daily Traffic n/o = North of; s/o = South of; e/o = East of; w/o = West of			

1.2 BACKGROUND

Prior VCC Approvals

In 1990, an EIR for development of the VCC, including the portion that is part of the Modified Project, was certified by the County of Los Angeles and the associated project was approved. The project approved by the County in 1990 consisted of 12.6 million square feet of non-residential development (industrial, general commercial, and office). The proposed development of the VCC planning area consists of approximately 3.4 million square feet of the remaining, unbuilt industrial and business park uses within the development area previously approved by the County. The non-residential development presently proposed by the Modified Project would be integrated into the existing VCC development pattern, consistent with the County's prior approval. The proposed development would be supported by a network of on-site roads and parking, and requisite wet and dry utilities.

Prior Related Studies

Related to the development of future roadways, in 1998, the County endorsed a roadway Phasing Analysis (*Westside Santa Clarita Valley Roadway Phasing Analysis*) to identify the timing of roadway improvements that would be necessary to serve the planned future development of the westside of the Santa Clarita Valley, development associated with the entirety of the approved Newhall Ranch Specific Plan area (Landmark Village, Mission Village, Homestead North and South, and Potrero Village), along with the undeveloped portions of VCC, the Entrada North site, the Entrada South site, and the Legacy Village site. The Phasing Analysis provides a comprehensive evaluation of the necessary phasing, or timing, of the required transportation infrastructure for the cumulative impact of these areas as they build out over the next 25 years and provides general timelines as to when the corresponding transportation improvements would be necessary to avoid transportation deficiencies and can be updated by the County from time to time. The Phasing Analysis has been updated periodically and is further discussed later in this report.

1.3 REFERENCES

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15. County of Los Angeles VMT Tool, Version 1.0, County of Los Angeles, 2020

2.0 SITE CONDITIONS

The following section describes existing site conditions in the study area. It includes a description of the study area roadway system, public transit routes, pedestrian, and bicycle existing and planned facilities.

2.1.1 Public Transportation

City of Santa Clarita Transit (SCT) currently operates six fixed route transit bus lines in the proximity (typically defined as ¼ mile) of the Modified Project. The routes include: 1, 2, 3, 7, 502, and 636. Routes 1 and 2 provide service between Castaic/Val Verde and the McBean Regional Transit Center, with stops through the Valencia Industrial Center. Routes 3 and 7 provide service between the Seco Canyon area and Six Flags Magic Mountain Amusement Park. Route 502 provides service to/from the Santa Clarita Metrolink station to/from Commerce Center. Route 502 operates on weekdays only. Route 636 provides service to and from West Ranch High School with stops through the VCC. Additional bus routes, accessible from these six routes, provide service to the greater Santa Clarita Valley area.

SCT Commuter Express offers express commuter bus travel to Los Angeles, Warner Center, Van Nuys, Century City and the Antelope Valley. The City of Santa Clarita also operates approximately 20 supplemental school day service routes to serve students. The supplemental school day service routes provide transit service to various areas within the Santa Clarita Valley and are available on school days during peak morning and afternoon travel times.

With respect to commuter rail, Metrolink, governed by the Southern California Regional Rail Authority (SCRRA), provides commuter rail service between the Antelope Valley and Downtown Los Angeles and also links Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego counties with transfer service between the bus and rail systems. Three Metrolink stations are located within the City of Santa Clarita, each of which serves the Antelope Valley line, which travels between Lancaster and Union Station in the City of Los Angeles. The Metrolink station closest to the site is located along Soledad Canyon Road east of Bouquet Canyon Road. A second Metrolink station is located along Railroad Avenue just south of Lyons Canyon Road. Long-range plans include a potential Metrolink extension along the SR 126 corridor, and land within Newhall Ranch is set aside for rail right-of-way and a park-and-ride and/or train station.

2.1.2 Pedestrian and Bicycle Transportation

The Entrada South planning area is located adjacent to The Old Road and Magic Mountain Parkway, each of which are fully improved with sidewalks on each side of the roadway. Magic Mountain Parkway also includes a Class I shared-use trail for bicycles and neighborhood electric vehicles (NEVs) along the north side of the roadway, connecting the Entrada South area to the Mission Village communities to the west. The intersection of The Old Road at Magic Mountain Parkway is also fully improved with sidewalks on all four corners and pedestrian crosswalks controlled by a traffic signal on all four legs. In the City of

Santa Clarita, a Class I bike path exists along the Santa Clara River and crosses under the I-5 freeway approximately 0.5 miles north of the site with a planned connection to County trails in the Modified Project area.

In the VCC planning area, the Hasley Canyon trail is a 1.67 miles urban trail located north of VCC. Access to the trail through the industrial and business park area is provided adjacent to the roadway, with connection to the Hasley Canyon Equestrian Center in the hills to the north of the Modified Project area.

Existing bicycle infrastructure in the area of the Modified Project is illustrated in Figure 2-1.

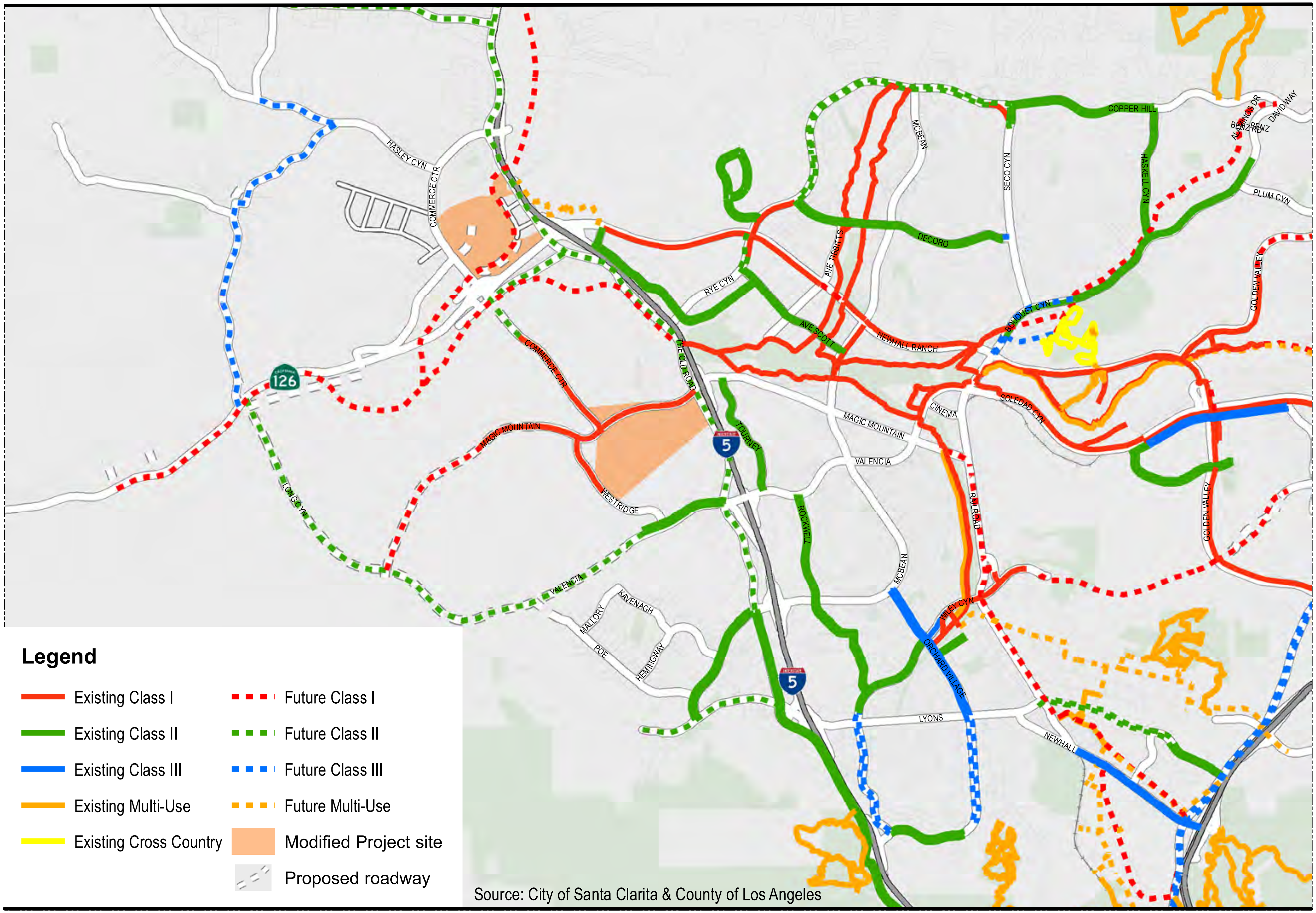
2.2 FUTURE CONDITIONS FOR VEHICULAR CONGESTION LOS ANALYSIS

The following section describes the long-range transportation buildout conditions in the study area. It includes a description of the planned roadway system in the vicinity of the Modified Project and a summary of the anticipated increases in land use. Information regarding planned active transportation facilities also is provided.

2.2.1 Future Roadway System

The Los Angeles County Highway Plan and the Newhall Ranch Specific Plan each include future roadways near and within the Modified Project site. Magic Mountain Parkway and The Old Road are classified as Major Highways that have been constructed within or adjacent to the Entrada South planning area. Magic Mountain Parkway is included within the Westside B&T District, which provided the necessary funding for construction of the road, as well as other planned road improvements described below. Magic Mountain Parkway crosses through the Modified Project site in an east/west direction and provides access to the City of Santa Clarita, as well as I-5 to the east. This portion of Magic Mountain Parkway is classified as a Major Highway in the County Highway Plan and is currently constructed as far west as the Mission Village plan area just west of Entrada South. The Old Road is also classified as a Major Highway and provides connectivity to the VCC planning area to the north.

The County Highway Plan also designates Commerce Center Drive as a Major Highway, which is fully built-out within the VCC planning area. A planned southerly extension of Commerce Center Drive via a bridge over the Santa Clara River to connect with an existing segment of Commerce Center Drive in the Mission Village community is also depicted on the County’s Highway Plan as a Major Highway. The Old Road is currently constructed as a six-lane roadway in the vicinity of Entrada South and as a four-lane roadway in the vicinity of VCC, and plans are underway for the build-out of the Major Highway portion of The Old Road, which extends north to Hasley Canyon Road.



Source: City of Santa Clarita & County of Los Angeles

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Figure 2-1

Existing and Future Bicycle Facilities

The planned future roadway system also includes: the westery extension of Magic Mountain Parkway beyond the Mission Village community; the westerly extension of Valencia Boulevard to Magic Mountain Parkway (part of the proposed Legacy Village); and the northerly extension of Poe Parkway to connect with Valencia Boulevard (also part of the proposed Legacy Village). Each of these improvements is planned in accordance with future development (when such development is proposed and occurs) and is included within either the Westside B&T District or the Lyons McBean B&T District, which will provide the necessary funding for the roads.

2.2.2 Cumulative Future Land Use Development

Future land development anticipated for the Santa Clarita Valley is included in and quantified in the Santa Clarita Consolidated Traffic Model[7] (SCVCTM). The SCVCTM includes a land use database prepared by Los Angeles County and the City of Santa Clarita that is based on the approved General Plans of each jurisdiction (see Reference 12 in Section 1.3). This database is regularly updated as specific projects are proposed and thus is a comprehensive listing of foreseeable cumulative projects. In addition, the land use database has also been updated based on the County's One Valley One Vision (OVOV) area plan. Trips to and from the Santa Clarita Valley, as well as "through-trips" (i.e., trips with origins and destinations outside the Valley), are included in the forecasts; thus, regional growth, which is traffic volume increases occurring outside of the SCVCTM area, is also incorporated into the model.

As noted above, the SCVCTM is regularly updated as specific development projects are proposed. Pending, recorded, and approved projects are incorporated into the Long-range Buildout/Cumulative database[8]. For the purpose of this analysis, an Interim Year horizon of 2030 (consistent with the Modified Project's anticipated buildout date) has been prepared by including all known related (i.e., a subset of cumulative) projects, as well as interpolated growth for areas in which the OVOV plan anticipates future development. The known cumulative projects (i.e., Related Projects) that have been included within the 2030 Interim Year database are shown in Figure 2-2 and listed in Table 2-1**.**

As previously noted, where future development will occur, but specific projects have not yet been identified, the Interim Year database utilizes interpolated land use projections based on the allowable uses shown in the OVOV plan. Also, as noted above, year 2030 cumulative conditions have been derived using a specially prepared Interim Year version of the SCVCTM that includes the Modified Project land uses.

The SCVCTM forecasts the complex interaction of vehicle trips between existing and future land uses. As such, the future condition forecasts reflect the change in existing travel patterns that occur due to changes in land use (e.g., the introduction of new development). The SCVCTM employs a process in which modeled future volumes are compared to modeled existing condition volumes, and the net change from existing to future is then applied to the actual observed traffic count in a post-processing procedure.

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[7] Available upon request from the City of Santa Clarita or the County of Los Angeles.
[8] Ibid.

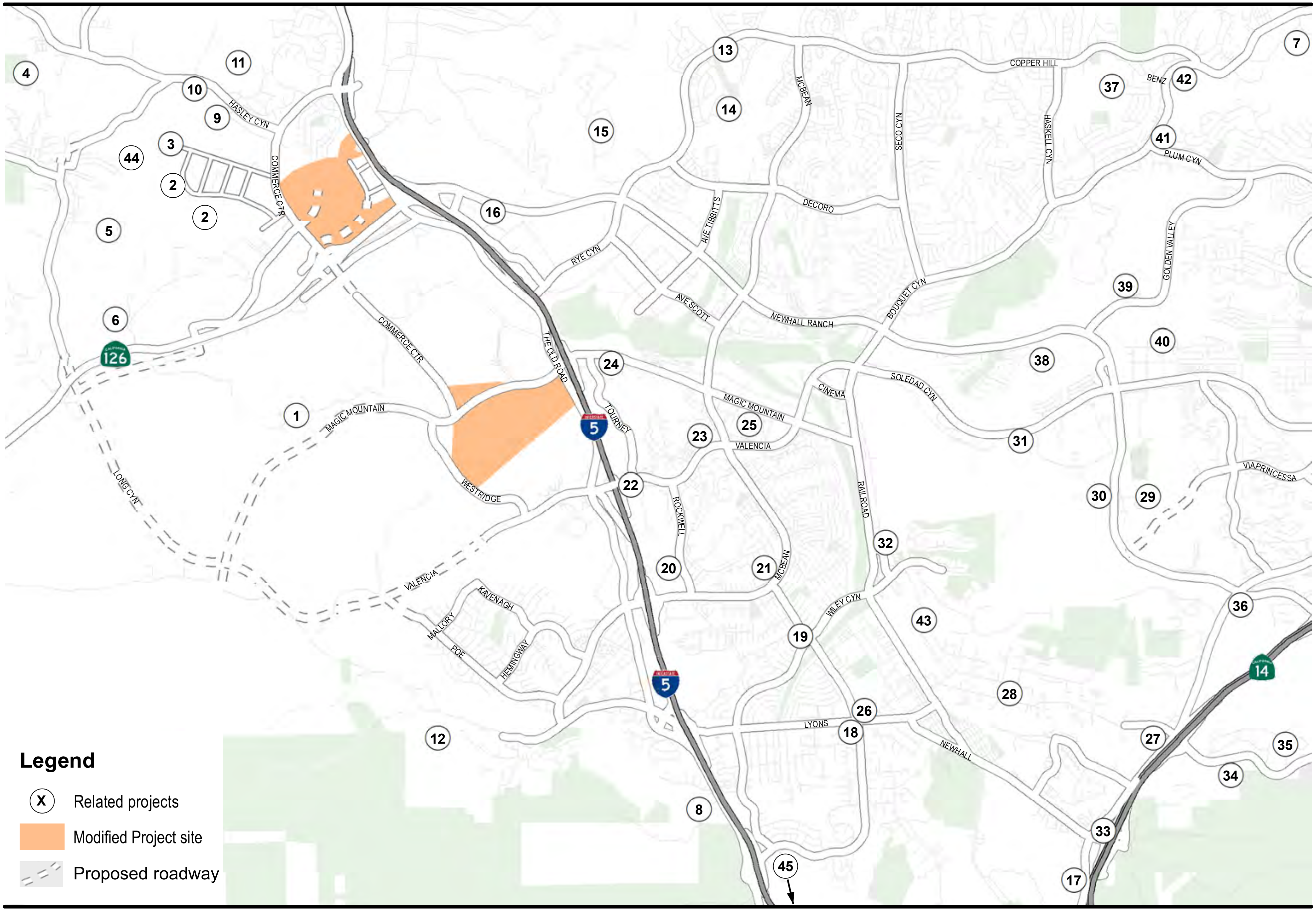

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Figure 2-2

Related Projects Location Map

Post-processing is applied to each of the study area intersection's 12 possible turning movements, while controlling to the net change at each of the intersection's four legs (both entering and departure volumes).

Table 2-1 Defined Related Projects Included in the Cumulative Database

No.	Project	Description
1	Newhall Ranch Westside Development[1]	Approximately: 24,255 residential units 8,633.8 TSF mixed-use/office/commercial 4 elementary schools 1 middle school 1 high school 1 amphitheater 360 rooms among 2 hotels
2	Valencia Commerce Center	Phase III: 664 TSF commercial industrial/retail (under construction) Future: 200 TSF commercial industrial
3	Sterling Industrial Center	1,200 TSF industrial park
4	Green Valley Ranch (VTTM 60257)	244 single family detached residential units and 21 TSF commercial retail
5	Green Valley Ranch (VTTM 62000)	19 single family detached residential units
6	Chiquita Canyon Landfill Expansion	Expansion of landfill operations by approximately 143 acres (net increase of approximately 600 trucks on peak day). Relocation of access roadway from SR 126 to Wolcott Way
7	Overland 1 TR 52192	75 single-family residential units
8	Warner Ranch/Lyons Canyon	186 residential units
9	Tract 60665	109 condo units
10	Tract 72630 – Claremont Homes	46 single family detached residential units
11	Los Valles	209 single family detached residential units
12	Tract 52796 – Pico Canyon	230.43 acres (NU1 & NU3 zoning)/102 single family detached residential units
13	Oakmont (West Creek)	85 TSF and 95-bed senior care facility
14	Avanti (West Creek)	92 single-family residential units
15	Trinity School Expansion	74.6 TSF school (TK-12)
16	Homewood Suites	185-room hotel
17	Gates King/Needham Ranch	4,400 TSF industrial/office space
18	Valley Street Condos	5 single-family condominium units
19	Orchard Wiley Medical	41 TSF medical office building
20	UCLA Archives Phase 3	134 TSF archive facility
21	Hospital Henry Mayo	330 TSF medical facilities 200 TSF building & parking structure
22	Valencia Gas Station	Gas station & 3 TSF retail
23	Element by Westin/Oliver	134-room hotel & 4 TSF restaurant
24	Tourney Place Building 6	46 TSF office building
25	VTC Square	60 apartment units & 10 TSF commercial
26	OLPH	21 TSF church & parking lot
27	Dockweiler 21 Residential	96 single-family residential condos
28	Master's University Residential Master's University Master Plan	42 single-family detached condos 240 TSF college campus expansion

29	Princessa Crossroads	925 single-family residential units 680 TSF commercial
30	Sheriff Station	57 TSF station
31	Habitat for Heroes	78 multi-family residential units
32	Oak Ridge Industrial Oak Ridge Commercial	300 TSF commercial/industrial business park 30 TSF commercial
33	Chinquetera	91 TSF commercial
34	Aliento	404 single-family residential units & 95 senior units
35	Disney & ABC Studios	556 TSF indoor studio facilities
36	Park Vista	182 single-family residential units
37	Dentec	95 single-family residential units
38	River Village	1,089 residential units
39	Five Knolls	639 residential units
40	Rent-a-Bin	60 TSF recycling facility
41	Bouquet Retail	10 TSF retail building
42	Bouquet Canyon	484 residential units on 57 acres
43	Placerita Meadows	Single family residential units
44	Sterling Ranch	221 single-family residential units 21 TSF neighborhood commercial 3.1 acre neighborhood park
45	Wiley Canyon Mixed Use	379 multi-family residential units 10.9 TSF commercial retail 219 unit senior living facility

TSF = 1,000 square feet

[1] Based on the Westside Santa Clarita Valley Roadway Phasing Analysis for planning purposes. Year-2030 horizon includes a portion of these development areas (refer to the Westside Santa Clarita Valley Roadway Phasing Analysis for year-2030 land use assumptions).

Note: The SCVCTM includes additional approved and planned development not listed here.

Source: City of Santa Clarita Planning Department and Los Angeles County Department of Regional Planning GIS-NET3 Public Subdivision Activity (accessed December 2020).

In this regard, the traffic forecasts presented here utilize existing traffic conditions as the foundation and build upon that foundation with the forecast change in volume (both increases and decreases) as derived by the model. By incorporating the additional traffic volumes and distributing them throughout the study area, existing traffic patterns will change and, while it is often the case that specific turning movement volumes increase, in some instances the changing traffic patterns also result in a decrease in specific turning movement volumes. Generally, the larger the project the more pronounced the changes will be.

3.0 CEQA ANALYSIS

The following section provides the Modified Project's CEQA analysis and was prepared in support of the Modified Project's environmental documentation. It complies with the updated CEQA guidelines that incorporate the requirements of Senate Bill 743 (SB 743). SB 743 required OPR to establish guidelines under CEQA for identifying and mitigating VMT transportation impacts. SB 743 moves away from using delay-based LOS as the metric for identifying a potentially significant impact and instead uses VMT.

The analysis has been prepared in accordance with the TIA Guidelines from the Los Angeles County Department of Public Works and the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report[9]. The final OPR Technical Advisory released in December 2018 also provides guidance for evaluating transportation impacts and is likewise used as a basis for this assessment.

3.1 CEQA SCREENING CRITERIA

The County Guidelines provide screening criteria to identify if a project is expected to have a less-than-significant impact without conducting a more detailed analysis. The County Guidelines and OPR guidance demonstrate that qualifying projects can be presumed to have a less than significant impact based on the screening criteria shown in Table 3-1.

Table 3-1 Modified Project Screening Criteria and Threshold

Category	Criteria/Screening	Threshold	Modified Project Screened Out (Yes/No)
Non-Retail Trip Generation Screening	Non-retail projects that generate a net increase in traffic of less than 110 ADT can be screened out from completing a full VMT analysis.	If the project generates less than 110 net new trips per day it is concluded to have a less than significant impact.	Yes. As indicated above, the Modified Project results in a net reduction in trips compared to the 2017 Approved Project. Therefore, the Modified Project generates less than 110 net trips per day.
Retail Project Site Plan Screening	Retail projects that are locally serving can be screened out from completing a full VMT analysis.	If the project proposes locally serving retail uses it is assumed to have a less than significant impact.	Yes. All retail uses are anticipated to be locally serving.
Transit Proximity Screening	Projects within ½ mile of a major transit stop or a stop located along a high-quality transit corridor generally reduce VMT and therefore can be screened	If the project is within ½ mile of a major or high-quality transit stop/corridor, the project is concluded to have a less than significant impact. The project	No. However, a proposed transit hub is planned to be located within the Mission Village

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[9] Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report, Fehr & Peers, June 2020.

	out from completing a full VMT analysis.	should generally also meet the following criteria: - FAR >= 0.75 - Not provide more parking than required by County - Be consistent with the regional SCS - Not replace existing affordable units with a smaller number of moderate to high-income units	community currently under construction and is within ½ mile of portions of the Entrada South Planning Area.
Residential Land Use Based Screening	Affordable housing in infill locations can be screened out from completing a full VMT analysis.	If the project is comprised 100% of affordable units and is located in an infill location, then the Project is concluded to have a less than significant impact.	No
FAR = Floor Area Ratio SCS = Sustainable Community Strategy Source: Transportation Impact Analysis Guidelines, LA County Public Works, July 2020			

As discussed in Table 3-1, above, projects that generate less than 110 net new trips per day are concluded to have a less than significant impact based on the County Guidelines and in accordance with OPR’s Technical Advisory. The Modified Project, which is predominately non-retail, would not generate more than 110 trips per day in comparison to the 2017 Approved Project as analyzed in the State-certified EIR. Specifically, the Modified Project would generate approximately 13,000 ADT less than the 2017 Approved Project, which is a 19 percent reduction in trips. Therefore, the Modified Project would meet the trip generation screening criteria, would not be subject to further VMT analysis and is presumed to have a less-than-significant impact.

3.2 CEQA CHECKLIST

Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The Modified Project would help facilitate the development of the County’s circulation system with roadway extensions, new bicycle and pedestrian facilities, and an expanded transit service area. These new facilities are consistent with the Los Angeles County General Plan 2035 and the County’s One Valley One Vision Area Plan. Therefore, the Modified Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision(b)?

According to CEQA Guidelines §15064.3 Subdivision (b)(1), VMT exceeding an applicable threshold of significance may indicate a significant impact. The Modified Project would generate approximately 13,000 ADT less than the 2017 Approved Project, which is a 19 percent reduction in trips. The Modified Project meets the trip generation screening criteria and is not subject to further VMT analysis. Therefore, the Modified Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision(b).

No further analysis of VMT analysis is required because the VMT screening analysis demonstrates that the Modified Project would not result in a new significant VMT impact compared to the 2017 Approved Project. However, for informational purposes, a VMT analysis is provided in Appendix E. For this analysis, the daily vehicle trips and daily VMT expected to be generated by the Modified Project were forecast using the County's VMT analysis tool.

The VMT significance threshold for the Modified Project was derived based on the County VMT Guidelines target of VMT per service population being 16.8 percent below the baseline VMT. The resulting threshold of significance is 16.6 VMT per service population as shown in Table E-4 in Appendix E.

VMT was not the adopted metric for analyzing transportation impacts at the time the Transportation Analysis for the State-certified EIR was prepared. For comparative purposes, the analysis in Appendix E applies the same methodologies to the 2017 Approved Project as the Modified Project as if, hypothetically, VMT impacts were expressly analyzed when the Transportation Analysis in the State-certified EIR was prepared.

Appendix E provides the Modified Project's potential VMT impact with and without the TDM Plan mitigation. The TDM Plan was enumerated as Mitigation Measure 2-6 in the 2017 Final Additional Environmental Assessment for purposes of reducing GHG emissions. The 2017 Final Additional Environmental Assessment did not analyze transportation impacts because the Transportation Analysis for the State-certified EIR was upheld by the court and was not subject to the supplemental CEQA review that led to the 2017 Final Additional Environmental Assessment. Mitigation Measure 2-6 (the TDM Plan) applies to the Modified Project as a GHG reduction measure, but it also has the benefit of reducing VMT. Therefore, for informational purposes, Appendix E discloses the Modified Project's potential VMT impacts with and without Mitigation Measure 2-6.

Within that framework, the results in Table E-7 in Appendix E show that the Modified Project's combined total VMT per person on a service population basis is higher than the relevant County threshold without the TDM Plan. However, with the implementation of Mitigation Measure 2-6 (the TDM Plan), the Modified Project's combined total VMT per person on a service population basis is lower than the relevant County threshold, resulting in a less than significant impact with mitigation. The Modified Project's VMT with the TDM Plan is also lower than VMT would have been if presented in the Transportation Analysis for the State-certified EIR, which did not include TDM measures.

Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Modified Project does not increase hazards due to a geometric design feature or incompatible uses. Development of the Modified Project site and site access improvements require compliance with County development guidelines and code, which follow the General Plan 2035 policies and actions that encourage the safe design of streets. Therefore, the Modified Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Would the project result in inadequate emergency access?

The on-site Modified Project driveways are designed to comply with turning radius requirements for emergency vehicles and would not impede emergency vehicle access. The Modified Project’s detailed design will be completed in compliance with California Fire Code requirements and not impair emergency vehicle access in the vicinity of the project during construction and in ongoing operation. Compliance with the California Fire and Building Codes will be mandated through the plan check and approval process. This process will also ensure that adequate access for emergency services is provided, and the County’s emergency response plan will be upheld during construction. Therefore, the Modified Project would not result in inadequate emergency access.

3.3 CUMULATIVE IMPACT ANALYSIS

This cumulative analysis evaluates the long-term project effects on VMT. As discussed under OPR's Technical Advisory, "metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended [by OPR] for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa." (OPR Technical Advisory p. 6.)

As noted in the County Guidelines, cumulative effects are determined through consistency with the SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Projects that are consistent with the RTP/SCS in terms of location, density and intensity would have a less than significant cumulative impact on VMT.

The Modified Project site is located in the Santa Clarita Valley. The Santa Clarita Valley Area Plan was approved in 2012 and contains focused goals, policies, and maps to guide the regulation of development within the Santa Clarita Valley. As discussed above, the Modified Project results in a net reduction of trips compared to the 2017 Approved Project and therefore satisfies the CEQA screening criteria and would not contribute to cumulative VMT impacts. Moreover, the Modified Project land use is consistent with the Land Use Policy Map from the Santa Clarita Valley Area Plan and would, therefore, be consistent with the RTP/SCS, which incorporates the Area Plan demographic projections. Since the Modified Project is consistent with the RTP/SCS, the Modified Project has a less than significant cumulative impact on VMT.

4.0 SITE ACCESS STUDY (NOT REQUIRED FOR CEQA)

The following analysis is not required to analyze the Modified Project's transportation impacts under CEQA and SB 743. However, to facilitate the County's review of non-CEQA criteria, this section analyzes the operational aspects of the roadways providing access to the Modified Project. Trip generation is summarized and the distribution of Modified Project trips on the adjoining roadway network is presented. Existing conditions with Modified Project traffic and future conditions with traffic from both the Modified Project and cumulative projects, are described in the following sections. Modified Project constraints and cumulative effects are identified using the evaluation criteria described in the following sections.

4.1 MODIFIED PROJECT AREAS PROJECT DESCRIPTION

Entrada South Area

In the Entrada South area, Modified Project entitlements include Vesting Tentative Tract Map (VTTM) 083582, which would include a variety of land uses, including 1,574 multi-family condominium units and/or townhome units and approximately 730,000 square feet of non-residential uses (refer to Appendix E for the land use inputs utilized in the modeling analysis). This analysis also assumes the Modified Project includes one elementary school. Additional Modified Project features include approximately 5 acres of park and recreation centers to serve Entrada South residents. The proposed site plan, based upon the Entrada South VTTM, is provided in Chapter 1.0.

The Entrada South area is currently undeveloped. At buildout, based on the proposed land uses for the Entrada South portion of the Modified Project, the development would generate approximately 23,951 average daily vehicle trips (approximately 27,395 daily tripends). However, as discussed in the preceding sections, the Modified Project generates approximately 13,000 ADT less than the 2017 Approved Project with a portion of that reduction occurring in the Entrada South area. The analysis in this section addresses the total increase in trips due to Entrada South in accordance with County guidelines for site access analysis. Detailed trip generation and trip distribution data is provided in the following sections. The development is expected to be fully built out by 2030.

Access to the Entrada South portion of the Modified Project site would be provided by Magic Mountain Parkway, The Old Road, and Westridge Parkway. Figure 4-1 illustrates these roadways. These roads were developed based on the traffic volume forecasts presented in the subsequent sections. Roadway classifications include 6-lane Major Highways, 4-lane Collectors, 2-lane Collectors, and 2-lane Local roadways.

The intersection lane geometries of the roadways providing access to the Modified Project site were developed based on the peak hour turning movement forecasts presented in the subsequent sections and is illustrated in the previously referenced Figure 4-1. The following sections summarizes the resulting delay and LOS based on these intersection lane configurations.

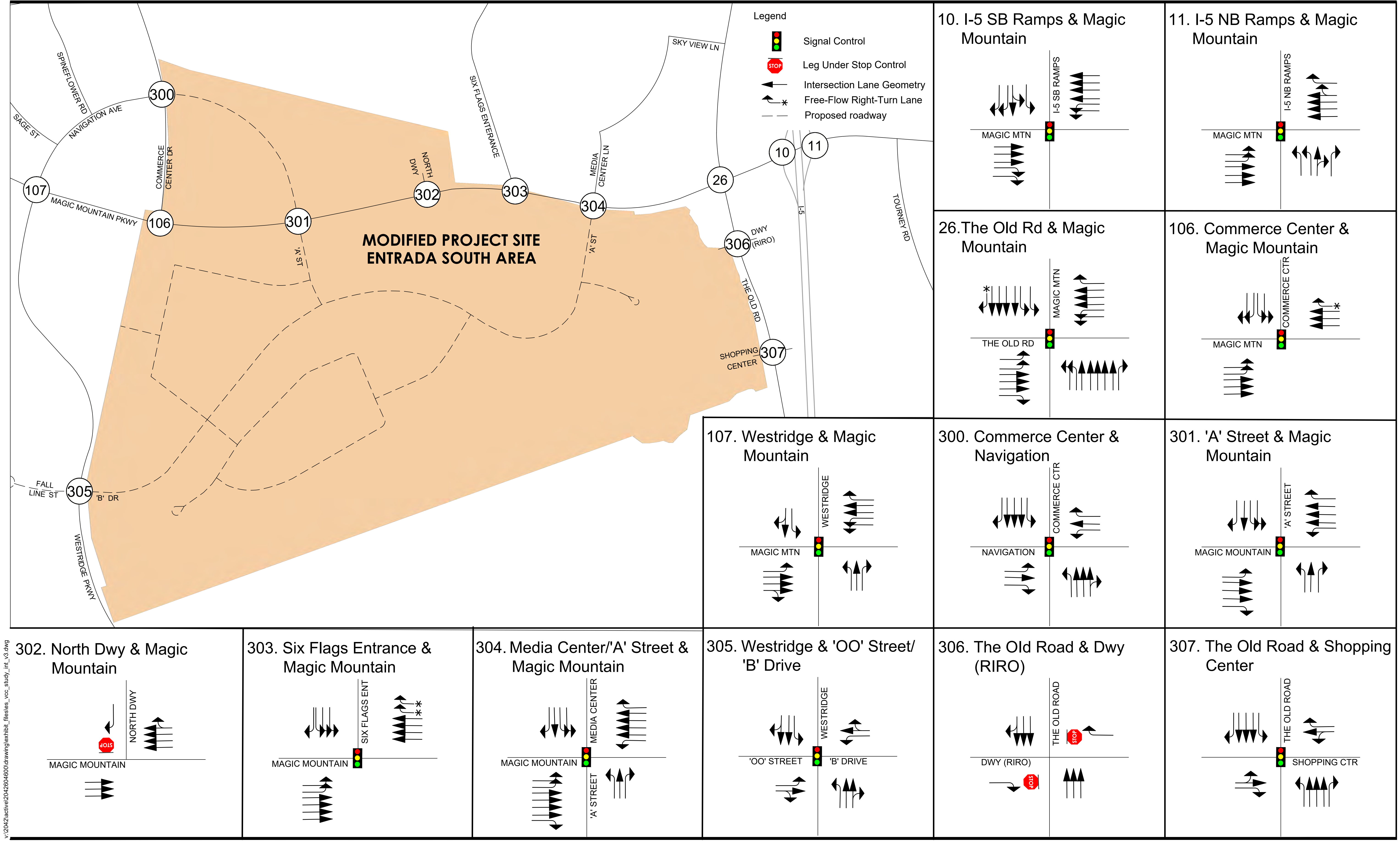

Figure 4-1

Intersection Lane Configurations - Entrada South Area

Valencia Commerce Center Area

The VCC portion of the Modified Project includes approximately 3,400,000 square feet of non-residential use (refer to Appendix E for the land use inputs utilized in the modeling analysis) and includes VTPM 18108. The proposed site plan, based upon the VCC VTPM, is provided in Chapter 1. As previously explained, the Modified Project is in the VCC area previously approved by the County in 1990.

Regional access to the site is provided by SR 126 with an interchange at Commerce Center Drive, and also access by way of I-5 with an interchange at Hasley Canyon Road. Local access to the VCC site will be available from Commerce Center Drive, Franklin Parkway, Hancock Parkway, Livingston Avenue, and The Old Road.

The site is currently undeveloped but is located within the previously approved VCC area. The proposed development also would include the extension of existing Franklin Parkway and Hancock Parkway through the central and southern part of the VCC site, respectively. These on-site roadways were not evaluated as part of the State Certified EIR; however, these on-site roadways are collector streets that would serve as access to the Modified Project’s land uses. These roadways will not serve through traffic and, as such, would not induce additional VMT.

As further explained below, at buildout, based on the land uses proposed for the site, the development would generate approximately 25,887 average daily trips (ADT) or approximately 27,063 daily tripends. However, as discussed in the preceding sections, the Modified Project generates approximately 13,000 ADT less than the 2017 Approved Project with a portion of that reduction occurring in the VCC area. The analysis in this section addresses the total increase in trips due to VCC in accordance with County guidelines for site access analysis. Detailed trip generation and trip distribution data are provided in the following sections. The development is expected to be fully built out by 2030.

Figure 4-2 illustrates the proposed roadway configuration for the VTPM area, both on- and off-site; the roads were designed based on the traffic volume forecasts presented in the subsequent sections. Roadway classifications include 6-lane Major Highways, 4-lane Collectors, 2-lane Collectors, and 2-lane Local roadways. Intersection lane geometries were developed based on the peak hour turning movement forecasts presented in the subsequent sections and are illustrated in the previously referenced Figure 4-2.

Specific to roadways, the Modified Project would implement the approved roadway Phasing Analysis framework. As previously noted, that portion of the VCC not yet developed that is the subject of this study was included in the Phasing Analysis, specifically, development in the VTPM 18108 area. Thus, by the Phasing Analysis, the County previously established a program that equated specific levels of development associated with buildout of VCC to individual roadway improvements.

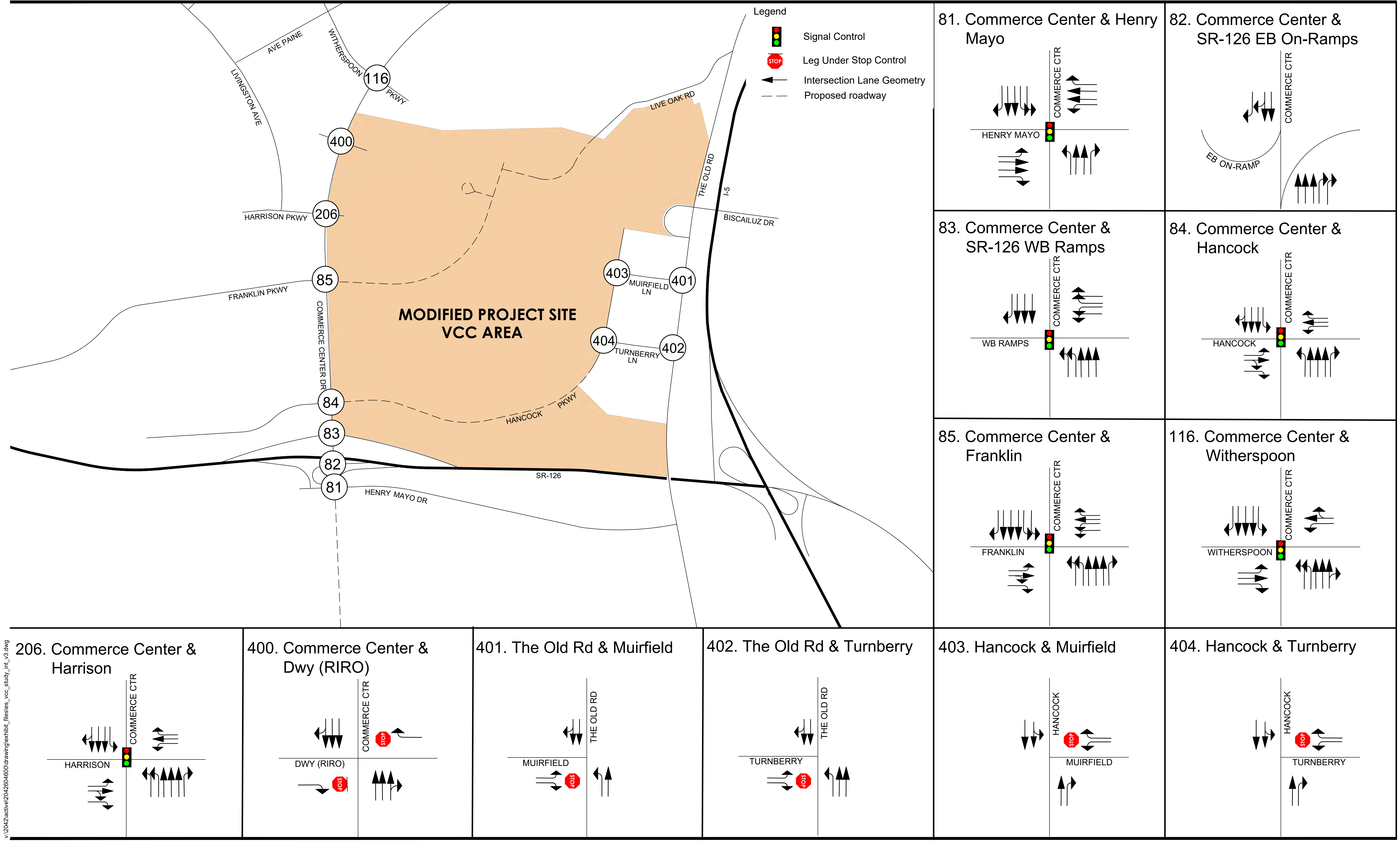

Figure 4-2

Intersection Lane Configurations - VCC Area

4.1.1 Modified Project Trip Generation for LOS Analysis

The Modified Project would consist of a variety of land uses as described in the preceding section. For the purpose of this traffic study, these land uses have been categorized based on the land use categories used by the SCVCTM, the County of Los Angeles Department of Public Works Traffic Impact Analysis Guidelines (see Reference 4 in Section 1.3), and industry standards such as the Institute of Transportation Engineers (ITE) Trip Generation Manual (see Reference 1 in Section 1.3). The specific trip rates used for this analysis are listed in Table 4-1.

Table 4-1 Trip Generation Rates

			AM Peak Hour			PM Peak Hour			Average Daily Tripends	
Category	**Code**	**Units**	**In**	**Out**	**Total**	**In**	**Out**	**Total**		**Source**
Condominium/Apartment	n/a	DU	0.10	0.48	0.58	0.47	0.26	0.73	8.00	DPW
Commercial Retail (<10 ac)	n/a	TSF	1.10	0.69	1.79	3.32	3.60	6.92	85.06	SCVCTM
Commercial Retail (>30 ac)	n/a	TSF	0.47	0.30	0.77	1.64	1.78	3.42	40.06	SCVCTM
Elementary School	520	Student	0.36	0.31	0.67	0.08	0.09	0.17	1.89	ITE
Industrial Park	--	TSF	0.55	0.10	0.65	0.13	0.52	0.65	6.00	SCVCTM
Business Park	770	TSF	1.19	0.21	1.40	0.33	0.93	1.26	12.44	ITE
Commercial Office	710	TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74	ITE
Developed Park	411	Acre	0.01	0.01	0.02	0.06	0.05	0.11	0.78	ITE

DU = Dwelling Unit
TSF = Thousand Square Feet
STU = Student
ITE = Institute of Transportation Engineers Trip Generation Manual 10th Edition
DPW = Los Angeles County Department of Public Works
SCVCTM = Santa Clarita Valley Consolidated Traffic Model

Entrada South Area

Detailed trip generation estimates for the Entrada South area based on the above trip rates are provided in Table 4-2. As shown, prior to taking into account appropriate adjustments attributable to implementation of the Newhall Ranch Transportation Demand Management (TDM) Plan, which includes the Entrada South site, the proposed Entrada South area is estimated to generate approximately 32,191 average daily tripends, with approximately 2,120 tripends during the AM peak hour, and approximately 2,946 tripends during the PM peak hour. Trip reductions due to implementation of the TDM plan is discussed in the following section.

Due to the mix of residential, school, and commercial land uses planned for the Entrada South development area, many of the trips generated by the development will remain internal to the Entrada South area as opposed to leaving the site as an external trip. In regard to internal capture, each internal trip consists of two of the tripends listed in Table 4-2, an inbound tripend and an outbound tripend. In contrast, each external trip consists of only one of the tripends listed in the table (either an inbound or outbound trip) with the other end of the trip (i.e., the other tripend) located off-site.

Table 4-2 Entrada South Land Use and Trip Generation Summary

Category	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Tripends
			In	Out	Total	In	Out	Total	
Condominium/Apartment	1,574	DU	157	756	913	740	409	1,149	12,592
Commercial Retail (>30 ac)	365.00	TSF	172	109	281	599	649	1,248	14,622
Elementary School	750	Student	270	233	503	60	68	128	1,418
Commercial Office	365.00	TSF	365	58	423	66	354	420	3,555
Developed Park	5.00	Acre	0	0	0	0	1	1	4
Total	-	-	964	1,156	2,120	1,465	1,481	2,946	32,191
Net Trips with TDM Reductions	-14.9%[1]	-	820	984	1,804	1,247	1,260	2,507	27,395

Note: See Table 4-3 for net volume of external trips

[1] As calculated by the RMDP/SCP Project's Transportation Demand Management Plan Evaluation (see Reference 7 in Section 1.3), which was included as part of the State-certified EIR

To illustrate how the complementary mix of land uses within the Entrada South area interact with each other, an estimate of the split of internal and external trips has been derived for each of the individual land use categories and is presented in Table 4-3. Project land uses will have varying amounts of internal capture (i.e., trips remaining internal to the site) based on the specific type of land use that is planned. Due to the combination of residential, retail commercial, and office land uses proposed for the Entrada South area, internal capture was derived using the Mixed-Use Development (MXD) trip generation methodology. An analysis of the internal capture potential was prepared by Fehr & Peers (see Reference 2 in Section 1.3) and approved by County staff for use with the development's traffic study. While the analysis was prepared in 2010, the mix of land uses evaluated as part of that analysis is consistent with the Modified Project, and the overall internal capture rate used in this analysis remains consistent with the internal capture estimates applied in the State-certified EIR (see Reference 10 in Section 1.3).

Based on the MXD model, for the residential uses, approximately 2,400 ADT (22 percent) of the residential tripends would be internal trips, while approximately 8,300 ADT (78 percent) of the residential tripends would be external trips. As to the non-residential uses (school, office, and retail commercial), approximately 2,100 ADT (13 percent) of the non-residential tripends would be for non-residential to non-residential internal trips, and approximately 2,400 ADT (14 percent) would be for non-residential to residential internal trips. The remaining 12,200 ADT (73 percent) of the non-residential tripends would be for external trips.

In total, approximately 25 percent of the trip generation would be for internal trips and 75 percent for external trips. To derive the net volume of trips generated by the Entrada South portion of the Modified Project, the amount of internal trips are added to the amount of external trips.

In summary, as shown in Table 4-4, the Entrada South area would generate a net total of 23,951 trips when taking into account the 25 percent internal capture rate in combination with the trip reductions attributable to the TDM Plan.

Table 4-3 Entrada South Internal and External Trip Volumes and Percentages

Category	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Tripends
			In	Out	Total	In	Out	Total	
Residential Trips	1,574	DU	134	643	777	630	348	978	10,716
Internal – Res. to Non-Res.	-	-	51	96	147	92	52	144	2,385
External – Residential	-	-	83	547	630	538	296	834	8,331
Commercial Retail (>30 ac)	365.00	TSF	146	93	239	510	552	1,062	12,443
ce Elementary School	750	STU	230	198	428	51	58	109	1,207
Commercial Office	365.00	TSF	311	49	360	56	301	357	3,025
Developed Park	5.00	Acres	0	0	0	0	1	1	4
Subtotal Non-Residential	-	-	687	340	1,027	617	912	1,529	16,679
Internal – Non-Res. to Non-Res.	-	-	97	97	194	136	136	272	2,118
Internal – Non-Res to Res	-	-	96	51	147	52	92	144	2,385
External – Non-Residential	-	-	494	192	686	429	684	1,113	12,176
Total	-	-	821	983	1,804	1,247	1,260	2,507	27,395
Internal – Total	-	-	244 (30%)	244 (25%)	488 (27%)	280 (22%)	280 (22%)	560 (22%)	6,888 (25%)
External – Total	-	-	577 (70%)	739 (75%)	1,316 (73%)	967 (78%)	980 (78%)	1,947 (78%)	20,507 (75%)
Note: Trips shown in this table include TDM trip reductions of 14.9% (see Reference 7 in Section 1.3)									

Table 4-4 Entrada South Trip Summary

Total Tripends	External Trips[1]	Internal Trips[2]	Total Trips
27,395	20,507	3,444	23,951

[1] One tripend on-site

[2] Two tripends on-site

Note: Trips shown in this table include Net Zero TDM Reduction of 14.9% (see Reference 8 in Section 1.3)

Valencia Commerce Center Area

The VCC area would consist primarily of business and industrial park uses as described in the preceding section. For the purpose of this analysis, the land uses have been categorized based on industry standards from the Institute of Transportation Engineers (ITE) Trip Generation Manual (see Reference 1 in Section 1.3) and the SCVCTM.

The SCVCTM Industrial Park trip rate was derived from a case study of the Valencia Industrial Center, which reflects the type of Industrial Park development—comprised primarily of light industrial/business park—that is common in the Santa Clarita Valley and is consistent with the anticipated uses in the VCC area. The case study was conducted by collecting 24-hour traffic counts over multiple days at each roadway providing access to the Valencia Industrial Center. Based on the occupied square footage of the Valencia Industrial Center, a trip rate was derived. This trip rate has been utilized in all prior VCC traffic studies that have been reviewed and endorsed by Los Angeles County and is also the rate used in the SCVCTM (see Reference 12 in Section 1.3). The specific trip rates used for this analysis are listed in the previously referenced Table 4-1, above. Detailed trip generation estimates for the VCC area based on the trip generation rates and equations referenced above are provided in Table 4-5.

Table 4-5 VCC Land Use and Trip Generation Summary

			AM Peak Hour			PM Peak Hour			Average Daily Tripends
Category	**Amount**	**Units**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	
Commercial Retail (<10 ac)	50.00	TSF	55	35	90	166	180	346	4,253
Industrial Park	1,900.00	TSF	1,045	190	1,235	247	988	1,235	11,400
Business Park	750.00	TSF	893	157	1,050	248	697	945	9,330
Commercial Office	700.00	TSF	700	112	812	126	679	805	6,818
Total			2,693	494	3,187	787	2,544	3,331	31,801
Total Trips with TDM Plan Reduction (-14.9%[1])			2,292	420	2,712	670	2,165	2,835	27,063
Internal capture			85 (4%)	85 (20%)	170 (6%)	120 (18%)	120 (6%)	240 (8%)	2,352 (9%)
Net New Trips			2,207	335	2,542	550	2,045	2,595	24,711
% of Total			**96%**	**80%**	**94%**	**82%**	**94%**	**92%**	**91%**

[1] As calculated by the RMDP/SCP Project's Transportation Demand Management Plan Evaluation (see Reference 7 in Section 1.3), which was included as part of the State-certified EIR

As shown, prior to taking into account appropriate adjustments attributable to implementation of the Newhall Ranch Transportation Demand Management (TDM) Plan, the VCC area is estimated to generate approximately 31,801 average daily tripends, with approximately 3,187 tripends during the AM peak hour, and approximately 3,331 tripends during the PM peak hour.

In addition to the trip reductions resulting from implementation of the TDM Plan, not all of the trips generated by the VCC will leave the VCC portion of the Modified Project site. Consistent with the traffic analysis presented in the State-certified EIR process and based on the SCVCTM, not all of the resulting trips are external trips such that they would travel on the area roads located outside of the VCC area.

Consistent with the traffic analysis presented in the State-certified EIR, to determine the net volume of external trips (each trip is comprised of one project tripend, that either leaves the project site or comes into the project site) and internal trips (each trip is comprised of two project tripends that start and end within the project site) generated by the VCC portion of the Modified Project, the SCVCTM was used. The SCVCTM utilizes a sophisticated trip distribution function to derive geographically defined travel patterns from zonal trip generation estimates calibrated according to local conditions. Detailed land use data regarding the availability of housing, employment, shopping, schools, and recreation opportunities have been input into the base SCVCTM. The model derives trip distribution patterns and related trip lengths based on mathematical functions that consider the amount of trips generated on a zone-by-zone-basis, the type of trips generated, and the geographic relationship between these trips and the remainder of trips generated in the modeled area.

The SCVCTM is jointly maintained by the City and the County. Any inputs into the model beyond the base data are conducted with the oversight of City and County transportation engineering staff. For the analysis presented here, the VCC land uses and the future roadway network assumptions are first input into the model. The trip distribution process then utilizes a statistical probability formula to calculate the interchange of trips between traffic analysis zones; use of the distribution formula is standard practice throughout the traffic engineering industry. The formula is based upon behavioral tendencies of travelers and postulates the trip interchange between zones as being directly proportional to the relative attraction of each of the zones and inversely proportional to a function of the spatial separation of the zones. Based on the formula, the SCVCTM determines the percentage distribution of internal/external trips and numerically assigns each of those trips to the area roadways.

Thus, after accounting for the number of trips that would stay internal to the VCC are, the net volume of new external trips is approximately 24,711 daily tripends, with approximately 2,542 net new tripends in the AM peak hour and 2,595 net new tripends in the PM peak hour. These external trips equate to 91% of the total daily trip generation estimate. Thus, based on the SCVCTM model, nine percent of daily tripends generated by the VCC area will remain internal to that portion of the Modified Project site.

In summary, as shown in Table 4-6, the VCC area would generate a net total of 24,711 trips when taking into account the nine percent internal capture rate in combination with the trip reductions attributable to the Valencia TDM Plan.

Table 4-6 VCC Trip Summary

Total Tripends	External Trips[1]	Internal Trips[2]	Total Trips
27,063	24,711	1,176	25,887

[1] One tripend on-site

[2] Two tripends on-site

Note: Trips shown in this table include TDM Plan reduction of 14.9% (see Reference 7 in Section 1.3)

4.2 SITE ACCESS STUDY SCREENING CRITERIA

The County Guidelines provide screening criteria that is used to identify if a site access study is required. For development projects, if the answer is “yes” to the following two screening criteria questions, further analysis is required.

- Is the project required to submit a TIA?
- Does the development project involve a discretionary action that would be reviewed by the Department of Regional Planning?

Entrada South Area

For development projects, a site access study is required if the project involves a discretionary action that would be reviewed by the Department of Regional Planning. Development of the Entrada South area involves discretionary actions that would be reviewed by the Department of Regional Planning as part of the project approval process. Therefore, a site access study is required since the screening criteria is met.

Valencia Commerce Center Area

For development projects, a site access study is required if the project involves a discretionary action that would be reviewed by the Department of Regional Planning. Development of the VCC area involves discretionary actions that would be reviewed by the Department of Regional Planning as part of the project approval process. Therefore, a site access study is required since the screening criteria is met.

4.3 EVALUATION CRITERIA

4.3.1 Operational Deficiencies

Defined criteria to quantitatively evaluate a project’s proposed access and circulation operations are described in this section. A project access is considered to be constrained or operationally deficient if the project would contribute to unacceptable queuing at nearby signalized intersections. Unacceptable or extended queuing is defined as:

- Spillover from turn pockets into through lanes
- Spill over into intersections

4.4 METHODOLOGY

4.4.1 Level of Service and Queuing Methodology

The operational analysis presented in this report evaluates the Modified Project utilizing the updated guidelines of the Los Angeles County Department of Public Works (see Reference 3 in Section 1.3).

The various scenarios presented here include existing conditions and future conditions with the Modified Project, as follows:

1. Existing Conditions
2. Year 2030 Cumulative Conditions/Related Projects with Modified Project

The amount of vehicle traffic, or trips, that would be generated by the Modified Project and the forecast future background, or cumulative, traffic volumes were derived using SCVCTM. Related Projects include all future projects either approved by the County or the City but not yet built, as well as planned future projects for which the County or the City has received a development application as discussed in Section 2.2.2, above. All Related Projects are included within the SCVCTM cumulative projects, although the SCVCTM also considers additional cumulative growth in the area. Related Projects may be at various stages of construction and occupancies.

The SCVCTM was developed jointly by the County of Los Angeles Department of Public Works and the City of Santa Clarita and it is the primary tool used for forecasting traffic volumes for the Santa Clarita Valley. The SCVCTM provides traffic volume forecasts for a long-range setting, which represents County Area Plan and City of Santa Clarita General Plan buildout conditions (generally considered as year-2040 or later), as well as Interim Year forecasts that are based on a defined list of planned, approved, and pending projects (defined here as year-2030). The SCVCTM is regularly updated and the version of the model used for the analysis presented here is based on the currently approved OVOV Area Plan of the County and City of Santa Clarita.

The SCVCTM is a computerized travel demand model in which future land uses in an area are quantified and corresponding traffic volumes are estimated based on standardized modeling techniques. The only variables in the model that are modified for purposes of the analysis are the Modified Project land uses and the future roadway network assumption, which are input into the model with the oversight of the City of Santa Clarita and County of Los Angeles transportation engineering staff.

The SCVCTM utilizes a sophisticated trip distribution function to derive geographically defined travel patterns from zonal trip generation estimates calibrated according to local conditions. Detailed land use data regarding the availability of housing, employment, shopping, schools, and recreation opportunities have been input into the base SCVCTM. The model derives trip distribution patterns and related trip lengths based on mathematical functions that consider the amount of trips generated on a zone-by-zone-basis, the type of trips generated, and the geographic relationship between these trips and the remainder of trips generated in the modeled area. The SCVCTM trip distribution calculations are prepared using distribution functions that have been calibrated to real-world conditions and are based on the trip distribution functions used for regional traffic modeling efforts, such as by the Southern California Association of Governments (SCAG). As such, the trip distribution patterns reported in the Modified Project’s traffic study are not “assumed,” but are derived by a systematic methodology consistent with other traffic studies, including the joint County of Los Angeles/City of Santa Clarita OVOV Area Plan.

Westside Roadway Phasing Analysis

As previously noted, the Phasing Analysis was prepared to address the cumulative development of planned projects in the Santa Clarita Valley generally located west of the I-5 freeway and to provide a general timeframe for the construction of road improvements necessary to support the development of Westside projects[10]. The specific projects addressed as a subject of the Phasing Analysis are as follows:

- Mission Village (VTTM 061105 – Part of the Newhall Ranch Specific Plan area)
- Landmark Village (VTTM 053108 – Part of the Newhall Ranch Specific Plan area)
- Homestead South (VTTM 060678 – Part of the Newhall Ranch Specific Plan area)
- Homestead North (Part of the Newhall Ranch Specific Plan area)
- Potrero Village (VTTM 061911 – Part of the Newhall Ranch Specific Plan area)
- Legacy Village (VTTM 061996 – Part of the Stevenson Ranch area)

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[10] “Westside Santa Clarita Valley Roadway Phasing Analysis,” Austin-Foust Associates, Inc., November 2006.

- Entrada South (VTTM 083582)
- Entrada North (VTTM 071377)
- Valencia Commerce Center (VTPM 18108)

The current Phasing Analysis was reviewed by the County of Los Angeles in 2015 and is updated at predefined intervals or as required by the County,[11] for use as a supporting document for traffic studies evaluating Westside projects, including the Modified Project[12]. The projects that comprise the Phasing Analysis project area include the Entrada and VCC planning areas, as well as the entirety of the approved Newhall Ranch Specific Plan area (Mission Village, Landmark Village, Homestead North and South, and Potrero Village), the Entrada North Project site, and the Legacy Village Project site. The Phasing Analysis considers the cumulative impact of these areas as they build out over the next 25 years and provides general timelines as to when the corresponding road improvements would be necessary. Altogether, the projects included in the Phasing Analysis represent the development of over 25,000 residential dwelling units and over 13 million square feet of commercial uses. Along with the phased development of the Westside projects, the Phasing Analysis takes into account other anticipated development projects outside of the Westside area, including buildout of the remaining portions of the Santa Clarita Valley, as allowed by the City and County General Plans.

The Phasing Analysis identifies milestones based on residential unit counts and commercial square footage to specify when specific improvements should be in place. As such, the Modified Project and the associated roadway improvements will be developed in accordance with these milestones and the corresponding specific improvements as identified in the Phasing Analysis as may be updated. At each location where the analysis presented here identifies a threshold as being exceeded, improvements consistent with the Phasing Analysis have been identified that would generally result in LOS D conditions, which are generally considered acceptable peak hour levels of service for suburban areas.

Westside Bridge and Major Thoroughfare District

A portion of the roadway network included within the 2030 cumulative analysis scenario, as well as certain recommended mitigation measures, would be funded in part through the Westside Bridge and Major Thoroughfare District (B&T District), an area of benefit for financing specific improvements in the Westside area of the Santa Clarita Valley; the Modified Project site is located within the District. The Westside B&T District[13] was established in July 2011, and it provides an equitable financing mechanism by which new development within the District boundaries will share the costs of providing full roadway mitigation improvements.

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[11] “Westside Santa Clarita Valley Roadway Phasing Analysis 2015 Update”, County of Los Angeles Department of Public Works, November 18, 2015.

[12] “Westside Santa Clarita Valley Roadway Phasing Analysis (November 14, 2006) Tentative Tract Nos. 53108, 53295, 60678, 61105, 61911, and 61996 Castaic Junction Area”, County of Los Angeles Department of Public Works, March 15, 2007.

[13] “Westside Bridge and Major Thoroughfare Construction Fee District Report,” Los Angeles County Department of Public Works, February 2011.

The Santa Clarita Valley includes several established B&T Districts, which fund roadway improvements using impact fees paid by land developments located within the respective District. The roadway improvements have been planned to accommodate forecasted traffic growth occurring both within the District and cumulative traffic from outside the District. For example, the Westside B&T District will fund the construction of major new roadways, such as Magic Mountain Parkway and Long Canyon Road, the Commerce Center Drive Bridge over the Santa Clara River, widening of The Old Road to Major Highway standards, interchange improvements to the I-5 freeway, and numerous improvements to existing intersections throughout the District.

The Westside B&T District fee as of July 1, 2020, is $25,740 per factored dwelling unit (FDU) and is subject to escalation annually. Each type of major land use within the District has been assigned an FDU value based on the average traffic impact for that category relative to a single-family residence, as shown below:

• Single Family Residential	1.0 FDU
• Condominium/Townhome	0.8 FDU
• Apartment	0.7 FDU
• Commercial (per gross acre)	5.0 FDU
• Industrial (per gross acre)	3.0 FDU

The Modified Project will participate in the Westside B&T District through the payment of District fees (typically at the time of building permit issuance) and/or by constructing District-identified improvements.

County and City Programs, Plans, and Policies Relative to Roadway Circulation

The Santa Clarita Valley OVOV Area Plan is a component of the Los Angeles County General Plan and the City of Santa Clarita General Plan. OVOV is a joint effort between the County and the City that serves to guide the future growth of the Valley. OVOV addresses access and mobility, identifying LOS designations of a roadway or intersection as an indication of whether the capacity is adequate to handle the volume of traffic of a particular facility. Streets and highways are classified into Major Highways, Secondary Highways, Limited Secondary Highways, Collector Streets, Local Streets, based on their function and design. The County’s preferred maximum acceptable LOS on arterial roads is LOS E. The City strives to achieve LOS D or better on highways, however, LOS F may be necessary at limited locations to implement the City’s General Plan. In residential neighborhoods, the City and County desire conditions of LOS C or better.

Performance Criteria

For site access operational analysis purposes, defined performance criteria are utilized to determine if a proposed project may cause operational deficiencies. Performance criteria are based on two primary measures. The first is “capacity”, which establishes the vehicle carrying ability of a roadway, and the second is “volume.” The volume measure is either a traffic count (in the case of existing volumes) or a forecast for a future point in time. For arterial roadways in an urban or suburban setting, the intersection of two roadways will typically be the limiting factor in regard to the overall capacity of the roadway network.

Methodology outlined in the Highway Capacity Manual, Sixth Edition (HCM 6) produces estimates of average vehicle delay as a function of intersection capacity and the volume of traffic passing through the intersection. From this a corresponding LOS is defined. Traffic LOS is designated “A” through “F,” with LOS A representing free flow conditions and LOS F representing severe traffic congestion. Table 4-7 summarizes the ranges of vehicle delay that correspond to LOS “A” through “F” for arterial roadways and intersections. The ranges listed for arterial roads and intersections within the study area are those defined in the HCM 6 and used by the County of Los Angeles and the City of Santa Clarita.

While ADT is a useful measure to show general levels of traffic on a facility, highway congestion is largely a peak hour or peak period occurrence, and ADT does not reflect peak period conditions very effectively. Because of this, ADT is not used here as the basis for capacity evaluation but instead this evaluation focuses on those parts of the day when peak period congestion can occur, specifically the AM and PM peak hours.

For the arterial system, the peak hour is the accepted time period used for operational performance evaluation and a number of techniques are available to define intersection LOS. Both the level of delay and the LOS are used in determining operational deficiencies. Certain LOS values are deemed unacceptable and increases in the delay that cause or contribute to the LOS as unacceptable are defined as operational deficiencies. These definitions and procedures are established by individual local jurisdictions, such as the County and the City of Santa Clarita.

The analysis of the arterial road system is based on intersection capacity since this is the defining capacity limitation on an arterial highway system. There may be exceptions where certain facilities have long distances between signalized intersections, however, that is not the case within the traffic analysis study area here, and, as such, peak hour intersection performance is the most representative measure for evaluation of the study area arterial road system.

LOS for arterial roadway intersections is determined based on operating conditions during the AM and PM peak hours and the geometric configuration of the intersection. HCM delay methodology was used to analyze both the signalized intersections and the stop-controlled intersections. Synchro software was used to calculate the intersection delay and LOS. For signalized intersections, optimized signal timing/phasing was assumed for existing and future scenarios. The result of these calculations is an estimate of average vehicle delay at the intersection. The delay calculation methodology utilized by Synchro is based on the intersection capacity analysis methodology outlined in the HCM Sixth Edition.

The HCM 6 calculation methodology and associated LOS performance standards used in this analysis are summarized in Table 4-8. The County strives to maintain LOS D for existing and future conditions. However, the General Plan/Area Plan update identifies several intersections in both the City and the County as operating acceptably at LOS E under General Plan Buildout Conditions[14].

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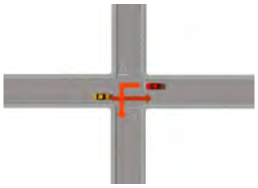
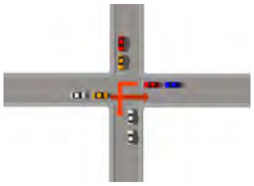
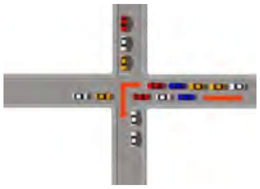
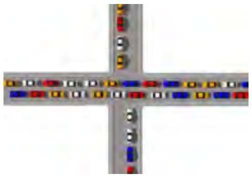
[14] “One Valley One Vision Valley-Wide Traffic Study,” Austin-Foust Associates, Inc., June 2010.

Table 4-7 Level of Service Descriptions – Arterial Roadways and Intersections

LOS	Traffic Flow Description		Signal Control Delay	Stop Control Delay
A		Minimal or no vehicle delay.	0 – 10.0	0 – 10.0
B		Slight delay to vehicles.	10.1 – 20.0	10.1 – 15.0
C		Moderate vehicle delays, traffic flow remains stable.	20.1 – 35.0	15.1 – 25.0
D		More extensive delays at intersections.	35.1 – 55.0	25.1 – 35.0
E		Long queues create lengthy delays.	55.1 – 80.0	35.1 – 50.0
F		Severe delays and congestion.	Above 80.0	Above 50.0

Delay = Average Vehicle Delay (seconds)
Sources: "Highway Capacity 6th Edition," Transportation Research Board, National Research Council, 2016.

Table 4-8 Arterial Intersection Performance Criteria

Delay Methodology

Calculation Methodology

Level of service based on “average vehicle delay” calculated as follows:

- Synchro/HCM 6 delay-based intersection methodology for traffic signals
- HCM 6 delay-based intersection methodology for stop sign control

Performance Standard

Level of Service D defined as follows:

- stopped delay to not exceed 55 seconds for signalized intersections
- stopped delay to not exceed 35 seconds for stop sign control

Thresholds

An intersection is considered to be operationally deficient if the Modified Project would:

- Worsen an intersection maintained by the City of Santa Clarita from LOS D or better to LOS E or F
- Cause the following increase in delay at an intersection maintained by the City of Santa Clarita that operated (with the Modified Project) at LOS D or worse
  - LOS D with the Modified Project: more than 4-second increase in delay is significant
  - LOS E or F with the Modified Project: more than 2-second increase in delay is significant

Note: For intersections under joint jurisdiction of the City and Caltrans, the analysis utilizes the corresponding threshold of the local agency (City) as applicable.

Operational Deficiencies Evaluation Criteria

An intersection is considered to be constrained if the Modified Project would contribute to unacceptable queuing at nearby signalized intersections. Unacceptable or extended queuing is defined as:

- Spillover from turn pockets into through lanes,
- Spill over into intersections

Abbreviations:

LOS – Level of Service

4.4.2 Study Area

The study area for the site access study was derived based on the County guidelines which specifies the analysis of site access and circulation constraints related to the provision of access to and from the project site.

Entrada South Area

The study area for the Entrada South area is shown in Figure 4-3 and includes several future new roadways, as well as improvements to existing roadways, all of which are currently planned and programmed. The existing roadway network in the Entrada South study area is illustrated in Figure 4-4. Existing intersection lane configurations are illustrated in the previously referenced Figure 4-1.

The Interstate 5 (I-5) Freeway, located east of the site, facilitates regional travel in the north/south direction. Additional freeways in the area include SR-14, which provides access to the Antelope Valley, and I-210 and I-405, which along with I-5 provide access to the region south of the Newhall Pass.

Valencia Commerce Center Area

The study area for the VCC area is shown in Figure 4-5 and includes several future new roadways, as well as improvements to existing roadways, all of which are currently planned and programmed. The existing roadway network in the VCC study area is illustrated in the previously referenced Figure 4-4. Existing intersection lane configurations are illustrated in the previously referenced Figure 4-2.

The I-5 Freeway, located just east of the VCC area, facilitates regional travel in the north/south direction. Regional access to the site will also be provided via SR-126, which runs just south of the VCC area in an east/west direction. There are currently two primary north/south roadways (each designated as Highways on the County Highway Plan) within or immediately adjacent to a portion of the VCC site itself. These roadways are The Old Road, which parallels the easterly side of the VCC area, and Commerce Center Drive, which runs north/south on the westerly side of the VCC area.

4.4.3 Traffic Counts

Entrada South Area

Illustrations of peak hour turning movement volumes can be found in Figure 4-6A and Figure 4-6B for the AM peak hour and in Figure 4-7A and Figure 4-7B for the PM peak hour. Existing conditions (2018/2019) ADT volumes for the study area roads are provided in Figure 4-8. Traffic count data was collected throughout the study area during the critical AM and PM peak hours on various dates in 2018 and 2019 prior to the onset of the COVID-19 pandemic. Printouts of the traffic count data sheets are provided in Appendix A.

The results of the LOS analyses for study area intersections are shown in Table 4-9 (detailed LOS worksheets are provided in Appendix B). The table lists each intersection in the study area, the applicable entity with jurisdiction over the intersection (i.e., County, City, Caltrans), the existing delay and

LOS during the AM and PM peak hour for each location, and the date of the traffic counts. As shown in the table, all study area intersections currently operate at LOS D or better.

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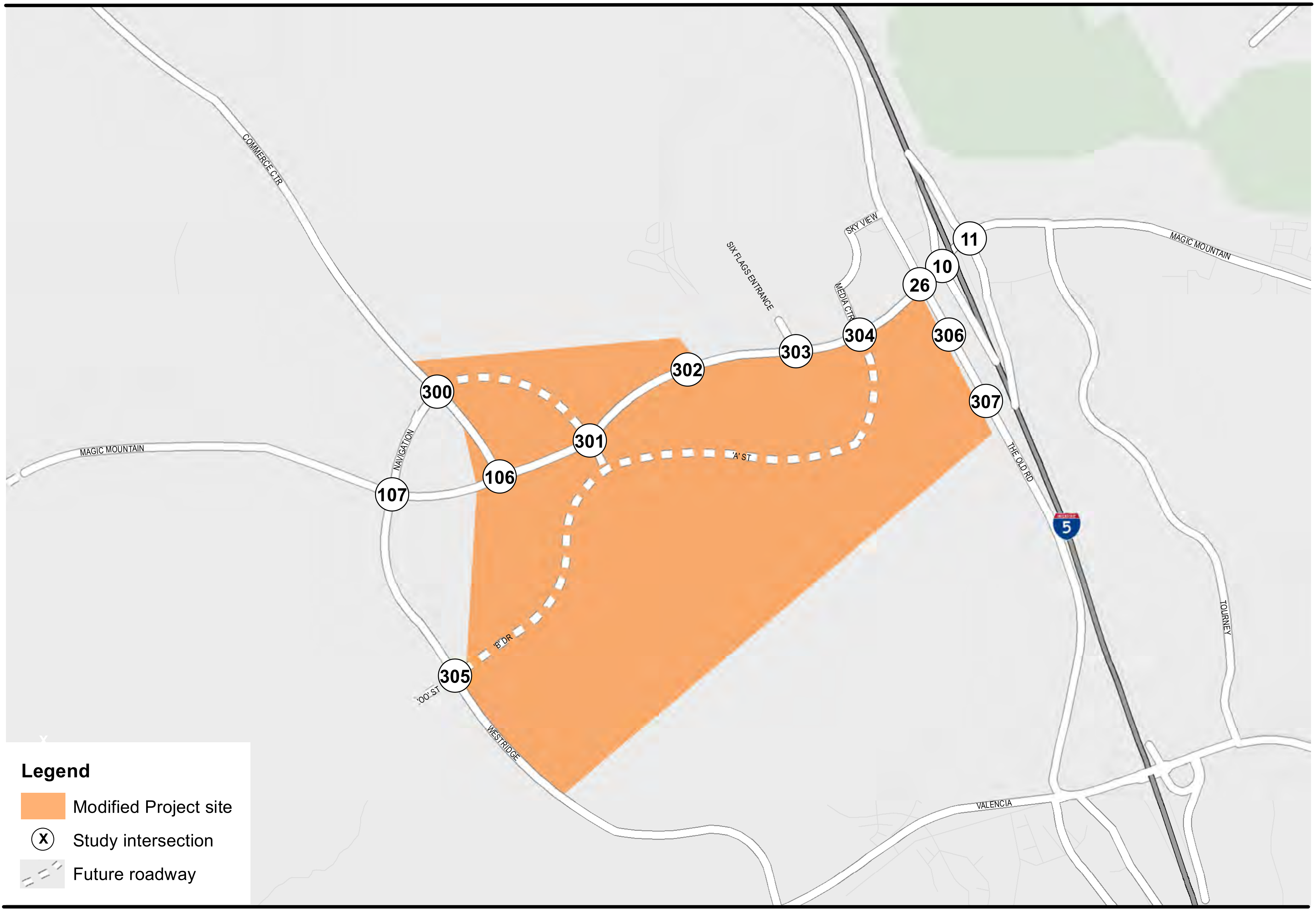

Figure 4-3

Study Area & Intersection Location Map - Entrada South Area

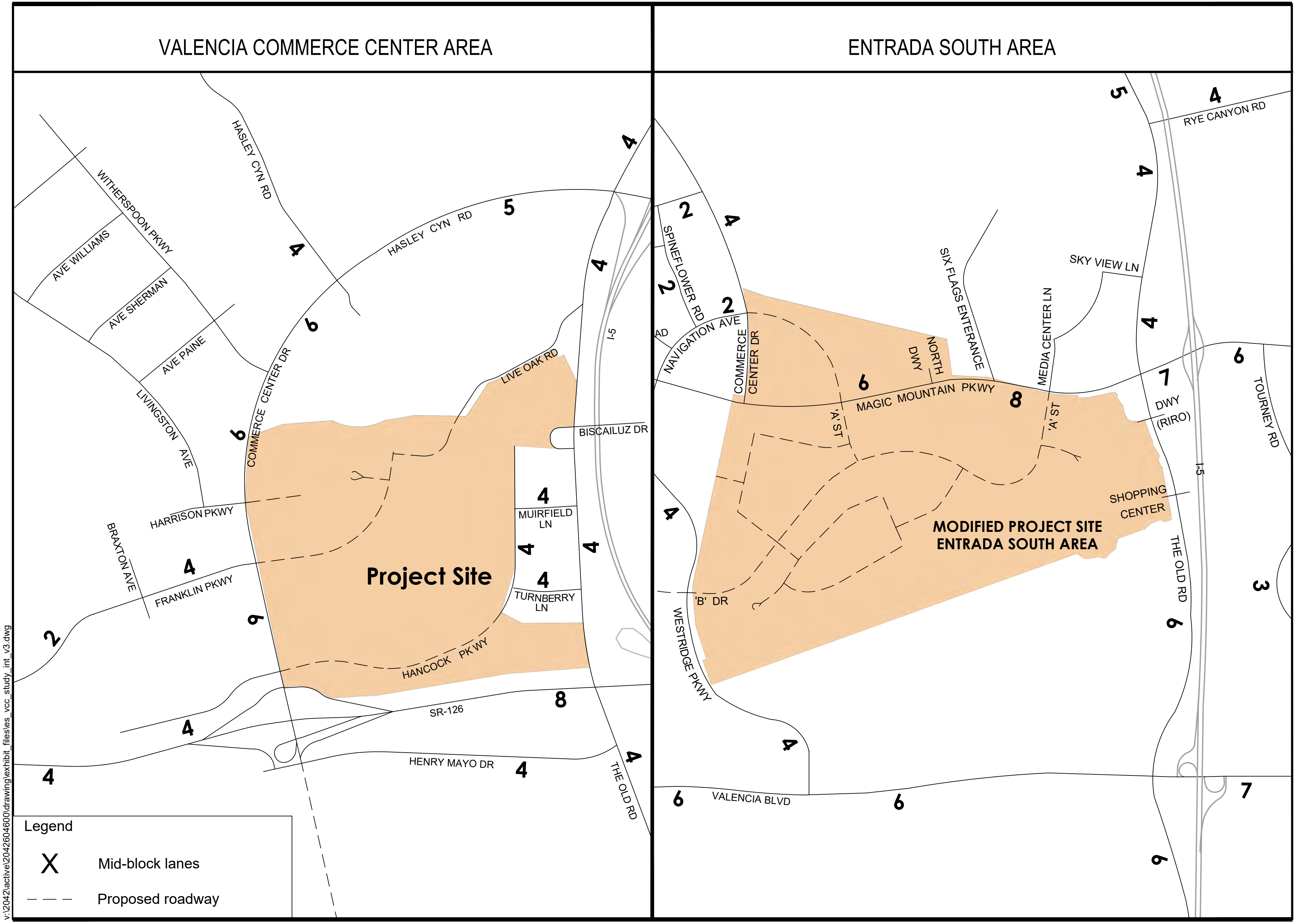

Figure 4-4

Existing Roadway System - Entrada South and VCC Areas

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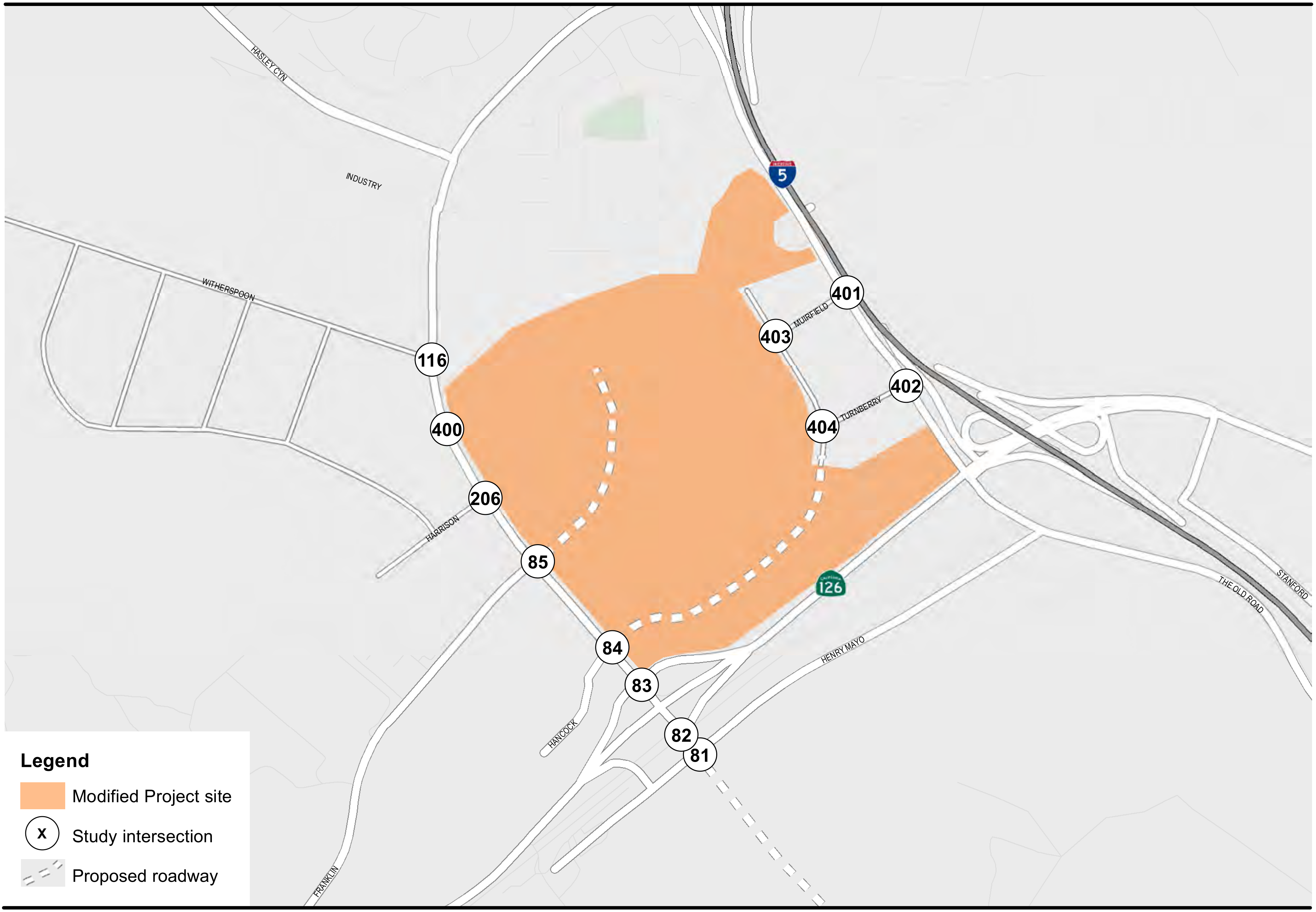

Figure 4-5

Study Area & Intersection Location Map - VCC Area

4.20

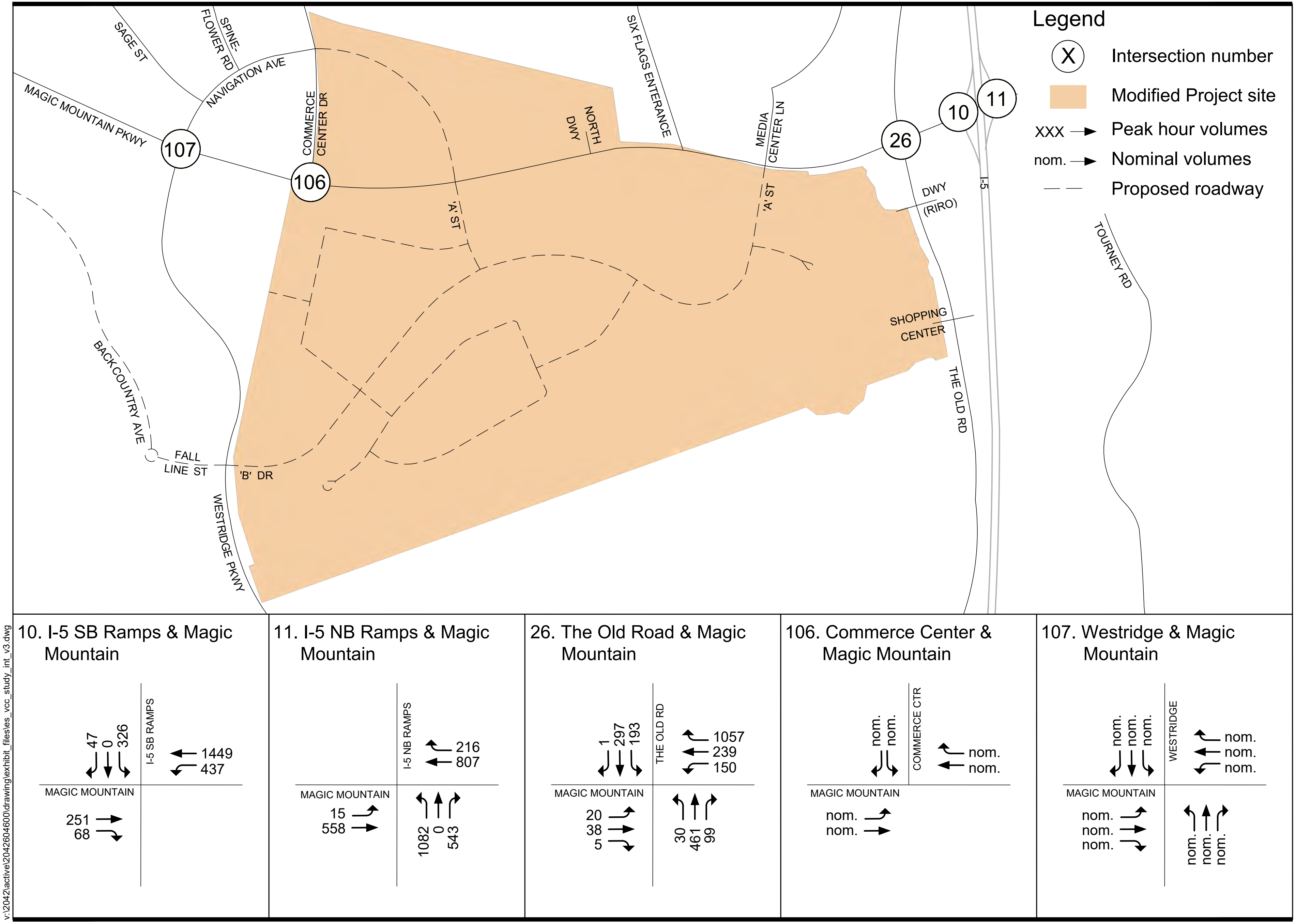

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Figure 4-6A

AM Peak Hour Turning Volumes - Existing Conditions - Entrada South Area (1 of 2)

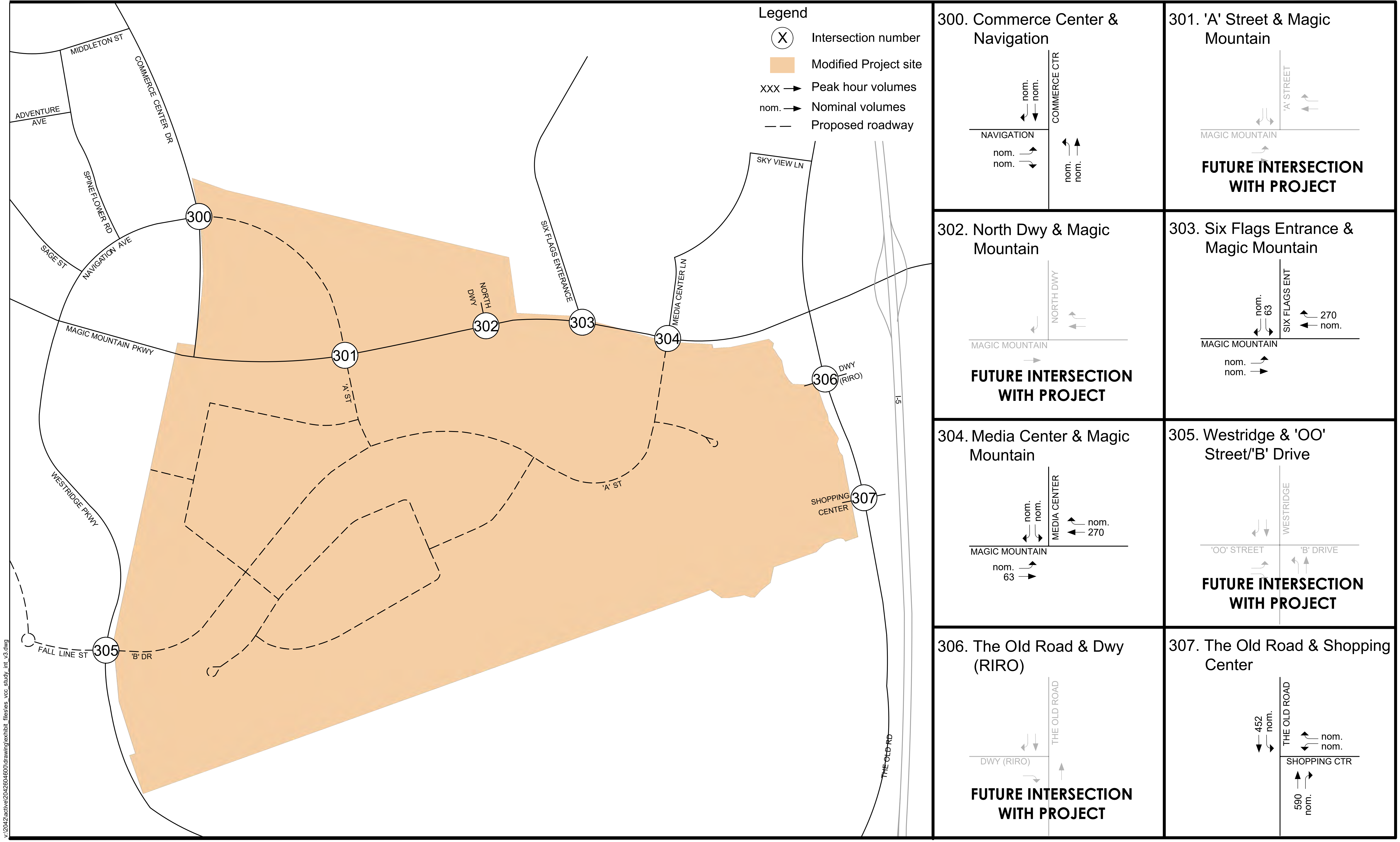

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Figure 4-6B

AM Peak Hour Turning Volumes - Existing Conditions - Entrada South Area (2 of 2)

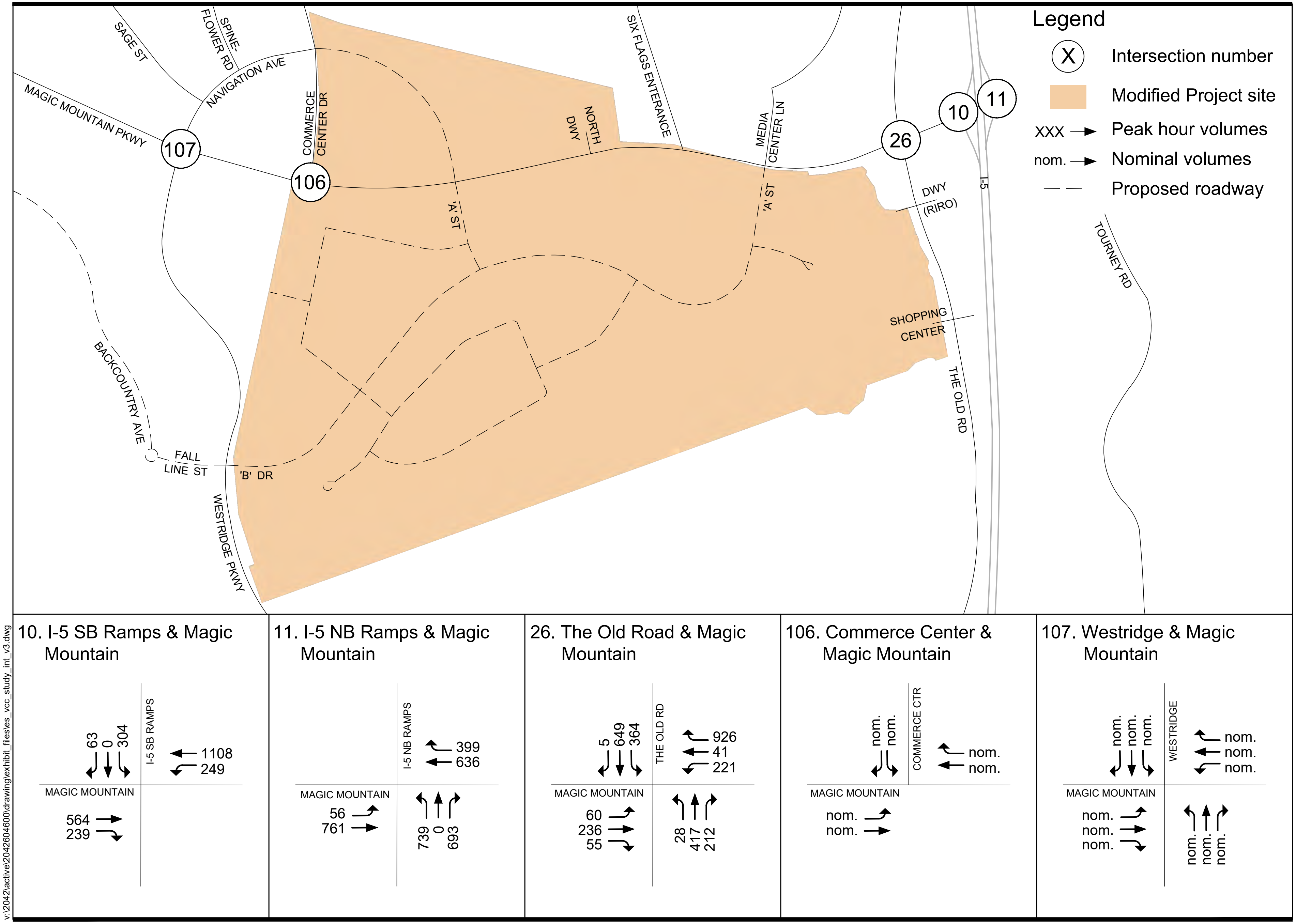

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Figure 4-7A

PM Peak Hour Turning Volumes - Existing Conditions - Entrada South Area (1 of 2)

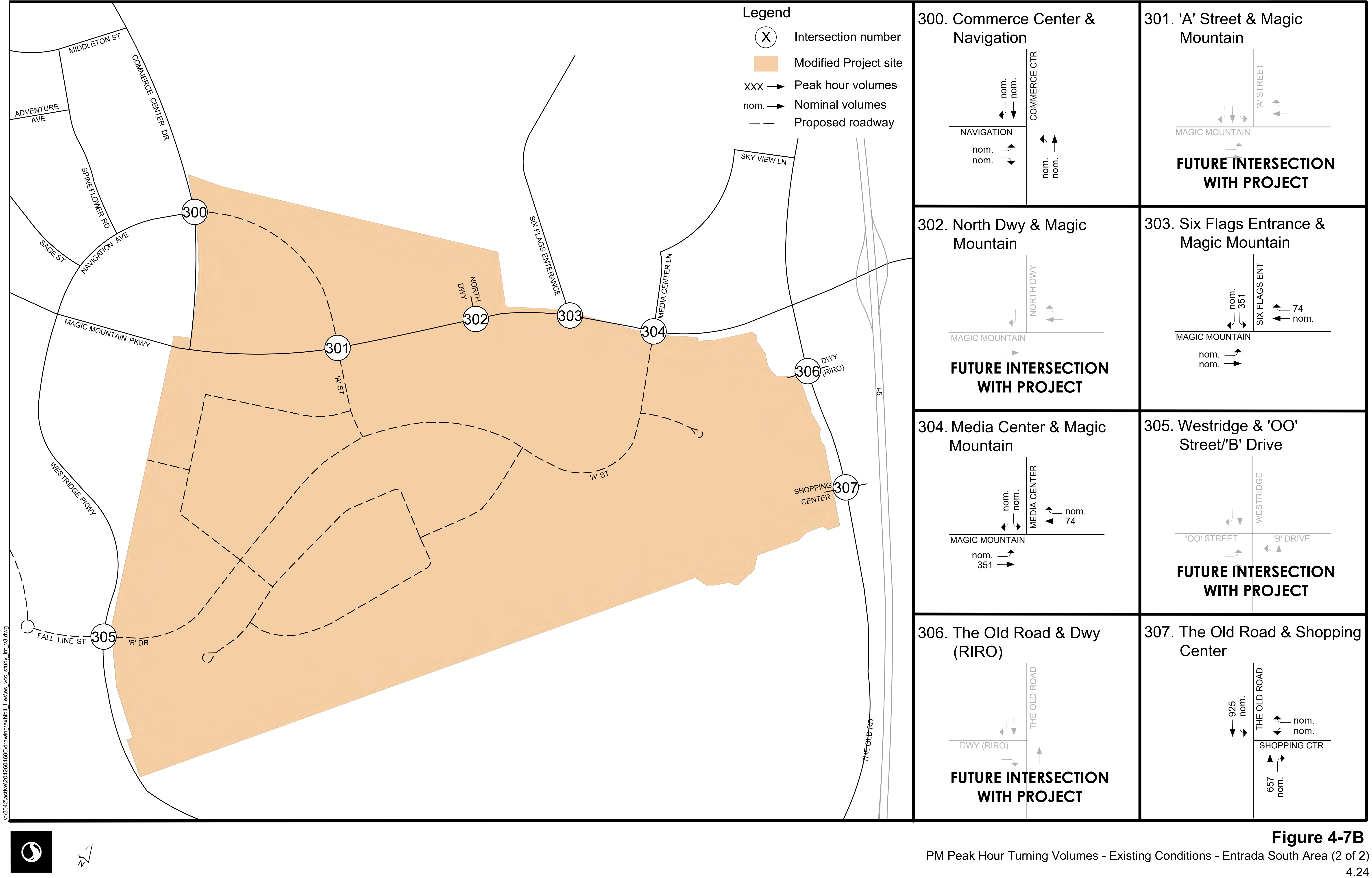

Figure 4-7B

PM Peak Hour Turning Volumes - Existing Conditions - Entrada South Area (2 of 2)

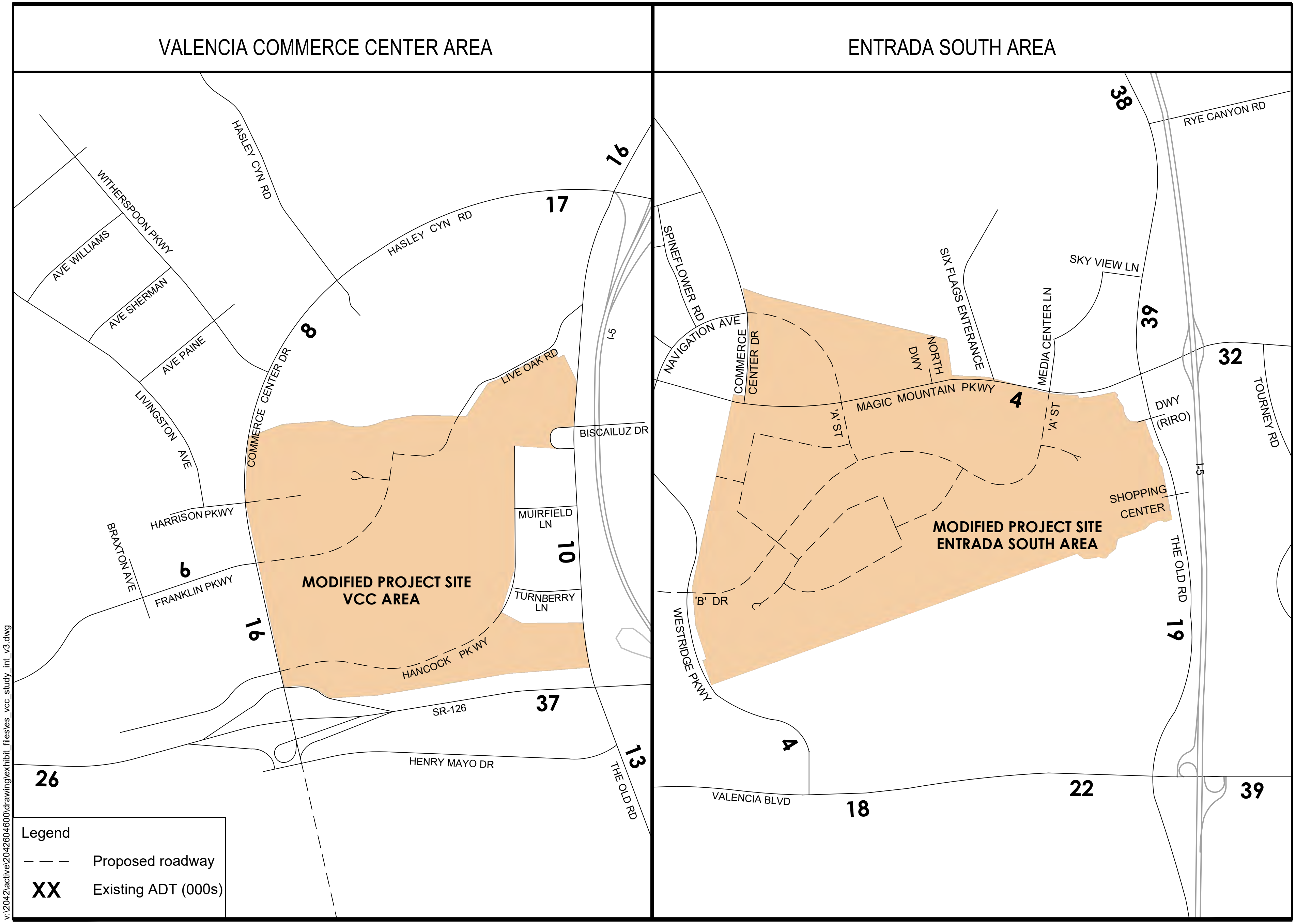

Figure 4-8
ADT Volumes (000s) - Existing Conditions

Table 4-9 Intersection LOS Summary – Existing Conditions

		AM Peak Hour		PM Peak Hour		
Description	Jurisdiction	Delay	LOS	Delay	LOS	Count Date
10. I-5 SB Ramps & Magic Mountain	Caltrans/County	16.8	B	12.6	B	1/25/2018
11. I-5 NB Ramps & Magic Mountain	Caltrans/City	12.6	B	12.4	B	1/25/2018
26. The Old Road & Magic Mountain	County	35.6	D	38.9	B	1/24/2018
Note: Intersection location numbers refer to the SCVCTM numbering system Delay = vehicle delay (seconds/vehicle) Signal Delay represents average vehicle delay for intersection Stop Delay represents movement with highest average delay						

Valencia Commerce Center Area

Existing conditions (2018/2019) ADT volumes for the study area roads are provided in the previously referenced Figure 4-8. Illustrations of peak hour turning movement volumes can be found in Figure 4-9A and Figure 4-9B for the AM peak hour and in Figure 4-10A and Figure 4-10B for the PM peak hour. Traffic count data was collected throughout the study area during the critical AM and PM peak hours on various dates during 2018 and 2019 prior to the onset of the COVID-19 pandemic. The traffic count data sheets are provided in Appendix A.

The results of the LOS analyses for study area intersections are shown in Table 4-10 (detailed LOS worksheets are provided in Appendix B). The table lists each intersection in the study area, the applicable entity with jurisdiction over the intersection (i.e., County, City, Caltrans), the existing delay and LOS during the AM and PM peak hour for each location, and the date of the traffic counts. As shown in the table, all study area intersections currently operate at LOS D or better.

Table 4-10 Entrada South Area LOS Summary – Existing Conditions

	Existing without Project			
	AM Peak Hour		PM Peak Hour	
Location	**Delay**	**LOS**	**Delay**	**LOS**
10. I-5 SB Ramps & Magic Mountain	16.8	B	12.6	B
11. I-5 NB Ramps & Magic Mountain	12.6	B	12.4	B
26. The Old Road & Magic Mountain	35.6	D	38.9	B
Delay = vehicle delay (seconds/vehicle) Delay represents average vehicle delay for intersection				

4.4.4 Modified Project Trip Distribution

Entrada South Area

As previously noted, the geographic distribution of trips generated by the Modified Project was derived by the SCVCTM, a computerized travel demand model that utilizes a sophisticated trip distribution function to derive the distribution of vehicle trips, and which is calibrated to the existing conditions of the Santa Clarita Valley. The SCVCTM is utilized for all major transportation planning efforts within the Santa Clarita Valley. Production and attraction trip data is generated by the model based on five separate trip

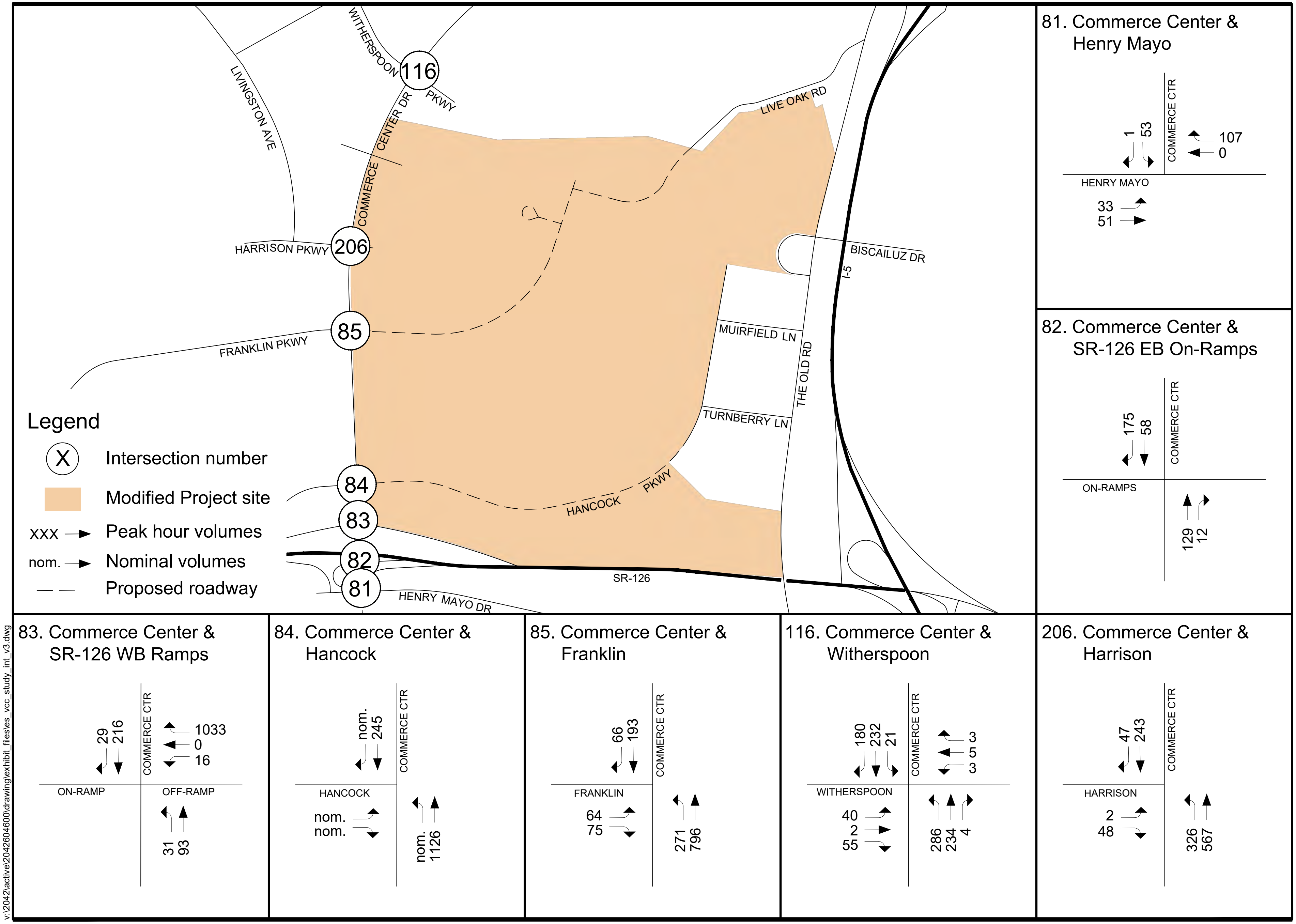

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Figure 4-9A

AM Peak Hour Turning Volumes - Existing Conditions - VCC Area (1 of 2)

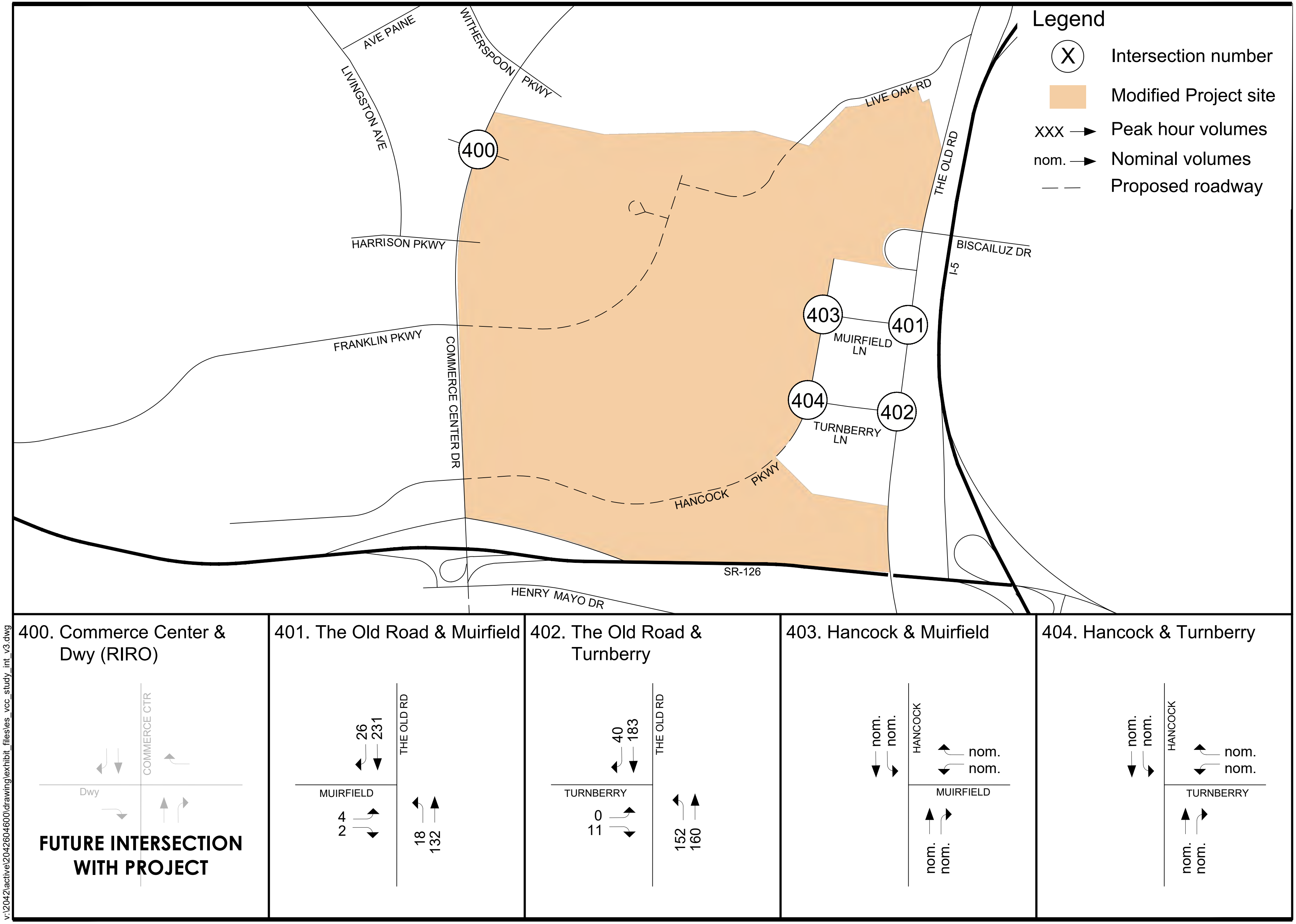

Figure 4-9B

AM Peak Hour Turning Volumes - Existing Conditions - VCC Area (2 of 2)

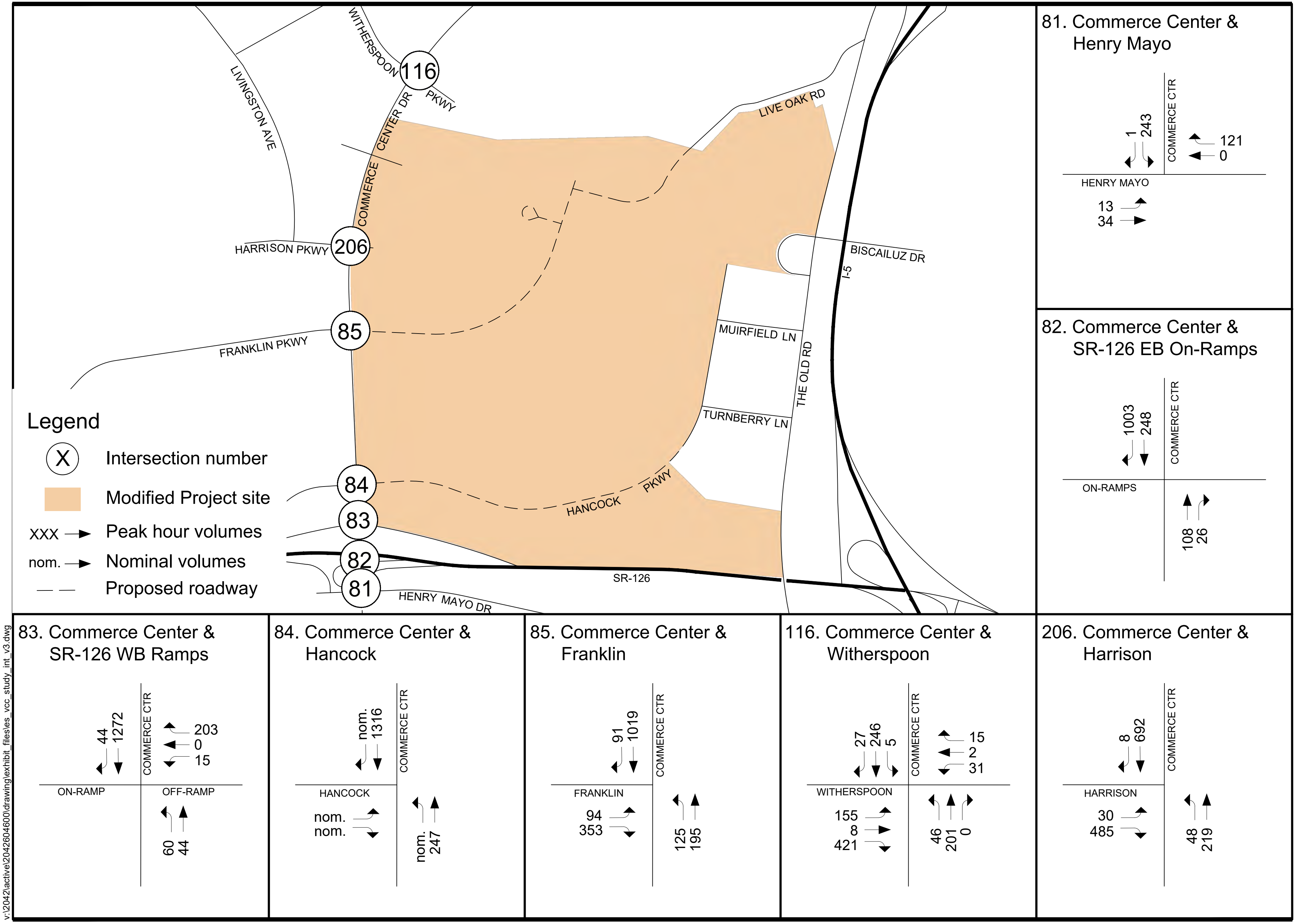

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Figure 4-10A

PM Peak Hour Turning Volumes - Existing Conditions - VCC Area (1 of 2)

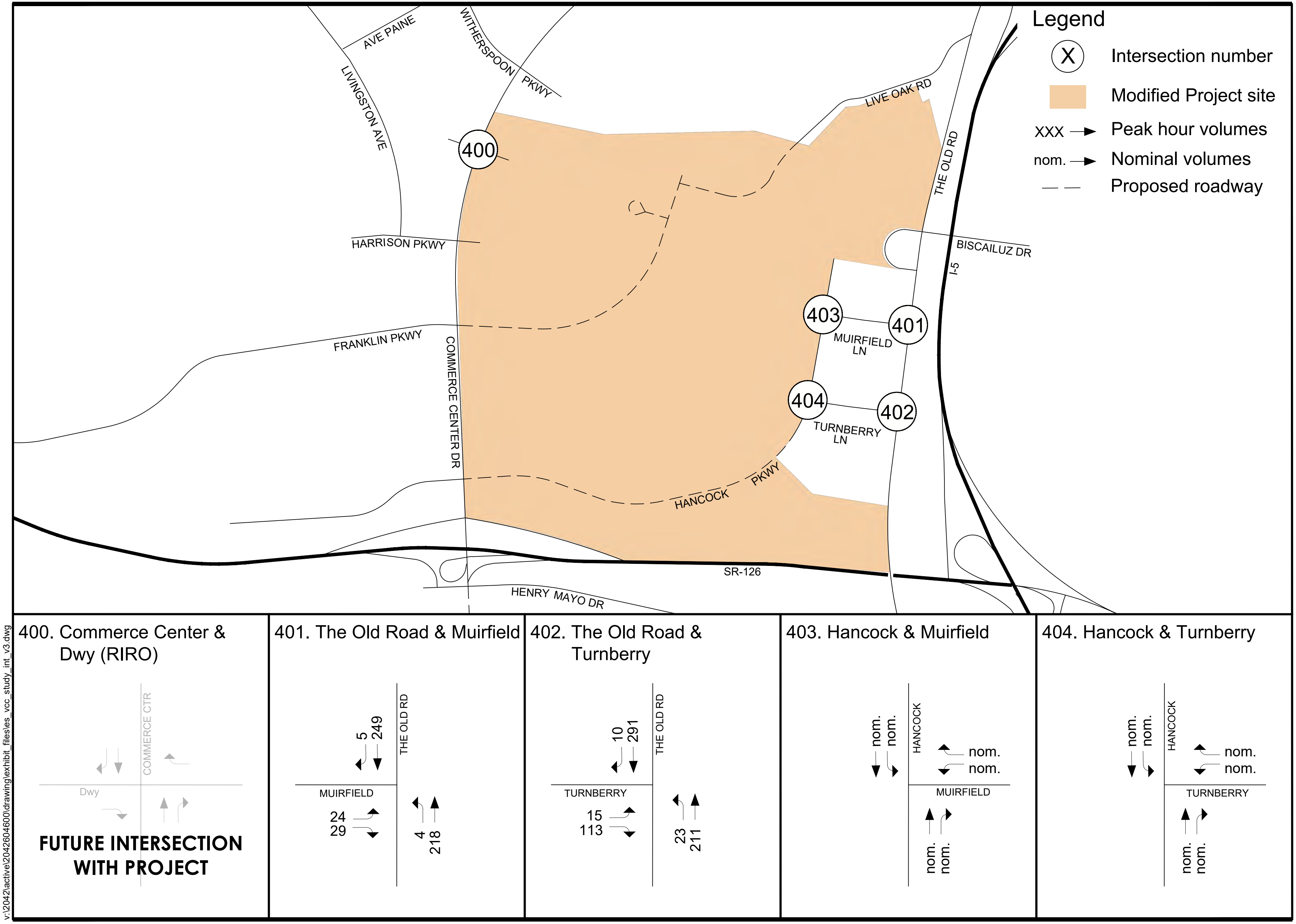

Figure 4-10B

PM Peak Hour Turning Volumes - Existing Conditions - VCC Area (2 of 2) purposes, and trip distribution patterns are then derived by the model. As a final step, the model assigns these trips to the roadway network based on the derived distribution patterns.

4.4.5 Modified Project Trip Distribution

Entrada South Area

As previously noted, the geographic distribution of trips generated by the Modified Project was derived by the SCVCTM, a computerized travel demand model that utilizes a sophisticated trip distribution function to derive the distribution of vehicle trips, and which is calibrated to the existing conditions of the Santa Clarita Valley. The SCVCTM is utilized for all major transportation planning efforts within the Santa Clarita Valley. Production and attraction trip data is generated by the model based on five separate trip purposes, and trip distribution patterns are then derived by the model. As a final step, the model assigns these trips to the roadway network based on the derived distribution patterns.

Illustrations of the Entrada South trip distribution patterns are provided in Figure 4-11. As shown on the figure, approximately 29 percent of the Entrada South traffic would be distributed to Magic Mountain Parkway east of the Entrada South site, approximately 13 percent to The Old Road north of the site, approximately 2 percent to The Old Road south of the site, approximately 5 percent to Magic Mountain Parkway west of the site, 8 percent to Commerce Center north of the site, approximately 2 percent to the Mission Village site immediately west of the site, approximately 11 percent to Westridge Parkway south of the site, and approximately 5 percent of the traffic would be distributed to the areas immediately north of the site. The remaining 25 percent would remain internal to the Entrada South site, as discussed above in Section 4.1.1. These distribution patterns represent the Modified Project's year-2030 buildout condition, which includes additional development in the immediate area surrounding the Modified Project site.

As to the approximately 75% of Entrada South area Modified Project trips that would leave the site (i.e., the external trips), approximately 15 percent would travel to the neighboring developments immediately adjacent to the site, with the remainder traveling beyond the immediate vicinity. Specifically, approximately five percent would interact with the Entrada North (Tenderloin area) development just north of the site, approximately five percent would interact with the Mission Village development just west of the site, approximately two percent with the Legacy Village development just south of the site, approximately one percent with the Potrero Village development west of the site, and approximately two percent would interact with the Homestead South development west of the site.

Specific to the Entrada South area, peak hour turning movement volumes generated by the project for opening day conditions are illustrated in Figure 4-12A and Figure 4-12B for the AM peak hour and Figure 4-13A and Figure 4-13B for the PM peak hour. The distribution of project trips under this scenario differs

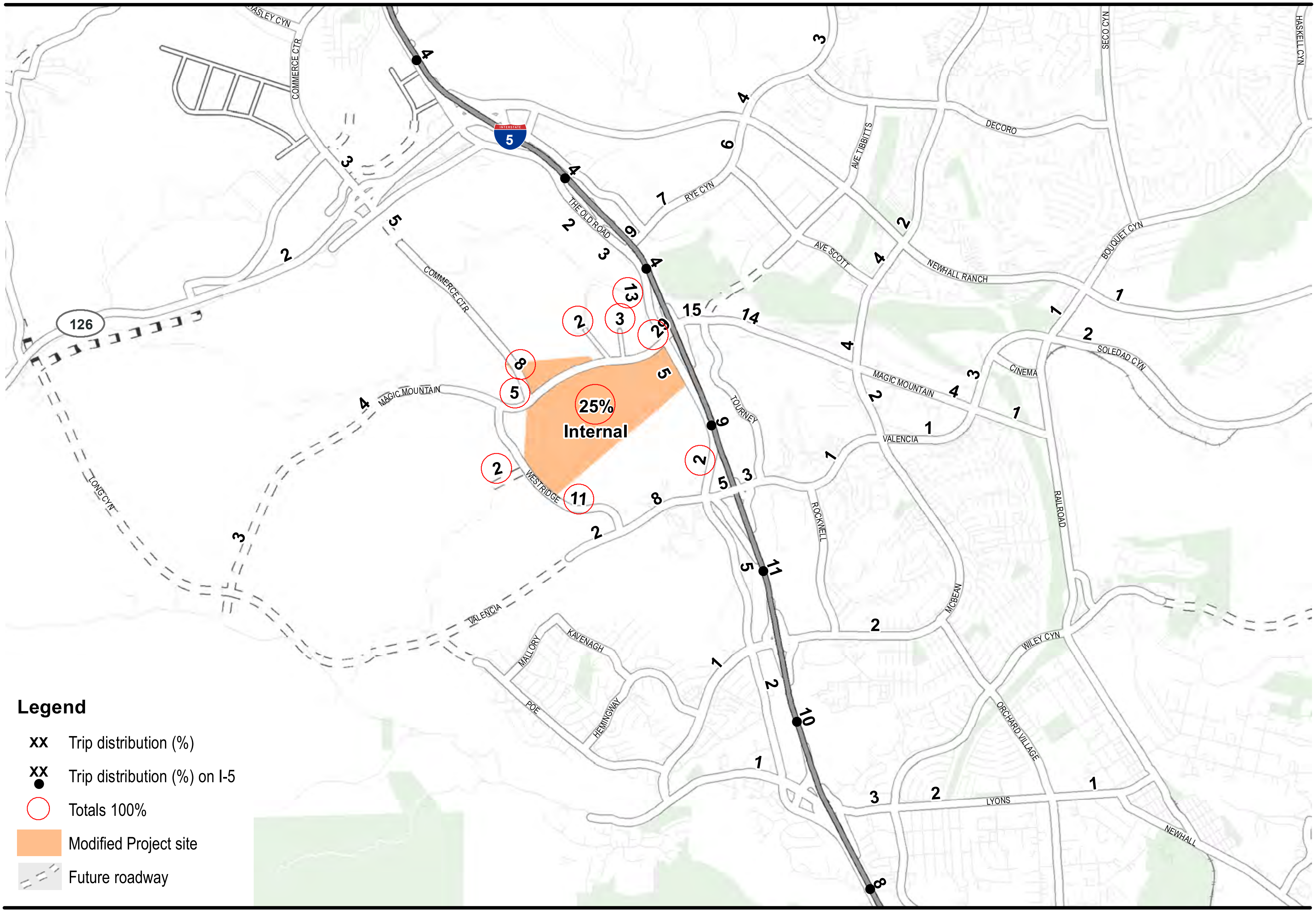

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Figure 4-11

Project Trip Distribution (%) - Entrada South Area

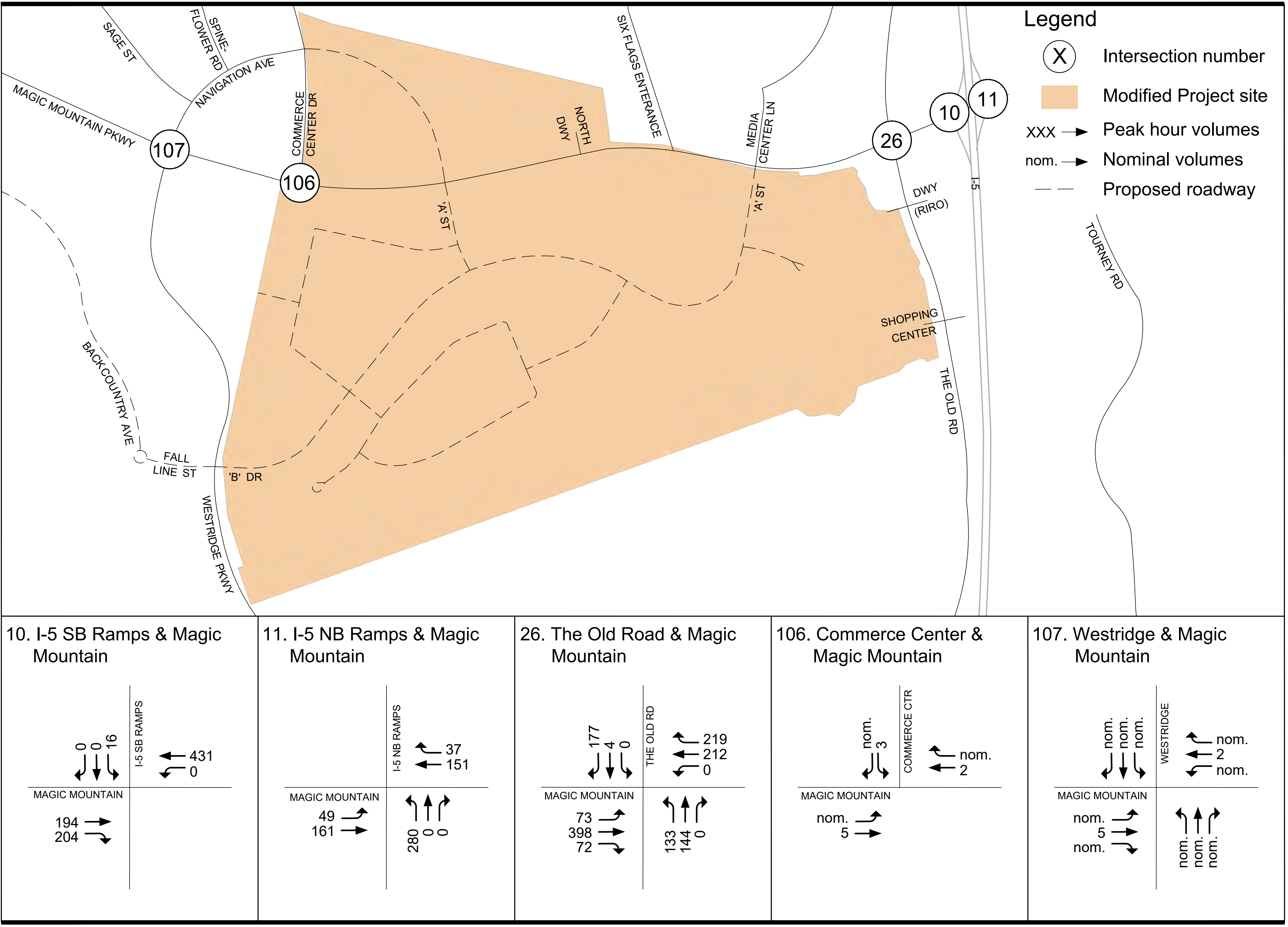

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Figure 4-12A

AM Peak Hour Turning Volumes for Entrada South Area - Modified Project Trips Only (Existing Roadway Network) (1 of 2)

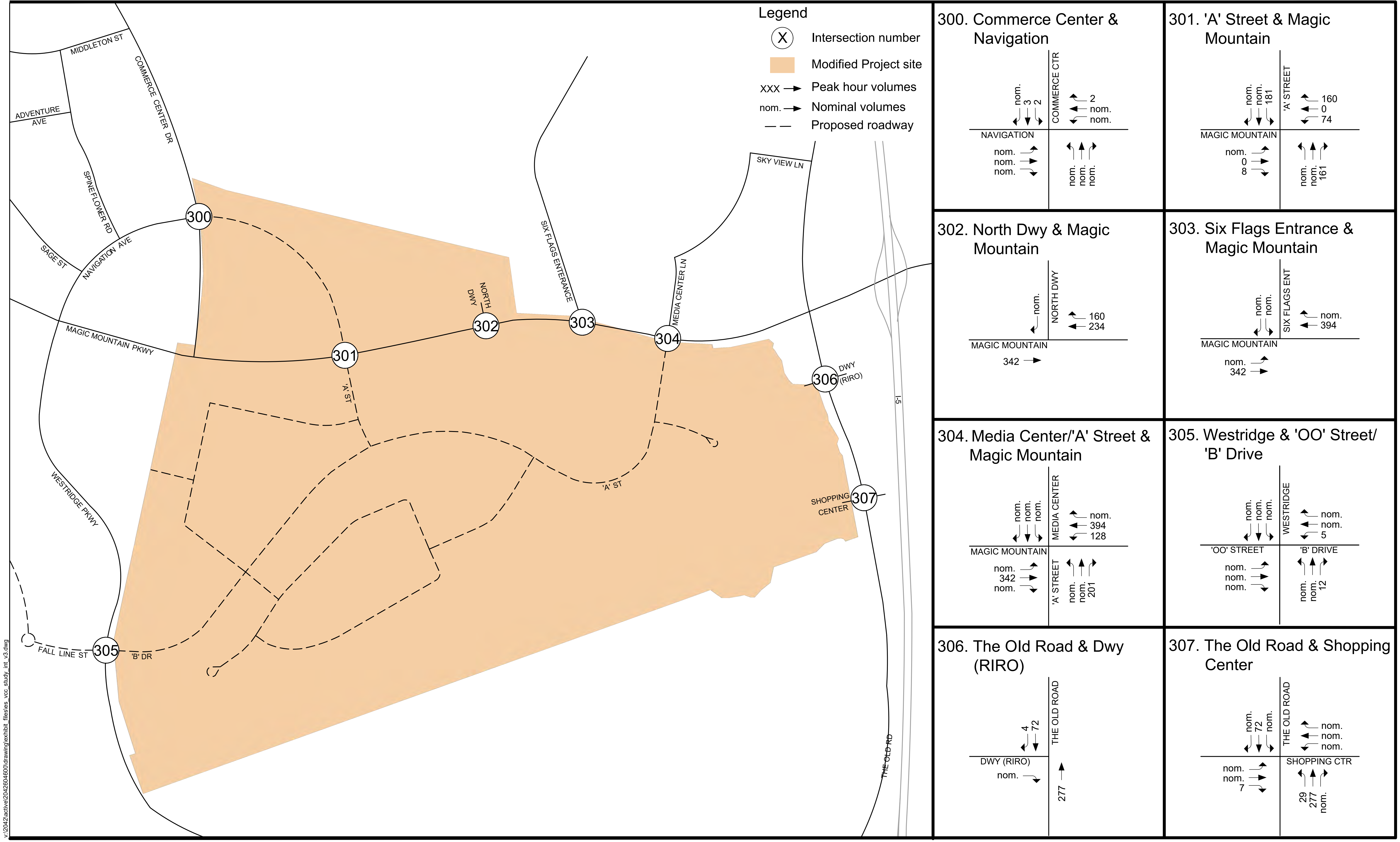

Figure 4-12B

AM Peak Hour Turning Volumes for Entrada South Area - Modified Project Trips Only (Existing Roadway Network) (2 of 2)

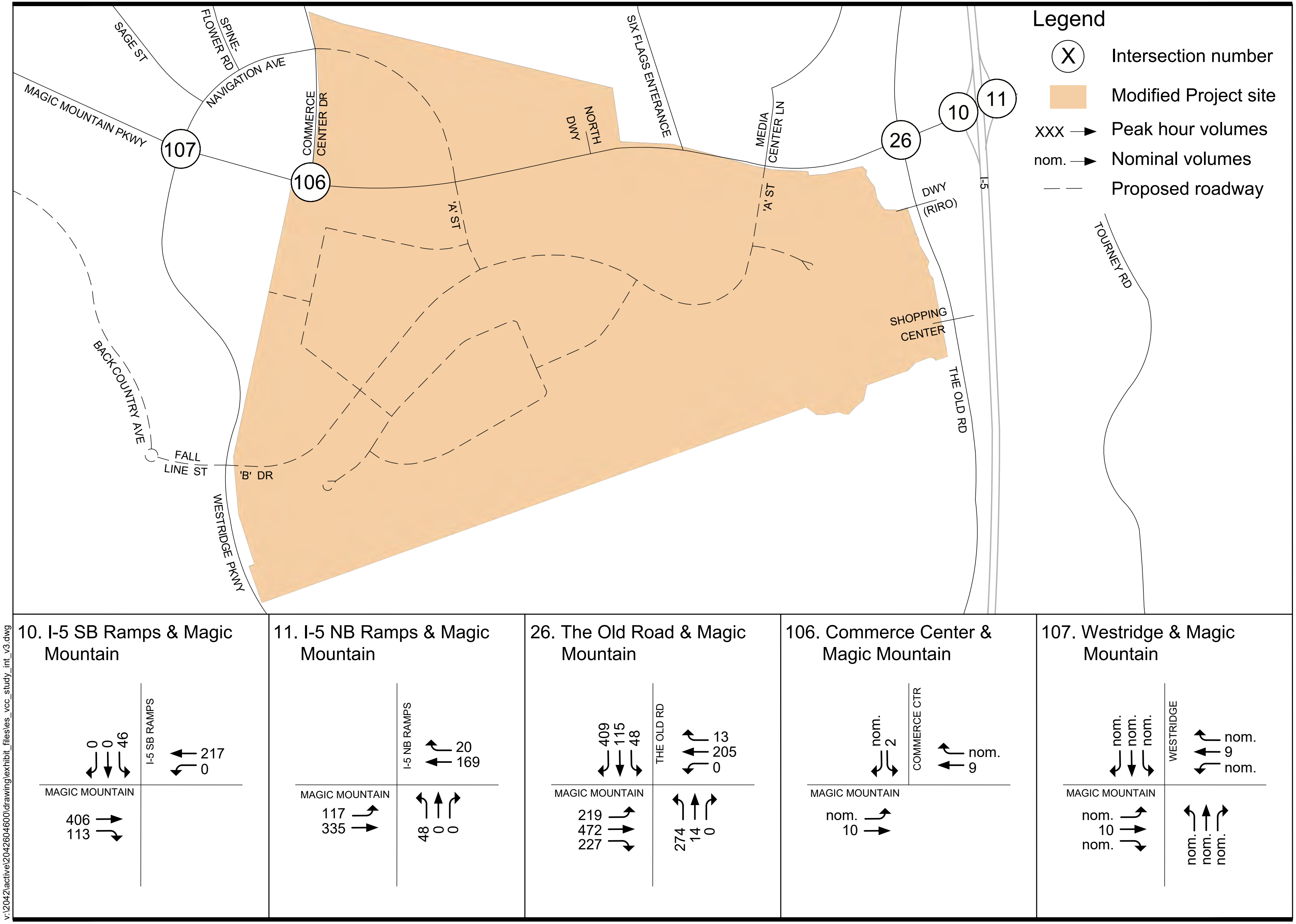

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Figure 4-13A

PM Peak Hour Turning Volumes for Entrada South Area - Modified Project Trips Only (Existing Roadway Network) (1 of 2)

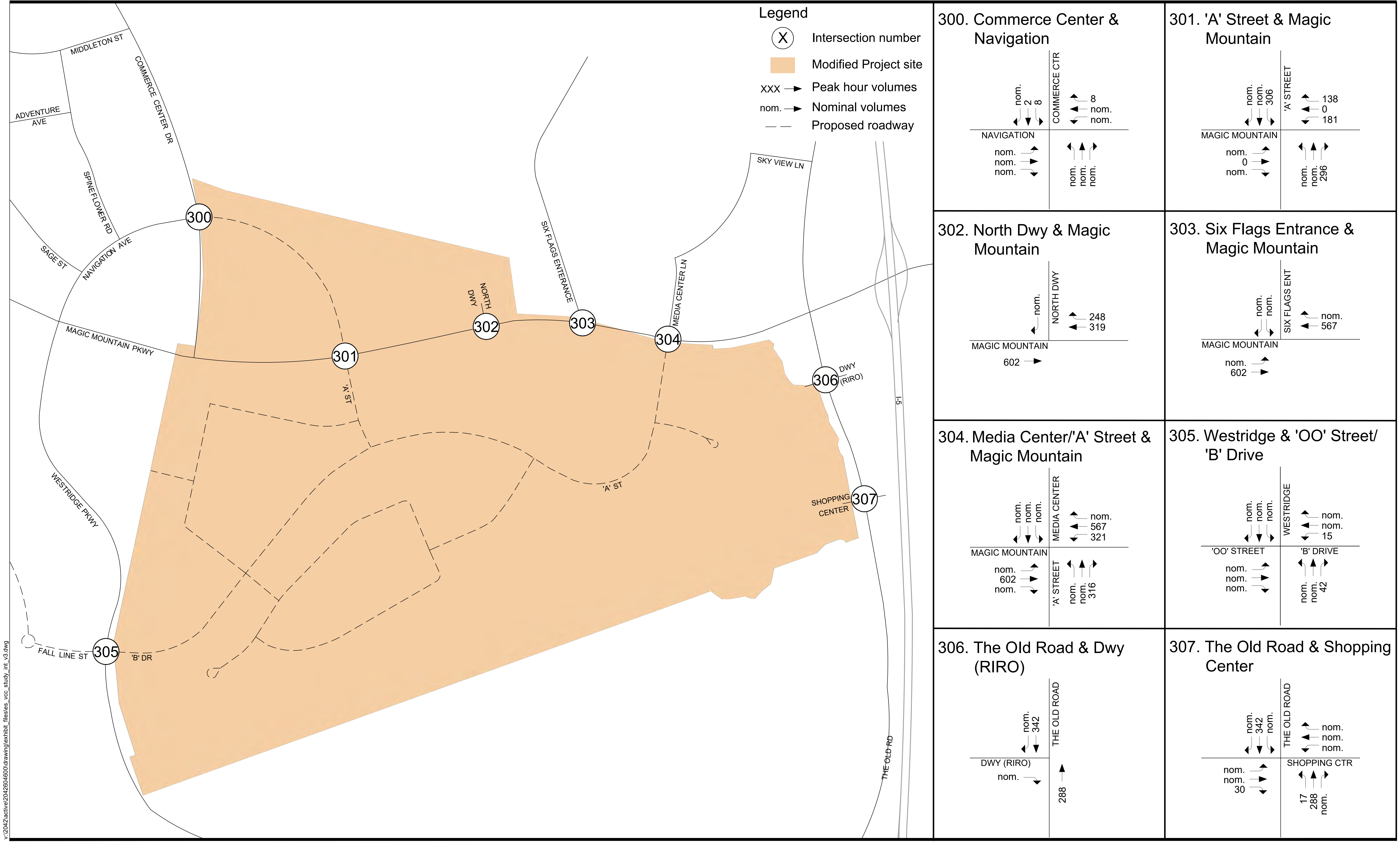

Figure 4-13B
PM Peak Hour Turning Volumes for Entrada South Area - Modified Project Trips Only (Existing Roadway Network) (2 of 2)

from the future year distribution presented above since it does not include any future roadways other than those to be constructed as part of the project for project access. The distribution also does not include any interaction with approved, planned, or pending related projects, nor does it include roadways that would be built by any of the approved, planned, or pending related projects.

Valencia Commerce Center Area

The geographic distribution of VCC-generated trips was derived by the SCVCTM as discussed above. Illustration of the VCC trip distribution patterns is shown in Figure 4-14. As shown on the figure, approximately 52 percent of VCC trips would be distributed to Commerce Center Drive south of the VCC site, approximately 5 percent to Franklin Parkway and Wolcott Way west of the site, 3 percent to Livingston Avenue and Witherspoon Parkway northwest of the site, 13 percent to Commerce Center Drive north of the site, 5 percent to The Old Road northeast of the site, and 13 percent to The Old Road southeast of the site. The remaining 9 percent would remain internal to the VCC site, as discussed in Section 4.1.1. These distribution patterns represent the Modified Project’s year-2030 buildout condition, which includes additional development in the vicinity of the Modified Project site.

Specific to the VCC area, forecast peak hour turning movement volumes generated by the project for opening day conditions are illustrated in Figure 4-15A and Figure 4-15B for the AM peak hour and Figure 4-16A and Figure 4-16B for the PM peak hour. Note that the distribution of project trips under this scenario differs from the future year distribution presented above since it does not include any future roadways other than those to be constructed as part of the project for project access. The distribution also does not include any interaction with approved, planned, or pending related projects, nor does it include roadways that would be built by any of the approved, planned or pending related projects.

4.4.6 Modified Project Buildout (2030) Cumulative Conditions Analysis

As noted in the previous section, a horizon year of 2030 is utilized to evaluate the proposed Modified Project’s effect under buildout conditions. Year 2030 cumulative conditions (i.e., those conditions including approved, planned, and pending projects reasonably anticipated to be in place within this horizon) have been derived as previously discussed in Section 2.2. In addition to future forecast traffic volumes, the 2030 horizon year analysis also includes the future roadway system described in Section 2.2.1.

4.4.6.1 Modified Project Buildout (2030) Cumulative Conditions Operational Analysis – Entrada South Area

For the Entrada South area, year-2030 peak hour turning movement volumes are provided in Figure 4-17A and Figure 4-17B and Figure 4-18A and Figure 4-18B for the AM peak hour and the PM peak hour, respectively. Year 2030 cumulative conditions ADT volumes are provided in Figure 4-19.

Peak hour intersection LOS and delay values that correspond with the 2030 cumulative conditions traffic forecasts referenced above are shown in Table 4-11.

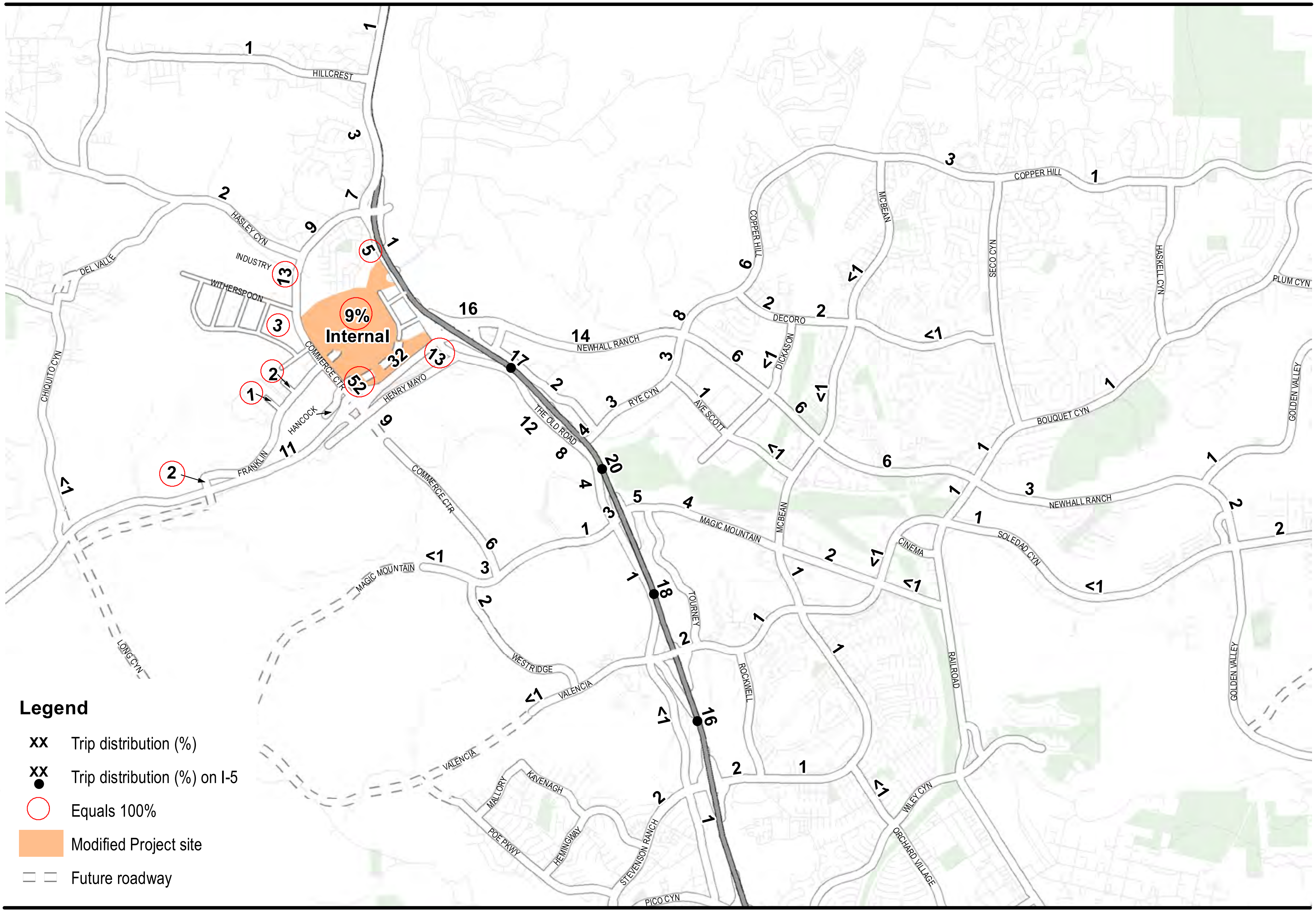

Figure 4-14

Project Trip Distribution (%) - VCC Area

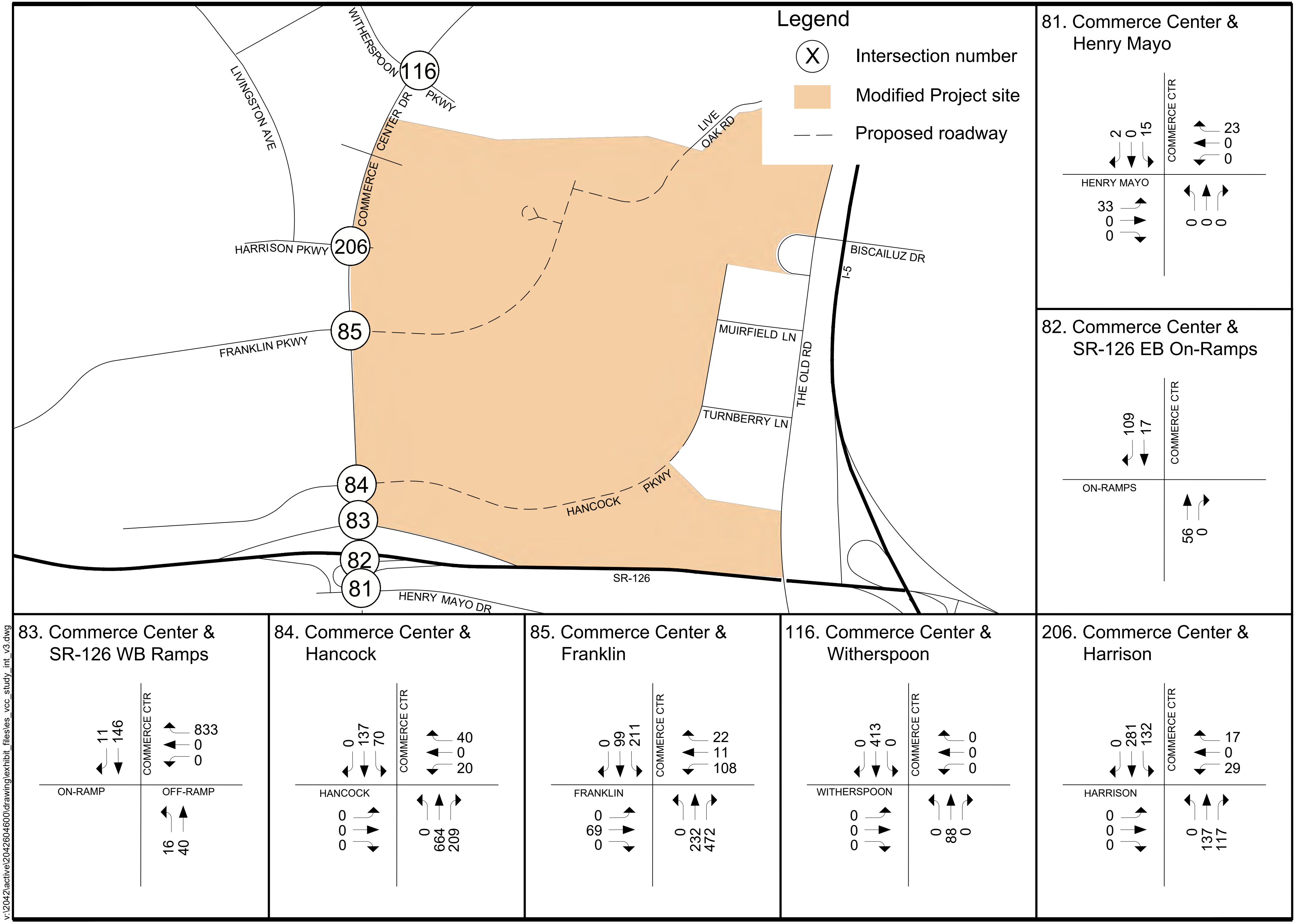

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Figure 4-15A

AM Peak Hour Turning Volumes for VCC Area - Modified Project Trips Only (Existing Roadway Network) (1 of 2)

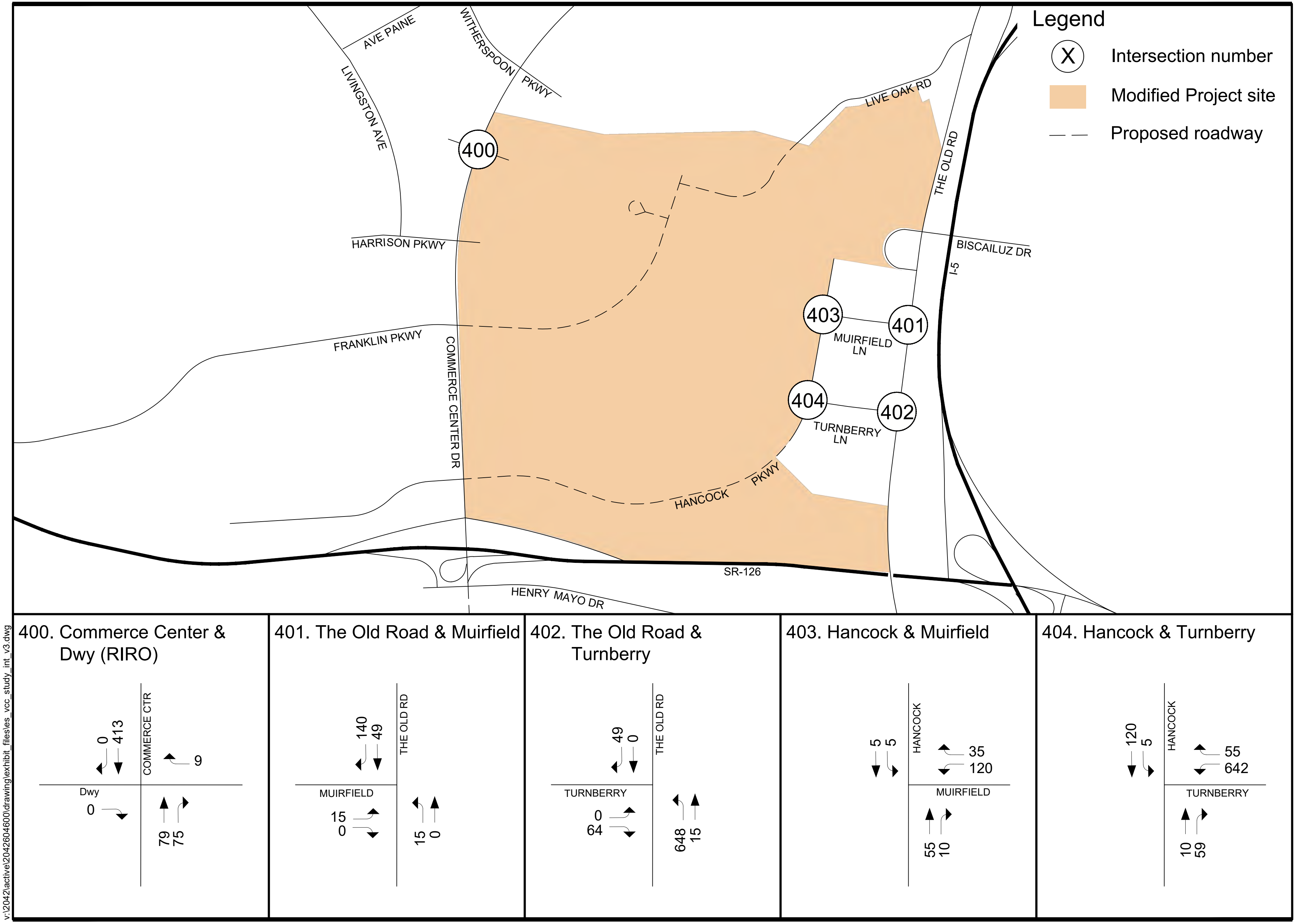

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Figure 4-15B

AM Peak Hour Turning Volumes for VCC Area - Modified Project Trips Only (Existing Roadway Network) (2 of 2)

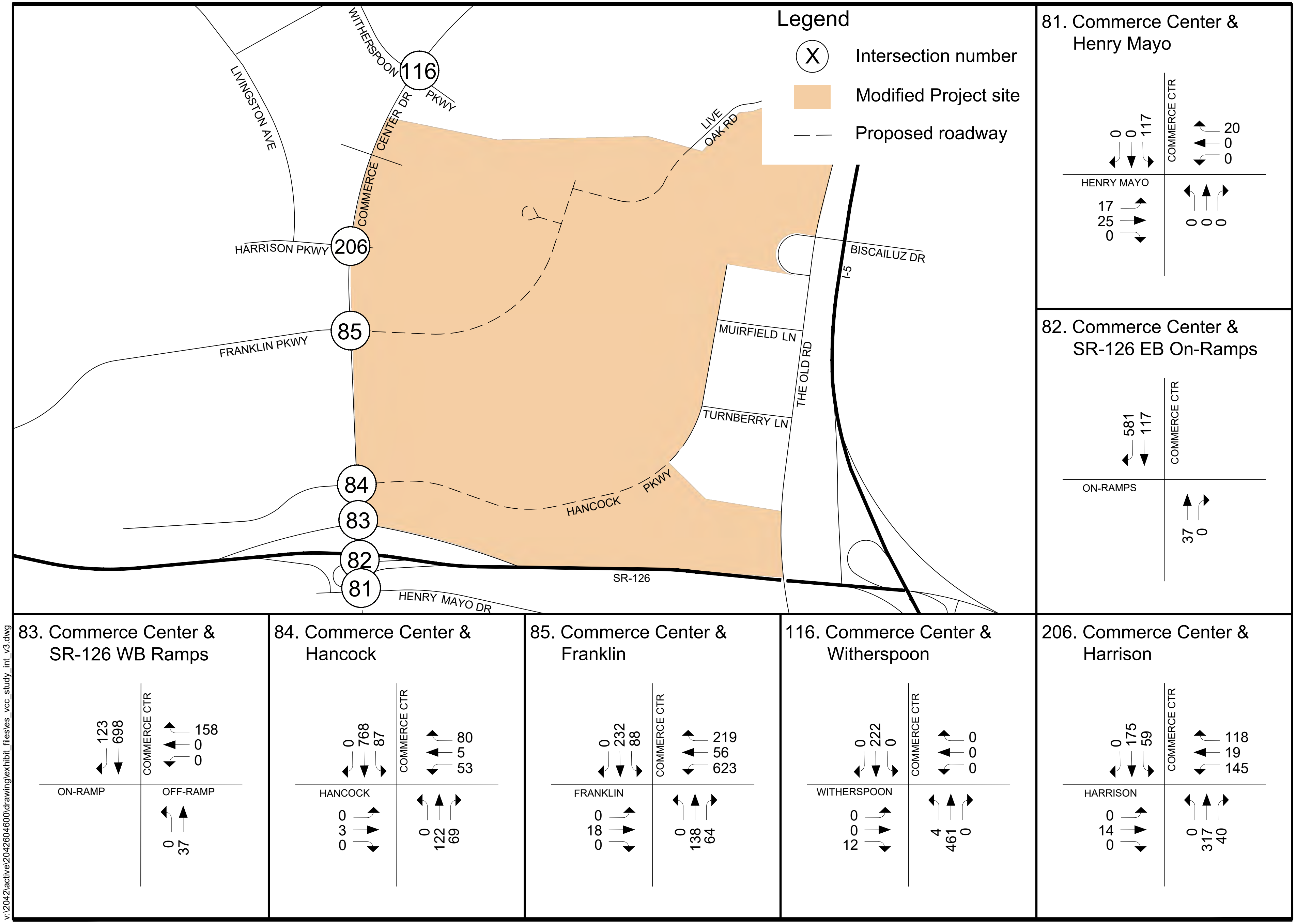

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Figure 4-16A

PM Peak Hour Turning Volumes for VCC Area - Modified Project Trips Only (Existing Roadway Network) (1 of 2)

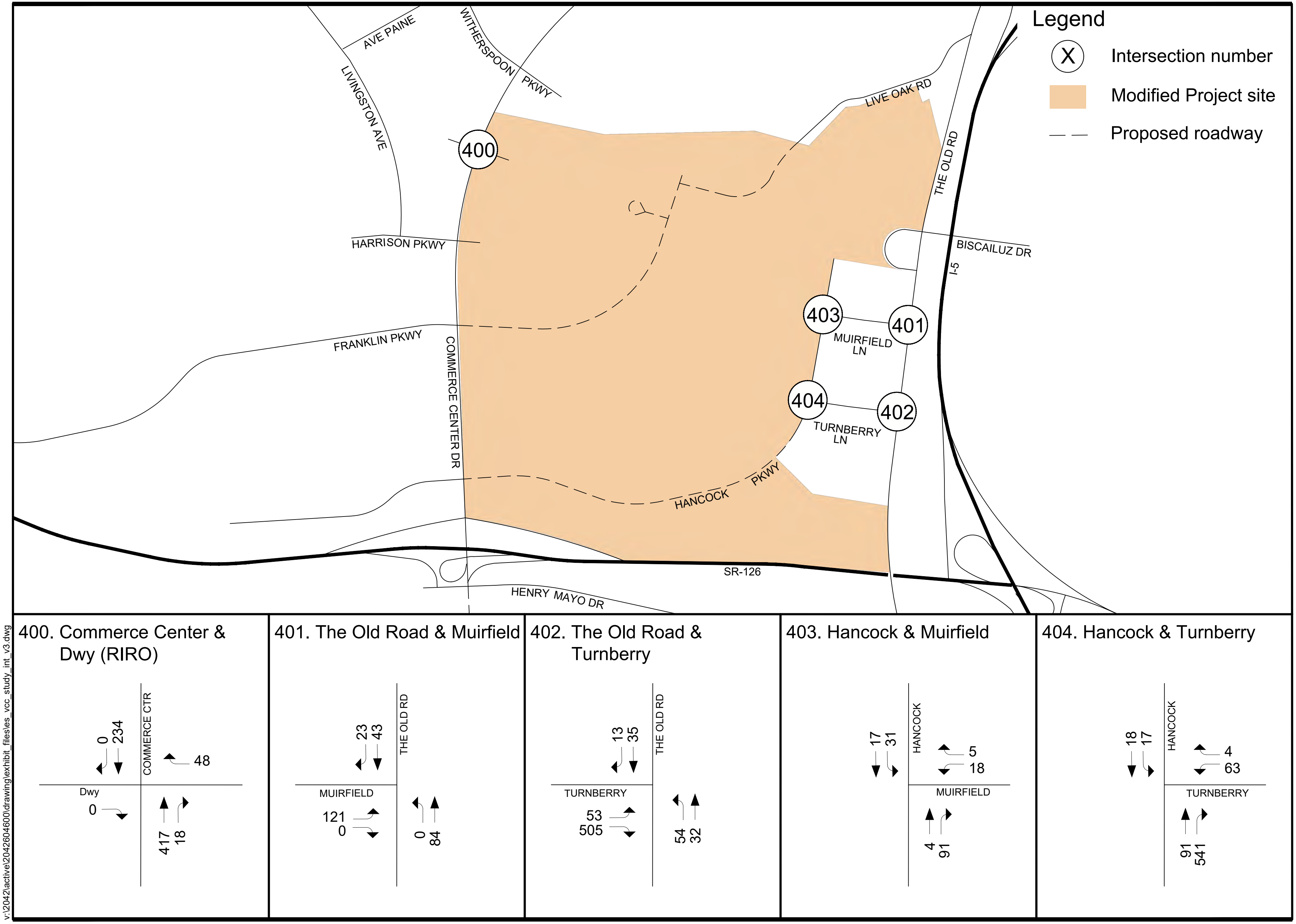

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Figure 4-16B

PM Peak Hour Turning Volumes for VCC Area - Modified Project Trips Only (Existing Roadway Network) (2 of 2)

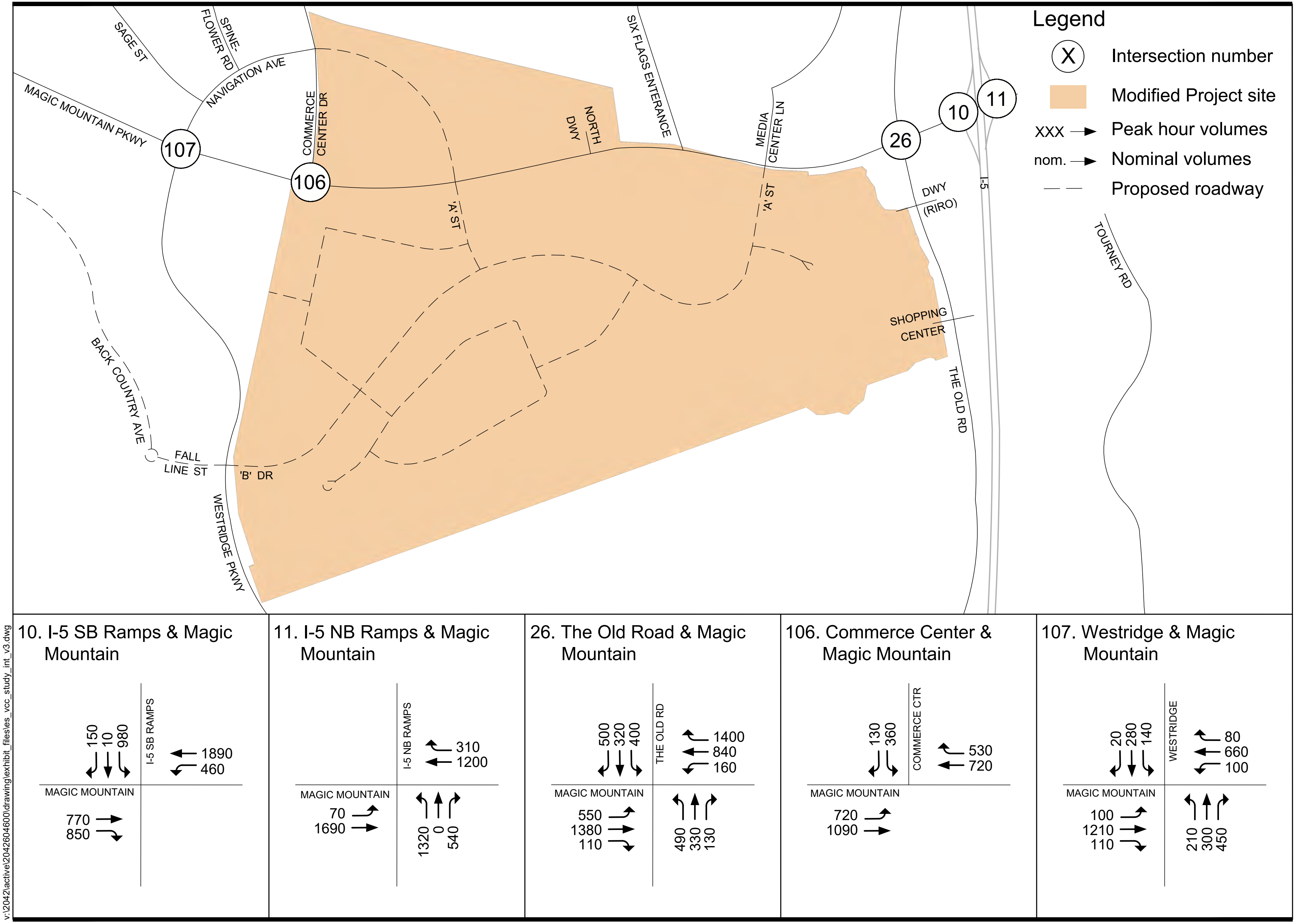

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Figure 4-17A

AM Peak Hour Turning Volumes for Entrada South Area - 2030 Cumulative Conditions with Modified Project (1 of 2)

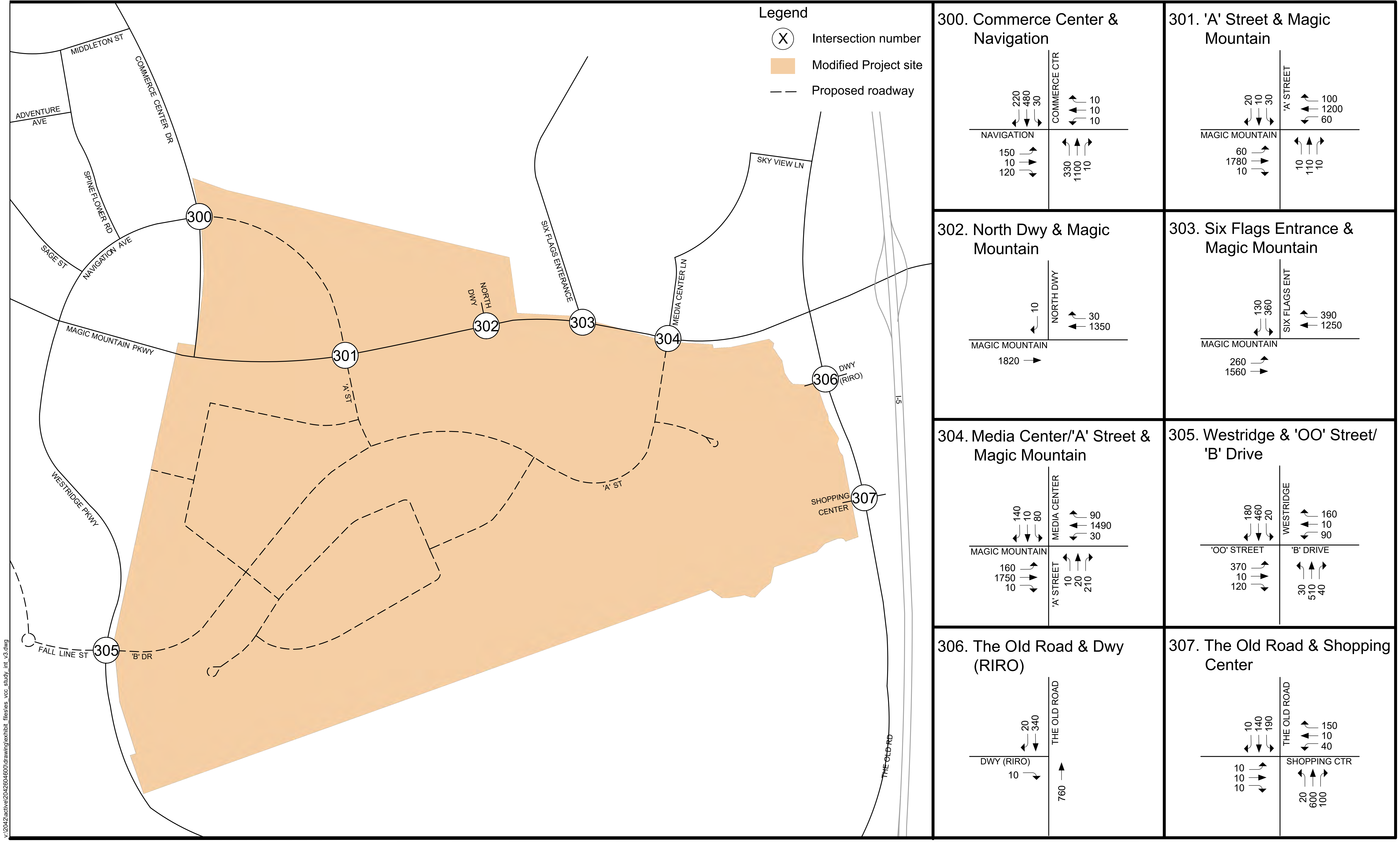

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Figure 4-17B

AM Peak Hour Turning Volumes for Entrada South Area - 2030 Cumulative Conditions with Modified Project (2 of 2)

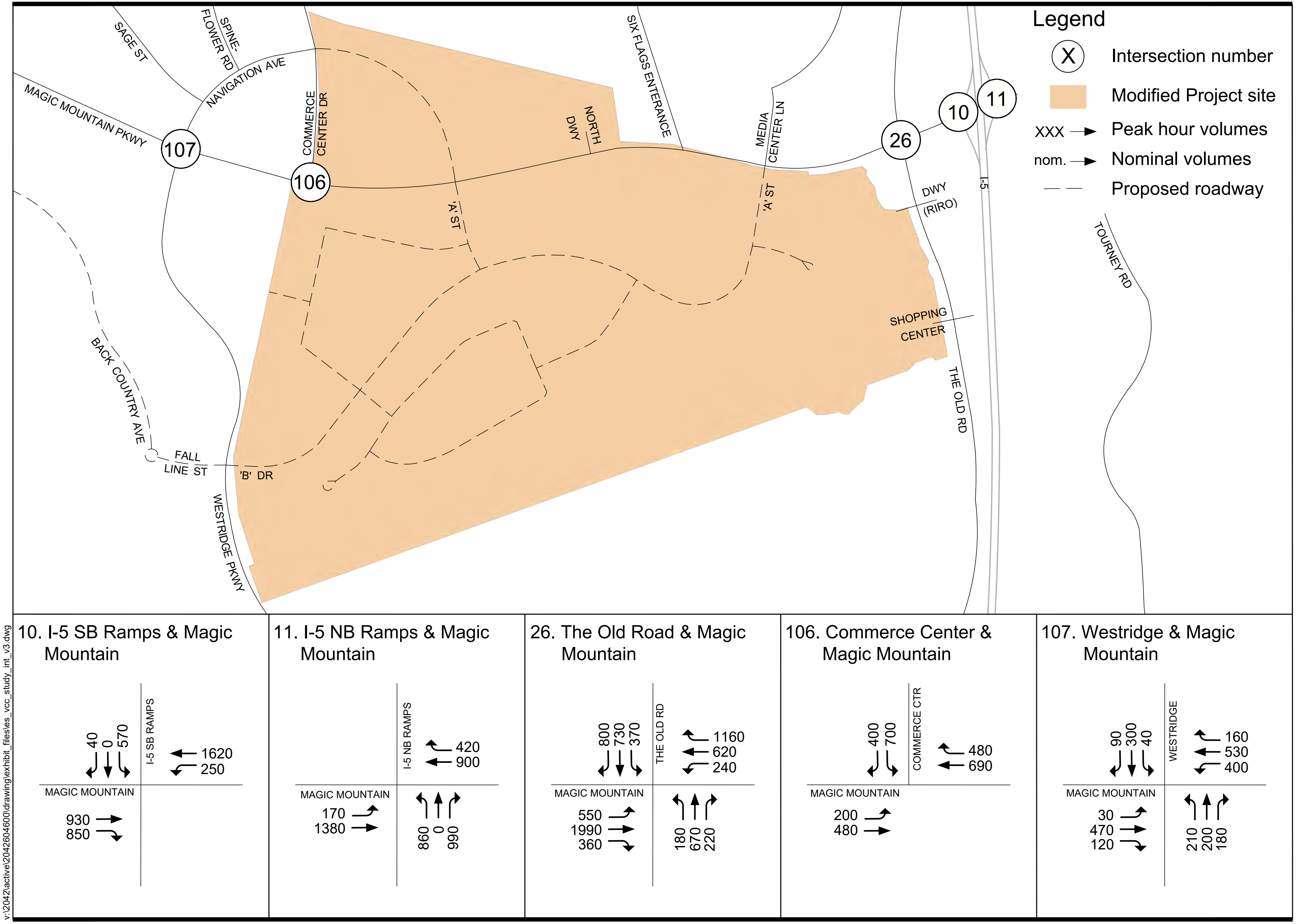

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Figure 4-18A

PM Peak Hour Turning Volumes for Entrada South Area - 2030 Cumulative Conditions with Modified Project (1 of 2)

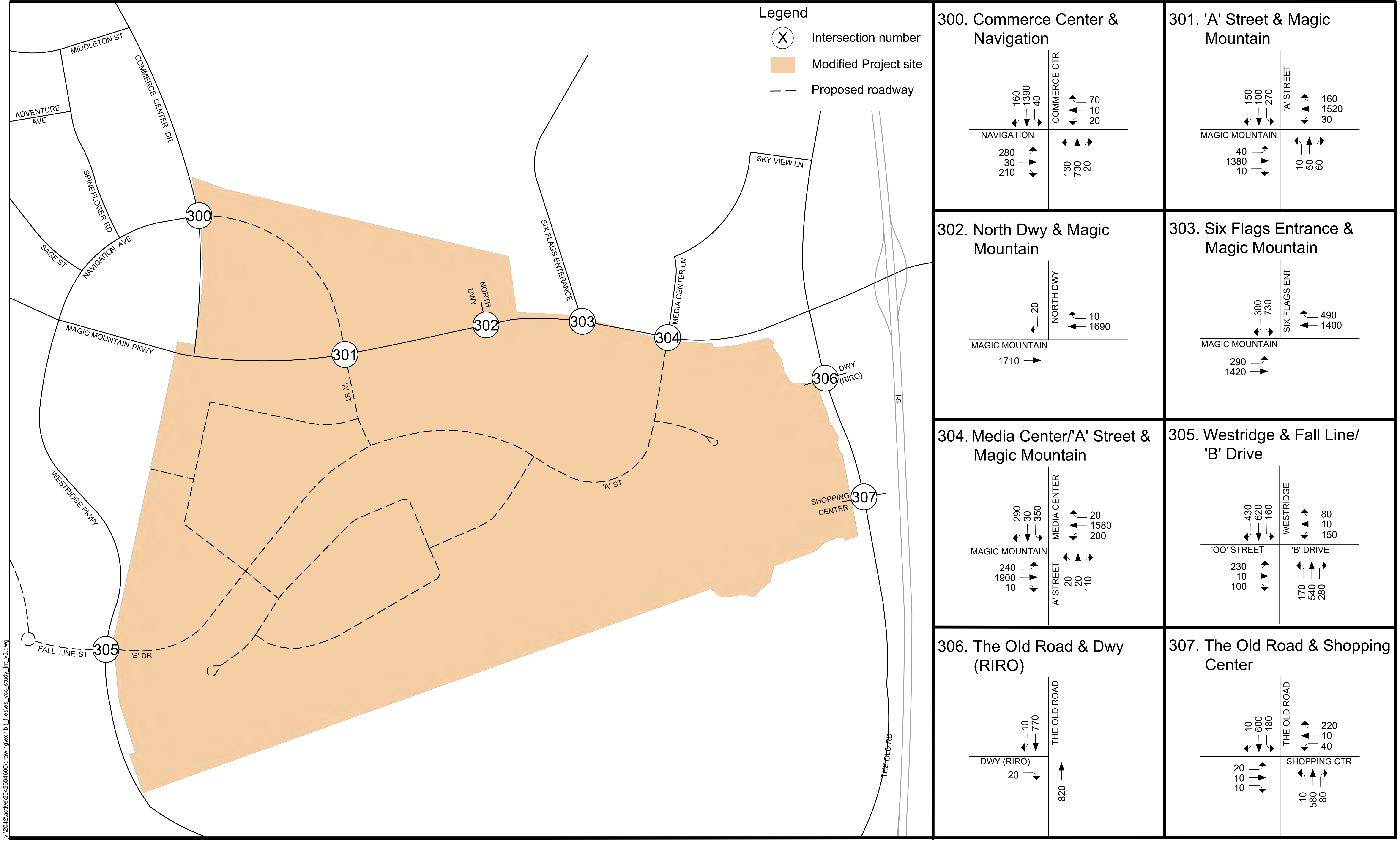

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Figure 4-18B

PM Peak Hour Turning Volumes for Entrada South Area - 2030 Cumulative Conditions with Modified Project (2 of 2)

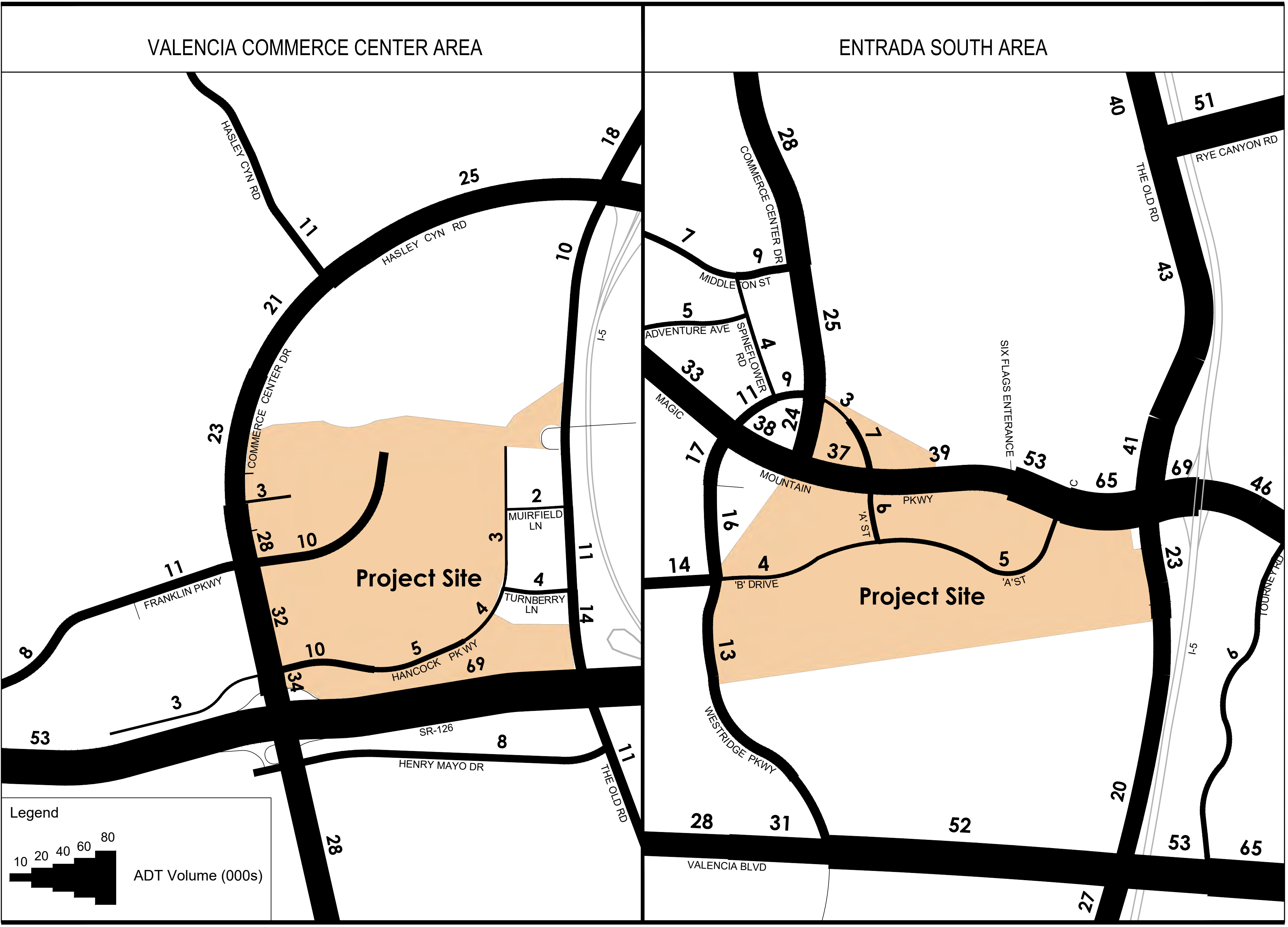


Figure 4-19

ADT Volumes (000s) - 2030 Cumulative Conditions with Modified Project

Table 4-11 Entrada South Area LOS Summary – 2030 Cumulative Conditions with Modified Project

	2030 Cumulative with Modified Project			
	AM Peak Hour		PM Peak Hour	
Location	Delay	LOS	Delay	LOS
10. I-5 SB Ramps & Magic Mountain	29.5	C	13.0	B
11. I-5 NB Ramps & Magic Mountain	26.7	C	45.9	D
26. The Old Road & Magic Mountain	45.8	D	40.3	D
106. Commerce Center & Magic Mountain	27.8	C	24.5	C
107. Westridge & Magic Mountain	49.4	D	46.4	D
300. Commerce Center & Navigation	17.5	B	23.3	C
301. A' St & Magic Mountain	16.2	B	18.9	B
302. North Driveway & Magic Mountain (RIRO)	0.0	A	0.0	A
303. Six Flags Entrance & Magic Mountain	19.8	B	32.0	C
304. Media Center & Magic Mountain	14.9	B	35.3	D
305. Westridge Pkwy & 'OO' St/'B' drive	23.9	C	31.3	C
306. The Old Road & Dwy (RIRO)	0.0	A	0.0	A
307. The Old Road & Shopping Center	6.3	A	6.8	A

Delay = vehicle delay (seconds/vehicle)
RIRO = right-turn in/right-turn out only
Signal Delay represents average vehicle delay for intersection
Stop Delay represents movement with highest average delay

The table indicates that under 2030 cumulative conditions, the Modified Project would not result in any negative effects at the study intersections in the Entrada South area. However, certain roadway improvements are required to provide site access, which are discussed in Section 4.5.1, below.

4.4.6.2 Modified Project Buildout (2030) Cumulative Conditions Operational Analysis – VCC Area

For the VCC area, year 2030 cumulative conditions peak hour turning movement volumes are provided in Figure 4-20A and Figure 4-20B and in Figure 4-21A and Figure 4-21B for the AM peak hour and PM peak hour, respectively. Year 2030 cumulative conditions ADT volumes are provided in the previously referenced Figure 4-19.

Peak hour intersection LOS and delay values that correspond with the 2030 cumulative conditions traffic forecasts referenced above are shown in Table 4-12.

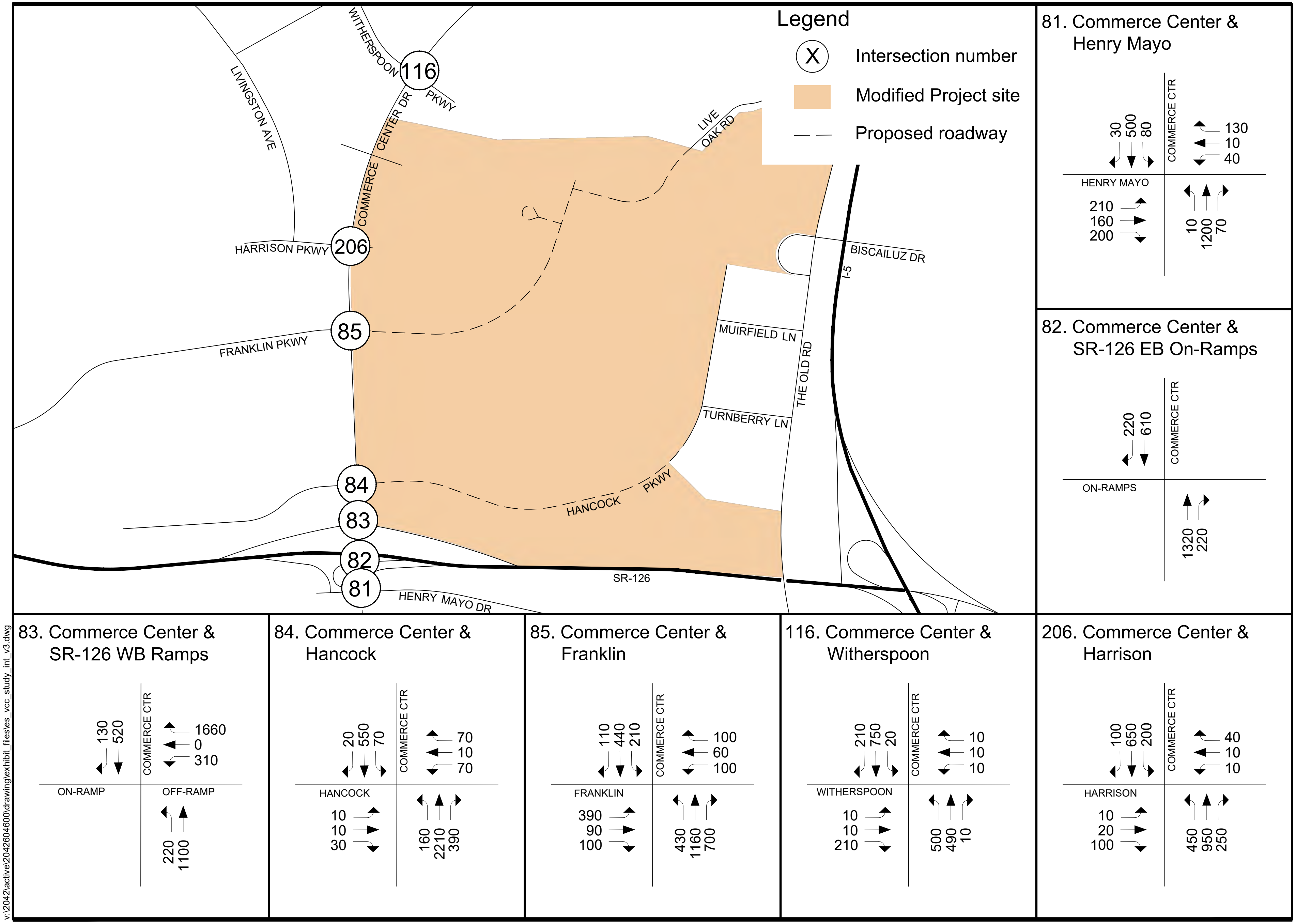


Figure 4-20A

AM Peak Hour Turning Volumes for VCC Area - 2030 Cumulative Conditions with Modified Project (1 of 2)

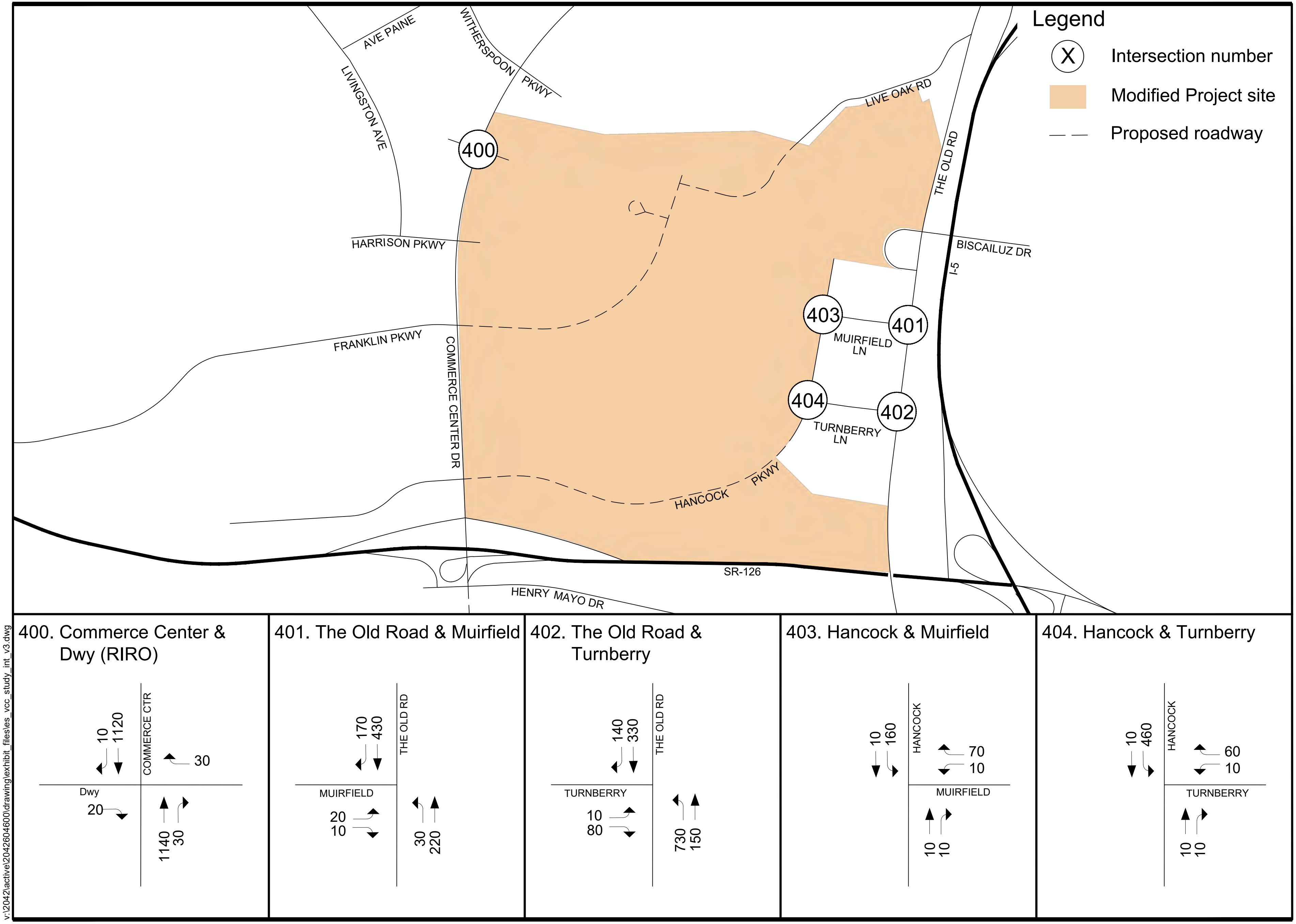


Figure 4-20B

AM Peak Hour Turning Volumes for VCC Area - 2030 Cumulative Conditions with Modified Project (2 of 2)

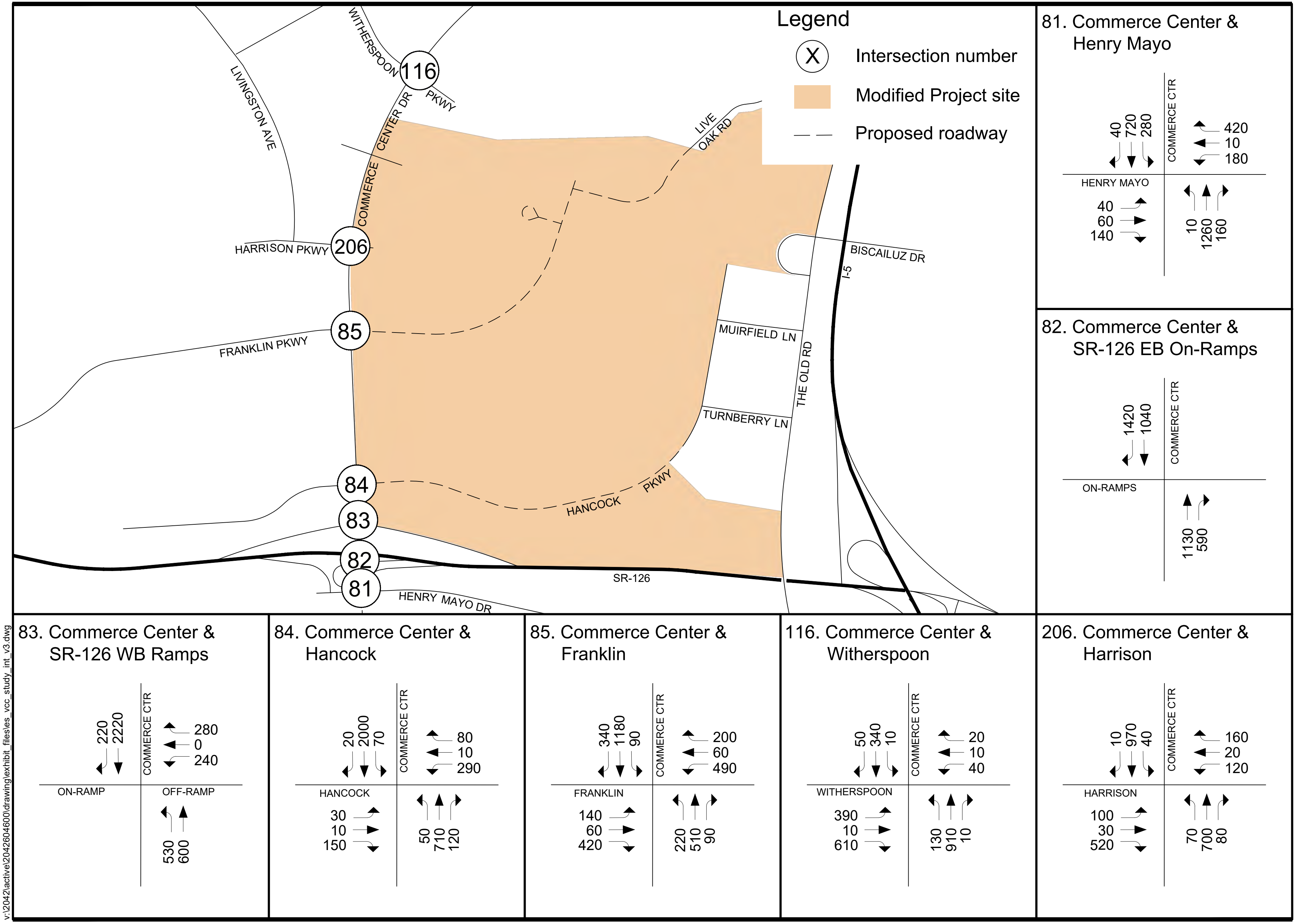


Figure 4-21A

PM Peak Hour Turning Volumes for VCC Area - 2030 Cumulative Conditions with Modified Project (1 of 2)

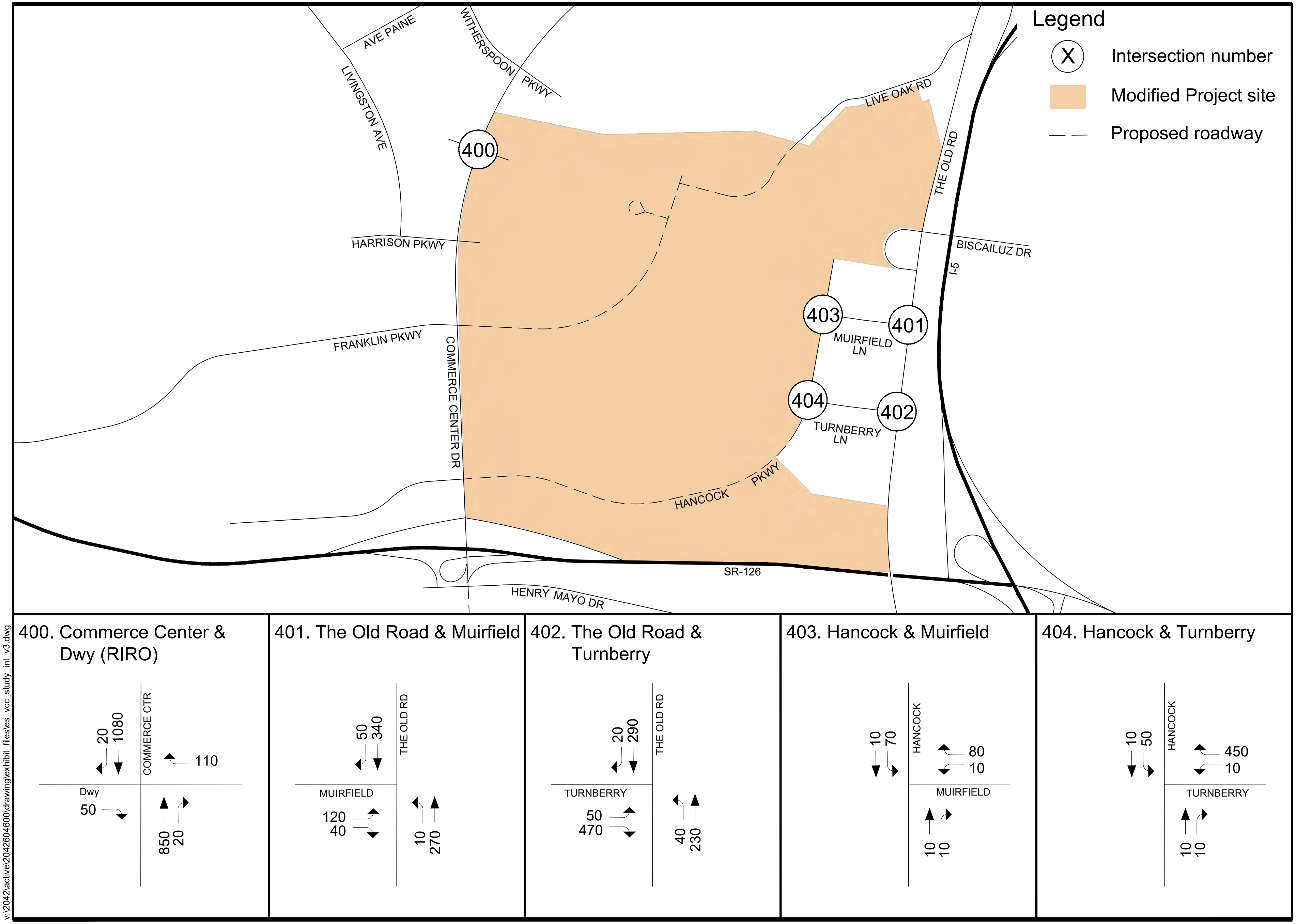


Figure 4-21B

PM Peak Hour Turning Volumes for VCC Area - 2030 Cumulative Conditions with Modified Project (2 of 2)

Table 4-12 VCC Area LOS Summary – Cumulative Conditions (2030) with Modified Project

	2030 Cumulative with Modified Project			
	AM Peak Hour		PM Peak Hour	
Location	Delay	LOS	Delay	LOS
81. Commerce Center & Henry Mayo	24.2	C	38.2	D
83. Commerce Center & SR 126 WB Ramps	44.7	D	52.7	D
84. Commerce Center & Hancock	17.1	B	23.4	C
85. Commerce Center & Franklin	33.4	C	32.1	C
116. Commerce Center & Witherspoon	17.9	B	29.3	C
206. Commerce Center & Harrison Pkwy	18.4	B	21.8	C
400. Commerce Center & Dwy (RIRO)	16.0	C	16.0	C
401. The Old Road & Muirfield	14.4	B	14.7	B
402. The Old Road & Turnberry	88.3	F	15.4	C
403. Hancock & Muirfield	9.1	A	8.9	A
404. Hancock & Turnberry	14.0	B	9.2	A

Bold = exceeds desirable LOS
Delay = vehicle delay (seconds/vehicle)
RIRO = right-turn in/right-turn out only
Signal Delay represents average vehicle delay for intersection
Stop Delay represents movement with highest average delay

The table indicates that under cumulative conditions, the Modified Project would result in negative effects and will require corrective actions to address site access requirements at the following intersections:

402. The Old Road & Turnberry (County)

Corrective actions to address the negative effect at the above location are discussed in Section 4.5.1, below.

4.5 RECOMMENDED ACTIONS

4.5.1 Modified Project Buildout (2030) Cumulative Conditions Corrective Actions

Entrada South Area

There are no intersections in the Entrada South area that would experience negative effects from the Modified Project in the 2030 cumulative conditions scenario. Therefore, no corrective actions are needed. However, certain roadway improvements are required to provide site access and are listed in Table 4-13.

Table 4-13 Entrada South Area 2030 Cumulative Conditions Roadway Improvements for Site Access

Location	Jurisdiction	Roadway Improvements
300. Commerce Center & Navigation/ Entrada South	County	North-leg – modify the raised median to provide the following lane: - One left-turn lane South-leg – restripe the 3rd through lane to provide the following lane: - One shared through/right-turn lane East-leg – construct for project access with the following westbound lanes: - One left-turn lane - One through lane - One right-turn lane West-leg – restripe the eastbound approach to provide the following lanes: - One left-turn lane - One through lane - One right-turn lane Traffic Signal – modify traffic signal as needed to accommodate new lane configurations
301. “A” St (Entrada South) & Magic Mountain	County	North-leg – construct for project access with the following southbound lanes: - Two left-turn lanes - One through lane - One right-turn lane South-leg – construct for project access with the following northbound lanes: - One left-turn lane - One through lane - One right-turn lane East-leg – restripe approach & modify the raised median to provide the following lanes: - One left-turn lane (median) - One right-turn lane (restripe to drop 4th westbound lane as right-turn lane) West-leg – widen approach & modify the raised median to provide the following lanes: - One left-turn lane (median) - One right-turn lane (construct turn pocket) Traffic Signal – construct new traffic signal
302. North Dwy (Entrada South) & Magic Mountain (Right-turn in/out only)	County	North-leg – construct for project access with the following southbound lane: - One right-turn lane East-leg – restripe the 4th through lane to provide the following lane: - One shared through/right-turn lane
304. Media Center/Entrada South & Magic Mountain	County	North-leg – restripe approach provide the following lane: - One through lane (restripe chevroned lane) South-leg – construct for project access with the following northbound lanes: - One left-turn lane - One through lane - One right-turn lane West-leg – restripe approach provide the following lane: - One right-turn lane (restripe chevroned lane) Traffic Signal – modify traffic signal as needed to accommodate new lane configurations
305. Westridge & “OO” St/ “B” Dr (Entrada South)	County	North-leg – modify the raised median to provide the following lane: - One left-turn lane South-leg – restripe the 2nd through lane to provide the following lane: - One shared through/right-turn lane East-leg – construct for project access with the following westbound lanes: - One left-turn lane - One shared through/right-turn lane West-leg – restripe the right-turn lane to provide the following lane: - One shared through/right-turn lane Traffic Signal – modify traffic signal as needed to accommodate new lane configurations

306. The Old Road & North Dwy (Entrada South) (Right-turn in/out only)	County	North-leg – restripe the 3rd through lane to provide the following lane: - One shared through/right-turn lane West-leg – construct for project access with the following eastbound lane: - One right-turn lane
307. The Old Road & Shopping Center/South Dwy (Entrada South)	County	North-leg – restripe approach provide the following lane: - One right-turn lane East-leg – restripe the right-turn lane to provide the following lane: - One shared through/right-turn lane West-leg – construct for project access with the following eastbound lanes: - One left-turn lane - One shared through/right-turn lane Traffic Signal – modify traffic signal as needed to accommodate new lane configurations

Valencia Commerce Center Area

For 2030 cumulative conditions, certain roadway improvements are required to provide site access and are listed in Table 4-14. These improvements are consistent with the ultimate roadway configurations identified in the Westside Santa Clarita Valley Roadway Phasing Analysis. Table 4-15 lists the recommended corrective actions that would address the negative effects identified under this scenario. When implemented, the identified improvements would offset the Modified Project's negative effects to acceptable levels under this scenario, as shown in Table 4-16.

Table 4-14 VCC Area 2030 Cumulative Conditions Roadway Improvements for Site Access

Location	Jurisdiction	Roadway Improvements
85. Commerce Center & Franklin	County	North-leg – restripe approach provide the following lanes: - Two left-turn lanes (restripe chevroned median) South-leg – restripe approach provide the following lanes: - Two left-turn lanes (restripe chevroned lane) East-leg – construct for project access with the following westbound lanes: - Two left-turn lanes - One through lane - One right-turn lane West-leg – restripe approach provide the following lanes: - One left-turn lane (restripe median) - One shared through/right-turn lane (restripe left-turn lane) - One right-turn lane (existing) Traffic Signal – modify traffic signal as needed to accommodate new lane configurations
206. Commerce Center & Harrison Pkwy	County	North-leg – restripe approach provide the following lane: - One left-turn lane (restripe chevroned median) South-leg – restripe approach provide the following lanes: - One right-turn lane (restripe chevroned lane) East-leg – construct for project access with the following westbound lanes: - One left-turn lane - One through lane - One right-turn lane West-leg – restripe approach provide the following lanes: - One shared through/right-turn lane (restripe right-turn lane) - One right-turn lane (existing) Traffic Signal – modify traffic signal as needed to accommodate new lane configurations
404. Hancock & Turnberry	County	North-leg – restripe approach provide the following lanes: - One left-turn lane - One through lane

		South-leg – restripe approach provide the following lanes: - One through lane - One right-turn lane East-leg – restripe approach provide the following lanes: - One left-turn lane - One right-turn lane

Table 4-15 VCC Area 2030 Cumulative Conditions Roadway Improvements to Offset Negative Effects

Location	Jurisdiction	Roadway Improvements
402. The Old Road & Turnberry	County	Construct traffic signal

Table 4-16 VCC Area LOS Summary – 2030 Cumulative Conditions with Roadway Improvements to Offset Negative Effects

	2030 Cumulative with Modified Project and Roadway Improvements				Net Change with Roadway Improvements	
	AM Peak Hour		PM Peak Hour			
Location	Delay	LOS	Delay	LOS	**AM**	PM
402. The Old Road & Turnberry	23.2	C	7.5	A	-65.1	-7.9
Delay = vehicle delay (seconds/vehicle) Signal Delay represents average vehicle delay for intersection Stop Delay represents movement with highest average delay						

4.5.2 Queue Length Analysis

At each intersection where the Modified Project would be constructing improvements, turn pocket queue length analysis was performed to ensure that adequate space for turning traffic is anticipated and future improvements are not needed. Queue length analysis was conducted using SimTraffic software and 2030 cumulative conditions traffic volumes. Table 4-17 and Table 4-18 provide a summary of 95th percentile turn pocket queues and recommended turn pocket lengths for the Entrada South area and the VCC area, respectively. For existing locations, the existing turn pocket length is reported and for new construction, the recommended turn pocket length is provided. 95th percentile queues shown are the longest recorded in either the AM or PM peak hour of traffic.

At one existing location in the Entrada South area, the westbound left-turn lane at the Media Center Lane/Magic Mountain Parkway intersection, the forecast future queue length exceeds the length of an existing turn pocket by approximately 21 feet. At one existing location in the Valencia Commerce Center area, the northbound left-turn lane at The Old Road/Turnberry Lane intersection, the forecast future queue length exceeds the length of an existing turn pocket by approximately 51 feet. Modifications to lengthen these two turn pockets as feasible to accommodate the future queue length are recommended. Each of these locations are on a County roadway and would not affect a State highway. Detailed queuing analysis data sheets are provided in Appendix C.

Table 4-17 Entrada South Area Queue Lengths

Intersection	Turn Pocket	Recommended Turn Pocket Length (feet)	95th Percentile Queue (feet)
300. Commerce Center Dr & Navigation Ave	SBL	250	100
	WBL	300	243
301. 'A' Street & Magic Mountain Pkwy	SBL (2 lanes)	210	210
	SBR	200	114
	NBL	150	58
	NBR	80	76
	EBL	300	165
	EBR	250	3
	WBL	300	96
	WBR	50	46
304. Media Center Ln & Magic Mountain Pkwy	NBL	255	71
	NBR	205	204
	EBR*	460**	193
	WBL*	320**	336
305. Westridge Pkwy & 'OO' Street/'B' Drive	SBL	250	204
	WBL	200	141
307. The Old Rd & Shopping Center	SBL*	200**	127
	SBR*	170**	13
	NBL*	250**	60
	NBR*	180**	43

*Existing turn pocket
**Existing turn pocket length

SBL = southbound left; SBR = southbound right; NBL = northbound left;
NBR = northbound right; EBL = eastbound left; EBR = eastbound right;
WBL = westbound left

Table 4-18 VCC Area Queue Lengths

Intersection	Turn Pocket	Recommended Turn Pocket Length (feet)	95th Percentile Queue (feet)
85. Commerce Center Dr & Franklin Pkwy	SBL* (2 lanes)	110**	129
	NBR*	180**	182
	WBL (2 lanes)	275	263
	WBR	85	85
206. Commerce Center Dr & Harrison Pkwy	SBL*	215**	195
	NBR*	470**	88

	WBL	200	196
	WBR	90	90
401. The Old Rd & Muirfield Ln	NBL*	150**	41
	EBL*	150**	76
402. The Old Rd & Turnberry Ln	NBL*	150**	201
	EBL*	150**	52

*Existing turn pocket
**Existing turn pocket length

SBL = southbound left; SBR = southbound right; NBL = northbound left;
NBR = northbound right; WBL = westbound left

4.5.3 Westside Phasing Analysis

As previously discussed, the Phasing Analysis identifies the timing for specific roadway and intersection improvements to support Westside development. Importantly, the Phasing Analysis considered the impacts associated with future development throughout the Santa Clarita Valley, not just the Modified Project and, thereby, the Phasing Analysis takes into account traffic that would be generated by all of the Westside projects, as well as cumulative development.

The roadway improvements to be constructed by the Modified Project for the Entrada South area and for the VCC area are consistent with the improvements identified in the current iteration of the Phasing Analysis discussed in Section 1.2. That is, the recommended improvements are derived from the improvements identified in the Phasing Analysis and, consequently, the improvements represent a subset of the Phasing Analysis improvements, with minor refinements based on the analysis provided herein. Construction of the identified improvements, as well as the additional off-site improvements identified in the Phasing Analysis in accordance with the timeframes identified by the most current Phasing Analysis at the time will ensure that sufficient roadway capacity will be able to accommodate development of the Modified Project.

Appendix A TRAFFIC COUNT WORKSHEETS

City: SANTA CLARITA
N-S Direction: I-5 SB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801033
Site Code : 10
Start Date : 1/25/2018
Page No : 1

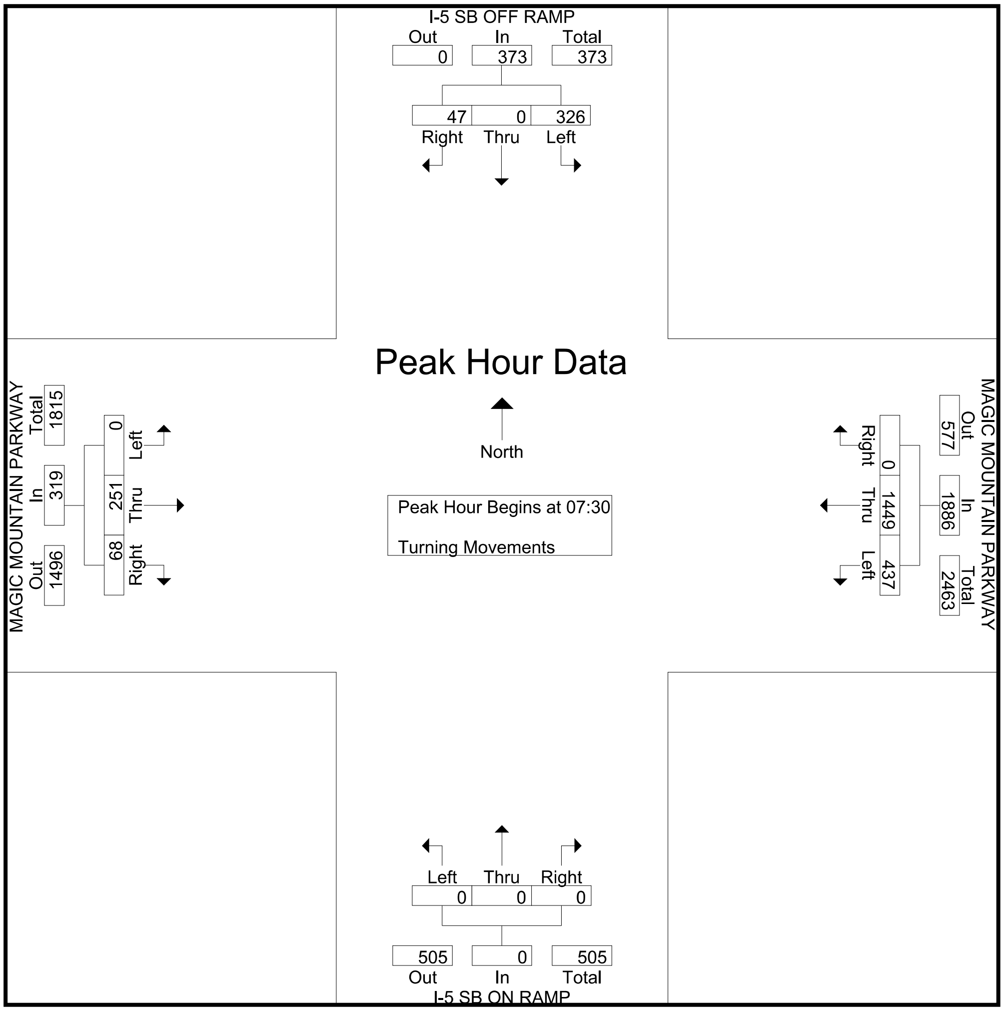
Groups Printed- Turning Movements

	I-5 SB OFF RAMP Southbound			MAGIC MOUNTAIN PARKWAY Westbound			I-5 SB ON RAMP Northbound			MAGIC MOUNTAIN PARKWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	6	0	50	0	261	102	0	0	0	9	39	0	467
07:15	7	0	58	0	339	95	0	0	0	8	47	0	554
07:30	10	0	68	0	340	106	0	0	0	12	49	0	585
07:45	11	0	98	0	414	107	0	0	0	14	52	0	696
Total	34	0	274	0	1354	410	0	0	0	43	187	0	2302
08:00	13	0	71	0	364	127	0	0	0	22	66	0	663
08:15	13	0	89	0	331	97	0	0	0	20	84	0	634
08:30	9	0	76	0	252	117	0	0	0	7	79	0	540
08:45	13	0	70	0	242	86	0	0	0	19	42	0	472
Total	48	0	306	0	1189	427	0	0	0	68	271	0	2309
*** BREAK ***													
16:00	20	0	67	0	234	76	0	0	0	60	129	0	586
16:15	8	0	59	0	229	83	0	0	0	65	102	0	546
16:30	9	0	69	0	273	85	0	0	0	69	130	0	635
16:45	10	0	72	0	279	71	0	0	0	63	134	0	629
Total	47	0	267	0	1015	315	0	0	0	257	495	0	2396
17:00	21	0	65	0	300	64	0	0	0	40	142	0	632
17:15	24	0	93	0	273	50	0	0	0	63	113	0	616
17:30	8	0	74	0	256	64	0	0	0	73	175	0	650
17:45	15	0	70	0	240	53	0	0	0	69	110	0	557
Total	68	0	302	0	1069	231	0	0	0	245	540	0	2455
Grand Total	197	0	1149	0	4627	1383	0	0	0	613	1493	0	9462
Apprch %	14.6	0	85.4	0	77	23	0	0	0	29.1	70.9	0	
Total %	2.1	0	12.1	0	48.9	14.6	0	0	0	6.5	15.8	0	

City: SANTA CLARITA
N-S Direction: I-5 SB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801033
Site Code : 10
Start Date : 1/25/2018
Page No : 2

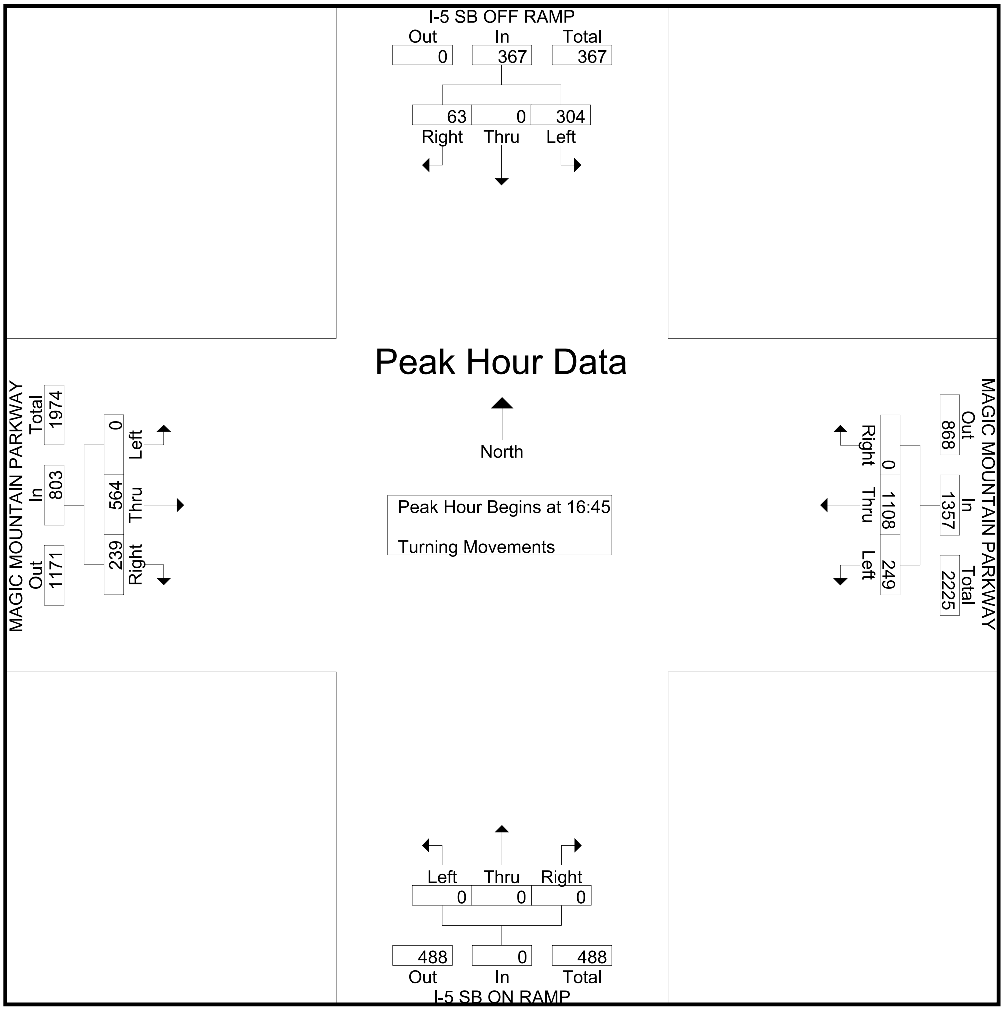
	I-5 SB OFF RAMP Southbound				MAGIC MOUNTAIN PARKWAY Westbound				I-5 SB ON RAMP Northbound				MAGIC MOUNTAIN PARKWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	10	0	68	78	0	340	106	446	0	0	0	0	12	49	0	61	585
07:45	11	0	**98**	**109**	0	**414**	107	**521**	0	0	0	0	14	52	0	66	**696**
08:00	**13**	0	71	84	0	364	**127**	491	0	0	0	0	**22**	66	0	88	663
08:15	13	0	89	102	0	331	97	428	0	0	0	0	20	**84**	0	**104**	634
Total Volume	47	0	326	373	0	1449	437	1886	0	0	0	0	68	251	0	319	2578
% App. Total	12.6	0	87.4		0	76.8	23.2		0	0	0		21.3	78.7	0		
PHF	.904	.000	.832	.856	.000	.875	.860	.905	.000	.000	.000	.000	.773	.747	.000	.767	.926



City: SANTA CLARITA
N-S Direction: I-5 SB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801033
Site Code : 10
Start Date : 1/25/2018
Page No : 3

	I-5 SB OFF RAMP Southbound				MAGIC MOUNTAIN PARKWAY Westbound				I-5 SB ON RAMP Northbound				MAGIC MOUNTAIN PARKWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	10	0	72	82	0	279	**71**	350	0	0	0	0	63	134	0	197	629
17:00	21	0	65	86	0	**300**	64	**364**	0	0	0	0	40	142	0	182	632
17:15	**24**	0	**93**	**117**	0	273	50	323	0	0	0	0	63	113	0	176	616
17:30	8	0	74	82	0	256	64	320	0	0	0	0	**73**	**175**	0	**248**	**650**
Total Volume	63	0	304	367	0	1108	249	1357	0	0	0	0	239	564	0	803	2527
% App. Total	17.2	0	82.8		0	81.7	18.3		0	0	0		29.8	70.2	0		
PHF	.656	.000	.817	.784	.000	.923	.877	.932	.000	.000	.000	.000	.818	.806	.000	.809	.972



City: SANTA CLARITA
N-S Direction: I-5 NB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801034
Site Code : 11
Start Date : 1/25/2018
Page No : 1

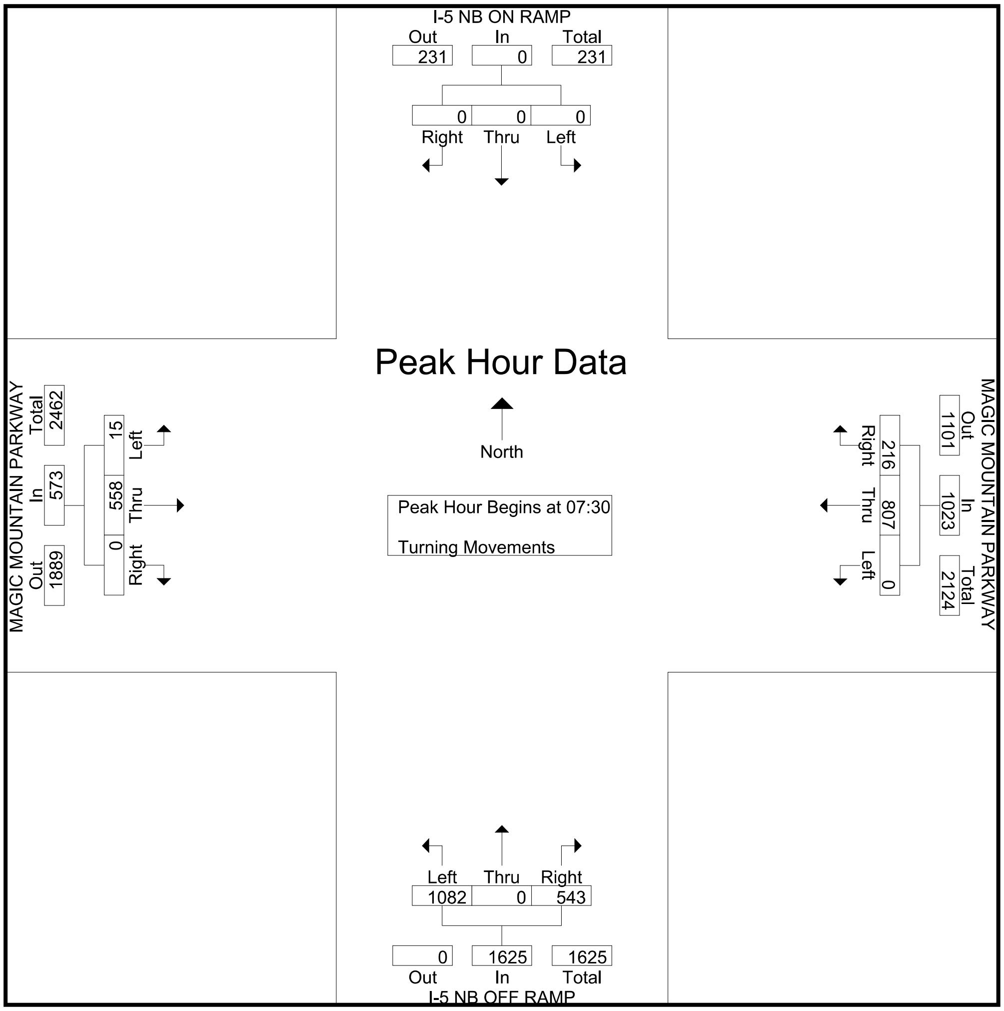
Groups Printed- Turning Movements

	I-5 NB ON RAMP Southbound			MAGIC MOUNTAIN PARKWAY Westbound			I-5 NB OFF RAMP Northbound			MAGIC MOUNTAIN PARKWAY Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	33	157	0	84	0	215	0	84	6	579
07:15	0	0	0	44	171	0	150	0	248	0	96	4	713
07:30	0	0	0	47	193	0	122	0	255	0	117	4	738
07:45	0	0	0	68	200	0	150	0	324	0	149	2	893
Total	0	0	0	192	721	0	506	0	1042	0	446	16	2923
08:00	0	0	0	61	216	0	138	0	276	0	131	4	826
08:15	0	0	0	40	198	0	133	0	227	0	161	5	764
08:30	0	0	0	48	190	0	113	0	172	0	156	8	687
08:45	0	0	0	27	144	0	103	0	189	0	110	2	575
Total	0	0	0	176	748	0	487	0	864	0	558	19	2852
*** BREAK ***													
16:00	0	0	0	88	143	0	166	0	178	0	170	16	761
16:15	0	0	0	84	150	0	164	0	160	0	145	18	721
16:30	0	0	0	89	176	0	180	0	179	0	189	14	827
16:45	0	0	0	84	148	0	191	0	204	0	191	12	830
Total	0	0	0	345	617	0	701	0	721	0	695	60	3139
17:00	0	0	0	114	163	0	165	0	191	0	193	15	841
17:15	0	0	0	112	149	0	157	0	165	0	188	15	786
17:30	0	0	0	85	158	0	160	0	167	0	224	20	814
17:45	0	0	0	100	125	0	199	0	184	0	180	11	799
Total	0	0	0	411	595	0	681	0	707	0	785	61	3240
Grand Total	0	0	0	1124	2681	0	2375	0	3334	0	2484	156	12154
Apprch %	0	0	0	29.5	70.5	0	41.6	0	58.4	0	94.1	5.9	
Total %	0	0	0	9.2	22.1	0	19.5	0	27.4	0	20.4	1.3	

City: SANTA CLARITA
N-S Direction: I-5 NB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801034
Site Code : 11
Start Date : 1/25/2018
Page No : 2

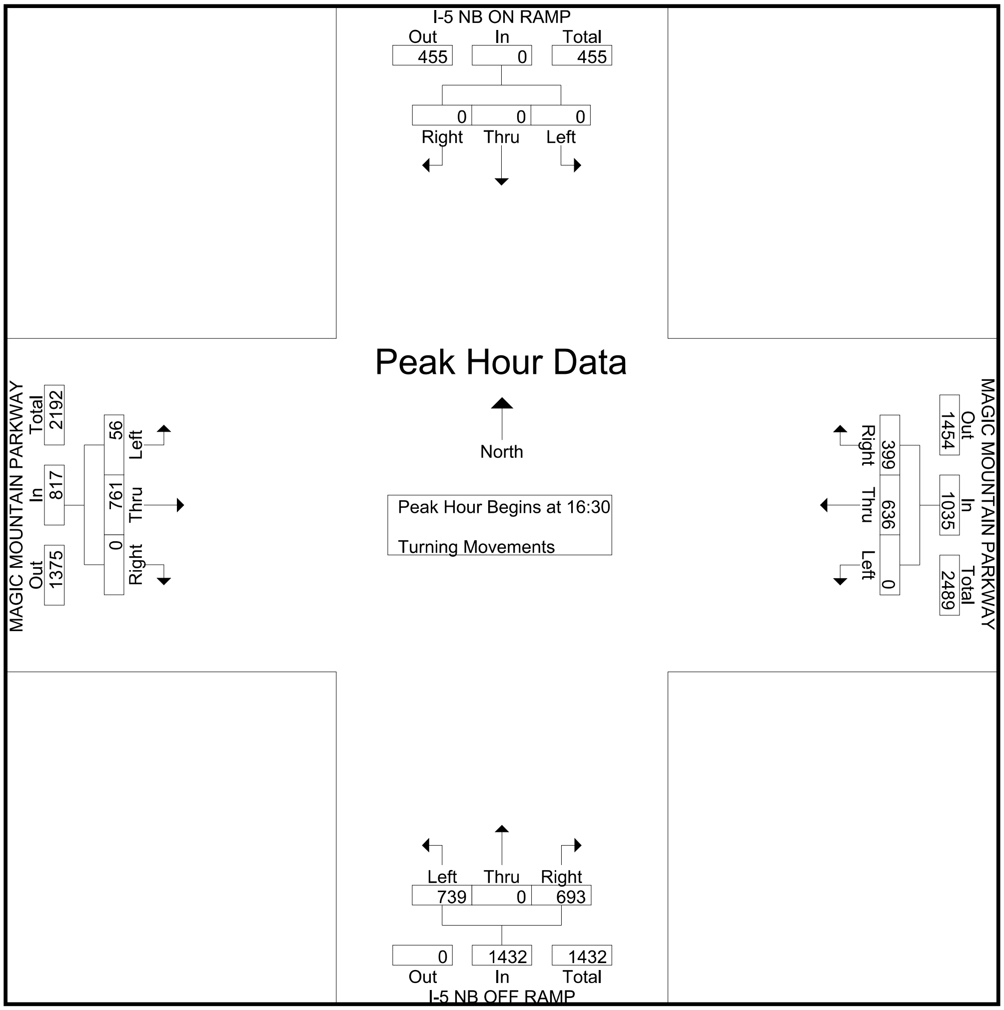
	I-5 NB ON RAMP Southbound				MAGIC MOUNTAIN PARKWAY Westbound				I-5 NB OFF RAMP Northbound				MAGIC MOUNTAIN PARKWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	47	193	0	240	122	0	255	377	0	117	4	121	738
07:45	0	0	0	0	**68**	200	0	268	**150**	0	**324**	**474**	0	149	2	151	**893**
08:00	0	0	0	0	61	**216**	0	**277**	138	0	276	414	0	131	4	135	826
08:15	0	0	0	0	40	198	0	238	133	0	227	360	0	**161**	**5**	**166**	764
Total Volume	0	0	0	0	216	807	0	1023	543	0	1082	1625	0	558	15	573	3221
% App. Total	0	0	0		21.1	78.9	0		33.4	0	66.6		0	97.4	2.6		
PHF	.000	.000	.000	.000	.794	.934	.000	.923	.905	.000	.835	.857	.000	.866	.750	.863	.902



City: SANTA CLARITA
N-S Direction: I-5 NB RAMPS
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801034
Site Code : 11
Start Date : 1/25/2018
Page No : 3

	I-5 NB ON RAMP Southbound				MAGIC MOUNTAIN PARKWAY Westbound				I-5 NB OFF RAMP Northbound				MAGIC MOUNTAIN PARKWAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	0	0	89	**176**	0	265	180	0	179	359	0	189	14	203	827
16:45	0	0	0	0	84	148	0	232	**191**	0	**204**	**395**	0	191	12	203	830
17:00	0	0	0	0	**114**	163	0	**277**	165	0	191	356	0	**193**	**15**	**208**	**841**
17:15	0	0	0	0	112	149	0	261	157	0	165	322	0	188	15	203	786
Total Volume	0	0	0	0	399	636	0	1035	693	0	739	1432	0	761	56	817	3284
% App. Total	0	0	0		38.6	61.4	0		48.4	0	51.6		0	93.1	6.9		
PHF	.000	.000	.000	.000	.875	.903	.000	.934	.907	.000	.906	.906	.000	.986	.933	.982	.976



City: SANTA CLARITA
N-S Direction: THE OLD ROAD
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801032
Site Code : 26
Start Date : 1/24/2018
Page No : 1

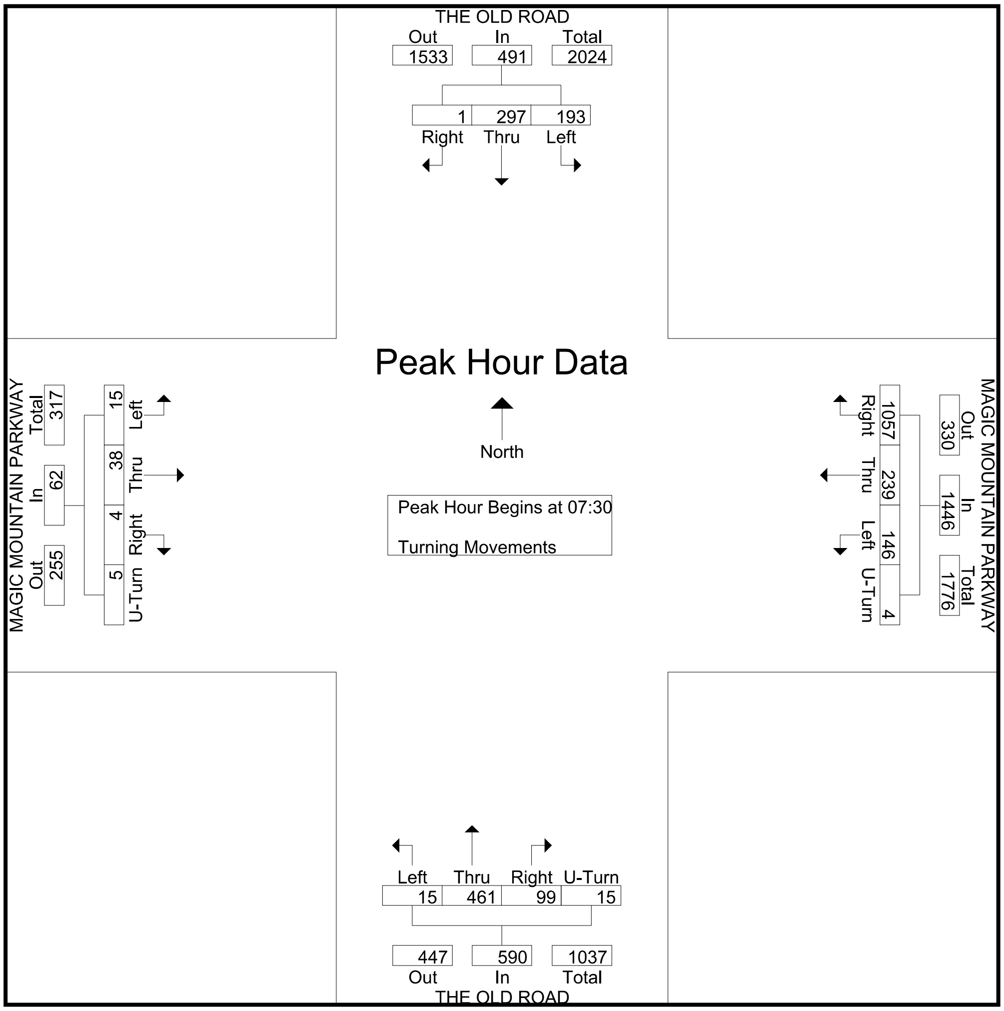
Groups Printed- Turning Movements

	THE OLD ROAD Southbound			MAGIC MOUNTAIN PARKWAY Westbound				THE OLD ROAD Northbound				MAGIC MOUNTAIN PARKWAY Eastbound				
Start Time	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00	0	34	19	256	41	23	1	10	56	5	1	1	10	5	2	464
07:15	0	68	24	251	52	27	1	16	88	0	2	0	3	6	0	538
07:30	1	61	35	257	54	29	1	22	112	4	3	0	8	3	0	590
07:45	0	93	51	329	52	23	0	25	148	4	2	2	13	6	0	748
Total	1	256	129	1093	199	102	3	73	404	13	8	3	34	20	2	2340
08:00	0	74	56	255	56	56	2	25	94	3	4	1	5	3	3	637
08:15	0	69	51	216	77	38	1	27	107	4	6	1	12	3	2	614
08:30	0	72	45	178	42	42	3	26	87	4	2	1	11	6	1	520
08:45	0	99	33	189	33	54	2	36	93	1	3	2	10	4	1	560
Total	0	314	185	838	208	190	8	114	381	12	15	5	38	16	7	2331
*** BREAK ***																
16:00	0	115	77	211	10	59	5	52	108	0	3	11	56	6	2	715
16:15	2	101	55	213	11	40	4	55	97	6	4	12	58	5	0	663
16:30	1	153	95	219	13	37	4	42	106	1	2	12	66	5	0	756
16:45	1	147	78	230	10	41	1	55	97	1	1	10	67	10	0	749
Total	4	516	305	873	44	177	14	204	408	8	10	45	247	26	2	2883
17:00	0	167	103	248	9	36	9	58	102	5	6	11	40	16	1	811
17:15	3	165	86	213	10	53	5	56	117	5	3	17	55	14	0	802
17:30	1	170	97	235	12	63	3	43	101	0	4	17	74	19	0	839
17:45	2	103	64	214	12	32	2	54	83	2	5	15	53	13	2	656
Total	6	605	350	910	43	184	19	211	403	12	18	60	222	62	3	3108
Grand Total	11	1691	969	3714	494	653	44	602	1596	45	51	113	541	124	14	10662
Apprch %	0.4	63.3	36.3	75.7	10.1	13.3	0.9	26.2	69.6	2	2.2	14.3	68.3	15.7	1.8	
Total %	0.1	15.9	9.1	34.8	4.6	6.1	0.4	5.6	15	0.4	0.5	1.1	5.1	1.2	0.1	

City: SANTA CLARITA
N-S Direction: THE OLD ROAD
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801032
Site Code : 26
Start Date : 1/24/2018
Page No : 2

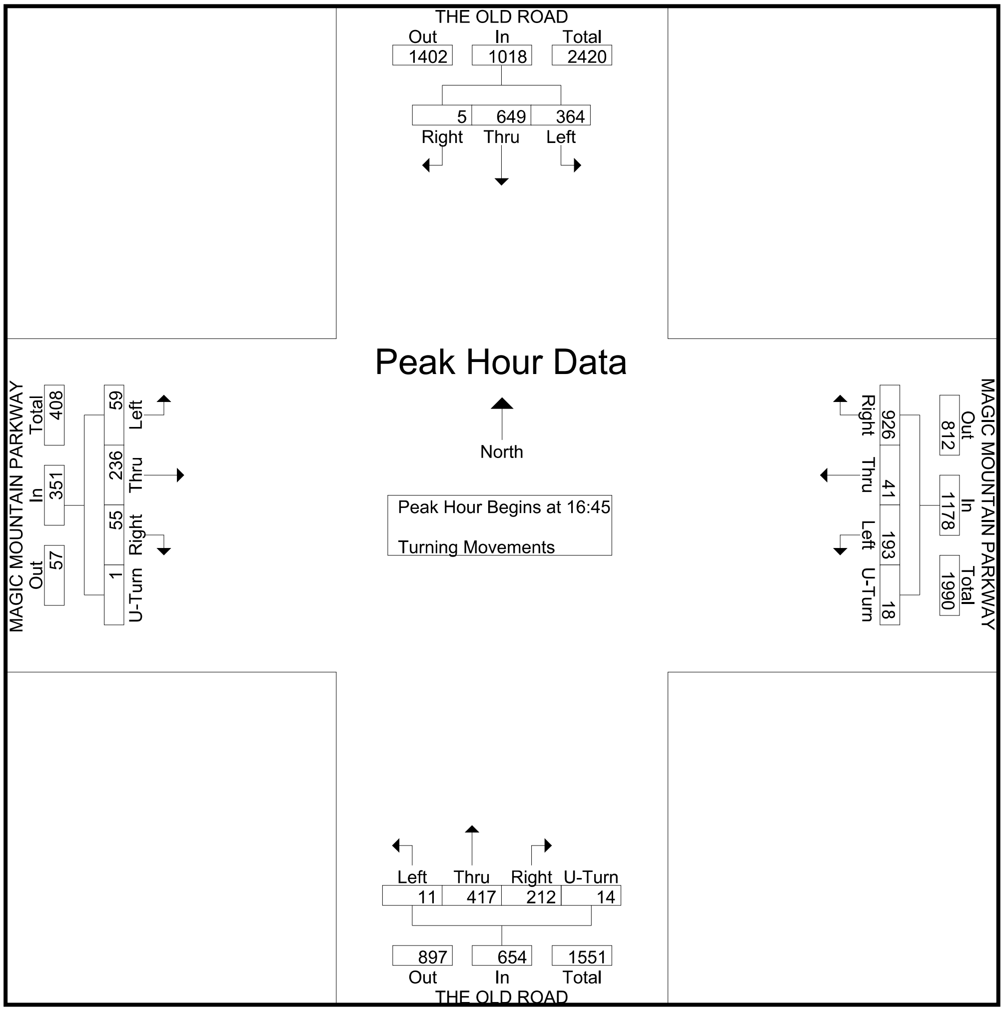
	THE OLD ROAD Southbound				MAGIC MOUNTAIN PARKWAY Westbound					THE OLD ROAD Northbound					MAGIC MOUNTAIN PARKWAY Eastbound					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:30																				
07:30	**1**	61	35	97	257	54	29	1	341	22	112	**4**	3	141	0	8	3	0	11	590
07:45	0	**93**	51	**144**	**329**	52	23	0	**404**	25	**148**	4	2	**179**	**2**	**13**	**6**	0	**21**	**748**
08:00	0	74	**56**	130	255	56	**56**	**2**	369	25	94	3	4	126	1	5	3	**3**	12	637
08:15	0	69	51	120	216	**77**	38	1	332	**27**	107	4	**6**	144	1	12	3	2	18	614
Total Volume	1	297	193	491	1057	239	146	4	1446	99	461	15	15	590	4	38	15	5	62	2589
% App. Total	0.2	60.5	39.3		73.1	16.5	10.1	0.3		16.8	78.1	2.5	2.5		6.5	61.3	24.2	8.1		
PHF	.250	.798	.862	.852	.803	.776	.652	.500	.895	.917	.779	.938	.625	.824	.500	.731	.625	.417	.738	.865



City: SANTA CLARITA
N-S Direction: THE OLD ROAD
E-W Direction: MAGIC MOUNTAIN PARKWAY

File Name : H1801032
Site Code : 26
Start Date : 1/24/2018
Page No : 3

	THE OLD ROAD				MAGIC MOUNTAIN PARKWAY					THE OLD ROAD					MAGIC MOUNTAIN PARKWAY					
	Southbound				Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 16:45																				
16:45	1	147	78	226	230	10	41	1	282	55	97	1	1	154	10	67	10	0	87	749
17:00	0	167	**103**	**270**	**248**	9	36	**9**	302	**58**	102	**5**	**6**	171	11	40	16	**1**	68	811
17:15	**3**	165	86	254	213	10	53	5	281	56	**117**	5	3	**181**	**17**	55	14	0	86	802
17:30	1	**170**	97	268	235	**12**	**63**	3	**313**	43	101	0	4	148	17	**74**	**19**	0	**110**	**839**
Total Volume	5	649	364	1018	926	41	193	18	1178	212	417	11	14	654	55	236	59	1	351	3201
% App. Total	0.5	63.8	35.8		78.6	3.5	16.4	1.5		32.4	63.8	1.7	2.1		15.7	67.2	16.8	0.3		
PHF	.417	.954	.883	.943	.933	.854	.766	.500	.941	.914	.891	.550	.583	.903	.809	.797	.776	.250	.798	.954



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: HENRY MAYO DRIVE

File Name : H1801026
Site Code : 81
Start Date : 1/24/2018
Page No : 1

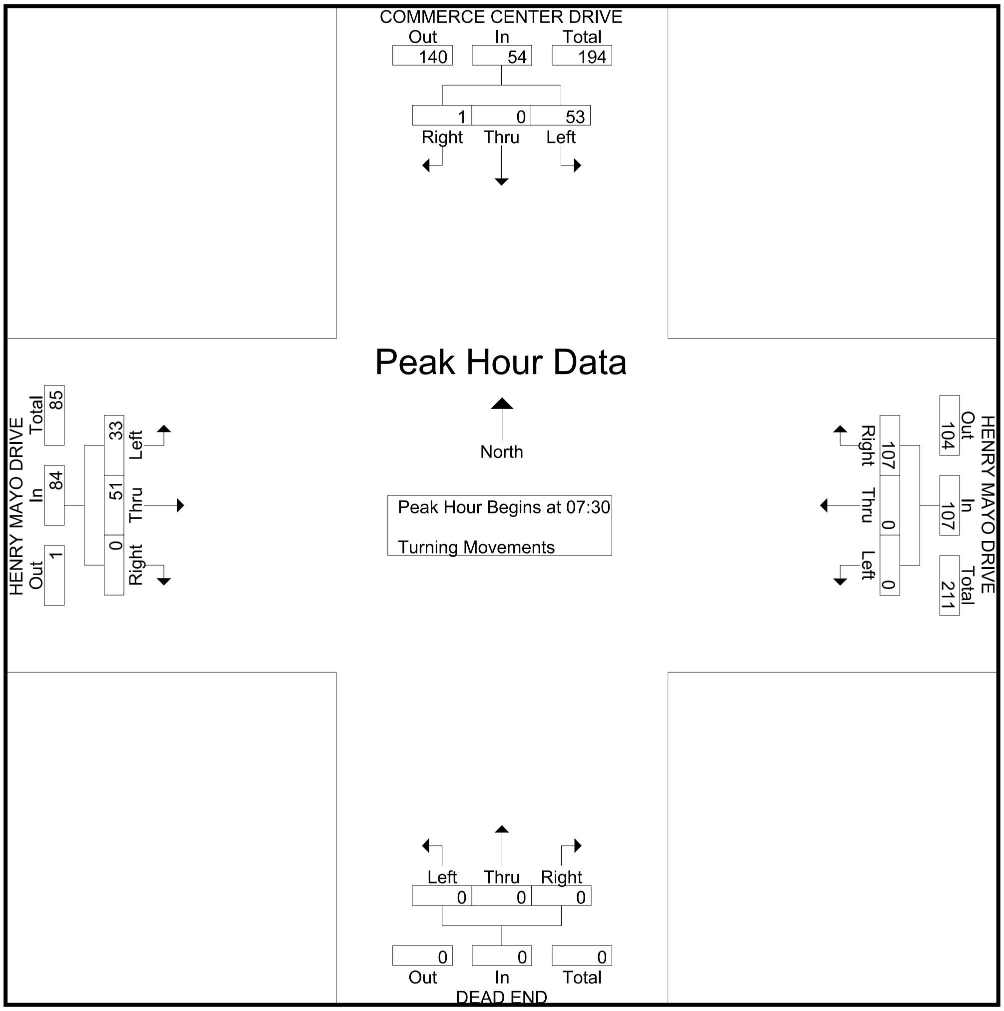
Groups Printed- Turning Movements

	COMMERCE CENTER DRIVE Southbound			HENRY MAYO DRIVE Westbound			DEAD END Northbound			HENRY MAYO DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	1	0	10	21	0	0	0	0	0	0	5	8	45
07:15	1	0	7	16	0	0	0	0	0	0	8	5	37
07:30	0	0	12	22	0	0	0	0	0	0	14	3	51
07:45	1	0	8	38	0	0	0	0	0	0	9	8	64
Total	3	0	37	97	0	0	0	0	0	0	36	24	197
08:00	0	0	15	25	0	0	0	0	0	0	14	11	65
08:15	0	0	18	22	0	0	0	0	0	0	14	11	65
08:30	0	0	11	22	0	0	0	0	0	0	7	5	45
08:45	0	0	18	15	1	0	0	0	0	0	8	6	48
Total	0	0	62	84	1	0	0	0	0	0	43	33	223
*** BREAK ***													
16:00	0	0	40	27	0	0	0	0	0	0	8	8	83
16:15	0	0	43	25	0	0	0	0	0	0	7	4	79
16:30	0	0	86	20	0	0	0	0	0	0	10	5	121
16:45	1	0	48	32	0	0	0	0	0	0	11	2	94
Total	1	0	217	104	0	0	0	0	0	0	36	19	377
17:00	0	0	66	44	0	0	0	0	0	0	6	2	118
17:15	0	0	41	26	1	0	0	0	0	0	9	1	78
17:30	1	0	40	28	1	0	0	0	0	0	6	4	80
17:45	0	0	32	26	0	0	0	0	0	0	10	3	71
Total	1	0	179	124	2	0	0	0	0	0	31	10	347
Grand Total	5	0	495	409	3	0	0	0	0	0	146	86	1144
Apprch %	1	0	99	99.3	0.7	0	0	0	0	0	62.9	37.1	
Total %	0.4	0	43.3	35.8	0.3	0	0	0	0	0	12.8	7.5	

City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: HENRY MAYO DRIVE

File Name : H1801026
Site Code : 81
Start Date : 1/24/2018
Page No : 2

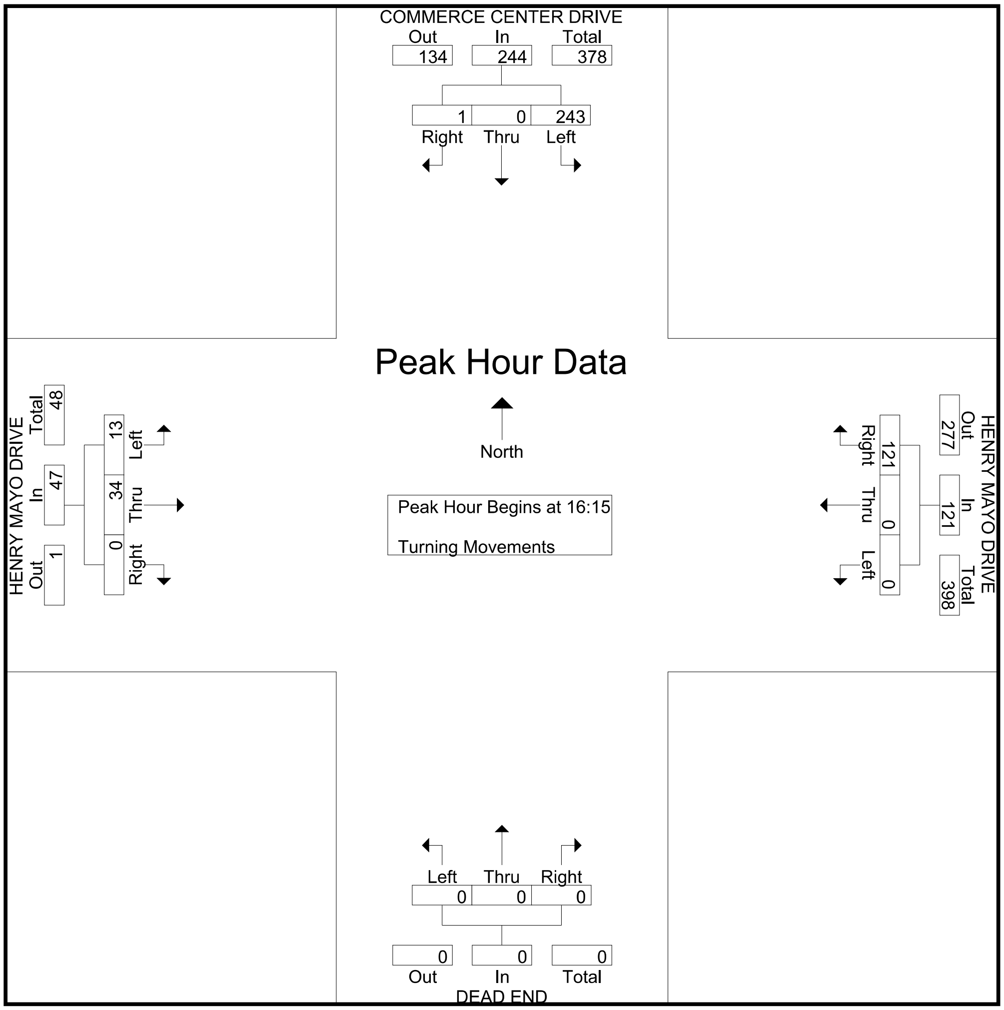
	COMMERCE CENTER DRIVE Southbound				HENRY MAYO DRIVE Westbound				DEAD END Northbound				HENRY MAYO DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	12	12	22	0	0	22	0	0	0	0	0	**14**	3	17	51
07:45	**1**	0	8	9	**38**	0	0	**38**	0	0	0	0	0	9	8	17	64
08:00	0	0	15	15	25	0	0	25	0	0	0	0	0	14	**11**	**25**	**65**
08:15	0	0	**18**	**18**	22	0	0	22	0	0	0	0	0	14	11	25	65
Total Volume	1	0	53	54	107	0	0	107	0	0	0	0	0	51	33	84	245
% App. Total	1.9	0	98.1		100	0	0		0	0	0		0	60.7	39.3		
PHF	.250	.000	.736	.750	.704	.000	.000	.704	.000	.000	.000	.000	.000	.911	.750	.840	.942



City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: HENRY MAYO DRIVE

File Name : H1801026
Site Code : 81
Start Date : 1/24/2018
Page No : 3

	COMMERCE CENTER DRIVE Southbound				HENRY MAYO DRIVE Westbound				DEAD END Northbound				HENRY MAYO DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	0	43	43	25	0	0	25	0	0	0	0	0	7	4	11	79
16:30	0	0	**86**	**86**	20	0	0	20	0	0	0	0	0	10	**5**	**15**	**121**
16:45	**1**	0	48	49	32	0	0	32	0	0	0	0	0	**11**	2	13	94
17:00	0	0	66	66	**44**	0	0	**44**	0	0	0	0	0	6	2	8	118
Total Volume	1	0	243	244	121	0	0	121	0	0	0	0	0	34	13	47	412
% App. Total	0.4	0	99.6		100	0	0		0	0	0		0	72.3	27.7		
PHF	.250	.000	.706	.709	.688	.000	.000	.688	.000	.000	.000	.000	.000	.773	.650	.783	.851



City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 EB RAMPS

File Name : H1801027
Site Code : 82
Start Date : 1/24/2018
Page No : 1

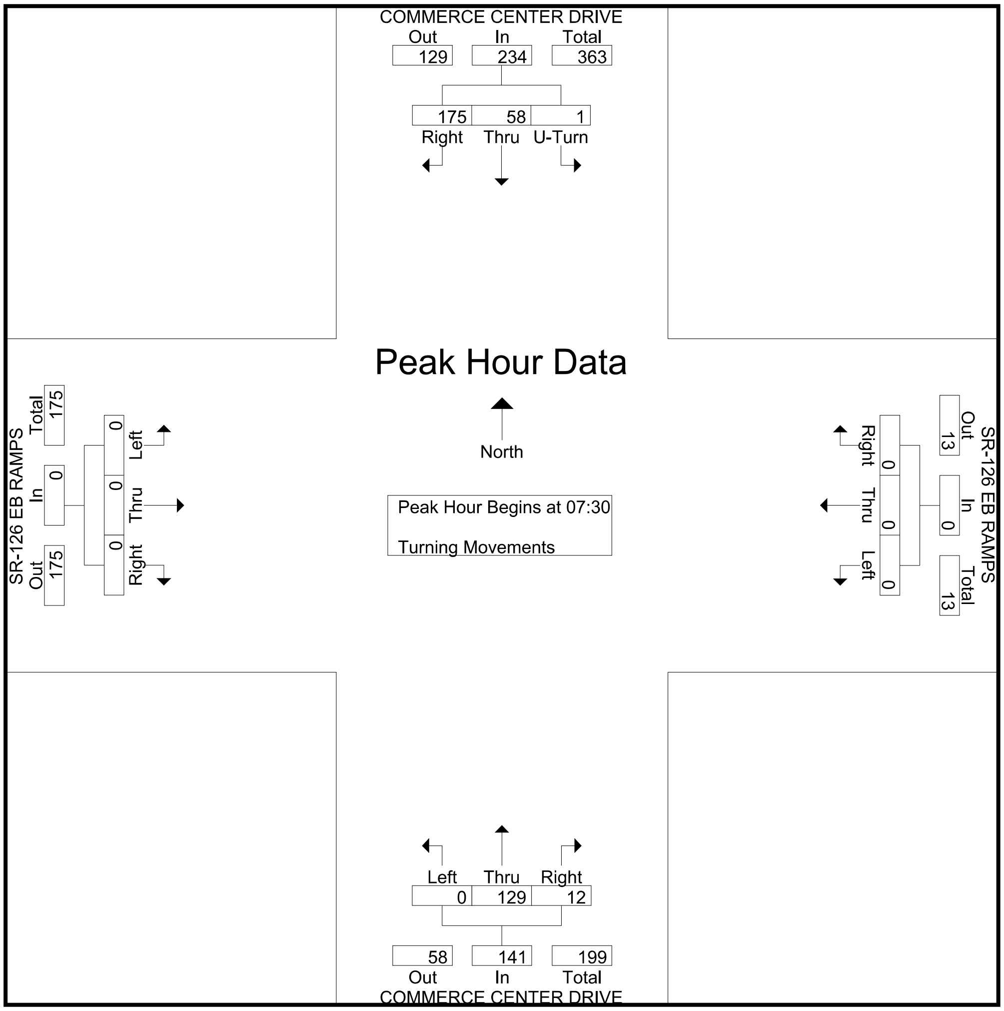
Groups Printed- Turning Movements

	COMMERCE CENTER DRIVE Southbound			SR-126 EB RAMPS Westbound			COMMERCE CENTER DRIVE Northbound			SR-126 EB RAMPS Eastbound			
Start Time	Right	Thru	U-Turn	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	42	9	0	0	0	0	0	24	0	0	0	0	75
07:15	32	8	0	0	0	0	5	17	0	0	0	0	62
07:30	57	12	0	0	0	0	0	28	0	0	0	0	97
07:45	34	11	0	0	0	0	5	41	0	0	0	0	91
Total	165	40	0	0	0	0	10	110	0	0	0	0	325
08:00	44	18	0	0	0	0	5	33	0	0	0	0	100
08:15	40	17	1	0	0	0	2	27	0	0	0	0	87
08:30	45	16	0	0	0	0	4	25	0	0	0	0	90
08:45	41	10	0	0	0	0	0	16	0	0	0	0	67
Total	170	61	1	0	0	0	11	101	0	0	0	0	344
*** BREAK ***													
16:00	252	50	10	0	0	0	7	25	0	0	0	0	344
16:15	154	28	6	0	0	0	3	28	0	0	0	0	219
16:30	357	104	21	0	0	0	9	19	0	0	0	0	510
16:45	172	38	9	0	0	0	6	37	0	0	0	0	262
Total	935	220	46	0	0	0	25	109	0	0	0	0	1335
17:00	292	69	3	0	0	0	7	32	0	0	0	0	403
17:15	182	37	3	0	0	0	4	20	0	0	0	0	246
17:30	188	43	17	0	0	0	8	30	0	0	0	0	286
17:45	94	27	3	0	0	0	3	25	0	0	0	0	152
Total	756	176	26	0	0	0	22	107	0	0	0	0	1087
Grand Total	2026	497	73	0	0	0	68	427	0	0	0	0	3091
Apprch %	78	19.1	2.8	0	0	0	13.7	86.3	0	0	0	0	
Total %	65.5	16.1	2.4	0	0	0	2.2	13.8	0	0	0	0	

City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 EB RAMPS

File Name : H1801027
Site Code : 82
Start Date : 1/24/2018

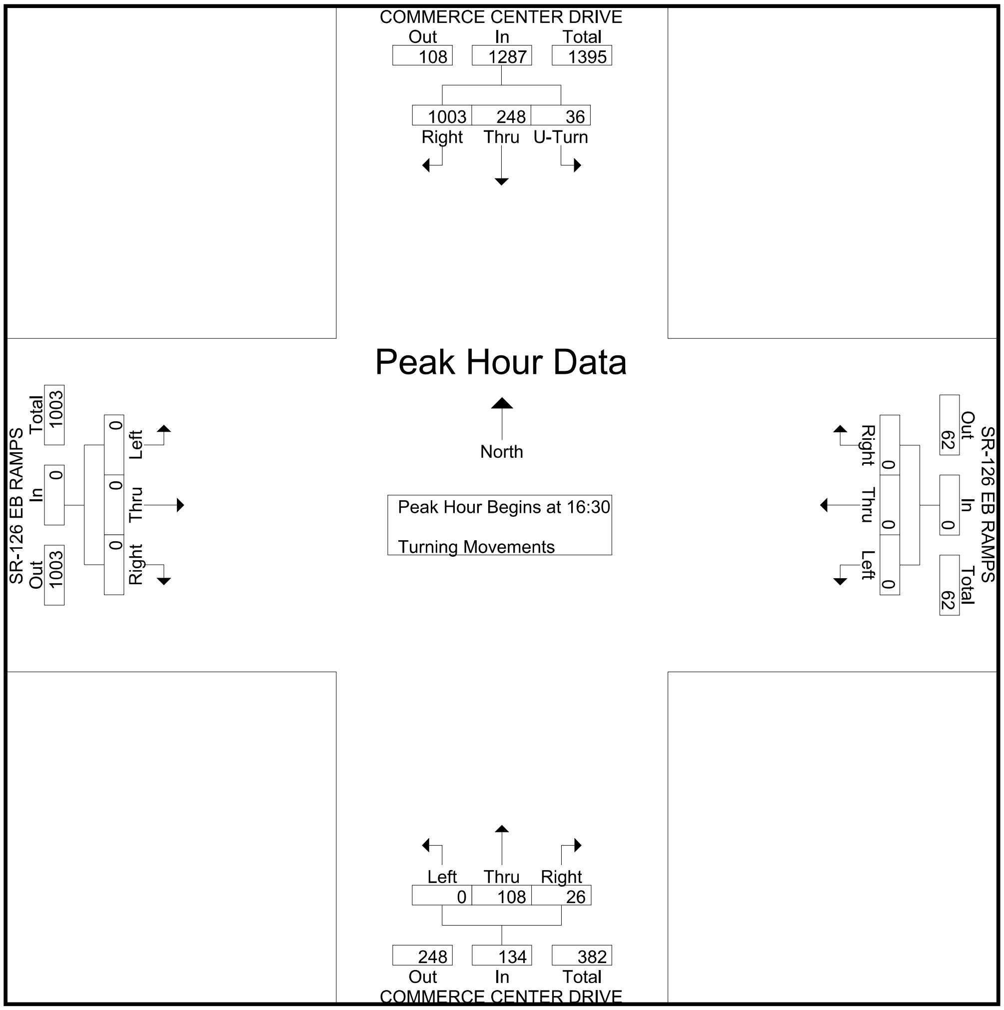
	COMMERCE CENTER DRIVE Southbound				SR-126 EB RAMPS Westbound				COMMERCE CENTER DRIVE Northbound				SR-126 EB RAMPS Eastbound				
Start Time	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**57**	12	0	**69**	0	0	0	0	0	28	0	28	0	0	0	0	97
07:45	34	11	0	45	0	0	0	0	**5**	**41**	0	**46**	0	0	0	0	91
08:00	44	**18**	0	62	0	0	0	0	5	33	0	38	0	0	0	0	**100**
08:15	40	17	**1**	58	0	0	0	0	2	27	0	29	0	0	0	0	87
Total Volume	175	58	1	234	0	0	0	0	12	129	0	141	0	0	0	0	375
% App. Total	74.8	24.8	0.4		0	0	0		8.5	91.5	0		0	0	0		
PHF	.768	.806	.250	.848	.000	.000	.000	.000	.600	.787	.000	.766	.000	.000	.000	.000	.938



City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 EB RAMPS

File Name : H1801027
Site Code : 82
Start Date : 1/24/2018
Page No : 3

	COMMERCE CENTER DRIVE Southbound				SR-126 EB RAMPS Westbound				COMMERCE CENTER DRIVE Northbound				SR-126 EB RAMPS Eastbound				
Start Time	Right	Thru	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	**357**	**104**	**21**	**482**	0	0	0	0	**9**	19	0	28	0	0	0	0	**510**
16:45	172	38	9	219	0	0	0	0	6	**37**	0	**43**	0	0	0	0	262
17:00	292	69	3	364	0	0	0	0	7	32	0	39	0	0	0	0	403
17:15	182	37	3	222	0	0	0	0	4	20	0	24	0	0	0	0	246
Total Volume	1003	248	36	1287	0	0	0	0	26	108	0	134	0	0	0	0	1421
% App. Total	77.9	19.3	2.8		0	0	0		19.4	80.6	0		0	0	0		
PHF	.702	.596	.429	.668	.000	.000	.000	.000	.722	.730	.000	.779	.000	.000	.000	.000	.697



City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 WB RAMPS

File Name : H1801028
Site Code : 83
Start Date : 1/24/2018
Page No : 1

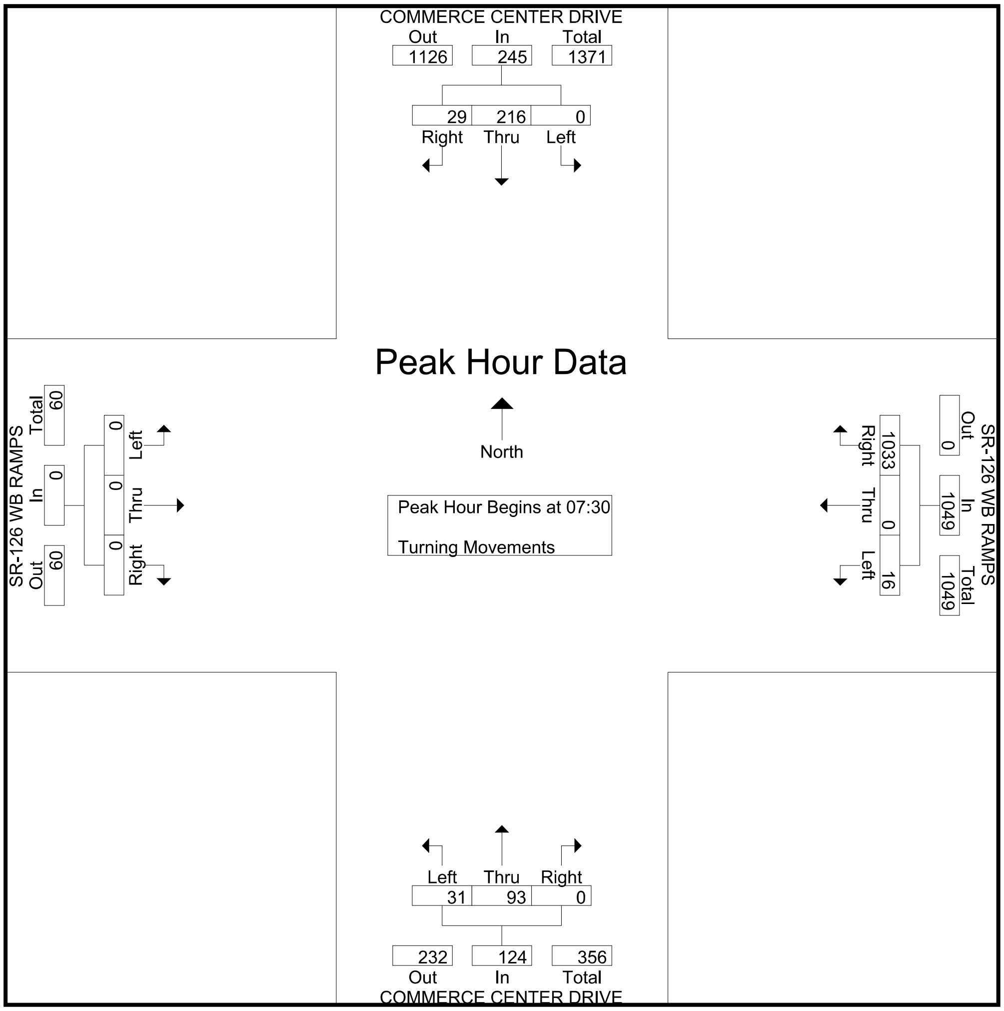
Groups Printed- Turning Movements

	COMMERCE CENTER DRIVE Southbound			SR-126 WB RAMPS Westbound			COMMERCE CENTER DRIVE Northbound			SR-126 WB RAMPS Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	4	46	0	190	0	4	0	19	4	0	0	0	267
07:15	3	34	0	221	0	3	0	13	5	0	0	0	279
07:30	8	65	0	256	0	4	0	19	8	0	0	0	360
07:45	5	42	0	357	0	2	0	34	7	0	0	0	447
Total	20	187	0	1024	0	13	0	85	24	0	0	0	1353
08:00	7	54	0	203	0	6	0	20	12	0	0	0	302
08:15	9	55	0	217	0	4	0	20	4	0	0	0	309
08:30	8	55	0	147	0	2	0	16	10	0	0	0	238
08:45	6	50	0	134	0	3	0	11	2	0	0	0	206
Total	30	214	0	701	0	15	0	67	28	0	0	0	1055
*** BREAK ***													
16:00	8	306	0	47	1	1	0	14	13	0	0	0	390
16:15	9	182	0	46	0	2	0	15	13	0	0	0	267
16:30	14	478	0	61	0	4	0	10	8	0	0	0	575
16:45	12	217	0	42	0	0	0	15	20	0	0	0	306
Total	43	1183	0	196	1	7	0	54	54	0	0	0	1538
17:00	12	365	0	52	0	2	0	10	21	0	0	0	462
17:15	6	212	0	48	0	9	0	9	11	0	0	0	295
17:30	12	240	0	40	0	6	0	14	15	0	0	0	327
17:45	5	115	0	50	0	2	0	5	22	0	0	0	199
Total	35	932	0	190	0	19	0	38	69	0	0	0	1283
Grand Total	128	2516	0	2111	1	54	0	244	175	0	0	0	5229
Apprch %	4.8	95.2	0	97.5	0	2.5	0	58.2	41.8	0	0	0	
Total %	2.4	48.1	0	40.4	0	1	0	4.7	3.3	0	0	0	

City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 WB RAMPS

File Name : H1801028
Site Code : 83
Start Date : 1/24/2018
Page No : 2

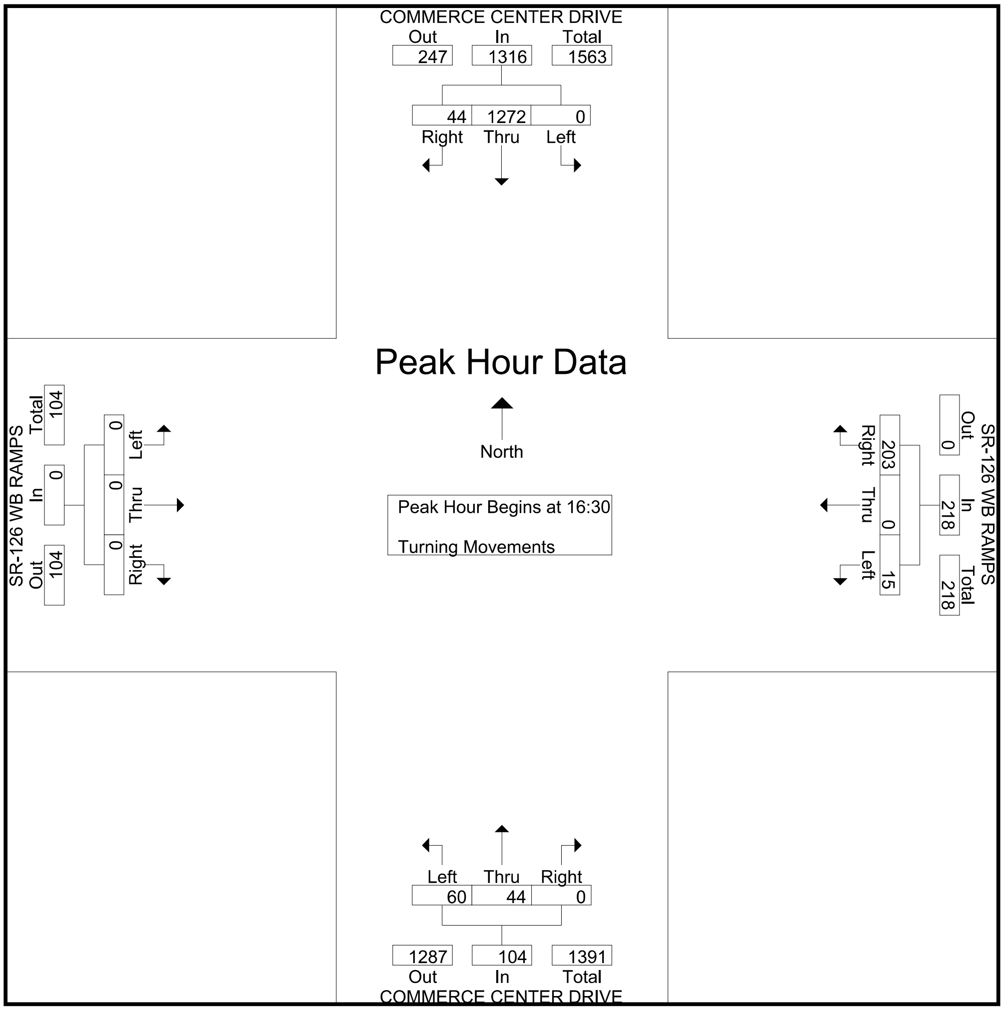
	COMMERCE CENTER DRIVE Southbound				SR-126 WB RAMPS Westbound				COMMERCE CENTER DRIVE Northbound				SR-126 WB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	8	**65**	0	**73**	256	0	4	260	0	19	8	27	0	0	0	0	360
07:45	5	42	0	47	**357**	0	2	**359**	0	**34**	7	**41**	0	0	0	0	**447**
08:00	7	54	0	61	203	0	**6**	209	0	20	**12**	32	0	0	0	0	302
08:15	**9**	55	0	64	217	0	4	221	0	20	4	24	0	0	0	0	309
Total Volume	29	216	0	245	1033	0	16	1049	0	93	31	124	0	0	0	0	1418
% App. Total	11.8	88.2	0		98.5	0	1.5		0	75	25		0	0	0		
PHF	.806	.831	.000	.839	.723	.000	.667	.731	.000	.684	.646	.756	.000	.000	.000	.000	.793



City: SANTA CLARITA
N-S Direction: COMMERCE CENTER DRIVE
E-W Direction: SR-126 WB RAMPS

File Name : H1801028
Site Code : 83
Start Date : 1/24/2018
Page No : 3

	COMMERCE CENTER DRIVE Southbound				SR-126 WB RAMPS Westbound				COMMERCE CENTER DRIVE Northbound				SR-126 WB RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	**14**	**478**	0	**492**	**61**	0	4	**65**	0	10	8	18	0	0	0	0	**575**
16:45	12	217	0	229	42	0	0	42	0	**15**	20	**35**	0	0	0	0	306
17:00	12	365	0	377	52	0	2	54	0	10	**21**	31	0	0	0	0	462
17:15	6	212	0	218	48	0	**9**	57	0	9	11	20	0	0	0	0	295
Total Volume	44	1272	0	1316	203	0	15	218	0	44	60	104	0	0	0	0	1638
% App. Total	3.3	96.7	0		93.1	0	6.9		0	42.3	57.7		0	0	0		
PHF	.786	.665	.000	.669	.832	.000	.417	.838	.000	.733	.714	.743	.000	.000	.000	.000	.712



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, May 14, 19

LOCATION: Santa Clarita
NORTH & SOUTH: Commerce Center
EAST & WEST: Franklin

PROJECT #: SC2197
LOCATION #: 85
CONTROL: SIGNAL

NOTES:

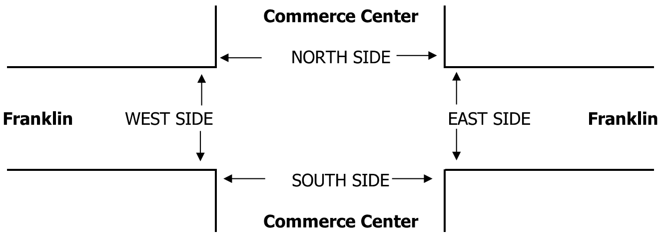
AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

☐ Add U-Turns to Left Turns

		NORTHBOUND Commerce Center			SOUTHBOUND Commerce Center			EASTBOUND Franklin			WESTBOUND Franklin			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	3	X	X	3	1	1	X	1	X	X	X	
AM	7:00 AM	63	172	0	0	43	11	10	0	14	0	0	0	313
	7:15 AM	87	171	0	0	38	15	8	0	11	0	0	0	330
	7:30 AM	68	173	0	0	45	11	9	0	22	0	0	0	328
	7:45 AM	75	233	0	0	44	23	26	0	16	0	0	0	417
	8:00 AM	41	219	0	0	66	17	21	0	26	0	0	0	390
	8:15 AM	46	174	0	0	65	8	23	0	13	0	0	0	329
	8:30 AM	23	155	0	0	68	9	17	0	6	0	0	0	278
	8:45 AM	28	132	0	0	52	9	14	0	6	0	0	0	241
	VOLUMES	431	1,429	0	0	421	103	128	0	114	0	0	0	2,627
	APPROACH %	23%	77%	0%	0%	80%	20%	53%	0%	47%	0%	0%	0%	
	APP/DEPART	1,861	/	1,557	524	/	536	242	/	0	0	/	534	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	271	796	0	0	193	66	64	0	75	0	0	0	1,466
	APPROACH %	25%	75%	0%	0%	75%	25%	46%	0%	54%	0%	0%	0%	
	PEAK HR FACTOR		0.867			0.780			0.739			0.000		0.879
	APP/DEPART	1,068	/	860	259	/	269	139	/	0	0	/	337	0
PM	4:00 PM	33	52	0	0	201	19	29	0	150	0	0	0	484
	4:15 PM	26	55	0	0	164	20	15	0	40	0	0	0	320
	4:30 PM	39	50	0	0	432	29	24	0	107	0	0	0	681
	4:45 PM	27	38	0	0	222	23	26	0	56	0	0	0	392
	5:00 PM	22	34	0	0	307	22	16	0	65	0	0	0	466
	5:15 PM	20	40	0	0	189	16	17	0	48	0	0	0	330
	5:30 PM	33	38	0	0	248	10	17	0	37	0	0	0	383
	5:45 PM	28	30	0	0	93	13	12	0	34	0	0	0	210
	VOLUMES	228	337	0	0	1,856	152	156	0	537	0	0	0	3,269
	APPROACH %	40%	59%	0%	0%	92%	8%	23%	0%	77%	0%	0%	0%	
	APP/DEPART	567	/	494	2,009	/	2,395	693	/	0	0	/	380	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	125	195	0	0	1,019	91	94	0	353	0	0	0	1,879
	APPROACH %	39%	61%	0%	0%	92%	8%	21%	0%	79%	0%	0%	0%	
	PEAK HR FACTOR		0.902			0.602			0.624			0.000		0.690
	APP/DEPART	321	/	290	1,111	/	1,373	447	/	0	0	/	216	0

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	1	0	0	3



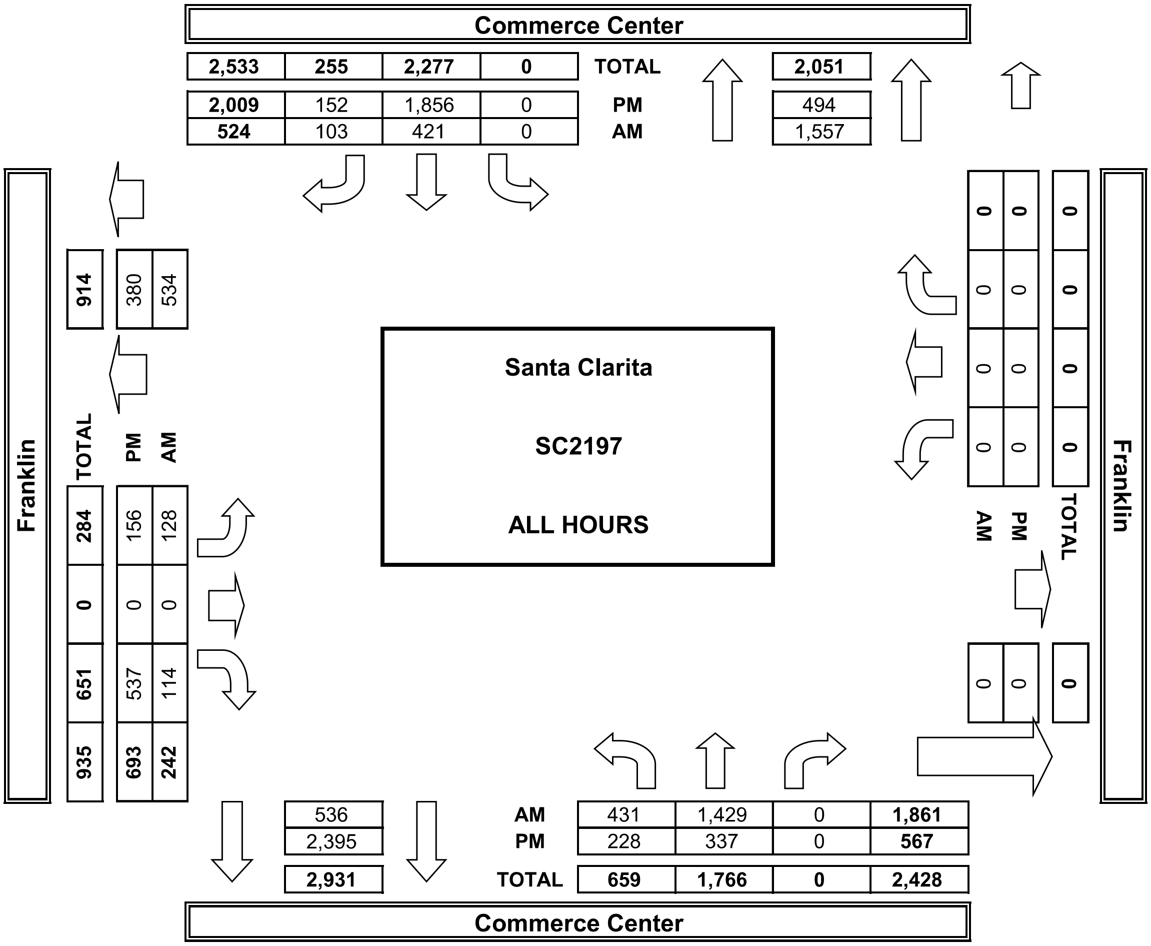
		PEDESTRIAN + BIKE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	0	0	0
	7:45 AM	0	1	0	0	1
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	0	0	0	0	0
	8:45 AM	0	1	0	2	3
	TOTAL	0	2	0	2	4
	AM BEGIN PEAK HR	7:15 AM				
PM	4:00 PM	0	0	1	1	2
	4:15 PM	0	0	0	0	0
	4:30 PM	0	0	0	0	0
	4:45 PM	0	0	0	0	0
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	0	0
	5:30 PM	2	0	1	0	3
	5:45 PM	0	0	0	0	0
	TOTAL	2	0	2	1	5
	PM BEGIN PEAK HR	4:00 PM				

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	1	0	1	2
0	1	0	0	1
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	1	0	1

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	1	2
0	1	0	1	2
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	1	0	3
0	0	0	0	0
2	0	1	1	4

AimTD LLC

TURNING MOVEMENT COUNTS



Commerce Center

2,533	255	2,277	0	TOTAL	2,051
2,009	152	1,856	0	PM	494
524	103	421	0	AM	1,557

Franklin

TOTAL	PM	AM
914	380	534
284	156	128
0	0	0
651	537	114
935	693	242

Santa Clarita

SC2197

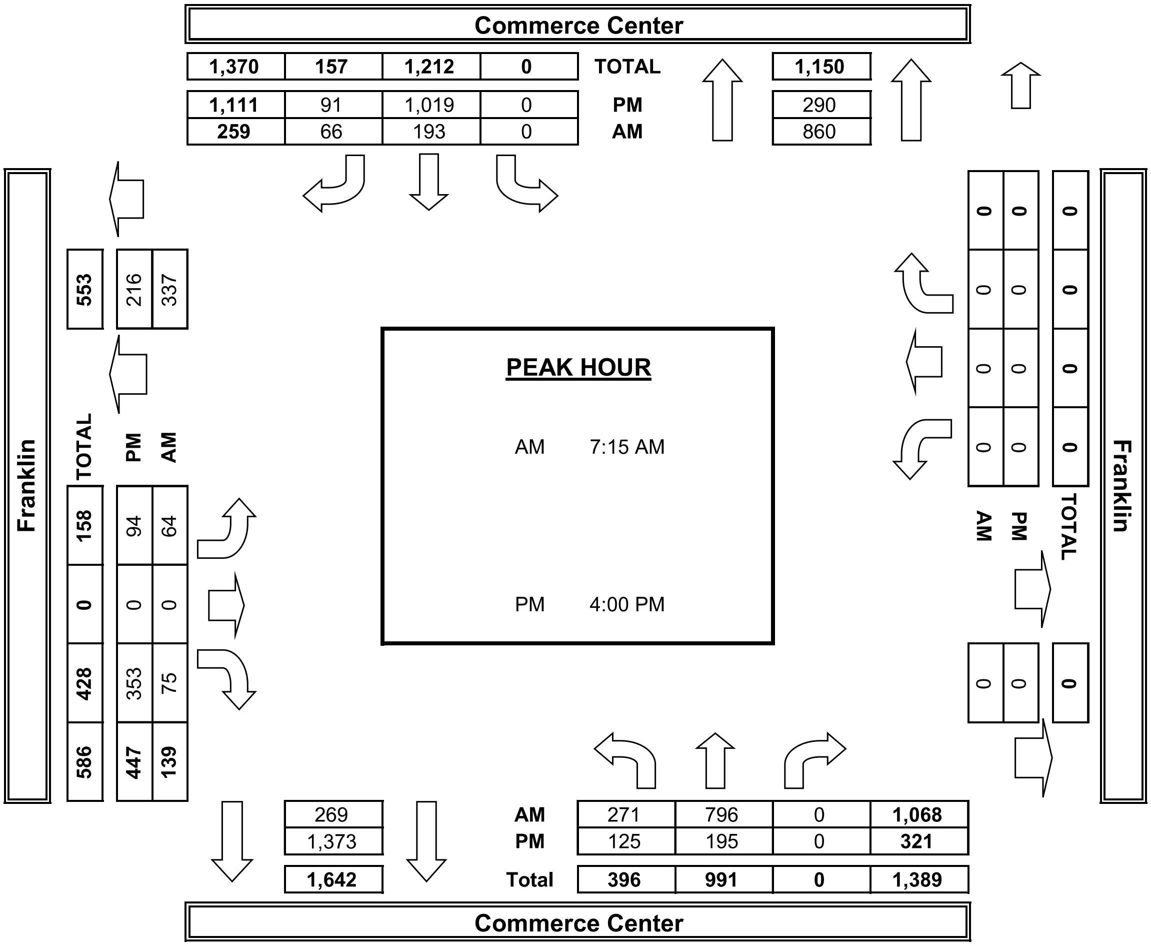
ALL HOURS

Franklin

AM	PM	TOTAL
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

536	AM	431	1,429	0	1,861
2,395	PM	228	337	0	567
2,931	TOTAL	659	1,766	0	2,428

Commerce Center



Commerce Center

1,370	157	1,212	0	TOTAL	1,150
1,111	91	1,019	0	PM	290
259	66	193	0	AM	860

Franklin

TOTAL	PM	AM
553	216	337
158	94	64
0	0	0
428	353	75
586	447	139

PEAK HOUR

AM 7:15 AM

PM 4:00 PM

Franklin

AM	PM	TOTAL
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

269	AM	271	796	0	1,068
1,373	PM	125	195	0	321
1,642	Total	396	991	0	1,389

Commerce Center

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, May 14, 19	LOCATION:	Santa Clarita		PROJECT #:	SC2197
	NORTH & SOUTH:	Commerce Center		LOCATION #:	116
	EAST & WEST:	Witherspoon		CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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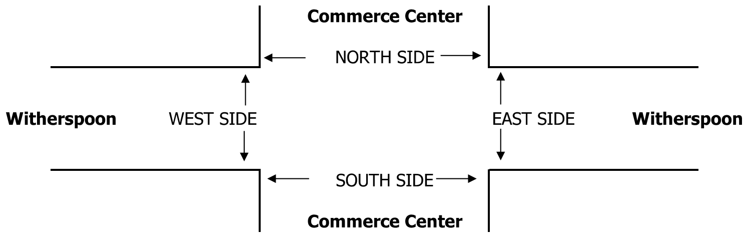
◄ W
E ►
S ▼

☑ Add U-Turns to Left Turns

		NORTHBOUND Commerce Center			SOUTHBOUND Commerce Center			EASTBOUND Witherspoon			WESTBOUND Witherspoon			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	2	3	0	1	3	1	1	1	1	1	1	0	
AM	7:00 AM	60	28	0	0	37	30	9	0	6	0	0	0	170
	7:15 AM	56	33	1	2	46	23	3	0	6	0	1	0	171
	7:30 AM	74	35	1	2	42	46	8	0	15	0	1	1	225
	7:45 AM	92	53	2	9	61	54	6	0	18	3	3	1	302
	8:00 AM	74	65	1	7	61	44	15	2	16	0	0	1	286
	8:15 AM	46	81	0	3	68	36	11	0	6	0	1	0	252
	8:30 AM	54	67	0	2	48	29	10	0	7	0	2	0	219
	8:45 AM	52	47	0	2	49	30	6	0	9	1	0	0	196
	VOLUMES	508	409	5	27	412	292	68	2	83	4	8	3	1,821
	APPROACH %	55%	44%	1%	4%	56%	40%	44%	1%	54%	27%	53%	20%	
	APP/DEPART	922	/	482	731	/	499	153	/	32	15	/	808	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	286	234	4	21	232	180	40	2	55	3	5	3	1,065
	APPROACH %	55%	45%	1%	5%	54%	42%	41%	2%	57%	27%	45%	27%	
	PEAK HR FACTOR		0.891			0.873			0.735			0.393		0.882
	APP/DEPART	524	/	278	433	/	290	97	/	26	11	/	471	0
PM	4:00 PM	11	48	1	1	52	12	28	0	85	2	1	2	243
	4:15 PM	13	52	0	1	41	12	23	1	73	1	0	0	217
	4:30 PM	10	59	0	3	74	3	75	5	176	14	0	9	428
	4:45 PM	12	52	0	0	47	9	28	1	78	8	1	0	236
	5:00 PM	11	38	0	1	84	3	29	1	94	8	1	6	276
	5:15 PM	9	42	0	1	41	6	20	0	57	12	0	0	188
	5:30 PM	8	45	0	0	48	5	19	0	50	9	1	2	187
	5:45 PM	8	27	0	0	36	5	11	0	21	1	0	1	110
	VOLUMES	82	363	1	7	423	55	233	8	634	55	4	20	1,885
	APPROACH %	18%	81%	0%	1%	87%	11%	27%	1%	72%	70%	5%	25%	
	APP/DEPART	446	/	622	485	/	1,116	875	/	10	79	/	137	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	46	201	0	5	246	27	155	8	421	31	2	15	1,157
	APPROACH %	19%	81%	0%	2%	88%	10%	27%	1%	72%	65%	4%	31%	
	PEAK HR FACTOR		0.895			0.790			0.570			0.522		0.676
	APP/DEPART	247	/	375	278	/	701	584	/	9	48	/	72	0

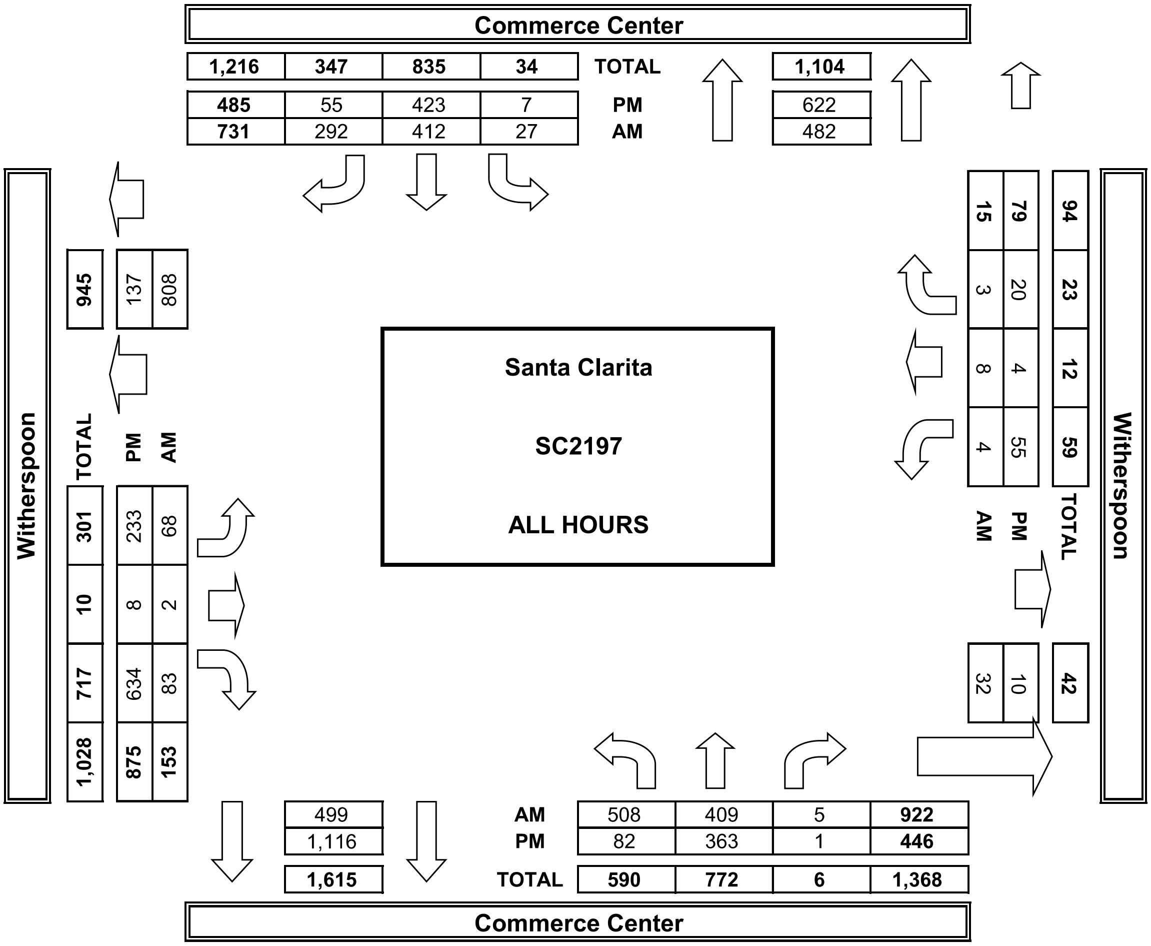
U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	2	0	0	2
0	1	0	0	1
0	1	0	0	1
2	2	0	0	4
1	0	0	0	1
0	1	0	0	1
0	1	0	0	1
1	0	0	0	1
0	0	0	0	0
4	6	0	0	10

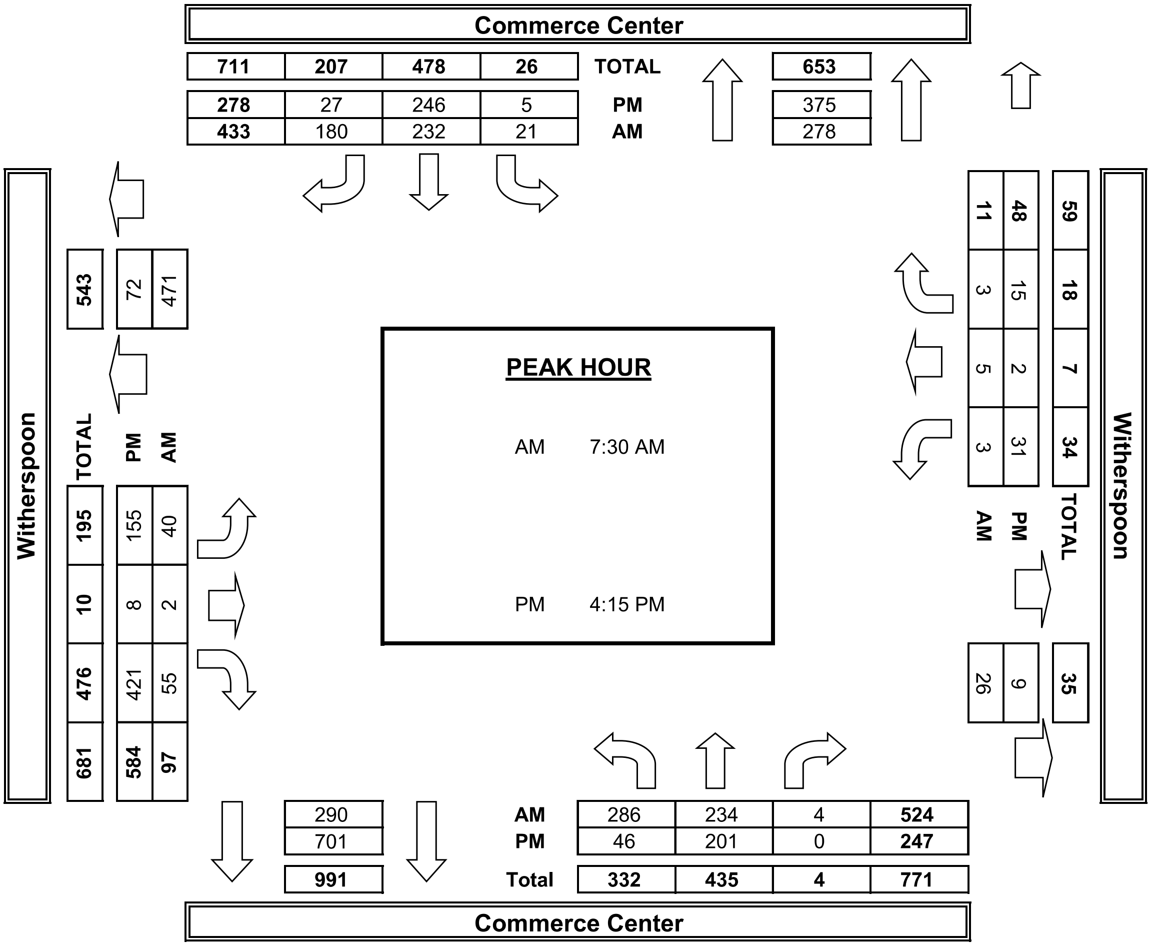


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	2	0	3	3	8	2	0	3	3	8	0	0	0	0	0
	7:30 AM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	2	1	1	4	0	2	1	0	3	0	0	0	1	1
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
	TOTAL	2	5	4	5	16	2	5	4	3	14	0	0	0	2	2
	AM BEGIN PEAK HR			7:30 AM			0	5	1	0	6					
PM	4:00 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	5	1	0	6	0	5	1	0	6	0	0	0	0	0
	4:45 PM	0	2	1	0	3	0	2	1	0	3	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
	5:30 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	10	2	2	14	0	10	2	2	14	0	0	0	0	0
	PM BEGIN PEAK HR			4:15 PM			0	7	2	0	9					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
Tue, May 14, 19

LOCATION: Santa Clarita
NORTH & SOUTH: Commerce Center
EAST & WEST: Harrison

PROJECT #: SC2197
LOCATION #: 206
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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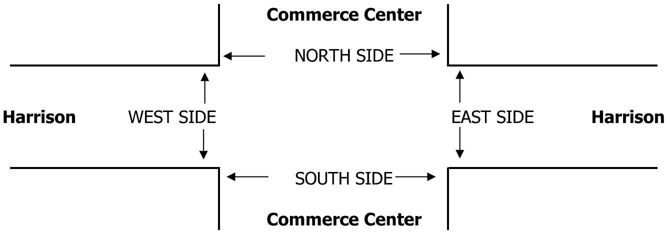
☑ Add U-Turns to Left Turns

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		Commerce Center			Commerce Center			Harrison			Harrison			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	2	3	X	X	3	0	1	X	2	X	X	X	
AM	7:00 AM	83	87	0	0	37	3	0	0	19	0	0	0	229
	7:15 AM	79	103	0	0	44	9	0	0	9	0	0	0	244
	7:30 AM	71	117	0	0	46	10	0	0	9	0	0	0	253
	7:45 AM	102	159	0	0	67	16	0	0	8	0	0	0	352
	8:00 AM	88	152	0	0	64	12	1	0	19	0	0	0	336
	8:15 AM	65	139	0	0	66	9	1	0	12	0	0	0	292
	8:30 AM	52	113	0	0	50	6	2	0	22	0	0	0	245
	8:45 AM	42	103	0	0	51	8	1	0	11	0	0	0	216
	VOLUMES	582	973	0	0	425	73	5	0	109	0	0	0	2,167
	APPROACH %	37%	63%	0%	0%	85%	15%	4%	0%	96%	0%	0%	0%	
	APP/DEPART	1,555	/	978	498	/	552	114	/	0	0	/	637	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	326	567	0	0	243	47	2	0	48	0	0	0	1,233
	APPROACH %	37%	63%	0%	0%	84%	16%	4%	0%	96%	0%	0%	0%	
	PEAK HR FACTOR		0.855			0.873			0.625			0.000		0.876
	APP/DEPART	893	/	569	290	/	307	50	/	0	0	/	357	0
PM	4:00 PM	16	58	0	0	126	2	5	0	81	0	0	0	288
	4:15 PM	13	59	0	0	121	2	5	0	74	0	0	0	274
	4:30 PM	19	58	0	0	262	3	11	0	179	0	0	0	532
	4:45 PM	10	54	0	0	133	1	7	0	102	0	0	0	307
	5:00 PM	6	48	0	0	176	2	7	0	130	0	0	0	369
	5:15 PM	9	50	0	0	118	5	5	0	71	0	0	0	258
	5:30 PM	8	46	0	0	106	0	5	0	143	0	0	0	308
	5:45 PM	11	29	0	0	55	0	3	0	48	0	0	0	146
	VOLUMES	92	402	0	0	1,097	15	48	0	828	0	0	0	2,482
	APPROACH %	19%	81%	0%	0%	99%	1%	5%	0%	95%	0%	0%	0%	
	APP/DEPART	494	/	450	1,112	/	1,927	876	/	0	0	/	105	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	48	219	0	0	692	8	30	0	485	0	0	0	1,482
	APPROACH %	18%	82%	0%	0%	99%	1%	6%	0%	94%	0%	0%	0%	
	PEAK HR FACTOR		0.867			0.660			0.678			0.000		0.696
	APP/DEPART	267	/	249	700	/	1,179	515	/	0	0	/	54	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	
1	0	0	0	1
0	0	0	0	0
2	0	0	0	2
3	0	0	0	3
5	0	0	0	5
6	0	0	0	6
1	0	0	0	1
0	0	0	0	0
18	0	0	0	18
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2



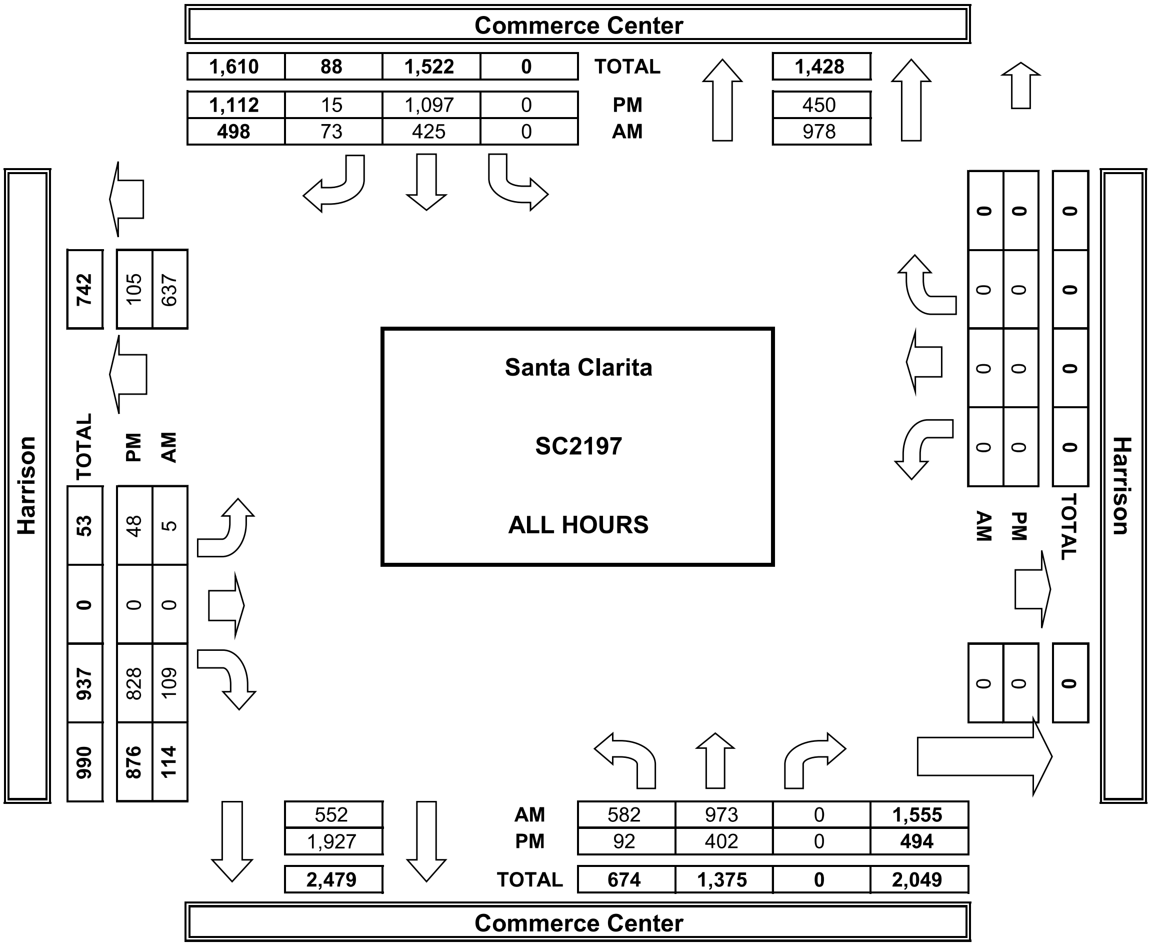
		PEDESTRIAN + BIKE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	0	0	0
	7:45 AM	0	0	0	1	1
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	0	0	0	0	0
	8:45 AM	0	0	0	1	1
	TOTAL	0	0	0	2	2
	AM BEGIN PEAK HR			7:30 AM		
PM	4:00 PM	0	0	0	1	1
	4:15 PM	0	0	0	0	0
	4:30 PM	2	0	0	0	2
	4:45 PM	0	0	0	0	0
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	1	1
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL	2	0	0	2	4
	PM BEGIN PEAK HR			4:15 PM		

		PEDESTRIAN CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	0	0	0
	7:45 AM	0	0	0	0	0
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	0	0	0	0	0
	8:45 AM	0	0	0	0	0
	TOTAL	0	0	0	0	0
	AM BEGIN PEAK HR	0	0	0	0	0
PM	4:00 PM	0	0	0	1	1
	4:15 PM	0	0	0	0	0
	4:30 PM	2	0	0	0	2
	4:45 PM	0	0	0	0	0
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	1	1
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL	2	0	0	2	4
	PM BEGIN PEAK HR	2	0	0	0	2

		BICYCLE CROSSINGS				
		NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0
	7:15 AM	0	0	0	0	0
	7:30 AM	0	0	0	0	0
	7:45 AM	0	0	0	1	1
	8:00 AM	0	0	0	0	0
	8:15 AM	0	0	0	0	0
	8:30 AM	0	0	0	0	0
	8:45 AM	0	0	0	1	1
	TOTAL	0	0	0	2	2
	AM BEGIN PEAK HR					
PM	4:00 PM	0	0	0	0	0
	4:15 PM	0	0	0	0	0
	4:30 PM	0	0	0	0	0
	4:45 PM	0	0	0	0	0
	5:00 PM	0	0	0	0	0
	5:15 PM	0	0	0	0	0
	5:30 PM	0	0	0	0	0
	5:45 PM	0	0	0	0	0
	TOTAL	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS



Commerce Center (north leg)

1,610	88	1,522	0	TOTAL	1,428
1,112	15	1,097	0	PM	450
498	73	425	0	AM	978

Harrison (west leg)

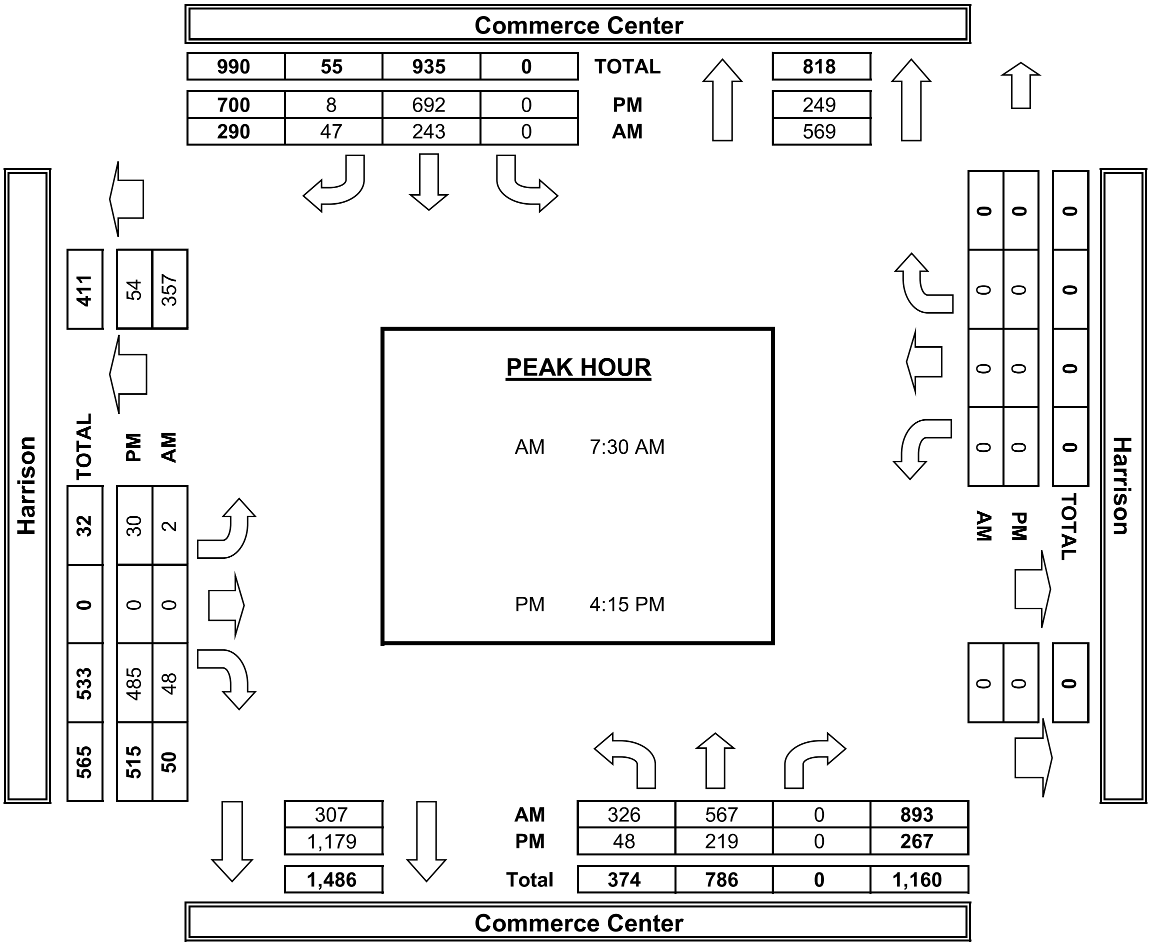
TOTAL	742	53	0	937	990
PM	105	48	0	828	876
AM	637	5	0	109	114

Harrison (east leg)

AM	0	0	0	0	0
PM	0	0	0	0	0
TOTAL	0	0	0	0	0

Commerce Center (south leg)

552	AM	582	973	0	1,555
1,927	PM	92	402	0	494
2,479	TOTAL	674	1,375	0	2,049



PEAK HOUR

AM 7:30 AM

PM 4:15 PM

Commerce Center (north leg)

990	55	935	0	TOTAL	818
700	8	692	0	PM	249
290	47	243	0	AM	569

Harrison (west leg)

TOTAL	411	32	0	533	565
PM	54	30	0	485	515
AM	357	2	0	48	50

Harrison (east leg)

AM	0	0	0	0	0
PM	0	0	0	0	0
TOTAL	0	0	0	0	0

Commerce Center (south leg)

307	AM	326	567	0	893
1,179	PM	48	219	0	267
1,486	Total	374	786	0	1,160

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: VALENCIA
N-S- Direction: THE OLD ROAD
E-W Direction: MUIRFIELD LANE

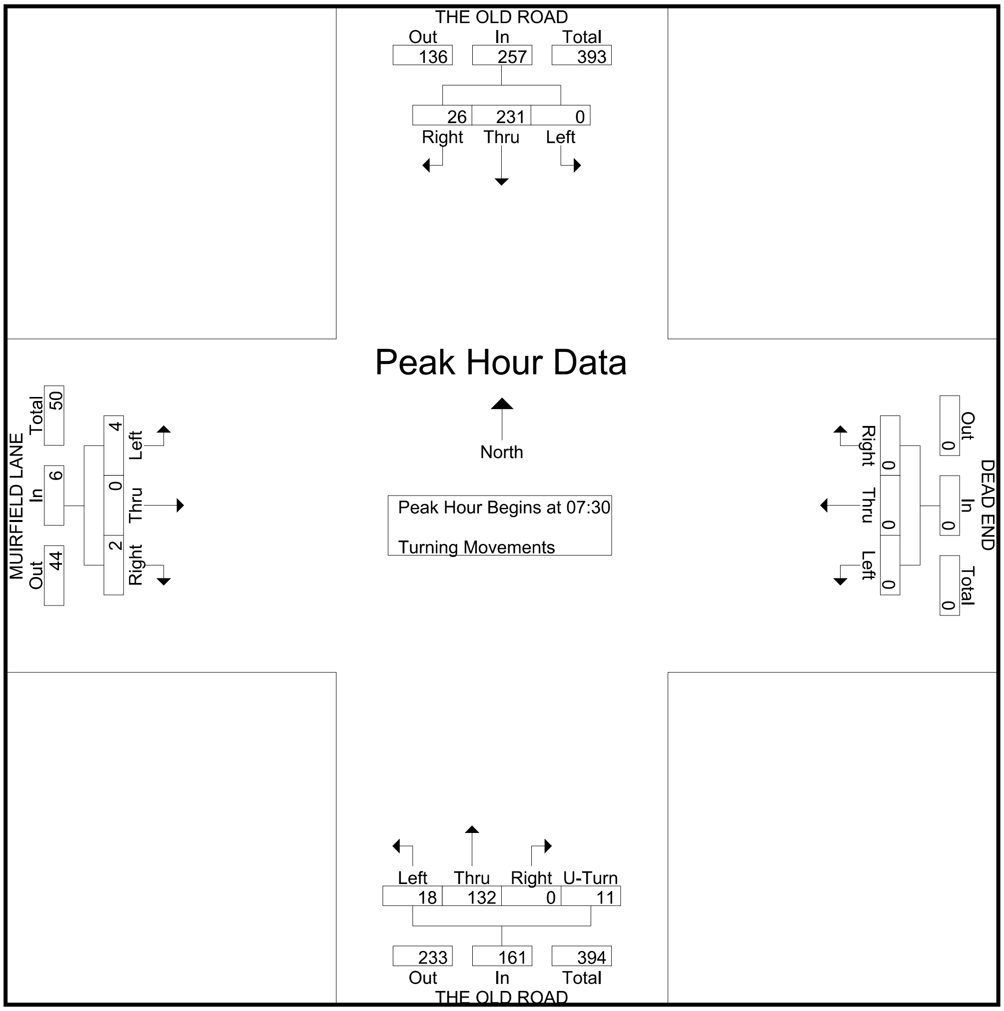
File Name : h1502036
Site Code : 336
Start Date : 2/19/2015
Page No : 1

Groups Printed- Turning Movements

	THE OLD ROAD Southbound			DEAD END Westbound			THE OLD ROAD Northbound				MUIRFIELD LANE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	2	35	0	0	0	0	0	34	0	3	0	0	1	75
07:15	6	52	0	0	0	0	0	14	4	7	0	0	1	84
07:30	7	65	0	0	0	0	0	33	4	1	1	0	1	112
07:45	4	61	0	0	0	0	0	31	7	6	1	0	1	111
Total	19	213	0	0	0	0	0	112	15	17	2	0	4	382
08:00	9	50	0	0	0	0	0	32	4	2	0	0	1	98
08:15	6	55	0	0	0	0	0	36	3	2	0	0	1	103
08:30	10	46	0	0	0	0	0	25	5	3	1	0	2	92
08:45	3	65	0	0	0	0	0	29	2	3	0	0	2	104
Total	28	216	0	0	0	0	0	122	14	10	1	0	6	397
16:00	0	88	0	0	0	0	0	71	1	1	7	0	9	177
16:15	1	43	0	0	0	0	0	55	1	0	9	0	4	113
16:30	3	72	0	0	0	0	0	45	1	0	5	0	8	134
16:45	1	46	0	0	0	0	0	47	1	0	8	0	3	106
Total	5	249	0	0	0	0	0	218	4	1	29	0	24	530
17:00	1	40	0	0	0	0	0	63	0	1	15	0	7	127
17:15	0	48	0	0	0	0	0	42	5	2	3	0	1	101
17:30	2	33	0	0	0	0	0	40	0	0	4	0	2	81
17:45	1	44	0	0	0	0	0	47	1	0	4	0	2	99
Total	4	165	0	0	0	0	0	192	6	3	26	0	12	408
Grand Total	56	843	0	0	0	0	0	644	39	31	58	0	46	1717
Apprch %	6.2	93.8	0	0	0	0	0	90.2	5.5	4.3	55.8	0	44.2	
Total %	3.3	49.1	0	0	0	0	0	37.5	2.3	1.8	3.4	0	2.7	

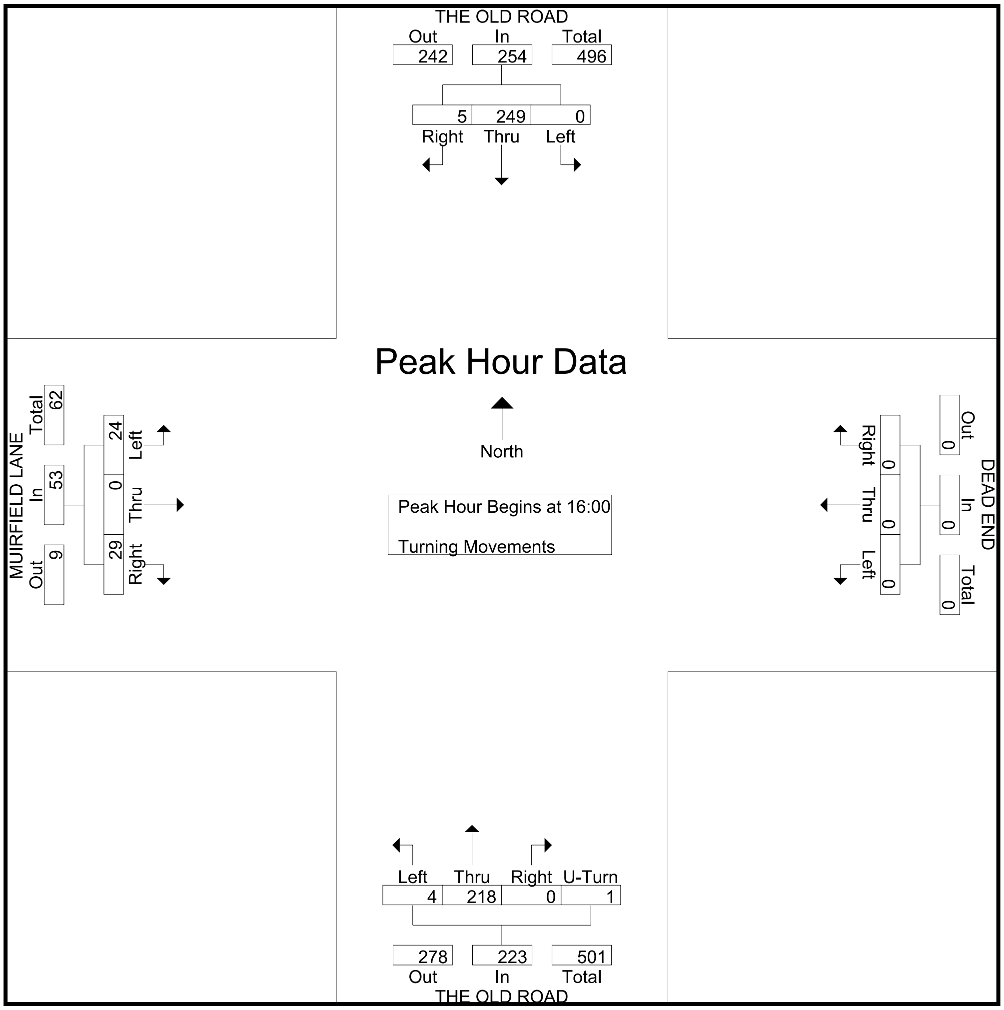
File Name : h1502036
Site Code : 336
Start Date : 2/19/2015
Page No : 2

	THE OLD ROAD Southbound				DEAD END Westbound				THE OLD ROAD Northbound					MUIRFIELD LANE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30																		
07:30	7	**65**	0	**72**	0	0	0	0	0	33	4	1	38	**1**	0	**1**	**2**	**112**
07:45	4	61	0	65	0	0	0	0	0	31	**7**	**6**	**44**	1	0	1	2	111
08:00	**9**	50	0	59	0	0	0	0	0	32	4	2	38	0	0	1	1	98
08:15	6	55	0	61	0	0	0	0	0	**36**								
Total Volume	26	231	0	257	0	0	0	0	0	132	18	11	161	2	0	4	6	424
% App. Total	10.1	89.9	0		0	0	0		0	82	11.2	6.8		33.3	0	66.7		
PHF	.722	.888	.000	.892	.000	.000	.000	.000	.000	.917	.643	.458	.915	.500	.000	1.00	.750	.946



File Name : h1502036
Site Code : 336
Start Date : 2/19/2015

	THE OLD ROAD				DEAD END				THE OLD ROAD					MUIRFIELD LANE				
	Southbound				Westbound				Northbound					Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 16:00																		
16:00	0	**88**	0	**88**	0	0	0	0	0	**71**	**1**	**1**	**73**	7	0	**9**	**16**	**177**
16:15	1	43	0	44	0	0	0	0	0	55	1	0	56	**9**	0	4	13	113
16:30	**3**	72	0	75	0	0	0	0	0	45	1	0	46	5	0	8	13	134
16:45	1	46	0	47	0	0	0	0	0	47	1	0	48	8	0	3	11	106
Total Volume	5	249	0	254	0	0	0	0	0	218	4	1	223	29	0	24	53	530
% App. Total	2	98	0		0	0	0		0	97.8	1.8	0.4		54.7	0	45.3		
PHF	.417	.707	.000	.722	.000	.000	.000	.000	.000	.768	1.00	.250	.764	.806	.000	.667	.828	.749



City: VALENCIA
N-S- Direction: THE OLD ROAD
E-W Direction: TURNBERRY LANE

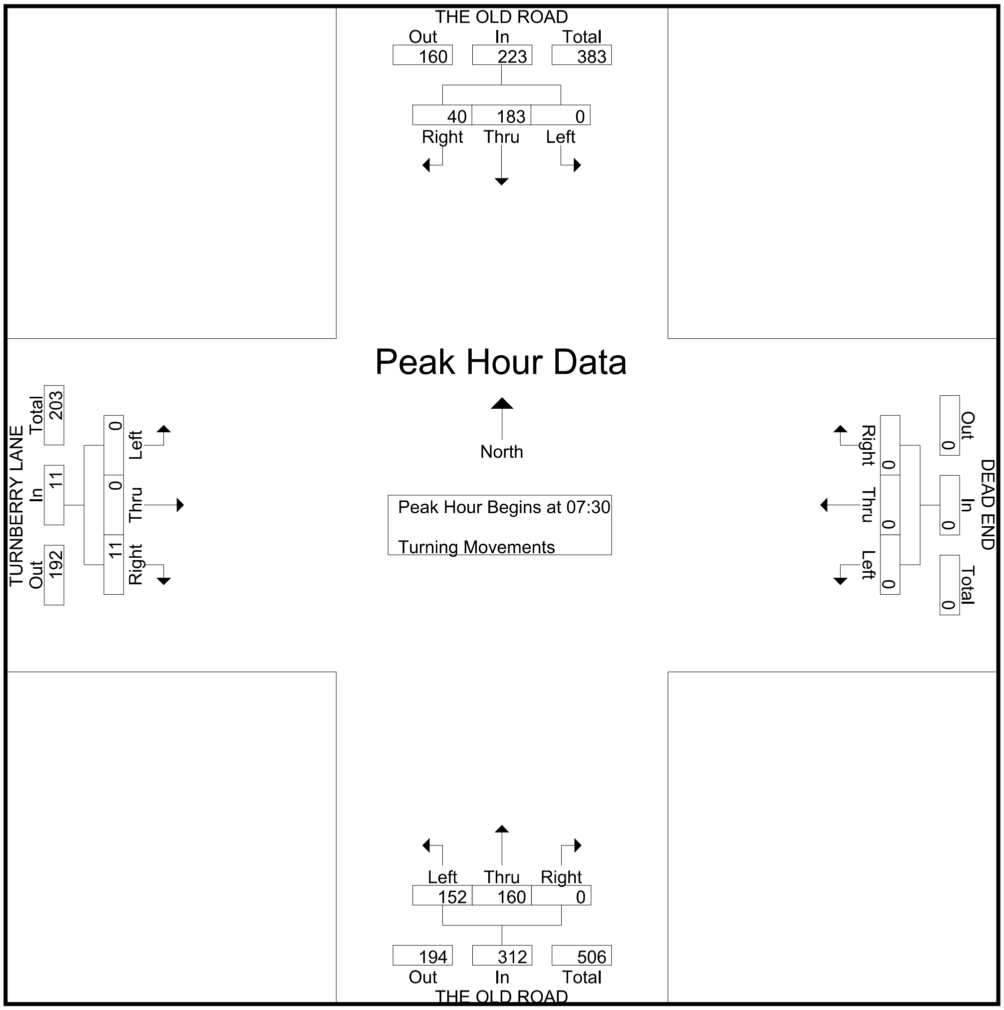
File Name : H1502037
Site Code : 337
Start Date : 2/19/2015
Page No : 1

Groups Printed- Turning Movements

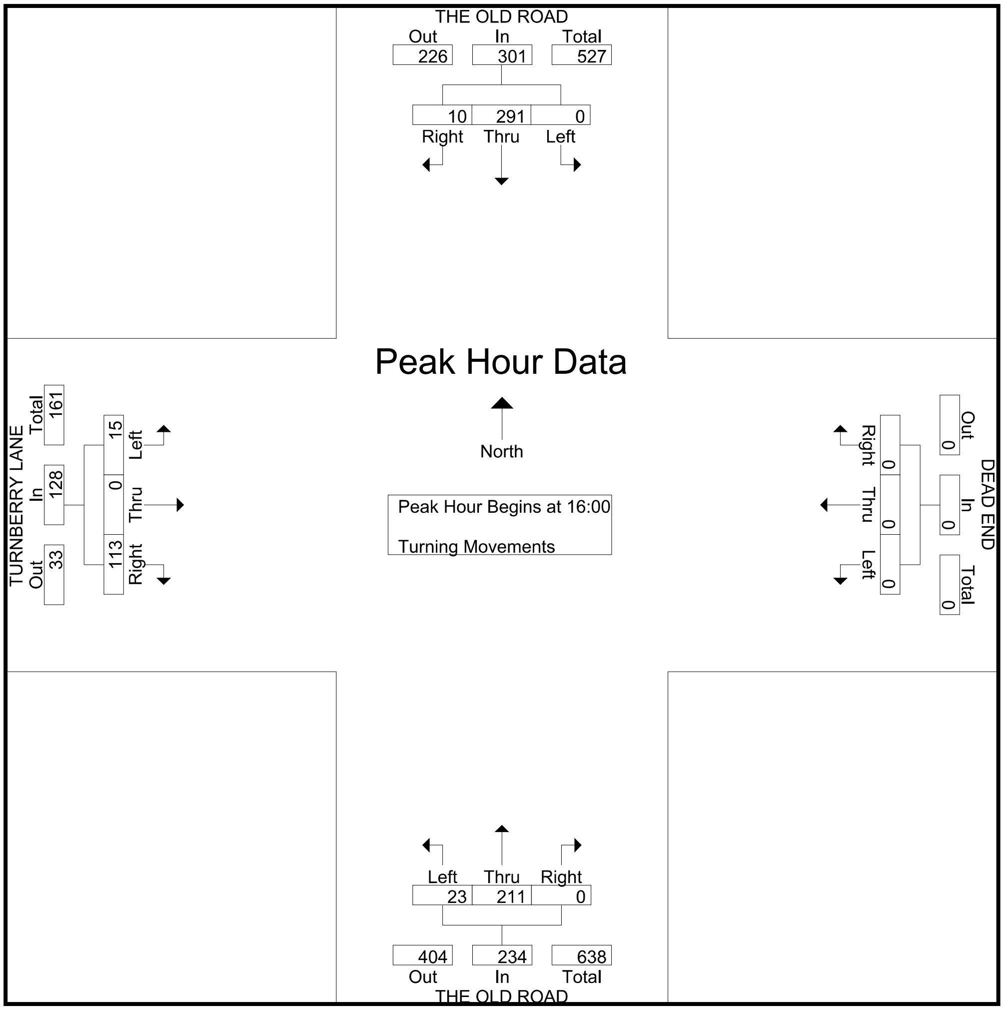
	THE OLD ROAD Southbound			DEAD END Westbound			THE OLD ROAD Northbound			TURNBERRY LANE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	3	32	0	0	0	0	0	36	13	1	0	0	85
07:15	6	40	0	0	0	0	0	26	28	0	0	0	100
07:30	8	56	0	0	0	0	0	36	18	3	0	0	121
07:45	8	48	0	0	0	0	0	45	49	4	0	0	154
Total	25	176	0	0	0	0	0	143	108	8	0	0	460
08:00	11	39	0	0	0	0	0	37	46	1	0	0	134
08:15	13	40	0	0	0	0	0	42	39	3	0	0	137
08:30	5	40	0	0	0	0	0	32	25	1	0	0	103
08:45	5	57	0	0	0	0	0	32	11	8	0	1	114
Total	34	176	0	0	0	0	0	143	121	13	0	1	488
16:00	2	103	0	0	0	0	0	72	8	34	0	3	222
16:15	5	48	0	0	0	0	0	52	4	25	0	3	137
16:30	1	84	0	0	0	0	0	43	6	27	0	5	166
16:45	2	56	0	0	0	0	0	44	5	27	0	4	138
Total	10	291	0	0	0	0	0	211	23	113	0	15	663
17:00	0	70	0	0	0	0	0	61	3	60	0	7	201
17:15	2	52	0	0	0	0	0	41	8	38	0	6	147
17:30	1	41	0	0	0	0	0	40	3	23	0	2	110
17:45	4	53	0	0	0	0	0	45	4	17	0	3	126
Total	7	216	0	0	0	0	0	187	18	138	0	18	584
Grand Total	76	859	0	0	0	0	0	684	270	272	0	34	2195
Apprch %	8.1	91.9	0	0	0	0	0	71.7	28.3	88.9	0	11.1	
Total %	3.5	39.1	0	0	0	0	0	31.2	12.3	12.4	0	1.5	

File Name : H1502037
Site Code : 337
Start Date : 2/19/2015
Page No : 2

	THE OLD ROAD Southbound				DEAD END Westbound				THE OLD ROAD Northbound				TURNBERRY LANE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	8	**56**	0	**64**	0	0	0	0	0	36	18	54	3	0	0	3	121
07:45	8	48	0	56	0	0	0	0	0	**45**	**49**	**94**	**4**	0	0	**4**	**154**
08:00	11	39	0	50	0	0	0	0	0	37	46	83	1	0	0	1	134
08:15	**13**	40	0	53	0	0	0	0	0	42	39	81	3	0	0	3	137
Total Volume	40	183	0	223	0	0	0	0	0	160	152	312	11	0	0	11	546
% App. Total	17.9	82.1	0		0	0	0		0	51.3	48.7		100	0	0		
PHF	.769	.817	.000	.871	.000	.000	.000	.000	.000	.889	.776	.830	.688	.000	.000	.688	.886



	THE OLD ROAD Southbound				DEAD END Westbound				THE OLD ROAD Northbound				TURNBERRY LANE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	2	**103**	0	**105**	0	0	0	0	0	**72**	**8**	**80**	**34**	0	3	**37**	**222**
16:15	**5**	48	0	53	0	0	0	0	0	52	4	56	25	0	3	28	137
16:30	1	84	0	85	0	0	0	0	0	43	6	49	27	0	**5**	32	166
16:45	2	56	0	58	0	0	0	0	0	44	5	49	27	0	4	31	138
Total Volume	10	291	0	301	0	0	0	0	0	211	23	234	113	0	15	128	663
% App. Total	3.3	96.7	0		0	0	0		0	90.2	9.8		88.3	0	11.7		
PHF	.500	.706	.000	.717	.000	.000	.000	.000	.000	.733	.719	.731	.831	.000	.750	.865	.747



Tuesday, May 14, 2019 CITY: Santa Clarita PROJECT: SC2197

ADT10 Hasley Canyon west of Old Road. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
0:00	0		0		24		8			12:00	0		0		146		167		
0:15	0		0		6		16			12:15	0		0		149		139		
0:30	0		0		9		9			12:30	0		0		124		173		
0:45	0	0	0	0	6	45	13	46	91	12:45	0	0	0	0	124	543	183	662	1205
1:00	0		0		16		7			13:00	0		0		110		146		
1:15	0		0		3		11			13:15	0		0		120		166		
1:30	0		0		6		5			13:30	0		0		142		139		
1:45	0	0	0	0	9	34	6	29	63	13:45	0	0	0	0	102	474	184	635	1109
2:00	0		0		8		8			14:00	0		0		140		150		
2:15	0		0		3		4			14:15	0		0		149		181		
2:30	0		0		8		6			14:30	0		0		261		178		
2:45	0	0	0	0	3	22	7	25	47	14:45	0	0	0	0	161	711	183	692	1403
3:00	0		0		6		2			15:00	0		0		157		262		
3:15	0		0		11		6			15:15	0		0		230		220		
3:30	0		0		14		8			15:30	0		0		288		173		
3:45	0	0	0	0	14	45	6	22	67	15:45	0	0	0	0	196	871	184	839	1710
4:00	0		0		11		12			16:00	0		0		60		149		
4:15	0		0		20		21			16:15	0		0		62		163		
4:30	0		0		35		31			16:30	0		0		102		175		
4:45	0	0	0	0	43	109	65	129	238	16:45	0	0	0	0	84	308	157	644	952
5:00	0		0		39		33			17:00	0		0		85		169		
5:15	0		0		60		53			17:15	0		0		80		162		
5:30	0		0		68		107			17:30	0		0		67		169		
5:45	0	0	0	0	103	270	212	405	675	17:45	0	0	0	0	59	291	149	649	940
6:00	0		0		86		89			18:00	0		0		129		158		
6:15	0		0		115		85			18:15	0		0		118		160		
6:30	0		0		123		109			18:30	0		0		100		159		
6:45	0	0	0	0	132	456	176	459	915	18:45	0	0	0	0	84	431	125	602	1033
7:00	0		0		34		145			19:00	0		0		91		130		
7:15	0		0		51		176			19:15	0		0		69		114		
7:30	0		0		72		202			19:30	0		0		54		81		
7:45	0	0	0	0	75	232	285	808	1040	19:45	0	0	0	0	56	270	94	419	689
8:00	0		0		55		253			20:00	0		0		45		108		
8:15	0		0		60		267			20:15	0		0		63		97		
8:30	0		0		57		211			20:30	0		0		51		73		
8:45	0	0	0	0	41	213	166	897	1110	20:45	0	0	0	0	55	214	88	366	580
9:00	0		0		129		135			21:00	0		0		51		74		
9:15	0		0		101		94			21:15	0		0		29		80		
9:30	0		0		106		110			21:30	0		0		30		59		
9:45	0	0	0	0	104	440	114	453	893	21:45	0	0	0	0	20	130	55	268	398
10:00	0		0		90		95			22:00	0		0		15		47		
10:15	0		0		91		104			22:15	0		0		17		33		
10:30	0		0		89		95			22:30	0		0		15		28		
10:45	0	0	0	0	99	369	94	388	757	22:45	0	0	0	0	14	61	36	144	205
11:00	0		0		119		128			23:00	0		0		16		49		
11:15	0		0		105		121			23:15	0		0		13		30		
11:30	0		0		115		133			23:30	0		0		17		29		
11:45	0	0	0	0	120	459	153	535	994	23:45	0	0	0	0	18	64	21	129	193
Total Vol.						2694		4196	**6890**							4368		6049	**10417**

Daily Totals

NB	SB	EB	WB	**Combined**
		7062	10245	**17317**

		AM			**PM**	
Split %	39.1%	60.9%	**39.8%**	41.9%	58.1%	**60.2%**
Peak Hour	11:45	7:45	**7:30**	15:00	14:30	**15:00**
Volume	539	1016	**1269**	871	843	**1710**
P.H.F.	0.90	0.89	**0.88**	0.76	0.80	**0.93**

Tuesday, May 14, 2019 CITY: Santa Clarita PROJECT: SC2197

ADT11 Commerce Center south of Industry. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
0:00	14		5		0		0			12:00	104		88		0		0		
0:15	4		4		0		0			12:15	75		107		0		0		
0:30	6		5		0		0			12:30	78		96		0		0		
0:45	1	25	4	18	0	0	0	0	43	12:45	62	319	100	391	0	0	0	0	710
1:00	10		8		0		0			13:00	80		104		0		0		
1:15	2		3		0		0			13:15	58		86		0		0		
1:30	9		3		0		0			13:30	59		90		0		0		
1:45	5	26	0	14	0	0	0	0	40	13:45	53	250	79	359	0	0	0	0	609
2:00	6		7		0		0			14:00	59		71		0		0		
2:15	3		1		0		0			14:15	43		87		0		0		
2:30	9		5		0		0			14:30	71		112		0		0		
2:45	0	18	3	16	0	0	0	0	34	14:45	54	227	58	328	0	0	0	0	555
3:00	6		1		0		0			15:00	94		47		0		0		
3:15	4		2		0		0			15:15	70		82		0		0		
3:30	5		3		0		0			15:30	111		119		0		0		
3:45	5	20	3	9	0	0	0	0	29	15:45	54	329	87	335	0	0	0	0	664
4:00	9		6		0		0			16:00	87		58		0		0		
4:15	13		13		0		0			16:15	73		52		0		0		
4:30	29		12		0		0			16:30	147		74		0		0		
4:45	28	79	22	53	0	0	0	0	132	16:45	78	385	51	235	0	0	0	0	620
5:00	14		18		0		0			17:00	85		77		0		0		
5:15	15		17		0		0			17:15	66		51		0		0		
5:30	39		46		0		0			17:30	69		42		0		0		
5:45	67	135	63	144	0	0	0	0	279	17:45	39	259	26	196	0	0	0	0	455
6:00	24		45		0		0			18:00	39		20		0		0		
6:15	18		31		0		0			18:15	31		24		0		0		
6:30	26		39		0		0			18:30	54		26		0		0		
6:45	47	115	83	198	0	0	0	0	313	18:45	30	154	34	104	0	0	0	0	258
7:00	36		64		0		0			19:00	29		24		0		0		
7:15	32		73		0		0			19:15	20		12		0		0		
7:30	43		89		0		0			19:30	21		10		0		0		
7:45	59	170	138	364	0	0	0	0	534	19:45	20	90	11	57	0	0	0	0	147
8:00	80		117		0		0			20:00	22		11		0		0		
8:15	90		111		0		0			20:15	24		16		0		0		
8:30	72		87		0		0			20:30	23		15		0		0		
8:45	47	289	84	399	0	0	0	0	688	20:45	14	83	12	54	0	0	0	0	137
9:00	41		55		0		0			21:00	12		10		0		0		
9:15	29		44		0		0			21:15	14		6		0		0		
9:30	38		58		0		0			21:30	19		3		0		0		
9:45	53	161	65	222	0	0	0	0	383	21:45	13	58	6	25	0	0	0	0	83
10:00	40		60		0		0			22:00	9		9		0		0		
10:15	46		64		0		0			22:15	11		5		0		0		
10:30	47		65		0		0			22:30	7		6		0		0		
10:45	45	178	54	243	0	0	0	0	421	22:45	11	38	6	26	0	0	0	0	64
11:00	79		77		0		0			23:00	11		9		0		0		
11:15	48		86		0		0			23:15	16		2		0		0		
11:30	51		69		0		0			23:30	11		5		0		0		
11:45	67	245	80	312	0	0	0	0	557	23:45	7	45	5	21	0	0	0	0	66
Total Vol.		1461		1992					**3453**			2237		2131					**4368**

Daily Totals

NB	SB	EB	WB	**Combined**
3698	4123			**7821**

		AM			**PM**	
Split %	42.3%	57.7%	**44.2%**	51.2%	48.8%	**55.8%**
Peak Hour	11:45	7:30	**7:45**	16:00	12:15	**12:00**
Volume	324	455	**754**	385	407	**710**
P.H.F.	0.78	0.82	**0.94**	0.77	0.95	**0.92**

cs@aimtd.com Tell. 714 253 7888

Tuesday, May 14, 2019 CITY: Santa Clarita PROJECT: SC2197

ADT13 Commerce Center south of Franklin. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
0:00	8		37		0		0			12:00	79		133		0		0		
0:15	8		8		0		0			12:15	69		106		0		0		
0:30	7		40		0		0			12:30	78		118		0		0		
0:45	9	32	13	98	0	0	0	0	130	12:45	100	326	99	456	0	0	0	0	782
1:00	13		37		0		0			13:00	90		119		0		0		
1:15	9		10		0		0			13:15	96		84		0		0		
1:30	4		76		0		0			13:30	90		164		0		0		
1:45	11	37	19	142	0	0	0	0	179	13:45	98	374	105	472	0	0	0	0	846
2:00	11		27		0		0			14:00	89		114		0		0		
2:15	8		19		0		0			14:15	93		119		0		0		
2:30	11		76		0		0			14:30	97		331		0		0		
2:45	20	50	27	149	0	0	0	0	199	14:45	107	386	142	706	0	0	0	0	1092
3:00	16		20		0		0			15:00	136		159		0		0		
3:15	15		7		0		0			15:15	129		166		0		0		
3:30	25		43		0		0			15:30	104		423		0		0		
3:45	38	94	7	77	0	0	0	0	171	15:45	114	483	190	938	0	0	0	0	1421
4:00	29		29		0		0			16:00	85		351		0		0		
4:15	74		18		0		0			16:15	82		205		0		0		
4:30	136		30		0		0			16:30	89		539		0		0		
4:45	169	408	21	98	0	0	0	0	506	16:45	65	321	278	1373	0	0	0	0	1694
5:00	86		19		0		0			17:00	57		373		0		0		
5:15	158		21		0		0			17:15	60		237		0		0		
5:30	222		38		0		0			17:30	71		285		0		0		
5:45	347	813	48	126	0	0	0	0	939	17:45	58	246	127	1022	0	0	0	0	1268
6:00	133		63		0		0			18:00	30		135		0		0		
6:15	131		44		0		0			18:15	37		91		0		0		
6:30	201		28		0		0			18:30	55		100		0		0		
6:45	326	791	27	162	0	0	0	0	953	18:45	43	165	67	393	0	0	0	0	558
7:00	235		57		0		0			19:00	46		77		0		0		
7:15	258		49		0		0			19:15	36		45		0		0		
7:30	242		68		0		0			19:30	35		62		0		0		
7:45	308	1043	60	234	0	0	0	0	1277	19:45	36	153	39	223	0	0	0	0	376
8:00	260		92		0		0			20:00	27		33		0		0		
8:15	220		78		0		0			20:15	41		29		0		0		
8:30	178		74		0		0			20:30	27		26		0		0		
8:45	160	818	58	302	0	0	0	0	1120	20:45	21	116	18	106	0	0	0	0	222
9:00	86		58		0		0			21:00	17		21		0		0		
9:15	90		50		0		0			21:15	24		15		0		0		
9:30	77		56		0		0			21:30	26		24		0		0		
9:45	83	336	55	219	0	0	0	0	555	21:45	19	86	18	78	0	0	0	0	164
10:00	67		72		0		0			22:00	29		21		0		0		
10:15	61		56		0		0			22:15	33		20		0		0		
10:30	57		73		0		0			22:30	20		28		0		0		
10:45	63	248	91	292	0	0	0	0	540	22:45	32	114	8	77	0	0	0	0	191
11:00	65		98		0		0			23:00	23		51		0		0		
11:15	62		86		0		0			23:15	29		11		0		0		
11:30	56		103		0		0			23:30	13		39		0		0		
11:45	71	254	116	403	0	0	0	0	657	23:45	7	72	22	123	0	0	0	0	195
Total Vol.		4924		2302					**7226**			2842		5967					**8809**

Daily Totals

NB	SB	EB	WB	**Combined**
7766	8269			**16035**

	AM			PM		
Split %	68.1%	31.9%	**45.1%**	32.3%	67.7%	**54.9%**
Peak Hour	7:15	11:45	**7:15**	15:00	16:30	**16:30**
Volume	1068	473	**1337**	483	1427	**1698**
P.H.F.	0.87	0.89	**0.91**	0.87	0.66	**0.68**

cs@aimtd.com Tell. 714 253 7888

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : VALENCIA BOULEVARD
Segment : W/O THE OLD ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 05/15/18
Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	1	11	144	864	6	11	114	417	7	22	258	1.281
12:15	5		364		1		83		6		447	
12:30	3		220		2		120		5		340	
12:45	2		136		2		100		4		236	
01:00	2	7	136	444	2	13	86	390	4	20	222	834
01:15	2		104		6		90		8		194	
01:30	3		108		4		82		7		190	
01:45	0		96		1		132		1		228	
02:00	0	7	108	856	2	9	147	903	2	16	255	1.759
02:15	1		100		5		195		6		295	
02:30	5		211		0		249		5		460	
02:45	1		437		2		312		3		749	
03:00	3	23	542	1.226	3	9	282	709	6	32	824	1.935
03:15	10		412		2		190		12		602	
03:30	6		140		2		124		8		264	
03:45	4		132		2		113		6		245	
04:00	2	38	115	494	1	7	102	429	3	45	217	923
04:15	8		123		2		108		10		231	
04:30	10		130		2		109		12		239	
04:45	18		126		2		110		20		236	
05:00	18	120	84	410	0	17	106	452	18	137	190	862
05:15	26		120		4		116		30		236	
05:30	40		124		3		120		43		244	
05:45	36		82		10		110		46		192	
06:00	45	368	88	330	26	479	112	549	71	847	200	879
06:15	55		86		28		159		83		245	
06:30	76		77		153		128		229		205	
06:45	192		79		272		150		464		229	
07:00	148	971	84	293	144	1.101	118	366	292	2.072	202	659
07:15	186		55		240		83		426		138	
07:30	286		90		283		87		569		177	
07:45	351		64		434		78		785		142	
08:00	364	1.258	92	386	507	980	82	302	871	2.238	174	688
08:15	436		154		271		74		707		228	
08:30	360		88		140		72		500		160	
08:45	98		52		62		74		160		126	
09:00	96	338	41	129	60	219	50	179	156	557	91	308
09:15	80		42		43		56		123		98	
09:30	70		29		54		35		124		64	
09:45	92		17		62		38		154		55	
10:00	96	384	19	78	70	255	48	135	166	639	67	213
10:15	107		21		59		34		166		55	
10:30	93		17		64		29		157		46	
10:45	88		21		62		24		150		45	
11:00	76	380	4	17	64	290	26	65	140	670	30	82
11:15	100		5		64		6		164		11	
11:30	102		5		76		16		178		21	
11:45	102		3		86		17		188		20	
Totals	3.905		5.527		3.390		4.896		7.295		10.423	
Split%	53.5		53.0		46.5		47.0					
Day Totals		9.432				8.286				17.718		
Day Splits		53.2				46.8						
Peak Hour	07:45		02:30		07:30		02:15		07:30		02:30	
Volume	1.511		1.602		1.495		1.038		2.932		2.635	
Factor	0.87		0.74		0.74		0.83		0.84		0.80	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : MAGIC MOUNTAIN PARKWAY
Segment : W/O THE OLD ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 05/15/18
Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	1	25	116	2	3	82	324	2	4	107	440
12:15	1		27		1		94		2		121	
12:30	0		26		0		70		0		96	
12:45	0		38		0		78		0		116	
01:00	1	5	28	96	0	3	72	241	1	8	100	337
01:15	2		27		1		68		3		95	
01:30	2		19		2		53		4		72	
01:45	0		22		0		48		0		70	
02:00	1	1	40	110	1	3	56	157	2	4	96	267
02:15	0		40		2		32		2		72	
02:30	0		30		0		33		0		63	
02:45	0		0		0		36		0		36	
03:00	0	0	0	0	0	0	29	110	0	0	29	110
03:15	0		0		0		33		0		33	
03:30	0		0		0		26		0		26	
03:45	0		0		0		22		0		22	
04:00	1	3	0	0	3	10	18	68	4	13	18	68
04:15	1		0		2		18		3		18	
04:30	1		0		2		21		3		21	
04:45	0		0		3		11		3		11	
05:00	0	3	0	0	4	31	20	73	4	34	20	73
05:15	1		0		5		14		6		14	
05:30	1		0		7		17		8		17	
05:45	1		0		15		22		16		22	
06:00	3	14	0	0	14	102	28	80	17	116	28	80
06:15	3		0		22		26		25		26	
06:30	4		0		30		14		34		14	
06:45	4		0		36		12		40		12	
07:00	5	16	0	0	39	187	7	19	44	203	7	19
07:15	4		0		40		2		44		2	
07:30	4		0		48		8		52		8	
07:45	3		0		60		2		63		2	
08:00	2	17	0	0	66	276	4	9	68	293	4	9
08:15	2		0		66		1		68		1	
08:30	5		0		78		4		83		4	
08:45	8		0		66		0		74		0	
09:00	12	44	0	0	33	199	1	8	45	243	1	8
09:15	7		0		26		2		33		2	
09:30	11		0		56		3		67		3	
09:45	14		0		84		2		98		2	
10:00	14	96	0	0	120	596	0	1	134	692	0	1
10:15	30		0		166		0		196		0	
10:30	26		0		184		1		210		1	
10:45	26		0		126		0		152		0	
11:00	36	133	0	0	105	399	0	0	141	532	0	0
11:15	24		0		120		0		144		0	
11:30	43		0		92		0		135		0	
11:45	30		0		82		0		112		0	
Totals	333		322		1,809		1,090		2,142		1,412	
Split%	15.5		22.8		84.5		77.2					
Day Totals		655				2,899				3,554		
Day Splits		18.4				81.6						
Peak Hour	11:00		01:45		10:00		12:00		10:15		12:00	
Volume	133		132		596		324		699		440	
Factor	0.77		0.82		0.81		0.86		0.83		0.91	

Location : THE OLD ROAD
Segment : N/O HENRY MAYO DRIVE
Client : STANTEC

Site: SANTA CLARIT
Date: 05/10/18
Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	12	41	74	347	10	33	106	389	22	74	180	736
12:15	12		90		12		96		24		186	
12:30	10		78		3		99		13		177	
12:45	7		105		8		88		15		193	
01:00	6	21	82	351	13	33	92	398	19	54	174	749
01:15	4		102		6		82		10		184	
01:30	5		93		5		114		10		207	
01:45	6		74		9		110		15		184	
02:00	6	25	62	262	4	16	112	446	10	41	174	708
02:15	4		68		7		111		11		179	
02:30	4		60		3		118		7		178	
02:45	11		72		2		105		13		177	
03:00	4	31	60	221	5	26	102	453	9	57	162	674
03:15	6		51		3		100		9		151	
03:30	7		60		8		147		15		207	
03:45	14		50		10		104		24		154	
04:00	15	74	70	265	2	78	98	505	17	152	168	770
04:15	13		54		16		111		29		165	
04:30	16		53		32		186		48		239	
04:45	30		88		28		110		58		198	
05:00	38	242	62	256	20	153	186	501	58	395	248	757
05:15	54		78		40		105		94		183	
05:30	77		52		36		110		113		162	
05:45	73		64		57		100		130		164	
06:00	52	210	62	212	59	218	114	305	111	428	176	517
06:15	44		56		45		66		89		122	
06:30	56		56		48		69		104		125	
06:45	58		38		66		56		124		94	
07:00	46	271	48	164	54	231	37	130	100	502	85	294
07:15	53		44		51		32		104		76	
07:30	78		36		64		38		142		74	
07:45	94		36		62		23		156		59	
08:00	76	304	46	172	63	252	22	105	139	556	68	277
08:15	84		32		43		20		127		52	
08:30	81		44		64		17		145		61	
08:45	63		50		82		46		145		96	
09:00	52	200	60	203	67	250	25	167	119	450	85	370
09:15	44		44		58		34		102		78	
09:30	56		58		71		42		127		100	
09:45	48		41		54		66		102		107	
10:00	43	196	36	150	63	275	73	187	106	471	109	337
10:15	53		50		74		32		127		82	
10:30	48		42		66		26		114		68	
10:45	52		22		72		56		124		78	
11:00	51	259	24	95	84	362	36	72	135	621	60	167
11:15	65		25		86		20		151		45	
11:30	56		24		104		8		160		32	
11:45	87		22		88		8		175		30	
Totals	1,874		2,698		1,927		3,658		3,801		6,356	
Split%	49.3		42.4		50.7		57.6					
Day Totals		4,572				5,585				10,157		
Day Splits		45.0				55.0						
Peak Hour	07:45		12:45		11:00		04:15		11:00		04:30	
Volume	335		382		362		593		621		868	
Factor	0.89		0.91		0.87		0.80		0.89		0.88	

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : S/O HENRY MAYO DRIVE
Client : STANTEC

Site: SANTA CLARIT
Date: 05/10/18

Interval	NB				SB				Combined				Day:	Thursday
Begin	AM		PM		AM		PM		AM		PM			
12:00	16	53	111	449	14	65	139	485	30	118	250	934		
12:15	16		106		29		120		45		226			
12:30	12		104		11		122		23		226			
12:45	9		128		11		104		20		232			
01:00	12	29	114	449	20	47	118	497	32	76	232	946		
01:15	6		122		6		108		12		230			
01:30	6		97		9		144		15		241			
01:45	5		116		12		127		17		243			
02:00	8	30	94	387	8	26	132	569	16	56	226	956		
02:15	7		104		9		133		16		237			
02:30	5		85		4		168		9		253			
02:45	10		104		5		136		15		240			
03:00	15	47	92	332	10	47	129	601	25	94	221	933		
03:15	8		68		12		123		20		191			
03:30	10		82		11		217		21		299			
03:45	14		90		14		132		28		222			
04:00	16	105	104	369	4	97	153	727	20	202	257	1,096		
04:15	19		73		14		141		33		214			
04:30	28		86		36		280		64		366			
04:45	42		106		43		153		85		259			
05:00	40	286	98	367	21	173	265	706	61	459	363	1,073		
05:15	72		100		46		161		118		261			
05:30	76		70		48		154		124		224			
05:45	98		99		58		126		156		225			
06:00	76	290	89	313	75	271	136	387	151	561	225	700		
06:15	58		76		54		82		112		158			
06:30	70		78		62		96		132		174			
06:45	86		70		80		73		166		143			
07:00	75	385	68	235	64	284	56	199	139	669	124	434		
07:15	80		58		59		43		139		101			
07:30	98		48		86		58		184		106			
07:45	132		61		75		42		207		103			
08:00	92	412	55	233	82	312	34	151	174	724	89	384		
08:15	120		58		50		30		170		88			
08:30	107		52		82		31		189		83			
08:45	93		68		98		56		191		124			
09:00	81	285	72	255	80	320	29	180	161	605	101	435		
09:15	61		58		78		39		139		97			
09:30	78		72		82		41		160		113			
09:45	65		53		80		71		145		124			
10:00	58	267	50	206	76	355	76	202	134	622	126	408		
10:15	67		59		94		35		161		94			
10:30	66		51		89		30		155		81			
10:45	76		46		96		61		172		107			
11:00	62	347	35	128	110	467	43	92	172	814	78	220		
11:15	101		31		101		22		202		53			
11:30	70		24		124		16		194		40			
11:45	114		38		132		11		246		49			
Totals	2,536		3,723		2,464		4,796		5,000		8,519			
Split%	50.7		43.7		49.3		56.3							
Day Totals		6,259				7,260				13,519				
Day Splits		46.3				53.7								
Peak Hour	07:45		12:30		11:00		04:30		11:00		04:30			
Volume	451		468		467		859		814		1,249			
Factor	0.85		0.91		0.88		0.77		0.83		0.85			

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : N/O RYE CANYON ROAD
Client : STANTEC

Site: SANTA CLARIT
Date: 05/10/18
Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	50	131	289	1,158	31	121	374	1,417	81	252	663	2,575
12:15	30		272		33		368		63		640	
12:30	28		320		31		370		59		690	
12:45	23		277		26		305		49		582	
01:00	26	114	284	1,078	23	82	308	1,261	49	196	592	2,339
01:15	24		256		13		321		37		577	
01:30	42		278		28		347		70		625	
01:45	22		260		18		285		40		545	
02:00	22	108	256	1,060	20	99	279	1,213	42	207	535	2,273
02:15	28		256		28		253		56		509	
02:30	32		312		23		313		55		625	
02:45	26		236		28		368		54		604	
03:00	32	159	315	1,224	19	72	308	1,378	51	231	623	2,602
03:15	42		243		16		309		58		552	
03:30	34		388		15		419		49		807	
03:45	51		278		22		342		73		620	
04:00	58	390	326	1,316	29	185	333	1,485	87	575	659	2,801
04:15	82		264		31		243		113		507	
04:30	111		386		50		488		161		874	
04:45	139		340		75		421		214		761	
05:00	212	1,040	384	1,337	65	462	444	1,483	277	1,502	828	2,820
05:15	247		329		74		329		321		658	
05:30	301		336		161		338		462		674	
05:45	280		288		162		372		442		660	
06:00	302	1,259	345	1,042	157	820	295	828	459	2,079	640	1,870
06:15	259		250		194		216		453		466	
06:30	338		235		184		165		522		400	
06:45	360		212		285		152		645		364	
07:00	304	1,291	167	597	173	1,090	135	543	477	2,381	302	1,140
07:15	306		158		183		148		489		306	
07:30	332		148		343		131		675		279	
07:45	349		124		391		129		740		253	
08:00	366	1,312	134	497	260	987	101	489	626	2,299	235	986
08:15	380		129		220		153		600		282	
08:30	296		124		247		115		543		239	
08:45	270		110		260		120		530		230	
09:00	293	1,132	161	515	207	900	125	490	500	2,032	286	1,005
09:15	282		146		203		168		485		314	
09:30	293		99		254		95		547		194	
09:45	264		109		236		102		500		211	
10:00	275	1,048	86	302	245	1,073	78	308	520	2,121	164	610
10:15	256		70		239		63		495		133	
10:30	277		80		307		67		584		147	
10:45	240		66		282		100		522		166	
11:00	240	1,000	70	238	248	1,088	88	311	488	2,088	158	549
11:15	256		48		262		90		518		138	
11:30	248		60		296		60		544		120	
11:45	256		60		282		73		538		133	
Totals	8,984		10,364		6,979		11,206		15,963		21,570	
Split%	56.3		48.0		43.7		52.0					
Day Totals		19,348				18,185				37,533		
Day Splits		51.5				48.5						
Peak Hour	07:30		04:30		07:30		04:30		07:30		04:30	
Volume	1,427		1,439		1,214		1,682		2,641		3,121	
Factor	0.94		0.93		0.78		0.86		0.89		0.89	

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : N/O MAGIC MOUNTAIN PARKWAY
Client : STANTEC

Site: SANTA CLARIT
Date: 05/10/18
Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	40	131	243	1,124	64	119	388	1,274	104	250	631	2,398
12:15	37		285		18		307		55		592	
12:30	29		282		19		295		48		577	
12:45	25		314		18		284		43		598	
01:00	20	96	260	1,153	14	53	291	1,092	34	149	551	2,245
01:15	12		310		6		275		18		585	
01:30	42		283		20		276		62		559	
01:45	22		300		13		250		35		550	
02:00	17	103	268	1,123	12	61	288	1,397	29	164	556	2,520
02:15	24		278		22		290		46		568	
02:30	26		262		8		431		34		693	
02:45	36		315		19		388		55		703	
03:00	21	119	332	1,250	12	36	360	1,616	33	155	692	2,866
03:15	26		308		6		411		32		719	
03:30	32		342		9		462		41		804	
03:45	40		268		9		383		49		651	
04:00	35	350	296	1,268	20	100	429	1,818	55	450	725	3,086
04:15	66		332		16		374		82		706	
04:30	83		322		34		502		117		824	
04:45	166		318		30		513		196		831	
05:00	115	966	352	1,414	22	208	493	2,064	137	1,174	845	3,478
05:15	149		348		26		573		175		921	
05:30	318		358		87		518		405		876	
05:45	384		356		73		480		457		836	
06:00	238	1,128	370	1,350	116	571	402	1,413	354	1,699	772	2,763
06:15	256		350		144		371		400		721	
06:30	290		308		138		351		428		659	
06:45	344		322		173		289		517		611	
07:00	316	1,408	280	881	153	933	213	801	469	2,341	493	1,682
07:15	296		239		196		245		492		484	
07:30	386		178		256		160		642		338	
07:45	410		184		328		183		738		367	
08:00	424	1,542	166	684	300	894	159	551	724	2,436	325	1,235
08:15	408		199		205		185		613		384	
08:30	388		152		218		115		606		267	
08:45	322		167		171		92		493		259	
09:00	341	1,238	153	563	198	826	116	395	539	2,064	269	958
09:15	334		162		196		113		530		275	
09:30	273		130		220		88		493		218	
09:45	290		118		212		78		502		196	
10:00	214	901	80	331	228	992	48	266	442	1,893	128	597
10:15	241		92		246		76		487		168	
10:30	226		86		249		74		475		160	
10:45	220		73		269		68		489		141	
11:00	208	909	67	228	254	1,145	56	223	462	2,054	123	451
11:15	224		54		271		76		495		130	
11:30	229		61		342		46		571		107	
11:45	248		46		278		45		526		91	
Totals	8,891		11,369		5,938		12,910		14,829		24,279	
Split%	60.0		46.8		40.0		53.2					
Day Totals		20,260				18,848				39,108		
Day Splits		51.8				48.2						
Peak Hour	07:45		05:30		11:00		04:45		07:30		05:00	
Volume	1,630		1,434		1,145		2,097		2,717		3,478	
Factor	0.96		0.97		0.84		0.91		0.92		0.94	

A.40

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : S/O MAGIC MOUNTAIN PARKWAY
Client : STANTEC

Site: SANTA CLARIT
Date: 05/15/18
Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	34	94	184	756	28	72	174	614	62	166	358	1,370
12:15	24		176		13		148		37		324	
12:30	18		185		11		138		29		323	
12:45	18		211		20		154		38		365	
01:00	11	47	210	683	9	35	148	522	20	82	358	1,205
01:15	16		180		12		130		28		310	
01:30	8		129		10		139		18		268	
01:45	12		164		4		105		16		269	
02:00	16	49	150	621	4	17	140	554	20	66	290	1,175
02:15	8		150		1		122		9		272	
02:30	13		154		8		141		21		295	
02:45	12		167		4		151		16		318	
03:00	10	52	162	639	3	15	134	610	13	67	296	1,249
03:15	10		142		5		128		15		270	
03:30	12		168		1		160		13		328	
03:45	20		167		6		188		26		355	
04:00	14	122	174	635	4	38	175	773	18	160	349	1,408
04:15	24		142		3		158		27		300	
04:30	40		155		22		196		62		351	
04:45	44		164		9		244		53		408	
05:00	18	286	162	661	12	73	246	1,292	30	359	408	1,953
05:15	40		176		12		359		52		535	
05:30	96		149		18		337		114		486	
05:45	132		174		31		350		163		524	
06:00	87	333	164	645	46	190	236	716	133	523	400	1,361
06:15	60		168		29		158		89		326	
06:30	81		151		46		170		127		321	
06:45	105		162		69		152		174		314	
07:00	73	469	144	501	58	314	128	471	131	783	272	972
07:15	116		134		96		127		212		261	
07:30	122		113		82		104		204		217	
07:45	158		110		78		112		236		222	
08:00	147	591	126	416	72	286	112	378	219	877	238	794
08:15	163		80		66		82		229		162	
08:30	138		102		54		90		192		192	
08:45	143		108		94		94		237		202	
09:00	120	494	72	350	62	351	80	371	182	845	152	721
09:15	106		79		92		94		198		173	
09:30	128		100		90		79		218		179	
09:45	140		99		107		118		247		217	
10:00	118	648	82	309	86	455	80	234	204	1,103	162	543
10:15	162		94		128		56		290		150	
10:30	186		74		113		49		299		123	
10:45	182		59		128		49		310		108	
11:00	180	698	72	218	118	565	58	159	298	1,263	130	377
11:15	158		40		119		30		277		70	
11:30	162		64		158		36		320		100	
11:45	198		42		170		35		368		77	
Totals	3,883		6,434		2,411		6,694		6,294		13,128	
Split%	61.7		49.0		38.3		51.0					
Day Totals		10,317				9,105				19,422		
Day Splits		53.1				46.9						
Peak Hour	10:15		12:30		11:00		05:00		11:00		05:00	
Volume	710		786		565		1,292		1,263		1,953	
Factor	0.95		0.93		0.83		0.90		0.86		0.91	

Transportation Studies, Inc.

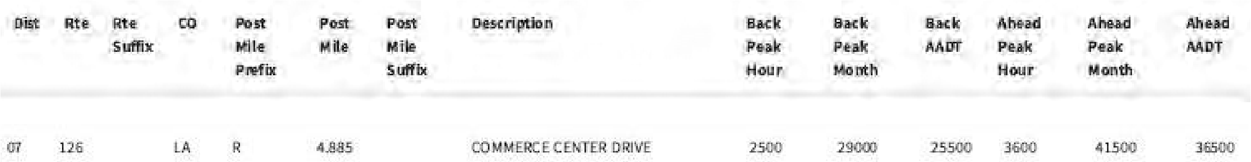
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : THE OLD ROAD
Segment : S/O VALENCIA BOULEVARD
Client : STANTEC

Site: SANTA CLARIT
Date: 05/15/18
Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	10	33	158	706	15	46	163	856	25	79	321	1.562
12:15	8		170		12		276		20		446	
12:30	10		174		11		234		21		408	
12:45	5		204		8		183		13		387	
01:00	4	17	172	631	7	23	192	718	11	40	364	1.349
01:15	3		174		9		183		12		357	
01:30	8		149		3		168		11		317	
01:45	2		136		4		175		6		311	
02:00	4	17	184	722	3	16	190	846	7	33	374	1.568
02:15	5		181		4		152		9		333	
02:30	5		180		6		196		11		376	
02:45	3		177		3		308		6		485	
03:00	3	21	237	859	3	17	362	1.213	6	38	599	2.072
03:15	3		248		3		366		6		614	
03:30	5		184		4		229		9		413	
03:45	10		190		7		256		17		446	
04:00	6	64	169	693	4	31	198	952	10	95	367	1.645
04:15	7		164		2		208		9		372	
04:30	26		164		9		260		35		424	
04:45	25		196		16		286		41		482	
05:00	18	149	198	788	23	104	256	1.241	41	253	454	2.029
05:15	28		182		18		362		46		544	
05:30	54		206		29		331		83		537	
05:45	49		202		34		292		83		494	
06:00	41	472	210	734	52	285	243	829	93	757	453	1.563
06:15	56		208		68		210		124		418	
06:30	122		147		59		170		181		317	
06:45	253		169		106		206		359		375	
07:00	116	789	157	522	111	547	158	566	227	1.336	315	1.088
07:15	158		142		133		142		291		284	
07:30	220		117		136		130		356		247	
07:45	295		106		167		136		462		242	
08:00	278	863	92	424	182	758	114	592	460	1.621	206	1.016
08:15	268		119		214		202		482		321	
08:30	174		114		236		164		410		278	
08:45	143		99		126		112		269		211	
09:00	120	463	100	279	86	408	104	353	206	871	204	632
09:15	131		84		104		99		235		183	
09:30	118		44		108		78		226		122	
09:45	94		51		110		72		204		123	
10:00	126	464	44	172	112	516	60	185	238	980	104	357
10:15	116		40		118		46		234		86	
10:30	114		48		155		39		269		87	
10:45	108		40		131		40		239		80	
11:00	125	538	36	107	128	586	34	99	253	1.124	70	206
11:15	126		25		136		26		262		51	
11:30	129		28		158		21		287		49	
11:45	158		18		164		18		322		36	
Totals	3.890		6.637		3.337		8.450		7.227		15.087	
Split%	53.8		44.0		46.2		56.0					
Day Totals		10.527				11.787				22.314		
Day Splits		47.2				52.8						
Peak Hour	07:30		03:00		07:45		02:45		07:45		02:45	
Volume	1.061		859		799		1.265		1.814		2.111	
Factor	0.90		0.87		0.85		0.86		0.94		0.86	

2017 Traffic Volumes (Caltrans)



Dist	Rte	Rte Suffix	CO	Post Mile Prefix	Post Mile	Post Mile Suffix	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
07	126		LA	R	4.885		COMMERCE CENTER DRIVE	2500	29000	25500	3600	41500	36500

2017 Traffic Volumes (Caltrans)

Dist	Rte	Rte Suffix	CO	Post Mile Prefix	Post Mile	Post Mile Suffix	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
07	126		LA	R	5.801		SANTA CLARITA, NORTH JCT. RTE. 5	3600	42000	36500	2200	30500	28000

ADT59 Franklin west of Commerce Center. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
0:00	0		0		32		3			12:00	0		0		32		27		
0:15	0		0		5		7			12:15	0		0		40		43		
0:30	0		0		34		6			12:30	0		0		40		29		
0:45	0	0	0	0	7	78	9	25	103	12:45	0	0	0	0	34	146	46	145	291
1:00	0		0		15		7			13:00	0		0		53		37		
1:15	0		0		11		9			13:15	0		0		39		42		
1:30	0		0		29		4			13:30	0		0		74		43		
1:45	0	0	0	0	17	72	9	29	101	13:45	0	0	0	0	34	200	35	157	357
2:00	0		0		12		5			14:00	0		0		61		40		
2:15	0		0		19		6			14:15	0		0		38		46		
2:30	0		0		58		12			14:30	0		0		68		43		
2:45	0	0	0	0	8	97	14	37	134	14:45	0	0	0	0	36	203	38	167	370
3:00	0		0		22		9			15:00	0		0		62		49		
3:15	0		0		7		11			15:15	0		0		55		58		
3:30	0		0		47		20			15:30	0		0		62		82		
3:45	0	0	0	0	8	84	32	72	156	15:45	0	0	0	0	58	237	80	269	506
4:00	0		0		29		10			16:00	0		0		179		52		
4:15	0		0		17		25			16:15	0		0		55		46		
4:30	0		0		32		41			16:30	0		0		131		68		
4:45	0	0	0	0	23	101	43	119	220	16:45	0	0	0	0	82	447	50	216	663
5:00	0		0		16		49			17:00	0		0		81		44		
5:15	0		0		11		75			17:15	0		0		65		36		
5:30	0		0		38		33			17:30	0		0		54		43		
5:45	0	0	0	0	39	104	52	209	313	17:45	0	0	0	0	46	246	41	164	410
6:00	0		0		49		35			18:00	0		0		46		12		
6:15	0		0		26		34			18:15	0		0		29		18		
6:30	0		0		17		50			18:30	0		0		51		22		
6:45	0	0	0	0	26	118	61	180	298	18:45	0	0	0	0	29	155	24	76	231
7:00	0		0		24		74			19:00	0		0		28		27		
7:15	0		0		19		102			19:15	0		0		14		21		
7:30	0		0		31		79			19:30	0		0		22		17		
7:45	0	0	0	0	42	116	98	353	469	19:45	0	0	0	0	12	76	21	86	162
8:00	0		0		47		58			20:00	0		0		22		14		
8:15	0		0		36		54			20:15	0		0		16		22		
8:30	0		0		23		32			20:30	0		0		16		17		
8:45	0	0	0	0	20	126	37	181	307	20:45	0	0	0	0	6	60	9	62	122
9:00	0		0		23		24			21:00	0		0		14		11		
9:15	0		0		14		21			21:15	0		0		2		14		
9:30	0		0		24		38			21:30	0		0		7		12		
9:45	0	0	0	0	26	87	43	126	213	21:45	0	0	0	0	9	32	14	51	83
10:00	0		0		26		30			22:00	0		0		5		17		
10:15	0		0		28		26			22:15	0		0		5		22		
10:30	0		0		31		29			22:30	0		0		11		13		
10:45	0	0	0	0	23	108	25	110	218	22:45	0	0	0	0	6	27	20	72	99
11:00	0		0		33		27			23:00	0		0		16		17		
11:15	0		0		25		20			23:15	0		0		4		14		
11:30	0		0		33		28			23:30	0		0		22		3		
11:45	0	0	0	0	41	132	19	94	226	23:45	0	0	0	0	10	52	4	38	90
Total Vol.						1223		1535	**2758**							1881		1503	**3384**

Daily Totals

NB	SB	EB	WB	Combined
		3104	3038	**6142**

	AM			**PM**		
Split %	44.3%	55.7%	**44.9%**	55.6%	44.4%	**55.1%**
Peak Hour	7:30	7:00	**7:15**	16:00	15:15	**15:45**
Volume	156	353	**476**	447	272	**669**
P.H.F.	0.83	0.87	**0.85**	0.62	0.83	**0.72**

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : MAGIC MOUNTAIN PARKWAY
Segment : E/O I-5 SB RAMPS
Client : STANTEC

Site: SANTA CLARIT
Date: 05/15/18
Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	36	126	244	1,026	28	82	228	950	64	208	472	1,976
12:15	38		252		26		246		64		498	
12:30	26		280		18		244		44		524	
12:45	26		250		10		232		36		482	
01:00	23	73	196	900	10	68	247	989	33	141	443	1,889
01:15	22		246		12		274		34		520	
01:30	18		226		32		236		50		462	
01:45	10		232		14		232		24		464	
02:00	12	59	223	1,016	8	50	224	927	20	109	447	1,943
02:15	13		248		12		222		25		470	
02:30	14		263		12		220		26		483	
02:45	20		282		18		261		38		543	
03:00	15	75	286	1,242	13	58	238	973	28	133	524	2,215
03:15	14		300		19		266		33		566	
03:30	22		334		18		248		40		582	
03:45	24		322		8		221		32		543	
04:00	24	96	312	1,371	16	193	224	940	40	289	536	2,311
04:15	14		346		52		232		66		578	
04:30	22		349		54		226		76		575	
04:45	36		364		71		258		107		622	
05:00	30	245	402	1,625	104	627	302	1,063	134	872	704	2,688
05:15	54		412		146		286		200		698	
05:30	71		416		170		246		241		662	
05:45	90		395		207		229		297		624	
06:00	65	398	366	1,386	222	1,045	264	942	287	1,443	630	2,328
06:15	95		353		238		236		333		589	
06:30	106		353		301		233		407		586	
06:45	132		314		284		209		416		523	
07:00	113	679	262	883	275	1,125	182	643	388	1,804	444	1,526
07:15	152		223		244		173		396		396	
07:30	200		214		284		150		484		364	
07:45	214		184		322		138		536		322	
08:00	216	864	176	616	318	1,103	146	570	534	1,967	322	1,186
08:15	208		169		302		136		510		305	
08:30	220		151		260		164		480		315	
08:45	220		120		223		124		443		244	
09:00	194	807	103	385	222	871	158	519	416	1,678	261	904
09:15	224		114		202		136		426		250	
09:30	191		88		212		110		403		198	
09:45	198		80		235		115		433		195	
10:00	182	764	96	424	210	882	78	286	392	1,646	174	710
10:15	204		115		218		66		422		181	
10:30	188		107		228		78		416		185	
10:45	190		106		226		64		416		170	
11:00	212	896	74	229	208	877	51	152	420	1,773	125	381
11:15	209		53		242		42		451		95	
11:30	241		62		224		34		465		96	
11:45	234		40		203		25		437		65	
Totals	5,082		11,103		6,981		8,954		12,063		20,057	
Split%	42.1		55.4		57.9		44.6					
Day Totals		16,185				15,935				32,120		
Day Splits		50.4				49.6						
Peak Hour	11:00		05:00		07:30		04:45		07:30		05:00	
Volume	896		1,625		1,226		1,092		2,064		2,688	
Factor	0.93		0.98		0.95		0.90		0.96		0.95	

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location	: VALENCIA PARKWAY	Site:	SANTA CLARIT
Segment	: E/O I-5 NB RAMPS	Date:	05/15/18
Client	: STANTEC	Day:	Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	6	25	289	1,338	40	108	334	1,232	46	133	623	2,570
12:15	10		368		30		346		40		714	
12:30	5		325		19		274		24		599	
12:45	4		356		19		278		23		634	
01:00	2	21	274	1,278	9	53	270	1,069	11	74	544	2,347
01:15	2		336		20		268		22		604	
01:30	14		348		13		264		27		612	
01:45	3		320		11		267		14		587	
02:00	3	12	352	1,375	12	64	248	1,078	15	76	600	2,453
02:15	0		309		16		258		16		567	
02:30	5		358		28		312		33		670	
02:45	4		356		8		260		12		616	
03:00	4	24	440	1,650	14	39	254	1,134	18	63	694	2,784
03:15	4		468		6		272		10		740	
03:30	7		380		9		312		16		692	
03:45	9		362		10		296		19		658	
04:00	5	183	366	1,606	17	136	296	1,304	22	319	662	2,910
04:15	17		404		24		304		41		708	
04:30	76		404		45		366		121		770	
04:45	85		432		50		338		135		770	
05:00	38	284	438	1,749	78	507	376	1,461	116	791	814	3,210
05:15	62		417		123		392		185		809	
05:30	72		426		144		384		216		810	
05:45	112		468		162		309		274		777	
06:00	88	541	412	1,632	200	768	293	1,088	288	1,309	705	2,720
06:15	105		458		187		286		292		744	
06:30	158		367		176		271		334		638	
06:45	190		395		205		238		395		633	
07:00	214	1,298	358	1,157	203	892	272	875	417	2,190	630	2,032
07:15	257		306		236		224		493		530	
07:30	332		244		246		185		578		429	
07:45	495		249		207		194		702		443	
08:00	397	1,601	196	785	226	939	176	667	623	2,540	372	1,452
08:15	423		192		240		176		663		368	
08:30	402		199		232		174		634		373	
08:45	379		198		241		141		620		339	
09:00	358	1,346	148	608	244	994	178	556	602	2,340	326	1,164
09:15	416		180		266		152		682		332	
09:30	266		150		256		124		522		274	
09:45	306		130		228		102		534		232	
10:00	265	1,187	25	100	253	1,050	122	327	518	2,237	147	427
10:15	266		20		279		81		545		101	
10:30	296		31		246		58		542		89	
10:45	360		24		272		66		632		90	
11:00	269	1,131	26	58	244	1,050	66	209	513	2,181	92	267
11:15	266		18		284		44		550		62	
11:30	294		4		242		68		536		72	
11:45	302		10		280		31		582		41	
Totals	7,653		13,336		6,600		11,000		14,253		24,336	
Split%	53.7		54.8		46.3		45.2					
Day Totals		20,989				17,600				38,589		
Day Splits		54.4				45.6						
Peak Hour	07:45		05:30		10:00		04:45		07:45		05:00	
Volume	1,717		1,764		1,050		1,490		2,622		3,210	
Factor	0.87		0.94		0.94		0.95		0.93		0.99	

Peak Hour Intersection and ADT Volume Summary

Intersection	AM					PM					ADT	
	ENTERING	EXITING	TOTAL	%ADT (1)	%ADT (2)	ENTERING	EXITING	TOTAL	%ADT (1)	%ADT (2)	Factor (1)=4.5	Factor (2)=5
105. Westridge & Valencia												
North Leg	374	153	527	15.97%	14.24%	105	111	216	6.55%	5.84%	3300	3700
East Leg	1800	1430	3230	18.04%	16.23%	341	406	747	4.17%	3.75%	17900	19900
South Leg	63	32	95	13.57%	11.88%	26	34	60	8.57%	7.50%	700	800
West Leg	1080	1702	2782	18.93%	16.96%	285	206	491	3.34%	2.99%	14700	16400

Appendix B SYNCHRO WORKSHEETS

Existing Conditions

AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱↱	↰↰	↑↑↑↑					↰	↰	↱↱
Traffic Volume (vph)	0	251	68	437	1449	0	0	0	0	326	0	47
Future Volume (vph)	0	251	68	437	1449	0	0	0	0	326	0	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	230		0	0		0	500		0
Storage Lanes	0		2	2		0	0		0	2		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109									109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		486			419			733			777	
Travel Time (s)		11.0			9.5			16.7			17.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	273	74	475	1575	0	0	0	0	177	177	51
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)		24.5	24.5	13.0	37.5					22.5	22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Act Effct Green (s)		14.3	14.3	8.6	27.4					18.2	18.2	18.2
Actuated g/C Ratio		0.26	0.26	0.16	0.50					0.33	0.33	0.33
v/c Ratio		0.21	0.09	0.88	0.49					0.32	0.32	0.05
Control Delay		15.4	2.0	46.0	9.3					17.3	17.3	0.8
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		15.4	2.0	46.0	9.3					17.3	17.3	0.8
LOS		B	A	D	A					B	B	A
Approach Delay		12.5			17.8						15.2	
Approach LOS		B			B						B	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 54.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.8 Intersection LOS: B

Intersection Capacity Utilization 59.2% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: I-5 SB On-Ramp/I-5 SB Off-Ramp & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	558	0	0	807	216	1082	0	543	0	0	0
Future Volume (vph)	15	558	0	0	807	216	1082	0	543	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		290	0		300	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5085	0	0	5993	1283	3433	1504	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	5993	1283	3433	1504	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					14	195		192	192			
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		419			1012			641			562	
Travel Time (s)		5.7			13.8			14.6			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						17%			50%			
Lane Group Flow (vph)	16	607	0	0	917	195	1176	295	295	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Total Split (s)	9.5	32.0			22.5	22.5	28.0	28.0	28.0			
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Act Effct Green (s)	5.1	16.4			14.8	14.8	23.8	23.8	23.8			
Actuated g/C Ratio	0.10	0.33			0.30	0.30	0.48	0.48	0.48			
v/c Ratio	0.05	0.36			0.51	0.37	0.71	0.36	0.36			
Control Delay	23.3	12.6			15.3	5.3	15.2	5.5	5.5			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	23.3	12.6			15.3	5.3	15.2	5.5	5.5			
LOS	C	B			B	A	B	A	A			
Approach Delay		12.9			13.5			12.0				
Approach LOS		B			B			B				

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 49.3

Control Type: Actuated-Uncoordinated

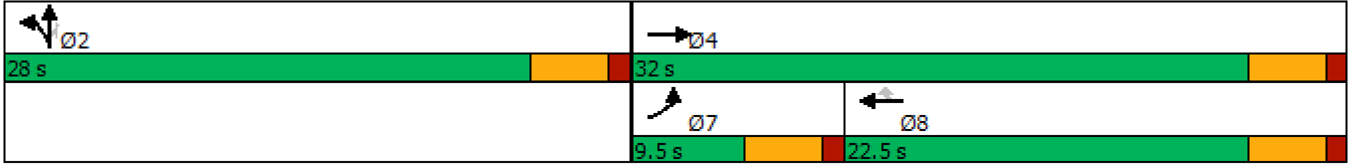
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.6 Intersection LOS: B

Intersection Capacity Utilization 59.2% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	5	15	38	4	4	146	239	1057	15	15	461	99
Future Volume (vph)	5	15	38	4	4	146	239	1057	15	15	461	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150		220		210		210		565		0
Storage Lanes		2		1		2		0		2		1
Taper Length (ft)		25				25				25		
Satd. Flow (prot)	0	3433	7544	1583	0	3433	6408	1583	0	3433	5085	1583
Flt Permitted		0.576				0.724				0.404		
Satd. Flow (perm)	0	2082	7544	1583	0	2616	6408	1583	0	1460	5085	1583
Right Turn on Red				Yes				Yes				Yes
Satd. Flow (RTOR)				109				776				153
Link Speed (mph)			50				50				30	
Link Distance (ft)			522				486				1063	
Travel Time (s)			7.1				6.6				24.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	41	4	0	163	260	1149	0	32	501	108
Turn Type	custom	Prot	NA	Perm	custom	Prot	NA	Free	custom	Prot	NA	Perm
Protected Phases		1	6			5	2			7	4	
Permitted Phases	1!			6	5			Free	7			4
Total Split (s)	33.0	33.0	62.0	62.0	16.0	16.0	45.0		28.0	28.0	38.0	38.0
Total Lost Time (s)		6.0	6.0	6.0		6.0	6.0			6.0	6.0	6.0
Act Effct Green (s)		27.0	80.2	80.2		10.0	63.2	150.0		12.8	21.3	21.3
Actuated g/C Ratio		0.18	0.53	0.53		0.07	0.42	1.00		0.09	0.14	0.14
v/c Ratio		0.06	0.01	0.00		0.94	0.10	0.73		0.26	0.69	0.30
Control Delay		44.8	0.0	0.0		121.7	27.5	2.9		66.4	66.3	4.1
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		44.8	0.0	0.0		121.7	27.5	2.9		66.4	66.3	4.1
LOS		D	A	A		F	C	A		E	E	A
Approach Delay			14.3				19.3				55.8	
Approach LOS			B				B				E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

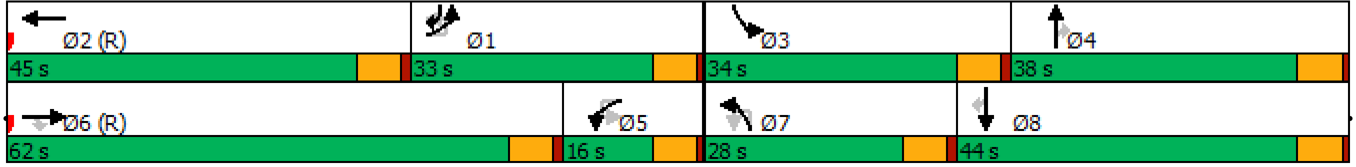
Intersection Signal Delay: 35.6 Intersection LOS: D

Intersection Capacity Utilization 40.4% ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 26: The Old Rd & Magic Mountain Pkwy



Lane Group	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑	↱
Traffic Volume (vph)	193	297	1
Future Volume (vph)	193	297	1
Ideal Flow (vphpl)	1900	1900	1900
Storage Length (ft)	390		280
Storage Lanes	2		1
Taper Length (ft)	25		
Satd. Flow (prot)	3433	5085	1583
Flt Permitted	0.950		
Satd. Flow (perm)	3433	5085	1583
Right Turn on Red			Yes
Satd. Flow (RTOR)			65
Link Speed (mph)		30	
Link Distance (ft)		1197	
Travel Time (s)		27.2	
Peak Hour Factor	0.92	0.92	0.92
Shared Lane Traffic (%)			
Lane Group Flow (vph)	210	323	1
Turn Type	Prot	NA	pm+ov
Protected Phases	3	8	1!
Permitted Phases			8
Total Split (s)	34.0	44.0	33.0
Total Lost Time (s)	6.0	6.0	6.0
Act Effct Green (s)	14.5	28.3	57.7
Actuated g/C Ratio	0.10	0.19	0.38
v/c Ratio	0.63	0.34	0.00
Control Delay	73.7	54.9	0.0
Queue Delay	0.0	0.0	0.0
Total Delay	73.7	54.9	0.0
LOS	E	D	A
Approach Delay		62.2	
Approach LOS		E	

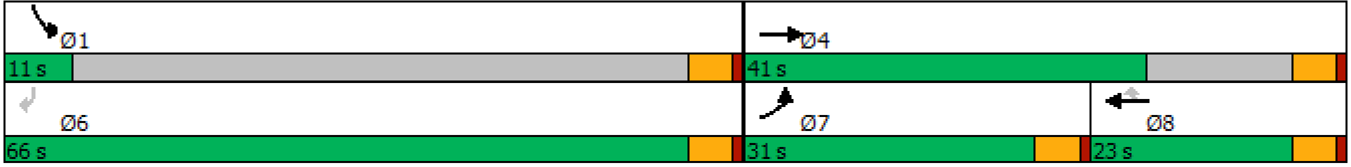
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑	↱	↰↰	↱
Traffic Volume (vph)	33	51	0	107	53	1
Future Volume (vph)	33	51	0	107	53	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	120	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1029		1
Link Speed (mph)		30	30		30	
Link Distance (ft)		251	625		233	
Travel Time (s)		5.7	14.2		5.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	55	0	116	58	1
Turn Type	Prot	NA		Perm	Prot	Perm
Protected Phases	7	4	8		1	
Permitted Phases				8		6
Total Split (s)	31.0	41.0	23.0	23.0	11.0	66.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	7.3	13.4		5.7	20.4	64.9
Actuated g/C Ratio	0.08	0.15		0.06	0.23	0.73
v/c Ratio	0.25	0.10		0.11	0.07	0.00
Control Delay	42.1	29.8		0.2	24.8	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	42.1	29.8		0.2	24.8	4.0
LOS	D	C		A	C	A
Approach Delay		34.7	0.2		24.5	
Approach LOS		C	A		C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 88.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.25
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 19.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 81: Henry Mayo Dr & Commerce Center Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑↑↑	↱↱		↑↑	↱↱
Traffic Volume (vph)	0	0	0	0	0	0	0	129	12	0	58	175
Future Volume (vph)	0	0	0	0	0	0	0	129	12	0	58	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		238			292			233			127	
Travel Time (s)		5.4			6.6			5.3			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	140	13	0	63	190
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 9.5% ICU Level of Service A
Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰↰		↱↱	↰↰	↑↑↑			↑↑↑	↱
Traffic Volume (vph)	0	0	0	16	0	1033	31	93	0	0	216	29
Future Volume (vph)	0	0	0	16	0	1033	31	93	0	0	216	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		500	200		0	0		200
Storage Lanes	0		0	2		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1123						59
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		555			831			262			499	
Travel Time (s)		12.6			18.9			4.5			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	17	0	1123	34	101	0	0	235	32
Turn Type				Prot		Perm	Prot	NA			NA	Perm
Protected Phases				3			5	2			6	
Permitted Phases						8						6
Total Split (s)				90.0		90.0	15.0	40.0			25.0	25.0
Total Lost Time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Act Effct Green (s)				7.5		9.6	6.0	35.1			33.0	33.0
Actuated g/C Ratio				0.14		0.18	0.11	0.64			0.60	0.60
v/c Ratio				0.04		0.79	0.09	0.03			0.08	0.03
Control Delay				19.5		6.4	23.7	4.4			6.5	1.9
Queue Delay				0.0		0.0	0.0	0.0			0.0	0.0
Total Delay				19.5		6.4	23.7	4.4			6.5	1.9
LOS				B		A	C	A			A	A
Approach Delay					6.6			9.3			6.0	
Approach LOS					A			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 54.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 48.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 83: Commerce Center Dr & SR 126 WB-Ramps

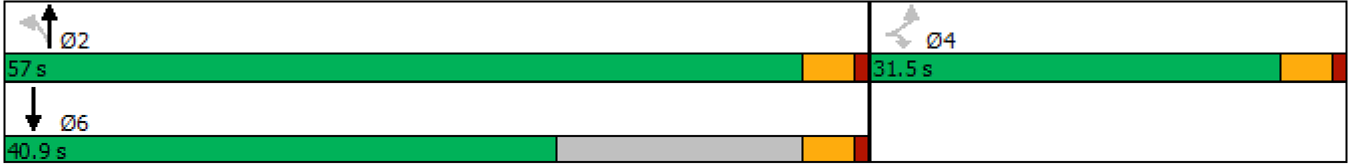
84: Commerce Center Dr & Hancock Pkwy

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑↑	↑↑↱	
Traffic Volume (vph)	0	0	0	1126	245	0
Future Volume (vph)	0	0	0	1126	245	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	3614	1863	1863	5085	5085	0
Flt Permitted						
Satd. Flow (perm)	3614	1863	1863	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			30	30	
Link Distance (ft)	346			499	1368	
Travel Time (s)	7.9			11.3	31.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1224	266	0
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			
Total Split (s)	31.5	31.5	57.0	57.0	40.9	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)				72.0	72.0	
Actuated g/C Ratio				1.00	1.00	
v/c Ratio				0.24	0.05	
Control Delay				0.1	0.0	
Queue Delay				0.0	0.0	
Total Delay				0.1	0.0	
LOS				A	A	
Approach Delay				0.1		
Approach LOS				A		

Intersection Summary

Area Type: Other
Cycle Length: 88.5
Actuated Cycle Length: 72
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 0.1 Intersection LOS: A
Intersection Capacity Utilization 25.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 84: Commerce Center Dr & Hancock Pkwy

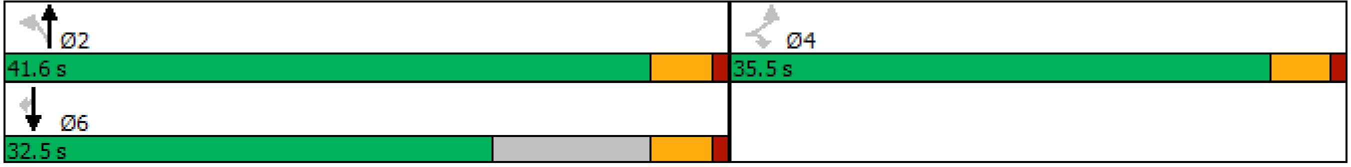


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑↑	↑↑↑	↱
Traffic Volume (vph)	64	75	271	796	193	66
Future Volume (vph)	64	75	271	796	193	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.950		0.615			
Satd. Flow (perm)	1770	1583	1146	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		82				72
Link Speed (mph)	30			30	30	
Link Distance (ft)	675			1368	795	
Travel Time (s)	15.3			31.1	18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	70	82	295	865	210	72
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Total Split (s)	35.5	35.5	41.6	41.6	32.5	32.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	31.0	31.0	37.1	37.1	37.1	37.1
Actuated g/C Ratio	0.40	0.40	0.48	0.48	0.48	0.48
v/c Ratio	0.10	0.12	0.54	0.35	0.09	0.09
Control Delay	14.9	4.3	18.5	13.0	11.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	4.3	18.5	13.0	11.0	3.3
LOS	B	A	B	B	B	A
Approach Delay	9.2			14.4	9.0	
Approach LOS	A			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 77.1
Actuated Cycle Length: 77.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 34.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 85: Commerce Center Dr & Franklin Pkwy

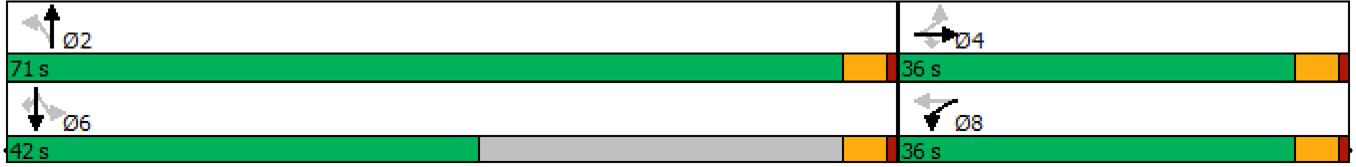


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰↰	↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	40	2	55	3	5	3	286	234	4	21	232	180
Future Volume (vph)	40	2	55	3	5	3	286	234	4	21	232	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	450		0	120		460
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1758	0	3433	5075	0	1770	5085	1583
Flt Permitted	0.752			0.950			0.589			0.586		
Satd. Flow (perm)	1401	1863	1583	1770	1758	0	2128	5075	0	1092	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			60		3			4				196
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		625			327			847			347	
Travel Time (s)		14.2			7.4			19.3			7.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	2	60	3	8	0	311	258	0	23	252	196
Turn Type	Perm	NA	Perm	Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4!		8!				2			6	
Permitted Phases	4		4		8		2			6		6
Total Split (s)	36.0	36.0	36.0	36.0	36.0		71.0	71.0		42.0	42.0	42.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	31.5	31.5	31.5	31.5	31.5		66.5	66.5		66.5	66.5	66.5
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.62	0.62		0.62	0.62	0.62
v/c Ratio	0.10	0.00	0.12	0.01	0.02		0.24	0.08		0.03	0.08	0.19
Control Delay	28.5	27.0	8.0	27.0	22.6		9.5	8.0		8.0	8.1	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.5	27.0	8.0	27.0	22.6		9.5	8.0		8.0	8.1	1.6
LOS	C	C	A	C	C		A	A		A	A	A
Approach Delay		16.7			23.8			8.9			5.4	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 107
Actuated Cycle Length: 107
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.24
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 34.7% ICU Level of Service A
Analysis Period (min) 15
! Phase conflict between lane groups.

Splits and Phases: 116: Commerce Center Dr & Witherspoon Pkwy



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱	
Traffic Volume (vph)	2	48	326	567	243	47
Future Volume (vph)	2	48	326	567	243	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	450			0
Storage Lanes	1	2	2			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	2787	3433	5085	4963	0
Flt Permitted	0.950		0.553			
Satd. Flow (perm)	1770	2787	1998	5085	4963	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		52			51	
Link Speed (mph)	30			45	45	
Link Distance (ft)	537			795	763	
Travel Time (s)	12.2			12.0	11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	52	354	616	315	0
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			
Total Split (s)	26.0	26.0	54.0	54.0	53.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	21.5	21.5	49.5	49.5	49.5	
Actuated g/C Ratio	0.27	0.27	0.62	0.62	0.62	
v/c Ratio	0.00	0.07	0.29	0.20	0.10	
Control Delay	21.5	7.2	7.8	6.8	5.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.5	7.2	7.8	6.8	5.3	
LOS	C	A	A	A	A	
Approach Delay	7.7			7.2	5.3	
Approach LOS	A			A	A	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 6.7 Intersection LOS: A

Intersection Capacity Utilization 30.5% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 206: Commerce Center Dr & Harrison Pkwy

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑↑	↑↑↑↑	↱↱	↰↰↰	↱
Traffic Volume (vph)	0	0	0	270	63	0
Future Volume (vph)	0	0	0	270	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			400	0	0
Storage Lanes	2			2	3	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	3614	6408	6408	2787	4990	1863
Flt Permitted					0.950	
Satd. Flow (perm)	3614	6408	6408	2787	4990	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1920		
Link Speed (mph)		50	30		30	
Link Distance (ft)		929	804		1234	
Travel Time (s)		12.7	18.3		28.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	293	68	0
Turn Type	Prot			Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		6
Total Split (s)	39.0	114.0	75.0	75.0	36.0	114.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)				108.0	30.0	
Actuated g/C Ratio				0.72	0.20	
v/c Ratio				0.12	0.07	
Control Delay				1.7	49.0	
Queue Delay				0.0	0.0	
Total Delay				1.7	49.0	
LOS				A	D	
Approach Delay			1.7		49.0	
Approach LOS			A		D	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 13 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Control Type: Actuated-Coordinated

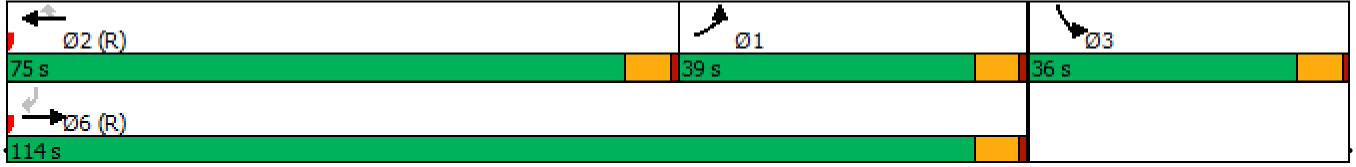
Maximum v/c Ratio: 0.12

Intersection Signal Delay: 10.6 Intersection LOS: B

Intersection Capacity Utilization 14.4% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 303: Magic Mountain Pkwy & Six Flags Entrance

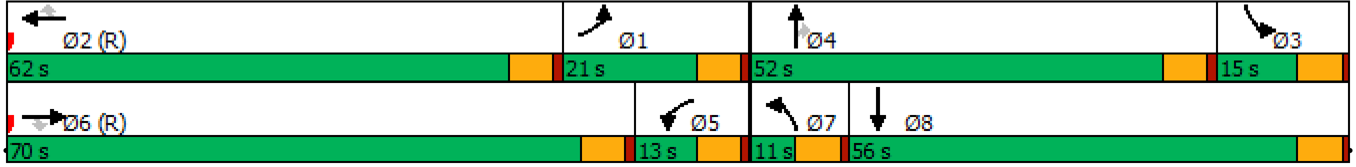


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑	↱	↰	↑↑↑↑	↱	↰	↑	↱	↰↰	↑↱	
Traffic Volume (vph)	0	63	0	0	270	0	0	0	0	0	0	0
Future Volume (vph)	0	63	0	0	270	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	0		0	255		200	300		0
Storage Lanes	2		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3614	6408	1863	1863	6408	1863	1863	1863	1863	3614	3539	0
Flt Permitted												
Satd. Flow (perm)	3614	6408	1863	1863	6408	1863	1863	1863	1863	3614	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		0			609			703			474	
Travel Time (s)		0.0			13.8			16.0			10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	293	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Perm	Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			
Total Split (s)	21.0	70.0	70.0	13.0	62.0	62.0	11.0	52.0	52.0	15.0	56.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)		150.0			150.0							
Actuated g/C Ratio		1.00			1.00							
v/c Ratio		0.01			0.05							
Control Delay		0.0			0.0							
Queue Delay		0.0			0.0							
Total Delay		0.0			0.0							
LOS		A			A							
Approach Delay												
Approach LOS												

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 140 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.05
Intersection Signal Delay: 0.0 Intersection LOS: A
Intersection Capacity Utilization 9.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 304: "A" Street/Media Center & Magic Mountain Pkwy



305: Westridge Pkwy & "B" Drive

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	300		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1863	1863	0	1863	1863	0	1863	3539	0	1863	3539	0
Flt Permitted												
Satd. Flow (perm)	1863	1863	0	1863	1863	0	1863	3539	0	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		716			1153			1084			1381	
Travel Time (s)		16.3			26.2			24.6			31.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Total Split (s)	24.0	32.0		15.0	23.0		10.0	23.0		10.0	23.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 38

Control Type: Actuated-Uncoordinated

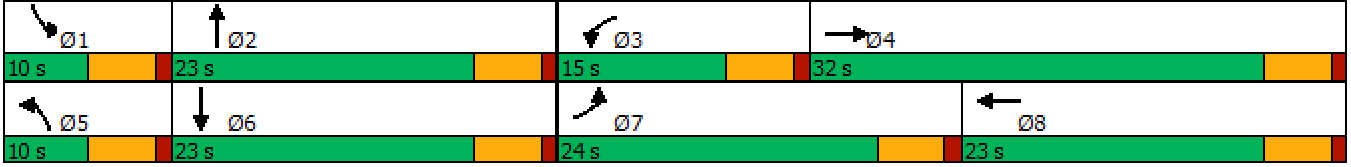
Maximum v/c Ratio: 0.00

Intersection Signal Delay: 0.0 Intersection LOS: A

Intersection Capacity Utilization 0.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 305: Westridge Pkwy & "B" Drive

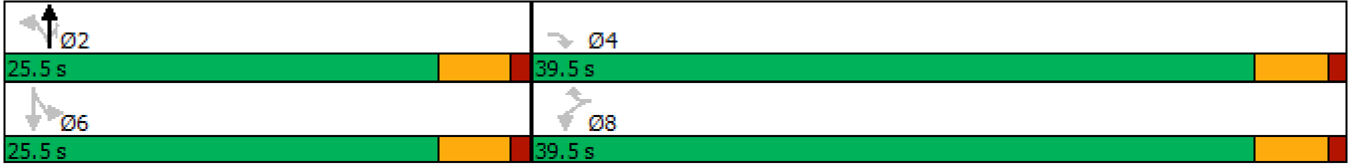


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱	↰		↱	↰	↑↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	0	0	0	0	0	0	0	590	0	0	452	0
Future Volume (vph)	0	0	0	0	0	0	0	590	0	0	452	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	250		180	200		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	1863	1863	0	1863	1863	5085	1863	1863	5085	0
Flt Permitted												
Satd. Flow (perm)	0	0	1863	1863	0	1863	1863	5085	1863	1863	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		217			218			575			1063	
Travel Time (s)		4.9			5.0			13.1			24.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	641	0	0	491	0
Turn Type			Perm	Perm		Perm	Perm	NA	Perm	custom	NA	
Protected Phases								2				
Permitted Phases			4	8		8	2		2	6	6	
Total Split (s)			39.5	39.5		39.5	25.5	25.5	25.5	25.5	25.5	
Total Lost Time (s)			4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)								27.7			27.7	
Actuated g/C Ratio								1.00			1.00	
v/c Ratio								0.13			0.10	
Control Delay								0.1			0.0	
Queue Delay								0.0			0.0	
Total Delay								0.1			0.0	
LOS								A			A	
Approach Delay								0.1				
Approach LOS								A				

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 27.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.13
Intersection Signal Delay: 0.0 Intersection LOS: A
Intersection Capacity Utilization 15.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 307: Shopping Ctr & The Old Rd



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑	↑↱	
Traffic Vol, veh/h	4	2	18	132	231	26
Future Vol, veh/h	4	2	18	132	231	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	2	20	143	251	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	448	140	279	0	-	0
Stage 1	265	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	554	883	1282	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	545	883	1282	-	-	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1282	-	545	883	-	-
HCM Lane V/C Ratio	0.015	-	0.008	0.002	-	-
HCM Control Delay (s)	7.9	-	11.7	9.1	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	0	11	152	160	183	40
Future Vol, veh/h	0	11	152	160	183	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	165	174	199	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	638	121	242	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	409	908	1322	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	358	908	1322	-	-	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1322	-	-	908	-	-
HCM Lane V/C Ratio	0.125	-	-	0.013	-	-
HCM Control Delay (s)	8.1	-	0	9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-	-

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↱		↰	↑
Traffic Vol, veh/h	5	0	0	5	0	0
Future Vol, veh/h	5	0	0	5	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	0	5	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4	3	0	0	5	0
Stage 1	3	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1018	1081	-	-	1616	-
Stage 1	1020	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1018	1081	-	-	1616	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	930	1616	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↰	↱	↑	↱	↰	↑
Traffic Vol, veh/h	0	5	0	0	5	0
Future Vol, veh/h	0	5	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	0	5	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	10	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1010	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1010	-	-	-	-	-
Mov Cap-2 Maneuver	925	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s		0	
HCM LOS	-		

Minor Lane/Major Mvmt	NET	NER	WBLn1	WBLn2	SWL	SWT
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

Existing Conditions

PM Peak Hour

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱↱	↰↰	↑↑↑↑					↰	↲	↱↱
Traffic Volume (vph)	0	564	239	249	1108	0	0	0	0	304	0	63
Future Volume (vph)	0	564	239	249	1108	0	0	0	0	304	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	230		0	0		0	500		0
Storage Lanes	0		2	2		0	0		0	2		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			260									109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		486			419			733			777	
Travel Time (s)		11.0			9.5			16.7			17.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	613	260	271	1204	0	0	0	0	165	165	68
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)		24.5	24.5	13.0	37.5					22.5	22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Act Effct Green (s)		14.3	14.3	8.2	27.0					18.1	18.1	18.1
Actuated g/C Ratio		0.26	0.26	0.15	0.50					0.33	0.33	0.33
v/c Ratio		0.46	0.28	0.53	0.38					0.29	0.29	0.07
Control Delay		17.6	3.3	26.3	8.6					16.6	16.6	1.9
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		17.6	3.3	26.3	8.6					16.6	16.6	1.9
LOS		B	A	C	A					B	B	A
Approach Delay		13.3			11.8						14.1	
Approach LOS		B			B						B	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 54.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 12.6 Intersection LOS: B

Intersection Capacity Utilization 53.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-5 SB On-Ramp/I-5 SB Off-Ramp & Magic Mountain Pkwy

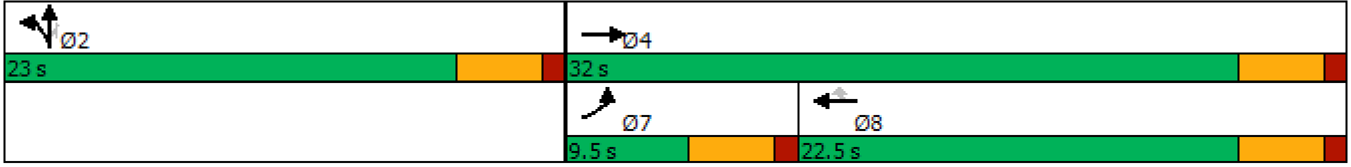
11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑			↑↑↑↱	↱	↰↰	↱	↱			
Traffic Volume (vph)	56	761	0	0	636	399	739	0	693	0	0	0
Future Volume (vph)	56	761	0	0	636	399	739	0	693	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		290	0		300	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5085	0	0	5818	1283	3433	1504	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	5818	1283	3433	1504	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					153	217		123	123			
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		419			1012			641			562	
Travel Time (s)		5.7			13.8			14.6			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						50%			50%			
Lane Group Flow (vph)	61	827	0	0	908	217	803	377	376	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Total Split (s)	9.5	32.0			22.5	22.5	23.0	23.0	23.0			
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Act Effct Green (s)	5.2	19.1			14.1	14.1	19.1	19.1	19.1			
Actuated g/C Ratio	0.11	0.40			0.30	0.30	0.40	0.40	0.40			
v/c Ratio	0.16	0.40			0.50	0.41	0.58	0.56	0.55			
Control Delay	23.5	10.0			12.5	5.2	15.2	13.1	13.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	23.5	10.0			12.5	5.2	15.2	13.1	13.0			
LOS	C	B			B	A	B	B	B			
Approach Delay		10.9			11.1			14.2				
Approach LOS		B			B			B				

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 47.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 53.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy



26: The Old Rd & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	236	55	221	41	926	28	417	212	364	649	5
Future Volume (vph)	60	236	55	221	41	926	28	417	212	364	649	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		220	210		210	565		0	390		280
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			728			230			65
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		522			486			1063			1197	
Travel Time (s)		7.1			6.6			24.2			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	257	60	240	45	1007	30	453	230	396	705	5
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1!
Permitted Phases			6			Free			4			8
Total Split (s)	33.0	62.0	62.0	16.0	45.0		28.0	38.0	38.0	34.0	44.0	33.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)	27.0	73.0	73.0	10.0	56.0	150.0	6.8	20.5	20.5	22.5	40.9	70.3
Actuated g/C Ratio	0.18	0.49	0.49	0.07	0.37	1.00	0.05	0.14	0.14	0.15	0.27	0.47
v/c Ratio	0.11	0.07	0.07	1.05	0.02	0.64	0.19	0.65	0.56	0.77	0.51	0.01
Control Delay	41.9	0.0	0.2	138.9	33.0	2.0	71.5	65.6	11.7	71.5	47.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	0.0	0.2	138.9	33.0	2.0	71.5	65.6	11.7	71.5	47.3	0.0
LOS	D	A	A	F	C	A	E	E	B	E	D	A
Approach Delay		7.2			28.5			48.5			55.8	
Approach LOS		A			C			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

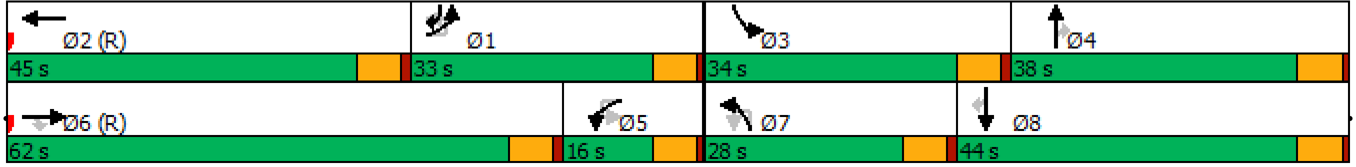
Intersection Signal Delay: 38.9 Intersection LOS: D

Intersection Capacity Utilization 54.0% ICU Level of Service A

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 26: The Old Rd & Magic Mountain Pkwy



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
	↗	→	←	↖	↘	↙
Lane Configurations	↰	↑↑	↑	↱	↰↰	↱
Traffic Volume (vph)	13	34	0	121	243	1
Future Volume (vph)	13	34	0	121	243	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	120	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1058		1
Link Speed (mph)		30	30		30	
Link Distance (ft)		251	625		233	
Travel Time (s)		5.7	14.2		5.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	37	0	132	264	1
Turn Type	Prot	NA		Perm	Prot	Perm
Protected Phases	7	4	8		1	
Permitted Phases				8		6
Total Split (s)	9.0	30.0	37.0	37.0	14.0	46.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	4.0	7.5		5.9	38.8	46.9
Actuated g/C Ratio	0.07	0.12		0.10	0.63	0.76
v/c Ratio	0.12	0.09		0.12	0.12	0.00
Control Delay	29.7	22.5		0.2	4.3	3.0
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	29.7	22.5		0.2	4.3	3.0
LOS	C	C		A	A	A
Approach Delay		24.5	0.2		4.3	
Approach LOS		C	A		A	

Intersection Summary

Area Type: Other

Cycle Length: 92

Actuated Cycle Length: 61.4

Control Type: Actuated-Uncoordinated

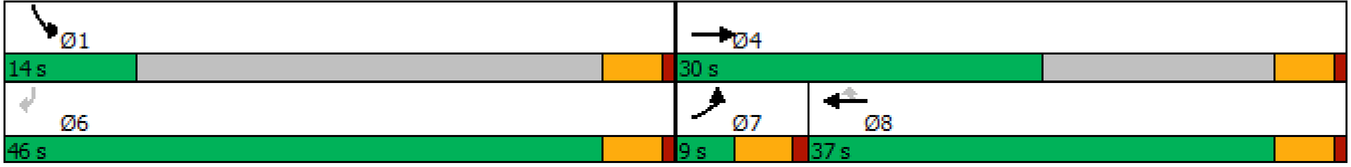
Maximum v/c Ratio: 0.12

Intersection Signal Delay: 5.4 Intersection LOS: A

Intersection Capacity Utilization 20.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 81: Henry Mayo Dr & Commerce Center Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑↑↑	↱↱		↑↑	↱↱
Traffic Volume (vph)	0	0	0	0	0	0	0	108	26	0	248	1003
Future Volume (vph)	0	0	0	0	0	0	0	108	26	0	248	1003
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		238			292			233			127	
Travel Time (s)		5.4			6.6			5.3			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	117	28	0	270	1090
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.4% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰↰		↱↱	↰↰	↑↑↑			↑↑↑	↱
Traffic Volume (vph)	0	0	0	15	0	203	60	44	0	0	1272	44
Future Volume (vph)	0	0	0	15	0	203	60	44	0	0	1272	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		500	200		0	0		200
Storage Lanes	0		0	2		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						221						51
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		555			831			262			499	
Travel Time (s)		12.6			18.9			4.5			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	16	0	221	65	48	0	0	1383	48
Turn Type				Prot		Perm	Prot	NA			NA	Perm
Protected Phases				3			5	2			6	
Permitted Phases						8						6
Total Split (s)				45.0		45.0	30.0	105.0			75.0	75.0
Total Lost Time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Act Effct Green (s)				6.8		6.6	7.6	100.1			89.6	89.6
Actuated g/C Ratio				0.06		0.06	0.07	0.86			0.77	0.77
v/c Ratio				0.08		0.60	0.29	0.01			0.35	0.04
Control Delay				52.5		14.2	55.3	1.4			5.1	1.3
Queue Delay				0.0		0.0	0.0	0.0			0.3	0.0
Total Delay				52.5		14.2	55.3	1.4			5.4	1.3
LOS				D		B	E	A			A	A
Approach Delay					16.8			32.4			5.3	
Approach LOS					B			C			A	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 116.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 8.5 Intersection LOS: A
Intersection Capacity Utilization 36.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 83: SR 126 WB-Ramps & Commerce Center Dr

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰	↑↑↑	↑↑↱	
Traffic Volume (vph)	0	0	0	247	1316	0
Future Volume (vph)	0	0	0	247	1316	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	3614	1863	1863	5085	5085	0
Flt Permitted						
Satd. Flow (perm)	3614	1863	1863	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			30	30	
Link Distance (ft)	346			499	1368	
Travel Time (s)	7.9			11.3	31.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	268	1430	0
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			
Total Split (s)	31.6	31.6	50.1	50.1	57.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)				72.0	72.0	
Actuated g/C Ratio				1.00	1.00	
v/c Ratio				0.05	0.28	
Control Delay				0.0	0.1	
Queue Delay				0.0	0.0	
Total Delay				0.0	0.1	
LOS				A	A	
Approach Delay					0.1	
Approach LOS					A	

Intersection Summary

Area Type: Other

Cycle Length: 88.6

Actuated Cycle Length: 72

Control Type: Actuated-Uncoordinated

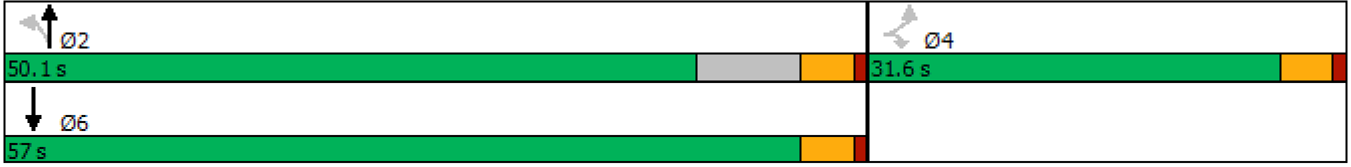
Maximum v/c Ratio: 0.28

Intersection Signal Delay: 0.1 Intersection LOS: A

Intersection Capacity Utilization 29.2% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 84: Commerce Center Dr & Hancock Pkwy

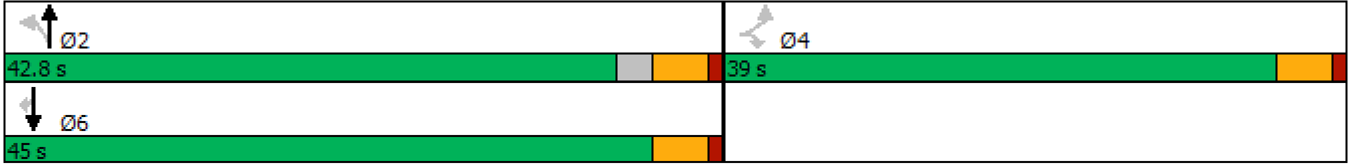


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑↑	↑↑↑	↱
Traffic Volume (vph)	94	353	125	195	1019	91
Future Volume (vph)	94	353	125	195	1019	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	250			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.950		0.196			
Satd. Flow (perm)	1770	1583	365	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		50				99
Link Speed (mph)	30			30	30	
Link Distance (ft)	675			0	795	
Travel Time (s)	15.3			0.0	18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	384	136	212	1108	99
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Total Split (s)	39.0	39.0	42.8	42.8	45.0	45.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	34.5	34.5	40.5	40.5	40.5	40.5
Actuated g/C Ratio	0.41	0.41	0.48	0.48	0.48	0.48
v/c Ratio	0.14	0.57	0.78	0.09	0.45	0.12
Control Delay	16.2	20.3	50.9	11.9	15.1	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	20.3	50.9	11.9	15.1	3.1
LOS	B	C	D	B	B	A
Approach Delay	19.4			27.1	14.2	
Approach LOS	B			C	B	

Intersection Summary

Area Type: Other
Cycle Length: 84
Actuated Cycle Length: 84
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 49.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 85: Commerce Center Dr & Franklin Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰↰	↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	155	8	421	31	2	15	46	201	0	5	246	27
Future Volume (vph)	155	8	421	31	2	15	46	201	0	5	246	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	450		0	120		460
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1615	0	3433	5085	0	1770	5085	1583
Flt Permitted	0.746			0.950			0.581			0.610		
Satd. Flow (perm)	1390	1863	1583	1770	1615	0	2100	5085	0	1136	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			386		16							29
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		625			327			847			347	
Travel Time (s)		14.2			7.4			19.3			7.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	9	458	34	18	0	50	218	0	5	267	29
Turn Type	Perm	NA	Perm	Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4!		8!				2			6	
Permitted Phases	4		4		8		2			6		6
Total Split (s)	67.0	67.0	67.0	30.2	30.2		40.0	40.0		34.8	34.8	34.8
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	62.5	62.5	62.5	62.5	62.5		35.5	35.5		35.5	35.5	35.5
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.58		0.33	0.33		0.33	0.33	0.33
v/c Ratio	0.21	0.01	0.42	0.03	0.02		0.07	0.13		0.01	0.16	0.05
Control Delay	11.3	9.4	3.3	9.6	4.6		25.0	25.2		24.2	25.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	11.3	9.4	3.3	9.6	4.6		25.0	25.2		24.2	25.5	8.9
LOS	B	A	A	A	A		C	C		C	C	A
Approach Delay		5.5			7.9			25.2			23.9	
Approach LOS		A			A			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 107
Actuated Cycle Length: 107
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 46.2% ICU Level of Service A
Analysis Period (min) 15
! Phase conflict between lane groups.

Splits and Phases: 116: Commerce Center Dr & Witherspoon Pkwy

	↰	↱	↰	↑	↓	↲
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱	
Traffic Volume (vph)	30	485	48	219	692	8
Future Volume (vph)	30	485	48	219	692	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	450			0
Storage Lanes	1	2	2			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	2787	3433	5085	5075	0
Flt Permitted	0.950		0.290			
Satd. Flow (perm)	1770	2787	1048	5085	5075	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		140			2	
Link Speed (mph)	30			45	45	
Link Distance (ft)	537			795	763	
Travel Time (s)	12.2			12.0	11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	527	52	238	761	0
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			
Total Split (s)	56.0	56.0	39.6	39.6	42.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	51.5	51.5	37.5	37.5	37.5	
Actuated g/C Ratio	0.53	0.53	0.38	0.38	0.38	
v/c Ratio	0.04	0.34	0.13	0.12	0.39	
Control Delay	11.4	10.3	20.9	19.8	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	10.3	20.9	19.8	22.7	
LOS	B	B	C	B	C	
Approach Delay	10.4			20.0	22.7	
Approach LOS	B			C	C	

Intersection Summary

Area Type: Other

Cycle Length: 98

Actuated Cycle Length: 98

Control Type: Actuated-Uncoordinated

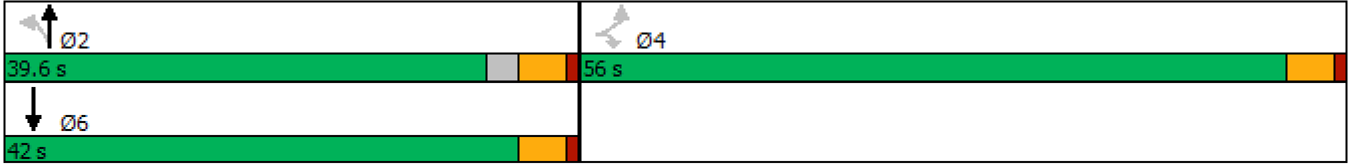
Maximum v/c Ratio: 0.39

Intersection Signal Delay: 17.9 Intersection LOS: B

Intersection Capacity Utilization 38.0% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 206: Commerce Center Dr & Harrison Pkwy



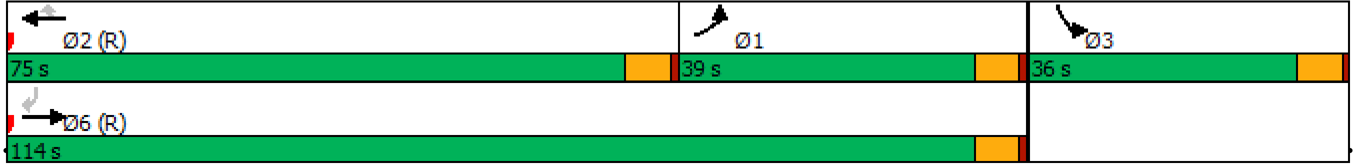
303: Magic Mountain Pkwy & Six Flags Entrance

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑↑	↑↑↑↑	↱↱	↰↰↰	↱
Traffic Volume (vph)	0	0	0	74	351	0
Future Volume (vph)	0	0	0	74	351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			400	0	0
Storage Lanes	2			2	3	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	3614	6408	6408	2787	4990	1863
Flt Permitted					0.950	
Satd. Flow (perm)	3614	6408	6408	2787	4990	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1920		
Link Speed (mph)		50	30		30	
Link Distance (ft)		929	804		1234	
Travel Time (s)		12.7	18.3		28.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	80	382	0
Turn Type	Prot			Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		6
Total Split (s)	39.0	114.0	75.0	75.0	36.0	114.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)				108.0	30.0	
Actuated g/C Ratio				0.72	0.20	
v/c Ratio				0.03	0.38	
Control Delay				0.4	53.3	
Queue Delay				0.0	0.0	
Total Delay				0.4	53.3	
LOS				A	D	
Approach Delay			0.4		53.3	
Approach LOS			A		D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 13 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 44.1 Intersection LOS: D
Intersection Capacity Utilization 11.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 303: Magic Mountain Pkwy & Six Flags Entrance



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑	↱	↰	↑↑↑↑	↱	↰	↑	↱	↰↰	↑↱	
Traffic Volume (vph)	0	351	0	0	74	0	0	0	0	0	0	0
Future Volume (vph)	0	351	0	0	74	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	0		0	255		200	300		0
Storage Lanes	2		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3614	6408	1863	1863	6408	1863	1863	1863	1863	3614	3539	0
Flt Permitted												
Satd. Flow (perm)	3614	6408	1863	1863	6408	1863	1863	1863	1863	3614	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		0			609			703			474	
Travel Time (s)		0.0			13.8			16.0			10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	382	0	0	80	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Perm	Prot		
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			
Total Split (s)	21.0	70.0	70.0	13.0	62.0	62.0	11.0	52.0	52.0	15.0	56.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)		150.0			150.0							
Actuated g/C Ratio		1.00			1.00							
v/c Ratio		0.06			0.01							
Control Delay		0.0			0.0							
Queue Delay		0.0			0.0							
Total Delay		0.0			0.0							
LOS		A			A							
Approach Delay												
Approach LOS												

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 140 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Control Type: Actuated-Coordinated

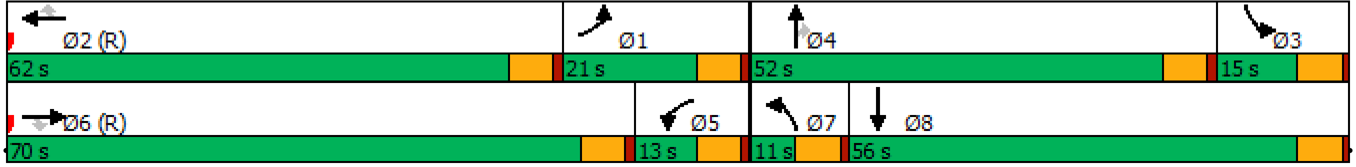
Maximum v/c Ratio: 0.06

Intersection Signal Delay: 0.0 Intersection LOS: A

Intersection Capacity Utilization 10.1% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 304: "A" Street/Media Center & Magic Mountain Pkwy

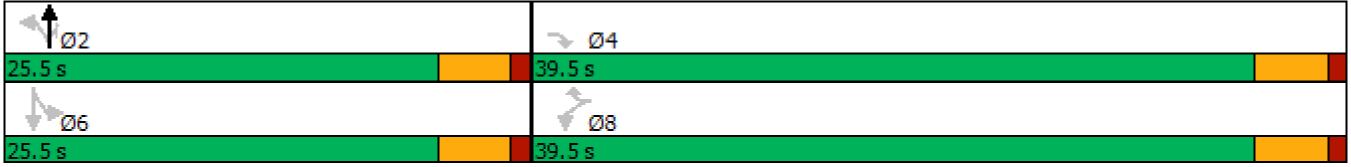


	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱	↰		↱	↰	↑↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	0	0	0	0	0	0	0	657	0	0	925	0
Future Volume (vph)	0	0	0	0	0	0	0	657	0	0	925	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	250		180	200		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	1863	1863	0	1863	1863	5085	1863	1863	5085	0
Flt Permitted												
Satd. Flow (perm)	0	0	1863	1863	0	1863	1863	5085	1863	1863	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		217			218			575			1063	
Travel Time (s)		4.9			5.0			13.1			24.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	714	0	0	1005	0
Turn Type			Perm	Perm		Perm	Perm	NA	Perm	custom	NA	
Protected Phases								2				
Permitted Phases			4	8		8	2		2	6	6	
Total Split (s)			39.5	39.5		39.5	25.5	25.5	25.5	25.5	25.5	
Total Lost Time (s)			4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)								31.7			31.7	
Actuated g/C Ratio								1.00			1.00	
v/c Ratio								0.14			0.20	
Control Delay								0.1			0.1	
Queue Delay								0.0			0.0	
Total Delay								0.1			0.1	
LOS								A			A	
Approach Delay								0.1			0.1	
Approach LOS								A			A	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 31.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.20
Intersection Signal Delay: 0.1 Intersection LOS: A
Intersection Capacity Utilization 21.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 307: Shopping Ctr & The Old Rd



Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑	↑↱	
Traffic Vol, veh/h	24	29	4	218	249	5
Future Vol, veh/h	24	29	4	218	249	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	32	4	237	271	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	519	138	276	0	-	0
Stage 1	274	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	502	886	1285	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	500	886	1285	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1285	-	500	886	-	-
HCM Lane V/C Ratio	0.003	-	0.052	0.036	-	-
HCM Control Delay (s)	7.8	-	12.6	9.2	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	15	113	23	211	291	10
Future Vol, veh/h	15	113	23	211	291	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	123	25	229	316	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	487	164	327	0	-	0
Stage 1	322	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	510	852	1229	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	500	852	1229	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	10.2		0.8		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1229	-	500	852	-	-
HCM Lane V/C Ratio	0.02	-	0.033	0.144	-	-
HCM Control Delay (s)	8	-	12.4	9.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.5	-	-

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↱		↑↱		↰	↑
Traffic Vol, veh/h	5	0	0	5	0	0
Future Vol, veh/h	5	0	0	5	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	0	5	0	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4	3	0	0	5	0
Stage 1	3	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1018	1081	-	-	1616	-
Stage 1	1020	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1018	1081	-	-	1616	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	1022	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	930	1616	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↰	↱	↑	↱	↰	↑
Traffic Vol, veh/h	0	5	0	0	5	0
Future Vol, veh/h	0	5	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	0	5	0

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	10	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1010	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1010	-	-	-	-	-
Mov Cap-2 Maneuver	925	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1013	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s		0	
HCM LOS	-		

Minor Lane/Major Mvmt	NET	NER	WBLn1	WBLn2	SWL	SWT
Capacity (veh/h)	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-	-
HCM Lane LOS	-	-	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-

2030 Cumulative Conditions With Project

AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱↱	↰↰	↑↑↑↑					↰	↰↑	↱↱
Traffic Volume (vph)	0	770	850	460	1890	0	0	0	0	980	10	150
Future Volume (vph)	0	770	850	460	1890	0	0	0	0	980	10	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	230		0	0		0	500		0
Storage Lanes	0		2	2		0	0		0	2		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	5085	2787	3433	6408	0	0	0	0	1681	1686	2787
Flt Permitted				0.950						0.950	0.953	
Satd. Flow (perm)	0	5085	2787	3433	6408	0	0	0	0	1681	1686	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			924									109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		486			419			733			777	
Travel Time (s)		11.0			9.5			16.7			17.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	837	924	500	2054	0	0	0	0	532	544	163
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)		24.5	24.5	13.0	37.5					22.5	22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Act Effct Green (s)		19.5	19.5	8.5	32.5					18.0	18.0	18.0
Actuated g/C Ratio		0.33	0.33	0.14	0.55					0.30	0.30	0.30
v/c Ratio		0.50	0.60	1.02	0.59					1.05	1.07	0.18
Control Delay		17.3	3.2	75.5	9.8					77.8	84.4	7.0
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		17.3	3.2	75.5	9.8					77.8	84.4	7.0
LOS		B	A	E	A					E	F	A
Approach Delay		9.9			22.7						71.4	
Approach LOS		A			C						E	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 59.5
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 81.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 10: I-5 SB On-Ramp/I-5 SB Off-Ramp & Magic Mountain Pkwy

11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑			↑↑↑↱	↱	↰↰	↑↱	↱			
Traffic Volume (vph)	70	1690	0	0	1200	310	1320	0	540	0	0	0
Future Volume (vph)	70	1690	0	0	1200	310	1320	0	540	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		290	0		300	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5085	0	0	6005	1283	3433	1504	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	6005	1283	3433	1504	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8	290		82	82			
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		419			1012			641			562	
Travel Time (s)		5.7			13.8			14.6			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						14%			50%			
Lane Group Flow (vph)	76	1837	0	0	1351	290	1435	294	293	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Total Split (s)	9.6	37.1			27.5	27.5	42.9	42.9	42.9			
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Act Effct Green (s)	5.1	32.6			24.9	24.9	38.4	38.4	38.4			
Actuated g/C Ratio	0.06	0.41			0.31	0.31	0.48	0.48	0.48			
v/c Ratio	0.35	0.89			0.72	0.48	0.87	0.38	0.38			
Control Delay	40.6	28.7			27.5	6.1	26.0	11.0	11.0			
Queue Delay	0.0	5.5			0.0	0.0	0.0	0.0	0.0			
Total Delay	40.6	34.2			27.5	6.1	26.0	11.0	11.0			
LOS	D	C			C	A	C	B	B			
Approach Delay		34.4			23.7			21.7				
Approach LOS		C			C			C				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Control Type: Semi Act-Uncoord

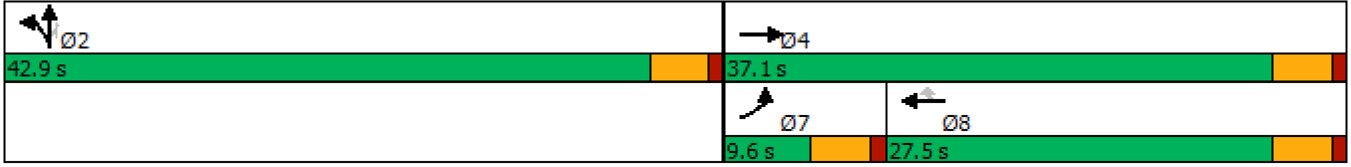
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 26.7 Intersection LOS: C

Intersection Capacity Utilization 81.5% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑↑	↱	↰↰	↑↑↑↑	↱	↰↰	↑↑↑	↱	↰↰	↑↑↑	↱
Traffic Volume (vph)	550	1380	110	160	840	1400	490	330	130	400	320	500
Future Volume (vph)	550	1380	110	160	840	1400	490	330	130	400	320	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		220	210		210	565		0	390		280
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			624			153			65
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		522			486			553			1197	
Travel Time (s)		7.1			6.6			12.6			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	598	1500	120	174	913	1522	533	359	141	435	348	543
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1!
Permitted Phases			6			Free			4			8
Total Split (s)	32.0	58.0	58.0	19.0	45.0		29.0	40.0	40.0	33.0	44.0	32.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)	26.0	71.7	71.7	13.0	58.7	150.0	23.0	17.7	17.7	23.6	18.3	44.3
Actuated g/C Ratio	0.17	0.48	0.48	0.09	0.39	1.00	0.15	0.12	0.12	0.16	0.12	0.30
v/c Ratio	1.01	0.42	0.15	0.59	0.36	0.96	1.01	0.60	0.44	0.81	0.56	1.06
Control Delay	79.4	20.0	3.3	74.5	33.5	16.9	104.3	67.1	11.1	72.9	65.0	84.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	20.0	3.3	74.5	33.5	16.9	104.3	67.1	11.1	72.9	65.0	84.9
LOS	E	B	A	E	C	B	F	E	B	E	E	F
Approach Delay		35.1			26.6			78.7			75.8	
Approach LOS		D			C			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

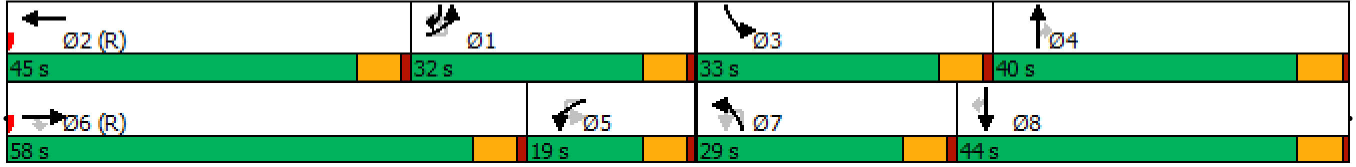
Intersection Signal Delay: 45.8 Intersection LOS: D

Intersection Capacity Utilization 92.8% ICU Level of Service F

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 26: The Old Rd & Magic Mountain Pkwy



81: Henry Mayo Dr & Commerce Center Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	210	160	200	40	10	130	10	1200	70	80	500	30
Future Volume (vph)	210	160	200	40	10	130	10	1200	70	80	500	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		200	120		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1709	3539	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			217			143			143			143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		501			625			258			233	
Travel Time (s)		11.4			14.2			5.9			5.3	
Confl. Peds. (#/hr)				9								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	174	217	43	11	141	11	1304	76	87	543	33
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Total Split (s)	31.0	41.0	41.0	13.0	23.0	23.0	10.0	65.0	65.0	11.0	66.0	66.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	19.2	21.6	21.6	7.3	7.2	7.2	5.0	60.7	60.7	6.0	67.5	67.5
Actuated g/C Ratio	0.17	0.19	0.19	0.07	0.06	0.06	0.05	0.55	0.55	0.05	0.61	0.61
v/c Ratio	0.75	0.25	0.45	0.37	0.05	0.59	0.14	0.67	0.08	0.47	0.25	0.03
Control Delay	59.5	40.0	8.2	62.0	51.2	19.3	59.2	21.9	0.2	62.2	11.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	40.0	8.2	62.0	51.2	19.3	59.2	21.9	0.2	62.2	11.8	0.1
LOS	E	D	A	E	D	B	E	C	A	E	B	A
Approach Delay		36.1			30.5			21.0			17.9	
Approach LOS		D			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 110.8

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 24.2 Intersection LOS: C

Intersection Capacity Utilization 65.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 81: Henry Mayo Dr & Commerce Center Dr

82: Commerce Center Dr & SR-126 EB Ramps

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑↑↑	↱↱		↑↱	↱
Traffic Volume (vph)	0	0	0	0	0	0	0	1320	220	0	610	220
Future Volume (vph)	0	0	0	0	0	0	0	1320	220	0	610	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	2787	0	3373	1441
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	2787	0	3373	1441
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		238			292			233			127	
Travel Time (s)		5.4			6.6			5.3			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												10%
Lane Group Flow (vph)	0	0	0	0	0	0	0	1435	239	0	687	215
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 28.8% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰↰		↱↱	↰↰	↑↑↑			↑↑↑	↱
Traffic Volume (vph)	0	0	0	310	0	1660	220	1100	0	0	520	130
Future Volume (vph)	0	0	0	310	0	1660	220	1100	0	0	520	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		500	200		0	0		200
Storage Lanes	0		0	1		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						59						141
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		555			831			262			499	
Travel Time (s)		12.6			18.9			6.0			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	337	0	1804	239	1196	0	0	565	141
Turn Type				Prot		Perm	Prot	NA			NA	Perm
Protected Phases				3			5	2			6	
Permitted Phases						8						6
Total Split (s)				90.0		90.0	15.0	40.0			25.0	25.0
Total Lost Time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Act Effct Green (s)				83.2		83.2	10.0	34.3			19.2	19.2
Actuated g/C Ratio				0.65		0.65	0.08	0.27			0.15	0.15
v/c Ratio				0.15		0.98	0.89	0.88			0.74	0.39
Control Delay				8.8		38.2	90.7	53.1			58.4	11.1
Queue Delay				0.0		0.0	0.0	0.0			0.0	0.0
Total Delay				8.8		38.2	90.7	53.1			58.4	11.1
LOS				A		D	F	D			E	B
Approach Delay					33.5			59.4			48.9	
Approach LOS					C			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 127.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 44.7 Intersection LOS: D
Intersection Capacity Utilization 87.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 83: Commerce Center Dr & SR 126 WB-Ramps

84: Commerce Center Dr & Hancock Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱	↱	↰	↰↑	↱	↰	↑↑↑	↱	↰	↑↑↑↱	
Traffic Volume (vph)	10	10	30	70	10	70	160	2210	390	70	550	20
Future Volume (vph)	10	10	30	70	10	70	160	2210	390	70	550	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	150		150	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1632	1504	1681	1706	1583	1770	5085	1583	1770	5060	0
Flt Permitted	0.950			0.950	0.964		0.950			0.950		
Satd. Flow (perm)	1770	1632	1504	1681	1706	1583	1770	5085	1583	1770	5060	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12	126			126			157		4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			377			499			1368	
Travel Time (s)		7.9			8.6			11.3			31.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			36%	43%								
Lane Group Flow (vph)	11	23	21	43	44	76	174	2402	424	76	620	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Total Split (s)	31.5	31.5	31.5	31.5	31.5	31.5	26.1	57.0	57.0	10.0	40.9	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	6.3	6.3	6.3	7.7	7.7	7.7	13.4	54.6	54.6	5.5	46.8	
Actuated g/C Ratio	0.07	0.07	0.07	0.09	0.09	0.09	0.16	0.64	0.64	0.06	0.55	
v/c Ratio	0.08	0.17	0.09	0.29	0.29	0.30	0.63	0.74	0.40	0.67	0.22	
Control Delay	41.2	30.0	0.8	43.4	43.4	4.9	45.1	14.6	7.3	70.4	12.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.0	0.0	
Total Delay	41.2	30.0	0.8	43.4	43.4	4.9	45.1	15.6	7.5	70.4	12.8	
LOS	D	C	A	D	D	A	D	B	A	E	B	
Approach Delay		21.1			25.4			16.1			19.1	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 85.5

Control Type: Actuated-Uncoordinated

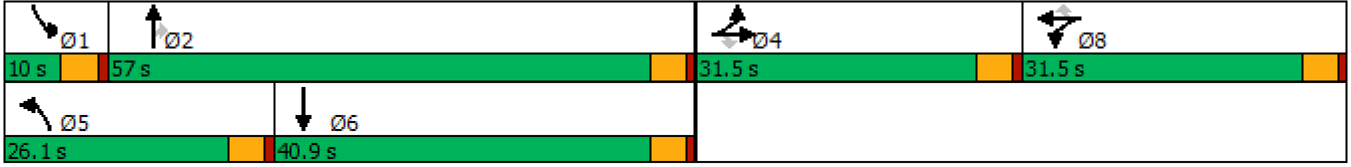
Maximum v/c Ratio: 0.74

Intersection Signal Delay: 17.1 Intersection LOS: B

Intersection Capacity Utilization 67.0% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 84: Commerce Center Dr & Hancock Pkwy

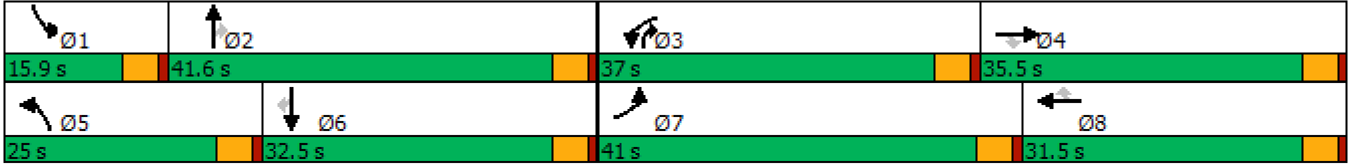


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰↰	↑	↱	↰↰	↑↑↑	↱	↰↰	↑↑↑	↱
Traffic Volume (vph)	390	90	100	100	60	100	430	1160	700	210	440	110
Future Volume (vph)	390	90	100	100	60	100	430	1160	700	210	440	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	250		230	125		500
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1738	1504	3433	1863	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1738	1504	3433	1863	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	126			126			463			126
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			346			1368			795	
Travel Time (s)		15.3			7.9			31.1			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			12%									
Lane Group Flow (vph)	424	111	96	109	65	109	467	1261	761	228	478	120
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			6
Total Split (s)	41.0	35.5	35.5	37.0	31.5	31.5	25.0	41.6	37.0	15.9	32.5	32.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	30.3	28.8	28.8	10.6	9.1	9.1	18.8	37.4	52.5	10.9	29.5	29.5
Actuated g/C Ratio	0.29	0.27	0.27	0.10	0.09	0.09	0.18	0.35	0.50	0.10	0.28	0.28
v/c Ratio	0.84	0.23	0.19	0.32	0.41	0.43	0.77	0.70	0.75	0.64	0.34	0.23
Control Delay	51.1	30.5	3.6	47.4	55.4	11.8	51.5	33.3	13.4	56.2	33.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	30.5	3.6	47.4	55.4	11.8	51.5	33.3	13.4	56.2	33.0	6.7
LOS	D	C	A	D	E	B	D	C	B	E	C	A
Approach Delay		40.3			35.5			30.6			35.6	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 105.9
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 69.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 85: Commerce Center Dr & Franklin Pkwy

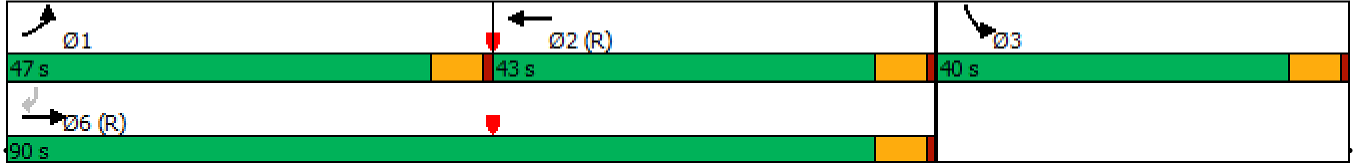


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	720	1090	720	530	360	130
Future Volume (vph)	720	1090	720	530	360	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			300	300	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	5085	5085	1583	3433	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				576		141
Link Speed (mph)		50	50		30	
Link Distance (ft)		992	1240		1080	
Travel Time (s)		13.5	16.9		24.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	783	1185	783	576	391	141
Turn Type	Prot	NA	NA	Free	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				Free		6
Total Split (s)	47.0	90.0	43.0		40.0	90.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Act Effct Green (s)	35.1	84.0	42.9	130.0	34.0	84.0
Actuated g/C Ratio	0.27	0.65	0.33	1.00	0.26	0.65
v/c Ratio	0.85	0.36	0.47	0.36	0.44	0.08
Control Delay	64.7	9.5	36.4	0.6	41.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	9.5	36.4	0.6	41.8	1.4
LOS	E	A	D	A	D	A
Approach Delay		31.5	21.2		31.1	
Approach LOS		C	C		C	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 22.5 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 59.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 106: Magic Mountain Pkwy & Commerce Center Dr



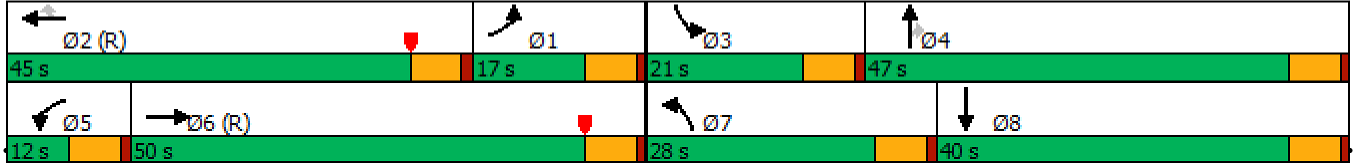
107: Westridge Pkwy/Navigation Ave

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰↰	↑↑	↱	↰	↑	↱	↰	↱	
Traffic Volume (vph)	100	1210	110	100	660	80	210	300	450	140	280	20
Future Volume (vph)	100	1210	110	100	660	80	210	300	450	140	280	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	300		0	0		0
Storage Lanes	1		0	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5019	0	3433	3539	1583	1770	1863	1583	1770	1844	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5019	0	3433	3539	1583	1770	1863	1583	1770	1844	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				176			176		3	
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		1492			992			1380			1350	
Travel Time (s)		20.3			13.5			31.4			30.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	1435	0	109	717	87	228	326	489	152	326	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			
Total Split (s)	17.0	50.0		12.0	45.0	45.0	28.0	47.0	47.0	21.0	40.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)	11.0	49.8		7.5	46.2	46.2	20.1	34.7	34.7	14.1	28.7	
Actuated g/C Ratio	0.08	0.38		0.06	0.36	0.36	0.15	0.27	0.27	0.11	0.22	
v/c Ratio	0.73	0.74		0.55	0.57	0.13	0.84	0.66	0.89	0.79	0.80	
Control Delay	85.4	38.5		92.8	44.0	8.2	78.1	48.2	47.3	84.4	61.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	85.4	38.5		92.8	44.0	8.2	78.1	48.2	47.3	84.4	61.8	
LOS	F	D		F	D	A	E	D	D	F	E	
Approach Delay		41.8			46.4			54.3			69.0	
Approach LOS		D			D			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 43 (33%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 49.4 Intersection LOS: D
Intersection Capacity Utilization 77.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 107: Westridge Pkwy/Navigation Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰↰	↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	10	10	210	10	10	10	500	490	10	20	750	210
Future Volume (vph)	10	10	210	10	10	10	500	490	10	20	750	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		0	120		460
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1723	0	3433	5070	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1723	0	3433	5070	0	1770	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228		11			3				228
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		625			327			847			693	
Travel Time (s)		14.2			7.4			19.3			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	11	228	11	22	0	543	544	0	22	815	228
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3			5	2		1	6	
Permitted Phases			4		8							6
Total Split (s)	11.0	36.0	36.0	11.0	36.0		41.0	71.0		12.0	42.0	42.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	6.1	7.6	7.6	6.1	7.6		19.1	67.7		6.6	48.1	48.1
Actuated g/C Ratio	0.07	0.08	0.08	0.07	0.08		0.21	0.75		0.07	0.53	0.53
v/c Ratio	0.09	0.07	0.67	0.09	0.14		0.75	0.14		0.17	0.30	0.24
Control Delay	47.0	42.3	16.4	47.0	30.4		40.9	4.8		47.0	13.7	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.0	42.3	16.4	47.0	30.4		40.9	4.8		47.0	13.7	3.1
LOS	D	D	B	D	C		D	A		D	B	A
Approach Delay		18.9			35.9			22.9			12.1	
Approach LOS		B			D			C			B	

Intersection Summary

Area Type: Other	
Cycle Length: 130	
Actuated Cycle Length: 90.3	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 47.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 116: Commerce Center Dr & Witherspoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱	↱	↰	↑	↱	↰↰	↑↑↑	↱	↰	↑↑↑↱	
Traffic Volume (vph)	10	20	100	10	10	40	450	950	250	200	650	100
Future Volume (vph)	10	20	100	10	10	40	450	950	250	200	650	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		200	200		0
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1591	1504	1770	1863	1583	3433	5085	1583	1770	4984	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1591	1504	1770	1863	1583	3433	5085	1583	1770	4984	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45	88			88			272		25	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		537			259			795			763	
Travel Time (s)		12.2			5.9			12.0			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			41%									
Lane Group Flow (vph)	11	67	64	11	11	43	489	1033	272	217	816	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Total Split (s)	11.0	26.0	26.0	11.0	26.0	26.0	40.0	54.0	54.0	39.0	53.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	6.1	7.2	7.2	6.1	7.2	7.2	17.6	51.1	51.1	16.1	49.6	
Actuated g/C Ratio	0.07	0.08	0.08	0.07	0.08	0.08	0.20	0.58	0.58	0.18	0.57	
v/c Ratio	0.09	0.39	0.31	0.09	0.07	0.20	0.71	0.35	0.26	0.67	0.29	
Control Delay	45.5	26.4	9.4	45.5	42.2	2.8	39.5	12.1	2.6	45.0	11.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.5	26.4	9.4	45.5	42.2	2.8	39.5	12.1	2.6	45.0	11.8	
LOS	D	C	A	D	D	A	D	B	A	D	B	
Approach Delay		20.2			16.7			18.1			18.8	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 87.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 47.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 206: Commerce Center Dr & Harrison

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	150	10	120	10	10	10	330	1100	10	30	480	220
Future Volume (vph)	150	10	120	10	10	10	330	1100	10	30	480	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	300		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	5080	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	5080	0	1770	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			236		2				239
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1350			1765			1080			1674	
Travel Time (s)		30.7			40.1			24.5			38.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	11	130	11	11	11	359	1207	0	33	522	239
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	22.5	35.5	35.5	9.5	22.5	22.5	22.1	34.1		10.9	22.9	22.9
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	11.3	13.6	13.6	5.1	6.1	6.1	17.9	37.4		6.2	18.7	18.7
Actuated g/C Ratio	0.17	0.21	0.21	0.08	0.09	0.09	0.27	0.57		0.09	0.29	0.29
v/c Ratio	0.53	0.03	0.28	0.08	0.06	0.03	0.74	0.42		0.20	0.36	0.38
Control Delay	32.4	20.7	3.2	33.8	31.9	0.2	36.0	11.7		33.9	21.0	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	32.4	20.7	3.2	33.8	31.9	0.2	36.0	11.7		33.9	21.0	5.8
LOS	C	C	A	C	C	A	D	B		C	C	A
Approach Delay		19.5			22.0			17.3			17.0	
Approach LOS		B			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 65.5

Control Type: Actuated-Uncoordinated

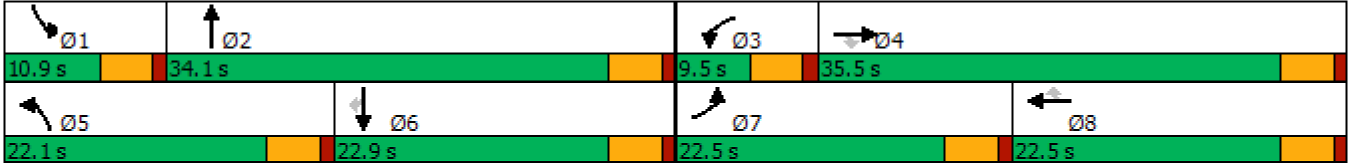
Maximum v/c Ratio: 0.74

Intersection Signal Delay: 17.5 Intersection LOS: B

Intersection Capacity Utilization 53.8% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 300: Commerce Center Dr & Navigation Ave



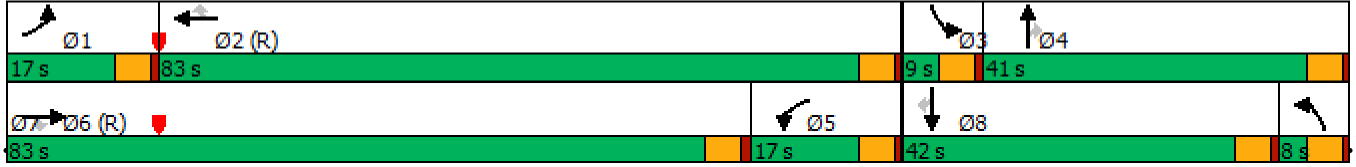
301: 'A' Street & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑	↱	↰↰	↑	↱
Traffic Volume (vph)	60	1780	10	60	1200	100	10	110	10	30	10	20
Future Volume (vph)	60	1780	10	60	1200	100	10	110	10	30	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	300		0	150		0	200		200
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			124			124			124
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		1240			882			628			1765	
Travel Time (s)		16.9			12.0			14.3			40.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1935	11	65	1304	109	11	120	11	33	11	22
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Total Split (s)	17.0	83.0	83.0	17.0	83.0	83.0	8.0	41.0	41.0	9.0	42.0	42.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	10.9	104.2	104.2	10.9	104.2	104.2	9.7	15.0	15.0	4.0	14.1	14.1
Actuated g/C Ratio	0.07	0.69	0.69	0.07	0.69	0.69	0.06	0.10	0.10	0.03	0.09	0.09
v/c Ratio	0.51	0.55	0.01	0.51	0.37	0.10	0.10	0.65	0.04	0.36	0.06	0.08
Control Delay	80.0	13.7	0.0	39.4	8.9	0.7	64.3	80.1	0.3	82.9	66.2	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	13.7	0.0	39.4	8.9	0.7	64.3	80.1	0.3	82.9	66.2	0.7
LOS	E	B	A	D	A	A	E	F	A	F	E	A
Approach Delay		15.8			9.6			72.7			52.7	
Approach LOS		B			A			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 16.2 Intersection LOS: B
Intersection Capacity Utilization 58.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 301: 'A' Street & Magic Mountain Pkwy



	↗	→	←	↖	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	1820	1350	30	0	10
Future Volume (vph)	0	1820	1350	30	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	6408	6389	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	6408	6389	0	0	1611
Link Speed (mph)		30	30		30	
Link Distance (ft)		882	929		235	
Travel Time (s)		20.0	21.1		5.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1978	1500	0	0	11
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 30.1% ICU Level of Service A

Analysis Period (min) 15

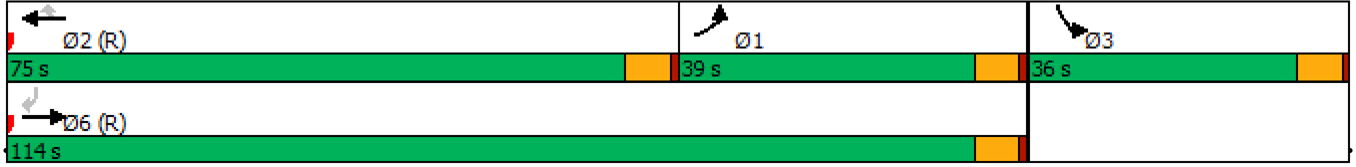
303: Magic Mountain Pkwy & Six Flags Entrance

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	260	1560	1250	390	360	130
Future Volume (vph)	260	1560	1250	390	360	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			400	0	0
Storage Lanes	2			2	3	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	6408	6408	2787	4990	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6408	2787	4990	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				424		141
Link Speed (mph)		50	30		30	
Link Distance (ft)		929	804		1234	
Travel Time (s)		12.7	18.3		28.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	283	1696	1359	424	391	141
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		6
Total Split (s)	39.0	114.0	75.0	75.0	36.0	114.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)	33.0	108.0	69.0	69.0	30.0	108.0
Actuated g/C Ratio	0.22	0.72	0.46	0.46	0.20	0.72
v/c Ratio	0.37	0.37	0.46	0.28	0.39	0.12
Control Delay	60.1	7.2	22.2	8.8	53.4	1.1
Queue Delay	0.0	0.4	0.0	0.0	1.4	0.0
Total Delay	60.1	7.6	22.2	8.8	54.8	1.1
LOS	E	A	C	A	D	A
Approach Delay		15.1	19.0		40.6	
Approach LOS		B	B		D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 13 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 303: Magic Mountain Pkwy & Six Flags Entrance



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑	↱	↰	↑↑↑↑	↱	↰	↑	↱	↰↰	↑↱	
Traffic Volume (vph)	160	1750	10	30	1490	90	10	20	210	80	10	140
Future Volume (vph)	160	1750	10	30	1490	90	10	20	210	80	10	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	0		0	255		200	300		0
Storage Lanes	2		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	6408	1583	1770	6408	1583	1770	1863	1583	3433	3044	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	6408	1583	1770	6408	1583	1770	1863	1583	3433	3044	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			196			153		152	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		0			609			703			474	
Travel Time (s)		0.0			13.8			16.0			10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1902	11	33	1620	98	11	22	228	87	163	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			
Total Split (s)	21.0	70.0	70.0	13.0	62.0	62.0	11.0	52.0	52.0	15.0	56.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)	13.9	98.7	98.7	6.7	89.2	89.2	5.1	13.8	13.8	9.2	24.5	
Actuated g/C Ratio	0.09	0.66	0.66	0.04	0.59	0.59	0.03	0.09	0.09	0.06	0.16	
v/c Ratio	0.55	0.45	0.01	0.42	0.43	0.10	0.18	0.13	0.80	0.42	0.26	
Control Delay	56.3	8.4	0.0	81.8	10.3	0.3	77.6	60.4	42.9	73.4	10.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	56.3	8.4	0.0	81.8	10.3	0.3	77.6	60.4	42.9	73.4	10.2	
LOS	E	A	A	F	B	A	E	E	D	E	B	
Approach Delay		12.3			11.1			45.8			32.2	
Approach LOS		B			B			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 140 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Control Type: Actuated-Coordinated

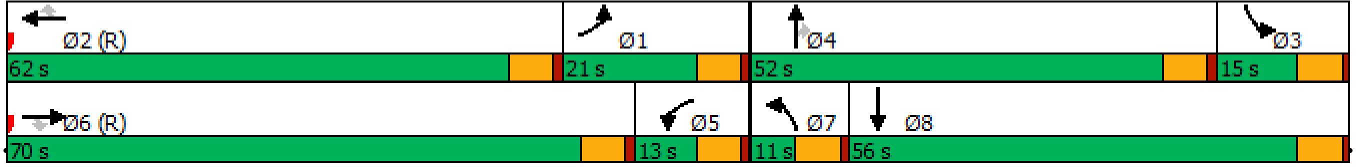
Maximum v/c Ratio: 0.80

Intersection Signal Delay: 15.0 Intersection LOS: B

Intersection Capacity Utilization 57.5% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 304: "A" Street/Media Center & Magic Mountain Pkwy

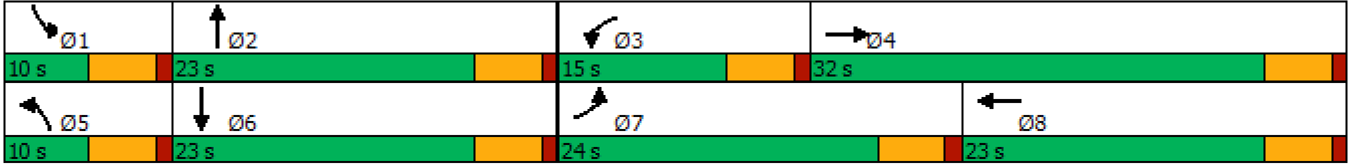


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	370	10	120	90	10	160	30	510	40	20	460	180
Future Volume (vph)	370	10	120	90	10	160	30	510	40	20	460	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	300		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1606	0	1770	1600	0	1770	3500	0	1770	3391	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1606	0	1770	1600	0	1770	3500	0	1770	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130			174			9			67	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		716			1153			1084			1381	
Travel Time (s)		16.3			26.2			24.6			31.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	402	141	0	98	185	0	33	597	0	22	696	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Total Split (s)	24.0	32.0		15.0	23.0		10.0	23.0		10.0	23.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	18.8	20.1		8.4	7.2		5.1	18.3		5.1	18.3	
Actuated g/C Ratio	0.30	0.32		0.13	0.11		0.08	0.29		0.08	0.29	
v/c Ratio	0.76	0.23		0.42	0.55		0.23	0.59		0.15	0.68	
Control Delay	33.9	6.4		32.5	12.8		34.6	23.0		33.1	23.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.9	6.4		32.5	12.8		34.6	23.0		33.1	23.4	
LOS	C	A		C	B		C	C		C	C	
Approach Delay		26.7			19.6			23.7			23.7	
Approach LOS		C			B			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 63
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 68.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 305: Westridge Pkwy & 'OO' Street/'B' Drive



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑↱			↑↑↑↑		↱
Traffic Volume (vph)	340	20	0	760	0	10
Future Volume (vph)	340	20	0	760	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5045	0	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	5045	0	0	6408	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	553			510	215	
Travel Time (s)	12.6			11.6	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	392	0	0	826	0	11
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 17.0% ICU Level of Service A

Analysis Period (min) 15

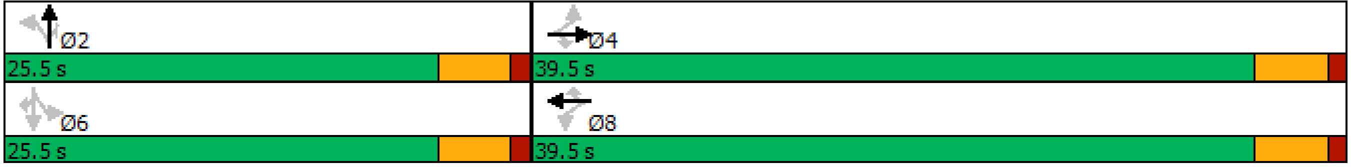
307: Shopping Ctr & The Old Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑	↱		↰↑	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Traffic Volume (vph)	10	10	10	40	10	150	20	600	100	190	140	10
Future Volume (vph)	10	10	10	40	10	150	20	600	100	190	140	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	250		180	200		200
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1818	1583	0	1792	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.836			0.755		0.651			0.393		
Satd. Flow (perm)	0	1557	1583	0	1406	1583	1213	5085	1583	732	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			25			74			109			25
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		217			218			575			510	
Travel Time (s)		4.9			5.0			13.1			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	11	0	54	163	22	652	109	207	152	11
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	custom	NA	custom
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2		2	6	6	6
Total Split (s)	39.5	39.5	39.5	39.5	39.5	39.5	25.5	25.5	25.5	25.5	25.5	25.5
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		7.8	7.8		7.8	7.8	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
v/c Ratio		0.07	0.03		0.20	0.44	0.03	0.20	0.10	0.43	0.05	0.01
Control Delay		12.3	3.8		14.2	12.1	4.7	4.3	1.7	9.8	4.3	1.6
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		12.3	3.8		14.2	12.1	4.7	4.3	1.7	9.8	4.3	1.6
LOS		B	A		B	B	A	A	A	A	A	A
Approach Delay		9.5			12.6			4.0			7.3	
Approach LOS		A			B			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 6.3 Intersection LOS: A
Intersection Capacity Utilization 42.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 307: Shopping Ctr & The Old Rd



400: Commerce Center Dr

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↱			↑↑↱	
Traffic Vol, veh/h	0	0	20	0	0	30	0	1140	30	0	1120	10
Future Vol, veh/h	0	0	20	0	0	30	0	1140	30	0	1120	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	22	0	0	33	0	1239	33	0	1217	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	614	-	-	636	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	373	0	0	361	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	373	-	-	361	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	16	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	373	361	-	-
HCM Lane V/C Ratio	-	-	0.058	0.09	-	-
HCM Control Delay (s)	-	-	15.2	16	-	-
HCM Lane LOS	-	-	C	C	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	20	10	30	220	430	170
Future Vol, veh/h	20	10	30	220	430	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	11	33	239	467	185

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	746	326	652	0	-	0
Stage 1	560	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	349	670	930	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	337	670	930	-	-	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	930	-	337	670	-	-
HCM Lane V/C Ratio	0.035	-	0.065	0.016	-	-
HCM Control Delay (s)	9	-	16.4	10.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	14.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	10	80	730	150	330	140
Future Vol, veh/h	10	80	730	150	330	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	87	793	163	359	152

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2103	256	511	0	-	0
Stage 1	435	-	-	-	-	-
Stage 2	1668	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	44	743	1050	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	11	743	1050	-	-	-
Mov Cap-2 Maneuver	11	-	-	-	-	-
Stage 1	152	-	-	-	-	-
Stage 2	139	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	88.3	15.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1050	-	11	743	-	-
HCM Lane V/C Ratio	0.756	-	0.988	0.117	-	-
HCM Control Delay (s)	18.2	-	$ 711.1	10.5	-	-
HCM Lane LOS	C	-	F	B	-	-
HCM 95th %tile Q(veh)	7.5	-	2	0.4	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑	↱	↰	↑
Traffic Vol, veh/h	10	70	10	10	160	10
Future Vol, veh/h	10	70	10	10	160	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	76	11	11	174	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	370	11	0	0	22	0
Stage 1	11	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	1070	-	-	1593	-
Stage 1	1012	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	561	1070	-	-	1593	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	7.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	567	1070	1593	-
HCM Lane V/C Ratio	-	-	0.019	0.071	0.109	-
HCM Control Delay (s)	-	-	11.5	8.6	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.4	-

404: Hancock Pkwy & Turnberry Ln

Intersection	
Int Delay, s/veh	11.9

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↰	↱	↑	↱		↰↑
Traffic Vol, veh/h	460	10	10	60	10	10
Future Vol, veh/h	460	10	10	60	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	11	11	65	11	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	39	11	0	0	76	0
Stage 1	11	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	970	1070	-	-	1522	-
Stage 1	1012	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	963	1070	-	-	1522	-
Mov Cap-2 Maneuver	892	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	14	0	3.7
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NER	WBLn1	WBLn2	SWL	SWT
Capacity (veh/h)	-	-	892	1070	1522	-
HCM Lane V/C Ratio	-	-	0.561	0.01	0.007	-
HCM Control Delay (s)	-	-	14.1	8.4	7.4	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	3.6	0	0	-

2030 Cumulative Conditions With Project

PM Peak Hour

10: I-5 SB On-Ramp/\I-5 SB Off-Ramp & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱↱	↰↰	↑↑↑↑					↰	↰↑	↱↱
Traffic Volume (vph)	0	930	850	250	1620	0	0	0	0	570	0	40
Future Volume (vph)	0	930	850	250	1620	0	0	0	0	570	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	230		0	0		0	500		0
Storage Lanes	0		2	2		0	0		0	2		2
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	5085	2787	3433	6408	0	0	0	0	1681	1681	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			924									109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		486			419			733			777	
Travel Time (s)		11.0			9.5			16.7			17.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	1011	924	272	1761	0	0	0	0	310	310	43
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)		24.5	24.5	13.0	37.5					22.5	22.5	22.5
Total Lost Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Act Effct Green (s)		20.0	20.0	8.2	32.7					18.0	18.0	18.0
Actuated g/C Ratio		0.34	0.34	0.14	0.55					0.30	0.30	0.30
v/c Ratio		0.59	0.60	0.58	0.50					0.61	0.61	0.05
Control Delay		18.3	3.1	29.4	9.0					24.2	24.2	0.1
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		18.3	3.1	29.4	9.0					24.2	24.2	0.1
LOS		B	A	C	A					C	C	A
Approach Delay		11.1			11.8						22.6	
Approach LOS		B			B						C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.0 Intersection LOS: B

Intersection Capacity Utilization 97.2% ICU Level of Service F

Analysis Period (min) 15

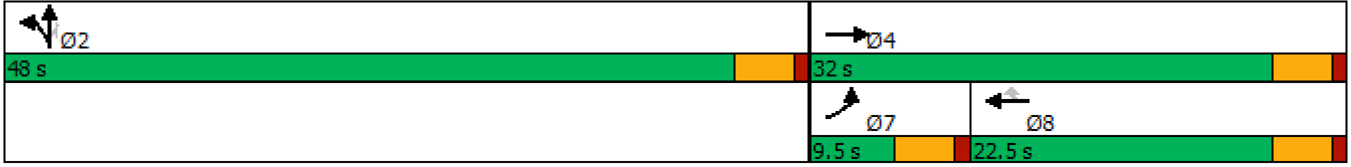
Splits and Phases: 10: I-5 SB On-Ramp/\I-5 SB Off-Ramp & Magic Mountain Pkwy

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑			↑↑↑↱	↱	↰↰	↑↱	↱			
Traffic Volume (vph)	170	1380	0	0	900	420	860	990	540	0	0	0
Future Volume (vph)	170	1380	0	0	900	420	860	990	540	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		290	0		300	0		0
Storage Lanes	2		0	0		1	2		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5085	0	0	5878	1283	3433	1755	1504	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3433	5085	0	0	5878	1283	3433	1755	1504	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					60	82		2	82			
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		419			1012			641			562	
Travel Time (s)		5.7			13.8			14.6			12.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						44%			10%			
Lane Group Flow (vph)	185	1500	0	0	1179	256	935	1135	528	0	0	0
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Total Split (s)	9.5	32.0			22.5	22.5	48.0	48.0	48.0			
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Act Effct Green (s)	5.0	27.5			18.0	18.0	43.5	43.5	43.5			
Actuated g/C Ratio	0.06	0.34			0.22	0.22	0.54	0.54	0.54			
v/c Ratio	0.86	0.86			0.86	0.73	0.50	1.19	0.62			
Control Delay	74.1	30.7			36.1	33.2	12.6	116.7	14.2			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	74.1	30.7			36.1	33.2	12.6	116.7	14.2			
LOS	E	C			D	C	B	F	B			
Approach Delay		35.5			35.6			58.4				
Approach LOS		D			D			E				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 45.9 Intersection LOS: D
Intersection Capacity Utilization 97.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 11: I-5 NB Off-Ramp/I-5 NB On-Ramp & Magic Mountain Pkwy

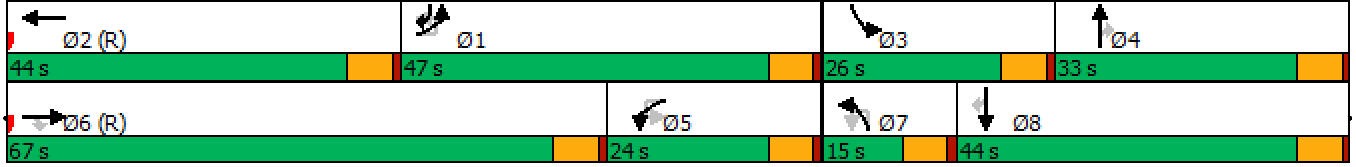


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑↑	↱	↰↰	↑↑↑↑	↱	↰↰	↑↑↑	↱	↰↰	↑↑↑	↱
Traffic Volume (vph)	550	1990	360	240	620	1160	180	670	220	370	730	800
Future Volume (vph)	550	1990	360	240	620	1160	180	670	220	370	730	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		220	210		210	565		0	390		280
Storage Lanes	2		1	2		0	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	7544	1583	3433	6408	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193			516			229			65
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		522			486			553			1197	
Travel Time (s)		7.1			6.6			12.6			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	598	2163	391	261	674	1261	196	728	239	402	793	870
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1!
Permitted Phases			6			Free			4			8
Total Split (s)	47.0	67.0	67.0	24.0	44.0		15.0	33.0	33.0	26.0	44.0	47.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)	41.0	62.1	62.1	18.0	39.1	150.0	9.0	26.3	26.3	19.7	36.9	77.9
Actuated g/C Ratio	0.27	0.41	0.41	0.12	0.26	1.00	0.06	0.18	0.18	0.13	0.25	0.52
v/c Ratio	0.64	0.69	0.51	0.64	0.40	0.80	0.96	0.82	0.51	0.90	0.63	1.02
Control Delay	53.6	23.7	7.5	70.5	47.0	4.3	121.3	67.9	11.5	86.8	52.9	59.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	23.7	7.5	70.5	47.0	4.3	121.3	67.9	11.5	86.8	52.9	59.0
LOS	D	C	A	E	D	A	F	E	B	F	D	E
Approach Delay		27.3			25.2			65.3			62.1	
Approach LOS		C			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Green, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 40.3 Intersection LOS: D
Intersection Capacity Utilization 99.3% ICU Level of Service F
Analysis Period (min) 15
! Phase conflict between lane groups.

Splits and Phases: 26: The Old Rd & Magic Mountain Pkwy

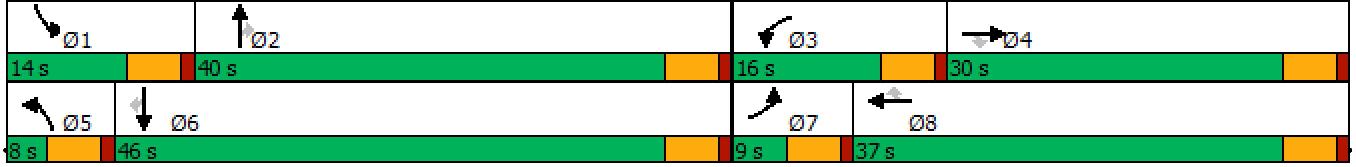


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	40	60	140	180	10	420	10	1260	160	280	720	40
Future Volume (vph)	40	60	140	180	10	420	10	1260	160	280	720	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	200		0	200		200	120		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1750	3539	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			240			185			240			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		501			625			258			233	
Travel Time (s)		11.4			14.2			5.9			5.3	
Confl. Peds. (#/hr)				9								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	65	152	196	11	457	11	1370	174	304	783	43
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Total Split (s)	9.0	30.0	30.0	16.0	37.0	37.0	8.0	40.0	40.0	14.0	46.0	46.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	4.0	14.3	14.3	11.1	25.3	25.3	3.0	35.3	35.3	9.1	48.0	48.0
Actuated g/C Ratio	0.04	0.16	0.16	0.12	0.28	0.28	0.03	0.39	0.39	0.10	0.53	0.53
v/c Ratio	0.54	0.12	0.34	0.90	0.01	0.79	0.19	0.99	0.23	0.88	0.41	0.05
Control Delay	71.1	30.9	2.3	82.3	23.9	28.7	53.4	50.5	1.6	68.4	15.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	30.9	2.3	82.3	23.9	28.7	53.4	50.5	1.6	68.4	15.3	0.1
LOS	E	C	A	F	C	C	D	D	A	E	B	A
Approach Delay		20.8			44.4			45.1			29.0	
Approach LOS		C			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 89.9
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 76.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 81: Henry Mayo Dr & Commerce Center Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								↑↑↑	↱↱		↑↑	↱↱
Traffic Volume (vph)	0	0	0	0	0	0	0	1130	590	0	1040	1420
Future Volume (vph)	0	0	0	0	0	0	0	1130	590	0	1040	1420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	5085	2787	0	3539	2787
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		238			292			233			127	
Travel Time (s)		5.4			6.6			5.3			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	1228	641	0	1130	1543
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.0% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰↰		↱↱	↰↰	↑↑↑			↓↓↓	↱
Traffic Volume (vph)	0	0	0	240	0	280	530	600	0	0	2220	220
Future Volume (vph)	0	0	0	240	0	280	530	600	0	0	2220	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	500		500	200		0	0		200
Storage Lanes	0		0	2		1	2		0	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Flt Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	0	2787	3433	5085	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						304						109
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		555			831			262			499	
Travel Time (s)		12.6			18.9			4.5			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	261	0	304	576	652	0	0	2413	239
Turn Type				Prot		Perm	Prot	NA			NA	Perm
Protected Phases				3			5	2			6	
Permitted Phases						8						6
Total Split (s)				45.0		45.0	30.0	105.0			75.0	75.0
Total Lost Time (s)				5.0		5.0	5.0	5.0			5.0	5.0
Act Effct Green (s)				14.7		14.7	25.0	100.0			70.0	70.0
Actuated g/C Ratio				0.12		0.12	0.20	0.80			0.56	0.56
v/c Ratio				0.65		0.51	0.84	0.16			0.85	0.26
Control Delay				60.3		8.5	60.2	3.0			26.8	8.4
Queue Delay				0.0		0.0	0.0	0.0			46.6	0.0
Total Delay				60.3		8.5	60.2	3.0			73.4	8.4
LOS				E		A	E	A			E	A
Approach Delay					32.4			29.8			67.6	
Approach LOS					C			C			E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 124.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 52.7 Intersection LOS: D

Intersection Capacity Utilization 76.5% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 83: Commerce Center Dr & SR 126 WB-Ramps

84: Commerce Center Dr & Hancock Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↱	↰	↑↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	30	10	150	290	10	80	50	710	120	70	2000	20
Future Volume (vph)	30	10	150	290	10	80	50	710	120	70	2000	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	150		150	150		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1538	1504	1681	1690	1583	1770	5085	1583	1770	5075	0
Flt Permitted	0.950			0.950	0.955		0.950			0.950		
Satd. Flow (perm)	1770	1538	1504	1681	1690	1583	1770	5085	1583	1770	5075	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77	126			126			130		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			377			499			1368	
Travel Time (s)		7.9			8.6			11.3			31.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			47%	48%								
Lane Group Flow (vph)	33	88	86	164	162	87	54	772	130	76	2196	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Total Split (s)	31.6	31.6	31.6	31.6	31.6	31.6	9.8	50.1	50.1	16.7	57.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.6	7.6	7.6	15.2	15.2	15.2	5.4	49.3	49.3	9.4	53.1	
Actuated g/C Ratio	0.08	0.08	0.08	0.16	0.16	0.16	0.06	0.51	0.51	0.10	0.55	
v/c Ratio	0.24	0.46	0.37	0.62	0.61	0.25	0.56	0.30	0.15	0.45	0.79	
Control Delay	48.8	21.9	7.5	49.8	49.2	4.0	70.2	16.3	3.9	52.2	22.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.8	21.9	7.5	49.8	49.2	4.0	70.2	16.3	3.9	52.2	22.1	
LOS	D	C	A	D	D	A	E	B	A	D	C	
Approach Delay		20.2			39.9			17.6			23.1	
Approach LOS		C			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 97

Control Type: Actuated-Uncoordinated

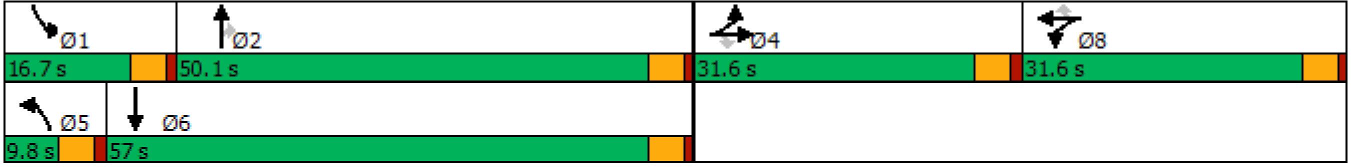
Maximum v/c Ratio: 0.79

Intersection Signal Delay: 23.4 Intersection LOS: C

Intersection Capacity Utilization 69.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 84: Commerce Center Dr & Hancock Pkwy

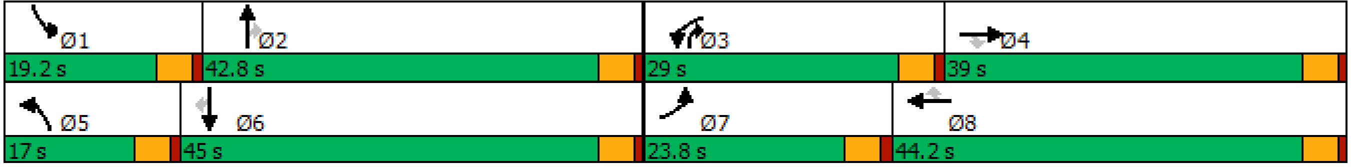


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱	↱	↰↰	↑	↱	↰↰	↑↑↑	↱	↰↰	↑↑↑	↱
Traffic Volume (vph)	140	60	420	490	60	200	220	510	90	90	1180	340
Future Volume (vph)	140	60	420	490	60	200	220	510	90	90	1180	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	250		230	120		500
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1570	1504	3433	1863	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1570	1504	3433	1863	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		117	201			217			98			370
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		675			346			1368			795	
Travel Time (s)		15.3			7.9			31.1			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			44%									
Lane Group Flow (vph)	152	266	256	533	65	217	239	554	98	98	1283	370
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases			4			8			2			6
Total Split (s)	23.8	39.0	39.0	29.0	44.2	44.2	17.0	42.8	29.0	19.2	45.0	45.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	14.3	17.2	17.2	21.3	24.2	24.2	11.6	44.0	69.8	8.6	41.0	41.0
Actuated g/C Ratio	0.13	0.16	0.16	0.19	0.22	0.22	0.11	0.40	0.64	0.08	0.38	0.38
v/c Ratio	0.66	0.77	0.63	0.80	0.16	0.42	0.65	0.27	0.09	0.36	0.67	0.45
Control Delay	60.5	39.6	18.2	52.7	35.5	7.3	57.8	24.2	2.4	54.1	32.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	39.6	18.2	52.7	35.5	7.3	57.8	24.2	2.4	54.1	32.4	4.9
LOS	E	D	B	D	D	A	E	C	A	D	C	A
Approach Delay		36.2			39.2			30.8			27.8	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 109.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 69.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 85: Commerce Center Dr & Franklin Pkwy



106: Magic Mountain Pkwy & Commerce Center Dr

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑	↑↑↑	↱	↰↰	↱↱
Traffic Volume (vph)	200	480	690	480	700	400
Future Volume (vph)	200	480	690	480	700	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			300	300	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	5085	5085	1583	3433	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	5085	5085	1583	3433	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				522		435
Link Speed (mph)		50	50		30	
Link Distance (ft)		992	1240		1080	
Travel Time (s)		13.5	16.9		24.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	217	522	750	522	761	435
Turn Type	Prot	NA	NA	Free	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				Free		6
Total Split (s)	29.0	80.0	51.0		50.0	80.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Act Effct Green (s)	13.5	74.0	54.5	130.0	44.0	74.0
Actuated g/C Ratio	0.10	0.57	0.42	1.00	0.34	0.57
v/c Ratio	0.61	0.18	0.35	0.33	0.66	0.25
Control Delay	51.1	31.2	26.7	0.6	39.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	31.2	26.7	0.6	39.8	1.5
LOS	D	C	C	A	D	A
Approach Delay		37.1	16.0		25.9	
Approach LOS		D	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 40 (31%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15

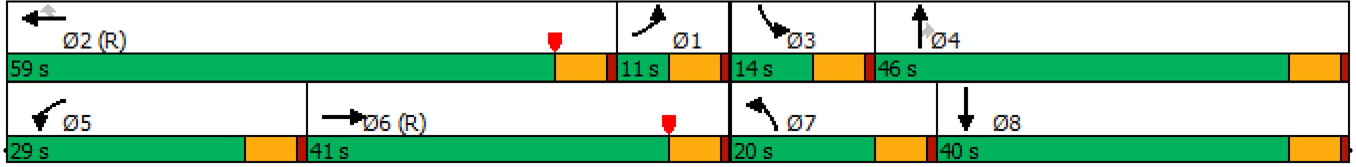
Splits and Phases: 106: Magic Mountain Pkwy & Commerce Center Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰↰	↑↑	↱	↰	↑	↱	↰	↱	
Traffic Volume (vph)	30	470	120	400	530	160	210	200	180	40	300	90
Future Volume (vph)	30	470	120	400	530	160	210	200	180	40	300	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	300		0	0		0
Storage Lanes	1		0	2		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	4933	0	3433	3539	1583	1770	1863	1583	1770	1798	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4933	0	3433	3539	1583	1770	1863	1583	1770	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47				174			196		11	
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		1492			992			1380			1350	
Travel Time (s)		20.3			13.5			31.4			30.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	641	0	435	576	174	228	217	196	43	424	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			
Total Split (s)	11.0	41.0		29.0	59.0	59.0	20.0	46.0	46.0	14.0	40.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)	5.0	38.8		20.7	58.9	58.9	14.0	41.4	41.4	7.3	32.5	
Actuated g/C Ratio	0.04	0.30		0.16	0.45	0.45	0.11	0.32	0.32	0.06	0.25	
v/c Ratio	0.49	0.43		0.80	0.36	0.21	1.20	0.37	0.31	0.43	0.93	
Control Delay	84.5	35.6		46.5	12.6	1.8	178.0	37.0	5.7	72.7	73.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	84.5	35.6		46.5	12.6	1.8	178.0	37.0	5.7	72.7	73.9	
LOS	F	D		D	B	A	F	D	A	E	E	
Approach Delay		38.0			23.5			77.6			73.8	
Approach LOS		D			C			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 60 (46%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 46.4 Intersection LOS: D
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 107: Westridge Pkwy/Navigation Ave



116: Commerce Center Dr & Witherspoon Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰↰	↑↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	390	10	610	40	10	20	130	910	10	10	340	50
Future Volume (vph)	390	10	610	40	10	20	130	910	10	10	340	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		0	120		460
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1676	0	3433	5075	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1676	0	3433	5075	0	1770	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			327		22			1				164
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		625			327			847			693	
Travel Time (s)		14.2			7.4			19.3			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	424	11	663	43	33	0	141	1000	0	11	370	54
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3			5	2		1	6	
Permitted Phases			4		8							6
Total Split (s)	50.2	67.0	67.0	13.4	30.2		14.8	40.0		9.6	34.8	34.8
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	28.2	32.7	32.7	7.6	11.9		9.1	44.3		5.4	31.9	31.9
Actuated g/C Ratio	0.30	0.35	0.35	0.08	0.13		0.10	0.47		0.06	0.34	0.34
v/c Ratio	0.81	0.02	0.87	0.30	0.14		0.43	0.42		0.11	0.22	0.08
Control Delay	44.9	20.1	27.5	54.0	23.3		49.6	22.3		55.4	27.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	44.9	20.1	27.5	54.0	23.3		49.6	22.3		55.4	27.4	0.3
LOS	D	C	C	D	C		D	C		E	C	A
Approach Delay		34.1			40.7			25.6			24.8	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 94.7

Control Type: Actuated-Uncoordinated

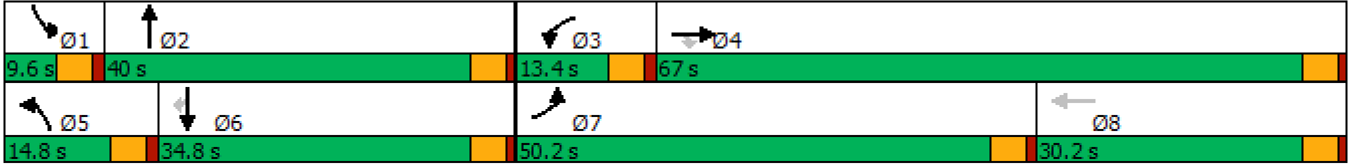
Maximum v/c Ratio: 0.87

Intersection Signal Delay: 29.3 Intersection LOS: C

Intersection Capacity Utilization 61.5% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 116: Commerce Center Dr & Witherspoon Pkwy

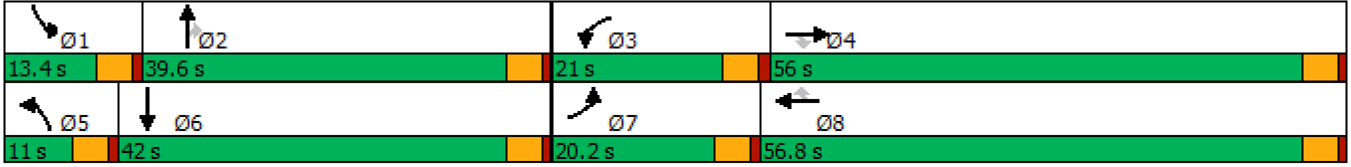


	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↑	↱	↰↰	↑↑↑	↱	↰	↑↑↱	
Traffic Volume (vph)	100	30	520	120	20	160	70	700	80	40	970	10
Future Volume (vph)	100	30	520	120	20	160	70	700	80	40	970	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		200	200		0
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1532	1504	1770	1863	1583	3433	5085	1583	1770	5075	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1532	1504	1770	1863	1583	3433	5085	1583	1770	5075	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		207	207			174			88		1	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		537			259			795			763	
Travel Time (s)		12.2			5.9			12.0			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)			48%									
Lane Group Flow (vph)	109	304	294	130	22	174	76	761	87	43	1065	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Total Split (s)	20.2	56.0	56.0	21.0	56.8	56.8	11.0	39.6	39.6	13.4	42.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	10.7	13.2	13.2	11.6	17.1	17.1	6.5	39.8	39.8	7.4	38.5	
Actuated g/C Ratio	0.13	0.15	0.15	0.14	0.20	0.20	0.08	0.47	0.47	0.09	0.45	
v/c Ratio	0.49	0.74	0.72	0.54	0.06	0.38	0.29	0.32	0.11	0.28	0.47	
Control Delay	45.5	23.6	22.2	45.8	30.8	7.8	44.8	17.9	5.5	45.5	19.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.5	23.6	22.2	45.8	30.8	7.8	44.8	17.9	5.5	45.5	19.5	
LOS	D	C	C	D	C	A	D	B	A	D	B	
Approach Delay		26.4			24.5			18.9			20.5	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 85.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 58.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 206: Commerce Center Dr & Harrison Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↑↱		↰	↑↑↑	↱
Traffic Volume (vph)	280	30	210	20	10	70	130	730	20	40	1390	160
Future Volume (vph)	280	30	210	20	10	70	130	730	20	40	1390	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	300		0	0		250
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	5065	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	5065	0	1770	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228			182		5				182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1350			1765			1080			1674	
Travel Time (s)		30.7			40.1			24.5			38.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	33	228	22	11	76	141	815	0	43	1511	174
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Total Split (s)	22.5	35.1	35.1	9.9	22.5	22.5	12.8	34.1		10.9	32.2	32.2
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	16.7	21.1	21.1	5.4	6.1	6.1	8.4	34.6		6.2	27.9	27.9
Actuated g/C Ratio	0.22	0.28	0.28	0.07	0.08	0.08	0.11	0.46		0.08	0.37	0.37
v/c Ratio	0.77	0.06	0.37	0.17	0.07	0.26	0.72	0.35		0.29	0.80	0.25
Control Delay	42.7	21.7	5.8	37.9	34.4	2.1	55.9	15.6		39.5	25.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	42.7	21.7	5.8	37.9	34.4	2.1	55.9	15.6		39.5	25.9	3.8
LOS	D	C	A	D	C	A	E	B		D	C	A
Approach Delay		26.5			12.6			21.5			24.0	
Approach LOS		C			B			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 74.8

Control Type: Semi Act-Uncoord

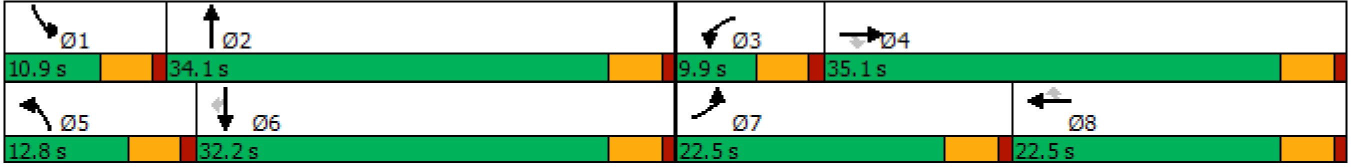
Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.3   Intersection LOS: C

Intersection Capacity Utilization 67.5%   ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 300: Commerce Center Dr & Navigation Ave



301: 'A' Street & Magic Mountain Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑	↱	↰↰	↑	↱
Traffic Volume (vph)	40	1380	10	30	1520	160	10	50	60	270	100	150
Future Volume (vph)	40	1380	10	30	1520	160	10	50	60	270	100	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		250	300		0	150		0	200		200
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			131			124			163
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		1240			882			628			1765	
Travel Time (s)		16.9			12.0			14.3			40.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	1500	11	33	1652	174	11	54	65	293	109	163
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Total Split (s)	15.0	70.0	70.0	13.0	68.0	68.0	11.0	42.0	42.0	25.0	56.0	56.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	9.1	96.1	96.1	8.2	95.3	95.3	5.8	9.7	9.7	18.0	28.3	28.3
Actuated g/C Ratio	0.06	0.64	0.64	0.05	0.64	0.64	0.04	0.06	0.06	0.12	0.19	0.19
v/c Ratio	0.40	0.46	0.01	0.34	0.51	0.17	0.16	0.45	0.30	0.71	0.31	0.38
Control Delay	78.4	15.7	0.0	88.1	7.1	0.5	75.1	78.4	3.5	73.1	54.9	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	15.7	0.0	88.1	7.1	0.5	75.1	78.4	3.5	73.1	54.9	9.7
LOS	E	B	A	F	A	A	E	E	A	E	D	A
Approach Delay		17.3			7.9			40.7			51.3	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 82 (55%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Control Type: Actuated-Coordinated

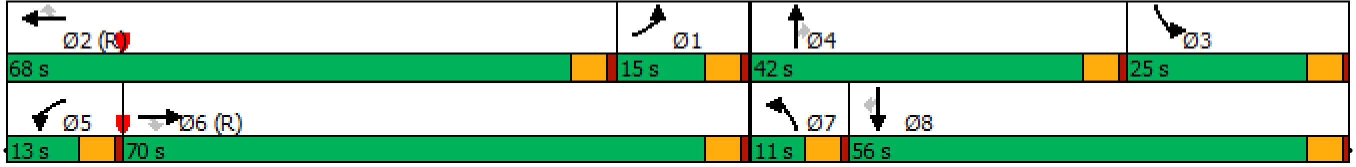
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 18.5 Intersection LOS: B

Intersection Capacity Utilization 55.9% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 301: 'A' Street & Magic Mountain Pkwy



302: Magic Mountain Pkwy

	↗	→	←	↖	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	1710	1690	10	0	20
Future Volume (vph)	0	1710	1690	10	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	6408	6401	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	6408	6401	0	0	1611
Link Speed (mph)		30	30		30	
Link Distance (ft)		882	929		235	
Travel Time (s)		20.0	21.1		5.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1859	1848	0	0	22
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 34.7% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑↑	↑↑↑↑	↱↱	↰↰↰	↱
Traffic Volume (vph)	290	1420	1400	490	730	300
Future Volume (vph)	290	1420	1400	490	730	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			400	0	0
Storage Lanes	2			2	3	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	6408	6408	2787	4990	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	6408	6408	2787	4990	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				533		326
Link Speed (mph)		50	30		30	
Link Distance (ft)		929	804		1234	
Travel Time (s)		12.7	18.3		28.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	315	1543	1522	533	793	326
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		6
Total Split (s)	34.0	101.0	67.0	67.0	49.0	101.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Act Effct Green (s)	19.0	95.0	70.0	70.0	43.0	95.0
Actuated g/C Ratio	0.13	0.63	0.47	0.47	0.29	0.63
v/c Ratio	0.72	0.38	0.51	0.34	0.55	0.29
Control Delay	61.6	19.4	9.7	0.6	47.2	1.7
Queue Delay	0.0	0.3	0.0	0.0	73.0	0.0
Total Delay	61.6	19.8	9.7	0.6	120.1	1.7
LOS	E	B	A	A	F	A
Approach Delay		26.9	7.3		85.6	
Approach LOS		C	A		F	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 14 (9%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 57.4% ICU Level of Service B
Analysis Period (min) 15

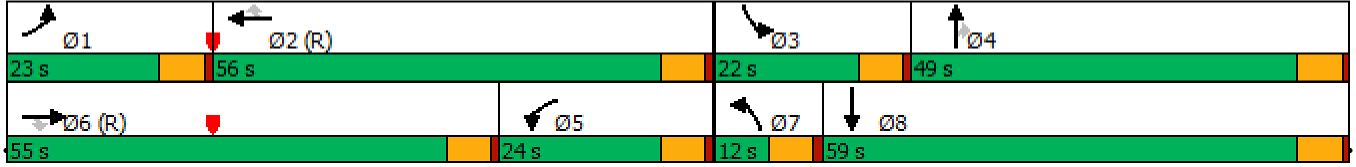
Splits and Phases: 303: Magic Mountain Pkwy & Six Flags Entrance

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑↑↑	↱	↰	↑↑↑↑	↱	↰	↑	↱	↰↰	↑↱	
Traffic Volume (vph)	240	1900	10	200	1580	20	20	20	110	350	30	290
Future Volume (vph)	240	1900	10	200	1580	20	20	20	110	350	30	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	0		0	255		200	300		0
Storage Lanes	2		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	6408	1583	1770	6408	1583	1770	1863	1583	3433	3058	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	6408	1583	1770	6408	1583	1770	1863	1583	3433	3058	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			153			196		315	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		0			609			703			474	
Travel Time (s)		0.0			13.8			16.0			10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	2065	11	217	1717	22	22	22	120	380	348	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			
Total Split (s)	23.0	55.0	55.0	24.0	56.0	56.0	12.0	49.0	49.0	22.0	59.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Act Effct Green (s)	16.6	84.7	84.7	18.0	86.1	86.1	5.9	7.3	7.3	16.0	22.1	
Actuated g/C Ratio	0.11	0.56	0.56	0.12	0.57	0.57	0.04	0.05	0.05	0.11	0.15	
v/c Ratio	0.69	0.57	0.01	1.02	0.47	0.02	0.32	0.24	0.46	1.04	0.48	
Control Delay	81.5	22.7	0.0	121.7	17.9	0.1	82.5	74.5	5.6	120.6	11.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	81.5	22.7	0.0	121.7	17.9	0.1	82.5	74.5	5.6	120.6	11.4	
LOS	F	C	A	F	B	A	F	E	A	F	B	
Approach Delay		29.2			29.2			25.2			68.4	
Approach LOS		C			C			C			E	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 26 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 34.6 Intersection LOS: C
Intersection Capacity Utilization 70.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 304: "A" Street/Media Center & Magic Mountain Pkwy



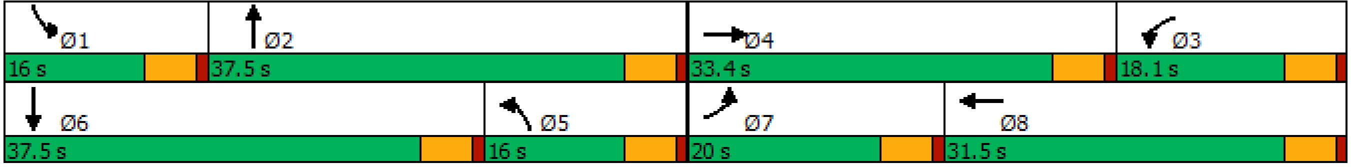
305: Westridge Pkwy & 'OO' Street/'B' Drive

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	230	10	100	150	10	80	170	540	280	160	620	430
Future Volume (vph)	230	10	100	150	10	80	170	540	280	160	620	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	300		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1609	0	1770	1615	0	1770	3359	0	1770	3323	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1609	0	1770	1615	0	1770	3359	0	1770	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			87			91			173	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		716			1153			1084			1381	
Travel Time (s)		16.3			26.2			24.6			31.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	120	0	163	98	0	185	891	0	174	1141	0
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Total Split (s)	20.0	33.4		18.1	31.5		16.0	37.5		16.0	37.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	16.0	7.1		13.6	6.9		11.0	32.6		11.0	32.6	
Actuated g/C Ratio	0.19	0.08		0.16	0.08		0.13	0.39		0.13	0.39	
v/c Ratio	0.75	0.51		0.57	0.46		0.80	0.66		0.75	0.82	
Control Delay	49.3	17.6		41.7	18.3		63.1	22.2		58.2	26.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	49.3	17.6		41.7	18.3		63.1	22.2		58.2	26.2	
LOS	D	B		D	B		E	C		E	C	
Approach Delay		39.0			32.9			29.3			30.4	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 84.3
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 31.3 Intersection LOS: C
Intersection Capacity Utilization 72.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 305: Westridge Pkwy & 'OO' Street/'B' Drive



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑↱			↑↑↑↑		↱
Traffic Volume (vph)	770	10	0	820	0	20
Future Volume (vph)	770	10	0	820	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	5075	0	0	6408	0	1611
Flt Permitted						
Satd. Flow (perm)	5075	0	0	6408	0	1611
Link Speed (mph)	30			30	30	
Link Distance (ft)	553			510	215	
Travel Time (s)	12.6			11.6	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	848	0	0	891	0	22
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 25.1% ICU Level of Service A

Analysis Period (min) 15

307: Shopping Ctr & The Old Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Traffic Volume (vph)	10	10	10	40	10	220	10	580	80	180	600	10
Future Volume (vph)	10	10	10	40	10	220	10	580	80	180	600	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	250		180	200		200
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1818	1583	0	1792	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.868			0.774		0.393			0.402		
Satd. Flow (perm)	0	1617	1583	0	1442	1583	732	5085	1583	749	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			23			138			87			23
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		217			218			575			510	
Travel Time (s)		4.9			5.0			13.1			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	11	0	54	239	11	630	87	196	652	11
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	custom	NA	custom
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2		2	6	6	6
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		8.9	8.9		8.9	8.9	21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.54	0.54	0.54	0.54	0.54	0.54
v/c Ratio		0.06	0.03		0.17	0.52	0.03	0.23	0.10	0.48	0.24	0.01
Control Delay		13.4	4.5		14.4	11.2	5.2	5.3	1.9	11.3	5.3	1.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		13.4	4.5		14.4	11.2	5.2	5.3	1.9	11.3	5.3	1.7
LOS		B	A		B	B	A	A	A	B	A	A
Approach Delay		10.5			11.8			4.9			6.6	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 71

Actuated Cycle Length: 40

Control Type: Actuated-Uncoordinated

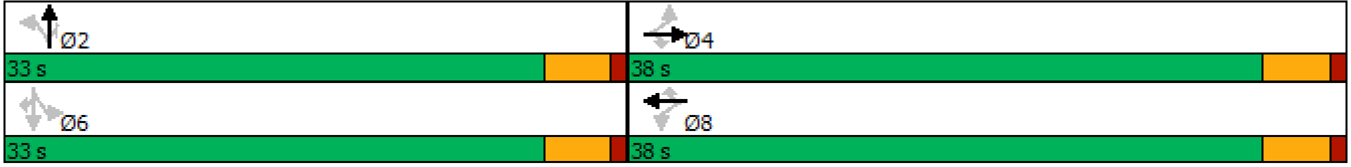
Maximum v/c Ratio: 0.52

Intersection Signal Delay: 6.8 Intersection LOS: A

Intersection Capacity Utilization 41.8% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 307: Shopping Ctr & The Old Rd



Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑↱			↑↑↱	
Traffic Vol, veh/h	0	0	50	0	0	110	0	850	20	0	1080	20
Future Vol, veh/h	0	0	50	0	0	110	0	850	20	0	1080	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	54	0	0	120	0	924	22	0	1174	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	598	-	-	473	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	382	0	0	460	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	382	-	-	460	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	15.6	0	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	382	460	-	-
HCM Lane V/C Ratio	-	-	0.142	0.26	-	-
HCM Control Delay (s)	-	-	16	15.6	-	-
HCM Lane LOS	-	-	C	C	-	-
HCM 95th %tile Q(veh)	-	-	0.5	1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	120	40	10	270	340	50
Future Vol, veh/h	120	40	10	270	340	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	43	11	293	370	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	566	212	424	0	-	0
Stage 1	397	-	-	-	-	-
Stage 2	169	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	454	793	1132	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	793	1132	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	14.7		0.3		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1132	-	449	793	-	-
HCM Lane V/C Ratio	0.01	-	0.291	0.055	-	-
HCM Control Delay (s)	8.2	-	16.3	9.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	1.2	0.2	-	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Vol, veh/h	50	470	40	230	290	20
Future Vol, veh/h	50	470	40	230	290	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	511	43	250	315	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	537	169	337	0	-	0
Stage 1	326	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	474	845	1219	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	457	845	1219	-	-	-
Mov Cap-2 Maneuver	457	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1219	-	457	845	-	-
HCM Lane V/C Ratio	0.036	-	0.119	0.605	-	-
HCM Control Delay (s)	8.1	-	13.9	15.6	-	-
HCM Lane LOS	A	-	B	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	4.2	-	-

Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑	↱	↰	↑
Traffic Vol, veh/h	10	80	10	10	70	10
Future Vol, veh/h	10	80	10	10	70	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	87	11	11	76	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	11	0	0	22	0
Stage 1	11	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	816	1070	-	-	1593	-
Stage 1	1012	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	1070	-	-	1593	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	745	1070	1593	-
HCM Lane V/C Ratio	-	-	0.015	0.081	0.048	-
HCM Control Delay (s)	-	-	9.9	8.7	7.4	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.3	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations	↰	↱	↑	↱		↰↑
Traffic Vol, veh/h	50	10	10	450	10	10
Future Vol, veh/h	50	10	10	450	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	11	11	489	11	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	39	11	0	0	500	0
Stage 1	11	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	970	1070	-	-	1062	-
Stage 1	1012	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	960	1070	-	-	1062	-
Mov Cap-2 Maneuver	890	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	WB	NE	SW
HCM Control Delay, s	9.2	0	4.2
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	WBLn1	WBLn2	SWL	SWT
Capacity (veh/h)	-	-	890	1070	1062	-
HCM Lane V/C Ratio	-	-	0.061	0.01	0.01	-
HCM Control Delay (s)	-	-	9.3	8.4	8.4	0
HCM Lane LOS	-	-	A	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

2030 Cumulative Conditions With Project With Select Intersection Enhancements

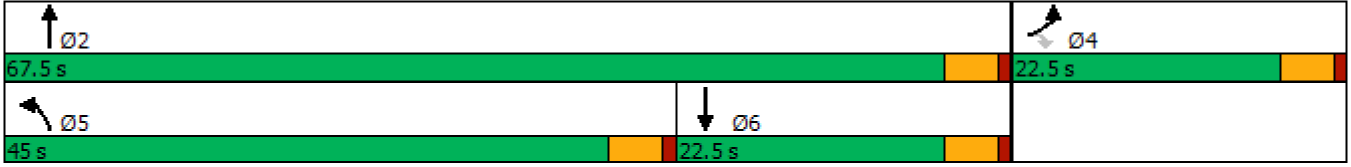
AM Peak Hour

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Volume (vph)	10	80	730	150	330	140
Future Volume (vph)	10	80	730	150	330	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	3539	3380	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3380	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		87			65	
Link Speed (mph)	30			30	30	
Link Distance (ft)	434			957	1100	
Travel Time (s)	9.9			21.8	25.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	87	793	163	511	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Total Split (s)	22.5	22.5	45.0	67.5	22.5	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	6.7	6.7	39.4	60.3	15.0	
Actuated g/C Ratio	0.09	0.09	0.55	0.84	0.21	
v/c Ratio	0.07	0.39	0.82	0.06	0.68	
Control Delay	33.5	13.8	24.8	1.8	28.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.5	13.8	24.8	1.8	28.9	
LOS	C	B	C	A	C	
Approach Delay	16.0			20.9	28.9	
Approach LOS	B			C	C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 72.2
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 402: Turnberry Ln & The Old Rd



2030 Cumulative Conditions With Project With Select Intersection Enhancements

PM Peak Hour

402: Turnberry Ln & The Old Rd

Synchro 10 Report

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↱	
Traffic Volume (vph)	50	470	40	230	290	20
Future Volume (vph)	50	470	40	230	290	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	3539	3504	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3504	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		485			13	
Link Speed (mph)	30			30	30	
Link Distance (ft)	434			957	1100	
Travel Time (s)	9.9			21.8	25.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	511	43	250	337	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Total Split (s)	26.0	26.0	10.2	34.0	23.8	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.4	8.4	6.2	10.0	8.8	
Actuated g/C Ratio	0.30	0.30	0.22	0.35	0.31	
v/c Ratio	0.10	0.63	0.11	0.20	0.31	
Control Delay	9.1	5.7	14.6	6.9	9.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.1	5.7	14.6	6.9	9.5	
LOS	A	A	B	A	A	
Approach Delay	6.0			8.0	9.5	
Approach LOS	A			A	A	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 28.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 45.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 402: Turnberry Ln & The Old Rd

Appendix C SIMTRAFFIC WORKSHEETS

2030 Cumulative Conditions With Project

With Mitigation

AM Peak Hour

Intersection: 85: Commerce Center Dr & Franklin Pkwy

Movement	WB	WB	WB	WB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	L	T	T	T	R	L	L
Maximum Queue (ft)	58	80	71	84	200	272	392	196	231	236	133	145
Average Queue (ft)	17	34	23	27	107	147	174	86	101	87	61	78
95th Queue (ft)	43	68	53	60	174	243	320	169	188	182	118	129
Link Distance (ft)			228	228			1267	1267	1267			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200			250	250				230	125	125
Storage Blk Time (%)					0	0	2			0	0	1
Queuing Penalty (veh)					0	0	10			1	0	1

Intersection: 85: Commerce Center Dr & Franklin Pkwy

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	154	142	148	101
Average Queue (ft)	51	58	64	31
95th Queue (ft)	108	115	124	73
Link Distance (ft)	700	700	700	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				500
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 206: Commerce Center Dr & Harrison

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	TR	R	L	T	R	L	L	T	T	T	R
Maximum Queue (ft)	48	107	39	42	46	53	158	186	191	132	114	120
Average Queue (ft)	10	47	18	8	9	17	92	108	66	35	37	33
95th Queue (ft)	36	84	44	30	32	41	148	164	160	98	96	88
Link Distance (ft)	474	474	474	181	181	181			700	700	700	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)							450	450				200
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 206: Commerce Center Dr & Harrison

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	216	239	144	219
Average Queue (ft)	116	65	43	78
95th Queue (ft)	195	156	109	168
Link Distance (ft)		668	668	668
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	1	0		
Queuing Penalty (veh)	2	0		

Intersection: 300: Commerce Center Dr & Navigation Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	TR	L	T
Maximum Queue (ft)	152	31	84	40	41	31	294	189	207	226	68	166
Average Queue (ft)	73	5	35	7	10	8	149	64	87	107	18	84
95th Queue (ft)	131	23	67	29	34	29	243	141	174	196	48	135
Link Distance (ft)	1228	1228	1228	1658	1658	1658		949	949	949	1620	1620
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)							300					
Storage Blk Time (%)							0					
Queuing Penalty (veh)							1					

Intersection: 300: Commerce Center Dr & Navigation Ave

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	163	54	127
Average Queue (ft)	61	7	58
95th Queue (ft)	118	33	100
Link Distance (ft)	1620	1620	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 301: 'A' Street & Magic Mountain Pkwy

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (ft)	202	588	542	450	4	121	139	166	338	53	128	223
Average Queue (ft)	56	193	151	135	0	43	54	82	166	16	13	102
95th Queue (ft)	144	483	426	326	2	96	121	153	306	42	58	183
Link Distance (ft)		1103	1103	1103			780	780	780	780		528
Upstream Blk Time (%)		0	0									
Queuing Penalty (veh)		2	0									
Storage Bay Dist (ft)	300				250	300					150	
Storage Blk Time (%)	0	6		1								4
Queuing Penalty (veh)	0	4		0								0

Intersection: 301: 'A' Street & Magic Mountain Pkwy

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	30	55	58	39	50
Average Queue (ft)	8	12	15	9	13
95th Queue (ft)	28	40	45	31	38
Link Distance (ft)	528		1658	1658	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200			200
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 302: Magic Mountain Pkwy

Movement	EB	EB	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	707	640	460	38	137	142	37
Average Queue (ft)	134	94	34	2	5	5	9
95th Queue (ft)	588	459	240	35	105	105	32
Link Distance (ft)	780	780	780	780	828	828	158
Upstream Blk Time (%)	5	1	0		0	0	
Queuing Penalty (veh)	23	5	0		0	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 304: A/Media Center & Magic Mountain Pkwy

Movement	EB	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	275	325	744	754	756	739	325	84	154	185	245	297
Average Queue (ft)	50	185	413	334	365	364	22	22	44	68	107	119
95th Queue (ft)	147	403	873	815	812	800	155	60	109	151	197	234
Link Distance (ft)			713	713	713	713		498	498	498	498	498
Upstream Blk Time (%)			17	10	10	11						
Queuing Penalty (veh)			83	48	50	53						
Storage Bay Dist (ft)	300	300					300					
Storage Blk Time (%)	0	1	37			37	0					
Queuing Penalty (veh)	0	4	60			4	0					

Intersection: 304: A/Media Center & Magic Mountain Pkwy

Movement	WB	B24	NB	NB	NB	SB	SB	SB	SB
Directions Served	R	T	L	T	R	L	L	T	TR
Maximum Queue (ft)	62	2	92	280	223	79	142	38	121
Average Queue (ft)	15	0	14	43	110	25	56	6	40
95th Queue (ft)	44	2	58	169	204	63	114	24	90
Link Distance (ft)	498	410		587			376	376	376
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			255		200	300			
Storage Blk Time (%)					5				
Queuing Penalty (veh)					1				

Intersection: 305: Westridge Pkwy & 'OO' Street/'B' Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	276	102	93	129	65	198	167	56	192	225
Average Queue (ft)	142	41	45	56	23	99	72	19	86	112
95th Queue (ft)	238	77	81	99	53	162	134	48	155	192
Link Distance (ft)	668	668		1050		1053	1053		1310	1310
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			200		300			250		
Storage Blk Time (%)				0						
Queuing Penalty (veh)				0						

Intersection: 306: The Old Rd

Movement	NW	NW	NW	NE
Directions Served	T	T	T	R
Maximum Queue (ft)	393	328	74	30
Average Queue (ft)	97	35	2	6
95th Queue (ft)	349	195	57	26
Link Distance (ft)	446	446	446	150
Upstream Blk Time (%)	4	0	0	
Queuing Penalty (veh)	7	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 307: Shopping Ctr & The Old Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	T	R	L	T	T
Maximum Queue (ft)	42	25	66	96	92	248	148	97	51	150	28	47
Average Queue (ft)	14	5	26	48	18	111	35	23	21	70	2	10
95th Queue (ft)	38	21	57	90	60	229	142	65	43	125	14	35
Link Distance (ft)	147	147	147	147		528	528	528			446	446
Upstream Blk Time (%)				1								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)					250				180	200		
Storage Blk Time (%)						2				0		
Queuing Penalty (veh)						0				0		

Intersection: 307: Shopping Ctr & The Old Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	63	25
Average Queue (ft)	14	2
95th Queue (ft)	43	13
Link Distance (ft)	446	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 345

Intersection: 402: Turnberry Ln & The Old Rd

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	37	60	174	348	97	144	165
Average Queue (ft)	8	33	149	96	9	80	85
95th Queue (ft)	31	54	201	311	71	121	140
Link Distance (ft)	358	358		920	920	1022	1022
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			150				
Storage Blk Time (%)			10	0			
Queuing Penalty (veh)			7	0			

Intersection: 404: Hancock Pkwy & Turnberry Ln

Movement	WB	WB	SW
Directions Served	L	R	LT
Maximum Queue (ft)	164	29	26
Average Queue (ft)	74	8	2
95th Queue (ft)	122	30	15
Link Distance (ft)	198	198	292
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 24

2030 Cumulative Conditions With Project With Mitigation

PM Peak Hour

Intersection: 85: Commerce Center Dr & Franklin Pkwy

Movement	WB	WB	WB	WB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	R	L	L	T	T	T	R	L	L
Maximum Queue (ft)	212	225	301	107	141	166	154	179	196	90	71	145
Average Queue (ft)	173	193	182	40	65	87	55	63	77	14	17	84
95th Queue (ft)	256	263	374	85	122	142	124	139	163	55	52	172
Link Distance (ft)			228	228			1267	1267	1267			
Upstream Blk Time (%)	0	22	44									
Queuing Penalty (veh)	0	0	164									
Storage Bay Dist (ft)	200	200			250	250				230	120	120
Storage Blk Time (%)	14	45	12						0	0		0
Queuing Penalty (veh)	8	27	57						0	0		0

Intersection: 85: Commerce Center Dr & Franklin Pkwy

Movement	SB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	727	742	737	525
Average Queue (ft)	424	443	451	264
95th Queue (ft)	866	868	867	642
Link Distance (ft)	700	700	700	
Upstream Blk Time (%)	11	16	20	
Queuing Penalty (veh)	61	89	107	
Storage Bay Dist (ft)				500
Storage Blk Time (%)	53		37	0
Queuing Penalty (veh)	48		125	1

Intersection: 206: Commerce Center Dr & Harrison Pkwy

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	NB
Directions Served	L	TR	R	L	T	R	L	L	T	T	T	R
Maximum Queue (ft)	240	441	406	196	40	118	55	80	163	190	192	57
Average Queue (ft)	76	206	167	108	12	40	11	35	74	91	102	21
95th Queue (ft)	220	422	396	196	36	90	38	71	152	169	175	48
Link Distance (ft)	474	474	474	181	181	181			700	700	700	
Upstream Blk Time (%)	1	4	2	20		0						
Queuing Penalty (veh)	0	0	0	0		0						
Storage Bay Dist (ft)							450	450				200
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 206: Commerce Center Dr & Harrison Pkwy

Movement	SB	SB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	225	641	682	678
Average Queue (ft)	51	266	293	324
95th Queue (ft)	168	685	716	721
Link Distance (ft)		668	668	668
Upstream Blk Time (%)		12	17	22
Queuing Penalty (veh)		47	63	82
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	30		
Queuing Penalty (veh)	0	12		

Intersection: 300: Commerce Center Dr & Navigation Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	TR	L	T
Maximum Queue (ft)	230	56	150	62	30	65	153	124	145	162	225	384
Average Queue (ft)	119	17	58	20	7	30	73	53	66	81	38	215
95th Queue (ft)	198	45	113	50	26	57	132	103	124	140	110	324
Link Distance (ft)	1228	1228	1228	1658	1658	1658		949	949	949	1620	1620
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)							300					
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 300: Commerce Center Dr & Navigation Ave

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	394	339	122
Average Queue (ft)	199	128	43
95th Queue (ft)	313	271	85
Link Distance (ft)	1620	1620	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 301: 'A' Street & Magic Mountain Pkwy

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (ft)	251	794	762	726	6	87	171	200	249	60	44	110
Average Queue (ft)	45	266	223	203	0	25	43	55	81	15	9	49
95th Queue (ft)	165	752	705	632	3	66	144	163	213	46	32	97
Link Distance (ft)		1103	1103	1103			780	780	780	780		
Upstream Blk Time (%)		3	1	0								
Queuing Penalty (veh)		10	4	1								
Storage Bay Dist (ft)	300				250	300					150	
Storage Blk Time (%)		17		3								
Queuing Penalty (veh)		7		0								

Intersection: 301: 'A' Street & Magic Mountain Pkwy

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	L	T	R
Maximum Queue (ft)	96	216	264	152	145
Average Queue (ft)	37	110	129	77	61
95th Queue (ft)	76	185	210	143	114
Link Distance (ft)			1658	1658	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200			200
Storage Blk Time (%)		2	2		
Queuing Penalty (veh)		2	2		

Intersection: 302: Magic Mountain Pkwy

Movement	EB	EB	EB	EB	SB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	825	733	636	308	45
Average Queue (ft)	255	201	136	62	16
95th Queue (ft)	840	716	536	277	42
Link Distance (ft)	780	780	780	780	158
Upstream Blk Time (%)	16	3	0		
Queuing Penalty (veh)	69	11	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 304: A/Media Center & Magic Mountain Pkwy

Movement	EB	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	285	325	747	747	748	738	325	343	189	249	280	375
Average Queue (ft)	81	215	499	496	516	520	32	211	80	109	147	194
95th Queue (ft)	196	403	967	972	964	958	193	336	155	205	241	312
Link Distance (ft)			713	713	713	713		498	498	498	498	498
Upstream Blk Time (%)			35	32	35	38						
Queuing Penalty (veh)			188	175	188	205						
Storage Bay Dist (ft)	300	300					300					
Storage Blk Time (%)	0	1	49			62	0					
Queuing Penalty (veh)	0	6	117			6	0					

Intersection: 304: A/Media Center & Magic Mountain Pkwy

Movement	WB	B24	NB	NB	NB	SB	SB	SB	SB
Directions Served	R	T	L	T	R	L	L	T	TR
Maximum Queue (ft)	30	2	106	138	187	325	411	281	354
Average Queue (ft)	5	0	23	25	70	291	341	52	122
95th Queue (ft)	24	1	71	79	149	386	473	234	270
Link Distance (ft)	498	410		587			376	376	376
Upstream Blk Time (%)							56	5	0
Queuing Penalty (veh)							0	0	0
Storage Bay Dist (ft)			255		200	300			
Storage Blk Time (%)					2	46	41		
Queuing Penalty (veh)					1	81	72		

Intersection: 305: Westridge Pkwy & 'OO' Street/'B' Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	211	85	163	118	201	239	246	258	359	423
Average Queue (ft)	117	43	82	45	100	117	129	109	172	229
95th Queue (ft)	194	73	141	84	168	194	217	204	289	372
Link Distance (ft)	668	668		1050		1053	1053		1310	1310
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			200		300			250		
Storage Blk Time (%)			0			0		0	1	
Queuing Penalty (veh)			0			0		1	2	

Intersection: 306: The Old Rd

Movement	NW	NW	NE
Directions Served	T	T	R
Maximum Queue (ft)	27	25	42
Average Queue (ft)	3	2	15
95th Queue (ft)	36	26	40
Link Distance (ft)	446	446	150
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 307: Shopping Ctr & The Old Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	T	R	L	T	T
Maximum Queue (ft)	53	25	81	101	36	151	85	90	53	156	67	98
Average Queue (ft)	11	5	29	52	8	78	21	31	18	70	16	34
95th Queue (ft)	37	22	65	84	28	130	56	69	40	127	51	79
Link Distance (ft)	147	147	147	147		528	528	528			446	446
Upstream Blk Time (%)			0	0								
Queuing Penalty (veh)			0	0								
Storage Bay Dist (ft)					250				180	200		
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		

Intersection: 307: Shopping Ctr & The Old Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	115	17
Average Queue (ft)	42	1
95th Queue (ft)	88	9
Link Distance (ft)	446	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1149

Intersection: 402: Turnberry Ln & The Old Rd

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	TR
Maximum Queue (ft)	59	143	64	94	68	121	102
Average Queue (ft)	21	74	26	41	14	56	38
95th Queue (ft)	52	120	56	75	45	96	81
Link Distance (ft)	358	358		920	920	1022	1022
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			150				
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 404: Hancock Pkwy & Turnberry Ln

Movement	WB	WB	NE	SW
Directions Served	L	R	R	LT
Maximum Queue (ft)	56	30	32	35
Average Queue (ft)	26	8	2	4
95th Queue (ft)	50	30	13	23
Link Distance (ft)	207	207	297	308
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 891

Appendix D ADT VOLUME COMPARISON

Table D-1 ADT Volume Summary – Existing and 2030 Conditions

ID	Segment	Existing	Project-Only Trips			2030 With Approved Project	2030 With Modified Project
			Modified Project (Based on Existing Roadways Only)	Approved Project (With Future Roadways)	Modified Project (With Future Roadways)		
2	Hasley Cyn w/o Commerce	n/a	800	600	500	11,000	11,000
10	Hasley w/o Old Road	17,000	3,000	2,900	2,400	25,000	25,000
11	Commerce Cnt s/o Industry	8,000	4,400	4,500	3,800	22,000	21,000
12	Commerce Cnt s/o Franklin	n/a	11,500	9,400	7,900	34,000	32,000
13	Commerce Cnt n/o SR-126	16,000	10,900	17,700	14,900	37,000	34,000
16	Valencia e/o Poe	n/a	n/a	700	500	34,000	34,000
17	Valencia w/o Westridge	n/a	200	700	500	30,000	31,000
18	Valencia e/o Westridge	18,000	900	3,200	2,500	53,000	52,000
19	Valencia e/o Old Road	n/a	700	2,100	1,600	50,000	50,000
20	Magic Mtn w/o Commerce Ctr	n/a	n/a	2,700	2,200	39,000	38,000
21	Magic Mtn e/o Commerce Ctr	n/a	n/a	4,600	3,600	41,000	39,000
22	Magic Mtn w/o Old Road	4,000	20,900	16,300	12,600	70,000	65,000
23	Old Road n/o Hasley	16,000	2,800	2,200	1,900	18,000	18,000
24	Old Road n/o Biscailuz	n/a	2,400	1,600	1,400	10,000	10,000
25	Old Road n/o Turnberry	10,000	1,200	1,300	1,100	11,000	11,000
26	Old Road s/o Henry Mayo	14,000	7,700	4,500	3,800	12,000	11,000
27	Old Road n/o of Rye Canyon	38,000	6,700	3,600	3,000	40,000	40,000
28	Old Road n/o Magic Mtn	39,000	8,800	5,900	4,600	42,000	41,000

ID	Segment	Existing	Project-Only Trips			2030 With Approved Project	2030 With Modified Project
			Modified Project (Based on Existing Roadways Only)	Approved Project (With Future Roadways)	Modified Project (With Future Roadways)		
29	Old Road s/o Magic Mtn	19,000	4,800	2,100	1,600	23,000	23,000
30	Old Road s/o Valencia	22,000	2,600	1,800	1,400	26,000	27,000
48	SR-126 w/o Commerce Center	26,000	2,300	6,500	5,400	54,000	53,000
49	SR-126 e/o Commerce Center	37,000	10,000	10,600	8,900	71,000	69,000
59	Franklin Pkwy w/o Commerce	6,000	4,600	1,600	1,400	11,000	11,000
60	Hancock e/o Commerce Cnt	n/a	3,400	8,300	7,000	11,000	10,000
88	Magic Mtn e/o I-5	32,000	8,100	6,900	5,500	47,000	46,000
93	Tourney n/o Valencia	n/a	n/a	400	300	5,000	6,000
96	Valencia e/o I-5 NB Ramps	39,000	1,100	1,700	1,400	53,000	53,000
97	Valencia e/o Tourney	n/a	1,100	700	500	65,000	65,000
183	Commerce Cnt s/o Henry Mayo	n/a	n/a	4,700	3,800	29,000	28,000
184	Commerce Cnt n/o Magic Mtn	n/a	n/a	4,800	3,800	25,000	24,000
186	Magic Mtn w/o Westrdige	n/a	n/a	1,700	1,400	33,000	33,000
187	Westridge s/o Magic Mtn	n/a	n/a	1,300	1,100	17,000	17,000
188	Westridge n/o Valencia	4,000	n/a	4,200	3,300	14,000	13,000
192	Henry Mayo w/o The Old Rd	n/a	2,100	2,000	1,600	8,000	8,000
247	Magic Mtn e/o The Old Rd	n/a	11,700	11,200	8,800	71,000	69,000

ADT = Average Daily Traffic

n/a = Traffic count not available or location not existing

n/o = North of; s/o = South of; e/o = East of; w/o = West of

Appendix E MODIFIED PROJECT VMT DATA

The following section evaluates the Modified Project-related VMT for additional informational purposes and provides a comparison to the 2017 Approved Project. The analysis is designed to comply with the updated CEQA guidelines that incorporate the requirements of SB 743.

In 2020, the State of California updated the CEQA guidelines to incorporate the requirements of SB 743. SB 743 required OPR to establish guidelines under CEQA for identifying and mitigating VMT transportation impacts. Generally, SB 743 moves away from using delay-based LOS as the metric for identifying a significant impact, as was used in the State-certified EIR, and instead uses VMT. The CEQA Guidelines note that “Amendments to the Guidelines apply prospectively only…a project need only comply with the Guidelines in effect when the [CEQA] document is set out for public review…” (See CEQA Guidelines §§ 15064.3(c) and 15007.) A “project” refers to the underlying activity which may be subject to approval by one or more governmental agencies; it does not refer to each of the several approvals sequentially issued by different agencies. (CEQA Guidelines 15378(c).) OPR also explains “there may be circumstances when public agencies are considering changes to already approved projects that were analyzed using LOS. When determining whether subsequent and supplemental analyses are required under Public Resources Code section 21166, the agency should focus the inquiry on whether there are substantial changes in the project or circumstances that would require major revisions of the document, or if new information, which was not known and could not have been known at the time of becomes available. (Pub. Resources Code, § 21166; CEQA Guidelines, §§ 15162-15163.)

The analysis has been prepared in accordance with the TIA Guidelines from the Los Angeles County Department of Public Works and the Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report. The final Technical Advisory released by OPR in December 2018 also provides guidance for evaluating transportation impacts and is likewise used as a basis for this assessment.

E.1 VMT SCREENING CRITERIA

The County Guidelines provide screening criteria to identify if a project is expected to have a less-than-significant impact without conducting a more detailed VMT analysis. As shown in Chapter 3.1, the Modified Project would meet the trip generation screening criteria and would not be subject to further VMT analysis under CEQA. However, even though the Modified Project qualifies for the screening criteria, a comprehensive analysis of the Modified Project’s potential VMT impacts is provided below for informational purposes.

E.2 VMT PERFORMANCE CRITERIA

While the Modified Project satisfies the trip generation screening criteria and would not be subject to additional VMT analysis as shown in Section 3.1 above, an assessment of the Modified Project’s VMT has been prepared for informational purposes for the entire Modified Project area as discussed below.

As noted above, Los Angeles County has adopted a suggested methodology and has released significance criteria for use in VMT analyses of this type. The County has also developed a VMT analysis tool, which is based on data obtained from the Southern California Association of Governments (SCAG) travel demand forecasting model, and data from that tool was utilized for this analysis.

The Department of Public Works has divided the County into North County and South County Baseline Areas for the purpose of VMT analysis, and the Modified Project is located within the North County Baseline Area. OPR's Technical Advisory states "In cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography, such as the county, that includes the area over which nearly all workers would be expected to live." (OPR Advisory, p. 16.). Given the size of the SCAG region overall, as well as the size of Los Angeles County (over 4,700 square miles in area and a greater population than 40 states), it is appropriate to utilize the northerly region of Los Angeles County for establishing a baseline condition based on the consistency with the expected travel patterns of the Modified Project's population and employment base. This approach is consistent with other recent environmental documents prepared by the County, such as the nearby Sterling Ranch Estates Draft EIR (November 2021).

This analysis utilizes the County's significance thresholds and VMT metrics as shown in Table E-1. Specifically, the residential portion of the Modified Project is evaluated based on household VMT per capita and a threshold of significance that is 16.8 percent lower than the Baseline Area average household VMT per capita. The employment-generating components of the Modified Project is evaluated based on home-based work VMT per employee with a threshold of significance that is 16.8 percent below the North County Baseline Area VMT for home-based work VMT per employee. If a project is below the weighted average of residential and employment thresholds, it would have a less than significant VMT impact. As shown in Table E-1, the weighted average of Project VMT per residential plus employment population is calculated by dividing the sum of home-based work and home-based non-work VMT by the total of the Project's residential plus employment population.

Table E-1 VMT Metrics for North County Baseline Area

Baseline Area	**Residential VMT/Capita**	**Employment VMT/Employee**	**VMT per Project Population[1]**
North County Baseline Area	22.3	19.0	19.9[2]
North County Baseline Area Threshold (average with 16.8% reduction)	18.6	15.8	16.6[2]

[1] Project population includes both residents and employees.

[2] VMT per Project Population values are a weighted average based on data obtained from the County VMT calculator tool, which includes home-based trips (for residential uses) and home-based work trips (for employment uses) only (see discussion in Section E.4).

E.3 TRANSPORTATION DEMAND MANAGEMENT PLAN

The Valencia TDM Plan, which was included as a mitigation measure in the State-certified EIR, is designed to reduce vehicle trips and applies to new development located throughout the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center planning areas. The core objective of the TDM

Plan is to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies. The TDM Plan includes a number of strategies that would enable the residents, employees, and visitors of these planning areas to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options alternative to single rider vehicles. The following is a list of the TDM Plan measures applicable to the Modified Project that would affect the project’s trip generation in that implementation of these measures would result in fewer vehicle trips:

1. Pedestrian network linking areas of the Modified Project site;
2. Traffic calming measures to encourage people to walk or bike;
3. Increased transit availability through route expansion or increasing transit frequency;
4. Encouraging telecommuting and alternative work schedules (applies to both residential and work tripends);
5. Employer-administered Commute Trip Reduction (CTR) program;
6. School bus program;
7. Transit fare subsidies;[15]
8. Membership based carshare program;
9. Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) infrastructure;
10. Integration of Mobility Hubs;
11. Website and apps for transportation information; and
12. Bikeshare system

The Valencia TDM Plan was adopted by CDFW as part of the State-certified EIR process and, consequently, is a binding and enforceable mitigation measure that applies to the Modified Project.

With its reduction in trips compared to the 2017 Approved Project, and its addition of numerous TDM measures from the Valencia TDM Plan, the Modified Project will comply with plans and policies adopted by the County and consistent with those outlined in the CEQA Guidelines’ Appendix G Environmental Checklist and discussed below. TDM measures are quantified using the 2010 CAPCOA handbook as that was the current version of the handbook at the time of analysis.

E.4 MODIFIED PROJECT ANALYSIS

For this informational analysis, each individual component of the Modified Project is evaluated independently consistent with the County Guidelines and OPR recommendations. The individual

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[15] Pursuant to the adopted TDM Plan, which was included as Mitigation Measure 2-6 in the State-certified EIR, the Transportation Management Organization (TMO) shall offer Transit Fare Subsidies for Residents to all below market rate housing units within Entrada South. The transit subsidies will be provided on an ongoing basis with funding and administration by the TMO.

components are then aggregated into an overall value of VMT per Project population to determine whether the Modified Project's VMT would exceed the County Guidelines.

The Modified Project is located in SCAG traffic analysis zones (TAZ) 20224200 and 20226100. The expected VMT characteristics of each TAZ were obtained using the County's VMT analysis tool and applied to the proposed Modified Project uses. The results of the analysis are summarized in Table E-2.

The Modified Project does not generate more traffic than previously analyzed in the State-certified EIR. Therefore, the Modified Project is not subject to VMT analysis because the Modified Project qualifies for the screening criteria for projects generating fewer than 110 net new trips and therefore is presumed to result in a less than significant VMT impact. However, for informational purposes an assessment of the proposed Modified Project has been prepared.

As shown in the previously referenced Table E-2, average VMT per capita in the North County Baseline Area for home-based residential trips is 22.3. The North County Baseline Area average for home-based-work employment trips is 19.0 VMT per employee. The County has established a threshold of significance of 16.8 percent less than average, resulting in a significance threshold of 18.6 VMT per capita for residential uses and 15.8 VMT per employee for employment uses for the North County Baseline Area.

Based on the expected population of the Modified Project consisting of approximately 4,958 persons and the North County Baseline Area average VMT of 22.3 per capita, the residential portion of the Modified Project could generate no more than 110,566 daily home-based VMT to be consistent with the North County Baseline Area average. Similarly, based on the expected number of employees in the Modified Project of approximately 12,693 employees and the North County Baseline Area average VMT of 19.0 per employee, the employment portion of the Modified Project could generate not more than 241,162 daily home-based-work VMT to be consistent with the North County Baseline Area average. With a combined Project population of 17,651 (4,958 residents and 12,693 employees), the total VMT of 351,728 (110,566 home-based residential and 241,162 home-based-work employment) equates to an weighted average VMT of 19.9 per person for the North County Baseline Area given the Modified Project's specific mix of uses.

Therefore, given the specific mix of uses that comprise the Modified Project and the resulting number of residents and employees that live and work within the Modified Project area (referred to herein as the Project population), the weighted average VMT applicable to the Modified Project area is 19.9 VMT per Project population. The resulting threshold of significance, which is 16.8 percent lower than the average, is 16.6 VMT per Project population as shown in Table E-2.

Table E-2 Modified Project VMT Summary

Area	SCAG TAZ	Residential Land Use (HBW & HBNW Trips)				Employment Land Use (HBW Trips)				Project Population	VMT (HBW & HBNW Trips)	VMT (HBW & HBNW Trips) Per Project Population
		Units	Pop	VMT/Cap	VMT	TSF	Empl	VMT/Empl	VMT			
Entrada South										**7,458**	**97,060**	**13.0**
Residential	20226100	1,574	4,958	10.6	52,556	-	-	-	-	-	-	-
Mixed Use Commercial (Office/Retail)	20226100	-	-	-	-	730	2,500	17.8	44,504	-	-	-
Valencia Commerce Center										**10,193**	**223,568**	**21.9**
Business Park (Office/ Industrial/Warehouse/Retail)	20224200	-	-	-	-	3,400	10,193	21.9	223,568	-	-	-
Total		**1,574**	**4,958**	**10.6**	**52,556**	**4,130**	**12,693**	**21.1**	**268,072**	**17,651**	**320,628**	**18.2**
VMT with TDM Mitigation Reduction of 14.9%				9.0	**44,725**	**-**	**-**	**18.0**	**228,129**		**272,854**	**15.5**
North County Baseline Area (Table 3.1.1.-1)				22.3	110,566	-	-	19.0	241,162	-	351,728	19.9
North County Threshold (Table 3.1.1.-2)				**18.6**	**92,221**	-	-	**15.8**	**200,545**	-	**292,766**	**16.6**
Modified Project Impact											-19,912	-1.1
Exceed Threshold?											**No**	**No**

Notes: HBW = Home-based work trips (work trips that begin/end at home); HBNW = Home-based non-work trips (trips not related to work that begin/end at home); trip for purposes not noted are excluded from the VMT totals presented in this table
VMT/Cap = VMT per capita (for residential uses); VMT/Empl = VMT per employee (for non-residential uses); Project Population = Residential population plus employees
TSF = Thousand square feet; MSF = Million square feet; DU = Dwelling Unit; SCAG = Southern California Association of Governments; TAZ = Traffic analysis zone

Socioeconomic conversion factors: 3.15 persons per residential DU; 4.0 Employees per Office TSF (ES); 3.0 Employees per Office/Industrial TSF (VCC); 2.85 Employees per Retail TSF

See Table E-4 for land use inputs used for the modeling analysis

E.5 2017 APPROVED PROJECT COMPARISON

This section provides a VMT comparison between the 2017 Approved Project and the Modified Project.

The traffic study included in the State-certified EIR for the 2017 Approved Project was based on a project description consisting of 1,725 residential units and approximately 450,000 square feet of non-residential development in the Entrada planning area, and approximately 3.4 million square feet of non-residential development in the VCC planning area. The Modified Project is proposed to consist of 1,574 residential units and approximately 730,000 square feet of non-residential development in the Entrada planning area. In the VCC planning area, the Modified Project is proposed to include the same 3.4 million square feet of non-residential development. See Table E-3 and Table E-4, respectively, for the detailed composition of land uses for the 2017 Approved Project and the Modified Project, respectively.

Trip Generation and Vehicle Miles Traveled Comparison

As shown in the State Certified EIR, the 2017 Approved Project would generate 67,451 average daily trips (ADT)[16] without the application of trip reduction measures. In comparison, the Modified Project would generate 63,992 ADT[17] without the application of trip reduction measures. However, included as part of the final 2017 Approved Project description is a comprehensive TDM program, which was shown to reduce VMT by approximately 14.9 percent (see Appendix F).

As noted above, the State-certified EIR's analysis of transportation impacts was completed using an LOS-based methodology, not a VMT-based methodology. However, for comparison purposes, this analysis applies the new County guidelines to the 2017 Approved Project as well as the Modified Project.[18] Accordingly, this comparison analysis applies the same methodologies and thresholds to the 2017 Approved Project as if, hypothetically, those standards had been in place when the State-certified EIR transportation analysis had been prepared.

Table E-5 compares the land use and socioeconomic data and the resulting VMT estimates of the Modified Project to the 2017 Approved Project.

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[16] Table 1, Newhall Ranch RMDP and SCP EIR/EIS Traffic Analysis, Austin Foust Associates, Inc., 2008.

[17] 32,191 ADT by Entrada South (see Table 4-2) and 31,801 by VCC (see Table 4-5).

[18] *See* Office of Planning and Research, SB 743 Frequently Asked Questions, *"Can I still tier from or rely on an environmental document that uses LOS?"* [when preparing a supplemental CEQA document based on a prior EIR that utilized an LOS-based methodology to analyze transportation impacts, the lead agency may "determine that a VMT analysis is not required for later-prepared documents. (*See, e.g., CREED v. San Diego* (2011) 196 Cal.App.4th 515; *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301, 1320.)"] available at http://www.opr.ca.gov/ceqa/sb-743/faq.html#tier-env-doc.

Table E-3 2017 Approved Project VMT Calculations

Area	SCAG TAZ	Residential Land Use (HBW & HBNW Trips)				Employment Land Use (HBW Trips)				Service Population	VMT (HBW & HBNW Trips)	VMT (HBW & HBNW Trips) Per Service Population
		Units	Pop	VMT/Cap	VMT	TSF	Empl	VMT/Empl	VMT			
Entrada South Area												
Residential	20226100	1,725	5,434	10.6	57,598	-	-	-	-	**6,716**	**80,426**	**12.0**
Mixed Use Retail	20226100	-	-	-	-	450	1,283	17.8	22,829			
Valencia Commerce Center Area												
General Office	20224200	-	-	-	-	1,120	3,380	24.2	81,808	**10,255**	**224,931**	**21.9**
Industrial-Warehousing	20224200	-	-	-	-	1,400	4,226	13.9	58,736			
Industrial-Light Industrial	20224200	-	-	-	-	830	2,505	32.3	80,918			
Retail	20224200	-	-	-	-	50	143	24.2	3,470			
Total		**1,725**	**5,434**	**10.6**	**57,598**	**3,850**	**11,537**	**21.5**	**247,760**	**16,971**	**305,358**	**18.0**
North County Baseline (Table 3.1.1.-1)				22.3	121,173	-	-	19.0	219,206	-	340,379	20.1
North County Threshold (Table 3.1.1.-2)				**18.6**	**101,068**	-	-	**15.8**	**182,287**	-	**283,355**	**16.7**
Project Increment Compared to Baseline											22,003	1.3
Exceed Threshold?											**Yes**	**Yes**

Notes: HBW = Home-based work trips (work trips that begin/end at home); HBNW = Home-based non-work trips (trips not related to work that begin/end at home); trip for purposes not noted are excluded from the VMT totals presented in this table
VMT/Cap = VMT per capita (for residential uses); VMT/Empl = VMT per employee (for non-residential uses); Service Population = Residential population plus employees
TSF = Thousand square feet; MSF = Million square feet; DU = Dwelling Unit; SCAG = Southern California Association of Governments; TAZ = Traffic analysis zone

Socioeconomic conversion factors: 3.15 persons per residential DU; 4.0 Employees per Office TSF (ES); 3.0 Employees per Office/Industrial TSF (VCC); 2.85 Employees per Retail TSF

For purposes of this analysis, VCC land use is based on State-certified EIR traffic study assumptions (750 TSF of Business Park, 1.9 MSF of Industrial Park, 700 TSF of Commercial Office, and 50 TSF of Commercial Retail) converted to LA Co DPW VMT analysis categories based on the following assumptions:
Business Park = 30% General Office, 35% Warehouse, and 35% Light Industrial; Industrial Park = 10% General Office, 60% Warehouse, and 30% Light Industrial; Commercial Office = 100% General Office

Table E-4 Modified Project VMT Calculations

Area	SCAG TAZ	Residential Land Use (HBW & HBNW Trips)				Employment Land Use (HBW Trips)				Service Population	VMT (HBW & HBNW Trips)	VMT (HBW & HBNW Trips) Per Service Population
		Units	Pop	VMT/Cap	VMT	TSF	Empl	VMT/Empl	VMT			
Entrada South Area												
Residential	20226100	1,574	4,958	10.6	52,556	-	-	-	-	**7,458**	**97,060**	**13.0**
Mixed Use Retail	20226100	-	-	-	-	365	1,040	17.8	18,516			
Mixed Use Office	20226100	-	-	-	-	365	1,460	17.8	25,988			
Valencia Commerce Center Area												
General Office	20224200	-	-	-	-	1,120	3,360	24.2	81,312	**10,193**	**223,568**	**21.9**
Industrial-Warehousing	20224200	-	-	-	-	1,400	4,200	13.9	58,380			
Industrial-Light Industrial	20224200	-	-	-	-	830	2,490	32.3	80,427			
Retail	20224200	-	-	-	-	50	143	24.2	3,449			
Total		**1,574**	**4,958**	**10.6**	**52,556**	**4,130**	**12,693**	**21.1**	**268,072**	**17,651**	**320,628**	**18.2**
VMT with TDM Mitigation Reduction of 14.9%				**9.0**	**44,725**	**-**	**-**	**18.0**	**228,129**	**-**	**272,854**	**15.5**
North County Baseline (Table 3.1.1.-1)				22.3	110,566	-	-	19.0	241,162	-	351,728	19.9
North County Threshold (Table 3.1.1.-2)				**18.6**	**92,221**	**-**	**-**	**15.8**	**200,545**	**-**	**292,766**	**16.6**
Project Increment Compared to Baseline											-19,912	-1.1
Exceed Threshold?											**No**	**No**

Notes: HBW = Home-based work trips (work trips that begin/end at home); HBNW = Home-based non-work trips (trips not related to work that begin/end at home); trip for purposes not noted are excluded from the VMT totals presented in this table
VMT/Cap = VMT per capita (for residential uses); VMT/Empl = VMT per employee (for non-residential uses); Service Population = Residential population plus employees
TSF = Thousand square feet; MSF = Million square feet; DU = Dwelling Unit; SCAG = Southern California Association of Governments; TAZ = Traffic analysis zone
Socioeconomic conversion factors: 3.15 persons per residential DU; 4.0 Employees per Office TSF (ES); 3.0 Employees per Office/Industrial TSF (VCC); 2.85 Employees per Retail TSF
For purposes of this analysis, it is assumed that the Entrada Planning area non-residential development would consist of 365,000 square feet of commercial retail development and 365,000 square feet of general office uses. VCC land use based on State-certified EIR traffic study assumptions (750 TSF of Business Park, 1.9 MSF of Industrial Park, 700 TSF of Commercial Office, and 50 TSF of Commercial Retail) converted to LA Co DPW VMT analysis categories based on the following assumptions: Business Park = 30% General Office, 35% Warehouse, and 35% Light Industrial; Industrial Park = 10% General Office, 60% Warehouse, and 30% Light Industrial; Commercial Office = 100% General Office

As shown, the Modified Project consists of fewer residential units, resulting in a lower resident population and less VMT related to residential uses. On a per capita basis, the Modified Project would result in lower VMT per resident (9.0 VMT/resident) than would the 2017 Approved Project (10.6 VMT/resident).

Table E-5 VMT Comparison

	2017 Approved Project	Modified Project	Difference
Residential Uses			
Dwelling Units	1,725	1,574	-151
Population	5,434	4,958	-476
VMT(a) without TDM	57,598	52,556	-5,042
VMT(a) with TDM	n/a	44,725	-12,873
VMT(a)/Resident	**10.6**	**9.0**	**-1.6**
Employment Uses			
Million Square Feet	3.85	4.13	0.28
Employees	11,537	12,693	1,156
VMT(b) without TDM	247,760	268,072	20,312
VMT(b) with TDM	n/a	228,129	-19,631
VMT(b)/Employee	**21.5**	**18.0**	**-3.5**
(a)VMT shown for residential uses includes all home-based trips (b)VMT shown for employment uses includes home-based-work trips only			

Also as shown in Table E-5, the Modified Project consists of more non-residential square footage and a greater number of employees, resulting in more home-based-work VMT in comparison to the 2017 Approved Project. However, on a per capita basis, the Modified Project would result in a lower VMT per employee (18.0 VMT/employee) than would the 2017 Approved Project (21.5 VMT/employee).

Table E-6 summarizes the VMT estimates for the 2017 Approved Project and the Modified Project based on current County guidelines and County VMT data for this area.

Table E-6 Service Population VMT Summary

Area	Population	Employees	Service Population (SP)	VMT(a)	VMT(a)/SP
2017 Approved Project	5,434	11,537	16,971	305,358	18.0
Modified Project					
Without TDM	4,958	12,693	17,651	320,628	18.2
With TDM				272,854	15.5
(a)VMT based on rates from the County's VMT calculation tool, which consists of home-based work trips (work trips that begin/end at home) and home-based non-work trips (trips not related to work that begin/end at home). Trips for other purposes are not included in the County's VMT calculation tool and thus are excluded from the VMT totals presented in this table.					

Since both the 2017 Approved Project and the Modified Project are a part of a large-scale mixed-use development that, when built-out, will provide over 25,000 new residential units and employment uses for over 39,000 workers, VMT has been analyzed based on Service Population (SP), which is defined as residential population plus employees. The use of SP as the basis for analysis allows a direct and holistic comparison to be made between mixed-use projects of varying proportions of residential and employment. Use of SP also accounts for the inherent differences between mixed-use projects, such as the relative proportion of employment to residential uses.

The 2017 Approved Project would have a SP of approximately 16,971 persons (5,434 residents and 11,537 employees). The Modified Project would have a SP of approximately 17,651 persons (4,958 residents and 12,693 employees). VMT per SP is calculated by first adding the total amount of home-based VMT for the residential units to the total amount of home-based work VMT for the employment uses and dividing by the corresponding SP.

As shown in Table E-6, above, based on the County's current VMT analysis methodology, the 2017 Approved Project would average approximately 18.0 VMT per SP and the Modified Project would average approximately 18.2 VMT per SP without the implementation of TDM measures. When applying the Project's VMT reducing TDM measures, the Modified Project would average approximately 15.5 VMT per SP.

The OPR technical advisory stresses the importance of maintaining an "apples-to-apples" comparison between VMT estimates and thresholds of significance[19]. Therefore, since the County VMT calculation tool provides VMT data for the specific trip purposes discussed above, a threshold of significance specific to those trip purposes only is required. For this analysis, which is based on SP, the comparable SP threshold of significance is derived based on the County's established thresholds of significance for home-based residential VMT and home-based work employment VMT, respectively.

The average VMT per capita for residential uses in the north portion of Los Angeles County is 22.3 miles per person, and the average VMT per capita for employment uses is 19.0 VMT per employee. For CEQA analysis, the County's thresholds of significance for residential and employment uses are 18.6 VMT per capita and 15.8 VMT per employee, respectively, a 16.8 percent reduction from the average. As shown in Table E-7, the Modified Project results in lower overall VMT per SP than the County's threshold of significance when accounting for the Modified Project's TDM reduction measures.

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[19] See OPR Technical Advisory, page 16: "It is critical, however, that the agency be consistent in its VMT measurement approach throughout the analysis to maintain an "apples-to-apples" comparison."; and page 30: "When using models and tools for those various purposes, agencies should use comparable data and methods, in order to set up an "apples-to-apples" comparison between thresholds, VMT estimates, and VMT mitigation estimates".

Table E-7 VMT Impact Analysis

	VMT with TDM		
	Residential	**Employment**	**Total Service Population**
2017 Approved Project VMT/Person	10.6	21.5	18.0
Modified Project VMT/Person without TDM	10.6	21.1	18.2
Modified Project VMT/Person with TDM	9.0	18.0	15.5
Threshold of Significance VMT/Person	18.6	15.8	16.6
New Significant Impact with Mitigation?	See Total Service Population[20]	See Total Service Population[21]	No

Conclusion

The potential VMT impact of the 2017 Approved Project is presented for comparison purposes in this analysis even though VMT was not the metric for analyzing transportation impacts at the time the prior transportation analysis was prepared for the State-certified EIR. Accordingly, this comparison analysis applies the same methodologies and thresholds to the 2017 Approved Project as if, hypothetically, those standards had been in place when the State-certified EIR transportation analysis had been prepared. With that framework, the incremental change associated with the Modified Project (with implementation of the TDM plan mitigation) would result in a reduction in VMT per resident and a reduction in VMT per employee as compared to the 2017 Approved Project. The Modified Project also results in a reduction in combined VMT per person on a service population basis and the combined VMT per person is below the comparable County threshold of significance. Therefore, the Modified Project does not result in any new significant impact or substantially increase the severity of a significant impact.

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[20] *Id.*
[21] *Id.*

Appendix F TDM REDUCTION CALCULATIONS

The following pages are from the RMDP/SCP EIR Appendix E (See Reference 9 in Section 1.3)

- UrbanTrans North America, Valencia Transportation Demand Management Plan (See Reference 8 in Section 1.3)
- Fehr & Peers, Quantification of Implementing TDM Strategies (See Reference 7 in Section 1.3)

Valencia

Transportation Demand Management Plan

October 2022

Prepared by UrbanTrans North America

Table of Contents

Executive Summary

The Valencia Transportation Demand Management (TDM) Plan[1] is a comprehensive plan designed to achieve reductions in vehicle miles traveled (VMT) and, in so doing, reduce greenhouse gas (GHG) emissions.[2] Accordingly, this TDM Plan provides a summary description of the existing and planned regional transportation network, a listing of each of the strategies that comprise this TDM Plan with corresponding information regarding application of the strategy, and a step-by-step plan of implementation.

The TDM Plan applies to new development located on the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas (the Project Site) that is facilitated by the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project. Specifically, the TDM Plan will serve planned development within the Project Site, which consists of up to approximately 21,242 residential units; about 9.3 million square feet of commercial uses; and, numerous public facilities, including schools, fire stations, a library, and recreational amenities. This TDM Plan will serve as an "umbrella plan," with appropriate and customized application to individual villages and land uses, as applicable, located within the three planning areas (i.e., the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center sites).

The core objectives of the TDM Plan are to reduce the number of single occupancy vehicle trips, through the utilization of alternative forms of motorized and non-motorized transport and related strategies, and thereby reduce total VMT and the corresponding GHG emissions. Therefore, as presented below, the TDM Plan includes a number of strategies that enable the Project Site's residents, employees, and visitors to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options. The TDM Plan relies, in part, on the design of the planned development and, in part, on innovative strategies developed by the transportation planning and engineering community to achieve

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[1] Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

its objectives, and provides the foundational elements necessary for the successful implementation of the TDM strategies outlined herein.

A non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to provide the services required by this TDM Plan, as applicable. The TMO and the long-term implementation of the TDM Plan will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay; this payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties.

This TDM Plan is based, in part, on information and analysis contained in a technical memorandum entitled *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Fehr & Peers (September 2016) and as updated in a technical memorandum entitled *Quantification of Implementing TDM Strategies*, Fehr & Peers (2022). The memorandum analyzes each of the VMT reduction strategies presented in this Plan and based primarily on guidance provided by the California Air Pollution Control Officers Association, calculates the VMT reduction expected to result with implementation of each strategy. The memorandum, including appendix and exhibits, provides technical support for the VMT reductions expected to be achieved with implementation of this Plan.

1.0 Background Information

1.1 Regional Setting

This section provides an overview of the existing and planned transportation network in the vicinity of the Project Site, including transit, roadways, bicycle/trails network, and the pedestrian environment.

The Project Site is located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley. The Project Site area begins just west of Interstate 5 and continues to the boundary between Los Angeles and Ventura Counties, as shown in Figure 1. Traversing the Site is State Route (SR) 126, which functions as an east-west travel corridor between the Santa Clarita Valley and Ventura County. This section describes the transportation context to provide an understanding of the TDM needs and opportunities at the Project Site.

Figure 1: Project Site Vicinity Map

1.1.1 Transit Network

The Project Site is located within the City of Santa Clarita Transit service area. The agency operates nine local bus routes and four commuter routes that connect the City's neighborhoods with each other, as well as provide connections to regional transit via the following six transfer stations: the Santa Clarita, Newhall, Via Princessa, and Chatsworth Metrolink stations, the North Hollywood Red/Orange Line Station, and the McBean

Regional Transit Center, which includes a park and ride lot. Commuter Express Service also is available during rush hours to Century City and downtown Los Angeles.

On average, service frequency for local bus routes ranges from 30 minutes to an hour during morning and evening peak hours. Most routes run between 5:00 A.M. and 9:00 P.M. on weekdays. Weekend service is less frequent, starts later in the morning, and ends earlier in the evening. Commuter train service into downtown Los Angeles is provided via the Metrolink Antelope Valley Line, which takes less than an hour to reach Union Station and runs 11 times a day. From the North Hollywood Metro Station, the Red Line runs every ten minutes through Hollywood to Union Station, a ride that takes approximately 30 minutes. The Orange Line serves points west and terminates in Chatsworth. Figure 2 shows a map with regional connections. Figure 3 illustrates the existing local Santa Clarita Transit Network.

Figure 2: City of Santa Clarita Transit Regional Transit Connections

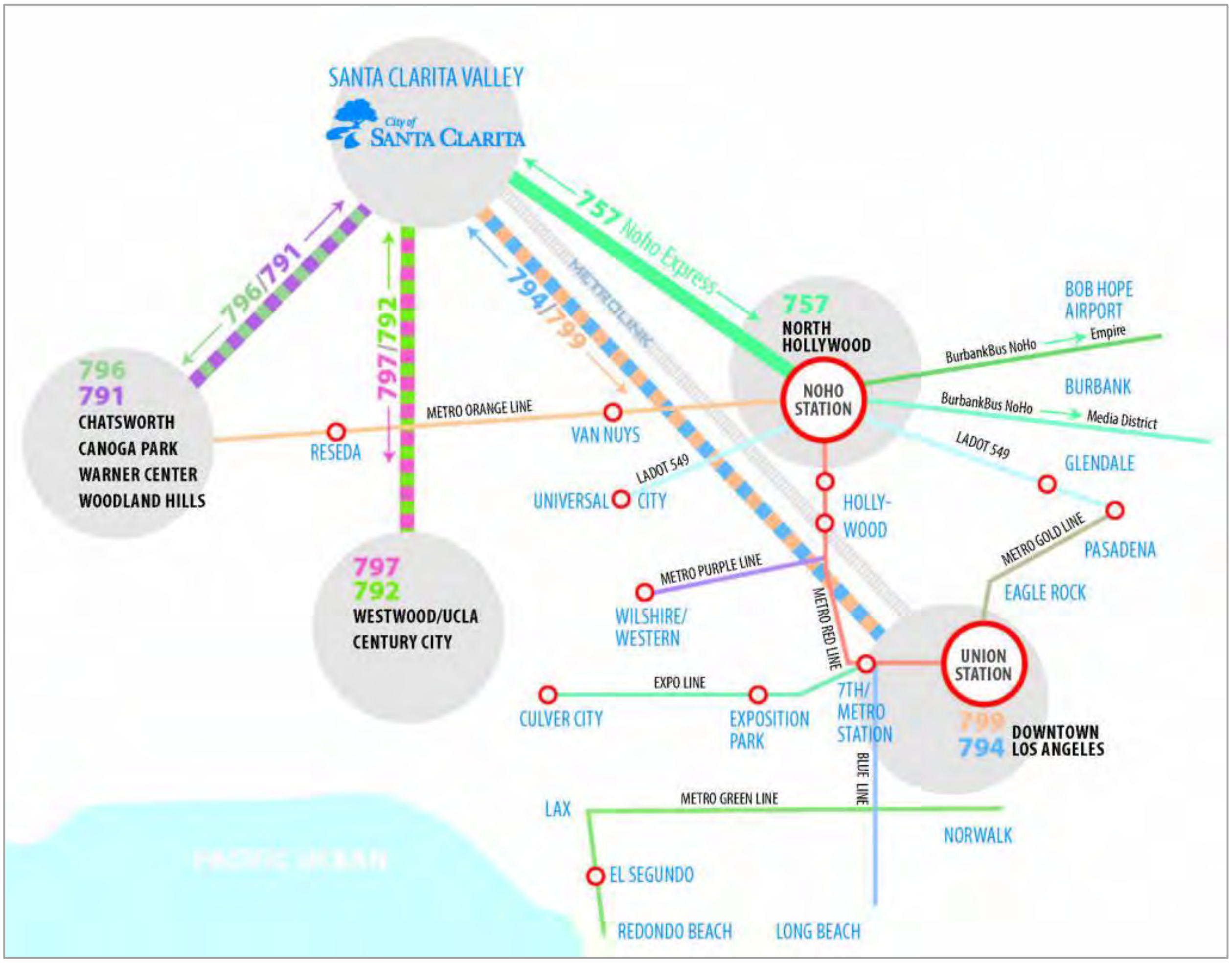
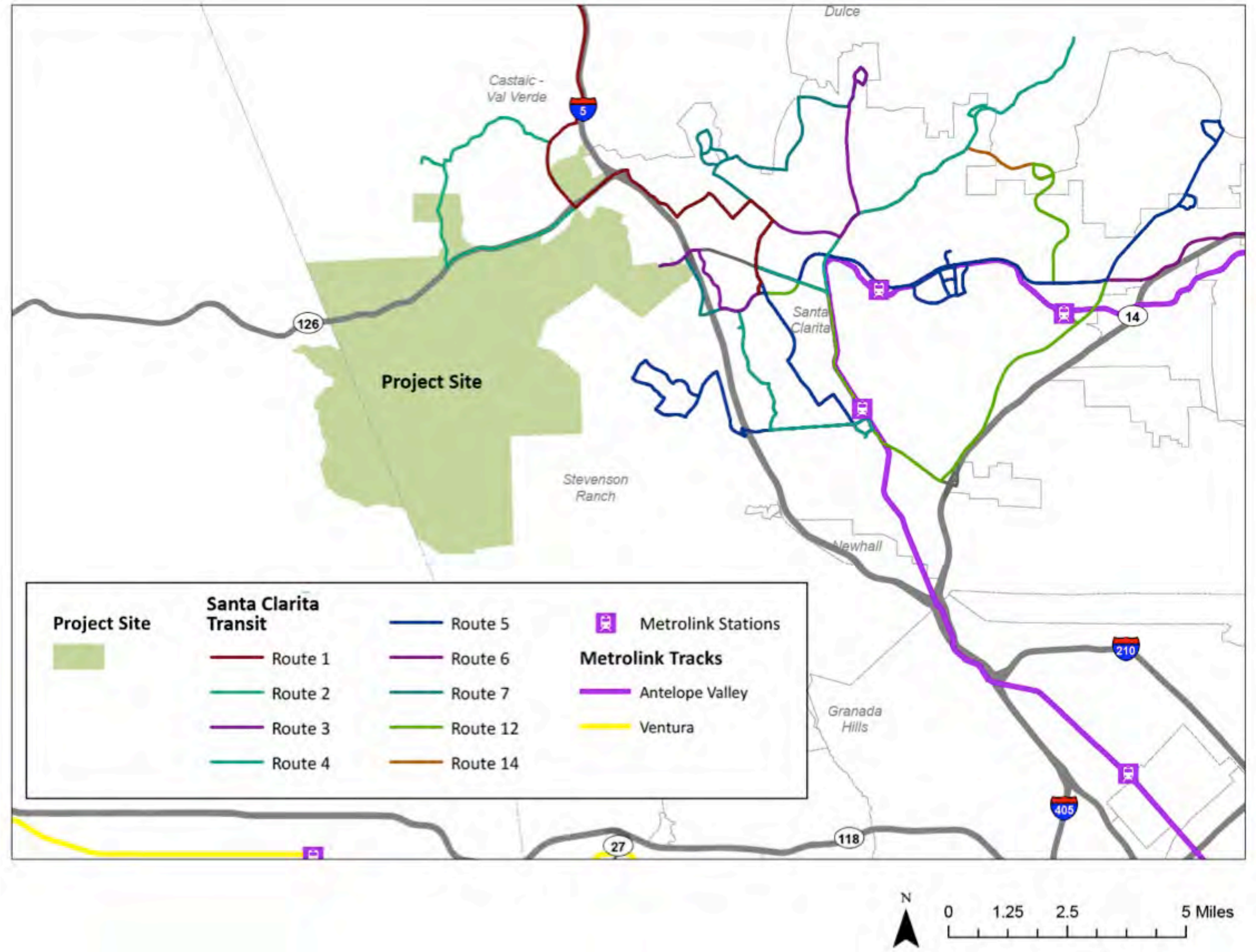


Figure 3: City of Santa Clarita Transit Local Service



1.1.2 Major Roadways

The Project Site is easily accessible from Interstate 5, which runs north-south and connects to downtown Los Angeles, and from Highway 126, which runs east-west between I-5 and the City of Ventura. A northward expansion of existing high occupancy vehicle (HOV) lanes from Highway 14 to north of Highway 126 is planned and scheduled to be completed in 2023. Within the Project Site area, an extension of Magic Mountain Parkway will run through the center of the site and connect with Long Canyon Road, an extension of the existing Valencia Boulevard. North-south connections will be provided by the extension of Commerce Center Drive, which will connect across Highway 126 to the Valencia Commerce Center, and by Long Canyon Road, which will connect to the existing Chiquito Canyon Road north of Highway 126. These new roads will be constructed as major and secondary highways along which transit service will be available.

1.1.3 Bicycle/Trails Network

The Los Angeles County Bicycle Master Plan adopted in 2012 identifies the addition of bike paths, lanes, or routes to several roadways adjacent to the Project Site. Planned improvements include bike paths and lanes along The Old Road, Castaic Creek, and the Santa Clara River/Highway 126. The bicycle master plan and related resources can be found here: https://dpw.lacounty.gov/pdd/bike/masterplan.cfm.

In 2020, the City of Santa Clarita adopted an update to its non-motorized transportation plan, which includes network and infrastructure improvements, facility design recommendations, and programmatic recommendations, including bicycle education and encouragement programs. The City of Santa Clarita is a Bronze level Bicycle Friendly Community, a recognition awarded by the League of American Bicyclists. The city’s web site includes maps, bike parking information, safety tips, bicycles and transit information, and other resources. See: http://bikesantaclarita.com/.

The Project’s proposed network of bicycle and multi-use trails generally will resemble the extensive existing trail network in neighboring Valencia. Off-street, multi-use trails will connect the villages within the Project Site. They will be supplemented by paseos, wide sidewalks with lighting, benches, and shade trees that provide connections to activity centers, such as schools, recreation centers, and neighborhood centers. On-street bike lanes will be provided on major roads as well.

1.1.4 Pedestrian Environment

Sidewalks will be provided along all roads within the planned development located on the Project Site, supplemented by the trail network. Cul-de-sacs are part of the street design in certain locations, although pedestrian connections will be provided at some of the planned cul-de-sacs to improve pedestrian connectivity.

2.0 TDM Strategies

The strategies outlined below shall be implemented pursuant to this TDM Plan. However, in light of the ongoing evolution of transportation technology and advancements, the strategies set forth below may be modified or replaced, as necessary, with alternative strategies of equal or enhanced effectiveness. Therefore, the applicant (or its designee) and/or the TMO, or equivalent management entity, shall periodically evaluate the parameters of this TDM Plan so as to ensure that the strategies are meeting the needs and priorities of the residents, employees, tenants, and visitors to the Project Site. As new technologies and strategies become available, the TDM Plan can be modified in order to implement alternative technologies and/or strategies of equal or enhanced effectiveness.

2.1 TDM Strategy Description

The following is a brief description of each TDM strategy and its application to the Project Site.

Construction

1. **Construction Traffic Management Plan**

   Description: A construction traffic management plan can be effective both to reduce VMT and reduce the potential construction-related congestion on traffic by maintaining mobility to, from, and within the Project Site during the construction period.

   Application: Prior to issuance of a grading or building permit for each village level project, the applicant, or its designee, shall develop a Construction Traffic Management Plan that may include, as applicable: worker carpools through available incentives; remote parking areas and corresponding shuttle service; work hours and truck deliveries scheduled to the extent feasible to avoid peak hour traffic conditions (i.e., 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.); and re-routing construction-related traffic from congested streets (i.e., those streets, if any, operating at unacceptable levels of service during the peak hours).

Operation

1. **Integrate Affordable and Below Market Rate Housing**

   Description: Income has a statistically significant effect on the probability that a commuter will take transit or walk to work[3]. Below Market Rate (BMR) housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit. Incorporating BMR also can encourage smaller units within the same building footprint, thereby increasing density and potential transit ridership.

   Application: The applicant, or its designee, shall include an Affordable Housing Program as part of the planned development within the Project Site, in accordance with the County of Los Angeles' Newhall Ranch Specific Plan approvals.

2. **Pedestrian Network**

   Description: Providing a pedestrian access network to link areas of a Project Site encourages people to walk instead of drive. This mode shift results in people driving less and, thus, a reduction in VMT.

   Application: The applicant, or its designee, shall include within the planned development located on the Project Site pedestrian-movement facilities (e.g., sidewalks, paseos, and trails as depicted in the Newhall Ranch Specific Plan Mobility Plan) that eliminate physical barriers and provide pedestrian-based access to both on- and off-site complementary land uses (e.g., neighborhood-serving commercial retail opportunities; schools; recreational amenities).

3. **Traffic Calming**

   Description: Providing traffic calming measures can encourage people to walk or bike instead of using a vehicle, thereby reducing VMT. Examples of traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

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[3] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site design elements that reduce motor vehicle speeds and improve pedestrian and bicyclist safety on the on-site streets and intersections. These design elements may include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

4. Transit Network Expansion

Description: Increasing transit availability through route expansion or increasing existing transit frequency improves access to the Project Site and, therefore, will encourage transit ridership. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The TMO, or its equivalent management entity, shall coordinate with the local transit agencies, including Santa Clarita Transit, to implement the Conceptual Transit Plan illustrated on Figure 4, to provide an expanded transit network that connects the Project Site to major transit centers in the Santa Clarita Valley, and enhance on and off-site connectivity options via transit.[4] The expanded transit network shall include bus stops located throughout the development area, a bus transfer station, and a park-and-ride lot to the extent deemed appropriate.

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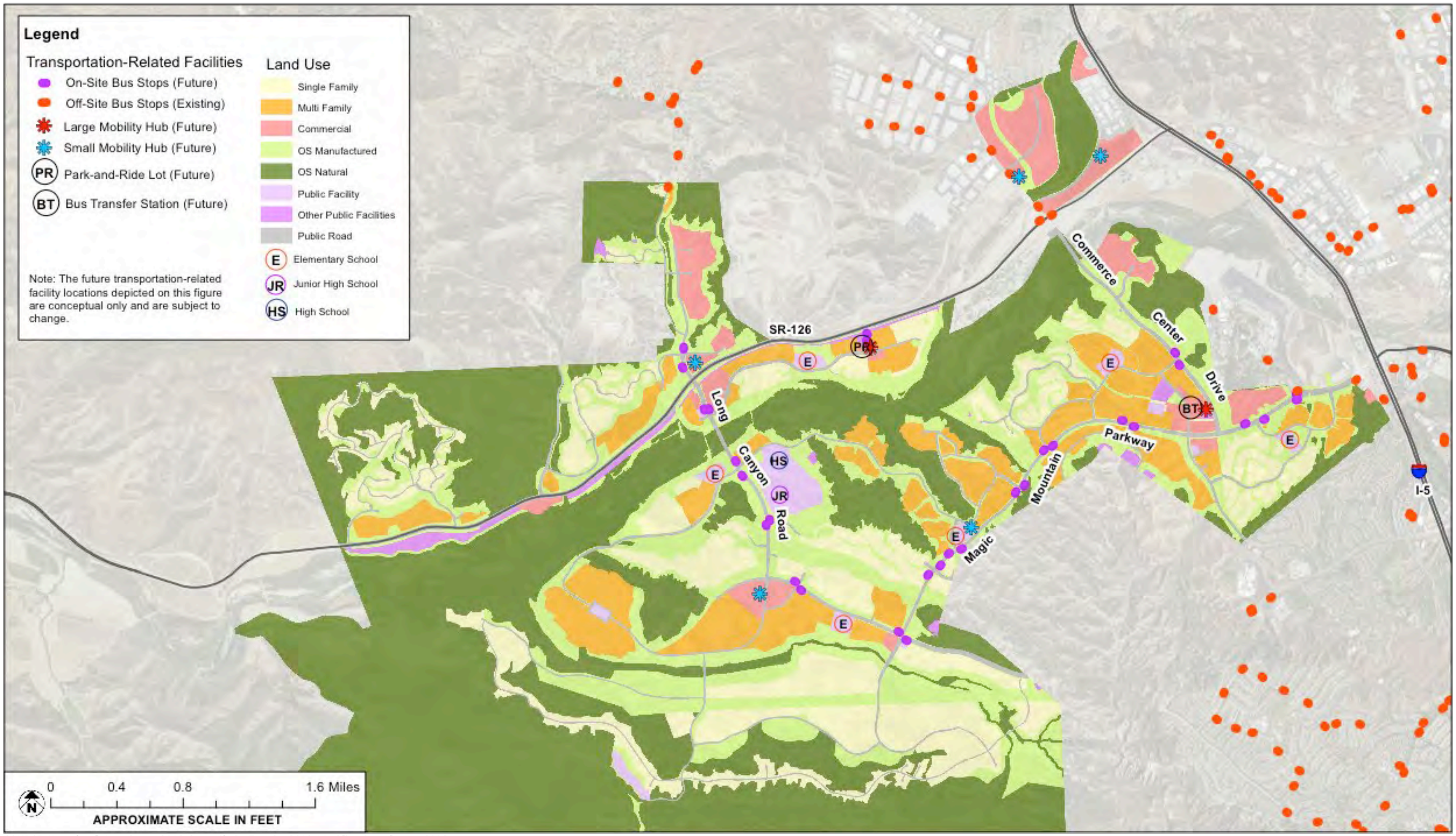
[4] See, Fehr & Peers Technical Memorandum, *RMDP/SCP Project: Transportation Demand Management Plan Evaluation* (September 2016), Exhibit 2.

Figure 4: Conceptual Transit Plan



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

FIGURE A

Meridian

Conceptual Transit Plan

5. **Alternative Work Schedules and Telecommute Program (Residential End)**

   Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

   Application: In furtherance of this strategy relative to Project residents, the TMO, or its equivalent management entity, shall utilize all appropriate marketing tools, including incentive strategies, to promote alternative work schedules and telecommuting on the part of Project residents, as feasible. In addition, the applicant, or its designee, shall construct all residential units to facilitate installation of high-speed internet services.

6. **Required Commute Trip Reduction Program**

   Description: A Commute Trip Reduction (CTR) program is an employer-administered program that discourages single-occupancy vehicle trips and encourages alternative modes of transportation such as carpooling, taking transit, walking, and biking. A CTR program provides employees with assistance in using alternative modes of travel and provides both "carrots" and "sticks" to achieve behavior change. A typical CTR program may include the following: preferential carpool parking, flexible work schedules for carpools, ridematching, designation of a transportation coordinator, transit subsidies, vanpool assistance, and bicycle end-trip facilities (e.g., parking, showers, and lockers). Participation in required commute trip reduction programs typically is required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

   Application: The TMO, or its equivalent management entity, shall coordinate with large business employers of the planned development located on the Project Site to implement a required CTR program that may include, but is not limited to, the utilization of ride sharing; provision of transit subsidies and preferential parking to carpools, vanpools and other commute strategies that minimize the use of single occupancy vehicles; and installs end-of trip bicycle facilities. As part of the program, the TMO (or equivalent management entity) shall establish performance and monitoring standards for the program's implementation status. In furtherance of this strategy, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants, employers, and employees of the Project Site's commercial areas, which establish and promote the benefits of commuting habits that reduce vehicle miles traveled. Additionally, the applicant/designee or the TMO (or equivalent management entity), as applicable, shall coordinate with

commercial builders/property owners to promote ridesharing through a multi-faceted approach that includes, but is not limited to, the measures below:

- Designating a certain percentage of parking spaces for ride-sharing vehicles that is equivalent to at least one dedicated parking space per 25,000 square feet of office space;
- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles; and
- Providing a web site or message board for coordinating rides

7. Alternative Work Schedules and Telecommute Program (Work End)

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: The TMO, or its equivalent management entity, shall coordinate with employers of the planned development located on the Project Site to facilitate the utilization of non-traditional worker commute patterns, for both Project residents and Project employees, by encouraging the use of alternative work schedules and telecommuting. In furtherance of this strategy for Project employees, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants and employers located in commercial areas on the Project Site that establish the benefits of alternative work schedules/telecommuting and provide successful templates for the implementation of such alternative approaches in the workplace. Additionally, any property management company managing commercial property on the Project Site shall require employers with 100 or more employees within the Project Site to develop and implement an alternative work schedules/telecommuting program consisting of the following elements: (1) appointment of a program coordinator; (2) identification of specific categories of employment positions that are appropriate for alternative work schedules and/or telecommuting; (3) provision of required equipment for telecommuting (e.g., hardware, software, and security); and (4) establishment of communications strategies to facilitate satisfaction of employment responsibilities (e.g., instant messaging). In furtherance of this strategy for Project residents, all residential units will be constructed with high-speed, high-capacity internet, and will be included in the TMO's marketing and incentive strategies.

8. School Bus Program and School Travel Program

Description: School travel can be a large vehicle trip generator. Under a school bus program, student school bus transit subsidies and Safe Routes to School (SRTS) programming have shown to be important and cost-effective ways to reduce overall trips in the community.

Application: The applicant, or its designee, in coordination with the Project Site's school districts shall establish a school bus program by offering fully subsidized transit passes to all Junior High and High School students residing within the Project Site. The TMO will staff a Safe Routes to School Coordinator position to work with all Valencia Elementary Schools to coordinate SRTS programming. In addition, the TMO will fund a part-time SRTS coordinator position at each of the three school districts (0.25 FTE per district) to leverage resources and coordinate and implement school travel planning to promote the school bus program as well as to provide education, encouragement, and incentives intended to increase taking transit, biking, walking, and carpooling to school. The school bus program, including the transit subsidies and SRTS program, and related staffing will be phased in based on the number of on-site schools and students residing within the Project Site.

9. Transit Fare Subsidies for Employees

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund and shall coordinate with those employers of the planned development located on the Project Site not required to participate in the Required Commute Trip Reduction program (Strategy 6) to provide alternative transportation subsidies to employees who commute to jobs located within the Project Site***.***

10. Carshare Program

Description: Carshare members, on average, have lower auto ownership rates and drive less than non-carshare members. One study found that, on average, 21% of carshare members in North America gave up their primary or secondary vehicle after joining a carsharing program[5].

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[5] IBI Group. (2009). *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards.* The City of Toronto.

Application: The TMO, or its equivalent management entity, shall establish a membership-based carshare program, whereby members have access to a shared fleet of vehicles. In order to incentivize participation, carshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership fee for up to 50 percent of the market rate households that elect to participate in the program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households); and, will subsidize 100 percent of the annual fee for up to 100 percent of the below market rate households. In the event the TMO is unable to retain a commercial carshare vendor, the TMO may consider diverting the funds otherwise planned to provide membership subsidies to the establishment of a peer-to-peer carsharing model, such as Getaround. The peer-to-peer model relies on private individuals registering their car for use by other residents for a fee. To ensure comparable levels of service and reliability to a traditional carshare provider (such as Zipcar), the peer-to-peer model would require aggressive marketing, outreach, and incentives to ensure that a sufficient fleet is established in terms of the number of vehicles and their locations. Another alternative approach could be the establishment of a Valencia-specific carshare service, as has been done successfully in small cities such as Ithaca, New York (population 30,515).

11. Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) Strategy

Description: NEVs are classified in the California Vehicle Code as a “low speed vehicle”. They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length and can promote a mode shift from single-occupancy vehicles, particularly in their ability to replace short trips.

E-Bikes present another travel option with similar mode shift potential for short trips. Low-speed, pedal-assisted and throttle-assisted E-Bikes (Class 1 and 2) can reach a maximum speed of 20 MPH and are allowed by state law on all bicycle facilities, including dedicated bicycle paths, unless a local ordinance specifies otherwise. A survey conducted in 2015[6] showed that E-Bikes are particularly

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[6] “E-bikes in North America: Results from an Online Survey,” John MacArthur, http://www.bikeleague.org/sites/default/files/E_bikes_mini_report.pdf.

popular in hilly areas and improve the mobility of older residents or people with disabilities who are unable to ride a standard bicycle. Class 1 and 2 E-Bikes do not require a driver's license, registration or insurance and the State of California specifies no minimum age.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site a comprehensive, interconnected travel network that accommodates NEV use and includes features such as NEV parking, charging facilities, striping, signage, and educational tools. Additionally, the applicant or its designee will provide funding for a subsidy covering 25 percent of the NEV purchase price (up to a $2,750 subsidy) that would be made available to residential detached single-family units located on the Project Site. The applicant or its designee also will provide funding for a subsidy covering 50 percent of the E-Bike purchase price (up to a $750 subsidy) that would be made available to all residential units on the Project Site. Subsidies will be made available to original homeowners. Should funding remain available at build-out, the TMO may expand eligibility to subsequent homeowners.

12. Mobility Hubs

Description: Mobility hubs are one-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. Mobility hubs are designed to facilitate multi-modal travel and encourage mode shifts by co-locating services and aggregating information.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site four small mobility hubs and two large mobility hubs. The following amenities are typical amenities that may be included at each mobility hub, dependent upon size (see *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers, September 2016, Exhibits 3 and 4*):

Small Mobility Hub:
- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage

    - Co-location of carshare and bikeshare

Large Mobility Hub:
    - Information kiosks
    - Transit arrival information
    - Bike lockers and bike parking
    - Enhanced pedestrian amenities
    - Branding/signage
    - Co-location of carshare and bikeshare
    - Designated park-and-ride spaces

13. **Tech-Enabled Mobility**

Description: Advances in technology have led to innovative new TDM opportunities. Recent technological applications include improved ride matching apps, real-time ride sharing, and innovative platforms that allow for trip planning, trip tracking, the administration of rewards programs, and real-time bus information.

Application: The TMO, or its equivalent management entity, shall establish as part of the planned development located on the Project Site a one-stop website for transportation information, as well as complementary apps for mobile devices and computers.

14. **Bike/Scootershare Program**

Description: Similar to carshare members, bikeshare members also have lower auto ownership rates and drive less than non-bikeshare member counterparts. Studies have found that on average 7% of bikeshare members replaced their personal vehicle with the bikeshare[7]. Both bikeshare and scootershare programs have been shown to reduce vehicle trips and associated greenhouse gas emissions.

Application: The TMO, or its equivalent management entity, shall establish a station-based or dockless bike/scootershare system on the Project Site with up to 24 stations or designated micromobility parking areas, in the case of a dockless system. The system may offer a variety of micromobility devices, however, at least fifty percent of the fleet will be comprised of electric devices. In order to increase

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[7] Johnston, K. (2014, April 7). Beyond Urban Planning: The Economics of Capital Bikeshare. *Georgetown Public Policy Review*. Retrieved from http://gppreview.com/2014/04/07/beyond-urban-planning-the-economics-of-capital-bikeshare/

ridership, program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership cost for up to 1.5 percent of Project residents who live in market rate housing; and 100 percent of the annual household membership cost for below market rate households.

15. **Transit Fare Subsidies for Residents**

    Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

    Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund, and shall provide alternative transportation subsidies to residents located within the Project Site (up to 3250 passes based on anticipated participation rates)**.** Market-rate properties must be part of the HOA or pay TMO dues for their residents to qualify.

Table 1: TDM Plan Performance Metrics and Targets, sets forth the applicable performance metrics and targets for each strategy identified for implementation herein. Notably, however, and as described in Chapter 4.0 below, implementation of this “umbrella plan” will be subject to applicability evaluations and customization efforts in conjunction with the processing of County-level entitlements for planned development located on the Project Site. The overall implementation of this TDM Plan on the Project Site is anticipated to produce the desired effect and facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

2.2 TDM Resources

The following regional and local resources presently are available to facilitate implementation of the TDM Plan.

2.2.1 Go511

Go511 is Southern California’s traffic information portal. It links commuters and employers to resources and information about car- and vanpooling, trip planning, commute costs, current traffic, and other helpful commute information. It offers regional employer programs, including a free Guaranteed Ride Home program, which provides commuters

who take transit, car- or vanpool, or bike or walk to work with a free ride home in case of an emergency.

The affiliated ride share service, RideMatch, a joint partnership between Los Angeles County, Orange County, and Ventura County, provides commuters with a platform to find a car- or vanpool match, as well as other local resources and incentives for use. Additional employer and commuter programs are available from the Los Angeles County Metropolitan Transportation Authority, which also offers assistance with and incentives for setting up vanpools.

Associated web sites:

http://www.go511.com/
https://www.ridematch.info/
http://www.metro.net/riding/rideshare/

2.2.2 Vanpool Providers

Commuter vanpooling is a transportation mode that encourages employees who live near each other to commute to work via a van leased to the group by a private company. Three vanpool providers operating in Southern California are Commute with Enterprise, Green Commuter, and AVR Vanpool. The Los Angeles County Metropolitan Transportation Authority (Metro) has a vanpool program that offers assistance with vanpool formation and provides a subsidy of up to $500 subsidy per vanpool. An additional subsidy may be available through Rideshare L.A. County as a pilot program.

Associated web sites:

https://www.metro.net/riding/vanpool/
https://rideshare.lacounty.gov/vanpool-new/
https://www.commutewithenterprise.com/en.html
https://www.airportvanrental.com/vanpool
https://greencommuter.org/vanpooling

2.2.3 Ridesourcing Options

In addition to traditional taxicab service, both Uber and Lyft operate in a service area that includes the City of Santa Clarita and the County of Los Angeles, including the Project Site.

Both companies allow users to request rides real-time via a mobile app with payment processed through the app and offer carpooling options on the fly (Lyft Shared and UberX Share). Rides are generally less expensive than a taxi ride, based on supply and demand of drivers and passengers.

3.0 TDM Implementation Plan

Following the California Department of Fish & Wildlife's (CDFW) approval of the Newhall Ranch RMDP/SCP, implementation of this TDM Plan is overseen by the County of Los Angeles as individual village-level projects are processed and approved by the County. Because the VMT-reducing strategies that comprise the TDM Plan are expected to have varying levels of applicability and degrees of effectiveness for individual village-level projects, the TDM Plan (including performance metrics) may be refined, as necessary, as part of the County's approval process, to reflect the relevant characteristics (e.g., land use mix) of each respective village.

Notwithstanding, the performance metrics identified in this TDM Plan shall be met in full, upon buildout of all development facilitated by the RMDP/SCP. In the event the maximum development potential authorized by CDFW's approvals is not achieved as part of the County's approval processes for the individual village-level projects, the VMT-reducing strategies and performance metrics may be adjusted to reflect the modified buildout projections while maintaining consistency with the core objectives of this TDM Plan (i.e., to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies and, thereby, reduce total VMT and the corresponding GHG emissions).

3.1 Funding Options

The TMO and the long-term implementation of the TDM Plan, including transit, carshare and bikeshare programs subsidies, will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay. The payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties. The applicant or designee will provide funding for infrastructure components, such as mobility hubs, traffic calming, the pedestrian network, bikeshare facilities, and NEV/E-Bike subsidies. As needed, the applicant, or its designee, also may subsidize TMO operation during the first years until revenues from assessments are sufficient to fund the annual TMO operating expenses.

3.2 Organizational Structure

As previously discussed, a non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to deliver the programs and services identified in this TDM Plan, as applicable.

3.3 TMO Creation Action Plan

It is estimated that the start-up activities to prepare for implementation of the TDM programs and strategies identified in this plan will begin approximately three months prior to issuance of the first building permit. The timing ensures that an organizational structure that facilitates the receipt of funds and the provision of applicable TMO services will be in place as soon as the first property owners and tenants move in. The TMO will be a non-profit organization. The governing body's membership gradually will expand to include a growing number of property owners as they begin occupancy at the Project Site. TMO creation steps are as follows:

- **Create a TMO and form a governing body:** If the TMO is a division of an existing entity, such as a master owners' association, this step simply involves formalizing and expanding a steering committee. If the TMO is envisioned as an independent non-profit organization, the steps for incorporating the entity are listed below.

- **Incorporation of the TMO (optional):** The process for incorporating a TMO is outlined below.
    - Draft and file the articles of incorporation
    - Recruit and appoint a Board of Directors
    - Draft by-laws and conflict of interest policy
    - Conduct initial board actions (election of board officers, approval of the by-laws and conflict of interest policy, and establishment of a bank account).
    - Obtain an employer identification number
    - File the initial registration form (Form CT-1) with the California Attorney General's Registry of Charitable Trusts
    - File the Statement of Information (Form SI-100) with the Secretary of State
    - Apply for federal tax exemption with the Internal Revenue Service (IRS) and receive a determination letter from the IRS
    - Apply for California tax exemption with the California Franchise Tax Board (FTB) and receive an affirmation of exemption letter from the FTB

3.4 Key Implementation Actions

Implementation of the TDM Plan shall be phased in, based on the mix of uses developed, occupancy rates, need, and demand. Additionally, in coordination with the County of Los Angeles, the applicant (or its designee) shall review the planned development located within the Project Site concurrent with the processing of County-level entitlements for each village. Each village's land use map, composition of land use categories, and geographic placement within the Project Site shall guide the determination of the precise implementation of the strategies identified herein. It is not anticipated that every village necessarily will implement each strategy enumerated in this TDM Plan (e.g., each village may not include its own mobility hub). Village-specific performance metrics and targets will be prepared in conjunction with the County's approval process for use in lieu of the overarching metrics and targets presented in Table 1. That said, the overall implementation of this TDM Plan on the Project Site is anticipated to facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

3.4.1 Start Up Activities

The start-up activities summarized below will be undertaken to prepare for TDM service delivery. The applicant, or its designee, will:

- Hire staff and establish the TMO, including creation of a financial structure and accounting procedures

The applicant, or its designee, and TMO staff will proceed to:

- Create the TMO budget and ensure TDM program funding by finalizing assessment rates;
- Identify stakeholders and establishing the relationships necessary to successfully implement the TDM strategies;
- Finalize a business plan and create a detailed work plan;
- Create TMO branding and identity;
- Develop a marketing plan;
- Create a steering committee; and
- Establish monitoring and evaluation procedures.

3.4.2 Year One Activities – Based on development triggers

The activities described in this section prepare the TMO for effectively implementing its service when certain milestones are reached. These include employers and residents moving in, schools opening, and bikeshare and carshare systems launching. These activities do not necessarily happen during the first year of operation; instead, they are triggered by differing development milestones dependent upon the particular strategy and, generally, correspond to the first year of residential occupancy or the first year of school operation within the district unless otherwise noted. The timeline in section 3.5 below lists the triggers along with the corresponding strategies and actions. In Year One, the TMO will:

- Initiate the preparation of marketing materials, which may include new resident and new employee welcome kits, as well as general marketing materials;
- Establish an incentive structure for behavior-supportive subsidies, including prizes for drawings or giveaways to be used to incentivize and reward change from single occupant vehicle travel;
- Begin working with employers prior to their move to the Project Site;
- Conduct outreach to developers and property managers to ensure that preferential carpool parking, loading and passenger waiting zones and other end-of-trip facilities are implemented;
- Develop an effective system to administer payment of transit, bikeshare, and carshare program subsidies to employees, students and residents, as applicable;
- Develop a SRTS travel planning strategy that will promote transit service and encourage walking, biking and carpooling to school;
- Assess and employ tech-enabled mobility to provide functionalities such as trip planning, ridematching, ridehailing, trip tracking, rewards programs, and others;
- Begin implementation of monitoring and evaluation activities;
- Launch bikeshare program;
- Launch carshare program.

3.4.3 Ongoing Activities – Years 2 – 5

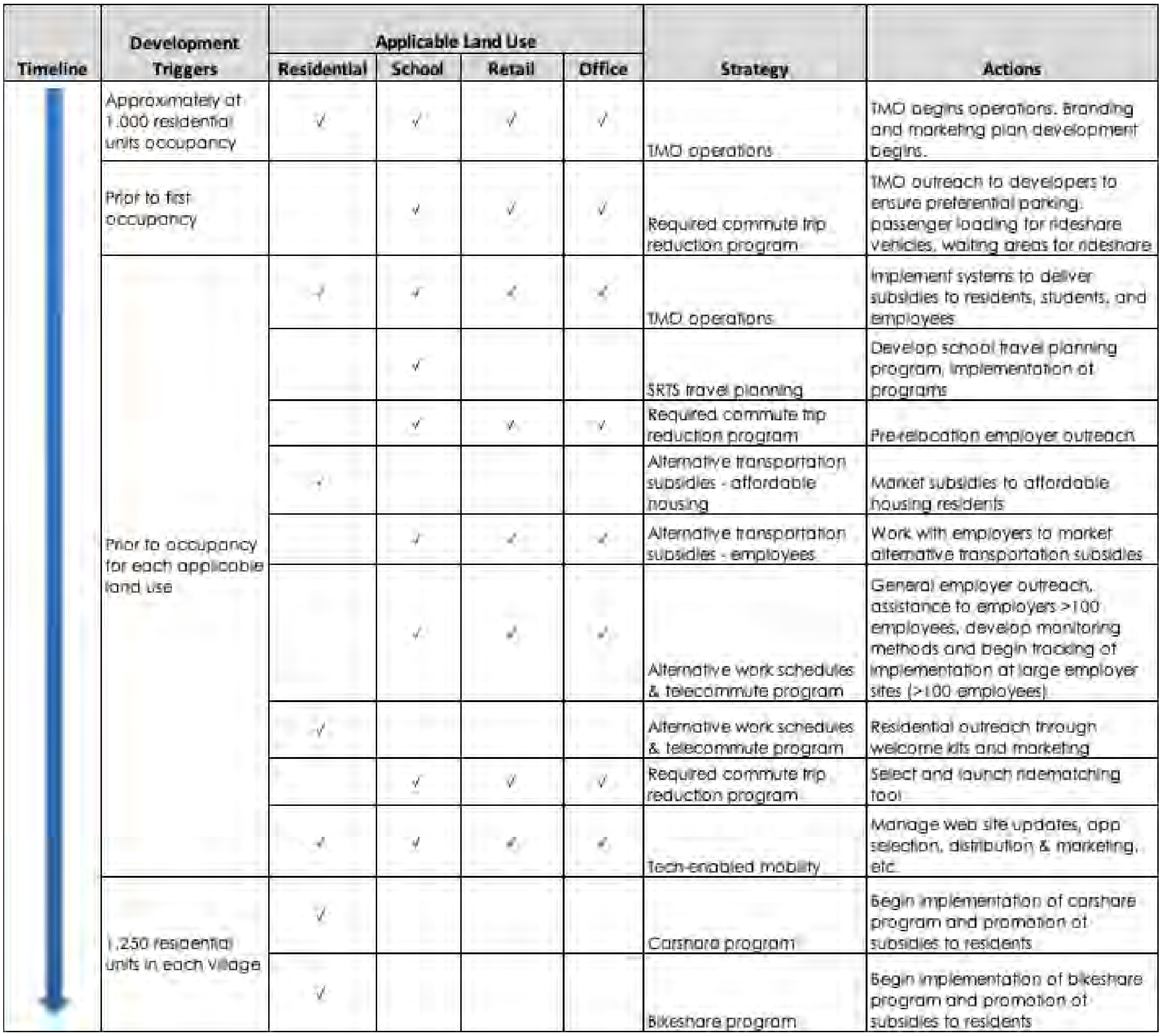
While specific implementation details will evolve over time and may be adjusted based on new strategies, technologies, or approaches that become available, these general categories will remain key components of program implementation during the first five years and beyond. During these years, TMO staff will:

- Administer transit/alternative transportation subsidies and introduce bikeshare and carshare subsidies as the programs are launched;
- Implement a residential engagement strategy to educate residents about alternative transportation options, available subsidies, and related programs;
- Implement an employer engagement strategy to educate both employers and their employees about the commute options, subsidies, and programs available to them;
- Administer school travel planning programs, such as school pools, walking, school bus, bike trains, incentives, and other programs available at that time; and
- Continue to monitor and evaluate TDM activities.

3.5 Timeline and Phasing

This timeline of TMO activities was developed to provide an estimate of when, during the development phasing process, certain actions need to begin in order to ensure service delivery as building occupancy occurs. The timeline may be adjusted based on changes to the TDM strategies. The TMO will begin operations approximately after the 1,000th residential unit has been occupied. Once the TMO is operational, the implementation will follow the triggers outlined in Table 1 below.

Table 1: Development Triggers



Timeline	Development Triggers	Applicable Land Use				Strategy	Actions
		Residential	School	Retail	Office		
	Approximately at 1,000 residential units occupancy	✓	✓	✓	✓	TMO operations	TMO begins operations. Branding and marketing plan development begins.
	Prior to first occupancy		✓	✓	✓	Required commute trip reduction program	TMO outreach to developers to ensure preferential parking, passenger loading for rideshare vehicles, waiting areas for rideshare
	Prior to occupancy for each applicable land use	✓	✓	✓	✓	TMO operations	Implement systems to deliver subsidies to residents, students, and employees
			✓			SRTS travel planning	Develop school travel planning program, implementation of programs
			✓	✓	✓	Required commute trip reduction program	Pre-relocation employer outreach
		✓				Alternative transportation subsidies - affordable housing	Market subsidies to affordable housing residents
			✓	✓	✓	Alternative transportation subsidies - employees	Work with employers to market alternative transportation subsidies
			✓	✓	✓	Alternative work schedules & telecommute program	General employer outreach, assistance to employers >100 employees, develop monitoring methods and begin tracking of implementation at large employer sites (>100 employees)
		✓				Alternative work schedules & telecommute program	Residential outreach through welcome kits and marketing
			✓	✓	✓	Required commute trip reduction program	Select and launch ridematching tool
		✓	✓	✓	✓	Tech-enabled mobility	Manage web site updates, app selection, distribution & marketing, etc.
	1,250 residential units in each Village	✓				Carshare program	Begin implementation of carshare program and promotion of subsidies to residents
		✓				Bikeshare program	Begin implementation of bikeshare program and promotion of subsidies to residents

Activities that do not fall under the purview of the TMO, such as the review and approval of construction traffic management plans, inclusion of affordable housing, the development of a pedestrian network, traffic calming, and the transit network expansion, shall be incorporated into the County of Los Angeles' development review and approval activities and, in the case of transit expansion, coordinated and negotiated with City of Santa Clarita Transit.

4.0 Program Monitoring

The applicant (or its designee) and/or the TMO or equivalent management entity will track the progress towards meeting the performance metrics and targets identified in Table 2, RMDP/SCP TDM Plan Performance Metrics and Targets. Such monitoring includes verification of the installation of infrastructure components, payment of subsidies, and implementation of the various programs and services identified in this TDM plan. Progress will be monitored as identified in Table 2 to ensure that program goals are met and to inform the implementation of TDM strategies going forward.

Progress towards meeting the identified targets will be tracked via the following data collection mechanisms:

- Field verification: Field verification primarily will be used to verify installation of infrastructure components such as the Pedestrian Network, Traffic Calming, NEV travel network, Mobility Hubs, and Bikeshare Network. The field verification will be performed by the TMO or equivalent entity.

- Resident Surveys: The TMO or equivalent entity will track program participation and conduct resident surveys as needed to track the following metrics:
    - Percentage of workforce residents participating in an alternative work schedule;
    - Percentage of students arriving at school via public transit or non-motorized modes;
    - Percentage of households with a carshare membership;
    - Percentage of households with an NEV or E-Bike; and
    - Percentage of below-market households with a subsidized transit pass.

- TMO Reports: The TMO or equivalent entity will prepare an annual report detailing its activities and accomplishments, including the establishment of, and ongoing activities related to:

  - Required Commute Trip Reduction Program; and
  - Tech-enabled Mobility Program.

- Employer Reports/Surveys: Employers will submit an annual report to the TMO, or participate in an annual survey conducted by the TMO, as appropriate, to ensure the following metrics are tracked:
  - Percentage of employees participating in an alternative work schedule;
  - Percentage of employees receiving a discounted transit pass or other alternative transportation subsidy.

Additional methods listed in Table 2 include the review of partnership documents and reports from partnering agencies, and final as-built documents.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
1	Integrate Affordable and Below Market Rate Housing	Because income has a statistically significant effect on the probability that a commuter will take transit or walk to work, affordable and below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit.	Percentage of deed-restricted, below market housing units	10% of total housing units upon full build-out of the development facilitated by the RMDP/SCP	Review of deed-restricted, below market housing units within the development divided by total number of housing units	Once after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
2	Pedestrian Network	Pedestrian facilities, such as sidewalks, paseos, and trails.	Pedestrian network build-out that provides internal pedestrian facilities and facilities that connect off-site	Full build-out of planned pedestrian network that provides internal and external pedestrian connections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections. These measures include but are not limited to: count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.	Percentage of streets and intersections with a traffic calming improvement	100% of streets and intersections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
4	Transit Network Expansion	Extension of Santa Clarita Transit routes into Valencia.	Extension of transit system coverage throughout RMDP/SCP project area to each village, consistent with the Conceptual Transit Plan (or equivalent)	Extension results in 80% increase in Santa Clarita Transit system network coverage within the RMDP/SCP project area, as compared to the existing coverage provided within the project area	Transit Operator Reports	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
5	Alternative Work Schedules and Telecommute Program (Residential End)	High-speed internet available to residents and marketing efforts by the Transportation Management Organization (or equivalent entity).[8]	Percent of workforce residents participating in an alternative work schedule	10% of workforce residents participating in an alternative work schedule	Resident Surveys/Big Data[9]	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
		Internet speeds	Pre-wired residential access to high-speed internet	Internet Service Provider Reports	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village	
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures, such as ride-sharing, marketing, transit fare subsidy, preferential parking, and/or end-of-trip facilities at larger employers. (This is neither intended to be an inclusive or exclusive list of potential measures.)	Program established with a threshold for participation set such that at least 50% of employees at Valencia are captured in the program	Establishment of a multi-strategy program that includes components such as preferential carpool parking, flexible work schedules for carpools, transit fare subsidies, ridematching, designation of a transportation coordinator, vanpool assistance, and bicycle end-trip facilities	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	Percent of employees participating in an alternative work schedule	10% of employees participating in an alternative work schedule	Employer Report or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
8	School Bus Program	Fully subsidized school bus transit pass to all junior high and high school students	School bus transit passes distributed to Junior High and High School Students	Established as part of the development of each respective village	TMO report	Annually after full build-out of each village	Concurrent with the full build-out of each

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[8] When referred to in this table, TMO includes a Transportation Management Organization or an equivalent entity.

[9] Advances in Big Data have increased the data's suitability for measuring mode share. Replica is one example of a tool that uses big data and provides mode share and telework data.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
		TMO staffs a Safe Routes to School Coordinator position for each Valencia Elementary School to coordinate SRTS programming. Each School District staffs a SRTS Coordinator position (0.25 FTE per district) to coordinate programming on-site, work with the TMO and work with school staff to implement Safe Routes to School.	Percentage of Junior High and High School students arriving at school via bus or non-motorized modes	76% of students	Resident Surveys		respective village
			Staff person hired at TMO	1 FTE	TMO report		
			Staff person hired at each School District	0.25 FTE per district	School Districts report		
			Percentage of Elementary School students walking or biking to school	28% of students	Resident Surveys		
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes or other alternative transportation subsidy for employees whose employer does not participate in the CTR Program.	Fund a transit or alternative transportation subsidy program for 10% of all employees employed at Valencia whose employer does not participate in the CTR Program, at $5.96 subsidy per person per day.	10% of non-CTR Program employees	Employer Reports or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or other.	Provide infrastructure for carshare parking spaces at mobility hubs	Full build-out of supportive carshare network	Final as-built documents	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Carshare provider contracted to serve Valencia	Partnership with carshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Membership in carshare program	1% of residents participate in carshare program	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
11	NEV & E-Bike Strategies	Travel network that accommodates NEV & E-Bike use, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies is included in this strategy: NEV subsidies are available to original owners of detached single-family homes and E-Bike subsidies are available to all original homeowners.	NEV travel network build-out	Full build-out of planned NEV travel network	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
			Percent of households with an NEV	20% of single-family households (1,749 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Percent of households with an E-Bike	55% of all households (11,683 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally located within neighborhood and employment centers, consistent with the Conceptual Transit Plan (or equivalent).	Number of small mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare)	4 small mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Number of large mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare, designated park-and-ride spaces)	2 large mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
13	Tech-Enabled Mobility	One-stop website for Valencia transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information, etc. All-in-one Valencia specific transportation app or suite of apps. Similar information and services as on website.	Mobile Application implemented by TMO that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented application	TMO Report	Annual updates and upgrades to application	Full development build-out of each village
			Website implemented by TMO for transportation information that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented website	TMO Report	Annual updates and upgrades to website	Full development build-out of each village
14	Bike/Scootershare	On-site availability of bikeshare bicycles, including standard and E-Bikes or e-scooters in the fleet, throughout the project site with subsidized membership.	Provide infrastructure for up to 15 bikeshare stations/parking areas at mobility hubs and other locations, including 50% E-Bike/E-Scooter composition	Full build-out of planned bike/scootershare network	Field Verification	Once after full build-out of all development facilitated by the RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Third party provider contracted to serve Valencia	Partnership with third party provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
15	Transit Fare Subsidy for Residents	Discounted daily or monthly public transit passes or other alternative transportation subsidy for residents (excluding residents of market-rate properties that do not pay HOA or TMO dues).	Fund subsidized transit pass at $5.96 per day for residents in all households	3,250 subsidies	TMO Report	Annually after full build-out of housing facilitated by RMDP/SCP	Full build-out of housing facilitated by RMDP/SCP

FEHR & PEERS

MEMORANDUM

Date: December 16, 2022

To: Alex Herrell, The Newhall Land and Farming Company

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: Quantification of Implementing TDM Strategies

Ref: LA16-2810/LA22-3381

The purpose of this memorandum is to document the VMT reductions associated with expanded transportation demand management (TDM) strategies to implement the School Bus Strategy in the Newhall Ranch TDM Plan in the Final Additional Environmental Analysis by the California Department of Fish & Wildlife (TDM Plan).[1] As background, the TDM Plan includes fifteen strategies designed to maximize VMT reduction opportunities within the facilitated development areas of the RMDP/SCP Project, taking into account the Project location and the types of land uses that would be facilitated by the Project. The estimated total VMT reduction for these 15 strategies was previously determined to be 14.9%. The TDM Plan allows for alternative strategies to be implemented over time that provide an equivalent level of VMT reduction. This memo describes five TDM strategies that are expected to achieve an equivalent level of VMT reduction once implemented and incorporated into the TDM Plan.[2]

In some cases, quantification of these strategies is based on research contained in the California Air Pollution Control Officers Association's 2010 report entitled *Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA). For some strategies, the creation of a quantification methodology was required, based on a review of available research and documentation.

This implementation memorandum describes the five adjusted and expanded strategies that are incorporated into the TDM Plan and achieve an equivalent level of VMT reduction, as shown below:

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[1] Fehr & Peers (2016). RMDP/SCP Transportation Demand Management Plan Evaluation, dated September 7, 2016, published as Appendix 8 of the Final Additional Environmental Analysis, California Department of Fish & Wildlife, SCH No. 2000011025, June 12, 2017.

[2] Valencia Transportation Demand Management Plan, October 2022. Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

- Strategy 8: School Bus Program
- Strategy 9: Transit Subsidies for Newhall Ranch Employees
- Strategy 11: NEV & E-bike Strategy
- Strategy 14: Bikeshare & Scootershare
- Strategy 15: Transit Subsidies for Newhall Ranch Residents

STRATEGY 8 – SCHOOL BUS PROGRAM

The School Bus Strategy, Strategy 8, will be adjusted in conjunction with additional strategies during implementation as described below to provide an equivalent level of reduction in VMT.

As originally described and quantified in the TDM Plan, Strategy 8 assumes 76% of families in the area covered by the TDM Plan participate in the school bus program across elementary, junior, and senior high schools, which would be free for students to use. During implementation, by partnering with Santa Clarita Transit (SCT), the organization established to implement the TDM Plan will fully subsidize high school and junior high school student school bus fares to implement Strategy 8. SCT currently provides busing services for high school and junior high school students via their public bus service, with fares at $1 per ride, in conjunction with other measures described below.

For the high school and junior high school level, uptake between a school-district operated system and the existing SCT service is expected to be equivalent because Newhall will offer full fare school bus subsidies to all students and coordinate closely with SCT to ensure the routes, stops, and service hours are in line with student needs, including before school and after-school hours. Given potential parent concerns about elementary school students traveling on a public bus system, the SCT system currently does not provide service to elementary school students that would result in equivalent uptake as a district-provided school bus system.

The total number of students anticipated within the area covered by the TDM Plan is 8,778.[3] Of this total, 4,320 would be elementary students, or 49%. Therefore, Newhall could expect to see 51% of the previously-estimated overall VMT reduction for the School Bus Strategy (3.4%) as a result of implementing the SCT program (100% of students less 49% elementary students). This would result in an estimated VMT reduction of 1.7% (51% * 3.4%).

In order to achieve an additional 1.7% VMT reduction for an equivalent level of TDM reduction, a portion will be realized through a strong Safe Routes to School (SRTS) program implemented at the elementary schools. Approximately 22% of elementary school students are expected to live

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[3] Data provided by FivePoint on 5/16/19.

within a quarter mile of their school, and would comprise the maximum reasonable “baseline” for students walking and biking to school. Research on the effectiveness of SRTS programs shows that an increase of 25% of students walking or biking could be anticipated as a result of SRTS programming (separate from the effects of physical infrastructure changes) (McDonald, et al, 2014).

As previously described in the TDM Plan evaluation memo, the reduction in school VMT is calculated by multiplying the participation rate – in this case, the 25% marginal increase in walking and biking participation rate attributable to the implementation of the SRTS program – by the number of school weeks divided by the number of total weeks in the year.

> % Reduction in Elementary School VMT = 25% marginal participation rate of families * 22% baseline * (39 school weeks / 52 weeks)

This percent reduction is then applied to the VMT that would be generated by the Project’s elementary school-based trips, or 49% of the 5.9% of total annual school VMT, to calculate the reduction to overall project VMT. In total, this results in an additional overall project VMT reduction of 0.1% (25% * 22% * 39/52 * 49% * 5.9%).

Therefore, the combined school bus SCT and SRTS strategies would result in a 1.8% overall VMT reduction. The remaining 1.6% VMT reduction is discussed below.

STRATEGY 9 – TRANSIT SUBSIDIES FOR NEWHALL RANCH EMPLOYEES

The Employee Transit Subsidy, Strategy 9, will be expanded during implementation, as follows. By increasing the amount of subsidy from $2.98 per day to $5.96 per day, while maintaining the assumptions about levels of employee eligibility at 50%, Strategy 9 will achieve an additional 0.3% reduction in VMT, reaching a total of 1.4% for Strategy 9. As described in the evaluation of the TDM Plan, $2.98 equates to between 25%-100% of a round-trip fare on Santa Clarita Transit, depending on the service class selected. Currently, a one-way fare for a local route is $1.00, while a one-way fare for the most expensive commuter route (to Century City and Los Angeles) is $4.00. A $5.96 subsidy per day would cover substantially more of the cost of a round-trip fare on the commuter routes, but not 100%. Employee eligibility cannot be adjusted for this strategy, since 50% of employees are already assumed to have transit pass subsidies provided through Strategy 6.

STRATEGY 11 – NEV & E-BIKE STRATEGY

The E-bike Strategy will be expanded during implementation. In the original TDM Plan, this strategy is considered as a component of the NEV strategy, Strategy 11, with a bifurcated approach to implementation that provides NEV subsidies to single-family households and e-bike subsidies to

multi-family households. During implementation, e-bike subsidies will be provided to all households, at the same value as assumed in the TDM Plan, to achieve an additional 0.4% reduction in VMT, reaching a total of 2.9% for Strategy 11.

STRATEGY 14 – BIKESHARE & SCOOTERSHARE

The Bikeshare Strategy, Strategy 14, will be expanded during implementation. In the original TDM Plan, the effectiveness of the Bikeshare Strategy is based on empirical bikeshare usage data from Los Angeles. Implementation of the strategy assumes a non-electric fleet. Recent research into the implementation of electric bikeshare compared to standard bikeshare indicates a higher level of usage for electric bikeshare, higher rates of mode shift from automobile modes, and lower sensitivity to environmental factors such as weather and air quality (Campbell et al, 2016). In addition, dockless e-bike-based fleets were used between two and three times as frequently as standard pedal bike-based fleets in 2018 (NACTO, 2019). Preliminary research from the Capital Bikeshare system pilot in Washington, D.C., shows that e-bike trips are approximately 20% longer than standard bike trips taken on the same bikeshare system (Sussman, 2018). In recent years, electric dockless scootershare programs have also become a popular iteration of this type of mobility system, with a limited base of literature demonstrating VMT reduction potential (Volker, 2020).

However, not all trips taken on bikeshare or scootershare – whether on e-bikes, e-scooters, or standard bikes – are replacements for vehicle trips; some are entirely new trips. Given this consideration, it is reasonable and conservative to increase the effectiveness of the bikeshare system in reducing VMT by 50% over its previously-estimated levels of effectiveness, if the fleet were comprised of e-bikes in addition to standard bicycles. Making this adjustment to the implementation guidelines in the TDM Plan achieves an additional 0.15% VMT reduction, for a total of 0.5% for Strategy 14.

STRATEGY 15 – TRANSIT SUBSIDIES FOR NEWHALL RANCH RESIDENTS

The Resident Transit Subsidy, Strategy 15, will be expanded during implementation. For Strategy 15, increasing the level of subsidy offered to people who live in below market rate households from $2.98 to $5.96 per day, and adding a transit subsidy benefit for people who live in market rate households at a level of $5.96 per day, will achieve an additional 0.8% reduction in VMT, for a total of 0.9% for Strategy 15.

CONCLUSION

Together, the above implementation adjustments to the TDM Plan achieve an equivalent level of VMT reduction as previously estimated for the TDM Plan. This includes the dampening effects of combining the individual VMT reduction amounts associated with each strategy, as described in the memorandum evaluating the TDM Plan. A total estimated 14.9% VMT reduction will result from the TDM Plan with the above adjustments and additions.

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	6% of units are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting to jobs outside Newhall Ranch	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating); includes TRT-3, TRT-5, TRT-7, TRT-8	TRT-2	4.2%-21% (commute trips only)	10.5%	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips	1.5%	0.2%
8	School Bus Program	Implement modified school bus program: 51% of students (junior and senior high school level) taking SCT service with fully-subsidized pass.	76% of families with students in junior or senior high school use SCT Program	TRT-13 (mod)	38%-63% (school trips only)	57.0%	1.7%
		Implement modified school bus program: 49% of students (elementary level) participating in a Safe Routes to School program to encourage greater walking/biking.	30.5% of families with students in elementary school walk/bike to school	N/A	25% (school trips only)[5]	4.1%	0.1%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $5.96/day subsidy	TRT-4	0.3%-20% (commute trips	10.0%	1.4%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	1 NEV per 5 single-family residences; plus 1 e-bike per residence.	SDT-3 (NEVs only)	0.5%-12.7%	2.9%	2.9%
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within each neighborhood and employment center.	Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations	N/A	0%-0.5%[6]	0.3%	0.3%

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[6]	1.5%	1.5%
14	Bikeshare & Scootershare	On-site availability of bikeshare bicycles throughout the project site, with a mixed fleet of standard and electric bicycles as well as e-scooters.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[6]	0.5%	0.5%
15	Transit Fare Subsidy for Residents	Discounted public transit passes to all households.	Increases transit mode share for external home-work productions.	N/A	N/A	10.0%	0.9%
Overall Global VMT Reduction							**14.9%[7]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Below Market Rate Housing Affordable to an Average Income of 75% Below Area Median Income	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	6% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	11% of VMT (home-based work productions)	78% of work trips external to Newhall Ranch	-	-	0.2%
6	Required Commute Trip Reduction Program (includes creation of TMO)	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	14% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	51% of students (junior and senior high school level)	-	1.7%
		N/A	25% (school trips only)[5]	22% (students within walking distance)	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	49% of students (elementary school level)	-	0.1%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	20% reduction in commute VMT (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.4%
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	90% Market rate households; 10% Below Market Rate Households	-	0.4%

Table 2

Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
11	NEV Strategy for Single-Family Residences	SDT-3	0.5%-12.7%	1 / 5 Single-Family HH with an NEV	12.7% VMT reduction (CAPCOA)	-	-	-	2.9%[6]
	E-Bike Strategy for All Residences	N/A	6%-15%[7]			(Calculation N/A)			
12	Mobility Hubs	N/A	0%-0.5%[7]			(Calculation N/A)			0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[7]			(Calculation N/A)			1.5%
14	Bikeshare & Scootershare	TRT-12	0.2%-0.5%[7]			(Calculation N/A)			0.5%
15	Transit Fare Subsidy for Residents	N/A	N/A	50% Participation	20% reduction in commute VMT (CAPCOA)	11% of VMT (home-based productions)	78% of work trips external to Newhall Ranch	-	0.9%
Overall Global VMT Reduction									**14.9%[8]**

Notes

1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for all residences.
7. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
8. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Appendix G NEWHALL RANCH VILLAGES MIXED-USE TRIP GENERATION ESTIMATE (FEHR & PEERS, 2010)

DRAFT

FEHR & PEERS
TRANSPORTATION CONSULTANTS

TECHNICAL MEMORANDUM

Date: March 9, 2010

To: Corey Harpole – Newhall Land

From: Ronald T. Milam, Steve Crosley, and Michael Kennedy - Fehr & Peers

Subject: Newhall Ranch Villages Mixed-Use Trip Generation Estimate

SM09-2373.02

Fehr & Peers has completed the mixed-use development (MXD) trip generation estimate for six of seven Newhall Ranch villages, including Mission, Entrada South, Entrada North, Landmark, Legacy, and Potrero Villages (Homestead, the seventh Newhall Ranch village, lacks the characteristic mix of residential and retail uses comprising a mixed-use development; therefore the MXD trip generation estimate was not applied to this village). These estimates are based on a quantitative model that attempts to capture the vehicle traffic reduction effects of mixed-use developments and improve on current trip generation methods that rely on conventional travel demand models or rates and adjustments from the Institute of Transportation Engineers (ITE). The results of the MXD trip generation estimates were compared to the SCVCTM model estimates to verify the model's internalization or recommend increased sensitivity based on built environment variables typically not captured in a regional model. For Mission, Entrada South, Entrada North, Landmark, and Legacy Villages the MXD estimate found that the SCVCTM model was understating internalization, while performing reasonably for Potrero Village. When internalization in mixed-use developments is understated, the result can be excessive traffic impacts and related mitigation that can discourage development of otherwise desirable projects.

METHODOLOGY

The model developed used data from 239 MXDs in six metropolitan regions (Boston, Atlanta, Houston, San Diego, Seattle, and Sacramento). Hierarchical Linear Modeling (HLM) techniques were used to quantify relationships between characteristics of the MXDs and the likelihood that trips generated by those MXDs will stay internal and/or use modes of transportation other than the private vehicle.
Variables that proved successful in the latest version of the model are listed below.

- Employment
- (Population + Employment) per square mile
- Land Area
- Total Jobs / Population Diversity
- Retail Jobs / Population Diversity
- Number of intersections per square mile
- Employment within a mile
- Employment within a 30 minute trip by transit
- Average Household Size
- Vehicles Owned Per Capita

Many of these variables are examples of the "Ds", which are built environment variables that are known to influence travel behavior - density, diversity, development scale, design, and distance to transit.

VALIDATION

A set of 16 independent mixed use sites that were not included in the initial model were tested to help validate the model. Among the validation sites, use of the MXD model produced superior statistical performance when comparing the model results to observed data. Specifically, the MXD model had a significantly lower root mean squared error (RMSE) and higher pseudo-R squared than traditional methods when comparing estimated to observed external vehicle trips. Estimates from the ITE Trip Generation Manual had an RMSE of 40% and pseudo-R squared of 0.58 (i.e., the ITE method only explains about 58 percent of the variability in external vehicle trips), modified estimates using ITE's traditional trip internalization techniques had an RMSE of 32% and pseudo-R squared of 0.73, whereas modified estimates using the MXD model had an RMSE of only 26% and pseudo-R squared of 0.82.

The MXD model has been developed in cooperation with the US Environmental Protection Agency (EPA) and ITE. ITE is currently reviewing the model for potential inclusion in their updated recommended practice for evaluating MXD projects.

MODEL INPUTS

Tables 1 through 6 detail the input values (and data source) for each MXD trip generation estimate for the six Newhall Ranch villages analyzed (Homestead village was excluded from this analysis).

TABLE 1

MXD MODEL INPUTS FOR MISSION VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	1,262	Mission Village Site Plan/Project Description
Number of Project Intersections	291	Mission Village Site Plan/Project Description
Transit Available within Site	Yes	Mission Village Site Plan/Project Description
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	19,743	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	33,636	
Trip Purpose Splits	Varies	
Residential Dwelling Units	4,412 (including 351 assisted living beds)	*Mission Village Newhall Ranch, Traffic Data*, Austin-Foust Associates, Inc., December 2009
Commercial Shops (1,000 sq. ft.)	224	
Business Park (1,000 sq. ft.)	697	
Commercial Office (1,000 sq. ft.)	634	
Elementary/Middle School (Students)	900	
Other Trip Generating Land Uses - Library and Park (Daily Trips)	1,808	

TABLE 2

MXD MODEL INPUTS FOR ENTRADA SOUTH VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	381	Entrada Village Site Plan/Project Description
Number of Project Intersections	135	Entrada Village Site Plan/Parcel Data
Transit Available within Site	Yes	Entrada Village Site Plan/Project Description
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	17,704	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	37,309	
Trip Purpose Splits	Varies	
Residential Dwelling Units	1,640	*Entrada, Traffic Data*, Austin-Foust Associates, Inc., January 2010
Commercial Shops (1,000 sq. ft.)	290	
Commercial Office (1,000 sq. ft.)	436	
Elementary/Middle School (Students)	450	
Other Trip Generating Land Uses - Park (Daily Trips)	19	

TABLE 3
MXD MODEL INPUTS FOR ENTRADA NORTH VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	454	Entrada North Village Site Plan
Number of Project Intersections	83	Entrada North Village Site Plan
Transit Available within Site	Yes	Entrada North Village Site Plan
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	18,540	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	35,898	
Trip Purpose Splits	Varies	
Residential Dwelling Units	1,693	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Commercial Shops (1,000 sq. ft.)	1,758	
Hotel (Rooms)	300	
Commercial Office (1,000 sq. ft.)	429	

TABLE 4

MXD MODEL INPUTS FOR LANDMARK VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	292.6	Landmark Village Site Plan/Project Description
Number of Project Intersections	99	Landmark Village Site Plan/Parcel Data
Transit Available within Site	Yes	Landmark Village Site Plan/Project Description
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	9,485	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	32,911	
Trip Purpose Splits	Varies	
Residential Dwelling Units	1,444	*Landmark Village, Final Trip Generation*, Austin-Foust Associates, Inc., November 2009
Commercial Shops (1,000 sq. ft.)	347	
Commercial Office (1,000 sq. ft.)	686	
Elementary/Middle School (Students)	750	
Other Trip Generating Land Uses - Park (Daily Trips)	42	

TABLE 5

MXD MODEL INPUTS FOR LEGACY VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	1,763.5	Legacy Village Site Plan/Project Description
Number of Project Intersections	234	Legacy Village Site Plan/Parcel Data
Transit Available within Site	Yes	Legacy Village Site Plan/Project Description
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	6,349	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	33,437	
Trip Purpose Splits	Varies	
Residential Dwelling Units	3,797 (including 342 assisted living beds)	*Legacy Village, Traffic Data*, Austin-Foust Associates, Inc., December 2009
Commercial Shops (1,000 sq. ft.)	186	
Commercial Office (1,000 sq. ft.)	316	
Other Trip Generating Land Uses - Park (Daily Trips)	83	

TABLE 6
MXD MODEL INPUTS FOR POTRERO VILLAGE

Input Variable	Input Value	Source
Project Area (Acres)	2,755.8	Potrero Village Site Plan/Project Description
Number of Project Intersections	236	Potrero Village Site Plan/Parcel Data
Transit Available within Site	Yes	Potrero Village Site Plan/Project Description
Average Household (HH) Size for Single Family Dwelling Units	2.84	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH owners)
Average HH Size for Multi-Family Dwelling Units	1.76	2000 Census - Tract 9203.29, 9203.30, and 9203.31 average (for HH renters)
Average Vehicles Owned per Dwelling Unit	1.60	2000 Census – Los Angeles County
Employment within 1 Mile of the Project Site	1,470	Santa Clarita Valley Consolidated Traffic Model/Austin-Foust
Employment within a 30 minute trip by transit	30,681	
Trip Purpose Splits	Varies	
Residential Dwelling Units	8,333	*Potrero Valley Land Use and Trip Generation Summary*, Austin-Foust Associates, Inc., February 2010
Commercial Shops (1,000 sq. ft.)	555	
Commercial Office (1,000 sq. ft.)	502	
Elementary/Middle School (Students)	900	
Other Trip Generating Land Uses - Hotel (Daily Trips)	1,646	

The MXD model is designed for sites under 2,000 acres and 7,000 dwelling units. Potrero is larger than the typical development validated to the MXD model. As a result, internalization can be understated.

Based on the inputs in Tables 1 through 6, the MXD model results for the six analyzed Newhall Ranch villages are shown in Table 7.

TABLE 7
NEWHALL RANCH VILLAGES MXD TRIP GENERATION AND INTERNALIZATION ESTIMATE

Village	Time Period	Gross Trips	Net External Trips	Vehicle Trip Internalization
Mission Village	Daily	57,878	38,922	33%
	AM Peak Hour	5,101	3,615	29%
	PM Peak Hour	5,889	4,123	30%
Entrada South Village	Daily	35,969	26,672	25%
	AM Peak Hour	2,362	1,716	27%
	PM Peak Hour	3,531	2,738	22%
Entrada North Village	Daily	94,879	75,190	21%
	AM Peak Hour	3,329	2,959	11%
	PM Peak Hour	8,347	7,049	16%
Landmark Village	Daily	41,258	29,637	28%
	AM Peak Hour	2,835	1,962	31%
	PM Peak Hour	4,074	3,063	25%
Legacy Village	Daily	37,591	28,611	24%
	AM Peak Hour	2,421	1,988	18%
	PM Peak Hour	3,532	2,751	22%
Potrero Village	Daily	104,684	69,790	33%
	AM Peak Hour	7,014	4,527	35%
	PM Peak Hour	9,876	6,692	32%

The estimates in Table 7 were checked for reasonableness against similar California-located validation sites from the MXD model development. These comparisons are shown in Table 8 and reveal that the estimates for all Newhall Ranch villages fall within the range provided by the Moraga (high – 37% internalization) and South Davis (low – 17% internalization) sites. Mission and Potrero Villages resemble the Moraga site in terms of internalization. Entrada South, Landmark, and Legacy are projected to internalize about one quarter of all trips with their current land use mix. Entrada North is projected to internalize 21% of daily trips which is less than other villages due in part to the disproportionate amount of retail space to housing units, which indicates a need to attract externally generated trips to meet sales and revenue targets.

The village where trip internalization may be understated is Potrero. At over 2,750 acres, the Village is projected to have 33% trip internalization. Similarly, if all villages are considered as a single development, we would predict even higher trip internalization than the Moraga site.

TABLE 8
NEWHALL RANCH VILLAGES MXD TRIP GENERATION REASONABLENESS CHECK

Location	Acres	Residential Dwelling Units	Employment	Daily Vehicle Trip Internalization
Moraga, CA	2,400	5,948	3,870	37%
South Davis, CA	791	4,454	2,791	17%
Mission Village	*1,252*	*4,412*	*4,571*	*33%*
Entrada South Village	*389*	*1,667*	*1,933*	*25%*
Entrada North Village	*454*	*1,693*	*4,953*	*21%*
Landmark Village	*293*	*1,444*	*2,827*	*28%*
Legacy Village	*1,764*	*3,797*	*1,320*	*24%*
Potrero Village	*2,756*	*8,333*	*2,806*	*33%*

Comparisons were also made to the trip generation estimates for each Newhall Ranch Village generated by the SCVCTM model. While the model does have some sensitivity to the mixed-use nature of the Villages, the model is not fully sensitive to the built environment variables captured by the MXD model. As such, the comparisons reveal a higher level of internalization using the MXD model for Mission, Entrada South, Entrada North, Landmark, and Legacy Villages (shown in Tables 9-13). The exception is Potrero (Table 14), where the SCVCTM's 34% daily internalization is slightly higher than the 33% projected by the MXD model. This result is reasonable due to Potrero's larger size and an expectation that conventional travel demand models are better suited to predict trip making activity over large areas. On a similar note, the SCVCTM's 17% daily internalization for Homestead Village should be considered reasonable. The MXD model would not be expected to predict higher internalization because the built environment variables the SCVCTM lacks sensitivity to are not present in Homestead Village's land use plan.

TABLE 9
COMPARION OF MISSION VILLAGE NET EXTERNAL
TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	57,878	57,883	-5
Gross AM Peak Hour Trips	5,101	5,102	-1
Gross PM Peak Hour Trips	5,889	5,894	-5
Internal Daily Trips	18,956	12,739	6,217
Internal AM Peak Hour Trips	1,486	1,100	386
Internal PM Peak Hour Trips	1,766	1,296	470
Net External Daily Trips	38,922	45,144	-6,222
Net External AM Peak Hour Trips	3,615	4,002	-387
Net External PM Peak Hour Trips	4,123	4,598	-475

TABLE 10
COMPARION OF ENTRADA SOUTH VILLAGE NET EXTERNAL
TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	35,969	35,969	0
Gross AM Peak Hour Trips	2,362	2,362	0
Gross PM Peak Hour Trips	3,531	3,533	-2
Internal Daily Trips	9,297	5,238	4,059
Internal AM Peak Hour Trips	646	371	277
Internal PM Peak Hour Trips	793	632	161
Net External Daily Trips	26,672	30,731	-4,059
Net External AM Peak Hour Trips	1,716	1,991	-275
Net External PM Peak Hour Trips	2,738	2,901	-163

TABLE 11
COMPARION OF ENTRADA NORTH VILLAGE NET EXTERNAL TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	94,879	94,877	2
Gross AM Peak Hour Trips	3,329	3,328	1
Gross PM Peak Hour Trips	8,347	8,346	1
Internal Daily Trips	19,689	11670	8,019
Internal AM Peak Hour Trips	370	176	194
Internal PM Peak Hour Trips	1,298	910	388
Net External Daily Trips	75,190	83,207	-8,017
Net External AM Peak Hour Trips	2,959	3,152	-193
Net External PM Peak Hour Trips	7,049	7,436	-387

TABLE 12
COMPARION OF LANDMARK VILLAGE NET EXTERNAL TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	41,258	41,258	0
Gross AM Peak Hour Trips	2,835	2,836	-1
Gross PM Peak Hour Trips	4,074	4,074	0
Internal Daily Trips	11,621	6,189	5,432
Internal AM Peak Hour Trips	873	312	561
Internal PM Peak Hour Trips	1,011	591	420
Net External Daily Trips	29,637	35,069	-5,432
Net External AM Peak Hour Trips	1,962	2,524	-562
Net External PM Peak Hour Trips	3,063	3,483	-420

TABLE 13
COMPARION OF LEGACY VILLAGE NET EXTERNAL TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	37,591	37,590	1
Gross AM Peak Hour Trips	2,421	2,422	-1
Gross PM Peak Hour Trips	3,532	3,530	2
Internal Daily Trips	8,980	2,858	6,122
Internal AM Peak Hour Trips	433	122	311
Internal PM Peak Hour Trips	781	314	467
Net External Daily Trips	28,611	34,732	-6,121
Net External AM Peak Hour Trips	1,988	2,300	-312
Net External PM Peak Hour Trips	2,751	3,216	-465

TABLE 14
COMPARION OF THE POTRERO VILLAGE NET EXTERNAL TRIP GENERATION ESTIMATES FROM THE MXD AND SCVCTM MODELS

Trip Estimate	MXD Model	SCVCTM Model	Difference
Gross Daily Trips	104,684	104,684	0
Gross AM Peak Hour Trips	7,014	7,015	-1
Gross PM Peak Hour Trips	9,876	9,876	0
Internal Daily Trips	34,894	35593	-699
Internal AM Peak Hour Trips	2,487	1045	1,442
Internal PM Peak Hour Trips	3,184	3012	172
Net External Daily Trips	69,790	69,091	699
Net External AM Peak Hour Trips	4,527	5,970	-1,443
Net External PM Peak Hour Trips	6,692	6,864	-172

These results are similar to our findings on other MXD projects where conventional travel demand models do not fully account for the unique built environment features associated with mixed-use developments around principles of compact urban design and creating environments conducive of having multiple travel choices including walking, bicycling, and transit.

FURTHER DISCUSSION AND FOLLOW-UP

We are prepared to discuss these findings are your earliest convenience and have provided additional background material on the MXD model development in Attachment A.

ATTACHMENT A

Traffic Generated by Mixed-Use Developments – A Six-Region Study Using Consistent Built Environmental Measures

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Abstract

Current methods of traffic impact analysis, which rely on rates and adjustments from the Institute of Transportation Engineers, are believed to understate the traffic benefits of mixed-use developments (MXDs), leading to higher impact fees, exactions, and negotiated payments than should be the case and discouraging development of otherwise desirable projects. The purpose of this study was to develop new methodology for more accurately predicting the traffic impacts of MXDs. Standard protocols were used to identify and generate datasets for MXDs in six large and diverse metropolitan regions. Data from household travel surveys and GIS databases were pooled for these MXDs, and travel and built environmental variables were consistently defined across regions. Hierarchical modeling was used to estimate models for internal capture of trips within MXDs, walking and transit use on external trips, and trip length for external automobile trips. MXDs with diverse activities on-site are shown to capture a large share of trips internally, reducing their traffic impacts relative to conventional suburban developments. Smaller MXDs in walkable areas with good transit access generate significant shares of walk and transit trips, thus also mitigating traffic impacts. Centrally located MXDs, small and large, generate shorter vehicle trips, which reduces their impacts relative to outlying developments.

Word Count: 6,778
Tables: 11
Figures: 3

Introduction

A diverse group of stakeholders is interested in the traffic impacts of mixed-use developments (MXDs). Internal capture rates for trips between land uses are constantly debated by developers who want to minimize traffic mitigation and communities that want to hold existing residents harmless from traffic impacts, and by planners who tend to favor mixed-use developments for a host of reasons and traffic engineers who are skeptical about their traffic benefits. Absent reliable trip generation methodology, communities face a dilemma: Do they err on the conservative side and potentially discourage worthwhile projects, or err on the liberal side and risk unmitigated traffic impacts.

Being able to more accurately estimate the proportion of trips captured internally by MXDs is critical if communities are to make the most effective use of available land and realize master and comprehensive plan objectives without triggering debilitating traffic congestion. As important as the ability to estimate internal capture rates is the ability to estimate the proportion of external trips captured by alternative modes, and the length of private vehicle trips bound for destinations outside the development.

This study innovates in the following respects: (1) pooling travel and land use data for six diverse regions; (2) testing many consistently defined built environmental variables from the six regions; (3) analyzing travel as a multi-level phenomenon, with trips nested within developments and developments nested within regions; (4) focusing on MXDs as geographic units of analysis; (5) including internal capture of trips within developments as a travel outcome measure (along with conventional measures, mode choice and trip distance); (6) measuring effects of MXD on vehicle trip generation rates as opposed to modal splits and incidence of walking, as has been the case in most prior work (see Ewing and Cervero, 2001); and (7) feeding directly into traffic engineering practice through a project sponsor, the Institute of Transportation Engineers.

Current ITE Method

Virtually all traffic impact analyses rely on trip generation rates compiled in the ITE *Trip Generation* manual (7th Edition, 2003). The ITE rates are largely representative of individual, single-use suburban developments whose trips are by private vehicle and whose origins or destinations lie outside the development.

For mixed-use development projects, an ITE member survey found that nearly two-thirds of practitioners estimate internal capture rates using a procedure outlined in Chapter 7 of the ITE *Trip Generation Handbook*. The procedure works this way:

> The analyst determines the amounts of different land use types (residential, retail, and office) contained within the development.
>
> These amounts are multiplied by ITE's per-unit trip generation rates to obtain a preliminary estimate of the number of vehicle trips generated by the site. This preliminary estimate is what the site would be expected to generate if there were no interactions among the on-site uses.

The generated trips are then reduced by a certain percentage to account for internal capture of trips within MXDs. The reductions are based on the following two look-up tables:

Strengths of the Current ITE Method

From the viewpoint of the practicing engineer, the ITE internal capture methodology has some important advantages:

It seems objective. Two analysts given the same data will arrive at exactly the same result. There is no room for negotiation or interpretation (and so no reason to pressure the analyst to skew the results in a pre-determined direction).
It seems logical. Most engineers readily accept the idea that the degree of internalization will be determined by how well the productions and attractions match for each trip purpose.
It is fast. With a spreadsheet template an analyst can input the data and have an answer in a matter of minutes.

Looked at another way, any new methodology that lacks these qualities may not find wide acceptance within the engineering community.

Weaknesses of the Current Method

The ITE methodology also has significant weaknesses.

The two look-up tables are based on data for a “limited number of multi-use sites in Florida” (specifically six sites analyzed by the Florida Department of Transportation, ITE 2001, p. 123). The accuracy of forecasts is thus dependent on how closely the site being analyzed matches the sites used in the tables’ creation. The handbook acknowledges this problem and instructs the analyst to find analogous sites locally and collect their own data to produce locally-valid look-up tables.
The land use types that can be analyzed are limited to the three present in the original sites and embodied in the look-up tables. Uses other than residential, retail, and office defy analysis.
The scale of development is disregarded. Clearly, a large site with many productions and attractions is more likely to produce “matches” between them than is a small site, and the look-up tables for large sites should have higher cell percentages than the tables for small sites. Development scale was the most significant influence on internal capture rates in a study of South Florida MXDs, and more than half of all trips were found to be internalized by community-scale MXDs, far in excess of any rate obtainable with the handbook method (Ewing et al., 2001).
The land use context of development projects is ignored. Common sense and the literature tell us that projects in remote locations are more likely to capture trips on-site than are those surrounded by competing trip attractions. For MXDs in South Florida, the

second most important determinant of internal capture rates was accessibility to the rest of the region (second after the scale of development). Conversely, projects in areas of high accessibility are more likely to generate walk trips to external destinations.
The possibility of mode shifts for well-integrated and transit served sites is not explicitly considered. This may not bias results for free-standing sites, but infill projects within an urban context may capture few trips internally but still have significant vehicle trip reductions relative to the ITE rates.

Conceptual Framework

In this study, travel to/from MXDs is conceived as a series of choices (see conceptual framework in Figure 1). The choices relate directly to the methodology we are proposing to adjust ITE trip generation rates downward.

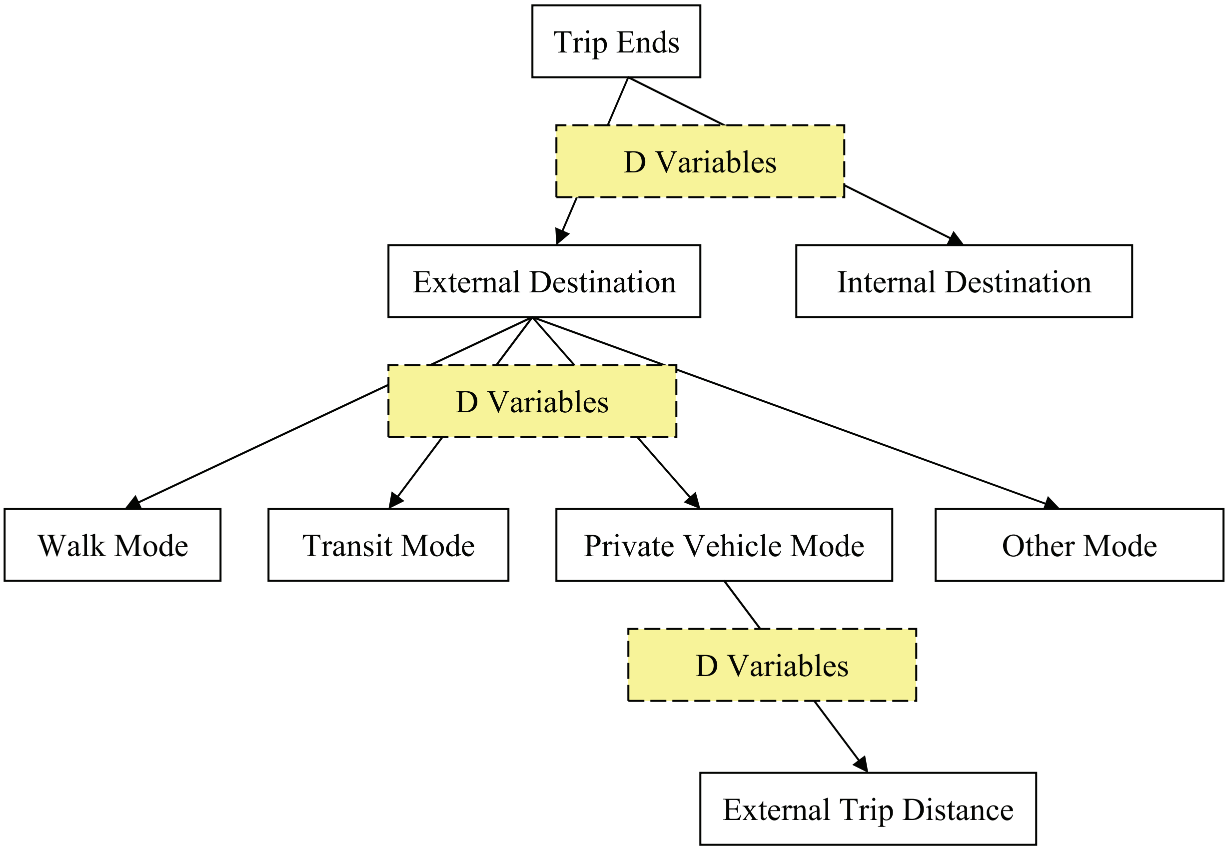
The first adjustment to ITE rates is for trips that remain within the development. Destination choice is conceived as dichotomous. A traveler may choose a destination within the development, or a destination outside the development. Internal trips are treated as 100 percent deducts from ITE trip generation rates.

Then, for trips that leave the development, adjustments are made for walking and transit use. Mode choices are conceived as dichotomous. A traveler may choose to walk or not. The traveler may choose to use transit or not. Walking and transit use may be treated as 100 percent deducts from ITE trip generation rates, or may be treated as partial offsets. It is reasonable to assume that transit trips substitute for personal vehicle trips, but walk trips may supplement as well as substitute for personal vehicle trips. The study team plans to propose substitution rates based on a review of literature.

Finally, for external personal vehicle trips, the traveler chooses a destination. This destination may be near or far. This outcome variable is continuous rather than dichotomous.

The D variables in Figure 1 are characteristics of travelers, MXDs, and regions, as defined below. The D variables determine, moderate, mediate, and confound travel decisions.

Figure 1. Traffic Impact Adjustments



Sample Selection

The main criterion for inclusion of regions in this study was data availability. Regions had to offer:

> regional household travel surveys with XY coordinates for trip ends, so we could distinguish trips to, from, and within small MXDs; and
> land use databases at the parcel level with detailed land use classifications, so we could study land-use intensity and mix down to the parcel level.

Most U.S. regions fall short on one or both counts. While nearly all metropolitan planning organizations (MPOs) have conducted regional household travel surveys as the basis for the calibration of regional travel demand models, most have geocoded trip ends only at the relatively coarse geography of traffic analysis zones. Likewise, while most MPOs have historical land use databases that are used in model calibration, these too provide data only for the relatively coarse geography of traffic analysis zones. Traffic analysis zones vary in size from region to region, but as a general rule, are equivalent to census block groups. They are large relative to many MXDs, and in any event, will ordinarily not coincide with MXD boundaries.

Thirteen regional household travel databases were identified that met the first criterion. This was narrowed down to six regions based on the availability of parcel-level land use data and the interest of planning researchers who had worked with these datasets.

All six travel databases were derived from large-scale regional travel diary surveys. All allowed us to classify trips by purpose and mode of travel. All allowed us to control for socioeconomic characteristics of travelers that may confound interactions between the built environment and travel. All had already been linked to built environmental databases. While the specific variables differed somewhat from database to database, there was the potential to reconcile differences and specify equivalent models.

Identifying MXDs

The ITE definition of multi-use development was modified to create a generic definition of MXD that would encompass many existing areas with interconnected, mixed land use patterns:

> "A mixed-use development or district consists of two or more land uses between which trips can be made using local streets, without having to use major streets. The uses may include residential, retail, office, and/or entertainment. There may be walk trips between the uses."

To identify MXDs in the six study regions at the dates of the most recent regional household travel surveys, the team used a bottom-up, expert-based process in which planners for the different jurisdictions were queried about MXDs within their boundaries. Using this approach, a definition of an MXD would be read to local planners over the phone, and they would be asked to name, identify the boundaries, and list the uses contained within such areas.

The application of this method, in some cases, proved challenging when local planners lacked historical knowledge of their jurisdictions back to time of the applicable travel surveys, had trouble identifying MXD boundaries due to the continuous nature of urban grids, or simply were unresponsive to repeated requests for interviews. When the first two problems arose, additional experts were consulted and/or planners were asked to make educated guesses. In the most unresponsive cases, we simply gave up and lost potential additions to our sample. Three smaller jurisdictions in the Portland region, for example, never returned phone calls or emails. Given our hit rate, we may have missed an MXD or two in the Portland region.

Final Samples

Sample statistics are shown in Table 1. The regions that contribute modest numbers of trip ends to the sample still add statistical power. The importance of Boston, Houston, and Sacramento lies in the number of MXDs each contributes, not in the number of trip ends. Also, the inclusion of the three regions doubles the number of regions in the sample. In a hierarchical analysis, statistical power is limited by the number of degrees of freedom at each level of analysis. There are ample cases at Level 1, the trip end level, but a shortage of cases at Level 2, the MXD level, and a severe shortage at Level 3, the regional level.

Table 1. Sample Statistics

	Survey Year	MXDs	Mean Acreage per MXD	Total Trip Ends	Mean Trip Ends per MXD
Atlanta	2001	24	290	6,167	257
Boston	1991	59	175	3,578	60.6
Houston	1995	34	401	1,584	46.6
Portland	1994	53	116	6,146	116
Sacramento	2000	25	179	2,487	99.4
Seattle	1999	44	207	15,915	361.7

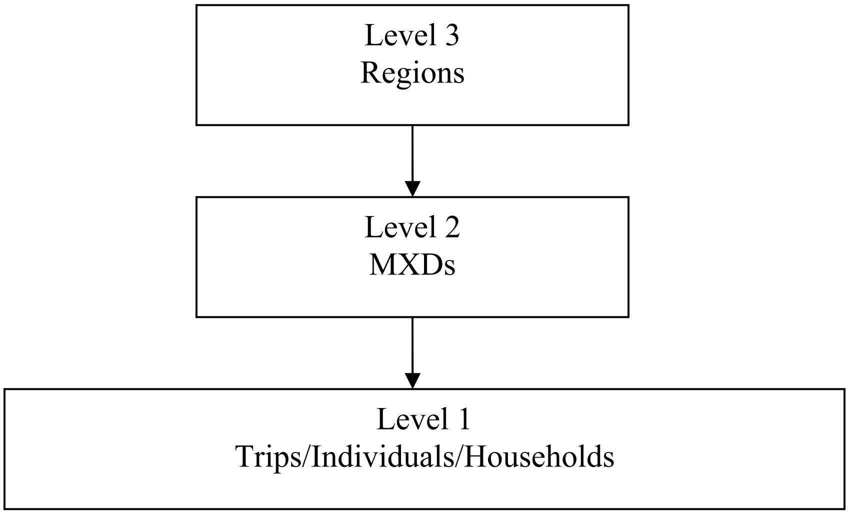
Data and Model Structure

Our data and model structure are hierarchical. Hierarchical modeling is required to account for dependence among observations, in this case the dependence of trips to and from a given MXD. All the trips to/from a given MXD share the characteristics of the MXD, that is, are dependent on these characteristics. This dependence violates the independence assumption of ordinary least squares ("OLS") regression. Standard errors of regression coefficients based on OLS will consequently be underestimated. Moreover, OLS coefficient estimates will be inefficient. Hierarchical (multi-level) modeling overcomes these limitations, accounting for the dependence among observations and producing more accurate coefficient and standard error estimates.

We initially conceived the data structure as a five-level hierarchy, with trips nested within individuals, individuals nested within households, households nested within MXDs, and MXDs nested within metropolitan regions. Upon review of the dataset, we found that the data are not so neatly hierarchical. Many of the individuals in the sample make trips to or from more than one MXD.

This has implications for modeling methodology. Rather than a five-level hierarchy, the choices facing travelers have to be modeled in a three-level framework. Individual trip ends are uniquely identified with MXDs. So trips (their characteristics and the associated characteristics of travelers and their households) form Level 1 in the hierarchy, MXDs form Level 2, and regions form Level 3 (see Figure 2).

Figure 2. Data and Model Structure



Models were estimated with HLM 6 (Hierarchical Linear and Nonlinear Modeling) software. Hierarchical linear models were estimated for the continuous outcome (trip distance), while hierarchical nonlinear models were estimated for the dichotomous outcomes (internal vs. external, walk vs. other, and transit vs. other). Within a hierarchical model, each level in the data structure is formally represented by its own sub-model. The sub-models are statistically linked.

In our initial model estimations, only the intercepts were allowed to randomly vary across higher level units. All of the regression coefficients at higher levels were treated as fixed. These are referred to as "random intercept" models (Ewing et al. 2003; Ewing et al. 2006). As the sample of MXDs was expanded, we also tested for cross-level variable interactions with “random coefficient” models. It is certainly possible that the relationship between, say, walking and vehicle availability varies with size of the MXD, or the relationship between internal capture and MXD density varies from region to region.

Outcome Variables

The variables modeled were:

INTERNAL – Dummy variable indicating that a trip remains internal to the MXD (1=internal, 0=external)

WALK – Dummy variable indicating that the travel mode on an external trip is walking (1=walk mode, 0=other)

TRANSIT - Dummy variable indicating that the travel mode on an external trip is public bus or rail (1=transit, 0=other)

TDIST - Network trip distance between origin and destination locations for an external private vehicle trip, in miles

(Bike trips were not modeled because our samples contain relatively few of them.)

There is much variation in internal capture rates from MXD to MXD, and from region to region. Across regions, average internal capture rates vary from a low of 8 percent for Atlanta to a high of 28 percent for Houston (see Table 2). The high rate for Houston may reflect the fact that Houston's MXDs are, in general, larger and more remotely located than those in other regions.

Table 2. Internal Capture Rates for MXDs in the Six Study Regions

	Internal Capture
Atlanta	8.0%
Boston	9.4%
Houston	28.3%
Portland	13.0%
Sacramento	15.1%
Seattle	11.2%

In all household travel surveys, automobile, walk, and transit (bus or rail, where available) are identified as separate modes of travel. Bicycle is as well, but samples are too small to be reliably analyzed. Again, there is great variation in mode shares from MXD to MXD, and region to region. In all regions, the dominant mode for external trips to/from MXDs is the automobile ("private motor vehicle"). The essential choices facing travelers are to walk or use a private vehicle, or to take transit or use a private vehicle. For external trips, average mode shares by walking and transit combined vary from a low of 2 percent for Sacramento to a high of 18.9 percent for Boston (see Table 3).

Of the 35,877 trip ends generated by these MXDs, 6,378 (17.8%) involved trips within the mixed-use site, another 2,099 (5.8%) involved trips entering or leaving the site via walking, and another 1,995 (5.6%) involved trips entering or leaving via transit. Thus, on average, a total of 29% of the total trip ends generated by mixed-use developments put no strain on the external street network, generate very few vehicle miles traveled, and should be deducted from ITE trip rates for stand-alone developments. This 29% figure, we note, is a bit less than the 36% internal capture rate measured for the six MXD sites by the Florida DOT, as reported in the 2001 ITE *Trip Generation Handbook*.

Table 3. Average Walk and Transit Mode Shares for External Trips to/from MXDs

	Walk Share	Transit Share
Atlanta	3.2%	2.1%
Boston	13.2%	3.7%
Houston	2.7%	5.2%
Portland	7.1%	3.3%
Sacramento	1.8%	0.2%
Seattle	4.7%	8.7%

Trip distances are just as variable across regions. Average distances of external auto trips to/from MXDs range from 4.8 miles for MXDs in Boston to 13.6 miles for MXDs in Houston (see Table 4).

Table 4. Average Trip Distances for External Auto Trips to/from MXDs in the Six Study Regions (in miles)

	Distance (miles)
Atlanta	9.1
Boston	4.8
Houston	13.6
Portland	5.4
Sacramento	8.1
Seattle	7.9
Combined	7.5

Explanatory Variables

In travel research, urban development patterns have come to be characterized by "D" variables. The original "three Ds," coined by Cervero and Kockelman (1997), are *density*, *diversity*, and *design*. Three additional Ds have been labeled since then, *destination accessibility*, *distance to transit*, and *demographics*. An additional D variable is relevant to this analysis: *development scale*.

In this study, all seven types of D variables were measured and used to predict the travel characteristics of MXDs. The richness of the datasets varies from region to region. Portland and Atlanta have the most complete datasets. Houston and Sacramento have the least complete datasets. Variables available for all regions are shown in normal type. Those available for a subset of regions are shown in italics.

Trip-Level Explanatory Variables (Level 1)

HBO – Dummy variable indicating that the trip is home-based for purposes other than work (1=home-based other, 0=otherwise)

NHB – Dummy variable indicating that the trip is non-home-based (1=non-home-based, 0=otherwise)

(The reference category for trip purpose variables is home-based work.)

Traveler-Level Explanatory Variables (Level 1)

CHILD – Dummy variable indicating that the traveler is under 16 years of age (1=child, 0=adult)

WHITE – Dummy variable indicating that a traveler is a white caucasian (1=white, 0=other)

Race and ethnicity are available for all but Boston and Sacramento.

(The travel diary databases have more detailed ethnic classes, and actual age data.)

Household-Level Explanatory Variables (Level 1)

HHSIZE – Number of members of the household

VEHCAP – Number of motorized vehicles per person in the household

BUSSTOP – Dummy variable indicating that the household lives within ¼ mile of a bus stop (1=yes, 0=no)

MXD-Level Explanatory Variables (Level 2)

Development Scale Variables

POP – Resident population within the MXD

Prorated sum of the population for the census block groups which intersect the MXD. Prorating was done by calculating density of population per residential acre (tax lots designated single-family or multifamily) for the entire census block group, then multiplying the density by the amount of residential acreage within the block group contributing to the MXD, and finally, summing over all block groups intersecting the MXD area. For Houston, data at the TAZ level were prorated.

EMP – Employment within the MXD

Weighted sum of the employment within the MXD for all SIC industries. For Portland, employment estimates were based on the average number of employees in each size category, summed across employer size categories. For other regions, data at the TAZ level were prorated.

ACTIVITY – Resident population plus employment within the MXD

Density Variables

POPDEN – Population density per net square mile within the MXD

Population within the MXD, divided by land designated for single-family or multifamily housing in tax lot records. Net population density is available for all but Houston.

EMPDEN - Employment density per net square mile within the MXD

Employment within the MXD, divided by land designated for employment uses in tax lot records. Net employment density is available for all but Houston.

ACTDEN - Activity density per square mile within the MXD

Sum of population and employment within the MXD, divided by gross land area.

FAR – Floor area ratio of all land uses within the MXD

Total square footage of all buildings divided by total square footage of all tax lots within the MXD. FAR is available for Portland, Seattle, and Atlanta.

DEVLAND – Proportion of developed land within the MXD

Diversity Variables

JOBPOP – Index that measures the balance between employment and resident population within the MXD

Index ranges from 0, where only jobs or residents are present in an MXD, not both, to 1 where the ratio of jobs to residents is the same as the region as a whole. Values are intermediate when MXDs have both jobs and residents, but one predominates. [1]

JOBMIX – Diversity index that captures the variety of employment within the MXD

Entropy calculation based on employment in SIC categories likely to exchange trips. For Portland, the four categories of employment factored into the index were: retail; services;

---

[1] JOBPOP = 1 – [ABS (employment - a*population)/(employment + a*population)]
ABS is the absolute value of the expression in parentheses. a is the regional ratio of employment to residents.

finance/insurance/real estate; and transportation/communications/public utilities.[2] *For other regions, the categories were slightly different.*[3] *The index varies in value from 0, where all employment is in one of these categories, to 1, where employment is evenly divided among these categories. JOBMIX is available for Atlanta, Boston, Portland, and Seattle.*

BUILDMIX - Diversity index that captures the variety of land uses within the MXD

Entropy calculation based on building floor area in land use categories likely to exchange trips. In both regions, land uses were aggregated into three roughly equivalent categories: commercial, office, and public/institutional. The entropy index varies in value from 0, where all building area is in one of these categories, to 1, where building area is evenly divided among these categories BUILDMIX is available for Atlanta and Seattle.

LANDMIX – Another diversity index that captures the variety of land uses within the MXD

Entropy calculation based on net acreage in land use categories likely to exchange trips. For Portland, the land uses were: residential, commercial, industrial, and public or semi-public.[4] For other regions, the categories were slightly different.[5] The entropy index varies in value from 0, where all developed land is in one of these categories, to 1, where developed land is evenly divided among these categories.

Design Variables

STRDEN - Centerline miles of all streets per square mile of gross land area within the MXD

INTDEN - Number of intersections per square mile of gross land area within the MXD

SIDEWALK – Mileage of sidewalks per centerline mile of streets within the MXD

Sidewalk mileage is available for Portland and Atlanta.

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[2] JOBMIX = -[retail share*LN (retail share) + service share*LN (service share) + FIRE share*LN (FIRE share) + TCPU share*LN (TCPU share)]/ LN (4), where LN is the natural logarithm of the value in parentheses

[3] The employment categories were as follows: for Atlanta, retail, service, FIRE, transportation/communication/utilities, and government; for Boston, retail, service, finance, transportation, and government; and for Seattle, retail, FIRE, wholesale/transportation/communications/utilities, and civic.

[4] The entropy calculation is: LANDMIX = -[single-family share*LN (single-family share) + multifamily share*LN (multifamily share) + commercial share*LN (commercial share) + industrial share*LN (industrial share) + public share*LN (public share)]/ LN (5) --- where LN is the natural logarithm of the value in parentheses.

[5] For Houston, the land uses were: residential, commercial, industrial, and institutional; a "mixed residential and commercial" class of land uses was included with commercial. For Boston, the land uses were: residential, commercial, industrial, and recreational. For Seattle, detailed land uses were aggregated into four categories: residential, commercial, industrial, and institutional. For Atlanta, detailed land uses were aggregated into four categories: residential, commercial, industrial, and institutional. For Sacramento, detailed land uses were aggregated into four categories: residential, commercial, industrial, and institutional; a mixed class of land uses was included with commercial.

Destination Accessibility Variables

EMPMILE – Total employment within one mile of the MXD

Weighted average for all TAZs intersecting the MXD. Weighting was done by proportion of each TAZ within the MXD boundary relative to an entire TAZ area (i.e., “clipping” the block group with the MXD polygon).

EMP10A – Total employment accessible within 10-minutes travel time of the MXD using an automobile at midday

Computed in same manner as EMPMILE.

EMP20A – Total employment accessible within 20-minutes travel time of the MXD using an automobile at midday

Computed in same manner as EMPMILE.

EMP30A – Total employment accessible within 30-minutes travel time of the MXD using an automobile at midday

Computed in same manner as EMPMILE.

EMP30T– Total employment accessible within 30-minute travel time of the MXD using transit

Computed in the same manner as EMPMILE.

Distance to Transit Variables

STOPDEN – Number of transit stops within the MXD per square mile of land area

Uses 25 ft. buffer to catch bus stops on periphery.

RAILSTOP – Rail station located within the MXD (1=yes, 0=no).

Commuter, metro, and light rail systems are all considered.

The number of MXDs for which we have values of different explanatory values varies greatly from variable to variable, as shown in Table 5.

Table 5. Sample Sizes and Descriptive Statistics for Level 2 Variables

	N	Mean	S.D.
POP	239	2271.0	3261.4
EMP	239	2696.3	5572.2
ACTIVITY	239	4967.2	6945.6
POPDEN	205	21600.3	35147.5
EMPDEN	204	30269.4	51360.9
ACTDEN	239	19780.9	30669.4
FAR	121	0.400	0.538
DEVLAND	239	0.825	0.218
JOBPOP	239	0.558	0.297
JOBMIX	180	0.702	0.166
BUILDMIX	64	0.554	0.325
LANDMIX	239	0.518	0.199
STRDEN	239	25.4	10.5
INTDEN	239	257.5	203.0
SIDEWALK	74	0.915	0.673
EMPMILE	239	30.5	50.9
EMP10A	239	69.8	111.2
EMP20A	239	276.1	377.1
EMP30A	239	505.0	630.6
EMP30T	239	86.1	147.9
STOPDEN	239	70.5	83.9
RAILSTOP	239	0.084	0.277

Modeled Results

Internal Capture

For internal capture, the dependent variable is the natural log of the odds of an individual making a trip with both ends within an MXD. Explanatory variables, their coefficients, and their significance levels (p-values) are shown in Table 6.

Models were estimated sequentially, starting with the full set of MXDs and the limited set of Level 2 variables for which all MXDs have values. The resulting base model includes only those explanatory variables with values for all 239 MXDs. Level 2 variables were sequentially added to the base model, resulting in a loss of cases and degrees of freedom. The last variable to be added was the building mix variable, available for only two regions.

In the base model, two Level 1 variables have the expected signs and are significant. Home-based other and non-home based trips are more likely to be internal trips than are home-based work trips. While characterized as controls, these trip purpose variables are a function of the employment mix within the MXD. Office-oriented developments generate a disproportionate number of home-based work trips, while retail-oriented developments generate a disproportionate number of home-based non-work trips. These variables could be treated as inputs to traffic impact analyses.

In the base model, internalization of trips is significantly related to four Level 2 variables, resident population, employment, job-population balance, and intersection density within the MXD. The first two are measures of *development scale*, the third a measure of *diversity*, and the fourth a measure of *design*. All four are positively related to the likelihood of internal trips. Larger MXDs are more likely to capture trips internally, as are MXDs with a balance of employment and resident population and MXDs with short blocks and highly connected streets. A high job-housing balance index suggests relatively high trip internalization for not only work trips but also retail shopping since employment counts include individuals working in the retail and service sectors.

An additional Level 2 variable proved significant in subsequent model estimations; land use mix (BUILDMIX) in the model with 64 MXDs from two regions. BUILDMIX is a measure of *diversity*. It has the expected sign, being positively related to internal capture. The inclusion of land use mix, and the smaller sample it begets, causes job-population balance to fall below the conventional 0.05 level of statistical significance. Yet, for theoretical reasons, we prefer the fully specified model, with variables representing balance as well as mix, and propose to use it in the internal capture methodology.

None of the Level 3 variables proved significant. While there is significant variance of internal capture from region to region, it is not explained by the variables in our data set. It is, however, captured in the random effects term of the Level 3 equation.

Added to Table 6 are the elasticities of internal capture with respect to the significant explanatory variables. These are percentage changes in the probability of internal capture with respect to a one percent change in each explanatory variable. They are computed with the formula:

> *elasticity = coefficient of explanatory variable * mean value of explanatory variable * (1 - mean probability of internal capture)*

Among built environmental variables, the elasticity of internal capture is highest for land use mix. The elasticity value, 0.48, suggests that the probability of internal capture increases by 0.48 percent for every one percent increase in the value of this variable. Other elasticity values can be interpreted in the same way. Internal capture is relatively inelastic with respect to all explanatory variables.

These elasticity values will be used to develop adjustment factors for ITE trip generation rates. Probabilities are just expected internal capture rates, so it will be easy to adjust ITE's vehicle trip rates downward by expected internal capture rates, pivoting off ITE values.

Table 6. Log Odds of Internal Capture

	239 MXDs				64 MXDs			
	coeff	t-ratio	p-value	elast	coeff	t-ratio	p-value	elast
Constant	-3.378				-4.110			
POP	9.3E-05	4.645	< 0.001	0.18	1.1E-04	2.69	0.01	0.22
EMP	3.3E-05	2.522	0.013	0.08	8.2E-05	3.63	0.001	0.19
JOBPOP	0.761	2.815	0.006	0.37	0.580	1.14	0.26	0.28
BUILDMIX					1.003	2.07	0.04	0.48
INTDEN	8.2E-04	1.947	0.052	0.18	0.00203	1.96	0.05	0.45
HBO	1.051	14.02	< 0.001	N/A	1.091	10.36	< 0.001	N/A
NHB	1.876	25.39	< 0.001	N/A	2.043	19.79	< 0.001	N/A
Pseudo-R^2	0.11				0.50			

Walk and Transit Use for External Trips

For external trips, walking and transit use have been modeled independently because they depend on different environmental factors (as described below). For walk mode choice, the dependent variable is the natural log of the odds of an external trip being made by walking. For transit mode choice, the dependent variable is the natural log of the odds of an external trip being made by transit. The significant independent variables, their coefficients, and their significance levels (p-values) are shown in Tables 7 and 8.

Among Level 2 environmental variables, the strongest influences on walking are intersection density and jobs within one mile of the MXD boundary. The former is a measure of *design*, and the latter is a measure of *destination accessibility*. High intersection density within the MXD makes walking to/from activities outside the MXD that much faster and easier. High employment totals within a mile of the MXD affords trip attractions within walking distance. Activity *density* within the MXD is also positively related to walking on external trips. Perhaps this is due to better walking conditions or trip chaining opportunities.

The significant environmental influences on transit use are the density of bus stops within the MXD, the presence of a rail station within the MXD, and the regional transit accessibility of the MXD, measured in terms of jobs reachable within 30 minutes by transit. These variables measure *distance to transit* and *destination accessibility*. They suggest, consistent with other literature, that mixed-use transit oriented developments (TODs) that concentrate residents, workers, and retail shops in close proximity to major transit stops can “de-generate” trips (Cervero and Arrington, 2008).

The results in Tables 7 and 8 are shown for control variables as well as environmental variables. Walking is more likely on home-based other trips than on home-based work trips. Transit use is less likely on trips for purposes other than work. For the walk model, we prefer the version which includes only the explanatory variables with values for all 239 MXDs, because it is often difficult to obtain precise measures of sidewalk coverage, and design is already represented by intersection density in the model.

Table 7. Log Odds of Walking on External Trips

	239 MXDs				75 MXDs			
	coeff	t-ratio	p-value	elast	coeff	t-ratio	p-value	elast
constant	-3.943				-3.451			
EMPMILE	0.00877	6.446	< 0.001	0.25	0.00554	1.348	0.182	0.16
ACTDEN	6E-06	2.797	0.006	0.11	1.0E-05	2.080	0.041	0.18
INTDEN	0.00227	5.266	< 0.001	0.54	0.00202	2.862	0.006	0.49
SIDEWALK					0.703	3.648	0.001	0.60
HBO	0.856	9.571	< 0.001	N/A	0.381	4.274	< 0.001	N/A
NHB	0.700	7.705	< 0.001	N/A	0.508	4.186	< 0.001	N/A
pseudo-R^2	0.51				0.61			

Table 8. Likelihood of Using Transit on External Trips

	239 MXDs			
	coeff	t-ratio	p-value	elast
constant	-3.361			
EMP30T	0.00199	4.580	< 0.001	0.16
STOPDEN	0.00332	3.802	< 0.001	0.22
RAILSTOP	0.554	2.293	0.023	N/A
HBO	-0.412	-5.823	< 0.001	N/A
NHB	-0.438	-6.110	< 0.001	N/A
pseudo-R^2	0.31			

Trip Distance for External Automobile Trips

The length of external automobile (private vehicle) trips is related to the regional accessibility of the MXD, measured in terms of employment that can be reached within 20 minutes by automobile (see Table 9). The better the regional accessibility to employment (and hence to shopping, services, etc.), the shorter the length of vehicle trips. Job-population balance is also significant and negatively related to external automobile trip length. This may be due to trip chaining behavior.

Home-based other and non-home based trips are shorter than home-based work trips (the reference case), on average about 2.5 miles shorter. The length of external trips increases to a significant extent with household size, perhaps due to multi-purpose trip making. The length of external trips also increases with vehicle availability, which may due to higher income or less competition for the family car.

Table 9. Trip Distance for External Automobile Trips

	239 MXDs			
	coeff	t-ratio	p-value	elast
constant	10.17			
EMP20A	-0.0016	-2.35	0.02	-0.07
JOBPOP	-3.036	-3.38	0.001	-0.26
HBO	-2.581	-17.7	< 0.001	NA
NHB	-2.391	-16.1	< 0.001	NA
CHILD	-0.896	-5.67	< 0.001	NA
HHSIZE	0.305	7.23	< 0.001	0.13
VEHCAP	1.27	10.5	< 0.001	0.17
pseudo-R^2	0.12			

Model Validation

The preceding models were applied to 15 MXDs for which daily counts of external vehicle trips were available. Six of those 15 sites are in South Florida. Their traffic counts are presented in Appendix C of the *Trip Generation Handbook.* The remaining sites are located in California, Texas, and Georgia. Traffic counts are from a variety of sources. The sites represent a wide range of densities, land use mixes, and development scales. Populations of the validation MXDs range from zero (Crocker Center in Boca Raton, FL, containing commercial and office uses only) to nearly 17,000 (the entire town of Moraga, CA). Employment levels range from near-zero (The Villages in Irvine, CA) to more than 5,500 (Park Place, also in Irvine, CA). Some sites are well served by transit, including one built around a rail station, while others are suburban and poorly served by transit. With such a diverse validation sample, one can begin to build confidence that our MXD models have external validity.

Data were collected for all model variables for each of the 15 sites. The variables EMPMILE and EMP30T and the regional total needed for the calculation of JOBPOP were estimated from regional travel model, ground-truthed from aerials, and in some cases, from websites of the MXDs. Since travel survey data were not available for these sites, the trip purpose variables were estimated at values between 0 and 1, based on the land uses contained within the MXDs.

The models used in the validation were the fully-specified internal capture model (with BUILDMIX), the base walking model (without SIDEWALK), and the only transit model estimated. The probabilities estimated with these models are shown in Table 10:

Table 10: Predicted Probabilities from Application of the Model on Validation Sites

Site	Internal Capture Rate	Walk Mode Share	Transit Mode Share	Predicted Trip Reduction	Actual Trip Reduction
1	11%	4%	3%	17%	12%
2	58%	4%	3%	60%	49%
3	47%	6%	3%	51%	45%
4	11%	5%	4%	20%	1%
5	8%	6%	4%	17%	13%
6	7%	7%	3%	17%	20%
7	13%	6%	3%	20%	18%
8	20%	5%	3%	27%	23%
9	14%	4%	2%	19%	29%
10	18%	5%	2%	24%	28%
11	17%	5%	2%	23%	31%
12	24%	4%	3%	29%	30%
13	14%	7%	7%	26%	15%
14	22%	6%	3%	29%	45%
15	36%	11%	3%	45%	54%

These models are capable of predicting a wide range of internal capture rates and mode shares for external trips, taking into account, development scale, site design, and regional context. The models predict total trip reduction within 10% of the actual reduction observed for 11 of the 15 validation sites, and within 15% for two of the other four sites.

Table 11 compares model performance to current ITE methods, specifically:

1. *ITE Trip Generation* without any adjustments ("ITE Raw")
2. Internalization spreadsheet method from the ITE *Trip Generation Handbook* ("ITE Net")

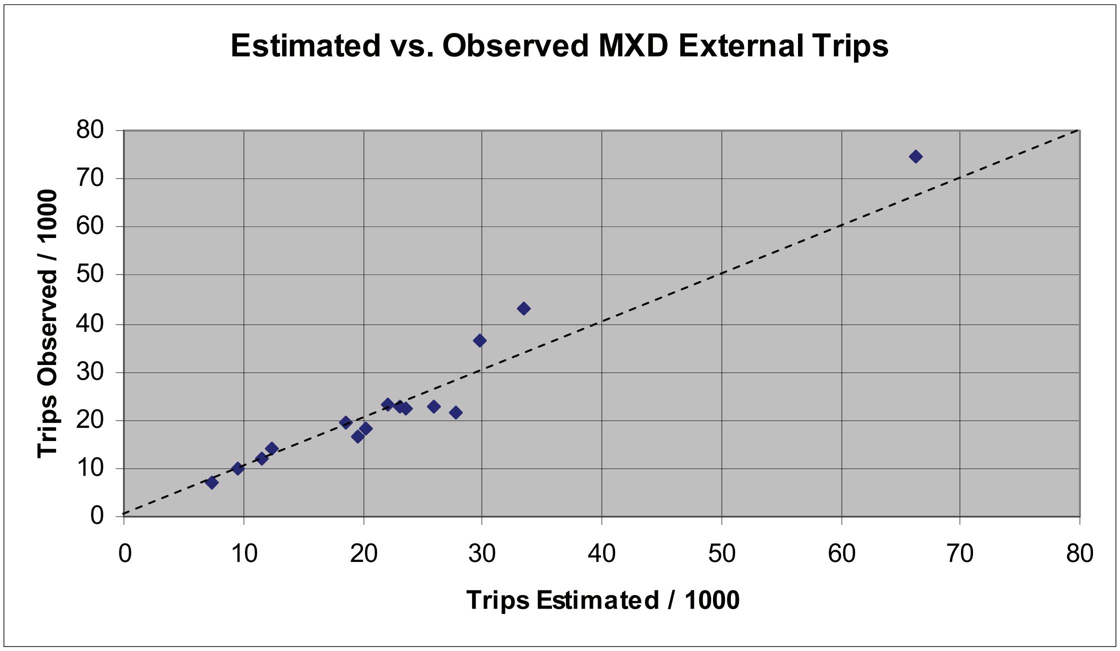
The Root Mean Squared Error (RMSE), used in the transportation field to evaluate model accuracy, penalizes proportionally more for large errors and normalizes the error across different values of the quantity one is trying predict. An RMSE of less than 40% is generally considered good. Table 11 shows that the proposed models improve the RMSE significantly compared to the ITE Raw and ITE Net methods.

Table 11: Comparison of Percent Differences between Predicted and Actual External Vehicle Counts

Site	ITE Raw	ITE Net	MXD Models
1	14%	11%	-5%
2	96%	88%	-22%
3	82%	57%	-11%
4	1%	-8%	-19%
5	15%	8%	-5%
6	24%	19%	3%
7	22%	16%	-3%
8	30%	19%	-5%
9	40%	24%	13%
10	39%	18%	5%
11	45%	30%	12%
12	43%	29%	1%
13	17%	8%	-13%
14	81%	60%	29%
15	116%	84%	19%
RMSE	86%	65%	18%

Finally, Figure 3 shows the strong association between predicted and observed external vehicle trips using the models developed herein.

Figure 3. Scatterplot of Predicted vs. Observed External Vehicle Trips



Conclusion

The “bibles” of traffic impact analysis, the Institute of Transportation Engineers’ *Trip Generation* manual and *Trip Generation Handbook*, are woefully lacking when it comes to MXDs, an increasingly common development form. Except for a handful of master-planned projects in Florida, actual numbers on internal capture rates are few and far between. Traffic engineers are thus largely left to their own devices to quantify the trip reductions that might accrue from this often varied and complex development type. Often times, no adjustment is made. This ends up over-stating the traffic impacts of MXD proposals, leading to high impact fees, exactions, and negotiated payments than should be the case and adding fodder to those who oppose any and all land-use changes. Unavoidably, then, failure to account for internal capture ends up penalizing MXDs by forcing developers of these projects to, in effect, cross-subsidize single-use projects through their bloated impact-fee payments. Besides adjustments in impact fee schedules, the trip-reducing benefits of MXDs call for other actions that reward this inherently efficient form of development, like flexible parking codes, market-responsive zoning, streamlining the project review and permitting process, and investments in supportive public infrastructure.

This research sought to advance the state of knowledge on the relationships that govern travel to and within mixed used development projects and to enumerate tangible and verifiable traffic reductions relative to the rates in the ITE *Trip Generation* manual. Travel research published over the last few years convincingly shows that changes by several percentage points in any or several of the 7D variables used in this study slightly reduces the number of vehicle trips and vehicle miles traveled. Our study extends and focuses that research on the particular characteristics of MXDs. It represents the first national study of the travel generation by mixed-use development, making use of household travel survey data from six metropolitan areas. We found an average of three out of 10 trips produced by and attracted to MXDs put no strain on the external street network and generated very few vehicle miles traveled. Statistical equations derived from the data reveal that the primary factors affecting this reduction in automobile travel are:

> The total and the relative amounts of population and employment on the site
> The site density (floor area ratio)
> The size of households and their auto ownership
> The amount of employment within walking distance of the site
> The pedestrian-friendliness (small blocks and sidewalks) of the site
> The density of bus stops, presence or absence a rail station, and the access to employment within a 30 minute transit ride of the site

For traffic impact, greenhouse gas, and energy analyses, the number of vehicle miles of travel (VMT) generated by a mixed-use site depends, in addition to the factors above, upon the site’s placement within the region, specifically, the number of jobs located within a 20-minute drive of the site. Greater destination accessibility translates into shorter auto trips external to the site. This effect is as significant as the effects associated with internal capture of trips with mixed-use developments, and conversion of some external trips from auto to alternate modes.

The findings on mixed-use trip generation reported here will be refined and validated through field surveys at representative sites in locations such as Southern California, Salt Lake City, Denver, Dallas, Florida, Atlanta and Washington D.C. When the study is completed, it will help guide planners and developers of mixed-use projects on design features likely to minimize traffic generation and greenhouse gas and energy impacts, and it will produce new analysis techniques for traffic engineers to more realistically quantify impacts and size infrastructure for mixed-use development proposals. Only through smart calculations informed by studies like ours can planners and engineers begin to put in place strategies that reward smart growth.

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Appendix 5.9b

Valencia TDM Plan

Valencia

Transportation Demand Management Plan

October 2022

Prepared by UrbanTrans North America

Table of Contents

Executive Summary

The Valencia Transportation Demand Management (TDM) Plan[1] is a comprehensive plan designed to achieve reductions in vehicle miles traveled (VMT) and, in so doing, reduce greenhouse gas (GHG) emissions.[2] Accordingly, this TDM Plan provides a summary description of the existing and planned regional transportation network, a listing of each of the strategies that comprise this TDM Plan with corresponding information regarding application of the strategy, and a step-by-step plan of implementation.

The TDM Plan applies to new development located on the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas (the Project Site) that is facilitated by the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project. Specifically, the TDM Plan will serve planned development within the Project Site, which consists of up to approximately 21,242 residential units; about 9.3 million square feet of commercial uses; and, numerous public facilities, including schools, fire stations, a library, and recreational amenities. This TDM Plan will serve as an "umbrella plan," with appropriate and customized application to individual villages and land uses, as applicable, located within the three planning areas (i.e., the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center sites).

The core objectives of the TDM Plan are to reduce the number of single occupancy vehicle trips, through the utilization of alternative forms of motorized and non-motorized transport and related strategies, and thereby reduce total VMT and the corresponding GHG emissions. Therefore, as presented below, the TDM Plan includes a number of strategies that enable the Project Site's residents, employees, and visitors to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options. The TDM Plan relies, in part, on the design of the planned development and, in part, on innovative strategies developed by the transportation planning and engineering community to achieve

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[1] Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

its objectives, and provides the foundational elements necessary for the successful implementation of the TDM strategies outlined herein.

A non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to provide the services required by this TDM Plan, as applicable. The TMO and the long-term implementation of the TDM Plan will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay; this payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties.

This TDM Plan is based, in part, on information and analysis contained in a technical memorandum entitled *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Fehr & Peers (September 2016) and as updated in a technical memorandum entitled *Quantification of Implementing TDM Strategies*, Fehr & Peers (2022). The memorandum analyzes each of the VMT reduction strategies presented in this Plan and based primarily on guidance provided by the California Air Pollution Control Officers Association, calculates the VMT reduction expected to result with implementation of each strategy. The memorandum, including appendix and exhibits, provides technical support for the VMT reductions expected to be achieved with implementation of this Plan.

1.0 Background Information

1.1 Regional Setting

This section provides an overview of the existing and planned transportation network in the vicinity of the Project Site, including transit, roadways, bicycle/trails network, and the pedestrian environment.

The Project Site is located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley. The Project Site area begins just west of Interstate 5 and continues to the boundary between Los Angeles and Ventura Counties, as shown in Figure 1. Traversing the Site is State Route (SR) 126, which functions as an east-west travel corridor between the Santa Clarita Valley and Ventura County. This section describes the transportation context to provide an understanding of the TDM needs and opportunities at the Project Site.

Figure 1: Project Site Vicinity Map

1.1.1 Transit Network

The Project Site is located within the City of Santa Clarita Transit service area. The agency operates nine local bus routes and four commuter routes that connect the City's neighborhoods with each other, as well as provide connections to regional transit via the following six transfer stations: the Santa Clarita, Newhall, Via Princessa, and Chatsworth Metrolink stations, the North Hollywood Red/Orange Line Station, and the McBean

Regional Transit Center, which includes a park and ride lot. Commuter Express Service also is available during rush hours to Century City and downtown Los Angeles.

On average, service frequency for local bus routes ranges from 30 minutes to an hour during morning and evening peak hours. Most routes run between 5:00 A.M. and 9:00 P.M. on weekdays. Weekend service is less frequent, starts later in the morning, and ends earlier in the evening. Commuter train service into downtown Los Angeles is provided via the Metrolink Antelope Valley Line, which takes less than an hour to reach Union Station and runs 11 times a day. From the North Hollywood Metro Station, the Red Line runs every ten minutes through Hollywood to Union Station, a ride that takes approximately 30 minutes. The Orange Line serves points west and terminates in Chatsworth. Figure 2 shows a map with regional connections. Figure 3 illustrates the existing local Santa Clarita Transit Network.

Figure 2: City of Santa Clarita Transit Regional Transit Connections

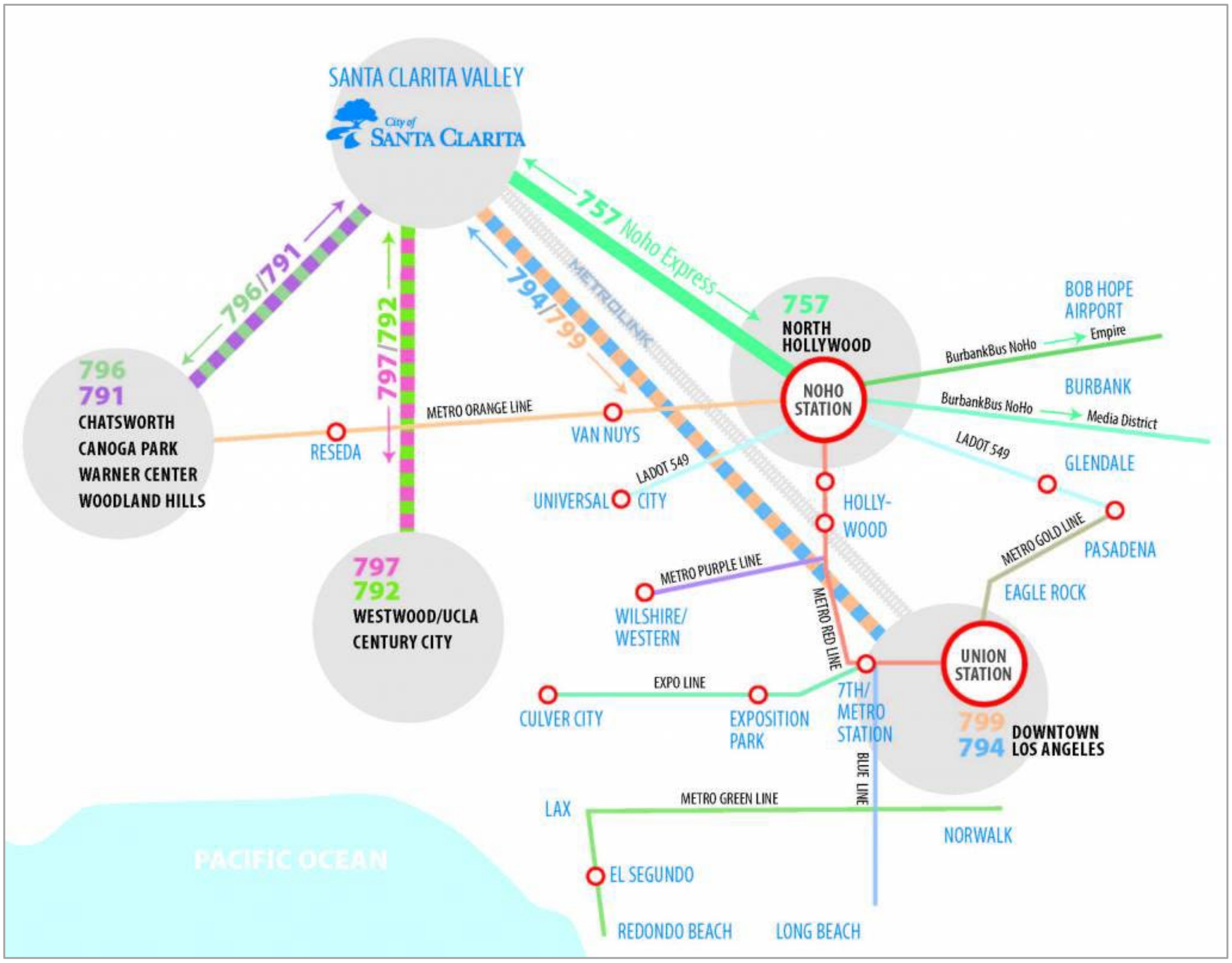
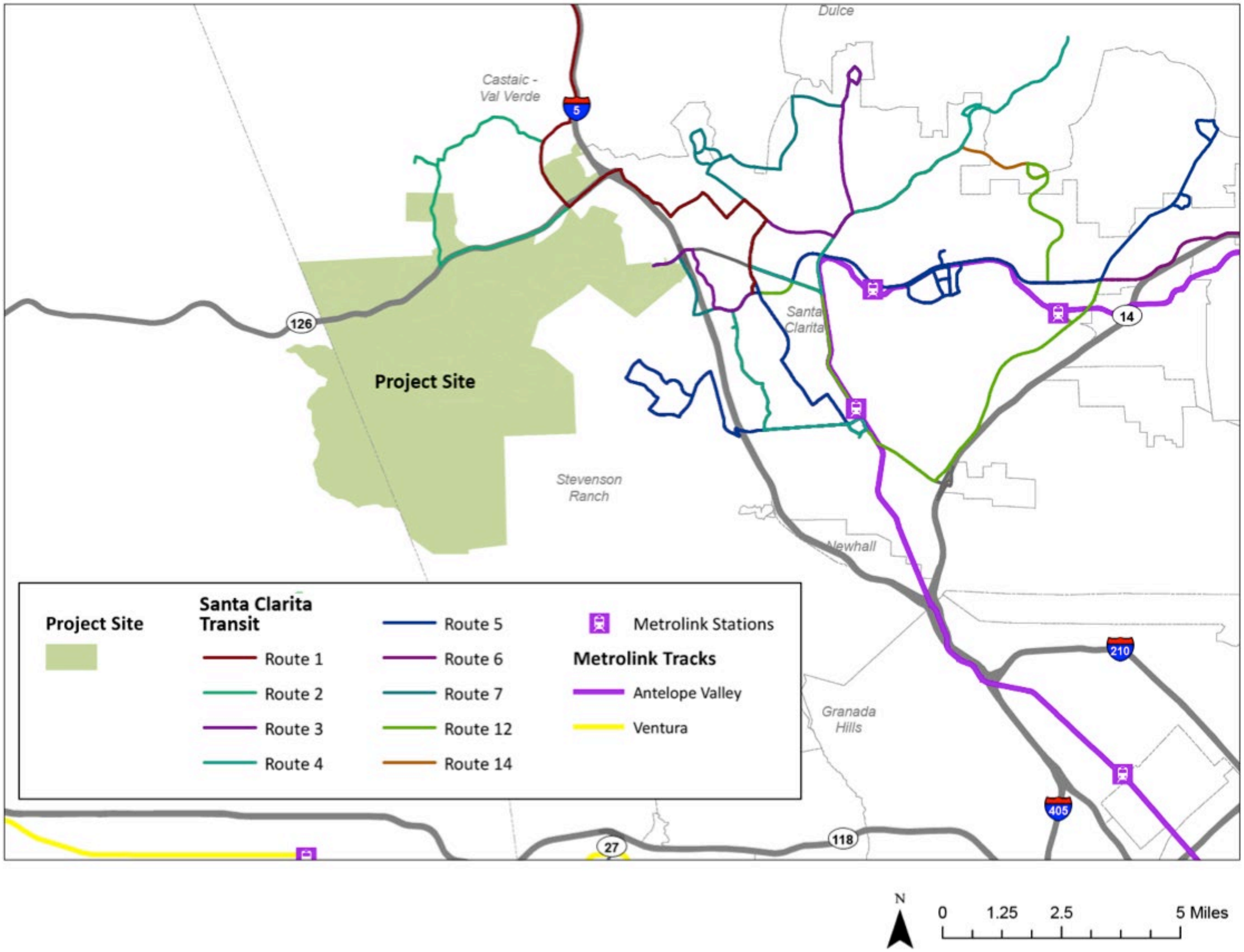


Figure 3: City of Santa Clarita Transit Local Service



1.1.2 Major Roadways

The Project Site is easily accessible from Interstate 5, which runs north-south and connects to downtown Los Angeles, and from Highway 126, which runs east-west between I-5 and the City of Ventura. A northward expansion of existing high occupancy vehicle (HOV) lanes from Highway 14 to north of Highway 126 is planned and scheduled to be completed in 2023. Within the Project Site area, an extension of Magic Mountain Parkway will run through the center of the site and connect with Long Canyon Road, an extension of the existing Valencia Boulevard. North-south connections will be provided by the extension of Commerce Center Drive, which will connect across Highway 126 to the Valencia Commerce Center, and by Long Canyon Road, which will connect to the existing Chiquito Canyon Road north of Highway 126. These new roads will be constructed as major and secondary highways along which transit service will be available.

1.1.3 Bicycle/Trails Network

The Los Angeles County Bicycle Master Plan adopted in 2012 identifies the addition of bike paths, lanes, or routes to several roadways adjacent to the Project Site. Planned improvements include bike paths and lanes along The Old Road, Castaic Creek, and the Santa Clara River/Highway 126. The bicycle master plan and related resources can be found here: https://dpw.lacounty.gov/pdd/bike/masterplan.cfm.

In 2020, the City of Santa Clarita adopted an update to its non-motorized transportation plan, which includes network and infrastructure improvements, facility design recommendations, and programmatic recommendations, including bicycle education and encouragement programs. The City of Santa Clarita is a Bronze level Bicycle Friendly Community, a recognition awarded by the League of American Bicyclists. The city's web site includes maps, bike parking information, safety tips, bicycles and transit information, and other resources. See: http://bikesantaclarita.com/.

The Project's proposed network of bicycle and multi-use trails generally will resemble the extensive existing trail network in neighboring Valencia. Off-street, multi-use trails will connect the villages within the Project Site. They will be supplemented by paseos, wide sidewalks with lighting, benches, and shade trees that provide connections to activity centers, such as schools, recreation centers, and neighborhood centers. On-street bike lanes will be provided on major roads as well.

1.1.4 Pedestrian Environment

Sidewalks will be provided along all roads within the planned development located on the Project Site, supplemented by the trail network. Cul-de-sacs are part of the street design in certain locations, although pedestrian connections will be provided at some of the planned cul-de-sacs to improve pedestrian connectivity.

2.0 TDM Strategies

The strategies outlined below shall be implemented pursuant to this TDM Plan. However, in light of the ongoing evolution of transportation technology and advancements, the strategies set forth below may be modified or replaced, as necessary, with alternative strategies of equal or enhanced effectiveness. Therefore, the applicant (or its designee) and/or the TMO, or equivalent management entity, shall periodically evaluate the parameters of this TDM Plan so as to ensure that the strategies are meeting the needs and priorities of the residents, employees, tenants, and visitors to the Project Site. As new technologies and strategies become available, the TDM Plan can be modified in order to implement alternative technologies and/or strategies of equal or enhanced effectiveness.

2.1 TDM Strategy Description

The following is a brief description of each TDM strategy and its application to the Project Site.

Construction

1. **Construction Traffic Management Plan**

   Description: A construction traffic management plan can be effective both to reduce VMT and reduce the potential construction-related congestion on traffic by maintaining mobility to, from, and within the Project Site during the construction period.

   Application: Prior to issuance of a grading or building permit for each village level project, the applicant, or its designee, shall develop a Construction Traffic Management Plan that may include, as applicable: worker carpools through available incentives; remote parking areas and corresponding shuttle service; work hours and truck deliveries scheduled to the extent feasible to avoid peak hour traffic conditions (i.e., 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.); and re-routing construction-related traffic from congested streets (i.e., those streets, if any, operating at unacceptable levels of service during the peak hours).

Operation

1. **Integrate Affordable and Below Market Rate Housing**

   Description: Income has a statistically significant effect on the probability that a commuter will take transit or walk to work[3]. Below Market Rate (BMR) housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit. Incorporating BMR also can encourage smaller units within the same building footprint, thereby increasing density and potential transit ridership.

   Application: The applicant, or its designee, shall include an Affordable Housing Program as part of the planned development within the Project Site, in accordance with the County of Los Angeles' Newhall Ranch Specific Plan approvals.

2. **Pedestrian Network**

   Description: Providing a pedestrian access network to link areas of a Project Site encourages people to walk instead of drive. This mode shift results in people driving less and, thus, a reduction in VMT.

   Application: The applicant, or its designee, shall include within the planned development located on the Project Site pedestrian-movement facilities (e.g., sidewalks, paseos, and trails as depicted in the Newhall Ranch Specific Plan Mobility Plan) that eliminate physical barriers and provide pedestrian-based access to both on- and off-site complementary land uses (e.g., neighborhood-serving commercial retail opportunities; schools; recreational amenities).

3. **Traffic Calming**

   Description: Providing traffic calming measures can encourage people to walk or bike instead of using a vehicle, thereby reducing VMT. Examples of traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others***.***

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[3] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site design elements that reduce motor vehicle speeds and improve pedestrian and bicyclist safety on the on-site streets and intersections. These design elements may include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

4. **Transit Network Expansion**

   Description: Increasing transit availability through route expansion or increasing existing transit frequency improves access to the Project Site and, therefore, will encourage transit ridership. This mode shift results in people driving less and, thus, a reduction in VMT.

   Application: The TMO, or its equivalent management entity, shall coordinate with the local transit agencies, including Santa Clarita Transit, to implement the Conceptual Transit Plan illustrated on Figure 4, to provide an expanded transit network that connects the Project Site to major transit centers in the Santa Clarita Valley, and enhance on and off-site connectivity options via transit.[4] The expanded transit network shall include bus stops located throughout the development area, a bus transfer station, and a park-and-ride lot to the extent deemed appropriate.

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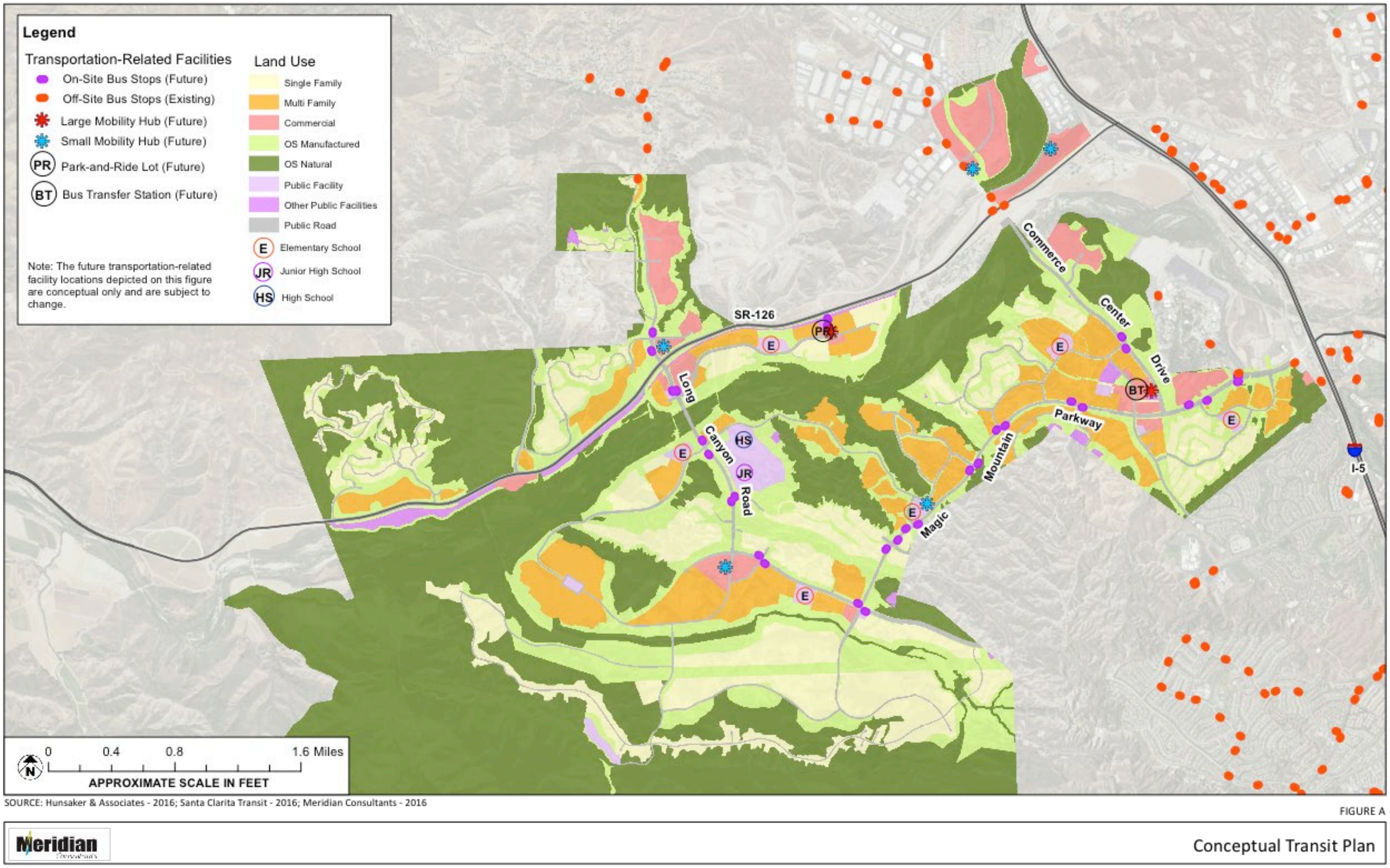
[4] See, Fehr & Peers Technical Memorandum, *RMDP/SCP Project: Transportation Demand Management Plan Evaluation* (September 2016), Exhibit 2.

Figure 4: Conceptual Transit Plan



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

5. **Alternative Work Schedules and Telecommute Program (Residential End)**

   Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

   Application: In furtherance of this strategy relative to Project residents, the TMO, or its equivalent management entity, shall utilize all appropriate marketing tools, including incentive strategies, to promote alternative work schedules and telecommuting on the part of Project residents, as feasible. In addition, the applicant, or its designee, shall construct all residential units to facilitate installation of high-speed internet services.

6. **Required Commute Trip Reduction Program**

   Description: A Commute Trip Reduction (CTR) program is an employer-administered program that discourages single-occupancy vehicle trips and encourages alternative modes of transportation such as carpooling, taking transit, walking, and biking. A CTR program provides employees with assistance in using alternative modes of travel and provides both “carrots” and “sticks” to achieve behavior change. A typical CTR program may include the following: preferential carpool parking, flexible work schedules for carpools, ridematching, designation of a transportation coordinator, transit subsidies, vanpool assistance, and bicycle end-trip facilities (e.g., parking, showers, and lockers). Participation in required commute trip reduction programs typically is required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

   Application: The TMO, or its equivalent management entity, shall coordinate with large business employers of the planned development located on the Project Site to implement a required CTR program that may include, but is not limited to, the utilization of ride sharing; provision of transit subsidies and preferential parking to carpools, vanpools and other commute strategies that minimize the use of single occupancy vehicles; and installs end-of trip bicycle facilities. As part of the program, the TMO (or equivalent management entity) shall establish performance and monitoring standards for the program’s implementation status. In furtherance of this strategy, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants, employers, and employees of the Project Site’s commercial areas, which establish and promote the benefits of commuting habits that reduce vehicle miles traveled. Additionally, the applicant/designee or the TMO (or equivalent management entity), as applicable, shall coordinate with

commercial builders/property owners to promote ridesharing through a multi-faceted approach that includes, but is not limited to, the measures below:

- Designating a certain percentage of parking spaces for ride-sharing vehicles that is equivalent to at least one dedicated parking space per 25,000 square feet of office space;

- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles; and

- Providing a web site or message board for coordinating rides

7. **Alternative Work Schedules and Telecommute Program (Work End)**

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: The TMO, or its equivalent management entity, shall coordinate with employers of the planned development located on the Project Site to facilitate the utilization of non-traditional worker commute patterns, for both Project residents and Project employees, by encouraging the use of alternative work schedules and telecommuting. In furtherance of this strategy for Project employees, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants and employers located in commercial areas on the Project Site that establish the benefits of alternative work schedules/telecommuting and provide successful templates for the implementation of such alternative approaches in the workplace. Additionally, any property management company managing commercial property on the Project Site shall require employers with 100 or more employees within the Project Site to develop and implement an alternative work schedules/telecommuting program consisting of the following elements: (1) appointment of a program coordinator; (2) identification of specific categories of employment positions that are appropriate for alternative work schedules and/or telecommuting; (3) provision of required equipment for telecommuting (e.g., hardware, software, and security); and (4) establishment of communications strategies to facilitate satisfaction of employment responsibilities (e.g., instant messaging). In furtherance of this strategy for Project residents, all residential units will be constructed with high-speed, high-capacity internet, and will be included in the TMO's marketing and incentive strategies.

8. **School Bus Program and School Travel Program**

Description: School travel can be a large vehicle trip generator. Under a school bus program, student school bus transit subsidies and Safe Routes to School (SRTS) programming have shown to be important and cost-effective ways to reduce overall trips in the community.

Application: The applicant, or its designee, in coordination with the Project Site's school districts shall establish a school bus program by offering fully subsidized transit passes to all Junior High and High School students residing within the Project Site. The TMO will staff a Safe Routes to School Coordinator position to work with all Valencia Elementary Schools to coordinate SRTS programming. In addition, the TMO will fund a part-time SRTS coordinator position at each of the three school districts (0.25 FTE per district) to leverage resources and coordinate and implement school travel planning to promote the school bus program as well as to provide education, encouragement, and incentives intended to increase taking transit, biking, walking, and carpooling to school. The school bus program, including the transit subsidies and SRTS program, and related staffing will be phased in based on the number of on-site schools and students residing within the Project Site.

9. **Transit Fare Subsidies for Employees**

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund and shall coordinate with those employers of the planned development located on the Project Site not required to participate in the Required Commute Trip Reduction program (Strategy 6) to provide alternative transportation subsidies to employees who commute to jobs located within the Project Site*.*

10. **Carshare Program**

Description: Carshare members, on average, have lower auto ownership rates and drive less than non-carshare members. One study found that, on average, 21% of carshare members in North America gave up their primary or secondary vehicle after joining a carsharing program[5].

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[5] IBI Group. (2009). *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards.* The City of Toronto.

Application: The TMO, or its equivalent management entity, shall establish a membership-based carshare program, whereby members have access to a shared fleet of vehicles. In order to incentivize participation, carshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership fee for up to 50 percent of the market rate households that elect to participate in the program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households); and, will subsidize 100 percent of the annual fee for up to 100 percent of the below market rate households. In the event the TMO is unable to retain a commercial carshare vendor, the TMO may consider diverting the funds otherwise planned to provide membership subsidies to the establishment of a peer-to-peer carsharing model, such as Getaround. The peer-to-peer model relies on private individuals registering their car for use by other residents for a fee. To ensure comparable levels of service and reliability to a traditional carshare provider (such as Zipcar), the peer-to-peer model would require aggressive marketing, outreach, and incentives to ensure that a sufficient fleet is established in terms of the number of vehicles and their locations. Another alternative approach could be the establishment of a Valencia-specific carshare service, as has been done successfully in small cities such as Ithaca, New York (population 30,515).

11. Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) Strategy

Description: NEVs are classified in the California Vehicle Code as a "low speed vehicle". They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length and can promote a mode shift from single-occupancy vehicles, particularly in their ability to replace short trips.

E-Bikes present another travel option with similar mode shift potential for short trips. Low-speed, pedal-assisted and throttle-assisted E-Bikes (Class 1 and 2) can reach a maximum speed of 20 MPH and are allowed by state law on all bicycle facilities, including dedicated bicycle paths, unless a local ordinance specifies otherwise. A survey conducted in 2015[6] showed that E-Bikes are particularly

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[6] "E-bikes in North America: Results from an Online Survey," John MacArthur, http://www.bikeleague.org/sites/default/files/E_bikes_mini_report.pdf.

popular in hilly areas and improve the mobility of older residents or people with disabilities who are unable to ride a standard bicycle. Class 1 and 2 E-Bikes do not require a driver's license, registration or insurance and the State of California specifies no minimum age.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site a comprehensive, interconnected travel network that accommodates NEV use and includes features such as NEV parking, charging facilities, striping, signage, and educational tools. Additionally, the applicant or its designee will provide funding for a subsidy covering 25 percent of the NEV purchase price (up to a $2,750 subsidy) that would be made available to residential detached single-family units located on the Project Site. The applicant or its designee also will provide funding for a subsidy covering 50 percent of the E-Bike purchase price (up to a $750 subsidy) that would be made available to all residential units on the Project Site. Subsidies will be made available to original homeowners. Should funding remain available at build-out, the TMO may expand eligibility to subsequent homeowners.

12. Mobility Hubs

Description: Mobility hubs are one-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. Mobility hubs are designed to facilitate multi-modal travel and encourage mode shifts by co-locating services and aggregating information.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site four small mobility hubs and two large mobility hubs. The following amenities are typical amenities that may be included at each mobility hub, dependent upon size (see *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers, September 2016, Exhibits 3 and 4*):

Small Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage

    - Co-location of carshare and bikeshare

Large Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage
- Co-location of carshare and bikeshare
- Designated park-and-ride spaces

13. **Tech-Enabled Mobility**

Description: Advances in technology have led to innovative new TDM opportunities. Recent technological applications include improved ride matching apps, real-time ride sharing, and innovative platforms that allow for trip planning, trip tracking, the administration of rewards programs, and real-time bus information.

Application: The TMO, or its equivalent management entity, shall establish as part of the planned development located on the Project Site a one-stop website for transportation information, as well as complementary apps for mobile devices and computers.

14. **Bike/Scootershare Program**

Description: Similar to carshare members, bikeshare members also have lower auto ownership rates and drive less than non-bikeshare member counterparts. Studies have found that on average 7% of bikeshare members replaced their personal vehicle with the bikeshare[7]. Both bikeshare and scootershare programs have been shown to reduce vehicle trips and associated greenhouse gas emissions.

Application: The TMO, or its equivalent management entity, shall establish a station-based or dockless bike/scootershare system on the Project Site with up to 24 stations or designated micromobility parking areas, in the case of a dockless system. The system may offer a variety of micromobility devices, however, at least fifty percent of the fleet will be comprised of electric devices. In order to increase

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[7] Johnston, K. (2014, April 7). Beyond Urban Planning: The Economics of Capital Bikeshare. *Georgetown Public Policy Review*. Retrieved from http://gppreview.com/2014/04/07/beyond-urban-planning-the-economics-of-capital-bikeshare/

ridership, program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership cost for up to 1.5 percent of Project residents who live in market rate housing; and 100 percent of the annual household membership cost for below market rate households.

15. **Transit Fare Subsidies for Residents**

    Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

    Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund, and shall provide alternative transportation subsidies to residents located within the Project Site (up to 3250 passes based on anticipated participation rates)**.** Market-rate properties must be part of the HOA or pay TMO dues for their residents to qualify.

Table 1: TDM Plan Performance Metrics and Targets, sets forth the applicable performance metrics and targets for each strategy identified for implementation herein. Notably, however, and as described in Chapter 4.0 below, implementation of this “umbrella plan” will be subject to applicability evaluations and customization efforts in conjunction with the processing of County-level entitlements for planned development located on the Project Site. The overall implementation of this TDM Plan on the Project Site is anticipated to produce the desired effect and facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

2.2 TDM Resources

The following regional and local resources presently are available to facilitate implementation of the TDM Plan.

2.2.1 Go511

Go511 is Southern California’s traffic information portal. It links commuters and employers to resources and information about car- and vanpooling, trip planning, commute costs, current traffic, and other helpful commute information. It offers regional employer programs, including a free Guaranteed Ride Home program, which provides commuters

who take transit, car- or vanpool, or bike or walk to work with a free ride home in case of an emergency.

The affiliated ride share service, RideMatch, a joint partnership between Los Angeles County, Orange County, and Ventura County, provides commuters with a platform to find a car- or vanpool match, as well as other local resources and incentives for use. Additional employer and commuter programs are available from the Los Angeles County Metropolitan Transportation Authority, which also offers assistance with and incentives for setting up vanpools.

Associated web sites:

http://www.go511.com/
https://www.ridematch.info/
http://www.metro.net/riding/rideshare/

2.2.2 Vanpool Providers

Commuter vanpooling is a transportation mode that encourages employees who live near each other to commute to work via a van leased to the group by a private company. Three vanpool providers operating in Southern California are Commute with Enterprise, Green Commuter, and AVR Vanpool. The Los Angeles County Metropolitan Transportation Authority (Metro) has a vanpool program that offers assistance with vanpool formation and provides a subsidy of up to $500 subsidy per vanpool. An additional subsidy may be available through Rideshare L.A. County as a pilot program.

Associated web sites:

https://www.metro.net/riding/vanpool/
https://rideshare.lacounty.gov/vanpool-new/
https://www.commutewithenterprise.com/en.html
https://www.airportvanrental.com/vanpool
https://greencommuter.org/vanpooling

2.2.3 Ridesourcing Options

In addition to traditional taxicab service, both Uber and Lyft operate in a service area that includes the City of Santa Clarita and the County of Los Angeles, including the Project Site.

Both companies allow users to request rides real-time via a mobile app with payment processed through the app and offer carpooling options on the fly (Lyft Shared and UberX Share). Rides are generally less expensive than a taxi ride, based on supply and demand of drivers and passengers.

3.0 TDM Implementation Plan

Following the California Department of Fish & Wildlife's (CDFW) approval of the Newhall Ranch RMDP/SCP, implementation of this TDM Plan is overseen by the County of Los Angeles as individual village-level projects are processed and approved by the County. Because the VMT-reducing strategies that comprise the TDM Plan are expected to have varying levels of applicability and degrees of effectiveness for individual village-level projects, the TDM Plan (including performance metrics) may be refined, as necessary, as part of the County's approval process, to reflect the relevant characteristics (e.g., land use mix) of each respective village.

Notwithstanding, the performance metrics identified in this TDM Plan shall be met in full, upon buildout of all development facilitated by the RMDP/SCP. In the event the maximum development potential authorized by CDFW's approvals is not achieved as part of the County's approval processes for the individual village-level projects, the VMT-reducing strategies and performance metrics may be adjusted to reflect the modified buildout projections while maintaining consistency with the core objectives of this TDM Plan (i.e., to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies and, thereby, reduce total VMT and the corresponding GHG emissions).

3.1 Funding Options

The TMO and the long-term implementation of the TDM Plan, including transit, carshare and bikeshare programs subsidies, will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay. The payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties. The applicant or designee will provide funding for infrastructure components, such as mobility hubs, traffic calming, the pedestrian network, bikeshare facilities, and NEV/E-Bike subsidies. As needed, the applicant, or its designee, also may subsidize TMO operation during the first years until revenues from assessments are sufficient to fund the annual TMO operating expenses.

3.2 Organizational Structure

As previously discussed, a non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to deliver the programs and services identified in this TDM Plan, as applicable.

3.3 TMO Creation Action Plan

It is estimated that the start-up activities to prepare for implementation of the TDM programs and strategies identified in this plan will begin approximately three months prior to issuance of the first building permit. The timing ensures that an organizational structure that facilitates the receipt of funds and the provision of applicable TMO services will be in place as soon as the first property owners and tenants move in. The TMO will be a non-profit organization. The governing body's membership gradually will expand to include a growing number of property owners as they begin occupancy at the Project Site. TMO creation steps are as follows:

- **Create a TMO and form a governing body:** If the TMO is a division of an existing entity, such as a master owners' association, this step simply involves formalizing and expanding a steering committee. If the TMO is envisioned as an independent non-profit organization, the steps for incorporating the entity are listed below.

- **Incorporation of the TMO (optional):** The process for incorporating a TMO is outlined below.
    - Draft and file the articles of incorporation
    - Recruit and appoint a Board of Directors
    - Draft by-laws and conflict of interest policy
    - Conduct initial board actions (election of board officers, approval of the by-laws and conflict of interest policy, and establishment of a bank account).
    - Obtain an employer identification number
    - File the initial registration form (Form CT-1) with the California Attorney General's Registry of Charitable Trusts
    - File the Statement of Information (Form SI-100) with the Secretary of State
    - Apply for federal tax exemption with the Internal Revenue Service (IRS) and receive a determination letter from the IRS
    - Apply for California tax exemption with the California Franchise Tax Board (FTB) and receive an affirmation of exemption letter from the FTB

3.4 Key Implementation Actions

Implementation of the TDM Plan shall be phased in, based on the mix of uses developed, occupancy rates, need, and demand. Additionally, in coordination with the County of Los Angeles, the applicant (or its designee) shall review the planned development located within the Project Site concurrent with the processing of County-level entitlements for each village. Each village's land use map, composition of land use categories, and geographic placement within the Project Site shall guide the determination of the precise implementation of the strategies identified herein. It is not anticipated that every village necessarily will implement each strategy enumerated in this TDM Plan (e.g., each village may not include its own mobility hub). Village-specific performance metrics and targets will be prepared in conjunction with the County's approval process for use in lieu of the overarching metrics and targets presented in Table 1. That said, the overall implementation of this TDM Plan on the Project Site is anticipated to facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

3.4.1 Start Up Activities

The start-up activities summarized below will be undertaken to prepare for TDM service delivery. The applicant, or its designee, will:

- Hire staff and establish the TMO, including creation of a financial structure and accounting procedures

The applicant, or its designee, and TMO staff will proceed to:

- Create the TMO budget and ensure TDM program funding by finalizing assessment rates;
- Identify stakeholders and establishing the relationships necessary to successfully implement the TDM strategies;
- Finalize a business plan and create a detailed work plan;
- Create TMO branding and identity;
- Develop a marketing plan;
- Create a steering committee; and
- Establish monitoring and evaluation procedures.

3.4.2 Year One Activities – Based on development triggers

The activities described in this section prepare the TMO for effectively implementing its service when certain milestones are reached. These include employers and residents moving in, schools opening, and bikeshare and carshare systems launching. These activities do not necessarily happen during the first year of operation; instead, they are triggered by differing development milestones dependent upon the particular strategy and, generally, correspond to the first year of residential occupancy or the first year of school operation within the district unless otherwise noted. The timeline in section 3.5 below lists the triggers along with the corresponding strategies and actions. In Year One, the TMO will:

- Initiate the preparation of marketing materials, which may include new resident and new employee welcome kits, as well as general marketing materials;
- Establish an incentive structure for behavior-supportive subsidies, including prizes for drawings or giveaways to be used to incentivize and reward change from single occupant vehicle travel;
- Begin working with employers prior to their move to the Project Site;
- Conduct outreach to developers and property managers to ensure that preferential carpool parking, loading and passenger waiting zones and other end-of-trip facilities are implemented;
- Develop an effective system to administer payment of transit, bikeshare, and carshare program subsidies to employees, students and residents, as applicable;
- Develop a SRTS travel planning strategy that will promote transit service and encourage walking, biking and carpooling to school;
- Assess and employ tech-enabled mobility to provide functionalities such as trip planning, ridematching, ridehailing, trip tracking, rewards programs, and others;
- Begin implementation of monitoring and evaluation activities;
- Launch bikeshare program;
- Launch carshare program.

3.4.3 Ongoing Activities – Years 2 – 5

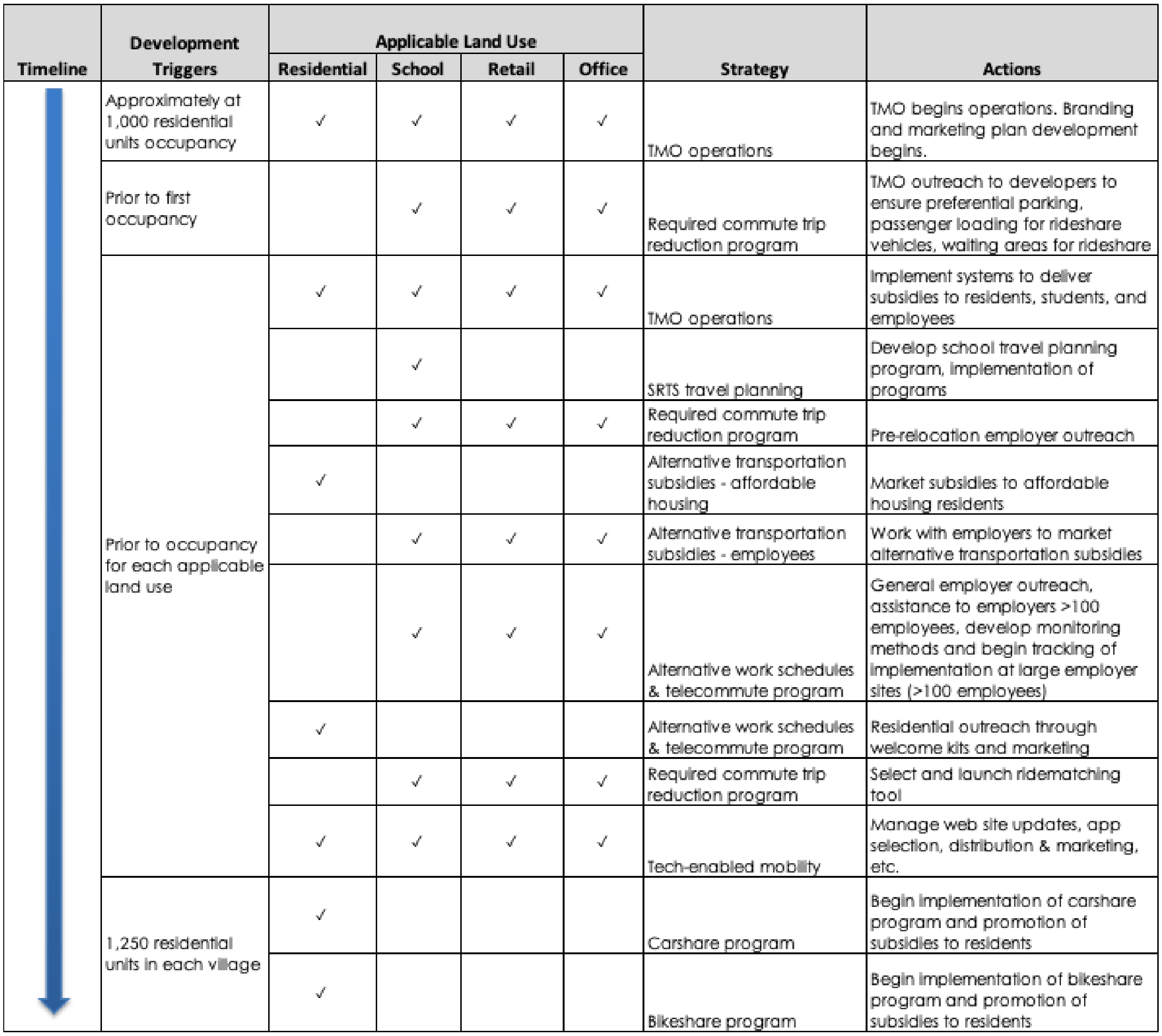
While specific implementation details will evolve over time and may be adjusted based on new strategies, technologies, or approaches that become available, these general categories will remain key components of program implementation during the first five years and beyond. During these years, TMO staff will:

- Administer transit/alternative transportation subsidies and introduce bikeshare and carshare subsidies as the programs are launched;
- Implement a residential engagement strategy to educate residents about alternative transportation options, available subsidies, and related programs;
- Implement an employer engagement strategy to educate both employers and their employees about the commute options, subsidies, and programs available to them;
- Administer school travel planning programs, such as school pools, walking, school bus, bike trains, incentives, and other programs available at that time; and
- Continue to monitor and evaluate TDM activities.

3.5 Timeline and Phasing

This timeline of TMO activities was developed to provide an estimate of when, during the development phasing process, certain actions need to begin in order to ensure service delivery as building occupancy occurs. The timeline may be adjusted based on changes to the TDM strategies. The TMO will begin operations approximately after the 1,000th residential unit has been occupied. Once the TMO is operational, the implementation will follow the triggers outlined in Table 1 below.

Table 1: Development Triggers



Timeline	Development Triggers	Applicable Land Use				Strategy	Actions
		Residential	School	Retail	Office		
	Approximately at 1,000 residential units occupancy	✓	✓	✓	✓	TMO operations	TMO begins operations. Branding and marketing plan development begins.
	Prior to first occupancy		✓	✓	✓	Required commute trip reduction program	TMO outreach to developers to ensure preferential parking, passenger loading for rideshare vehicles, waiting areas for rideshare
	Prior to occupancy for each applicable land use	✓	✓	✓	✓	TMO operations	Implement systems to deliver subsidies to residents, students, and employees
			✓			SRTS travel planning	Develop school travel planning program, implementation of programs
			✓	✓	✓	Required commute trip reduction program	Pre-relocation employer outreach
		✓				Alternative transportation subsidies - affordable housing	Market subsidies to affordable housing residents
			✓	✓	✓	Alternative transportation subsidies - employees	Work with employers to market alternative transportation subsidies
			✓	✓	✓	Alternative work schedules & telecommute program	General employer outreach, assistance to employers >100 employees, develop monitoring methods and begin tracking of implementation at large employer sites (>100 employees)
		✓				Alternative work schedules & telecommute program	Residential outreach through welcome kits and marketing
			✓	✓	✓	Required commute trip reduction program	Select and launch ridematching tool
		✓	✓	✓	✓	Tech-enabled mobility	Manage web site updates, app selection, distribution & marketing, etc.
	1,250 residential units in each village	✓				Carshare program	Begin implementation of carshare program and promotion of subsidies to residents
		✓				Bikeshare program	Begin implementation of bikeshare program and promotion of subsidies to residents

Activities that do not fall under the purview of the TMO, such as the review and approval of construction traffic management plans, inclusion of affordable housing, the development of a pedestrian network, traffic calming, and the transit network expansion, shall be incorporated into the County of Los Angeles' development review and approval activities and, in the case of transit expansion, coordinated and negotiated with City of Santa Clarita Transit.

4.0 Program Monitoring

The applicant (or its designee) and/or the TMO or equivalent management entity will track the progress towards meeting the performance metrics and targets identified in Table 2, RMDP/SCP TDM Plan Performance Metrics and Targets. Such monitoring includes verification of the installation of infrastructure components, payment of subsidies, and implementation of the various programs and services identified in this TDM plan. Progress will be monitored as identified in Table 2 to ensure that program goals are met and to inform the implementation of TDM strategies going forward.

Progress towards meeting the identified targets will be tracked via the following data collection mechanisms:

- Field verification: Field verification primarily will be used to verify installation of infrastructure components such as the Pedestrian Network, Traffic Calming, NEV travel network, Mobility Hubs, and Bikeshare Network. The field verification will be performed by the TMO or equivalent entity.

- Resident Surveys: The TMO or equivalent entity will track program participation and conduct resident surveys as needed to track the following metrics:
    - Percentage of workforce residents participating in an alternative work schedule;
    - Percentage of students arriving at school via public transit or non-motorized modes;
    - Percentage of households with a carshare membership;
    - Percentage of households with an NEV or E-Bike; and
    - Percentage of below-market households with a subsidized transit pass.

- TMO Reports: The TMO or equivalent entity will prepare an annual report detailing its activities and accomplishments, including the establishment of, and ongoing activities related to:

    - Required Commute Trip Reduction Program; and
    - Tech-enabled Mobility Program.

- Employer Reports/Surveys: Employers will submit an annual report to the TMO, or participate in an annual survey conducted by the TMO, as appropriate, to ensure the following metrics are tracked:
    - Percentage of employees participating in an alternative work schedule;
    - Percentage of employees receiving a discounted transit pass or other alternative transportation subsidy.

Additional methods listed in Table 2 include the review of partnership documents and reports from partnering agencies, and final as-built documents.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
1	Integrate Affordable and Below Market Rate Housing	Because income has a statistically significant effect on the probability that a commuter will take transit or walk to work, affordable and below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit.	Percentage of deed-restricted, below market housing units	10% of total housing units upon full build-out of the development facilitated by the RMDP/SCP	Review of deed-restricted, below market housing units within the development divided by total number of housing units	Once after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
2	Pedestrian Network	Pedestrian facilities, such as sidewalks, paseos, and trails.	Pedestrian network build-out that provides internal pedestrian facilities and facilities that connect off-site	Full build-out of planned pedestrian network that provides internal and external pedestrian connections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections. These measures include but are not limited to: count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.	Percentage of streets and intersections with a traffic calming improvement	100% of streets and intersections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
4	Transit Network Expansion	Extension of Santa Clarita Transit routes into Valencia.	Extension of transit system coverage throughout RMDP/SCP project area to each village, consistent with the Conceptual Transit Plan (or equivalent)	Extension results in 80% increase in Santa Clarita Transit system network coverage within the RMDP/SCP project area, as compared to the existing coverage provided within the project area	Transit Operator Reports	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
5	Alternative Work Schedules and Telecommute Program (Residential End)	High-speed internet available to residents and marketing efforts by the Transportation Management Organization (or equivalent entity).[8]	Percent of workforce residents participating in an alternative work schedule	10% of workforce residents participating in an alternative work schedule	Resident Surveys/Big Data[9]	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
		Internet speeds	Pre-wired residential access to high-speed internet	Internet Service Provider Reports	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village	
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures, such as ride-sharing, marketing, transit fare subsidy, preferential parking, and/or end-of-trip facilities at larger employers. (This is neither intended to be an inclusive or exclusive list of potential measures.)	Program established with a threshold for participation set such that at least 50% of employees at Valencia are captured in the program	Establishment of a multi-strategy program that includes components such as preferential carpool parking, flexible work schedules for carpools, transit fare subsidies, ridematching, designation of a transportation coordinator, vanpool assistance, and bicycle end-trip facilities	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	Percent of employees participating in an alternative work schedule	10% of employees participating in an alternative work schedule	Employer Report or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
8	School Bus Program	Fully subsidized school bus transit pass to all junior high and high school students	School bus transit passes distributed to Junior High and High School Students	Established as part of the development of each respective village	TMO report	Annually after full build-out of each village	Concurrent with the full build-out of each

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[8] When referred to in this table, TMO includes a Transportation Management Organization or an equivalent entity.

[9] Advances in Big Data have increased the data's suitability for measuring mode share. Replica is one example of a tool that uses big data and provides mode share and telework data.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
		TMO staffs a Safe Routes to School Coordinator position for each Valencia Elementary School to coordinate SRTS programming.	Percentage of Junior High and High School students arriving at school via bus or non-motorized modes	76% of students	Resident Surveys		respective village
		Each School District staffs a SRTS Coordinator position (0.25 FTE per district) to coordinate programming on-site, work with the TMO and work with school staff to implement Safe Routes to School.	Staff person hired at TMO	1 FTE	TMO report		
			Staff person hired at each School District	0.25 FTE per district	School Districts report		
			Percentage of Elementary School students walking or biking to school	28% of students	Resident Surveys		
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes or other alternative transportation subsidy for employees whose employer does not participate in the CTR Program.	Fund a transit or alternative transportation subsidy program for 10% of all employees employed at Valencia whose employer does not participate in the CTR Program, at $5.96 subsidy per person per day.	10% of non-CTR Program employees	Employer Reports or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or other.	Provide infrastructure for carshare parking spaces at mobility hubs	Full build-out of supportive carshare network	Final as-built documents	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Carshare provider contracted to serve Valencia	Partnership with carshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Membership in carshare program	1% of residents participate in carshare program	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
11	NEV & E-Bike Strategies	Travel network that accommodates NEV & E-Bike use, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies is included in this strategy: NEV subsidies are available to original owners of detached single-family homes and E-Bike subsidies are available to all original homeowners.	NEV travel network build-out	Full build-out of planned NEV travel network	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
			Percent of households with an NEV	20% of single-family households (1,749 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Percent of households with an E-Bike	55% of all households (11,683 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally located within neighborhood and employment centers, consistent with the Conceptual Transit Plan (or equivalent).	Number of small mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare)	4 small mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Number of large mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare, designated park-and-ride spaces)	2 large mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
13	Tech-Enabled Mobility	One-stop website for Valencia transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information, etc. All-in-one Valencia specific transportation app or suite of apps. Similar information and services as on website.	Mobile Application implemented by TMO that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented application	TMO Report	Annual updates and upgrades to application	Full development build-out of each village
			Website implemented by TMO for transportation information that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented website	TMO Report	Annual updates and upgrades to website	Full development build-out of each village
14	Bike/Scootershare	On-site availability of bikeshare bicycles, including standard and E-Bikes or e-scooters in the fleet, throughout the project site with subsidized membership.	Provide infrastructure for up to 15 bikeshare stations/parking areas at mobility hubs and other locations, including 50% E-Bike/E-Scooter composition	Full build-out of planned bike/scootershare network	Field Verification	Once after full build-out of all development facilitated by the RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Third party provider contracted to serve Valencia	Partnership with third party provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
15	Transit Fare Subsidy for Residents	Discounted daily or monthly public transit passes or other alternative transportation subsidy for residents (excluding residents of market-rate properties that do not pay HOA or TMO dues).	Fund subsidized transit pass at $5.96 per day for residents in all households	3,250 subsidies	TMO Report	Annually after full build-out of housing facilitated by RMDP/SCP	Full build-out of housing facilitated by RMDP/SCP

FEHR & PEERS

MEMORANDUM

Date: December 16, 2022

To: Alex Herrell, The Newhall Land and Farming Company

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: Quantification of Implementing TDM Strategies

Ref: LA16-2810/LA22-3381

The purpose of this memorandum is to document the VMT reductions associated with expanded transportation demand management (TDM) strategies to implement the School Bus Strategy in the Newhall Ranch TDM Plan in the Final Additional Environmental Analysis by the California Department of Fish & Wildlife (TDM Plan).[1] As background, the TDM Plan includes fifteen strategies designed to maximize VMT reduction opportunities within the facilitated development areas of the RMDP/SCP Project, taking into account the Project location and the types of land uses that would be facilitated by the Project. The estimated total VMT reduction for these 15 strategies was previously determined to be 14.9%. The TDM Plan allows for alternative strategies to be implemented over time that provide an equivalent level of VMT reduction. This memo describes five TDM strategies that are expected to achieve an equivalent level of VMT reduction once implemented and incorporated into the TDM Plan.[2]

In some cases, quantification of these strategies is based on research contained in the California Air Pollution Control Officers Association's 2010 report entitled *Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA). For some strategies, the creation of a quantification methodology was required, based on a review of available research and documentation.

This implementation memorandum describes the five adjusted and expanded strategies that are incorporated into the TDM Plan and achieve an equivalent level of VMT reduction, as shown below:

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[1] Fehr & Peers (2016). RMDP/SCP Transportation Demand Management Plan Evaluation, dated September 7, 2016, published as Appendix 8 of the Final Additional Environmental Analysis, California Department of Fish & Wildlife, SCH No. 2000011025, June 12, 2017.

[2] Valencia Transportation Demand Management Plan, October 2022. Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

- Strategy 8: School Bus Program
- Strategy 9: Transit Subsidies for Newhall Ranch Employees
- Strategy 11: NEV & E-bike Strategy
- Strategy 14: Bikeshare & Scootershare
- Strategy 15: Transit Subsidies for Newhall Ranch Residents

STRATEGY 8 – SCHOOL BUS PROGRAM

The School Bus Strategy, Strategy 8, will be adjusted in conjunction with additional strategies during implementation as described below to provide an equivalent level of reduction in VMT.

As originally described and quantified in the TDM Plan, Strategy 8 assumes 76% of families in the area covered by the TDM Plan participate in the school bus program across elementary, junior, and senior high schools, which would be free for students to use. During implementation, by partnering with Santa Clarita Transit (SCT), the organization established to implement the TDM Plan will fully subsidize high school and junior high school student school bus fares to implement Strategy 8. SCT currently provides busing services for high school and junior high school students via their public bus service, with fares at $1 per ride, in conjunction with other measures described below.

For the high school and junior high school level, uptake between a school-district operated system and the existing SCT service is expected to be equivalent because Newhall will offer full fare school bus subsidies to all students and coordinate closely with SCT to ensure the routes, stops, and service hours are in line with student needs, including before school and after-school hours. Given potential parent concerns about elementary school students traveling on a public bus system, the SCT system currently does not provide service to elementary school students that would result in equivalent uptake as a district-provided school bus system.

The total number of students anticipated within the area covered by the TDM Plan is 8,778.[3] Of this total, 4,320 would be elementary students, or 49%. Therefore, Newhall could expect to see 51% of the previously-estimated overall VMT reduction for the School Bus Strategy (3.4%) as a result of implementing the SCT program (100% of students less 49% elementary students). This would result in an estimated VMT reduction of 1.7% (51% * 3.4%).

In order to achieve an additional 1.7% VMT reduction for an equivalent level of TDM reduction, a portion will be realized through a strong Safe Routes to School (SRTS) program implemented at the elementary schools. Approximately 22% of elementary school students are expected to live

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[3] Data provided by FivePoint on 5/16/19.

within a quarter mile of their school, and would comprise the maximum reasonable “baseline” for students walking and biking to school. Research on the effectiveness of SRTS programs shows that an increase of 25% of students walking or biking could be anticipated as a result of SRTS programming (separate from the effects of physical infrastructure changes) (McDonald, et al, 2014).

As previously described in the TDM Plan evaluation memo, the reduction in school VMT is calculated by multiplying the participation rate – in this case, the 25% marginal increase in walking and biking participation rate attributable to the implementation of the SRTS program – by the number of school weeks divided by the number of total weeks in the year.

> % Reduction in Elementary School VMT = 25% marginal participation rate of families * 22% baseline * (39 school weeks / 52 weeks)

This percent reduction is then applied to the VMT that would be generated by the Project’s elementary school-based trips, or 49% of the 5.9% of total annual school VMT, to calculate the reduction to overall project VMT. In total, this results in an additional overall project VMT reduction of 0.1% (25% * 22% * 39/52 * 49% * 5.9%).

Therefore, the combined school bus SCT and SRTS strategies would result in a 1.8% overall VMT reduction. The remaining 1.6% VMT reduction is discussed below.

STRATEGY 9 – TRANSIT SUBSIDIES FOR NEWHALL RANCH EMPLOYEES

The Employee Transit Subsidy, Strategy 9, will be expanded during implementation, as follows. By increasing the amount of subsidy from $2.98 per day to $5.96 per day, while maintaining the assumptions about levels of employee eligibility at 50%, Strategy 9 will achieve an additional 0.3% reduction in VMT, reaching a total of 1.4% for Strategy 9. As described in the evaluation of the TDM Plan, $2.98 equates to between 25%-100% of a round-trip fare on Santa Clarita Transit, depending on the service class selected. Currently, a one-way fare for a local route is $1.00, while a one-way fare for the most expensive commuter route (to Century City and Los Angeles) is $4.00. A $5.96 subsidy per day would cover substantially more of the cost of a round-trip fare on the commuter routes, but not 100%. Employee eligibility cannot be adjusted for this strategy, since 50% of employees are already assumed to have transit pass subsidies provided through Strategy 6.

STRATEGY 11 – NEV & E-BIKE STRATEGY

The E-bike Strategy will be expanded during implementation. In the original TDM Plan, this strategy is considered as a component of the NEV strategy, Strategy 11, with a bifurcated approach to implementation that provides NEV subsidies to single-family households and e-bike subsidies to

multi-family households. During implementation, e-bike subsidies will be provided to all households, at the same value as assumed in the TDM Plan, to achieve an additional 0.4% reduction in VMT, reaching a total of 2.9% for Strategy 11.

STRATEGY 14 – BIKESHARE & SCOOTERSHARE

The Bikeshare Strategy, Strategy 14, will be expanded during implementation. In the original TDM Plan, the effectiveness of the Bikeshare Strategy is based on empirical bikeshare usage data from Los Angeles. Implementation of the strategy assumes a non-electric fleet. Recent research into the implementation of electric bikeshare compared to standard bikeshare indicates a higher level of usage for electric bikeshare, higher rates of mode shift from automobile modes, and lower sensitivity to environmental factors such as weather and air quality (Campbell et al, 2016). In addition, dockless e-bike-based fleets were used between two and three times as frequently as standard pedal bike-based fleets in 2018 (NACTO, 2019). Preliminary research from the Capital Bikeshare system pilot in Washington, D.C., shows that e-bike trips are approximately 20% longer than standard bike trips taken on the same bikeshare system (Sussman, 2018). In recent years, electric dockless scootershare programs have also become a popular iteration of this type of mobility system, with a limited base of literature demonstrating VMT reduction potential (Volker, 2020).

However, not all trips taken on bikeshare or scootershare – whether on e-bikes, e-scooters, or standard bikes – are replacements for vehicle trips; some are entirely new trips. Given this consideration, it is reasonable and conservative to increase the effectiveness of the bikeshare system in reducing VMT by 50% over its previously-estimated levels of effectiveness, if the fleet were comprised of e-bikes in addition to standard bicycles. Making this adjustment to the implementation guidelines in the TDM Plan achieves an additional 0.15% VMT reduction, for a total of 0.5% for Strategy 14.

STRATEGY 15 – TRANSIT SUBSIDIES FOR NEWHALL RANCH RESIDENTS

The Resident Transit Subsidy, Strategy 15, will be expanded during implementation. For Strategy 15, increasing the level of subsidy offered to people who live in below market rate households from $2.98 to $5.96 per day, and adding a transit subsidy benefit for people who live in market rate households at a level of $5.96 per day, will achieve an additional 0.8% reduction in VMT, for a total of 0.9% for Strategy 15.

CONCLUSION

Together, the above implementation adjustments to the TDM Plan achieve an equivalent level of VMT reduction as previously estimated for the TDM Plan. This includes the dampening effects of combining the individual VMT reduction amounts associated with each strategy, as described in the memorandum evaluating the TDM Plan. A total estimated 14.9% VMT reduction will result from the TDM Plan with the above adjustments and additions.

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	6% of units are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting to jobs outside Newhall Ranch	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating); includes TRT-3, TRT-5, TRT-7, TRT-8	TRT-2	4.2%-21% (commute trips only)	10.5%	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips	1.5%	0.2%
8	School Bus Program	Implement modified school bus program: 51% of students (junior and senior high school level) taking SCT service with fully-subsidized pass.	76% of families with students in junior or senior high school use SCT Program	TRT-13 (mod)	38%-63% (school trips only)	57.0%	1.7%
		Implement modified school bus program: 49% of students (elementary level) participating in a Safe Routes to School program to encourage greater walking/biking.	30.5% of families with students in elementary school walk/bike to school	N/A	25% (school trips only)[5]	4.1%	0.1%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $5.96/day subsidy	TRT-4	0.3%-20% (commute trips	10.0%	1.4%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	1 NEV per 5 single-family residences; plus 1 e-bike per residence.	SDT-3 (NEVs only)	0.5%-12.7%	2.9%	2.9%
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within each neighborhood and employment center.	Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations	N/A	0%-0.5%[6]	0.3%	0.3%

Table 1

Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[6]	1.5%	1.5%
14	Bikeshare & Scootershare	On-site availability of bikeshare bicycles throughout the project site, with a mixed fleet of standard and electric bicycles as well as e-scooters.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[6]	0.5%	0.5%
15	Transit Fare Subsidy for Residents	Discounted public transit passes to all households.	Increases transit mode share for external home-work productions.	N/A	N/A	10.0%	0.9%
Overall Global VMT Reduction							**14.9%[7]**

Notes

1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Below Market Rate Housing Affordable to an Average Income of 75% Below Area Median Income	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	6% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	11% of VMT (home-based work productions)	78% of work trips external to Newhall Ranch	-	-	0.2%
6	Required Commute Trip Reduction Program (includes creation of TMO)	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	14% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	51% of students (junior and senior high school level)	-	1.7%
		N/A	25% (school trips only)[5]	22% (students within walking distance)	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	49% of students (elementary school level)	-	0.1%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	20% reduction in commute VMT (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.4%
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	90% Market rate households; 10% Below Market Rate Households	-	0.4%

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
11	NEV Strategy for Single-Family Residences	SDT-3	0.5%-12.7%	1 / 5 Single-Family HH with an NEV	12.7% VMT reduction (CAPCOA)	-	-	-	2.9%[6]
	E-Bike Strategy for All Residences	N/A	6%-15%[7]			(Calculation N/A)			
12	Mobility Hubs	N/A	0%-0.5%[7]			(Calculation N/A)			0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[7]			(Calculation N/A)			1.5%
14	Bikeshare & Scootershare	TRT-12	0.2%-0.5%[7]			(Calculation N/A)			0.5%
15	Transit Fare Subsidy for Residents	N/A	N/A	50% Participation	20% reduction in commute VMT (CAPCOA)	11% of VMT (home-based productions)	78% of work trips external to Newhall Ranch	-	0.9%
Overall Global VMT Reduction									**14.9%[8]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for all residences.
7. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
8. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Appendix 5.9c

Entrada South & Valencia Commerce Center
TDM Plan Evaluation

FEHR & PEERS

Date: September 20, 2023

To: Alex Herrell, The Newhall Land and Farming Company

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: Entrada South & Valencia Commerce Center: Transportation Demand Management Plan Evaluation

Ref: LA16-2810/LA22-3381

This technical memorandum evaluates the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP)[1] Transportation Demand Management Plan Evaluation, originally dated September 7, 2016, as updated in September 2022 (TDM Plan)[2] and its application to the villages of Entrada South and Valencia Commerce Center, which are located within the boundaries of the TDM Plan. The purpose of this memorandum is to determine if the TDM implementation strategies in Entrada South and Valencia Commerce are consistent with the TDM Plan. This analysis tiers off the State-certified EIR for the RMDP/SCP.[3]

1. INTRODUCTION

The TDM Plan contains a set of strategies designed to maximize VMT reduction opportunities within the RMDP/SCP development area, including Entrada South and Valencia Commerce Center. The analysis of the TDM Plan and application within the context of Entrada South and Valencia Commerce Center takes into account the villages' respective locations within the greater RMDP/SCP area and the types of land uses that would be developed as part of the Project in assessing their respective VMT reductions.

As proposed, Entrada South would accommodate 1,574 condominium/townhouse homes and 730,000 square feet of commercial uses, and parks with recreation components. The project also could include a potential 750-student elementary school. Entrada South would further include supporting facilities and infrastructure, including roads, trails, drainage improvements, flood protection, potable and recycled water systems, a sanitary sewer system, and dry utilities systems.

As proposed, Valencia Commerce Center would accommodate 3,400,000 square feet of industrial/commercial uses. Valencia Commerce Center would further include supporting facilities and infrastructure, including roads, trails, drainage improvements, flood protection, potable and recycled water systems, a sanitary sewer system, and dry utilities systems.

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[1] The Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP), will facilitate long-term conservation within and development of a large-scale mixed-used community that will include a broad range of residential and commercial (office/retail) uses within the Santa Clarita Valley of Los Angeles County.

[2] Fehr & Peers (2016). RMDP/SCP Transportation Demand Management Plan Evaluation, dated September 7, 2016, published as Appendix 8 of the Final Additional Environmental Analysis, California Department of Fish & Wildlife, SCH No. 2000011025, June 12, 2017.

[3] California Department of Fish & Wildlife, SCH No. 2000011025, June 12, 2017.

The villages contribute to the overall context of the RMDP/SCP development area, which provides the foundation for the estimated TDM Plan VMT reductions as well as the individual VMT reductions associated with each strategy and presented in the TDM Plan evaluation.[4] The analysis and evaluation of the TDM Plan is based on research presented in the California Air Pollution Control Officers Association's (CAPCOA) 2010 report and research conducted by Fehr & Peers.[5] For certain strategies, reference also is made to research conducted by Fehr & Peers beyond the estimates provided by the CAPCOA report. This technical memorandum is organized as follows:

- Section 2 provides an overview of the TDM Plan, including a list of the strategies contained in the Plan.
- Section 3 provides information about the overall methodology used to estimate the VMT reduction potential associated with each strategy in the TDM Plan.
- Section 4 provides a detailed description of and estimated VMT reductions for each of the strategies contained within the TDM Plan, applied to Entrada South and Valencia Commerce Center, either directly or indirectly by way of each villages' inclusion in the overall area contained within the RMDP/SCP area.
- Section 5 provides a summary of the overall estimated VMT reduction associated with the strategies contained within the TDM Plan, for Entrada South and Valencia Commerce Center.
- Attachments include the following documents: Table 1, Strategies in the TDM Plan for the Entrada South Project; Table 2, Calculations to Support the Strategies in the TDM Plan for the Entrada South Project; Table 3, Strategies in the TDM Plan for the Valencia Commerce Center Project; Table 4, Calculations to Support the Strategies in the TDM Plan for the Valencia Commerce Center Project; Valencia Transportation Demand Management Plan; and Quantification of Implementing TDM Strategies (memorandum dated December 16, 2022).

2. OVERVIEW OF THE TDM PLAN AS APPLIED TO ENTRADA SOUTH AND VALENCIA COMMERCE CENTER

The following strategies are included in the TDM Plan. Those strategies that do not apply directly to the land uses contained within Entrada South or Valencia Commerce Center, but rather work in conjunction with the other areas in the RMDP/SCP project area, are so noted in *(italicized parentheses)*.

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[4] *See footnotes 1 and 2.*

[5] California Air Pollution Control Officers Association. Quantifying Greenhouse Gas Mitigation Measures-A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures, 2010. The CAPCOA report is herein incorporated by reference pursuant to CEQA Guidelines, section 15150.

1. Integrate Affordable and Below Market Rate Housing *(Not directly applicable in Valencia Commerce Center)*
2. Pedestrian Network
3. Traffic Calming
4. Transit Network Expansion
5. Alternative Work Schedules and Telecommute Program (Residential End) *(Not directly applicable in Valencia Commerce Center)*
6. Required Commute Trip Reduction Program
7. Alternative Work Schedules and Telecommute Program (Work End)
8. School Bus Program *(Not directly applicable in Valencia Commerce Center)*
9. Transit Fare Subsidy for Employees
10. Carshare Program
11. Neighborhood Electric Vehicle (NEV) & Electric Bicycle (E-Bike) Strategy (*Not directly applicable in Valencia Commerce Center)*
12. Mobility Hubs *(Not directly applicable in Entrada South)*
13. Tech-Enabled Mobility
14. Bikeshare Program
15. Transit Fare Subsidy for Below Market Rate Housing Residents *(Not directly applicable in Valencia Commerce Center)*

The implementation of the TDM Plan would be, in part, accomplished through the creation of a Transportation Management Organization (TMO) or equivalent management entity, the formation of which is a pre-requisite to achievement of some of the VMT reduction estimates identified herein.

3. METHODOLOGY

The 2010 CAPCOA report, titled *Quantifying Greenhouse Gas Mitigation Measures*, is a primary resource to the assessment of quantifiable greenhouse gas emission reduction benefits for the TDM Plan as evaluated in the State-certified EIR and applicable to this analysis. CAPCOA's research focuses on strategies to reduce greenhouse gas emissions at the project level, primarily in terms of land use, transportation, and energy use. The transportation component bases the emission reduction benefits on estimated reductions in VMT. These strategy-specific VMT reduction estimates were applied to the TDM strategies included in Section 4 below to assess anticipated VMT reduction relative to Entrada South and Valencia Commerce Center.

For each strategy, the CAPCOA report provides a discussion of the relevant literature, as well as a guideline for estimating the VMT reduction resulting from each individual strategy. The recommended guidelines for estimating VMT reduction were developed from relevant research and case studies. Section 4 below summarizes the particular methodology used to estimate the specific VMT reduction for each of the strategies included in the TDM Plan as applied to Entrada South and Valencia Commerce Center.

For two strategies in the TDM Plan (Tech-Enabled Mobility [Strategy 13] and Bikeshare Program [Strategy 14]), there was no methodology available for estimating VMT reduction using the CAPCOA report due to research limitations at the time the CAPCOA report was published. Therefore, VMT reduction estimates were derived from research conducted by Fehr & Peers, using professional engineering judgement and based on experience working on other TDM projects in California. These two instances are indicated in their respective sections in Section 4. In addition, while the effectiveness of the NEV component of Strategy 11 is based on CAPCOA research, the effectiveness of the e-bike component of the strategy is based on transportation technology trends and studies that post-date the CAPCOA report.

In addition, each strategy is considered by CAPCOA as part of a larger category group: Land Use/Location, Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, Commute Trip Reduction, and Road Pricing Management. The CAPCOA report provides certain maximum reductions in VMT for each individual strategy, as well as for each category of strategies. The maximum reductions serve as caps for each category to prevent the double counting of reductions resulting from a combination of related strategies, similar in concept to the dampening adjustment discussed below in Section 5.

Similarly, the CAPCOA report sets overall maximum caps based on context, with a 20% maximum reduction cap set for "Suburban Center." "Suburban Center" is described generally as "a project typically involving a cluster of multi-use development within dispersed, low density, automobile dependent land use patterns (a suburb)." Suburban Center projects serve the population of the suburb with office, retail, and housing that is denser than the surrounding areas and are typically 20 miles or more from a regional central business district, with a generally balanced relationship between jobs and housing and bus service at 20-30 minute headways and/or a commuter rail station. Given these characteristics, "Suburban Center" is the context most appropriate to the RMDP/SCP area, including Entrada South and Valencia Commerce Center, based on their respective locations within the RMDP/SCP area, their mix of land uses, the balance of jobs and housing facilitated by the RMDP/SCP Project, and the availability of transit service throughout the Project site. Specifically, Entrada South contains higher-density condos/townhouses and substantial office, retail, and commercial uses (730,000 square feet) generating jobs. Although Valencia Commerce Center does not contain any housing, it contains substantial office, industrial, and/or commercial uses (3,400,000 square feet) that will generate jobs for households that are in other villages within the RMDP/SCP development area.

The maximum cap set for Suburban Center recognizes that each set of strategies is somewhat limited by the overall land use beyond a project site, opportunities to connect to other suburban and urban environments, and the set of already existing mobility and access tools. Exhibit 1 is a reproduction of Chart 6-2 from the CAPCOA report, identifying the category and overall maximum VMT reduction caps, as well as the individual strategies included in each category.

Based on the methodology outlined in the CAPCOA report, when determining the overall VMT reduction, the VMT reduction separately calculated for each of the individual strategies should be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The overall estimated VMT reduction for the TDM Plan, and for each individual village's evaluation, is therefore a reflection of the dampened total of each strategy's individual VMT reduction value.

4. EVALUATION OF TDM STRATEGIES

This section provides a detailed evaluation of each TDM strategy listed in Section 2: Overview of the TDM Plan, above. For each strategy that is based on the CAPCOA report, the related CAPCOA strategy code (for example, CAPCOA TRT-6 or SDT-3) is provided. For those TDM Plan strategies that do not apply directly to the land uses contained within Entrada South or Valencia Commerce Center, but are part of the overall TDM Plan, the strategies are listed but no VMT reduction relative to Entrada South or Valencia Commerce Center is assigned.

1. Integrate Affordable and Below Market Rate Housing

According to CAPCOA, a VMT reduction of 0.04%-1.20% would be expected based on the inclusion of below market rate housing into residential and mixed-use development projects with more than 5 dwelling units (CAPCOA LUT-6). Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work. According to the research underlying the CAPCOA range of effectiveness, housing that is affordable to an average income of 75% below the area median income produces the expected VMT reduction. In Entrada South, 5% of the total housing would be deemed affordable, below market rate, and the entirety of that 5% would be affordable to those with an average income of 75% below the area median income. In Valencia Commerce Center, no below market rate housing exists.

The reduction rate is based on the amount of below market rate housing provided and calculated according to the following formula:

> % VMT Reduction = 4% times, or multiplied by (*) Percentage of units in the project that are below market rate

Approximately 5% of the housing within Entrada South would be below market rate housing, affordable to an average of 75% below the area median income. This type of housing is therefore expected to result in an approximate 0.2% decrease in total VMT (4% * 5% = 0.2%).

Because no below market rate housing exists in Valencia Commerce Center, no VMT reductions are attributed to this strategy for Valencia Commerce Center.

2. Pedestrian Network

According to CAPCOA, enhancing pedestrian infrastructure can reduce VMT for residential, retail, office, industrial, and mixed-use projects (CAPCOA SDT-1). A high quality pedestrian network within an urban or suburban project site would be expected to result in an estimated 1% VMT reduction. With the expansion of the pedestrian network to include connections to the off-site network, a project can achieve an estimated VMT reduction of up to 2%.

In order for the pedestrian network to facilitate a reduction in VMT, the pedestrian network must directly connect to all existing and planned pedestrian facilities both within and adjacent to the project site, while minimizing any barriers to pedestrian access. According to CAPCOA, pedestrian network improvements are those that eliminate physical barriers to pedestrian access, such as walls, landscaping, and slopes/steep inclines that prevent easy access.

Entrada South and Valencia Commerce Center would both incorporate a high-quality pedestrian network to enhance pedestrian access both on- and off-site, thereby encouraging a mode shift from driving to walking. The pedestrian network would be built into the design of the street network throughout the Project site, and would connect to existing development surrounding the Project site and to a network of off-street trails that will link areas of residential development with areas of commercial development, schools, and open space. Moreover, higher capacity streets throughout the Project site would have sidewalks and generally avoid barriers to pedestrian travel such as walls, landscaping, and steep slopes/inclines that otherwise would impede pedestrian travel. As a result, this high quality network is expected to directly result in a 2% reduction in total VMT in each village, and indirectly would combine with other TDM strategies to further reduce VMT.

3. Traffic Calming

According to CAPCOA, traffic calming strategies include design elements intended to reduce motor vehicle speeds and improve pedestrian and bicyclist safety, creating an environment that encourages people to walk or bike instead of driving (CAPCOA SDT-2). Design elements could include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

CAPCOA's estimation of VMT reduction for traffic calming measures is based on the percentage of streets and intersections within the project that include traffic calming improvements. When 100% of streets and intersections within the project include such improvements, there is an estimated 1% reduction in VMT. This estimated reduction in VMT applies to both urban and suburban projects, although the underlying literature relied upon by CAPCOA includes differences in reductions between the two. The VMT reductions were generally higher for traffic calming improvements in suburban environments (1.5%-2.0%) than urban environments (0.5%-0.6%). According to CAPCOA, "[t]hough the literature provides some difference between a suburban and urban context, the difference is small and thus a conservative estimate was used to be applied to all contexts" (CAPCOA, 192). Thus, CAPCOA's estimate ranges from 0.25%-1%, based on the percentage of streets and intersections incorporating traffic calming design elements.

Traffic calming improvements interact with other TDM strategies that encourage a mode shift from driving to walking and/or biking. The VMT reductions estimated by CAPCOA take this interaction into account and the estimated VMT reduction for traffic calming is specific to the traffic calming improvements and is separate from any other interacting measures.

Based on the CAPCOA report, it is estimated that the Entrada South and the Valencia Commerce Center traffic calming improvements would result in a 1% reduction in total VMT in each village. This percentage is based on the fact that 100% of the streets and intersections will include one or more of the design elements listed in CAPCOA's description of traffic calming improvements, as detailed above, or other features that would reduce motor vehicle speeds such as streetscaping, NEV lanes, or bike lanes.

4. Transit Network Expansion

According to CAPCOA, transit network expansion includes the extension of local transit service (CAPCOA TST-3), shuttles to major rail transit centers and other areas within a project site (CAPCOA TST-6), and improved pedestrian access to transit facilities (CAPCOA TST-2; e.g., sidewalk/crosswalk safety enhancements and/or bus shelter improvements).

The CAPCOA report provides the following formula for calculating the percent VMT reduction associated with transit network expansion:

> % VMT Reduction = (% increase in transit network coverage) * (elasticity of transit) * (existing transit mode share) * (adj. factor = 0.67)

According to the CAPCOA report, transit network expansion results in VMT reductions ranging from 0.1-8.2%.

With respect to Entrada South and Valencia Commerce Center, Santa Clarita Transit plans to extend existing bus routes into the development area, thereby connecting Entrada South to major transit centers such as the Santa Clarita or Newhall Metrolink Stations.[6] Based on the CAPCOA formula, these planned transit enhancements were estimated to increase the existing transit system network coverage by 80%, a conservative estimate given the current lack of any transit presently serving the Project site. Given these coverage improvements (i.e., 80%), in combination with a transit elasticity of 1.01 based on CAPCOA documentation, and an existing 2.3% transit mode share as reported by the City of Santa Clarita,[7] the estimated reduction in total VMT attributable to the transit network expansion would be approximately 1.3% in each village (80% * 1.01 * 2.3% * 0.67 = 1.3%).[8]

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[6] City of Santa Clarita. *Transportation Development Plan*, May 2013.

[7] 2.3% transit mode share based on the 2014 Census Journey to Work data for the City of Santa Clarita.

[8] Transit elasticity of 1.01 for suburban transit routes based on CAPCOA documentation.

5. *Alternative Work Schedules and Telecommute Program (Residential End)*

This strategy captures commuters who live within the RMDP/SCP and commute elsewhere, while Strategy 7 presented later captures commuters who live outside the RMDP/SCP and work within the RMDP/SCP.

According to CAPCOA, participation in an alternative work week or telecommute program results in fewer commute trips, which then reduces commute and overall VMT (CAPCOA TRT-6). The degree to which these programs reduce VMT is a direct result of the extent of the program and the number of people participating. Depending on the participation rate and the program type, the range in reduction of commute trip VMT is estimated by CAPCOA to be between 0.07% and 5.5%.

The program participation rate is approximated according to the methodology presented by CAPCOA, which itself is based on a Cambridge Systematics/Fehr & Peers study.[9] Based on this methodology, a maximum of 50% of the typical workforce would have the potential to participate in an alternative work schedule, and 50% of those people would actually choose to participate; i.e., 25% of the total workforce would choose to participate. CAPCOA conservatively suggests that this rate be adjusted down further, in order to take into consideration possible rebound effects (i.e., travel for other purposes during the day while working at home), to a 10% participation rate.

As to program type, telecommute program types based on alternative work schedules range from one to several telecommute days per week; that is, employees participating in the program would be expected to telecommute anywhere from 1 to 3 days. Based on the range of telecommute days, in combination with the marketing support of the Transportation Management Organization noted in Section 2, a telecommute program would be expected to result in an average of 1.5 days of telecommuting per week.

For Entrada South, given a participation rate of 10% in a program expected to result in an average of 1.5 days of telecommuting/week, CAPCOA estimates the commute VMT reduction as 2.2% (CAPCOA page 237). To extrapolate this reduction in commute VMT to a reduction in overall VMT, the commute VMT reduction rate of 2.2% was applied to the commute VMT, which is 8.8% of the total VMT attributable to home-based (production end) work trips.[10] Additionally, since any work trips that start and end within Entrada South (internal trips) would be captured by the reduction for Strategy 7: Alternative Work Schedules and Telecommute Program (Work End), the results are multiplied by the percentage of home-to-work production-end trips, which are external, or 89.0%.[11] This results in an overall VMT reduction of approximately 0.2% (2.2% * 8.8% * 89.0% = 0.2%).

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[9] Cambridge Systematics and Fehr & Peers. *Moving Cooler: An analysis of transportation strategies for reducing greenhouse gas emissions.* Urban Land Institute, 2009.

[10] Percent of Entrada South VMT attributable to home-based (production end) work trips based on traffic modeling conducted for the Entrada South EIR, calculated July 2019.

[11] Percent of work trips that are external are 89.0%, based on traffic modeling conducted for the Entrada South EIR, calculated July 2019.

Since there are no households proposed within Valencia Commerce Center, this strategy would not result in a VMT reduction relative to Valencia Commerce Center.

6. Required Commute Trip Reduction Program

According to CAPCOA, a required commute trip reduction program (CAPCOA TRT-2) is a multi-strategy program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing and promotions, preferential parking, transit subsidies, and bicycle end-of-trip facilities. Commute trip programs are typically operated by Transportation Management Organizations that manage and promote the program, collect data and monitor effectiveness. In some cases, some strategies, such as ride-sharing or providing preferential parking for carpool participants, may be implemented and operated by individual employers who monitor and report progress regularly to the TMO. The critical components of a required commute trip program (TRT-2) compared to a voluntary commute trip program (TRT-1) is that the required commute trip program has established performance standards, required implementation, and regular monitoring and reporting. Participation in required commute trip reduction programs is typically required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

Based on the diversity of types of jobs that would exist as part of the RMDP/SCP area overall, and within Entrada South and Valencia Commerce Center specifically (i.e., large and small businesses, schools, community facilities), it is conservatively estimated that 50% of the employees would be employees of larger businesses eligible to access the services and benefits provided by the required commute trip program as a result of their employer's required participation. This estimate is at the low end of CAPCOA's expected participation range for this strategy, between 20% and 100%. According to CAPCOA, required commute trip reduction programs would result in a 21% decrease in vehicle mode share for commute trips for those employees who are eligible to participate in the program (CAPCOA page 224). Therefore, the following formula is used to estimate the commute-trip-related VMT reduction attributable to a required commute trip program:

> % VMT Reduction = (% employees eligible) * (21% reduction in vehicle mode share) * (% share of all trips attributable to home-based commute trips)

For Entrada South, it is estimated that an approximate 1.3% VMT reduction would result from implementation of a required commute trip program based on a 50% employee eligibility rate, and a 21% reduction in the percentage share of all trips attributable to home-based work trips, which is 12.7% (50% * 21% * 12.7% = 1.3%).[12]

For Valencia Commerce Center, it is estimated that an approximate 5.5% VMT reduction would result from implementation of a required commute trip program based on a 50% employee

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[12] Percent Entrada South VMT attributable to home-based (attraction end) work trips based on traffic modeling conducted for the Entrada South EIR, calculated July 2019.

eligibility rate, and a 21% reduction in the percentage share of all trips attributable to home-based work trips, which is 52.7% (50% * 21% * 52.7% = 5.5%).[13]

7. Alternative Work Schedules and Telecommute Program (Work End)

Related to alternative work schedules and telecommute programs from the residential perspective (Strategy 5) are similar programs viewed from the work, or employer, perspective. This strategy captures commuters who live outside Entrada South or Valencia Commerce Center, and work within Entrada South or Valencia Commerce Center, while Strategy 5 captures commuters who live within those villages and commute elsewhere. The participation of an employee in an alternative work week or telecommute program is analogous to that of a project site resident (see Strategy 5, above): the higher the participation rate and the more extensive the program, the larger the reduction in VMT.

Determining the participation rate and program type for the telecommute program on the work end utilizes the same CAPCOA methodology as on the residential end: while 50% of a typical work force would have the potential to participate in the alternative work schedule, only a 10% participation rate is utilized. As to program type, commercial businesses that locate in Entrada South or Valencia Commerce Center would be encouraged to implement alternative work schedules and telecommuting options for their employees. Using the reference table provided on page 237 of the CAPCOA report, a 4/40 alternative work schedule (4 days per week, 10 hours a day) and a 10% participation rate would yield a 1.5% reduction in commute VMT.

To extrapolate the reduction in commute VMT to a reduction in overall VMT for Entrada South, the commute reduction rate of 1.5% is applied to the 12.7% of total VMT that is attributed to home-based (attraction end) work trips, thereby resulting in an overall VMT reduction of approximately 0.2% (1.5% * 12.7% = 0.2%).

To extrapolate the reduction in commute VMT to a reduction in overall VMT for Valencia Commerce Center, the commute reduction rate of 1.5% is applied to the 52.7% of total VMT that is attributed to home-based (attraction end) work trips, thereby resulting in an overall VMT reduction of approximately 0.8% (1.5% * 52.7% = 0.8%).

8. School Bus Program

According to CAPCOA, the implementation of a school bus program involves coordinating with local school districts to provide school bus service in the project area and local community (CAPCOA TRT-13). The degree to which the school bus program would reduce school VMT (i.e., those vehicle miles generated by student travel to and from a school) ranges from 38% to 63% dependent upon the number of families participating in the program.

Based on the methodology provided by CAPCOA, the reduction in school VMT is calculated as follows:

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[13] Percent Valencia Commerce Center VMT attributable to home-based (attraction end) work trips based on traffic modeling conducted for the Valencia Commerce Center EIR, calculated July 2019.

% Reduction in School VMT = Participation rate of Families * (39 school weeks / 52 weeks)

CAPCOA research identified an 84% participation rate based on a study conducted in connection with the Lamorinda School Bus Program serving Lafayette, Orinda, and Moraga, California. The Lamorinda study, which contains the only empirical data provided by CAPCOA supporting participation rates, determined that 84% of the families within the boundaries of the School Bus Program participated in the program. CAPCOA also includes a low end participation rate of 50%, which is not supported by quantitative study and is based on an assumption of a "minimum participation goal." Because the communities of Lafayette, Orinda, and Moraga are suburban communities similar to the type of communities that would be built as part of the Project, and because the proposed School Bus Program would have as its goal a maximum, rather than minimum, participation rate, based on the professional judgment of the engineers preparing this analysis, a participation rate of 84% was used as a starting point for the analysis. As a conservative estimate, the participation rate was reduced by 10% to 76%.

Based on the methodology provided by CAPCOA, the proposed School Bus Program would result in an annual reduction in school-trip VMT of 57.0% for Entrada South (76% of families participating * 75% (39 weeks of school / 52 weeks in a year) = 57.0% of annual school-trip VMT reduced). This percent reduction is then applied to the total VMT that would be generated by Entrada South's school-based trips, or 5.9% of total annual VMT, resulting in an overall VMT reduction of approximately 3.4% (57.0% * 5.9% =3.4%).[14, 15]

Since there are no households or schools proposed within Valencia Commerce Center, this strategy would not result in a VMT reduction relative to Valencia Commerce Center.

As noted in the conclusion of this memo, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. The TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation. One such adjustment and evaluation is described in the memorandum dated December 16, 2022 related to implementing this School Bus Program strategy. That memo demonstrates an approach to achieving the same level of VMT reduction as would be achieved through Strategy 8 alone, by adjusting the implementation of Strategy 8 and expanding the coverage and level of subsidies for Strategies 9, 11, 14, and 15. That memo is included as an attachment to this memo, for reference.

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[14] CAPCOA estimates that 9.8% of total trips (5.9% of total VMT) are related to school trips based on 2000-2001 California Statewide Travel Survey and 2001 NHTS Summary of Travel Trends.

[15] In the event the school district boundary changes, the VMT reductions associated with this strategy would accrue contingent upon this strategy's implementation at each school receiving students from Entrada South.

9. Transit Fare Subsidy for Employees

CAPCOA associates certain levels of transit fare subsidy with corresponding levels of commuter participation in transit based on locational context (CAPCOA TRT-4). For the Suburban Center context, when employees are given a subsidy at their place of employment, a subsidy of $2.98 per person per day incentivizes a 16.4% reduction in commute VMT (CAPCOA page 231). The 16.4% reduction provided by CAPCOA is then multiplied by the percent of employees eligible to receive this subsidy to arrive at the final percent VMT reduction for this category of trips.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips)

The transit fare subsidy will be offered through the TMO. Because an estimated 50% of Entrada South employees and Valencia Commerce Center employees would be eligible to access the services and benefits provided by the required commute trip reduction program (Strategy 6) as a result of their employer's required participation, the remaining 50% of employees who commute to jobs located within those villages will be eligible to access transit fare subsidies directly through the TMO. As noted above, at the level of $2.98 per day, which equates to between 25% and 100% of an existing round-trip Santa Clarita Transit fare, depending on service class, CAPCOA estimates that 16.4% of commuters would switch, resulting in a reduction of 8.2% of commute-based VMT (50% * 16.4%).

In Entrada South, the commute-based VMT for employees accounts for 12.7% of the overall VMT.[16] Therefore, an 8.2% reduction in commute-based VMT equates to an approximate 1.0% reduction in overall VMT (12.7% * 8.2% = 1.0%).

In Valencia Commerce Center, the commute-based VMT for employees accounts for 52.7% of the overall VMT.[17] Therefore, an 8.2% reduction in commute-based VMT equates to an approximate 4.3% reduction in overall VMT (52.7% * 8.2% = 4.3%).

As noted in the conclusion of this memo, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. The TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation. One such adjustment and evaluation is described in the memorandum dated December 16, 2022 related to implementing the School Bus Program, Strategy 8. That memo demonstrates an approach to

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[16] Percent VMT attributable to home-based (attraction end) work trips based on traffic modeling conducted for the Entrada South EIR, calculated July 2019.

[17] Percent VMT attributable to home-based (attraction end) work trips based on traffic modeling conducted for the Valencia Commerce Center EIR, calculated July 2019.

achieving the same level of VMT reduction as would be achieved through Strategy 8 alone, by adjusting the implementation of Strategy 8 and expanding the coverage and level of subsidies for this Strategy 9, as well as Strategies 11, 14, and 15. That memo is included as an attachment to this memo, for reference.

10. Carshare Program

Carshare programs are membership-based programs that provide members access to a shared fleet of vehicles (CAPCOA TRT-9). Cost is generally based on a per-mile or hourly basis. There are three common categories of carshare programs: transit station based, employer based, or residential based/citywide. Each of these programs has slightly different uses. Transit station-based carshare generally is intended to close the "last mile" gap by allowing users to drive from the transit station to their final destination. Employer-based carshare programs can provide transit/bike/walk commuters with an opportunity to conduct business/day trips while also providing a guaranteed ride home. Residential based/citywide carshare programs generally replace entire home-based trips.

The area within the RMDP/SCP, including Entrada South and Valencia Commerce Center, will have a carshare program implemented with vehicles stationed throughout the area at approximately a ratio of 1 car to every 2,000 residents.

The CAPCOA methodology calculates the reduction in overall VMT attributable to carshare programs as follows:

> % VMT Reduction = (37% reduction in carshare member VMT) * (20 carshare members per shared car) * (1 car / 2,000 suburban residents)

As to Entrada South, the CAPCOA reduction in carshare member VMT is estimated as approximately 0.4% (37% * 20/2,000 = 0.4%).

Although there are no suburban residents in Valencia Commerce Center, due to its proximity to residential centers within the Newhall Ranch RMDP/SCP development area, the same assumptions are applied for Valencia Commerce Center with respect to the density of carshare members and carshare vehicles (20 carshare members per 2,000 suburban residents). As to Valencia Commerce Center, the CAPCOA reduction in carshare member VMT is estimated as approximately 0.4% (37% * 20/2,000 = 0.4%).

To incentivize participation, the TDM Plan includes partial subsidization of the annual membership fee (50% subsidy) for up to 50% of the households that would elect to participate in the carshare program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households). The incentive program is entirely additive and does not factor in to the VMT reduction calculations and, as such, the calculation is conservative.

11. Neighborhood Electric Vehicle (NEV) & Electric Bicycle (E-Bike) Strategy

CAPCOA attributes a VMT reduction to neighborhood electric vehicle (NEV) participation and ownership, along with a travel network that accommodates NEV use, including features such as charging facilities, striping, signage, and educational tools (CAPCOA SDT-3). The amount of VMT reduction is based on market penetration levels (i.e., percent of households owning a NEV) and an average reduction in total VMT per NEV household of 12.7% (Percent Market Penetration * 12.7%), as follows:

- 1 out of 10 Households purchases an NEV (10%) * 12.7% = 1.3% reduction in total VMT
- 1 out of 5 Households purchases an NEV (20%) * 12.7% = 2.5% reduction in total VMT
- 1 out of 3 Households purchases an NEV (33%) * 12.7% = 4.2% reduction in total VMT

The methodology of how to estimate market penetration is not well documented in CAPCOA, although a case study undertaken for a community in Los Angeles County provides a method to estimate market penetration levels given certain subsidy levels.

The South Bay region in Los Angeles County conducted a pilot demonstration project for NEVs, which surveyed participants after the study on price-point and willingness to buy an NEV.[18] Based on this survey, 83% of respondents said they would consider purchasing an NEV at the $6,000 price point (or a 54% subsidy based on an average purchase price of $13,000), and 69% said they would consider purchasing an NEV at the $8,000 price point (or a 38% subsidy). However, these survey respondents are not reflective of the general public because they already expressed interest in NEVs by signing up to participate in the pilot study, and already had been given an NEV to drive, free of charge. At the end of the study, two out of 51 participating households purchased an NEV without any subsidy, or about 4%.

Assuming the above survey data for the South Bay region of L.A. County overstates NEV interest relative to an average resident who has not participated in a pilot study nor expressed a pre-existing interest in NEVs, based on our professional judgment it was estimated that the general population’s willingness to purchase an NEV at each price point would be one-half that of the South Bay study participants’ willingness. Using this approach and interpolating from the survey results, it is estimated that about 1 in 8 or 9 residents (12%) would consider purchasing an NEV with a 10% subsidy; about 1 in 5 (20%) would consider purchasing with a 25% subsidy; and about 1 in 3 (35%) would consider purchasing with a 50% subsidy.

The TDM Plan includes a 25% NEV purchase subsidy, to be promoted and marketed through the Transportation Management Organization, for single-family residences. At this price point, in combination with a supportive travel network that accommodates NEVs, it is estimated that 1 out

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[18] Siembab, W. and Magarian, D. *Zero Emission Local Use Vehicles: The Neglected Sustainable Transportation Mode.* Published June 30, 2013 for the South Bay Cities Council of Governments.

of 5 single-family residences would purchase and use NEVs, resulting in a VMT reduction for single-family residences of 2.5% (12.7% * 20% = 2.5%).

With respect to multi-family residences, such residences may not have access to the facilities needed to store and charge an NEV as readily as single-family residences, primarily due to the potential lack of available driveway and garage space. However, electric bikes (e-bikes), which have a lower price point than NEVs but can serve similar travel objective purposes, can be stored and charged inside the home or smaller spaces in the garage. Therefore, the TDM Plan includes a 50% e-bike purchase subsidy, to be promoted and marketed through the Transportation Management Organization, for multi-family residences.

Although the CAPCOA report does not address e-bikes as a strategy to reduce VMT, several recent studies have evaluated the travel behavior of individuals who have access to an e-bike.[19] Two key elements from these studies indicate how much VMT reduction can be anticipated from an e-bike subsidy: uptake rates (i.e., acquisition participation rates) and mode-shift tendencies (i.e., likelihood of use over alternative forms of transportation).

In the most recent study, *Evaluation of an Electric Bike Pilot Project at Three Employment Campuses in Portland, Oregon* (2017), 26% more study participants reported using the e-bike for trips at least one day per week and up to three days per week, compared to bicycle usage before the study began (i.e., a 26% uptake rate and a 14%-43% mode-shift tendency). Similarly, 4% more study participants reported using the e-bike for trips at least 4 days per week and up to seven days per week, compared to bicycle usage before the study began (i.e., a 4% uptake rate and a 57%-100% mode-shift tendency). Therefore, these study results indicate that between 6% and 15% of participant VMT could be reduced as a result of e-bike usage.

Some important differences exist between the Portland study and the RMDP/SCP. In the Portland study, e-bikes were given to participants; in the RMDP/SCP, up to 50% of multi-family residences will be provided a 50% e-bike subsidy. Additionally, in the Portland study, participants self-selected into the study, while the RMDP/SCP will include the entire population of multi-family residences. Finally, in the Portland study, three employment centers were used as the basis for selecting participants, ranging from very suburban to urban contexts with varying levels of bicycle culture and supportive facilities. The RMDP/SCP exhibits a suburban center context in the Santa Clarita Valley, with substantial existing bicycle culture and planned supportive facilities throughout the region. Given these differences and the range of potential VMT reduction demonstrated by the Portland study, a VMT reduction of at least 2.5% is a reasonable estimate for the e-bike component of this strategy, and falls below the low end of the range generated by the Portland study.

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[19] Hiselius, L.W. and Svenssona, A. (2014) Could the increased use of e-bikes (pedelecs) in Sweden contribute to a more sustainable transport system? *9th International Conference "Environmental Engineering"*.
Lienhop, M. et al. (2015) PEDELECTION: Verlagerungs- und Klimaeffekte durch Pedelec-Nutzung im Individualverkehr. *Institut fur Transportation Design & Institut fur Energie- und Emweltforschung Heidelberg GmbH.*
MacArthur, J. et al. (2017) Evaluation of an Electric Bike Pilot Project at Three Employment Campuses in Portland, OR. *National Institute for Transportation and Communities.*

In Entrada South, the housing will be multi-family townhomes, and therefore, will be eligible for a 50% e-bike purchase subsidy for multi-family residences. Combined with the supportive NEV network of infrastructure that will be constructed throughout Entrada South, an overall 2.5% VMT reduction is estimated for this combined/hybrid NEV & e-bike strategy.

In Valencia Commerce Center, because there are no households to receive a subsidy for either an NEV or e-bike purchase, no VMT reduction has been attributed to this strategy. However, because the NEV network will be constructed throughout Valencia Commerce Center, the category maximum reduction for Neighborhood/Site Enhancement Strategies (as shown in Exhibit 1) remains at 15%, consistent with the overall TDM Plan and all other village evaluations.

As noted in the conclusion of this memo, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. The TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation. One such adjustment and evaluation is described in the memorandum dated December 16, 2022 related to implementing the School Bus Program, Strategy 8. That memo demonstrates an approach to achieving the same level of VMT reduction as would be achieved through Strategy 8 alone, by adjusting the implementation of Strategy 8 and expanding the coverage and level of subsidies for this Strategy 11, as well as Strategies 9, 14, and 15. That memo is included as an attachment to this memo, for reference.

12. Mobility Hubs

Mobility hubs are one-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. These sites are conveniently located within neighborhoods and employment centers in order to attract the most use and provide the most benefit.

Mobility hubs within the RMDP/SCP Project site would tie together the other mobility options available within the three planning areas, and are expected to enhance the effectiveness of other strategies contained within the TDM Plan by providing a centralized location to access mobility services and by exposing users of one type of service to the other options available on site. The Mobility Hub results in its own VMT reductions because it improves the usability of the other strategies available at the hub by making transfers easier, providing information about the full suite of transportation options to users who may start out using only one type of transportation service, and providing a location for promotional events, in this case those related to transportation within the RMDP/SCP.

Four small mobility hubs and two large mobility hubs would be established within the RMDP/SCP Project's three planning areas; potential locations of these mobility hubs are shown in Exhibit 2. None are anticipated to be established within Entrada South directly. The closest mobility hub to Entrada South will be in Mission Village (the Mission Village mobility hub would be located near the western portion of the Entrada South residential uses and just across the street from the commercial uses). A portion of the Entrada South resident and employee population will likely utilize the nearby Mission Village hub, as well as other hubs that are located near other employment, retail, or commercial uses throughout the RMDP/SCP area, thereby contributing to the overall VMT reduction associated with this strategy. Two small mobility hubs are anticipated to be constructed in Valencia Commerce Center.

Exhibit 3 shows a representative example of a large mobility hub, and Exhibit 4 shows a representative example of a small mobility hub. The following amenities are typical amenities that may be included at each mobility hub, based on size:

- Small Mobility Hub:
    - Info kiosks
    - Transit arrival information
    - Bike lockers and bike parking
    - Enhanced pedestrian amenities
    - Branding/signage
    - Co-location of carshare and bikeshare
- Large Mobility Hub:
    - Info kiosks
    - Transit arrival information
    - Bike lockers and bike parking
    - Enhanced pedestrian amenities
    - Branding/signage
    - Co-location of carshare and bikeshare
    - Designated park–and-ride spaces

The Mobility Hub strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers for other California projects, and the CAPCOA 0.1-0.5% percent reduction attributable to park-and-ride lots as a stand-alone facility (CAPCOA page 298), mobility hubs can contribute up to an additional 0.5% VMT reduction when used in conjunction with a suite of other TDM strategies.

Consistent with the original mobility hub network included in the TDM Plan, there are no mobility hubs planned within Entrada South. Therefore, although there may be some VMT reduction effect as a result of other mobility hubs nearby, in order to provide a conservative estimate of VMT reduction, no reduction in VMT is attributable to this strategy for Entrada South.

Based on the above research and Fehr & Peers' professional engineering judgment, the inclusion of two small mobility hubs in Valencia Commerce Center, in combination with the other TDM strategies and the related synergy with the Project site, a 0.3% overall VMT reduction was utilized for Valencia Commerce Center.

13. Tech-Enabled Mobility

"Tech-enabled mobility" describes the development and provision of a one-stop website for transportation information, as well as complementary apps for mobile devices and computers. This website/app would provide comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (carshare, bikeshare), and traffic information for the RMDP/SCP, including Entrada South and Valencia Commerce Center, as part of the larger suite of options available within the RMDP/SCP area. This strategy brings together elements of and enhances the effectiveness of the other strategies included in the TDM Plan. By digitally assembling resources and information about transportation options and TDM services in one place, users are enabled to make different choices based on their needs for a particular trip. It also serves as an educational tool to expose users to the full range of transportation choices.

Additional capabilities of tech-enabled mobility include:

- It allows for two-way communication once the user has registered and downloaded the app. This can enable the TMO to remind users of transportation choices or alert users about promotions through push notifications, emails, or alerts.
- The website and app can be developed in a way that moves beyond simply assembling information in one place; it has the potential to "gamify" participation on the go, allowing users to set goals, track progress, provide rewards, and compare their activity to other users. Health/habit/lifestyle tracking apps are pervasive and popular, and the website/app format can engage users even when a trip is not being made.

One example of a mobile application that brings transportation services together in one digital space is GoLA (http://golaapp.com/), produced in partnership between the City of Los Angeles and Xerox. This app allows the user to see the full range of available transportation choices, set mode-based preferences, compare trips across a variety of metrics (total travel time, monetary cost, and environmental cost), and select an itinerary that meets the needs of that trip. Another example of a more "gamified" version of a transportation website/app is the Denver Regional Council of Government's Clear the Air Challenge (http://cleartheairchallenge.org/). Arlington County, Virginia's comprehensive TDM program also includes several tech-enabled components that bring together the program's transportation options in a digital space (www.commuterpage.com).

This strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers at large employers in the Silicon Valley, and documentation from mobility-app developers on the effectiveness of their products, mobility websites and apps can contribute up to an additional 1%-2.5% VMT reduction when used in conjunction with a suite of other TDM strategies. Based on this research and professional engineering judgment, a conservative 1.5% overall VMT reduction was estimated for each Entrada South and Valencia Commerce Center, based on the development of a website and mobile device application specific to the RMDP/SCP area and the mobility options available on-site and nearby, and the potential to reach many more users with information, promotions, and service options with a faster and less costly frequency.

14. Bikeshare Program

According to CAPCOA, bikeshare has a minimal impact on VMT when implemented alone, but in conjunction with other strategies, can further enhance VMT reduction. Though CAPCOA lists bikeshare as a strategy, it does not provide associated estimates of VMT reduction.

In membership surveys of an established urban bikeshare system, a self-reported VMT reduction of 5.5% per year was observed.[20] Based on additional investigation done by Fehr & Peers into the effectiveness of this strategy, in combination with our professional judgment, it is estimated that the availability of bikeshare bicycles throughout Entrada South and Valencia Commerce Center, in conjunction with subsidized membership, can reduce overall VMT by between 0.2%-0.5%.

Based on the conservative professional judgement of transportation engineers and planners, and in recognition of the differences between an established urban bikeshare system and the Suburban Center context of Entrada South and Valencia Commerce Center, a 0.3% VMT reduction was estimated for each village, based on inclusion of an on-site bikeshare system that would connect to other bikeshare stations within the RMDP/SCP area. To provide additional incentive to participate in the bikeshare system, the TDM Plan will subsidize 50% of the annual cost for up to 1.5% of Project residents. This incentive program is entirely additive and does not factor in to the VMT reduction calculations.

As noted in the conclusion of this memo, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. The TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation. One such adjustment and evaluation is described in the memorandum dated December 16, 2022 related to implementing the School Bus Program, Strategy 8. That memo demonstrates an approach to achieving the same level of VMT reduction as would be achieved through Strategy 8 alone, by adjusting the implementation of Strategy 8 and expanding the coverage and level of subsidies for this Strategy 14, as well as Strategies 9, 11, and 15. That memo is included as an attachment to this memo, for reference.

15. Transit Fare Subsidy for Below Market Rate Housing Residents

In addition to the transit fare subsidy for employees discussed above in Strategies 6 and 9, additional subsidies would be offered to residents living in below market rate households. This is a separate strategy, with an analogous methodology to Strategies 6 and 9.

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[20] Capital Bikeshare membership survey, 2014.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies, which is applied only to the external work trips and to the 5% of households that would be affordable, below-market-rate:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips) * (% external work trips) * (% below market rate households)

The same level of subsidy would be offered, the same level of eligibility is utilized, and the same information relative to the Santa Clarita Transit fare would apply as for the employee transit fare subsidy: 50% * 16.4% = 8.2%.

In Entrada South, as previously described, the home-based (production end) work VMT accounts for 8.8% of the overall VMT, and 89% of those trips are external and would not be captured by the Commute Trip Reduction program or transit fare subsidies for employees offered in Strategies 6 or 9. Because the subsidy would be offered to all 5% of the households identified as affordable, below market rate, the 5% rate was utilized for the calculations. Therefore, an 8.2% reduction in commute-based VMT would equate to approximately a 0.03% reduction in overall VMT (8.8% * 8.2% * 89% * 5% = 0.03%).

It should also be noted that subsidizing transit passes for below market rate housing residents would be expected to increase transit usage for non-commute (i.e., non-work-related) trips, further reducing VMT from the reduction estimate provided herein.

Since there are no below market rate households proposed within Valencia Commerce Center, this strategy would not result in a VMT reduction relative to Valencia Commerce Center.

As noted in the conclusion of this memo, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. The TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation. One such adjustment and evaluation is described in the memorandum dated December 16, 2022 related to implementing the School Bus Program, Strategy 8. That memo demonstrates an approach to achieving the same level of VMT reduction as would be achieved through Strategy 8 alone, by adjusting the implementation of Strategy 8 and expanding the coverage and level of subsidies for this Strategy 15, as well as Strategies 9, 11, and 14. That memo is included as an attachment to this memo, for reference.

5. OVERALL VMT REDUCTION EFFECTIVENESS

This memorandum describes the application of the TDM Plan evaluation to Entrada South and Valencia Commerce Center, including a discussion of the differences between the overall

RMDP/SCP area and the development within the respective villages. While the specific strategies differ in application between the two villages and create different levels of VMT reduction, the overall effectiveness of the TDM Plan takes into account the village-by-village variations and considers the fact that some strategies are more appropriately applied to certain land use types that may or may not be present in each village. Therefore, the purpose of this memorandum is to determine if the TDM implementation strategies in Entrada South and Valencia Commerce are consistent with the TDM Plan.

Based on the methodology outlined in the CAPCOA report, when determining the overall VMT reduction, the VMT reduction separately calculated for each of the individual strategies should be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The multiplicative equation to accomplish this adjustment is as follows:

Overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C)*(1-D) …

where A, B, C, D … = individual mitigation strategy reduction percentages

For example, if two strategies were proposed with corresponding VMT reductions of 20% and 10%, the equation would be [1-(1-20%)*(1-10%)] or [1-(80%*90%)], which equates to a 28% reduction rather than the 30% reduction that would otherwise be seen with a direct sum. Therefore, the overall VMT reduction was calculated as a dampened, or diminished, total according to the equation above, which produces a conservative overall estimate.

Attached, Table 1, Strategies in the TDM Plan for Entrada South, identifies the strategies summarized above with more detail related to the input assumptions and application of each strategy. The implementation strategies are consistent with the TDM Plan, which accounts for different application of TDM strategies between the various villages included within the TDM Plan. Additionally, Table 2, Calculations to Support the Strategies in the TDM Plan for Entrada South, provides a tabular overview of the mathematical inputs informing the VMT reduction effectiveness calculations for each of the strategies. Tables 3 and 4 show the same information for Valencia Commerce Center.

Furthermore, given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be equivalent or better suited to the overall TDM Plan in general and to Entrada South or Valencia Commerce Center specifically. As additional TDM strategies become available, the TDM Plan has the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness in order to maintain the overall level of effectiveness that is documented in the TDM Plan Evaluation.

The results of this village-specific evaluation demonstrate that application of the TDM strategies at Entrada South and Valencia Commerce Center are consistent with the findings of the State-certified EIR (SCH No. 2000011025) and our prior analysis (dated September 7, 2016), which determined that implementation of the TDM Plan across the RMDP/SCP development area would result in a 14.9% reduction in VMT. In the Appendix 8 of the State-certified EIR (SCH No.

2000011025), *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Tables 1 and 2 provide more detail to the calculations and input assumptions for each strategy comprising the total VMT reductions.

Table 1

Strategies in the TDM Plan for the Entrada South Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	5% of units within Entrada South are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating)	TRT-2	4.2%-21% (commute trips only)	10.5%	1.3%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips only)	1.5%	0.2%
8	School Bus Program	Implement school bus service.	76% of families using school bus program (electric bus)	TRT-13	38%-63% (school trips only)	57.0%	3.4%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $2.98/day subsidy	TRT-4	0.3%-20% (commute trips only)	8.2%	1.0%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%

Table 1
Strategies in the TDM Plan for the Entrada South Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	NEV infrastructure network; 1 e-bike per 2 multi-family residences.	SDT-3	0.5%-12.7%	2.5%	2.5%
12	Mobility Hub	One-stop center for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations.	Entrada South does not have a mobility hub.	N/A	0%-0.5%[5]	0.3%	0.0%
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[5]	1.5%	1.5%
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[5]	0.3%	0.3%
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households. Increases transit mode share for home-work productions in Below Market Rate Households.	Entrada South has 5% Below Market Rate housing.	N/A	N/A	8.2%	0.03%
Overall Global VMT Reduction							**14.3%[6]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan establishes a transportation management organization (TMO) to implement and manage strategies.
3. 12.7% of total VMT is home-to-work attractions, 8.8% of total VMT is home-to-work productions, and 89.0% of home-to-work productions are external to Entrada South calculated based on traffic modeling conducted for Entrada South (July 2019). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
6. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2

Calculations to Support the Strategies in the TDM Plan for the Entrada South Project[1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall Entrada South VMT[3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Affordable and Below Market Rate Housing	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	5% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%	(Calculation N/A)					2.0%
3	Traffic Calming	SDT-2	0.25%-1%	(Calculation N/A)					1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	8.8% of VMT (home-based work productions)	89.0% of work trips external to Entrada South	-	-	0.2%
6	Required Commute Trip Reduction Program	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	12.7% of VMT (home-based work attractions)	-	-	1.3%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	12.7% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	-	-	3.4%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	16.4% reduction in commute VMT (CAPCOA)	12.7% of VMT (home-based work attractions)	-	-	1.0%

Table 2
Calculations to Support the Strategies in the TDM Plan for the Entrada South Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall Entrada South VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	-	-	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	SDT-3	0.5%-12.7%			(Calculation N/A)			2.5%[5]
		N/A	6%-15%[6]						
12	Mobility Hub	N/A	0%-0.5%[6]			-			0.0%
13	Tech-Enabled Mobility	N/A	1%-2.5%[6]			(Calculation N/A)			1.5%
14	Bikeshare	TRT-12	0.2%-0.5%[6]			(Calculation N/A)			0.3%
15	Transit Fare Subsidy - Below Market Rate Households	N/A	N/A	50% Participation	16.4% reduction in commute VMT (CAPCOA)	8.8% of VMT (home-based productions)	89.0% of work trips external to Entrada South	5% Below Market Rate households	0.03%
Overall Global VMT Reduction									**14.3%[7]**

Notes

1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan establishes a transportation management organization (TMO) to implement and manage strategies.
3. 12.7% of total VMT is home-to-work attractions, 8.8% of total VMT is home-to-work productions, and 89.0% of home-to-work productions are external to Entrada South calculated based on traffic modeling conducted for Entrada South (July 2019). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for multi-family residences.
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 3
Strategies in the TDM Plan for the Valencia Commerce Center Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	Valencia Commerce Center does not have any Below Market Rate housing.	LUT-6	0.04%-1.2%	0.0%	0.0%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	Valencia Commerce Center does not have any residential units.	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.0%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating)	TRT-2	4.2%-21% (commute trips only)	10.5%	5.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips only)	1.5%	0.8%
8	School Bus Program	Implement school bus service.	Valencia Commerce Center does not have any residential units or schools.	TRT-13	38%-63% (school trips only)	57.0%	0.0%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $2.98/day subsidy	TRT-4	0.3%-20% (commute trips only)	8.2%	4.3%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%

Table 3
Strategies in the TDM Plan for the Valencia Commerce Center Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools.	Valencia Commerce Center does not have any residential units to receive additional subsidies.	SDT-3	0.5%-12.7%	2.5%	0.0%
12	Mobility Hub	One-stop center for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations. Centrally located within Valencia Commerce Center.	Valencia Commerce Center has two small mobility hubs.	N/A	0%-0.5%[5]	0.3%	0.3%
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[5]	1.5%	1.5%
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[5]	0.3%	0.3%
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households. Increases transit mode share for home-work productions in Below Market Rate Households.	Valencia Commerce Center does not have any Below Market Rate housing.	N/A	N/A	8.2%	0.0%
Overall Global VMT Reduction							**16.0%[6]**

Notes

1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan establishes a transportation management organization (TMO) to implement and manage strategies.
3. 52.7% of total VMT is home-to-work attractions, 0% of total VMT is home-to-work productions, and 0% of home-to-work productions are external to Valencia Commerce Center calculated based on traffic modeling conducted for Valencia Commerce Center (July 2019). 5.9% of total VMT is school trips based on CAPCOA, but since there are no residences nor schools in Valencia Commerce Center, 0% of Valencia Commerce Center's VMT is attributable to school trips.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
6. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 4

Calculations to Support the Strategies in the TDM Plan for the Valencia Commerce Center Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall Valencia Commerce Center VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Affordable and Below Market Rate Housing	LUT-6	0.04%-1.2%			-			0.0%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)			-			0.0%
6	Required Commute Trip Reduction Program	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	52.7% of VMT (home-based work attractions)	-	-	5.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	52.7% of VMT (home-based work attractions)	-	-	-	0.8%
8	School Bus Program	TRT-13	38%-63% (school trips only)			-			0.0%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	16.4% reduction in commute VMT (CAPCOA)	52.7% of VMT (home-based work attractions)	-	-	4.3%

Table 4

Calculations to Support the Strategies in the TDM Plan for the Valencia Commerce Center Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range			Strategy Calculations			Reduction to Overall Valencia Commerce Center VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	-	-	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	SDT-3	0.5%-12.7%			-			0%[5]
		N/A	6%-15%[6]						
12	Mobility Hub	N/A	0%-0.5%[6]			(Calculation N/A)			0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[6]			(Calculation N/A)			1.5%
14	Bikeshare	TRT-12	0.2%-0.5%[6]			(Calculation N/A)			0.3%
15	Transit Fare Subsidy - Below Market Rate Households	N/A	N/A			-			0.0%
Overall Global VMT Reduction									**16.0%[7]**

Notes

1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan establishes a transportation management organization (TMO) to implement and manage strategies.
3. 52.7% of total VMT is home-to-work attractions, 0% of total VMT is home-to-work productions, and 0% of home-to-work productions are external to Valencia Commerce Center calculated based on traffic modeling conducted for Valencia Commerce Center (July 2019). 5.9% of total VMT is school trips based on CAPCOA, but since there are no residences nor schools in Valencia Commerce Center, 0% of Valencia Commerce Center's VMT is attributable to school trips.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for multi-family residences. However, since there are no residential units in Valencia Commerce Center, this strategy does not contribute to the VMT reduction for the village.
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

ATTACHMENT 1

VALENCIA TRANSPORTATION DEMAND MANAGEMENT PLAN

Valencia

Transportation Demand Management Plan

October 2022

Prepared by UrbanTrans North America

Table of Contents

Executive Summary

The Valencia Transportation Demand Management (TDM) Plan[1] is a comprehensive plan designed to achieve reductions in vehicle miles traveled (VMT) and, in so doing, reduce greenhouse gas (GHG) emissions.[2] Accordingly, this TDM Plan provides a summary description of the existing and planned regional transportation network, a listing of each of the strategies that comprise this TDM Plan with corresponding information regarding application of the strategy, and a step-by-step plan of implementation.

The TDM Plan applies to new development located on the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas (the Project Site) that is facilitated by the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project. Specifically, the TDM Plan will serve planned development within the Project Site, which consists of up to approximately 21,242 residential units; about 9.3 million square feet of commercial uses; and, numerous public facilities, including schools, fire stations, a library, and recreational amenities. This TDM Plan will serve as an "umbrella plan," with appropriate and customized application to individual villages and land uses, as applicable, located within the three planning areas (i.e., the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center sites).

The core objectives of the TDM Plan are to reduce the number of single occupancy vehicle trips, through the utilization of alternative forms of motorized and non-motorized transport and related strategies, and thereby reduce total VMT and the corresponding GHG emissions. Therefore, as presented below, the TDM Plan includes a number of strategies that enable the Project Site's residents, employees, and visitors to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options. The TDM Plan relies, in part, on the design of the planned development and, in part, on innovative strategies developed by the transportation planning and engineering community to achieve

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[1] Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

its objectives, and provides the foundational elements necessary for the successful implementation of the TDM strategies outlined herein.

A non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to provide the services required by this TDM Plan, as applicable. The TMO and the long-term implementation of the TDM Plan will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay; this payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties.

This TDM Plan is based, in part, on information and analysis contained in a technical memorandum entitled *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Fehr & Peers (September 2016) and as updated in a technical memorandum entitled *Quantification of Implementing TDM Strategies*, Fehr & Peers (2022). The memorandum analyzes each of the VMT reduction strategies presented in this Plan and based primarily on guidance provided by the California Air Pollution Control Officers Association, calculates the VMT reduction expected to result with implementation of each strategy. The memorandum, including appendix and exhibits, provides technical support for the VMT reductions expected to be achieved with implementation of this Plan.

1.0 Background Information

1.1 Regional Setting

This section provides an overview of the existing and planned transportation network in the vicinity of the Project Site, including transit, roadways, bicycle/trails network, and the pedestrian environment.

The Project Site is located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley. The Project Site area begins just west of Interstate 5 and continues to the boundary between Los Angeles and Ventura Counties, as shown in Figure 1. Traversing the Site is State Route (SR) 126, which functions as an east-west travel corridor between the Santa Clarita Valley and Ventura County. This section describes the transportation context to provide an understanding of the TDM needs and opportunities at the Project Site.

Figure 1: Project Site Vicinity Map

1.1.1 Transit Network

The Project Site is located within the City of Santa Clarita Transit service area. The agency operates nine local bus routes and four commuter routes that connect the City's neighborhoods with each other, as well as provide connections to regional transit via the following six transfer stations: the Santa Clarita, Newhall, Via Princessa, and Chatsworth Metrolink stations, the North Hollywood Red/Orange Line Station, and the McBean

Regional Transit Center, which includes a park and ride lot. Commuter Express Service also is available during rush hours to Century City and downtown Los Angeles.

On average, service frequency for local bus routes ranges from 30 minutes to an hour during morning and evening peak hours. Most routes run between 5:00 A.M. and 9:00 P.M. on weekdays. Weekend service is less frequent, starts later in the morning, and ends earlier in the evening. Commuter train service into downtown Los Angeles is provided via the Metrolink Antelope Valley Line, which takes less than an hour to reach Union Station and runs 11 times a day. From the North Hollywood Metro Station, the Red Line runs every ten minutes through Hollywood to Union Station, a ride that takes approximately 30 minutes. The Orange Line serves points west and terminates in Chatsworth. Figure 2 shows a map with regional connections. Figure 3 illustrates the existing local Santa Clarita Transit Network.

Figure 2: City of Santa Clarita Transit Regional Transit Connections

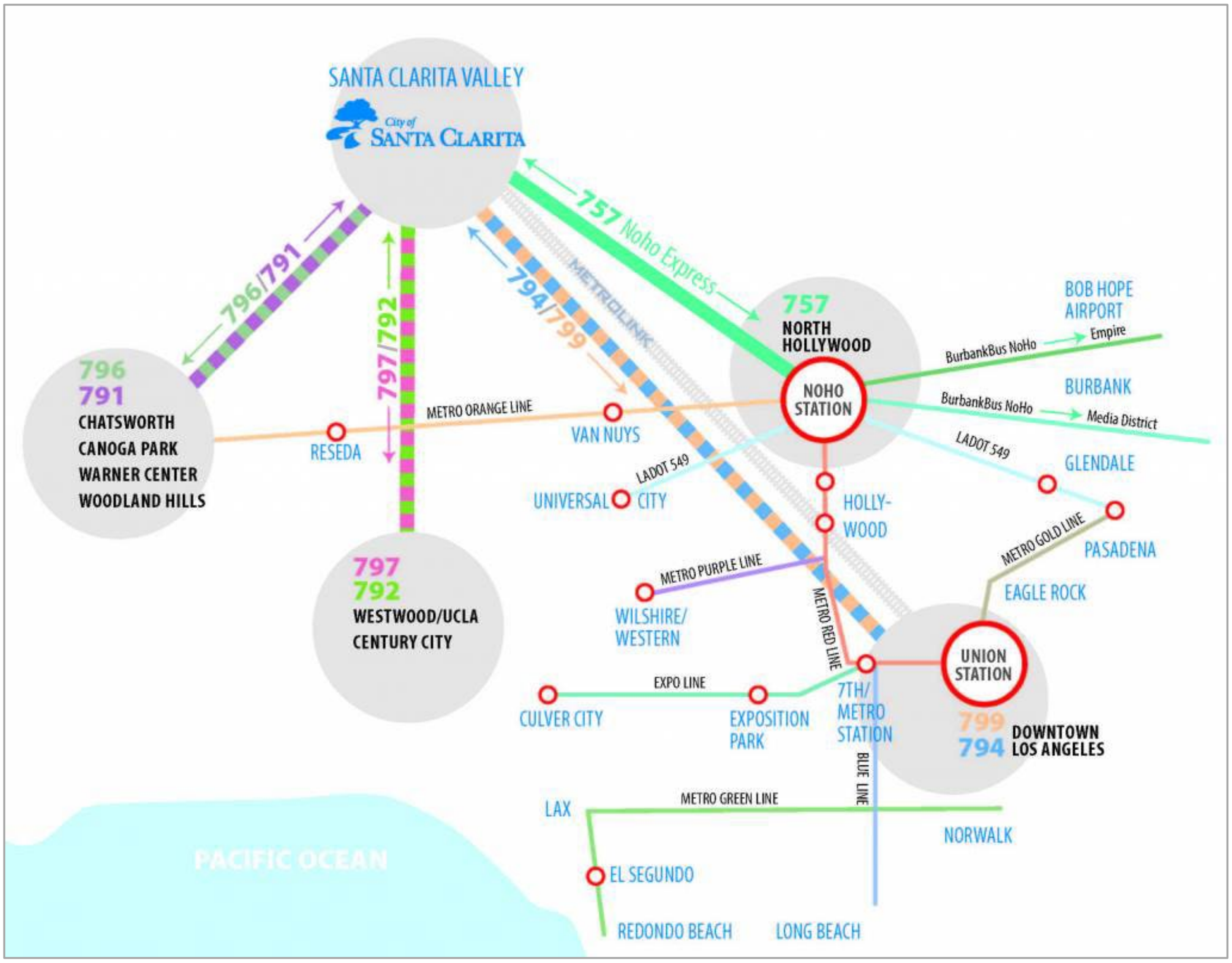
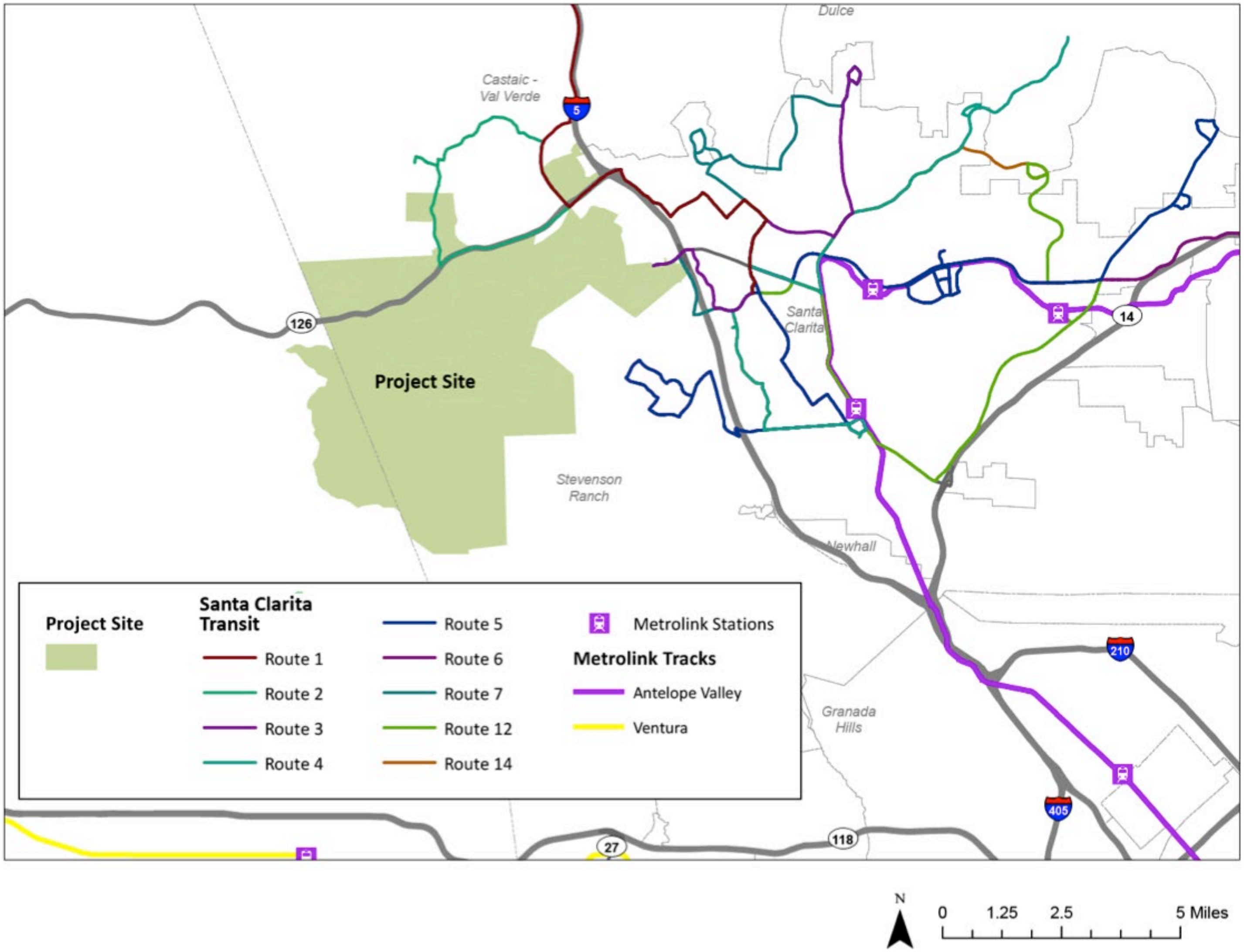


Figure 3: City of Santa Clarita Transit Local Service



1.1.2 Major Roadways

The Project Site is easily accessible from Interstate 5, which runs north-south and connects to downtown Los Angeles, and from Highway 126, which runs east-west between I-5 and the City of Ventura. A northward expansion of existing high occupancy vehicle (HOV) lanes from Highway 14 to north of Highway 126 is planned and scheduled to be completed in 2023. Within the Project Site area, an extension of Magic Mountain Parkway will run through the center of the site and connect with Long Canyon Road, an extension of the existing Valencia Boulevard. North-south connections will be provided by the extension of Commerce Center Drive, which will connect across Highway 126 to the Valencia Commerce Center, and by Long Canyon Road, which will connect to the existing Chiquito Canyon Road north of Highway 126. These new roads will be constructed as major and secondary highways along which transit service will be available.

1.1.3 Bicycle/Trails Network

The Los Angeles County Bicycle Master Plan adopted in 2012 identifies the addition of bike paths, lanes, or routes to several roadways adjacent to the Project Site. Planned improvements include bike paths and lanes along The Old Road, Castaic Creek, and the Santa Clara River/Highway 126. The bicycle master plan and related resources can be found here: https://dpw.lacounty.gov/pdd/bike/masterplan.cfm.

In 2020, the City of Santa Clarita adopted an update to its non-motorized transportation plan, which includes network and infrastructure improvements, facility design recommendations, and programmatic recommendations, including bicycle education and encouragement programs. The City of Santa Clarita is a Bronze level Bicycle Friendly Community, a recognition awarded by the League of American Bicyclists. The city's web site includes maps, bike parking information, safety tips, bicycles and transit information, and other resources. See: http://bikesantaclarita.com/.

The Project's proposed network of bicycle and multi-use trails generally will resemble the extensive existing trail network in neighboring Valencia. Off-street, multi-use trails will connect the villages within the Project Site. They will be supplemented by paseos, wide sidewalks with lighting, benches, and shade trees that provide connections to activity centers, such as schools, recreation centers, and neighborhood centers. On-street bike lanes will be provided on major roads as well.

1.1.4 Pedestrian Environment

Sidewalks will be provided along all roads within the planned development located on the Project Site, supplemented by the trail network. Cul-de-sacs are part of the street design in certain locations, although pedestrian connections will be provided at some of the planned cul-de-sacs to improve pedestrian connectivity.

2.0 TDM Strategies

The strategies outlined below shall be implemented pursuant to this TDM Plan. However, in light of the ongoing evolution of transportation technology and advancements, the strategies set forth below may be modified or replaced, as necessary, with alternative strategies of equal or enhanced effectiveness. Therefore, the applicant (or its designee) and/or the TMO, or equivalent management entity, shall periodically evaluate the parameters of this TDM Plan so as to ensure that the strategies are meeting the needs and priorities of the residents, employees, tenants, and visitors to the Project Site. As new technologies and strategies become available, the TDM Plan can be modified in order to implement alternative technologies and/or strategies of equal or enhanced effectiveness.

2.1 TDM Strategy Description

The following is a brief description of each TDM strategy and its application to the Project Site.

<u>Construction</u>

1. **Construction Traffic Management Plan**

   Description: A construction traffic management plan can be effective both to reduce VMT and reduce the potential construction-related congestion on traffic by maintaining mobility to, from, and within the Project Site during the construction period.

   Application: Prior to issuance of a grading or building permit for each village level project, the applicant, or its designee, shall develop a Construction Traffic Management Plan that may include, as applicable: worker carpools through available incentives; remote parking areas and corresponding shuttle service; work hours and truck deliveries scheduled to the extent feasible to avoid peak hour traffic conditions (i.e., 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.); and re-routing construction-related traffic from congested streets (i.e., those streets, if any, operating at unacceptable levels of service during the peak hours).

Operation

1. **Integrate Affordable and Below Market Rate Housing**

   Description: Income has a statistically significant effect on the probability that a commuter will take transit or walk to work[3]. Below Market Rate (BMR) housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit. Incorporating BMR also can encourage smaller units within the same building footprint, thereby increasing density and potential transit ridership.

   Application: The applicant, or its designee, shall include an Affordable Housing Program as part of the planned development within the Project Site, in accordance with the County of Los Angeles' Newhall Ranch Specific Plan approvals.

2. **Pedestrian Network**

   Description: Providing a pedestrian access network to link areas of a Project Site encourages people to walk instead of drive. This mode shift results in people driving less and, thus, a reduction in VMT.

   Application: The applicant, or its designee, shall include within the planned development located on the Project Site pedestrian-movement facilities (e.g., sidewalks, paseos, and trails as depicted in the Newhall Ranch Specific Plan Mobility Plan) that eliminate physical barriers and provide pedestrian-based access to both on- and off-site complementary land uses (e.g., neighborhood-serving commercial retail opportunities; schools; recreational amenities).

3. **Traffic Calming**

   Description: Providing traffic calming measures can encourage people to walk or bike instead of using a vehicle, thereby reducing VMT. Examples of traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others*.*

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[3] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site design elements that reduce motor vehicle speeds and improve pedestrian and bicyclist safety on the on-site streets and intersections. These design elements may include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

4. **Transit Network Expansion**

Description: Increasing transit availability through route expansion or increasing existing transit frequency improves access to the Project Site and, therefore, will encourage transit ridership. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The TMO, or its equivalent management entity, shall coordinate with the local transit agencies, including Santa Clarita Transit, to implement the Conceptual Transit Plan illustrated on Figure 4, to provide an expanded transit network that connects the Project Site to major transit centers in the Santa Clarita Valley, and enhance on and off-site connectivity options via transit.[4] The expanded transit network shall include bus stops located throughout the development area, a bus transfer station, and a park-and-ride lot to the extent deemed appropriate.

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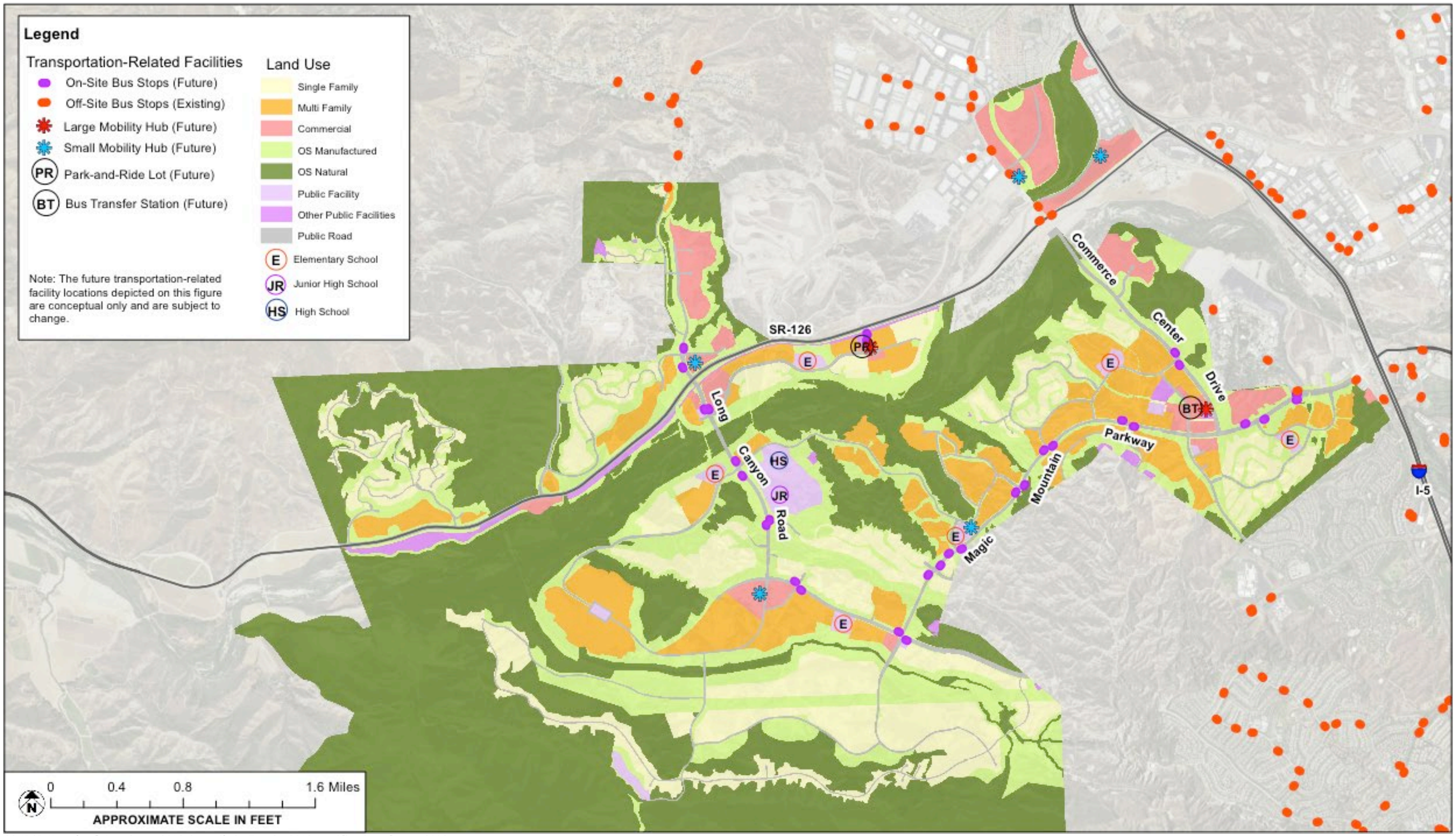
[4] See, Fehr & Peers Technical Memorandum, *RMDP/SCP Project: Transportation Demand Management Plan Evaluation* (September 2016), Exhibit 2.

Figure 4: Conceptual Transit Plan



Note: The future transportation-related facility locations depicted on this figure are conceptual only and are subject to change.

SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

FIGURE A

Meridian Consultants

Conceptual Transit Plan

5. **Alternative Work Schedules and Telecommute Program (Residential End)**

   Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

   Application: In furtherance of this strategy relative to Project residents, the TMO, or its equivalent management entity, shall utilize all appropriate marketing tools, including incentive strategies, to promote alternative work schedules and telecommuting on the part of Project residents, as feasible. In addition, the applicant, or its designee, shall construct all residential units to facilitate installation of high-speed internet services.

6. **Required Commute Trip Reduction Program**

   Description: A Commute Trip Reduction (CTR) program is an employer-administered program that discourages single-occupancy vehicle trips and encourages alternative modes of transportation such as carpooling, taking transit, walking, and biking. A CTR program provides employees with assistance in using alternative modes of travel and provides both "carrots" and "sticks" to achieve behavior change. A typical CTR program may include the following: preferential carpool parking, flexible work schedules for carpools, ridematching, designation of a transportation coordinator, transit subsidies, vanpool assistance, and bicycle end-trip facilities (e.g., parking, showers, and lockers). Participation in required commute trip reduction programs typically is required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

   Application: The TMO, or its equivalent management entity, shall coordinate with large business employers of the planned development located on the Project Site to implement a required CTR program that may include, but is not limited to, the utilization of ride sharing; provision of transit subsidies and preferential parking to carpools, vanpools and other commute strategies that minimize the use of single occupancy vehicles; and installs end-of trip bicycle facilities. As part of the program, the TMO (or equivalent management entity) shall establish performance and monitoring standards for the program's implementation status. In furtherance of this strategy, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants, employers, and employees of the Project Site's commercial areas, which establish and promote the benefits of commuting habits that reduce vehicle miles traveled. Additionally, the applicant/designee or the TMO (or equivalent management entity), as applicable, shall coordinate with

commercial builders/property owners to promote ridesharing through a multi-faceted approach that includes, but is not limited to, the measures below:

- Designating a certain percentage of parking spaces for ride-sharing vehicles that is equivalent to at least one dedicated parking space per 25,000 square feet of office space;
- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles; and
- Providing a web site or message board for coordinating rides

7. **Alternative Work Schedules and Telecommute Program (Work End)**

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: The TMO, or its equivalent management entity, shall coordinate with employers of the planned development located on the Project Site to facilitate the utilization of non-traditional worker commute patterns, for both Project residents and Project employees, by encouraging the use of alternative work schedules and telecommuting. In furtherance of this strategy for Project employees, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants and employers located in commercial areas on the Project Site that establish the benefits of alternative work schedules/telecommuting and provide successful templates for the implementation of such alternative approaches in the workplace. Additionally, any property management company managing commercial property on the Project Site shall require employers with 100 or more employees within the Project Site to develop and implement an alternative work schedules/telecommuting program consisting of the following elements: (1) appointment of a program coordinator; (2) identification of specific categories of employment positions that are appropriate for alternative work schedules and/or telecommuting; (3) provision of required equipment for telecommuting (e.g., hardware, software, and security); and (4) establishment of communications strategies to facilitate satisfaction of employment responsibilities (e.g., instant messaging). In furtherance of this strategy for Project residents, all residential units will be constructed with high-speed, high-capacity internet, and will be included in the TMO's marketing and incentive strategies.

8. **School Bus Program and School Travel Program**

Description: School travel can be a large vehicle trip generator. Under a school bus program, student school bus transit subsidies and Safe Routes to School (SRTS) programming have shown to be important and cost-effective ways to reduce overall trips in the community.

Application: The applicant, or its designee, in coordination with the Project Site's school districts shall establish a school bus program by offering fully subsidized transit passes to all Junior High and High School students residing within the Project Site. The TMO will staff a Safe Routes to School Coordinator position to work with all Valencia Elementary Schools to coordinate SRTS programming. In addition, the TMO will fund a part-time SRTS coordinator position at each of the three school districts (0.25 FTE per district) to leverage resources and coordinate and implement school travel planning to promote the school bus program as well as to provide education, encouragement, and incentives intended to increase taking transit, biking, walking, and carpooling to school. The school bus program, including the transit subsidies and SRTS program, and related staffing will be phased in based on the number of on-site schools and students residing within the Project Site.

9. **Transit Fare Subsidies for Employees**

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund and shall coordinate with those employers of the planned development located on the Project Site not required to participate in the Required Commute Trip Reduction program (Strategy 6) to provide alternative transportation subsidies to employees who commute to jobs located within the Project Site*.*

10. **Carshare Program**

Description: Carshare members, on average, have lower auto ownership rates and drive less than non-carshare members. One study found that, on average, 21% of carshare members in North America gave up their primary or secondary vehicle after joining a carsharing program[5].

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[5] IBI Group. (2009). *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards.* The City of Toronto.

Application: The TMO, or its equivalent management entity, shall establish a membership-based carshare program, whereby members have access to a shared fleet of vehicles. In order to incentivize participation, carshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership fee for up to 50 percent of the market rate households that elect to participate in the program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households); and, will subsidize 100 percent of the annual fee for up to 100 percent of the below market rate households. In the event the TMO is unable to retain a commercial carshare vendor, the TMO may consider diverting the funds otherwise planned to provide membership subsidies to the establishment of a peer-to-peer carsharing model, such as Getaround. The peer-to-peer model relies on private individuals registering their car for use by other residents for a fee. To ensure comparable levels of service and reliability to a traditional carshare provider (such as Zipcar), the peer-to-peer model would require aggressive marketing, outreach, and incentives to ensure that a sufficient fleet is established in terms of the number of vehicles and their locations. Another alternative approach could be the establishment of a Valencia-specific carshare service, as has been done successfully in small cities such as Ithaca, New York (population 30,515).

11. Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) Strategy

Description: NEVs are classified in the California Vehicle Code as a “low speed vehicle”. They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length and can promote a mode shift from single-occupancy vehicles, particularly in their ability to replace short trips.

E-Bikes present another travel option with similar mode shift potential for short trips. Low-speed, pedal-assisted and throttle-assisted E-Bikes (Class 1 and 2) can reach a maximum speed of 20 MPH and are allowed by state law on all bicycle facilities, including dedicated bicycle paths, unless a local ordinance specifies otherwise. A survey conducted in 2015[6] showed that E-Bikes are particularly

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[6] “E-bikes in North America: Results from an Online Survey,” John MacArthur, http://www.bikeleague.org/sites/default/files/E_bikes_mini_report.pdf.

popular in hilly areas and improve the mobility of older residents or people with disabilities who are unable to ride a standard bicycle. Class 1 and 2 E-Bikes do not require a driver's license, registration or insurance and the State of California specifies no minimum age.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site a comprehensive, interconnected travel network that accommodates NEV use and includes features such as NEV parking, charging facilities, striping, signage, and educational tools. Additionally, the applicant or its designee will provide funding for a subsidy covering 25 percent of the NEV purchase price (up to a $2,750 subsidy) that would be made available to residential detached single-family units located on the Project Site. The applicant or its designee also will provide funding for a subsidy covering 50 percent of the E-Bike purchase price (up to a $750 subsidy) that would be made available to all residential units on the Project Site. Subsidies will be made available to original homeowners. Should funding remain available at build-out, the TMO may expand eligibility to subsequent homeowners.

12. Mobility Hubs

Description: Mobility hubs are one-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. Mobility hubs are designed to facilitate multi-modal travel and encourage mode shifts by co-locating services and aggregating information.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site four small mobility hubs and two large mobility hubs. The following amenities are typical amenities that may be included at each mobility hub, dependent upon size (see *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers, September 2016, Exhibits 3 and 4*):

Small Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage

- Co-location of carshare and bikeshare

Large Mobility Hub:
- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage
- Co-location of carshare and bikeshare
- Designated park-and-ride spaces

13. **Tech-Enabled Mobility**

Description: Advances in technology have led to innovative new TDM opportunities. Recent technological applications include improved ride matching apps, real-time ride sharing, and innovative platforms that allow for trip planning, trip tracking, the administration of rewards programs, and real-time bus information.

Application: The TMO, or its equivalent management entity, shall establish as part of the planned development located on the Project Site a one-stop website for transportation information, as well as complementary apps for mobile devices and computers.

14. **Bike/Scootershare Program**

Description: Similar to carshare members, bikeshare members also have lower auto ownership rates and drive less than non-bikeshare member counterparts. Studies have found that on average 7% of bikeshare members replaced their personal vehicle with the bikeshare[7]. Both bikeshare and scootershare programs have been shown to reduce vehicle trips and associated greenhouse gas emissions.

Application: The TMO, or its equivalent management entity, shall establish a station-based or dockless bike/scootershare system on the Project Site with up to 24 stations or designated micromobility parking areas, in the case of a dockless system. The system may offer a variety of micromobility devices, however, at least fifty percent of the fleet will be comprised of electric devices. In order to increase

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[7] Johnston, K. (2014, April 7). Beyond Urban Planning: The Economics of Capital Bikeshare. *Georgetown Public Policy Review*. Retrieved from http://gppreview.com/2014/04/07/beyond-urban-planning-the-economics-of-capital-bikeshare/

ridership, program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership cost for up to 1.5 percent of Project residents who live in market rate housing; and 100 percent of the annual household membership cost for below market rate households.

15. **Transit Fare Subsidies for Residents**

    Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

    Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund, and shall provide alternative transportation subsidies to residents located within the Project Site (up to 3250 passes based on anticipated participation rates)**.** Market-rate properties must be part of the HOA or pay TMO dues for their residents to qualify.

Table 1: TDM Plan Performance Metrics and Targets, sets forth the applicable performance metrics and targets for each strategy identified for implementation herein. Notably, however, and as described in Chapter 4.0 below, implementation of this “umbrella plan” will be subject to applicability evaluations and customization efforts in conjunction with the processing of County-level entitlements for planned development located on the Project Site. The overall implementation of this TDM Plan on the Project Site is anticipated to produce the desired effect and facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

2.2 TDM Resources

The following regional and local resources presently are available to facilitate implementation of the TDM Plan.

2.2.1 Go511

Go511 is Southern California’s traffic information portal. It links commuters and employers to resources and information about car- and vanpooling, trip planning, commute costs, current traffic, and other helpful commute information. It offers regional employer programs, including a free Guaranteed Ride Home program, which provides commuters

who take transit, car- or vanpool, or bike or walk to work with a free ride home in case of an emergency.

The affiliated ride share service, RideMatch, a joint partnership between Los Angeles County, Orange County, and Ventura County, provides commuters with a platform to find a car- or vanpool match, as well as other local resources and incentives for use. Additional employer and commuter programs are available from the Los Angeles County Metropolitan Transportation Authority, which also offers assistance with and incentives for setting up vanpools.

Associated web sites:

http://www.go511.com/
https://www.ridematch.info/
http://www.metro.net/riding/rideshare/

2.2.2 Vanpool Providers

Commuter vanpooling is a transportation mode that encourages employees who live near each other to commute to work via a van leased to the group by a private company. Three vanpool providers operating in Southern California are Commute with Enterprise, Green Commuter, and AVR Vanpool. The Los Angeles County Metropolitan Transportation Authority (Metro) has a vanpool program that offers assistance with vanpool formation and provides a subsidy of up to $500 subsidy per vanpool. An additional subsidy may be available through Rideshare L.A. County as a pilot program.

Associated web sites:

https://www.metro.net/riding/vanpool/
https://rideshare.lacounty.gov/vanpool-new/
https://www.commutewithenterprise.com/en.html
https://www.airportvanrental.com/vanpool
https://greencommuter.org/vanpooling

2.2.3 Ridesourcing Options

In addition to traditional taxicab service, both Uber and Lyft operate in a service area that includes the City of Santa Clarita and the County of Los Angeles, including the Project Site.

Both companies allow users to request rides real-time via a mobile app with payment processed through the app and offer carpooling options on the fly (Lyft Shared and UberX Share). Rides are generally less expensive than a taxi ride, based on supply and demand of drivers and passengers.

3.0 TDM Implementation Plan

Following the California Department of Fish & Wildlife's (CDFW) approval of the Newhall Ranch RMDP/SCP, implementation of this TDM Plan is overseen by the County of Los Angeles as individual village-level projects are processed and approved by the County. Because the VMT-reducing strategies that comprise the TDM Plan are expected to have varying levels of applicability and degrees of effectiveness for individual village-level projects, the TDM Plan (including performance metrics) may be refined, as necessary, as part of the County's approval process, to reflect the relevant characteristics (e.g., land use mix) of each respective village.

Notwithstanding, the performance metrics identified in this TDM Plan shall be met in full, upon buildout of all development facilitated by the RMDP/SCP. In the event the maximum development potential authorized by CDFW's approvals is not achieved as part of the County's approval processes for the individual village-level projects, the VMT-reducing strategies and performance metrics may be adjusted to reflect the modified buildout projections while maintaining consistency with the core objectives of this TDM Plan (i.e., to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies and, thereby, reduce total VMT and the corresponding GHG emissions).

3.1 Funding Options

The TMO and the long-term implementation of the TDM Plan, including transit, carshare and bikeshare programs subsidies, will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay. The payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties. The applicant or designee will provide funding for infrastructure components, such as mobility hubs, traffic calming, the pedestrian network, bikeshare facilities, and NEV/E-Bike subsidies. As needed, the applicant, or its designee, also may subsidize TMO operation during the first years until revenues from assessments are sufficient to fund the annual TMO operating expenses.

3.2 Organizational Structure

As previously discussed, a non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to deliver the programs and services identified in this TDM Plan, as applicable.

3.3 TMO Creation Action Plan

It is estimated that the start-up activities to prepare for implementation of the TDM programs and strategies identified in this plan will begin approximately three months prior to issuance of the first building permit. The timing ensures that an organizational structure that facilitates the receipt of funds and the provision of applicable TMO services will be in place as soon as the first property owners and tenants move in. The TMO will be a non-profit organization. The governing body's membership gradually will expand to include a growing number of property owners as they begin occupancy at the Project Site. TMO creation steps are as follows:

- **Create a TMO and form a governing body:** If the TMO is a division of an existing entity, such as a master owners' association, this step simply involves formalizing and expanding a steering committee. If the TMO is envisioned as an independent non-profit organization, the steps for incorporating the entity are listed below.

- **Incorporation of the TMO (optional):** The process for incorporating a TMO is outlined below.

    - Draft and file the articles of incorporation
    - Recruit and appoint a Board of Directors
    - Draft by-laws and conflict of interest policy
    - Conduct initial board actions (election of board officers, approval of the by-laws and conflict of interest policy, and establishment of a bank account).
    - Obtain an employer identification number
    - File the initial registration form (Form CT-1) with the California Attorney General's Registry of Charitable Trusts
    - File the Statement of Information (Form SI-100) with the Secretary of State
    - Apply for federal tax exemption with the Internal Revenue Service (IRS) and receive a determination letter from the IRS
    - Apply for California tax exemption with the California Franchise Tax Board (FTB) and receive an affirmation of exemption letter from the FTB

3.4 Key Implementation Actions

Implementation of the TDM Plan shall be phased in, based on the mix of uses developed, occupancy rates, need, and demand. Additionally, in coordination with the County of Los Angeles, the applicant (or its designee) shall review the planned development located within the Project Site concurrent with the processing of County-level entitlements for each village. Each village's land use map, composition of land use categories, and geographic placement within the Project Site shall guide the determination of the precise implementation of the strategies identified herein. It is not anticipated that every village necessarily will implement each strategy enumerated in this TDM Plan (e.g., each village may not include its own mobility hub). Village-specific performance metrics and targets will be prepared in conjunction with the County's approval process for use in lieu of the overarching metrics and targets presented in Table 1. That said, the overall implementation of this TDM Plan on the Project Site is anticipated to facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

3.4.1 Start Up Activities

The start-up activities summarized below will be undertaken to prepare for TDM service delivery. The applicant, or its designee, will:

- Hire staff and establish the TMO, including creation of a financial structure and accounting procedures

The applicant, or its designee, and TMO staff will proceed to:

- Create the TMO budget and ensure TDM program funding by finalizing assessment rates;
- Identify stakeholders and establishing the relationships necessary to successfully implement the TDM strategies;
- Finalize a business plan and create a detailed work plan;
- Create TMO branding and identity;
- Develop a marketing plan;
- Create a steering committee; and
- Establish monitoring and evaluation procedures.

3.4.2 Year One Activities – Based on development triggers

The activities described in this section prepare the TMO for effectively implementing its service when certain milestones are reached. These include employers and residents moving in, schools opening, and bikeshare and carshare systems launching. These activities do not necessarily happen during the first year of operation; instead, they are triggered by differing development milestones dependent upon the particular strategy and, generally, correspond to the first year of residential occupancy or the first year of school operation within the district unless otherwise noted. The timeline in section 3.5 below lists the triggers along with the corresponding strategies and actions. In Year One, the TMO will:

- Initiate the preparation of marketing materials, which may include new resident and new employee welcome kits, as well as general marketing materials;
- Establish an incentive structure for behavior-supportive subsidies, including prizes for drawings or giveaways to be used to incentivize and reward change from single occupant vehicle travel;
- Begin working with employers prior to their move to the Project Site;
- Conduct outreach to developers and property managers to ensure that preferential carpool parking, loading and passenger waiting zones and other end-of-trip facilities are implemented;
- Develop an effective system to administer payment of transit, bikeshare, and carshare program subsidies to employees, students and residents, as applicable;
- Develop a SRTS travel planning strategy that will promote transit service and encourage walking, biking and carpooling to school;
- Assess and employ tech-enabled mobility to provide functionalities such as trip planning, ridematching, ridehailing, trip tracking, rewards programs, and others;
- Begin implementation of monitoring and evaluation activities;
- Launch bikeshare program;
- Launch carshare program.

3.4.3 Ongoing Activities – Years 2 – 5

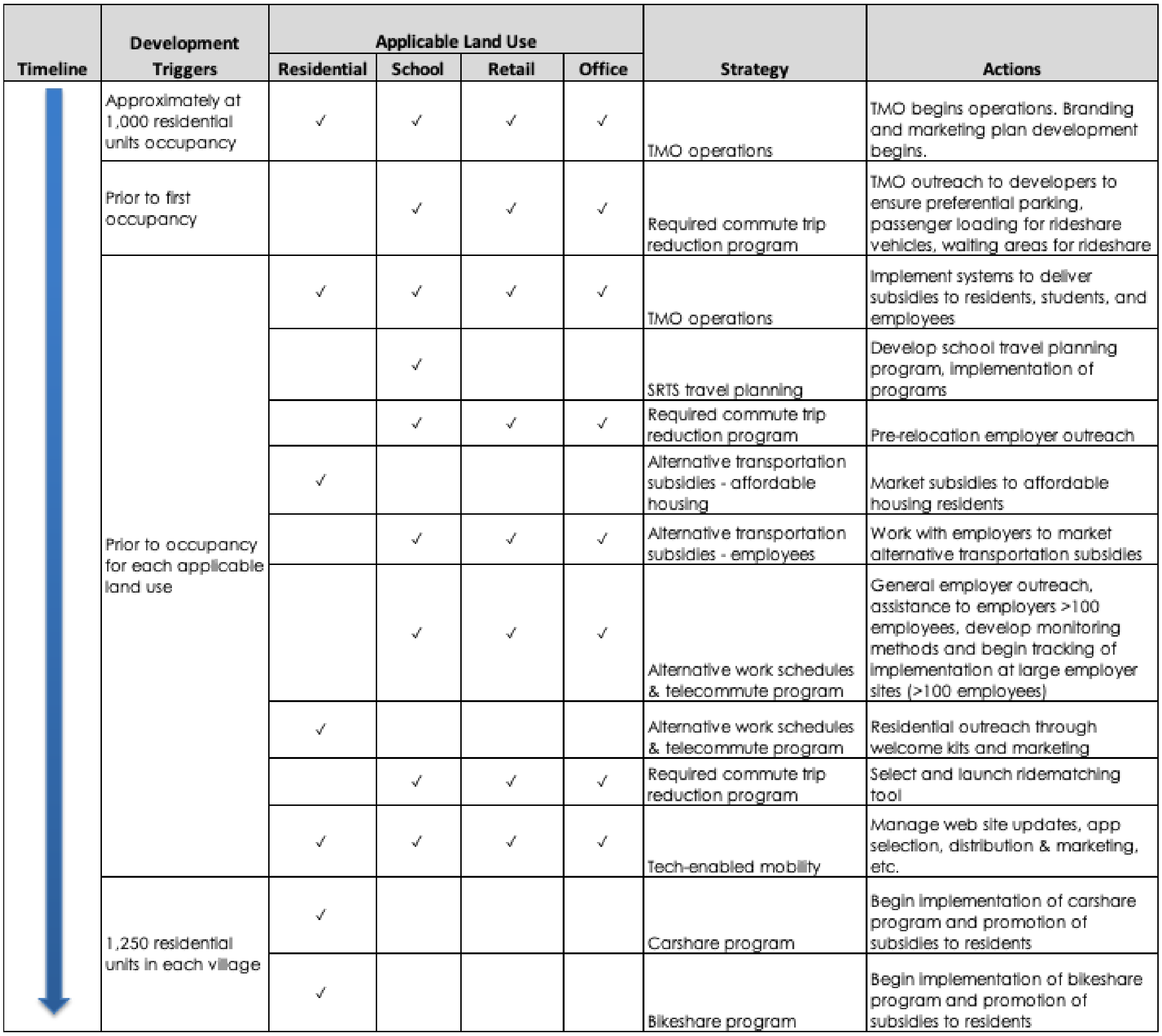
While specific implementation details will evolve over time and may be adjusted based on new strategies, technologies, or approaches that become available, these general categories will remain key components of program implementation during the first five years and beyond. During these years, TMO staff will:

- Administer transit/alternative transportation subsidies and introduce bikeshare and carshare subsidies as the programs are launched;
- Implement a residential engagement strategy to educate residents about alternative transportation options, available subsidies, and related programs;
- Implement an employer engagement strategy to educate both employers and their employees about the commute options, subsidies, and programs available to them;
- Administer school travel planning programs, such as school pools, walking, school bus, bike trains, incentives, and other programs available at that time; and
- Continue to monitor and evaluate TDM activities.

3.5 Timeline and Phasing

This timeline of TMO activities was developed to provide an estimate of when, during the development phasing process, certain actions need to begin in order to ensure service delivery as building occupancy occurs. The timeline may be adjusted based on changes to the TDM strategies. The TMO will begin operations approximately after the 1,000th residential unit has been occupied. Once the TMO is operational, the implementation will follow the triggers outlined in Table 1 below.

Table 1: Development Triggers



Timeline	Development Triggers	Applicable Land Use				Strategy	Actions
		Residential	School	Retail	Office		
	Approximately at 1,000 residential units occupancy	✓	✓	✓	✓	TMO operations	TMO begins operations. Branding and marketing plan development begins.
	Prior to first occupancy		✓	✓	✓	Required commute trip reduction program	TMO outreach to developers to ensure preferential parking, passenger loading for rideshare vehicles, waiting areas for rideshare
	Prior to occupancy for each applicable land use	✓	✓	✓	✓	TMO operations	Implement systems to deliver subsidies to residents, students, and employees
			✓			SRTS travel planning	Develop school travel planning program, implementation of programs
			✓	✓	✓	Required commute trip reduction program	Pre-relocation employer outreach
		✓				Alternative transportation subsidies - affordable housing	Market subsidies to affordable housing residents
			✓	✓	✓	Alternative transportation subsidies - employees	Work with employers to market alternative transportation subsidies
			✓	✓	✓	Alternative work schedules & telecommute program	General employer outreach, assistance to employers >100 employees, develop monitoring methods and begin tracking of implementation at large employer sites (>100 employees)
		✓				Alternative work schedules & telecommute program	Residential outreach through welcome kits and marketing
			✓	✓	✓	Required commute trip reduction program	Select and launch ridematching tool
		✓	✓	✓	✓	Tech-enabled mobility	Manage web site updates, app selection, distribution & marketing, etc.
	1,250 residential units in each village	✓				Carshare program	Begin implementation of carshare program and promotion of subsidies to residents
		✓				Bikeshare program	Begin implementation of bikeshare program and promotion of subsidies to residents

Activities that do not fall under the purview of the TMO, such as the review and approval of construction traffic management plans, inclusion of affordable housing, the development of a pedestrian network, traffic calming, and the transit network expansion, shall be incorporated into the County of Los Angeles' development review and approval activities and, in the case of transit expansion, coordinated and negotiated with City of Santa Clarita Transit.

4.0 Program Monitoring

The applicant (or its designee) and/or the TMO or equivalent management entity will track the progress towards meeting the performance metrics and targets identified in Table 2, RMDP/SCP TDM Plan Performance Metrics and Targets. Such monitoring includes verification of the installation of infrastructure components, payment of subsidies, and implementation of the various programs and services identified in this TDM plan. Progress will be monitored as identified in Table 2 to ensure that program goals are met and to inform the implementation of TDM strategies going forward.

Progress towards meeting the identified targets will be tracked via the following data collection mechanisms:

- Field verification: Field verification primarily will be used to verify installation of infrastructure components such as the Pedestrian Network, Traffic Calming, NEV travel network, Mobility Hubs, and Bikeshare Network. The field verification will be performed by the TMO or equivalent entity.

- Resident Surveys: The TMO or equivalent entity will track program participation and conduct resident surveys as needed to track the following metrics:
    - Percentage of workforce residents participating in an alternative work schedule;
    - Percentage of students arriving at school via public transit or non-motorized modes;
    - Percentage of households with a carshare membership;
    - Percentage of households with an NEV or E-Bike; and
    - Percentage of below-market households with a subsidized transit pass.

- TMO Reports: The TMO or equivalent entity will prepare an annual report detailing its activities and accomplishments, including the establishment of, and ongoing activities related to:

  - Required Commute Trip Reduction Program; and
  - Tech-enabled Mobility Program.

- Employer Reports/Surveys: Employers will submit an annual report to the TMO, or participate in an annual survey conducted by the TMO, as appropriate, to ensure the following metrics are tracked:
  - Percentage of employees participating in an alternative work schedule;
  - Percentage of employees receiving a discounted transit pass or other alternative transportation subsidy.

Additional methods listed in Table 2 include the review of partnership documents and reports from partnering agencies, and final as-built documents.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
1	Integrate Affordable and Below Market Rate Housing	Because income has a statistically significant effect on the probability that a commuter will take transit or walk to work, affordable and below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit.	Percentage of deed-restricted, below market housing units	10% of total housing units upon full build-out of the development facilitated by the RMDP/SCP	Review of deed-restricted, below market housing units within the development divided by total number of housing units	Once after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
2	Pedestrian Network	Pedestrian facilities, such as sidewalks, paseos, and trails.	Pedestrian network build-out that provides internal pedestrian facilities and facilities that connect off-site	Full build-out of planned pedestrian network that provides internal and external pedestrian connections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections. These measures include but are not limited to: count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.	Percentage of streets and intersections with a traffic calming improvement	100% of streets and intersections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
4	Transit Network Expansion	Extension of Santa Clarita Transit routes into Valencia.	Extension of transit system coverage throughout RMDP/SCP project area to each village, consistent with the Conceptual Transit Plan (or equivalent)	Extension results in 80% increase in Santa Clarita Transit system network coverage within the RMDP/SCP project area, as compared to the existing coverage provided within the project area	Transit Operator Reports	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
5	Alternative Work Schedules and Telecommute Program (Residential End)	High-speed internet available to residents and marketing efforts by the Transportation Management Organization (or equivalent entity).[8]	Percent of workforce residents participating in an alternative work schedule	10% of workforce residents participating in an alternative work schedule	Resident Surveys/Big Data[9]	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
		Internet speeds	Pre-wired residential access to high-speed internet	Internet Service Provider Reports	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village	
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures, such as ride-sharing, marketing, transit fare subsidy, preferential parking, and/or end-of-trip facilities at larger employers. (This is neither intended to be an inclusive or exclusive list of potential measures.)	Program established with a threshold for participation set such that at least 50% of employees at Valencia are captured in the program	Establishment of a multi-strategy program that includes components such as preferential carpool parking, flexible work schedules for carpools, transit fare subsidies, ridematching, designation of a transportation coordinator, vanpool assistance, and bicycle end-trip facilities	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	Percent of employees participating in an alternative work schedule	10% of employees participating in an alternative work schedule	Employer Report or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
8	School Bus Program	Fully subsidized school bus transit pass to all junior high and high school students	School bus transit passes distributed to Junior High and High School Students	Established as part of the development of each respective village	TMO report	Annually after full build-out of each village	Concurrent with the full build-out of each

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[8] When referred to in this table, TMO includes a Transportation Management Organization or an equivalent entity.

[9] Advances in Big Data have increased the data's suitability for measuring mode share. Replica is one example of a tool that uses big data and provides mode share and telework data.

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
		TMO staffs a Safe Routes to School Coordinator position for each Valencia Elementary School to coordinate SRTS programming.	Percentage of Junior High and High School students arriving at school via bus or non-motorized modes	76% of students	Resident Surveys		respective village
		Each School District staffs a SRTS Coordinator position (0.25 FTE per district) to coordinate programming on-site, work with the TMO and work with school staff to implement Safe Routes to School.	Staff person hired at TMO	1 FTE	TMO report		
			Staff person hired at each School District	0.25 FTE per district	School Districts report		
			Percentage of Elementary School students walking or biking to school	28% of students	Resident Surveys		
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes or other alternative transportation subsidy for employees whose employer does not participate in the CTR Program.	Fund a transit or alternative transportation subsidy program for 10% of all employees employed at Valencia whose employer does not participate in the CTR Program, at $5.96 subsidy per person per day.	10% of non-CTR Program employees	Employer Reports or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or other.	Provide infrastructure for carshare parking spaces at mobility hubs	Full build-out of supportive carshare network	Final as-built documents	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Carshare provider contracted to serve Valencia	Partnership with carshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Membership in carshare program	1% of residents participate in carshare program	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
11	NEV & E-Bike Strategies	Travel network that accommodates NEV & E-Bike use, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies is included in this strategy: NEV subsidies are available to original owners of detached single-family homes and E-Bike subsidies are available to all original homeowners.	NEV travel network build-out	Full build-out of planned NEV travel network	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
			Percent of households with an NEV	20% of single-family households (1,749 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Percent of households with an E-Bike	55% of all households (11,683 households)	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, carshare, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally located within neighborhood and employment centers, consistent with the Conceptual Transit Plan (or equivalent).	Number of small mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare)	4 small mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Number of large mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare, designated park-and-ride spaces)	2 large mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub

Table 2: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
13	Tech-Enabled Mobility	One-stop website for Valencia transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information, etc. All-in-one Valencia specific transportation app or suite of apps. Similar information and services as on website.	Mobile Application implemented by TMO that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented application	TMO Report	Annual updates and upgrades to application	Full development build-out of each village
			Website implemented by TMO for transportation information that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, carshare), traffic information	One TMO-implemented website	TMO Report	Annual updates and upgrades to website	Full development build-out of each village
14	Bike/Scootershare	On-site availability of bikeshare bicycles, including standard and E-Bikes or e-scooters in the fleet, throughout the project site with subsidized membership.	Provide infrastructure for up to 15 bikeshare stations/parking areas at mobility hubs and other locations, including 50% E-Bike/E-Scooter composition	Full build-out of planned bike/scootershare network	Field Verification	Once after full build-out of all development facilitated by the RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Third party provider contracted to serve Valencia	Partnership with third party provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
15	Transit Fare Subsidy for Residents	Discounted daily or monthly public transit passes or other alternative transportation subsidy for residents (excluding residents of market-rate properties that do not pay HOA or TMO dues).	Fund subsidized transit pass at $5.96 per day for residents in all households	3,250 subsidies	TMO Report	Annually after full build-out of housing facilitated by RMDP/SCP	Full build-out of housing facilitated by RMDP/SCP

ATTACHMENT 2

QUANTIFICATION OF IMPLEMENTING TDM STRATEGIES (DECEMBER 16, 2022)

FEHR & PEERS

MEMORANDUM

Date: December 16, 2022

To: Alex Herrell, The Newhall Land and Farming Company

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: Quantification of Implementing TDM Strategies

Ref: LA16-2810/LA22-3381

The purpose of this memorandum is to document the VMT reductions associated with expanded transportation demand management (TDM) strategies to implement the School Bus Strategy in the Newhall Ranch TDM Plan in the Final Additional Environmental Analysis by the California Department of Fish & Wildlife (TDM Plan).[1] As background, the TDM Plan includes fifteen strategies designed to maximize VMT reduction opportunities within the facilitated development areas of the RMDP/SCP Project, taking into account the Project location and the types of land uses that would be facilitated by the Project. The estimated total VMT reduction for these 15 strategies was previously determined to be 14.9%. The TDM Plan allows for alternative strategies to be implemented over time that provide an equivalent level of VMT reduction. This memo describes five TDM strategies that are expected to achieve an equivalent level of VMT reduction once implemented and incorporated into the TDM Plan.[2]

In some cases, quantification of these strategies is based on research contained in the California Air Pollution Control Officers Association's 2010 report entitled *Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA). For some strategies, the creation of a quantification methodology was required, based on a review of available research and documentation.

This implementation memorandum describes the five adjusted and expanded strategies that are incorporated into the TDM Plan and achieve an equivalent level of VMT reduction, as shown below:

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[1] Fehr & Peers (2016). RMDP/SCP Transportation Demand Management Plan Evaluation, dated September 7, 2016, published as Appendix 8 of the Final Additional Environmental Analysis, California Department of Fish & Wildlife, SCH No. 2000011025, June 12, 2017.

[2] Valencia Transportation Demand Management Plan, October 2022. Formerly called "Newhall Ranch TDM Plan". "Valencia" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

- Strategy 8: School Bus Program
- Strategy 9: Transit Subsidies for Newhall Ranch Employees
- Strategy 11: NEV & E-bike Strategy
- Strategy 14: Bikeshare & Scootershare
- Strategy 15: Transit Subsidies for Newhall Ranch Residents

STRATEGY 8 – SCHOOL BUS PROGRAM

The School Bus Strategy, Strategy 8, will be adjusted in conjunction with additional strategies during implementation as described below to provide an equivalent level of reduction in VMT.

As originally described and quantified in the TDM Plan, Strategy 8 assumes 76% of families in the area covered by the TDM Plan participate in the school bus program across elementary, junior, and senior high schools, which would be free for students to use. During implementation, by partnering with Santa Clarita Transit (SCT), the organization established to implement the TDM Plan will fully subsidize high school and junior high school student school bus fares to implement Strategy 8. SCT currently provides busing services for high school and junior high school students via their public bus service, with fares at $1 per ride, in conjunction with other measures described below.

For the high school and junior high school level, uptake between a school-district operated system and the existing SCT service is expected to be equivalent because Newhall will offer full fare school bus subsidies to all students and coordinate closely with SCT to ensure the routes, stops, and service hours are in line with student needs, including before school and after-school hours. Given potential parent concerns about elementary school students traveling on a public bus system, the SCT system currently does not provide service to elementary school students that would result in equivalent uptake as a district-provided school bus system.

The total number of students anticipated within the area covered by the TDM Plan is 8,778.[3] Of this total, 4,320 would be elementary students, or 49%. Therefore, Newhall could expect to see 51% of the previously-estimated overall VMT reduction for the School Bus Strategy (3.4%) as a result of implementing the SCT program (100% of students less 49% elementary students). This would result in an estimated VMT reduction of 1.7% (51% * 3.4%).

In order to achieve an additional 1.7% VMT reduction for an equivalent level of TDM reduction, a portion will be realized through a strong Safe Routes to School (SRTS) program implemented at the elementary schools. Approximately 22% of elementary school students are expected to live

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[3] Data provided by FivePoint on 5/16/19.

within a quarter mile of their school, and would comprise the maximum reasonable “baseline” for students walking and biking to school. Research on the effectiveness of SRTS programs shows that an increase of 25% of students walking or biking could be anticipated as a result of SRTS programming (separate from the effects of physical infrastructure changes) (McDonald, et al, 2014).

As previously described in the TDM Plan evaluation memo, the reduction in school VMT is calculated by multiplying the participation rate – in this case, the 25% marginal increase in walking and biking participation rate attributable to the implementation of the SRTS program – by the number of school weeks divided by the number of total weeks in the year.

> % Reduction in Elementary School VMT = 25% marginal participation rate of families * 22% baseline * (39 school weeks / 52 weeks)

This percent reduction is then applied to the VMT that would be generated by the Project’s elementary school-based trips, or 49% of the 5.9% of total annual school VMT, to calculate the reduction to overall project VMT. In total, this results in an additional overall project VMT reduction of 0.1% (25% * 22% * 39/52 * 49% * 5.9%).

Therefore, the combined school bus SCT and SRTS strategies would result in a 1.8% overall VMT reduction. The remaining 1.6% VMT reduction is discussed below.

STRATEGY 9 – TRANSIT SUBSIDIES FOR NEWHALL RANCH EMPLOYEES

The Employee Transit Subsidy, Strategy 9, will be expanded during implementation, as follows. By increasing the amount of subsidy from $2.98 per day to $5.96 per day, while maintaining the assumptions about levels of employee eligibility at 50%, Strategy 9 will achieve an additional 0.3% reduction in VMT, reaching a total of 1.4% for Strategy 9. As described in the evaluation of the TDM Plan, $2.98 equates to between 25%-100% of a round-trip fare on Santa Clarita Transit, depending on the service class selected. Currently, a one-way fare for a local route is $1.00, while a one-way fare for the most expensive commuter route (to Century City and Los Angeles) is $4.00. A $5.96 subsidy per day would cover substantially more of the cost of a round-trip fare on the commuter routes, but not 100%. Employee eligibility cannot be adjusted for this strategy, since 50% of employees are already assumed to have transit pass subsidies provided through Strategy 6.

STRATEGY 11 – NEV & E-BIKE STRATEGY

The E-bike Strategy will be expanded during implementation. In the original TDM Plan, this strategy is considered as a component of the NEV strategy, Strategy 11, with a bifurcated approach to implementation that provides NEV subsidies to single-family households and e-bike subsidies to

multi-family households. During implementation, e-bike subsidies will be provided to all households, at the same value as assumed in the TDM Plan, to achieve an additional 0.4% reduction in VMT, reaching a total of 2.9% for Strategy 11.

STRATEGY 14 – BIKESHARE & SCOOTERSHARE

The Bikeshare Strategy, Strategy 14, will be expanded during implementation. In the original TDM Plan, the effectiveness of the Bikeshare Strategy is based on empirical bikeshare usage data from Los Angeles. Implementation of the strategy assumes a non-electric fleet. Recent research into the implementation of electric bikeshare compared to standard bikeshare indicates a higher level of usage for electric bikeshare, higher rates of mode shift from automobile modes, and lower sensitivity to environmental factors such as weather and air quality (Campbell et al, 2016). In addition, dockless e-bike-based fleets were used between two and three times as frequently as standard pedal bike-based fleets in 2018 (NACTO, 2019). Preliminary research from the Capital Bikeshare system pilot in Washington, D.C., shows that e-bike trips are approximately 20% longer than standard bike trips taken on the same bikeshare system (Sussman, 2018). In recent years, electric dockless scootershare programs have also become a popular iteration of this type of mobility system, with a limited base of literature demonstrating VMT reduction potential (Volker, 2020).

However, not all trips taken on bikeshare or scootershare – whether on e-bikes, e-scooters, or standard bikes – are replacements for vehicle trips; some are entirely new trips. Given this consideration, it is reasonable and conservative to increase the effectiveness of the bikeshare system in reducing VMT by 50% over its previously-estimated levels of effectiveness, if the fleet were comprised of e-bikes in addition to standard bicycles. Making this adjustment to the implementation guidelines in the TDM Plan achieves an additional 0.15% VMT reduction, for a total of 0.5% for Strategy 14.

STRATEGY 15 – TRANSIT SUBSIDIES FOR NEWHALL RANCH RESIDENTS

The Resident Transit Subsidy, Strategy 15, will be expanded during implementation. For Strategy 15, increasing the level of subsidy offered to people who live in below market rate households from $2.98 to $5.96 per day, and adding a transit subsidy benefit for people who live in market rate households at a level of $5.96 per day, will achieve an additional 0.8% reduction in VMT, for a total of 0.9% for Strategy 15.

CONCLUSION

Together, the above implementation adjustments to the TDM Plan achieve an equivalent level of VMT reduction as previously estimated for the TDM Plan. This includes the dampening effects of combining the individual VMT reduction amounts associated with each strategy, as described in the memorandum evaluating the TDM Plan. A total estimated 14.9% VMT reduction will result from the TDM Plan with the above adjustments and additions.

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	6% of units are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting to jobs outside Newhall Ranch	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating); includes TRT-3, TRT-5, TRT-7, TRT-8	TRT-2	4.2%-21% (commute trips only)	10.5%	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips	1.5%	0.2%
8	School Bus Program	Implement modified school bus program: 51% of students (junior and senior high school level) taking SCT service with fully-subsidized pass.	76% of families with students in junior or senior high school use SCT Program	TRT-13 (mod)	38%-63% (school trips only)	57.0%	1.7%
		Implement modified school bus program: 49% of students (elementary level) participating in a Safe Routes to School program to encourage greater walking/biking.	30.5% of families with students in elementary school walk/bike to school	N/A	25% (school trips only)[5]	4.1%	0.1%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $5.96/day subsidy	TRT-4	0.3%-20% (commute trips	10.0%	1.4%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	1 NEV per 5 single-family residences; plus 1 e-bike per residence.	SDT-3 (NEVs only)	0.5%-12.7%	2.9%	2.9%
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within each neighborhood and employment center.	Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations	N/A	0%-0.5%[6]	0.3%	0.3%

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[6]	1.5%	1.5%
14	Bikeshare & Scootershare	On-site availability of bikeshare bicycles throughout the project site, with a mixed fleet of standard and electric bicycles as well as e-scooters.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[6]	0.5%	0.5%
15	Transit Fare Subsidy for Residents	Discounted public transit passes to all households.	Increases transit mode share for external home-work productions.	N/A	N/A	10.0%	0.9%
Overall Global VMT Reduction							**14.9%[7]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Below Market Rate Housing Affordable to an Average Income of 75% Below Area Median Income	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	6% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	11% of VMT (home-based work productions)	78% of work trips external to Newhall Ranch	-	-	0.2%
6	Required Commute Trip Reduction Program (includes creation of TMO)	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	14% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	51% of students (junior and senior high school level)	-	1.7%
		N/A	25% (school trips only)[5]	22% (students within walking distance)	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	49% of students (elementary school level)	-	0.1%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	20% reduction in commute VMT (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.4%
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	90% Market rate households; 10% Below Market Rate Households	-	0.4%

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range			Strategy Calculations			Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
11	NEV Strategy for Single-Family Residences	SDT-3	0.5%-12.7%	1 / 5 Single-Family HH with an NEV	12.7% VMT reduction (CAPCOA)	-	-	-	2.9%[6]
	E-Bike Strategy for All Residences	N/A	6%-15%[7]			(Calculation N/A)			
12	Mobility Hubs	N/A	0%-0.5%[7]			(Calculation N/A)			0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[7]			(Calculation N/A)			1.5%
14	Bikeshare & Scootershare	TRT-12	0.2%-0.5%[7]			(Calculation N/A)			0.5%
15	Transit Fare Subsidy for Residents	N/A	N/A	50% Participation	20% reduction in commute VMT (CAPCOA)	11% of VMT (home-based productions)	78% of work trips external to Newhall Ranch	-	0.9%
Overall Global VMT Reduction									**14.9%[8]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with Safe Routes to School based on research by McDonald, et al (2014).
6. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for all residences.
7. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
8. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Appendix 5.9d

Phasing Analysis

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: T-4

January 29, 2024

Mr. Daryl Zerfass
Stantec Consulting Services
38 Technology Drive, Suite 100
Irvine, CA 92618

Dear Mr. Zerfass:

WESTSIDE SANTA CLARITA VALLEY ROADWAY PHASING ANALYSIS 2022 UPDATE

We reviewed your Westside Santa Clarita Valley Roadway Phasing Analysis 2022 Update dated May 23, 2023. The 2022 Update follows the Roadway Phasing Analysis previously prepared for the Westside area in 2015.

The purpose of the 2022 Update is to update the time period for constructing the improvements necessary to accommodate planned development in the Westside area of Santa Clarita Valley to commensurate with construction of the planned development. The planned development that is considered in this report includes the Newhall Ranch Specific Plan area along with:

- Entrada North (VTTM 71377)
- Entrada South (VTTM 53295)
- Legacy Village (VTTM 61996)
- Buildout of the Valencia Commerce Center area, which includes (VTPM 18108)

Based on our review of the 2022 Update, we generally agree with the methodologies and findings contained in the 2022 Update, and thereby determine that the update process has been completed to our satisfaction. The aforementioned development projects shall construct the new roadway (i.e. segment) improvements or equally effective and financially equivalent improvements as approved by the Director of Public Works, or for improvements located outside the jurisdiction of the County of Los Angeles, construct or provide fair-share funding for the improvements in accordance with the Construction Stages listed in Table 2-1 (copy enclosed). The aforementioned development projects also shall construct the new intersection improvements, or equally effective and financially equivalent improvements as approved by the Director of Public Works, or for improvements located outside the jurisdiction of the County of Los Angeles, construct or provide fair-share funding for the improvements in accordance with the Construction Stages listed in Table 2-2 (copy enclosed).

As a condition of approval for each of the aforementioned development projects, a review and update, if necessary, to the 2022 Update is expected to occur at the following cumulative development thresholds:

- 3,176 residential units and 13.17 million square feet nonresidential uses
- 6,066 residential units and 14.87 million square feet nonresidential uses
- 14,515 residential units and 16.00 million square feet nonresidential uses
- 21,373 residential units and 17.65 million square feet nonresidential uses
- 25,001 residential units and 19.78 million square feet nonresidential uses
- 27,615 residential units and 22.08 million square feet nonresidential uses

Please note each of the planned development projects, which are comprehensively analyzed in the 2022 Update, are required to submit separate traffic impact analyses to Public Works for review and approval.

In the event an Environmental Impact Report prepared for one of the planned development projects determines that the project would result in significant impacts to the State of California Department of Transportation facilities, the applicant shall consult with Caltrans to determine whether the improvements and timeframes listed in the 2022 Update would mitigate the identified significant impacts to Caltrans' facilities. If Caltrans and the applicant agree that improvements listed in the 2022 Update would mitigate the identified significant impacts to the Caltrans facilities, the applicant shall either construct the subject improvements or pay an equitable share consistent with applicable law, such as through its participation in the Westside Bridge and Thoroughfare District, towards construction of the improvements such that the subject improvements in place are consistent with the timing set for in the 2022 Update. In the event Caltrans determines the improvements necessary to mitigate the identified impacts to Caltrans facilities are not included with the 2022 Update, the applicant shall enter into a traffic mitigation agreement with Caltrans before or within six (6) months of certification of the Environmental Impact Report under which it would agree to provide fair-share funding towards improvements necessary to mitigate the identified impacts to Caltrans facilities.

Considering the 2022 Update includes a comprehensive review of the roadway infrastructure needs and implementation phases to accommodate the planned development projects based on the development that is presently planned, this analysis may need to be updated in the event any of the planned development projects substantially changes its project description and forecasted trip generation.

If you have any questions regarding the review of this 2022 Update, please contact Mr. Kent Tsujii, of Traffic Safety and Mobility Division, at (626) 300-4776 or ktujii@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

AMIR S. IBRAHIM, P.E., L.S.
Principal Engineer
Traffic Safety and Mobility Division

TG:al
SP:\STU\LTRSMEMOSESTU2022000165-WESTSIDEPHASINGANALYSIS2022UPDT

bc: Land Development (Suarez, Lasso)

Enc.

Table 2-1 Westside Area Major Roadway Construction Stages

Construction Stage	Improvement	Development Phase (DP)
1	Extend Magic Mountain Parkway into Mission Village area (Partially completed)	**DP-A** 5,629 DU 1,553 TSF
	Extend Westridge Parkway to Magic Mountain Parkway (Completed)	
	Construct Commerce Center Drive north of Magic Mountain Parkway to just south of the Santa Clara River (Completed)	
	Construct local access to Entrada South (south of Magic Mountain Parkway)	
	Extend local access to VCC by constructing Hancock Parkway east of Commerce Center Drive	
2a	Construct local access to Entrada South (north of Magic Mountain Parkway)	**DP-B**[1] 5,629 DU 3,585 TSF
2b	Construct Commerce Center Drive Bridge (connect Mission Village area to SR-126) – See Appendix D for supplemental Bridge Sensitivity Analysis	
3	Construct local access to VCC TPM 18108 area	**DP-C** 5,629 DU 5,685 TSF
4a	Construct Wolcott Way access to Landmark Village from SR-126	**DP-D** 25,829 DU 13,013 TSF
	Extend Magic Mountain Parkway to Homestead South	
	Extend Magic Mountain Parkway to Potrero Village and construct Long Canyon Road north of Magic Mountain Parkway	
	Extend Valencia Boulevard into Legacy Village	
	Extend Poe Parkway to Valencia Boulevard	
	Construct Long Canyon Road access to Landmark Village from SR-126 (interim alignment)	
	Construct Long Canyon Road Bridge (connect Potrero and Homestead South areas to SR-126)	
	Extend Valencia Boulevard to Magic Mountain Parkway	
	Construct Potrero Canyon Road west of Long Canyon Road	
	Construct realigned Long Canyon Road at SR-126	
	Widen The Old Road to six lanes between Sky View Lane & the relocated Rye Canyon freeway ramps	
	Construct local access to Homestead North from SR-126	
	Widen The Old Road to six lanes between the relocated Rye Canyon ramps to just north of Henry Mayo Drive	
	Widen SR-126 to 6-lanes between Commerce Center Drive and Wolcott Way	
	Widen SR-126 to 6-lanes between Wolcott Way and Long Canyon Road	
	Widen SR-126 to 8-lanes at Wolcott Way	
4b	Construct Urban Grade Separation (UGS) at SR-126/Long Canyon Road	**Post-DP-D**
Note: The indicated improvements associated with each construction stage will accommodate the amount of development noted for the corresponding DP.		

Table 2-2 Intersection Improvements by Construction Stage

Intersection	Improvement	Jurisdiction
Stage 1 / **DP-A**		
9. The Old Rd & I-5 SB Ramps (at Rye Cyn Rd)	County/Caltrans project: Relocate ramps to new location north of existing location. Add 2nd northbound right-turn lane, 2nd southbound left-turn lane, and 3rd southbound through lane. Convert shared westbound left/right-turn lane to a 2nd westbound left-turn lane and add a dedicated right-turn lane. [FivePoint is obligated to pay 1.4% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
25. The Old Rd & Rye Cyn Rd	County project (Interim): Interim improvements to add 2nd northbound through lane and add second southbound left-turn lane. Convert northbound and westbound free-flow right-turn lanes to conventional right-turn lanes with overlap signal phasing. [FivePoint is obligated to pay 7.1% fair-share of cost of improvement as Mission Village mitigation]	County
26. The Old Rd & Magic Mountain Pkwy	***FivePoint project:*** Add right-turn overlap phasing for the southbound right-turn lane. [FivePoint is obligated to construct improvement as Mission Village mitigation] (See DP-2a for additional improvements at this location)	County
Stage 2a[1] / **DP-B**		
25. The Old Rd & Rye Cyn Rd	County project: In addition to Stage 1 Interim improvements, add 3rd northbound through lane, 3rd southbound through lane, and add 2nd and 3rd westbound left-turn lanes. [FivePoint is obligated to pay 7.1% fair-share of cost of improvement as Mission Village mitigation]	County
26. The Old Rd & Magic Mountain Pkwy	***FivePoint project:*** Monitor conditions of right-turning volumes and, if necessary, before the construction of Commerce Center Drive Bridge over Santa Clara River, convert third southbound through lane to a shared through/right-turn lane (or dedicated right-turn lane). (Improvement not needed after construction of Commerce Center Drive Bridge.)	County
28. The Old Rd & Stevenson Ranch Pkwy	***FivePoint project:*** Stripe 3rd southbound through lane and westbound right-turn lane. (See DP-D for additional improvements at this location) [FivePoint is obligated to construct improvement as Mission Village mitigation]	County
Stage 2b[2] / **DP-B**		
81. Commerce Center Dr & Henry Mayo Dr	**FivePoint project:** Add 2 southbound through lanes, 1 eastbound right-turn lane, 1 westbound left-turn lane, 1 northbound left-turn lane, 3 northbound through lanes, and convert westbound through lane to a shared left-turn/through lane. Modify traffic signals to accommodate westbound and eastbound split signal phasing.	County/Caltrans
Stage 3 / **DP-C** (None)		
Stage 4a / **DP-D**		

Intersection	Improvement	Jurisdiction
10. I-5 SB Ramps & Magic Mountain Pkwy	County/Caltrans project: Restripe the shared southbound left-turn/ through lane to a left-turn lane and the 1st southbound right-turn lane to a shared through/left-turn lane. [FivePoint is obligated to pay 19.7% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
12. I-5 SB Ramps & Valencia Blvd	County/Caltrans project: Restripe the 2nd westbound free-flow right-turn lane to a 3rd westbound through lane/shared free-flow right-turn lane. [FivePoint is obligated to pay 7.5% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
37. Tourney Rd & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, stripe a 4th eastbound through lane. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City
57. Valencia Blvd & Magic Mountain Pkwy	City project: Reinstate westbound right-turn lane and add 3rd eastbound through lane. [FivePoint is obligated to pay 6.0% fair-share of cost only of reinstating westbound right-turn lane improvement as Mission Village mitigation]	City
80. Wolcott Way & SR 126	**FivePoint project:** Add northbound left-turn lane, northbound through lane, 2 northbound right-turn lanes, southbound through lane, and 2nd westbound left-turn lane. Add 2nd eastbound left-turn lane, 3rd & 4th eastbound through lane, eastbound right-turn lane, and 3rd & 4th westbound through lane. [FivePoint is responsible for these or comparable improvements for site access]	County/Caltrans
96. San Martinez Grande Cyn Rd & SR 126	**FivePoint project:** Add southbound left-turn lane and westbound right-turn lane. [FivePoint is responsible for these or comparable improvements for site access]	County
105. Westridge Pkwy & Valencia Blvd	**FivePoint project:** Modify traffic signal to provide a westbound right-turn overlap phase. [FivePoint would be responsible for a fair-share contribution to this improvement]	County
110. Long/Chiquito Cyn Rd & SR 126	**FivePoint project:** 1) At interim Long Canyon Road alignment, add northbound left-turn lane, northbound through lane, northbound right-turn lane, convert southbound right-turn lane to a shared through/right-turn lane, and add westbound left-turn lane, and 2) at ultimate Long Canyon Road alignment, add 2nd northbound right-turn lane, southbound right-turn lane, 2nd eastbound left-turn lane, eastbound right-turn lane, and 2nd westbound left turn lane. Add 2nd northbound left-turn lane, add 2nd northbound through lane, add 2nd southbound left-turn lane, add 2nd southbound through lane, add 3rd eastbound through lane and 3rd westbound through lane. Provide westbound right-turn overlap signal phasing. [FivePoint is responsible for these or comparable improvements for site access]	County/Caltrans
Stage 4b / Post DP-D		
11. I-5 NB Ramps & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, restripe the shared northbound through/right-turn lane to a shared left-turn/through/right-turn lane. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City/Caltrans

Intersection	Improvement	Jurisdiction
14. I-5 SB Ramps & McBean Pkwy	County/Caltrans project: When shown as needed, add a second southbound left-turn lane. [FivePoint is obligated to pay 12.6% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	County/Caltrans
16. I-5 SB Ramps/Mariott & Pico Cyn Rd	County/Caltrans project: When shown as needed, add a left-turn signal phase for the westbound left-turn lane (can be protected/permissive phasing) and a right-turn overlap signal phase for the northbound right-turn lane. [FivePoint is obligated to use B&T credits or pay 4.7% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	County/Caltrans
17. I-5 NB Ramps & Lyons Ave	County/Caltrans project: Restripe the third westbound through lane to a right-turn lane and restripe the second westbound through lane to a shared through/right-turn lane. [FivePoint is obligated to use B&T credits or pay 7.0% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	City/Caltrans
45. McBean Pkwy & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, restripe to add 3rd eastbound through lane and add westbound right-turn overlap signal phase. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City
48. McBean Pkwy & Newhall Ranch Rd	City project: When shown as needed, restripe to provide 2 northbound right-turn lanes and provide pedestrian safety enhancements. [FivePoint is obligated to pay 7.0% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	City
66. Bouquet Cyn Rd & Newhall Ranch Rd	City project: Reconfigure eastbound approach to consist of 2 left-turn lanes, 4 through lanes, and 2 right-turn lanes. [FivePoint is obligated to pay 4.0% fair-share of cost of improvement as Mission Village mitigation]	City
105. Westridge Pkwy & Valencia Blvd	**FivePoint project:** Convert southbound through lane to shared left-turn/through lane and modify the traffic signal to accommodate northbound and southbound split phasing. [FivePoint is responsible for these improvements as needed]	County
110. Long/Chiquito Cyn Rd & SR 126 (future 97./98.)	**FivePoint project:** When shown as needed, construct Urban Grade Separated (UGS) intersection. [FivePoint is responsible for these improvements as needed]	County/Caltrans

Notes:

[1] Stage 2a is before construction of Commerce Center Drive Bridge over Santa Clara River

[2] Stage 2b includes construction of Commerce Center Drive Bridge over Santa Clara River

Blvd – Boulevard	Pkwy – Parkway
Cyn – Canyon	Rd – Road
Dr – Drive	SB – Southbound

WESTSIDE SANTA CLARITA VALLEY ROADWAY PHASING ANALYSIS - 2022 UPDATE

May 23, 2023

Prepared for:
FivePoint

Prepared by:
Stantec

Project Number:
2042604600

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This document entitled Westside Santa Clarita Valley Roadway Phasing Analysis - 2022 Update was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of FivePoint (the “Client”). The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by: ________________________________

Eric Mazzella, EIT

Maria M Morris

____

Maria Morris, AICP, PTP

Reviewed by: ________________________________

Daryl Zerfass, PE, PTP

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Acronyms / Abbreviations

ADT	Average Daily Traffic or Trips
DP	Development Phase
ICU	Intersection Capacity Utilization
LOS	Level of Service
MPH	Miles per Hour
OVOV	One Valley One Vision
SCVCTM	Santa Clarita Valley Consolidated Traffic Model
SP	Specific Plan
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TSF	Thousand Square Feet
V/C	Volume to Capacity Ratio
VMT	Vehicle-miles of Travel
VPH	Vehicles per Hour
VTTM	Vesting Tentative Tract Map
RMDP/SCP	Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan

Glossary

Certain terms used throughout this report are defined below to clarify their intended meaning:

Average Daily Traffic or Trips	Represents the total two-directional traffic volume passing a given point on a roadway, or the total number of trips generated by a particular location or land use, over a 24-hour period.
Intersection Capacity Utilization	A measure of the volume to capacity ratio for an intersection. Typically used to approximate the peak hour level of service for a given set of intersection volumes.
Level of Service	A scale used to evaluate circulation system performance based on intersection ICU values, average intersection vehicular delay, or volume/capacity ratios of arterial segments.
Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan	The Newhall Ranch Resource Management and Development Plan is a conservation, mitigation, and permitting plan for sensitive biological resources within the previously approved Newhall Ranch Specific Plan area. The Spineflower Conservation Plan is a conservation and management plan to permanently protect and manage a system of preserves designed to maximize long-term persistence of the San Fernando Valley spineflower (Chorizanthe parryi ssp. fernandina; spineflower), a federal candidate and a state-listed endangered plant species.
Peak Hour	This refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips are traveling on a roadway or are generated by a particular location or land use.
Transportation Demand Management	Transportation demand management is the application of strategies and policies to reduce travel demand or to redistribute this demand in space or in time.
Tripend	One end of a trip (i.e., the origin or destination).
Volume to Capacity Ratio	Typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of a roadway or intersection.

Vehicles per Hour	Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one-hour period, typically the AM and PM peak hour.

1 Introduction

The purpose of this analysis is to update the roadway phasing analysis originally prepared for the Westside area of the Santa Clarita Valley in 2006[1]. Since the original phasing study, subsequent updates have been conducted, with the latest update in 2015[2]. This report represents the third update to the phasing analysis.

The Westside of the Santa Clarita Valley is defined for the purpose of this analysis as the general area west of the Interstate 5 freeway, north of the existing Stevenson Ranch area, south of the Hasley Canyon/Val Verde area, and east of the Ventura County line, as depicted in **Figure 1-1**. The Westside is generally under single ownership (FivePoint), and the planned development that is considered in this report includes the Newhall Ranch Specific Plan area, along with Entrada North (VTTM 071377), Entrada South (VTTM 53295), Legacy Village (VTTM 061996), and buildout of the Valencia Commerce Center area, which includes (VTPM 18108) . These areas generally represent all of the future development projects in the Westside that will build out this area over the next 15 to 20 years.

As land development occurs, new roadway infrastructure will be constructed to serve the Westside area. New arterial highways, as well as extensions of existing highways such as Magic Mountain Parkway, Valencia Boulevard, and Commerce Center Drive, will provide the backbone highway system for the Westside.

This update utilizes the same study area, methodology and performance criteria as the original and 2015 Phasing Studies. Updates have been made to land use quantities, land use phasing, roadway phasing and background conditions (i.e., related/cumulative projects), and inclusion of Transportation Demand Management (TDM) measures.

1.1 Study Area

The study area used for this analysis includes the roadways and intersections within the Westside area as well as key locations in the westerly portion of the City of Santa Clarita, as shown in **Figure 1-2**. The analysis evaluates the roadway intersections depicted in the exhibit, which represent key junctions within the Westside area as well as locations in the City where Westside development has a fair-share obligation to fund improvements when needed. The number of study intersections have been reduced from prior studies and are included here only if improvements are reasonably anticipated to be necessary in the future according to traffic forecasts based on the anticipated timeframe of areawide development in accordance with the County Area Plan and the City’s General Plan.

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[1] Westside Santa Clarita Roadway Phasing Analysis,” Austin-Foust Associates, Inc., November 2006.

[2] Westside Santa Clarita Roadway Phasing Analysis – 2015 Update, Stantec, March 2015.

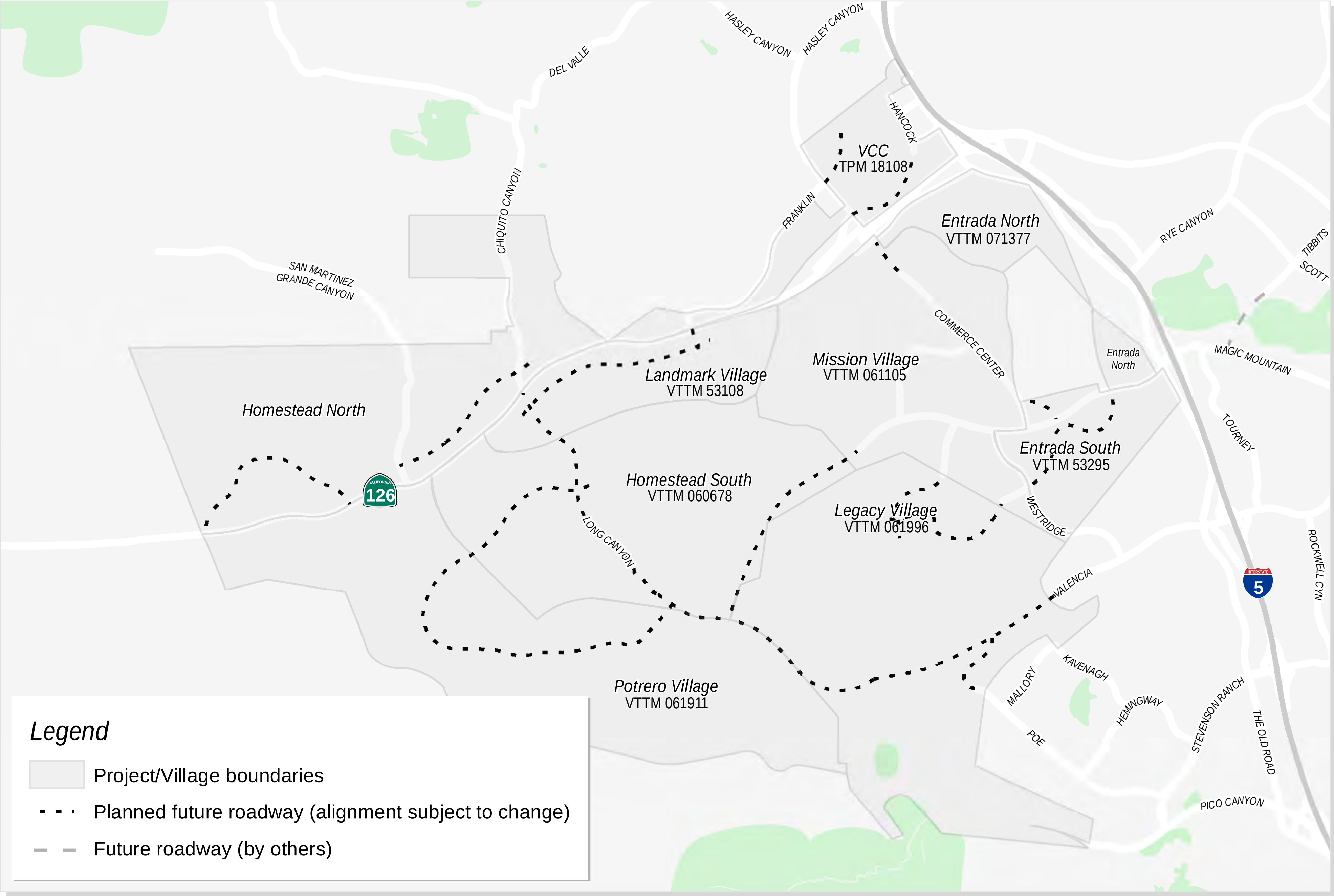

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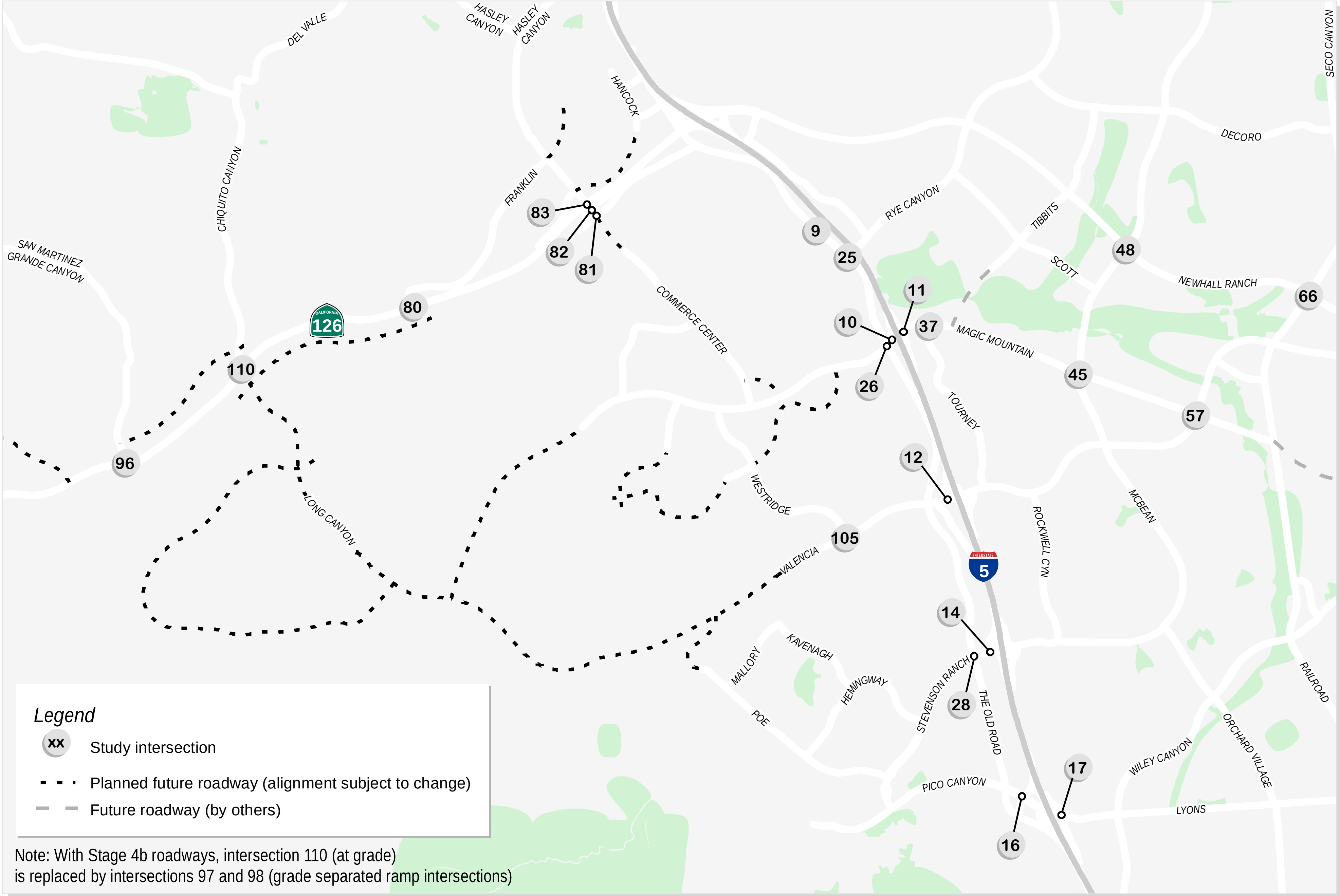
Figure 1-1

Westside Project Area



Note: With Stage 4b roadways, intersection 110 (at grade) is replaced by intersections 97 and 98 (grade separated ramp intersections)

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Figure 1-2

Study Area

Figure 1-3 illustrates the existing condition average daily traffic (ADT) volumes for the arterial roadway segments within the Study Area based on traffic counts collected prior to the 2020 pandemic[3].

1.2 Methodology

The timing and chronological order of roadway construction is primarily based on the timeframe of land development of the areas served by the roadways. A master land use phasing plan, which sets out the anticipated timing of development, provides the basis for the trip generation characteristics (origin/destination and number of trips) utilized in the analysis. **Table 1-1** lists each of the Westside projects to be developed, along with the estimated number of years over which occupancies would occur. **Table 1-2** shows Westside area land use estimates for the four phases of development assumed for this analysis and **Table 1-3** shows the net increase in land use that corresponds to each phase.

Based on the information shown in the following tables, an analysis was conducted to determine the amount of infrastructure necessary to serve reasonably anticipated future development, as well as the corresponding amounts of land use development that can be accommodated by each stage of roadway infrastructure in order to maintain desired levels of service.

To accomplish this goal, several milestone land use development phases (DPs) were modeled using versions of the Santa Clarita Valley Consolidated Traffic Model (SCVCTM) specially prepared for this analysis. These milestone DPs start at 5,629 residential dwelling units and 1.55 million square feet (MSF) of non-residential uses in DP-A, which includes 100 percent of residential uses in the Mission Village and Entrada South areas as well as 1.3 MSF of VTTM 18108 non-residential development in the Valencia Commerce Center area.

DP-B completes the planned development of the Mission Village and Entrada South areas by increasing the amount of non-residential development in those areas to a total of 1.56 MSF and 730 TSF, respectively.

DP-C completes the development of Valencia Commerce Center VTTM 18108 with a total of 3.4 MSF of non-residential development.

Phasing estimates for development subsequent to DP-C is not known at this time, therefore DP-D represents the balance of allowable development for each development area. Collectively, DP-D includes development of 25,829 DUs and approximately 13.0 MSF of non-residential development.

The quantification of land use based on detailed categories of land use types and aggregated by traffic analysis zone (TAZ) is provided in **Appendix A**. This land use provides the basis for the trip generation estimates for each of the DPs. Outside the Westside area, trip generation estimates are interpolated using the SCVCTM's Interim Year and Long-range Cumulative settings as the basis for the interpolation.

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[3] Traffic counts collected in November 2021 show a decrease in traffic from pre-pandemic levels. As a conservative measure, traffic counts collected in 2018 and 2019 are used in this analysis to depict typical existing conditions.

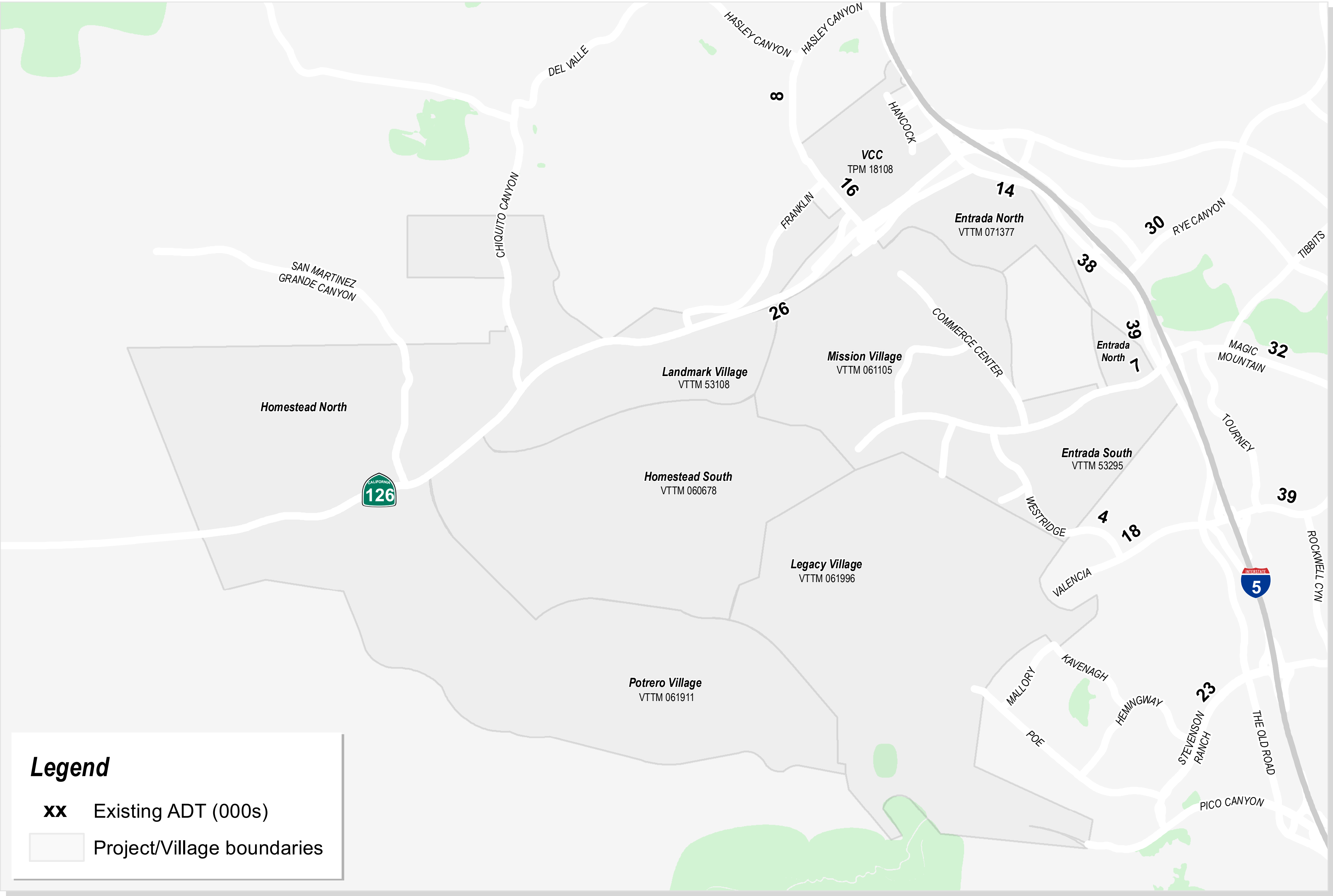

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Figure 1-3

Existing Conditions (2018/2019) Average Daily Traffic (ADT)

Table 1-1 Westside Land Use by Development Area

Development Area/Land Use	Amount of Development[1]
Mission Village (Newhall Ranch SP)	
Residential	4,055 DU[2]
Commercial	1.56 MSF[2]
Entrada South	
Residential	1,574 DU[2]
Commercial	730.0 TSF[2]
Valencia Commerce Center[3]	
Commercial	3.6 MSF[4]
Entrada North	
Residential	1,150 DU[2]
Commercial	2.67 MSF[5]
Landmark Village (Newhall Ranch SP)	
Residential	1,444 DU[2]
Commercial	1.03 MSF[2]
Legacy Village	
Residential	3,588 DU
Commercial	839.0 TSF
Homestead South (Newhall Ranch SP)	
Residential	3,617 DU[2]
Commercial	66.4 TSF[2]
Homestead North (Newhall Ranch SP)	
Residential	1,818 DU[2]
Commercial	1.57 MSF
Potrero Village (Newhall Ranch SP)	
Residential	8,583 DU
Commercial	944.5 TSF
Total	
Residential	25,829 DU
Commercial	13.01 MSF

Note:

[1] Development assumptions are consistent with the County/City One Valley One Vision Area Plan

[2] No change from 2015 Phasing Study

[3] Includes future Valencia Commerce Center development only

[4] Conservatively includes 200 TSF more than the currently proposed VTPM 18108 project

[5] Includes Hotel

DU – Dwelling Units
MSF – Million Square Feet
SP – Specific Plan
TSF – Thousand Square Feet

Table 1-2 Westside Area Land Use Development Phasing

Area	Use	Development Phase (DP)			
		A	B	C	D[1]
Mission Village	DU	4,055	4,055	4,055	4,055
	TSF	253	1,555	1,555	1,555
Entrada South	DU	1,574	1,574	1,574	1,574
	TSF	-	730	730	730.0
Valencia Commerce Center[2]	DU	-	-	-	-
	TSF	1,300	1,300	3,400	3,600.0
Entrada North	DU	-	-	-	1,150
	TSF	-	-	-	2,674.4
Landmark Village	DU	-	-	-	1,444
	TSF	-	-	-	1,033.0
Legacy Village	DU	-	-	-	3,588
	TSF	-	-	-	839.0
Homestead South	DU	-	-	-	3,617
	TSF	-	-	-	66.4
Homestead North	DU	-	-	-	1,818
	TSF	-	-	-	1,571.0
Potrero Village	DU	-	-	-	8,583
	TSF	-	-	-	944.5
Total	DU	5,629	5,629	5,629	25,829
	TSF	1,553	3,585	5,685	13,013.3

Note: DU – Dwelling Units TSF – Thousand Square Feet

[1] Development assumptions are consistent with the County/City One Valley One Vision Area Plan

[2] Includes proposed future development only

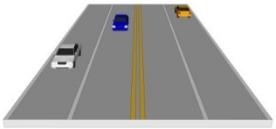
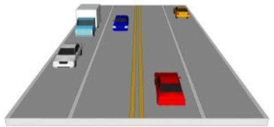
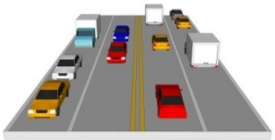
Table 1-3 Westside Area Land Use Development - Net Increase by Phase

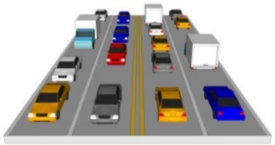
Area	Use	Development Phase (DP)			
		A	B	C	D
Mission Village	DU	+4,055	-	-	-
	TSF	+253	+1,302	-	-
Entrada South	DU	+1,574	-	-	-
	TSF	-	+730.0	-	-
Valencia Commerce Center	DU	-	-	-	-
	TSF	+1,300	-	+2,100.0	+200.0
Entrada North	DU	-	-	-	+1,150
	TSF	-	-	-	+2,674.4
Landmark Village	DU	-	-	-	+1,444
	TSF	-	-	-	+1,033.0
Legacy Village	DU	-	-	-	+3,588
	TSF	-	-	-	+839.0
Homestead South	DU	-	-	-	+3,617
	TSF	-	-	-	+66.4
Homestead North.	DU	-	-	-	+1,818
	TSF	-	-	-	+1,571.0
Potrero Village	DU	-	-	-	+8,583
	TSF	-	-	-	+944.5
Total	DU	+5,629	-	-	+20,200
	TSF	+1,553	+2,032	+2,100	+7,328.3

Note: DU – Dwelling Units TSF – Thousand Square Feet the LOS for a roadway segment or the LOS of an intersection as represented by the intersection capacity utilization (ICU) value, which is a more comprehensive measurement of V/C that takes into account the For analysis purposes, defined performance criteria are utilized to determine if a roadway segment or an intersection is operating acceptably. Performance criteria are based on two primary measures. The first is “capacity”, which establishes the vehicle carrying ability of a roadway, and the second is “volume.” The volume measure is either a traffic count (in the case of existing volumes) or a forecast for a future point in time. The ratio between the volume and the capacity yields a volume/capacity (V/C) ratio, and based on that V/C ratio, a corresponding level of service (LOS) is defined. The V/C ratio can be used to estimate conflicting movement of vehicles through an intersection. Traffic LOS is designated A through F with LOS A representing free flow conditions and LOS F representing severe traffic congestion. Traffic flow quality for each LOS is described in **Table 1-4** for arterial roadways and intersections.

Given the high-level aspects of the land use phasing and roadway staging estimates utilized as the basis of this study, the ICU methodology is utilized for intersection analysis. The ICU calculation methodology and the associated LOS criteria applied in the study area for this analysis are summarized in **Error! Reference source not found.**. The County strives to maintain LOS C or better (ICU ≤ 0.80) at existing intersections where feasible and utilizes LOS D (ICU not to exceed 0.90) as the target LOS for the design of future intersections and operation of existing intersections for long-range planning purposes. The City of Santa Clarita similarly strives to maintain LOS D for existing and future conditions. However, each agency recognizes that intersection LOS is not the only criteria to consider for roadway design and higher levels of LOS are acceptable to accommodate the needs of other roadway users, such as pedestrians and cyclists, and for compatibility with surrounding land uses. As such, this analysis targets LOS C/D when feasible, but considers the overall context of the area when identifying future roadway improvements.

Table 1-4 Level of Service Descriptions – Arterial Roadways and Intersections

Level of Service (LOS)		Description
A		LOS A describes primarily free-flow operations. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B		LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C		LOS C describes stable operation. The ability to maneuver and change lanes at midsegment locations may be more restricted than at LOS B. Longer queues at the intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.

D		LOS D indicates a 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 intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E		LOS E is characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F		LOS F is characterized by flow at extremely low speed. Congestion is likely occurring at the intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed.

Source: Highway Capacity Manual 6th Edition, Transportation Research Board, National Research Council

Table 1-5 Arterial Intersection Performance Criteria

ICU Calculation Methodology

Level of service to be based on peak hour ICU values calculated using the following assumptions:

Saturation Flow Rates:

County Methodology:	1,600 vehicles/hour/lane for through lanes, right-turn lanes, and single left-turn lanes 2,880 vehicles/hour/lane for dual left-turn lanes (total of both lanes)
City Methodology:	1,750 vehicles/hour/lane for all lanes
Clearance Interval:	0.10

Performance Criteria

LOS thresholds for planning: LOS C/D, or higher as needed in consideration with the surrounding area.

The OVOV General Plan/Area Plan identified the following intersections within the study area as operating at LOS E for General Plan Buildout Conditions:

- The Old Road and Rye Canyon Road (LOS E PM)
- The Old Road and Valencia Boulevard (LOS E PM)
- The Old Road and Pico Canyon Road (LOS E PM)
- McBean Parkway and Magic Mountain Parkway (LOS E PM)

ICU – Intersection Capacity Utilization
LOS – Level of Service
OVOV – One Valley One Vision

2 Phasing Analysis

This chapter presents the roadway phasing analysis prepared for the Westside area. Westside land use summaries are first presented, followed by the roadway network analysis and the resulting recommended phasing of roadway improvements.

2.1 Westside Land Use

With the exception of the Valencia Commerce Center and Mission Village areas, the existing condition of the Westside area is largely undeveloped. A summary of the Westside land use by development area was provided in **Table 1-1**, which, as previously noted, shows the expected amount of development for each of the Westside projects considered in this analysis and in accordance with the County Area Plan and the City's General Plan. The indicated timing is an estimate based on current market conditions and subject to change. Also as previously noted, a summary of occupancy projections for the Westside area is provided in **Table 1-2**. Detailed land use and trip generation estimates for each planning area are provided in **Westside Area** Land Use Summaries for each of the DPs selected for analysis.

For the non-Westside portion of the Santa Clarita Valley, growth assumptions have been derived by an interpolation between existing conditions and OVOV buildout conditions based on a buildout horizon year of 2040 with full buildout of the Westside area (i.e., DP-D) similarly assumed to occur in 2040.

2.2 Roadway Staging Plan

Based on the analysis, a master roadway staging (i.e., timing/phasing) plan for the construction of each major backbone roadway improvement necessary to serve the Westside area has been developed. The resulting plan identifies a total of four distinct stages, with each stage providing for the roadway improvements necessary to serve the corresponding level of development. The four stages are illustrated in **Figure Westside** *Area Land Use Summaries-1* through **Figure Westside** *Area Land Use Summaries-4*. The figures are labeled such that roadway construction is identified by the DP in which the roadways need to be in place for the planned occupancies of the development areas. It is important to note that Stage 2 is divided into two substages based on the timeline of when the Commerce Center Drive bridge connection is projected to be necessary.

A description of each roadway construction stage, the estimated completion by DP for the construction, and the amount of development that will trigger the need for the roadways of that stage is provided in **Table 2-1**.

Completing the roadway construction by the DP indicated will serve the land use plan as currently envisioned for that year and the years immediately following. Therefore, the infrastructure shown in each stage of construction will accommodate the corresponding land use development while the next stage of new roadways is being constructed to accommodate subsequent development.

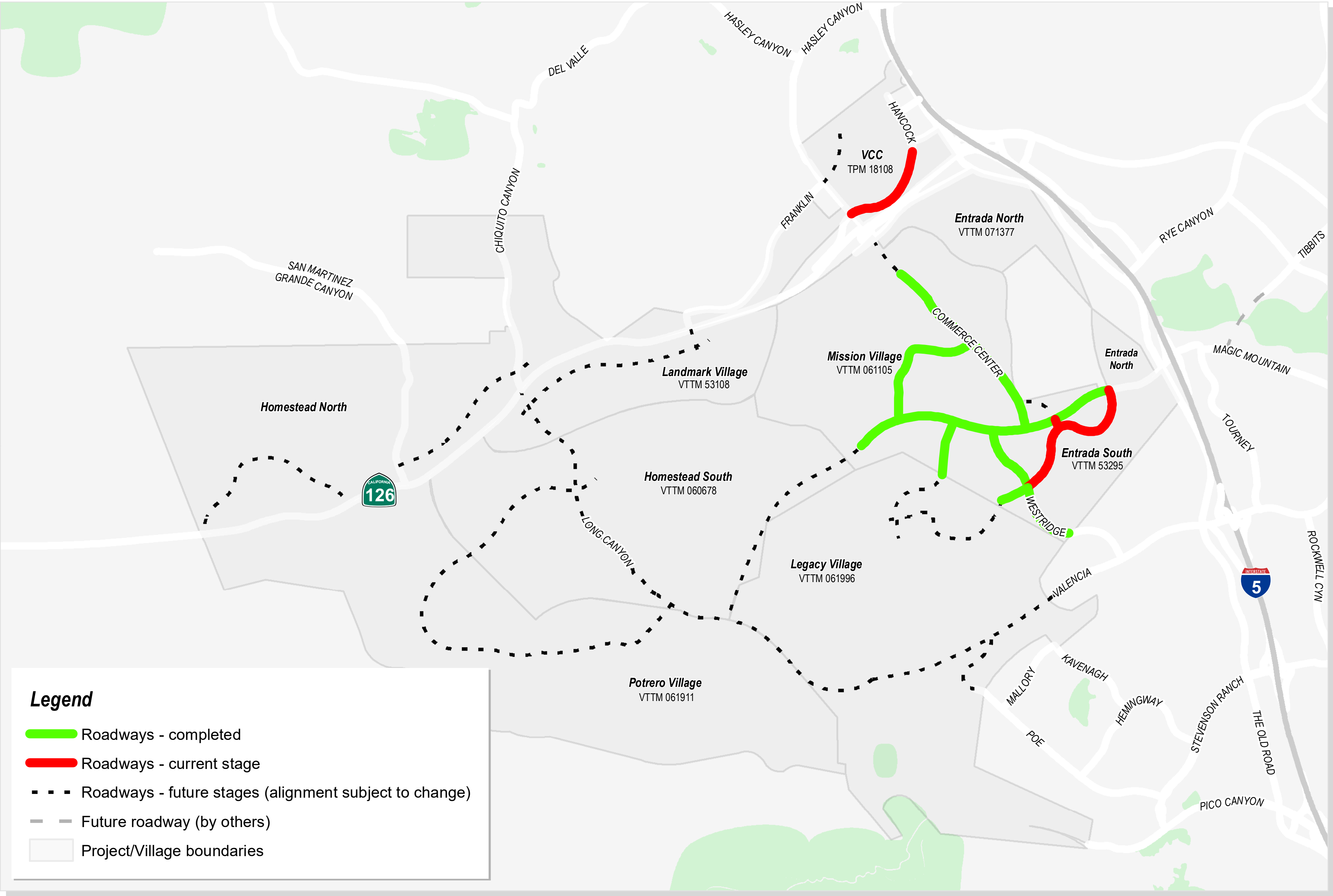


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Figure 2-1

Stage 1 Roadways for DP-A Occupancies

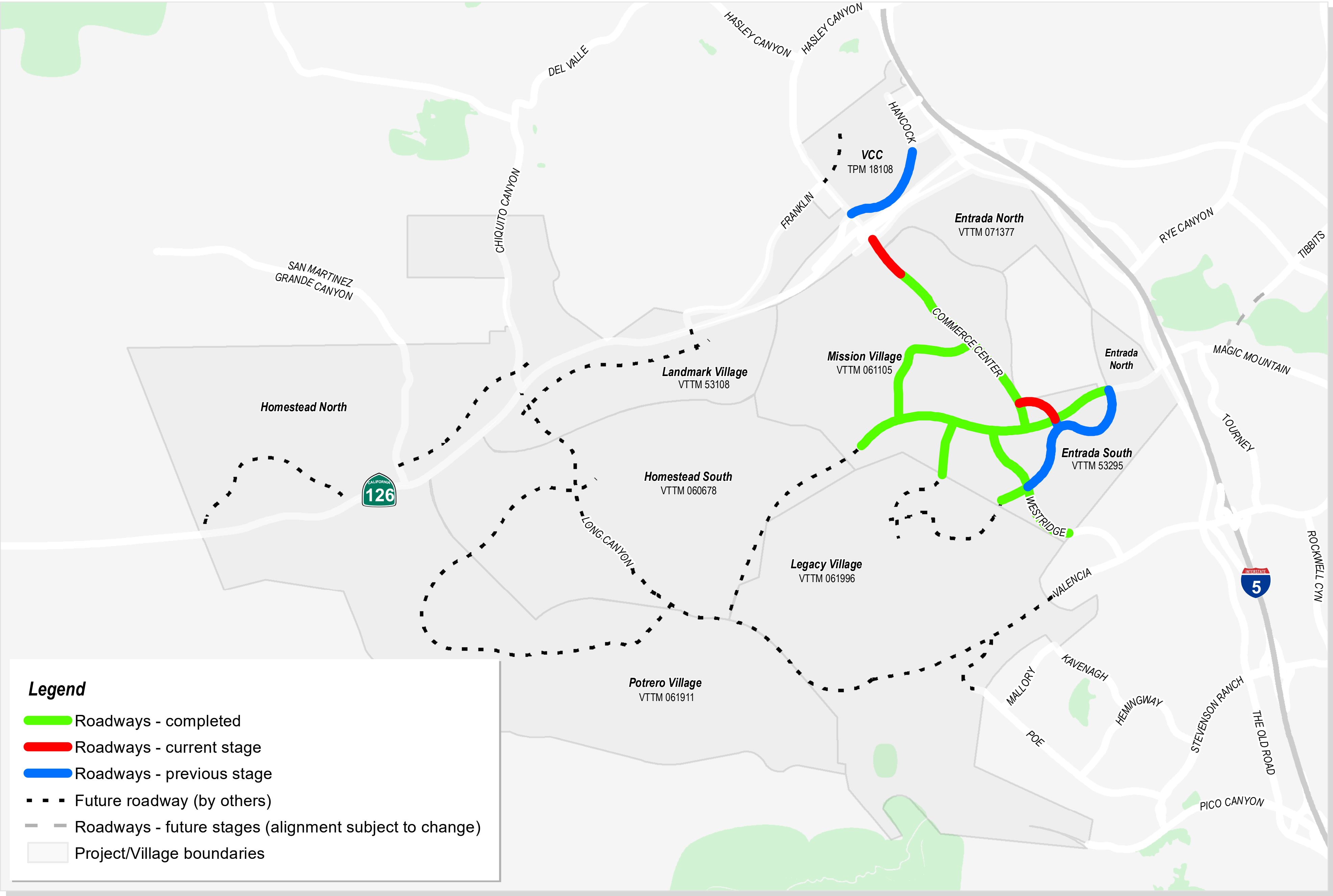

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Figure 2-2

Stage 2 Roadways for DP-B Occupancies

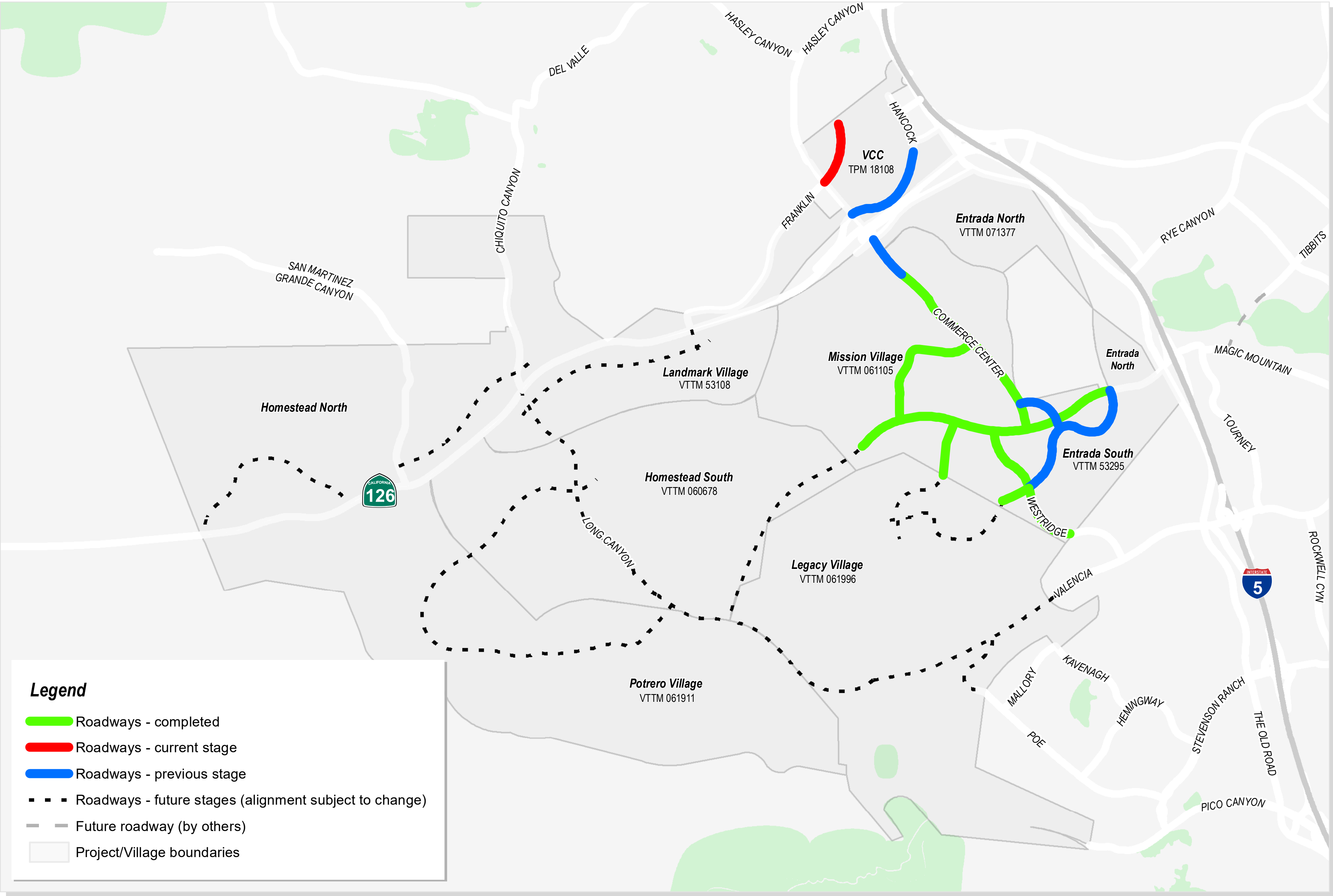

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Figure 2-3

Stage 3 Roadways for DP-C Occupancies

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Figure 2-4

Stage 4 Roadways for DP-D Occupancies

Table 2-1 Westside Area Major Roadway Construction Stages

Construction Stage	Improvement	Development Phase (DP)
1	Extend Magic Mountain Parkway into Mission Village area (Partially completed)	**DP-A** 5,629 DU 1,553 TSF
	Extend Westridge Parkway to Magic Mountain Parkway (Completed)	
	Construct Commerce Center Drive north of Magic Mountain Parkway to just south of the Santa Clara River (Completed)	
	Construct local access to Entrada South (south of Magic Mountain Parkway)	
	Extend local access to VCC by constructing Hancock Parkway east of Commerce Center Drive	
2a	Construct local access to Entrada South (north of Magic Mountain Parkway)	**DP-B**[1] 5,629 DU 3,585 TSF
2b	Construct Commerce Center Drive Bridge (connect Mission Village area to SR-126) – See Appendix D for supplemental Bridge Sensitivity Analysis	
3	Construct local access to VCC TPM 18108 area	**DP-C** 5,629 DU 5,685 TSF
4a	Construct Wolcott Way access to Landmark Village from SR-126	**DP-D** 25,829 DU 13,013 TSF
	Extend Magic Mountain Parkway to Homestead South	
	Extend Magic Mountain Parkway to Potrero Village and construct Long Canyon Road north of Magic Mountain Parkway	
	Extend Valencia Boulevard into Legacy Village	
	Extend Poe Parkway to Valencia Boulevard	
	Construct Long Canyon Road access to Landmark Village from SR-126 (interim alignment)	
	Construct Long Canyon Road Bridge (connect Potrero and Homestead South areas to SR-126)	
	Extend Valencia Boulevard to Magic Mountain Parkway	
	Construct Potrero Canyon Road west of Long Canyon Road	
	Construct realigned Long Canyon Road at SR-126	
	Widen The Old Road to six lanes between Sky View Lane & the relocated Rye Canyon freeway ramps	
	Construct local access to Homestead North from SR-126	
	Widen The Old Road to six lanes between the relocated Rye Canyon ramps to just north of Henry Mayo Drive	
	Widen SR-126 to 6-lanes between Commerce Center Drive and Wolcott Way	
	Widen SR-126 to 6-lanes between Wolcott Way and Long Canyon Road	
	Widen SR-126 to 8-lanes at Wolcott Way	
4b	Construct Urban Grade Separation (UGS) at SR-126/Long Canyon Road	**Post-DP-D**

Note: The indicated improvements associated with each construction stage will accommodate the amount of development noted for the corresponding DP.

[1] 5,629 DU and 2.1 MSF is the threshold for construction of the Commerce Center Drive Bridge.

DP – Development Phase
DU – Dwelling Units
PV – Potrero Village
SF – Square Feet (non-residential uses)
Leg – Legacy Village
LV – Landmark Village
HW – Homestead West (part of Homestead North area)
MV – Mission Village
HS – Homestead South

2.3 TDM Measures

This analysis considers the implementation of TDM measures that will be incorporated into the design and ongoing operations of each development area. A comprehensive TDM plan has been developed as part of the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP), which guides specific development projects within the Westside area. The TDM plan will result in an approximately 14.9% reduction in vehicle-miles of travel (VMT)[4] and includes the following TDM measures that will be incorporated with each phase of development:

- Construction Traffic Management Plan
- Integrate Affordable and Below Market Rate Housing
- Pedestrian Network
- Traffic Calming
- Transit Network Expansion
- Alternative Work Schedules and Telecommute Program (Residential End)
- Required Commute Trip Reduction Program
- Alternative Work Schedules and Telecommute Program (Work End)
- School Bus Program
- Transit Fare Subsidies for Employees
- Carshare Program
- Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) Strategy
- Mobility Hubs
- Tech Enabled Mobility
- Bikeshare Program
- Transit Fare Subsidies for Below Market Rate Housing Residents

2.4 Traffic Forecasts by Phase

To confirm the analysis results, key roadway construction stages have been modeled using the corresponding amount of land use development to be supported by the new roadways. Figures have been prepared illustrating the ADT volumes and the corresponding amounts of Westside land use development for each of the following scenarios[5]:

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[4] Appendix 8 RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers, September 7, 2016.

[5] The identified scenarios are estimates based on current market conditions and are subject to change

- DP-A with Stage 1 Roadways (see **Figure Westside** *Area Land Use Summaries-5*)
- DP-B with Stage 2 Roadways (see **Figure Westside** *Area Land Use Summaries-6*)
- DP-C with Stage 3 Roadways (see **Figure Westside** *Area Land Use Summaries-7*)
- DP-D with Stage 4a Roadways (see **Figure Westside** *Area Land Use Summaries-8*)

As discussed in the previous section, the Westside area is anticipated to reach build-out around the year 2040. Construction of the identified improvements within the Westside area will provide access to all Westside development areas by DP-D with the Stage 4a roadways.

After DP-D, regional growth is anticipated to continue to increase traffic volumes along SR-126. Additional improvements along the SR-126 corridor have been planned to accommodate the corresponding increase in traffic. These improvements, identified here as Stage 4b, would construct an urban grade-separated interchange (UGS) at the intersection of Long Canyon Road and SR-126.

2.5 Intersection Improvements by Phase

In addition to the Westside area's backbone roadway improvements outlined in the previous section, various on- and off-site intersection specific improvements have been identified as part of each construction stage. Additional off-site improvements may also be needed after buildout of the Westside area (i.e., DP-D) to accommodate regional growth and the planned growth in the remainder of the Santa Clarita Valley.

Table 2-2 lists the off-site intersection improvements identified as needed to achieve LOS targets through buildout of the Westside area and/or to address previously identified mitigation measures for the Mission Village VTTM 061105 development. Constructing these intersection improvements will result in the ICU values shown in **Table 2-3** and **Table 2-4**. Detailed ICU worksheets are provided in **Existing Conditions** ICU Worksheets. The design and configuration of on-site intersections will be developed as part of the individual project development process, which includes a detailed project-level traffic study and tentative map approval process.

At the following locations, previously identified mitigation measures for the Mission Village VTTM 061105 development have been completed and these locations have been removed from the phasing analysis.

7. I-5 Southbound Ramps & SR 126

51. Wiley Canyon Road & Lyons Avenue

54. Orchard Village Road & Wiley Canyon Road

55. Orchard village Road & McBean Parkway

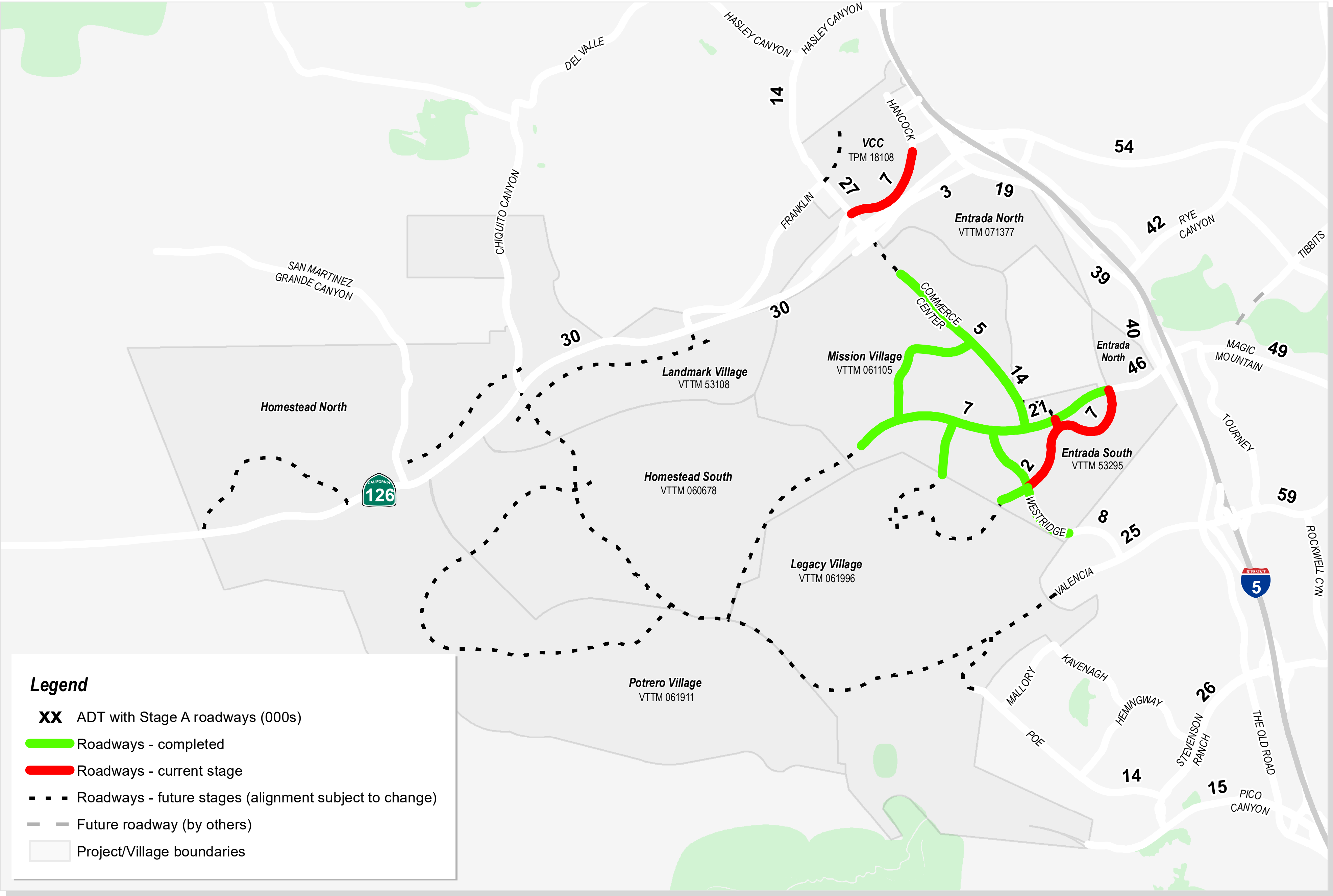

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Figure 2-5

Average Daily Traffic (ADT) with Stage 1 Roadways for DP-A Occupancies

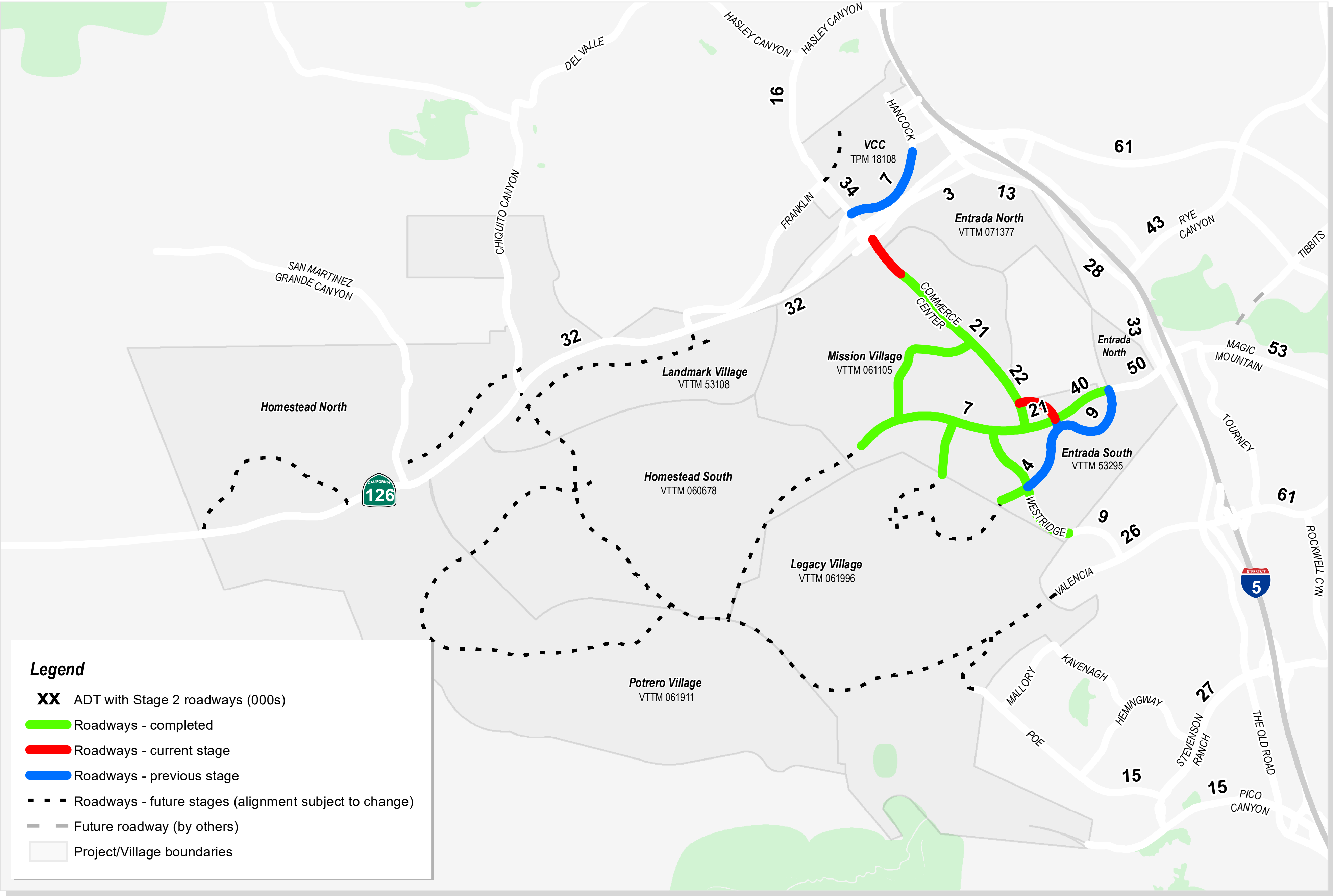

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Figure 2-6

Average Daily Traffic (ADT) with Stage 2 Roadways for DP-B Occupancies

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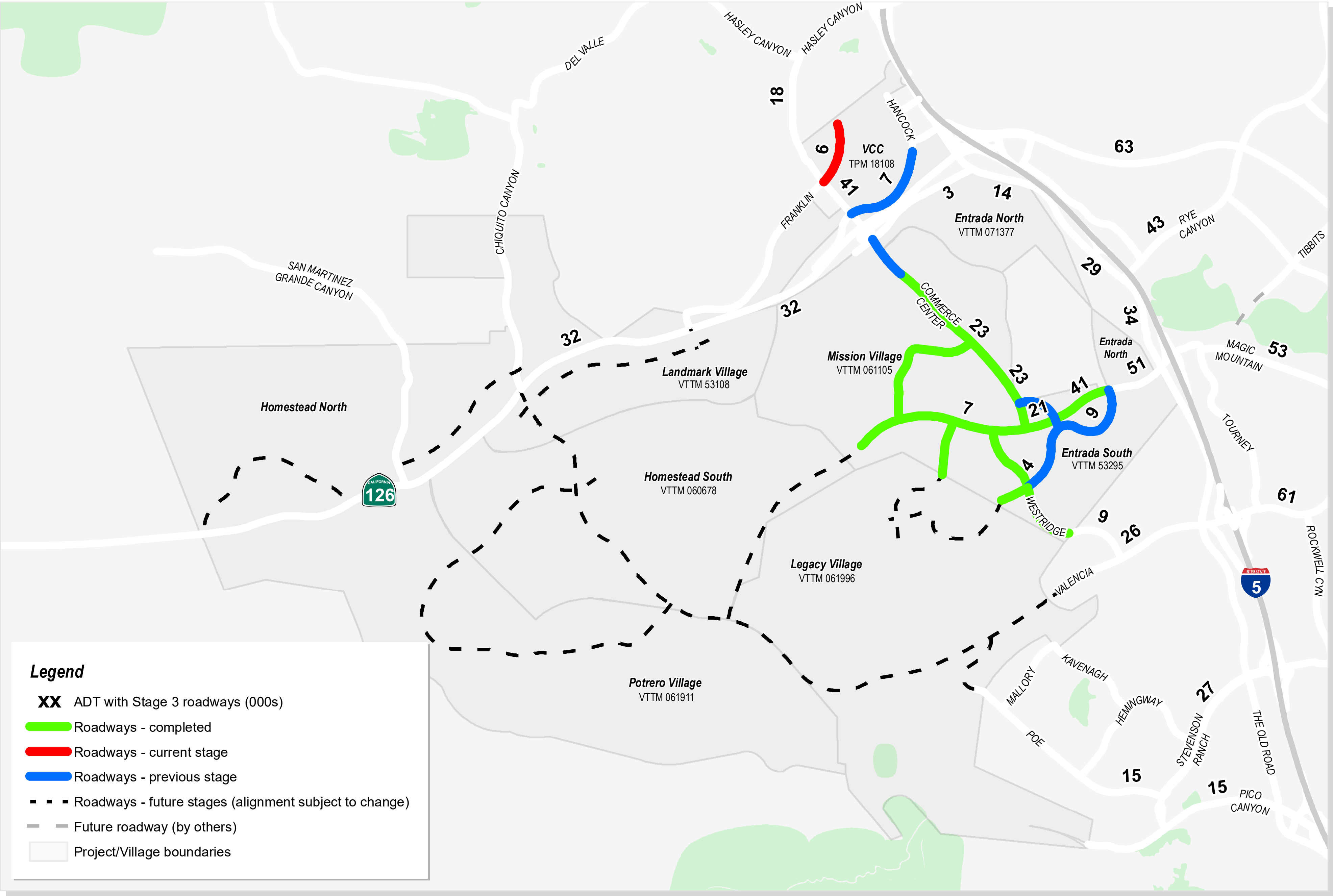

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Figure 2-7

Average Daily Traffic (ADT) with Stage 3 Roadways and DP-C Occupancies

2.11

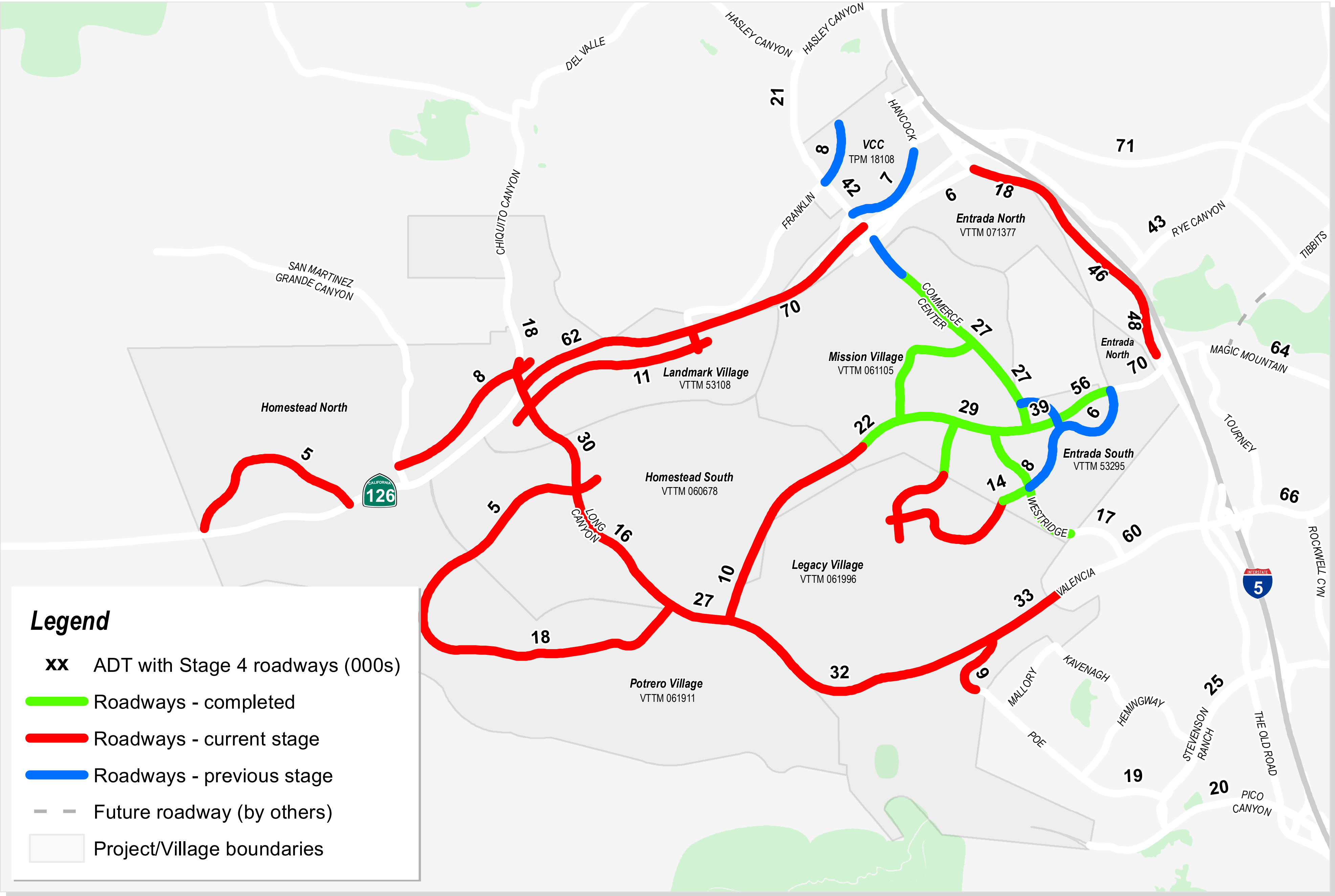

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Figure 2-8

Average Daily Traffic (ADT) with Stage 4 Roadways and DP-D Occupancies

Table 2-2 Intersection Improvements by Construction Stage

Intersection	Improvement	Jurisdiction
Stage 1 / **DP-A**		
9. The Old Rd & I-5 SB Ramps (at Rye Cyn Rd)	County/Caltrans project: Relocate ramps to new location north of existing location. Add 2nd northbound right-turn lane, 2nd southbound left-turn lane, and 3rd southbound through lane. Convert shared westbound left/right-turn lane to a 2nd westbound left-turn lane and add a dedicated right-turn lane. [FivePoint is obligated to pay 1.4% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
25. The Old Rd & Rye Cyn Rd	County project (Interim): Interim improvements to add 2nd northbound through lane and add second southbound left-turn lane. Convert northbound and westbound free-flow right-turn lanes to conventional right-turn lanes with overlap signal phasing. [FivePoint is obligated to pay 7.1% fair-share of cost of improvement as Mission Village mitigation]	County
26. The Old Rd & Magic Mountain Pkwy	***FivePoint project:*** Add right-turn overlap phasing for the southbound right-turn lane. [FivePoint is obligated to construct improvement as Mission Village mitigation] (See DP-2a for additional improvements at this location)	County
Stage 2a[1] / **DP-B**		
25. The Old Rd & Rye Cyn Rd	County project: In addition to Stage 1 Interim improvements, add 3rd northbound through lane, 3rd southbound through lane, and add 2nd and 3rd westbound left-turn lanes. [FivePoint is obligated to pay 7.1% fair-share of cost of improvement as Mission Village mitigation]	County
26. The Old Rd & Magic Mountain Pkwy	***FivePoint project:*** Monitor conditions of right-turning volumes and, if necessary, before the construction of Commerce Center Drive Bridge over Santa Clara River, convert third southbound through lane to a shared through/right-turn lane (or dedicated right-turn lane). (Improvement not needed after construction of Commerce Center Drive Bridge.)	County
28. The Old Rd & Stevenson Ranch Pkwy	***FivePoint project:*** Stripe 3rd southbound through lane and westbound right-turn lane. (See DP-D for additional improvements at this location) [FivePoint is obligated to construct improvement as Mission Village mitigation]	County
Stage 2b[2] / **DP-B**		
81. Commerce Center Dr & Henry Mayo Dr	**FivePoint project:** Add 2 southbound through lanes, 1 eastbound right-turn lane, 1 westbound left-turn lane, 1 northbound left-turn lane, 3 northbound through lanes, and convert westbound through lane to a shared left-turn/through lane. Modify traffic signals to accommodate westbound and eastbound split signal phasing.	County/Caltrans
Stage 3 / **DP-C** (None)		
Stage 4a / **DP-D**		

Intersection	Improvement	Jurisdiction
10. I-5 SB Ramps & Magic Mountain Pkwy	County/Caltrans project: Restripe the shared southbound left-turn/ through lane to a left-turn lane and the 1st southbound right-turn lane to a shared through/left-turn lane. [FivePoint is obligated to pay 19.7% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
12. I-5 SB Ramps & Valencia Blvd	County/Caltrans project: Restripe the 2nd westbound free-flow right-turn lane to a 3rd westbound through lane/shared free-flow right-turn lane. [FivePoint is obligated to pay 7.5% fair-share of cost of improvement as Mission Village mitigation]	County/Caltrans
37. Tourney Rd & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, stripe a 4th eastbound through lane. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City
57. Valencia Blvd & Magic Mountain Pkwy	City project: Reinstate westbound right-turn lane and add 3rd eastbound through lane. [FivePoint is obligated to pay 6.0% fair-share of cost only of reinstating westbound right-turn lane improvement as Mission Village mitigation]	City
80. Wolcott Way & SR 126	**FivePoint project:** Add northbound left-turn lane, northbound through lane, 2 northbound right-turn lanes, southbound through lane, and 2nd westbound left-turn lane. Add 2nd eastbound left-turn lane, 3rd & 4th eastbound through lane, eastbound right-turn lane, and 3rd & 4th westbound through lane. [FivePoint is responsible for these or comparable improvements for site access]	County/Caltrans
96. San Martinez Grande Cyn Rd & SR 126	**FivePoint project:** Add southbound left-turn lane and westbound right-turn lane. [FivePoint is responsible for these or comparable improvements for site access]	County
105. Westridge Pkwy & Valencia Blvd	**FivePoint project:** Modify traffic signal to provide a westbound right-turn overlap phase. [FivePoint would be responsible for a fair-share contribution to this improvement]	County
110. Long/Chiquito Cyn Rd & SR 126	**FivePoint project:** 1) At interim Long Canyon Road alignment, add northbound left-turn lane, northbound through lane, northbound right-turn lane, convert southbound right-turn lane to a shared through/right-turn lane, and add westbound left-turn lane, and 2) at ultimate Long Canyon Road alignment, add 2nd northbound right-turn lane, southbound right-turn lane, 2nd eastbound left-turn lane, eastbound right-turn lane, and 2nd westbound left turn lane. Add 2nd northbound left-turn lane, add 2nd northbound through lane, add 2nd southbound left-turn lane, add 2nd southbound through lane, add 3rd eastbound through lane and 3rd westbound through lane. Provide westbound right-turn overlap signal phasing. [FivePoint is responsible for these or comparable improvements for site access]	County/Caltrans
Stage 4b / Post DP-D		
11. I-5 NB Ramps & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, restripe the shared northbound through/right-turn lane to a shared left-turn/through/right-turn lane. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City/Caltrans

Intersection	Improvement	Jurisdiction
14. I-5 SB Ramps & McBean Pkwy	County/Caltrans project: When shown as needed, add a second southbound left-turn lane. [FivePoint is obligated to pay 12.6% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	County/Caltrans
16. I-5 SB Ramps/Mariott & Pico Cyn Rd	County/Caltrans project: When shown as needed, add a left-turn signal phase for the westbound left-turn lane (can be protected/permissive phasing) and a right-turn overlap signal phase for the northbound right-turn lane. [FivePoint is obligated to use B&T credits or pay 4.7% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	County/Caltrans
17. I-5 NB Ramps & Lyons Ave	County/Caltrans project: Restripe the third westbound through lane to a right-turn lane and restripe the second westbound through lane to a shared through/right-turn lane. [FivePoint is obligated to use B&T credits or pay 7.0% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	City/Caltrans
45. McBean Pkwy & Magic Mountain Pkwy	**FivePoint project:** When shown as needed and if requested by the City, restripe to add 3rd eastbound through lane and add westbound right-turn overlap signal phase. [FivePoint is obligated to construct improvement as Mission Village mitigation if requested by City]	City
48. McBean Pkwy & Newhall Ranch Rd	City project: When shown as needed, restripe to provide 2 northbound right-turn lanes and provide pedestrian safety enhancements. [FivePoint is obligated to pay 7.0% fair-share of cost of improvement (when shown as needed) as Mission Village mitigation]	City
66. Bouquet Cyn Rd & Newhall Ranch Rd	City project: Reconfigure eastbound approach to consist of 2 left-turn lanes, 4 through lanes, and 2 right-turn lanes. [FivePoint is obligated to pay 4.0% fair-share of cost of improvement as Mission Village mitigation]	City
105. Westridge Pkwy & Valencia Blvd	**FivePoint project:** Convert southbound through lane to shared left-turn/through lane and modify the traffic signal to accommodate northbound and southbound split phasing. [FivePoint is responsible for these improvements as needed]	County
110. Long/Chiquito Cyn Rd & SR 126 (future 97./98.)	**FivePoint project:** When shown as needed, construct Urban Grade Separated (UGS) intersection. [FivePoint is responsible for these improvements as needed]	County/Caltrans

Notes:

[1] Stage 2a is before construction of Commerce Center Drive Bridge over Santa Clara River

[2] Stage 2b includes construction of Commerce Center Drive Bridge over Santa Clara River

Blvd – Boulevard
Cyn – Canyon
Dr – Drive
Pkwy – Parkway
Rd – Road
SB – Southbound

Table 2-3 Intersection ICU and LOS – AM Peak Hour

	Existing		Existing		Stage 1		Stage 2a		Stage 2b		Stage 3		Stage 4a		Stage 4b	
	2018/2019		2021		DP-A		DP-B		DP-B		DP-C		DP-D		DP-D	
Intersection	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
9. The Old Rd & I-5 SB Ramps (at Rye Cyn)	0.65	B	0.61	B	0.56	A	0.59	A	0.52	A	0.54	A	0.60	A	--	--
10. I-5 SB Ramps & Magic Mountain Pkwy	0.44	A	0.40	A	0.71	C	0.76	C	0.79	C	0.77	C	0.88	D	--	--
11. I-5 NB Ramps & Magic Mountain Pkwy	0.53	A	0.52	A	0.62	B	0.69	B	0.74	C	0.76	C	0.87	D	0.87	D
12. I-5 SB Ramps & Valencia Pkwy	0.53	A	0.47	A	0.61	B	0.62	B	0.65	B	0.67	B	0.72	C	--	--
14. I-5 SB Ramps & McBean Pkwy	0.41	A	0.42	A	0.77	C	0.75	C	0.78	C	0.77	C	0.78	C	0.78	C
16. I-5 SB Ramps/Marriott Way & Pico Cyn Rd	0.49	A	0.38	A	0.72	C	0.74	C	0.70	B	0.70	B	0.71	C	0.71	C
17. I-5 NB Ramps & Lyons Ave	0.55	A	0.52	A	0.56	A	0.58	A	0.57	A	0.57	A	0.56	A	0.50	A
25. The Old Rd & Rye Canyon Rd	0.65	B	0.60	A	0.63	B	0.61	B	0.56	A	0.54	A	0.53	A	--	--
26. The Old Rd & Magic Mountain Pkwy	0.32	A	0.29	A	0.49	A	0.54	A	0.66	B	0.68	B	0.60	B	--	--
28. The Old Rd & Stevenson Ranch Pkwy	0.60	A	0.57	A	0.74	C	0.80	C	0.84	D	0.85	D	0.80	C	--	--
37. Tourney Rd & Magic Mountain Pkwy	0.52	A	0.46	A	0.75	C	0.77	C	0.78	C	0.77	C	0.85	D	--	--
45. McBean Pkwy & Magic Mountain Pkwy	0.51	A	0.46	A	0.59	A	0.63	B	0.63	B	0.62	B	0.75	C	0.75	C
48. McBean Pkwy & Newhall Ranch Rd	0.72	C	0.66	B	0.78	C	0.78	C	0.83	D	0.79	C	0.86	D	0.86	D
57. Valencia Pkwy & Magic Mountain Pkwy	0.59	A	0.55	A	0.83	D	0.88	D	0.88	D	0.90	D	1.01	F	--	--
66. Bouquet Canyon Rd & Newhall Ranch Rd	0.75	C	0.75	C	0.82	D	0.90	D	0.88	D	0.87	D	0.73	C	--	--
80. Wolcott Way & SR 126	0.44	A	0.44	A	0.47	A	0.46	A	0.48	A	0.47	A	0.74	C	--	--
81. Commerce Center Dr & Henry Mayo Dr	0.21	A	0.22	A	0.20	A	0.24	A	0.46	A	0.50	A	0.68	B	--	--
83. Commerce Center Dr & SR 126 WB Ramps	0.48	A	0.52	A	0.58	A	0.76	C	0.64	B	0.78	C	0.77	C	--	--
96. San Martinez Grande Canyon & SR 126	0.40	A	0.36	A	0.40	A	0.42	A	0.43	A	0.43	A	0.51	A	--	--
97. Chiquito/Long Canyon & SR 126 EB Ramps	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.88	D[1]
98. Chiquito/Long Canyon & SR 126 WB Ramps	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.91	E[1]
105. Westridge Pkwy & Valencia Pkwy	0.57	A	0.49	A	0.66	B	0.66	B	0.73	C	0.74	C	0.98	E	0.88	D
110. Chiquito/Long Canyon & SR 126	0.46	A	0.43	A	0.50	A	0.52	A	0.53	A	0.53	A	1.08	F	--	--

[1] Intersection improvements at these future locations to be designed through the Caltrans project development process to achieve LOS that meets Caltrans criteria.

Table 2-4 Intersection ICU and LOS – PM Peak Hour

	Existing		**Existing**		**Stage 1**		**Stage 2a**		**Stage 2b**		**Stage 3**		**Stage 4a**		**Stage 4b**	
	2018/2019		**2021**		**DP-A**		**DP-B**		**DP-B**		**DP-C**		**DP-D**		**DP-D**	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
9. The Old Rd & I-5 SB Ramps (at Rye Cyn)	0.87	D	0.83	D	0.78	C	0.84	D	0.79	C	0.78	C	0.70	B	--	--
10. I-5 SB Ramps & Magic Mountain Pkwy	0.42	A	0.38	A	0.48	A	0.54	A	0.56	A	0.60	A	0.64	B	--	--
11. I-5 NB Ramps & Magic Mountain Pkwy	0.45	A	0.44	A	0.60	A	0.61	B	0.63	B	0.63	B	0.86	D	0.86	D
12. I-5 SB Ramps & Valencia Pkwy	0.52	A	0.38	A	0.66	B	0.65	B	0.66	B	0.64	B	0.75	C	--	--
14. I-5 SB Ramps & McBean Pkwy	0.47	A	0.45	A	0.82	D	0.89	D	0.85	D	0.82	D	0.75	C	0.75	C
16. I-5 SB Ramps/Marriott Way & Pico Cyn Rd	0.61	B	0.51	A	0.68	B	0.68	B	0.65	B	0.61	B	0.68	B	0.68	B
17. I-5 NB Ramps & Lyons Ave	0.60	A	0.56	A	0.71	C	0.73	C	0.74	C	0.73	C	0.69	B	0.60	A
25. The Old Rd & Rye Canyon Rd	0.79	C	0.68	B	0.91	E	0.77	C	0.77	C	0.79	C	0.76	C	--	--
26. The Old Rd & Magic Mountain Pkwy	0.43	A	0.38	A	0.94	E	0.60	A	0.69	B	0.71	C	0.78	C	--	--
28. The Old Rd & Stevenson Ranch Pkwy	0.69	B	0.62	B	0.84	D	0.75	C	0.83	D	0.90	D	0.77	C	--	--
37. Tourney Rd & Magic Mountain Pkwy	0.57	A	0.52	A	0.56	A	0.58	A	0.60	A	0.59	A	0.72	C	--	--
45. McBean Pkwy & Magic Mountain Pkwy	0.72	C	0.65	B	0.72	C	0.83	D	0.80	C	0.78	C	0.87	D	0.73	C
48. McBean Pkwy & Newhall Ranch Rd	0.94	E	0.91	E	0.85	D	0.85	D	0.85	D	0.86	D	0.84	D	0.84	D
57. Valencia Pkwy & Magic Mountain Pkwy	0.81	D	0.70	B	0.81	D	0.83	D	0.85	D	0.83	D	0.90	D	--	--
66. Bouquet Canyon Rd & Newhall Ranch Rd	0.83	D	0.80	C	0.83	D	0.87	D	0.89	D	0.86	D	0.79	C	--	--
80. Wolcott Way & SR 126	0.41	A	0.49	A	0.54	A	0.56	A	0.58	A	0.58	A	0.92	E	--	--
81. Commerce Center Dr & Henry Mayo Dr	0.27	A	0.32	A	0.27	A	0.30	A	0.56	A	0.53	A	0.90	D	--	--
83. Commerce Center Dr & SR 126 WB Ramps	0.38	A	0.54	A	0.49	A	0.62	B	0.74	C	0.81	D	0.85	D	--	--
96. San Martinez Grande Canyon & SR 126	0.53	A	0.48	A	0.48	A	0.51	A	0.52	A	0.52	A	0.62	B	--	--
97. Chiquito/Long Canyon & SR 126 EB Ramps	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.68	B[1]
98. Chiquito/Long Canyon & SR 126 WB Ramps	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.90	D[1]
105. Westridge Pkwy & Valencia Pkwy	0.22	A	0.18	A	0.80	C	0.82	D	0.82	D	0.79	C	0.85	D	0.85	C
110. Chiquito/Long Canyon & SR 126	0.53	A	0.50	A	0.50	A	0.54	A	0.53	A	0.54	A	1.57	F	--	--

[1] Intersection improvements at these future locations to be designed through the Caltrans project development process to achieve LOS that meets Caltrans criteria.

3 Conclusions

The roadway construction stages outlined above will provide for the circulation needs of the Westside area by providing the necessary roadway infrastructure in conjunction with the developing residential and commercial areas. With the timely implementation of the roadway improvements as recommended in this report, most of the study area roadways would operate at desired levels of service during each successive year through buildout of the Westside area.

This report represents the second update to the initial Westside Santa Clarita Valley Roadway Phasing Analysis originally prepared in 2006. It is recommended that future updates to the phasing study be prepared periodically to account for intervening changes in development patterns.

4 References

1. “Westside Santa Clarita Valley Roadway Phasing Analysis,” Austin-Foust Associates, Inc., November 2006.
2. “One Valley One Vision Valley-Wide Traffic Study,” Austin-Foust Associates, Inc., June 2010.
3. “Highway Capacity Manual 6th Edition”, Transportation Research Board, 2016.
4. “Appendix 8 RMDP/SCP Project: Transportation Demand Management Plan Evaluation”, Fehr & Peers, September 7, 2016.

Appendix A Westside Area Land Use Summaries

The following pages provide a listing of the detailed land use and trip generation estimates for the Westside project area traffic analysis zones (TAZs) for existing conditions and for future year conditions from development phase A (DP-A) through the area buildout, DP-D. Figure A-1 provides a TAZ map for reference.

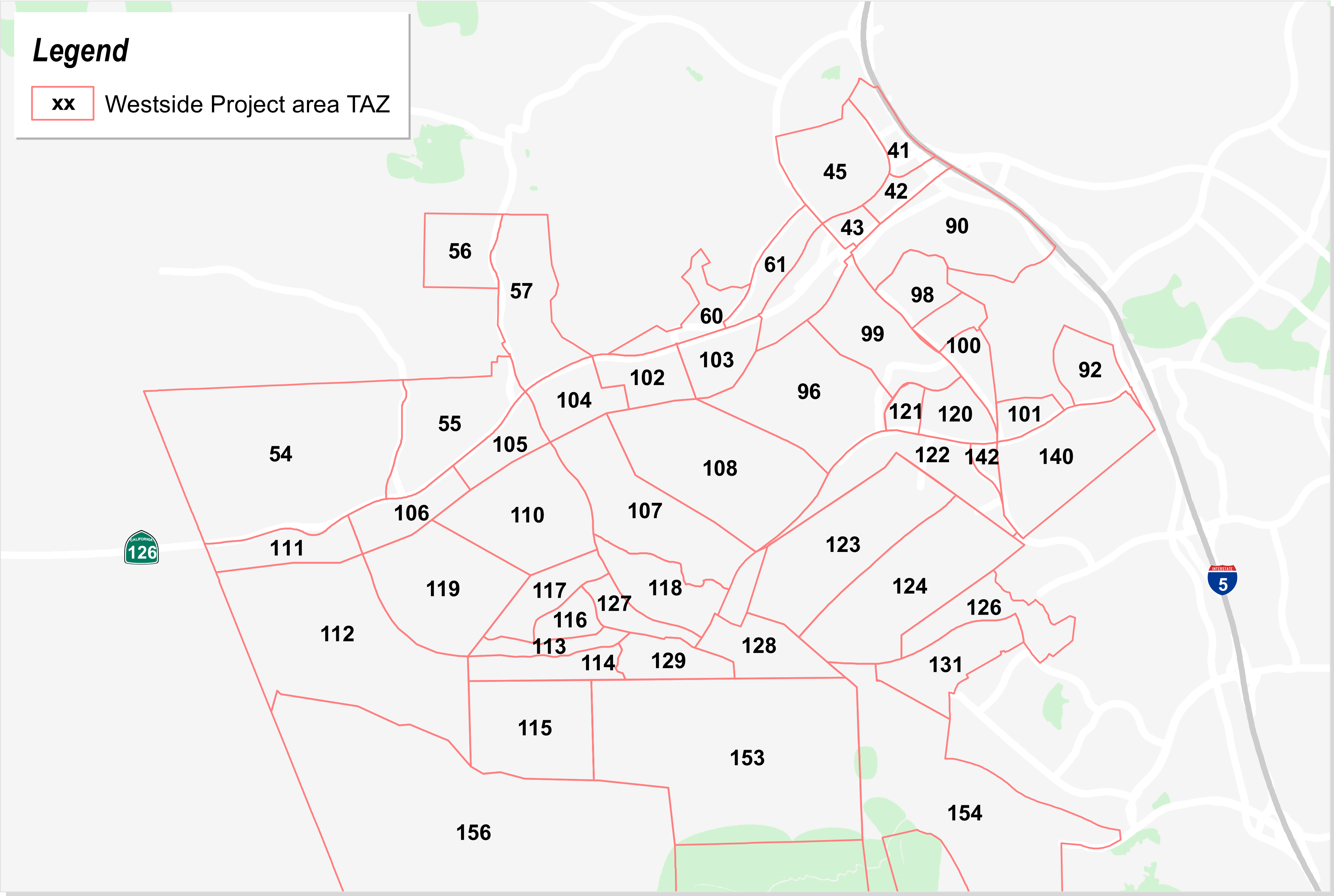

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Figure A-1

Westside Community Traffic Analysis Zone (TAZ) Map

Valencia Commerce Center

			Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
Zone	**Land Use Category**	**Units**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**
41	30. Industrial Park	TSF	542.44	3,255	542.44	3,255	542.44	3,255	542.44	3,255	542.44	3,255	542.44	3,255
	40. Commercial Office	TSF	177.6	1,730	177.6	1,730	177.6	1,730	177.6	1,730	177.6	1,730	177.6	1,730
	SUB-TOTAL			4,985		4,985		4,985		4,985		4,985		4,985
42	12. Commercial Center (<10ac)	TSF	--	--	50	4,253	50	4,253	50	4,253	50	4,253	50	4,253
	31. Business Park	TSF	--	--	300	3,732	300	3,732	300	3,732	300	3,732	300	3,732
	SUB-TOTAL			--		7,985		7,985		7,985		7,985		7,985
43	31. Business Park	TSF	--	--	400	4,976	400	4,976	400	4,976	450	5,598	550	6,842
	40. Commercial Office	TSF	--	--	550	5,357	550	5,357	550	5,357	550	5,357	550	5,357
	SUB-TOTAL			--		10,333		10,333		10,333		10,955		12,199
45	30. Industrial Park	TSF	--	--	--	--	--	--	--	--	1,900.00	11,400	1,900.00	11,400
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	50	487	100	974
	SUB-TOTAL			--		--		--		--		11,887		12,374
60	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	50	487	100	974
	SUB-TOTAL			--		--		--		--		487		974
61	31. Business Park	TSF	200	2,488	200	2,488	200	2,488	200	2,488	200	2,488	200	2,488
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	50	487	50	487
	SUB-TOTAL			2,488		2,488		2,488		2,488		2,975		2,975
TOTAL	12. Commercial Center (<10ac)	TSF	--	--	50	4,253	50	4,253	50	4,253	50	4,253	50	4,253
	30. Industrial Park	TSF	542.44	3,255	542.44	3,255	542.44	3,255	542.44	3,255	2,442.44	14,655	2,442.44	14,655
	31. Business Park	TSF	200	2,488	900	11,196	900	11,196	900	11,196	950	11,818	1,050.00	13,062
	40. Commercial Office	TSF	177.6	1,730	727.6	7,087	727.6	7,087	727.6	7,087	877.6	8,548	977.60	9,522
	TOTAL			7,473		25,791		25,791		25,791		39,274		41,492

Notes: Shading denotes existing land use or development not a part of project

Mission Village

			Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
Zone	Land Use Category	Units	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT
96	2. Single Family (1-5du/ac)	DU	--	--	98	925	98	925	98	925	98	925	98	925
	4. Condominium/Townhouse	DU	--	--	314	2,512	314	2,512	314	2,512	314	2,512	314	2,512
	SUB-TOTAL			--		3,437		3,437		3,437		3,437		3,437
98	14. Hotel	ROOM	--	--	--	--	--	--	45	370	45	370	45	370
	42. Medical Office	TSF	--	--	--	--	300	10,440	663.7	23,097	663.7	23,097	663.7	23,097
	51. Developed Park	AC	--	--	4.2	3	4.2	3	4.2	3	4.2	3	4.2	3
	SUB-TOTAL			--		3		10,443		23,470		23,470		23,470
99	2. Single Family (1-5du/ac)	DU	--	--	60	566	60	566	60	566	60	566	60	566
	3. Single Family (6-10du/ac	) DU	--	--	531	5,013	531	5,013	531	5,013	531	5,013	531	5,013
	4. Condominium/Townhouse	DU	--	--	331	2,648	331	2,648	331	2,648	331	2,648	331	2,648
	20. Elementary/Middle School	STU	--	--	900	1,701	900	1,701	900	1,701	900	1,701	900	1,701
	SUB-TOTAL			--		9,928		9,928		9,928		9,928		9,928
100	51. Developed Park	AC	--	--	21.8	17	21.8	17	21.8	17	21.8	17	21.8	17
	SUB-TOTAL			--		17		17		17		17		17
120	4. Condominium/Townhouse	DU	--	--	477	3,816	477	3,816	477	3,816	477	3,816	477	3,816
	5. Apartment	DU	--	--	680	3,699	680	3,699	680	3,699	680	3,699	680	3,699
	11. Commercial Center(10-30a	) TSF	--	--	100	5,406	100	5,406	100	5,406	100	5,406	100	5,406
	13. Commercial Shops	TSF	--	--	102	3,780	102	3,780	102	3,780	102	3,780	102	3,780
	14. Hotel	ROOM	--	--	--	--	--	--	45	370	45	370	45	370
	40. Commercial Office	TSF	--	--	--	--	300	2,922	594.09	5,787	594.09	5,787	594.09	5,787
	51. Developed Park	AC	--	--	6.4	5	6.4	5	6.4	5	6.4	5	6.4	5
	SUB-TOTAL			--		16,706		19,628		22,863		22,863		22,863
121	4. Condominium/Townhouse	DU	--	--	404	3,232	404	3,232	404	3,232	404	3,232	404	3,232
	51. Developed Park	AC	--	--	5	4	5	4	5	4	5	4	5	4
	SUB-TOTAL			--		3,236		3,236		3,236		3,236		3,236
122	4. Condominium/Townhouse	DU	--	--	571	4,568	571	4,568	571	4,568	571	4,568	571	4,568
	51. Developed Park	AC	--	--	8.9	7	8.9	7	8.9	7	8.9	7	8.9	7
	SUB-TOTAL			--		4,575		4,575		4,575		4,575		4,575
142	5. Apartment	DU	--	--	589	3,205	589	3,205	589	3,205	589	3,205	589	3,205
	13. Commercial Shops	TSF	--	--	51.1	1,894	51.1	1,894	51.1	1,894	51.1	1,894	51.1	1,894
	SUB-TOTAL			--		5,099		5,099		5,099		5,099		5,099
TOTAL	2. Single Family (1-5du/ac)	DU	--	--	158	1,491	158	1,491	158	1,491	158	1,491	158	1,491
	3. Single Family (6-10du/ac	) DU	--	--	531	5,013	531	5,013	531	5,013	531	5,013	531	5,013
	4. Condominium/Townhouse	DU	--	--	2097	16776	2097	16776	2097	16776	2097	16776	2097	16776
	5. Apartment	DU	--	--	1269	6904	1269	6904	1269	6904	1269	6904	1269	6904
	11. Commercial Center(10-30a	TSF	--	--	100	5,406	100	5,406	100	5,406	100	5,406	100	5,406
	13. Commercial Shops	TSF	--	--	153.1	5,674	153.1	5,674	153.1	5,674	153.1	5,674	153.1	5,674
	14. Hotel	ROOM	--	--	--	--	--	--	90	740	90	740	90	740
	20. Elementary/Middle School	STU	--	--	900	1,701	900	1,701	900	1,701	900	1,701	900	1,701
	40. Commercial Office	TSF	--	--	--	--	300	2,922	594.09	5,787	594.09	5,787	594.09	5,787
	42. Medical Office	TSF	--	--	--	--	300	10,440	663.7	23,097	663.7	23,097	663.7	23,097
	51. Developed Park	AC	--	--	46.3	36	46.3	36	46.3	36	46.3	36	46.3	36
	TOTAL			--		43,001		56,363		72,625		72,625		72,625

Entrada South

Zone	Land Use Category	Units	Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
			Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT
101	10. Commercial Center (>30ac)	TSF	--	--	--	--	--	--	183	7,331	183	7,331	183	7,331
	40. Commercial Office	TSF	--	--	--	--	--	--	182	1,773	182	1,773	182	1,773
	SUB-TOTAL			--		--		--		9,104		9,104		9,104
140	4. Condominium/Townhouse	DU	--	--	1,574	12,592	1,574	12,592	1,574	12,592	1,574	12,592	1,574	12,592
	10. Commercial Center (>30ac)	TSF	--	--	--	--	--	--	182	7,291	182	7,291	182	7,291
	20. Elementary/Middle School	STU	--	--	--	--	--	--	750	1,418	750	1,418	750	1,418
	40. Commercial Office	TSF	--	--	--	--	--	--	183	1,782	183	1,782	183	1,782
	51. Developed Park	AC	--	--	--	--	--	--	5	4	5	4	5	4
	SUB-TOTAL			--		12,592		12,592		23,087		23,087		23,087
TOTAL	4. Condominium/Townhouse	DU	--	--	1,574	12,592	1,574	12,592	1,574	12,592	1,574	12,592	1,574	12,592
	10. Commercial Center (>30ac)	TSF	--	--	--	--	--	--	365	14,622	365	14,622	365	14,622
	20. Elementary/Middle School	STU	--	--	--	--	--	--	750	1,418	750	1,418	750	1,418
	40. Commercial Office	TSF	--	--	--	--	--	--	365	3,555	365	3,555	365	3,555
	51. Developed Park	AC	--	--	--	--	--	--	5	4	5	4	5	4
	TOTAL			--		12,592		12,592		32,191		32,191		32,191

Entrada North

			Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
Zone	**Land Use Category**	**Units**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**
90	10. Commercial Center (>30ac)	TSF	--	--	--	--	--	--	--	--	--	--	633.37	25,373
	11. Commercial Center(10-30a)	TSF	135	7,298	135	7,298	135	7,298	135	7,298	135	7,298	470	25,408
	30. Industrial Park	TSF	63.88	383	163.88	983	163.88	983	163.88	983	163.88	983	163.88	983
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	510.6	4,973
	SUB-TOTAL			7,681		8,281		8,281		8,281		8,281		56,737
92	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1,150	9,200
	10. Commercial Center (>30ac)	TSF	30	1,202	30	1,202	30	1,202	30	1,202	30	1,202	569.1	22,799
	14. Hotel	ROOM	--	--	--	--	--	--	--	--	--	--	270	2,222
	40. Commercial Office	TSF	200	1,948	200	1,948	200	1,948	200	1,948	200	1,948	606.4	5,907
	60. Amphitheater	SG	--	--	--	--	--	--	--	--	--	--	10	396
	SUB-TOTAL			3,150		3,150		3,150		3,150		3,150		40,524
TOTAL	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1,150	9,200
	10. Commercial Center (>30ac)	TSF	30	1,202	30	1,202	30	1,202	30	1,202	30	1,202	1,202.47	48,172
	11. Commercial Center(10-30a)	TSF	135	7,298	135	7,298	135	7,298	135	7,298	135	7,298	470	25,408
	14. Hotel	ROOM	--	--	--	--	--	--	--	--	--	--	270	2,222
	30. Industrial Park	TSF	63.88	383	163.88	983	163.88	983	163.88	983	163.88	983	163.88	983
	40. Commercial Office	TSF	200	1,948	200	1,948	200	1,948	200	1,948	200	1,948	1,117.00	10,880
	60. Amphitheater	SG	--	--	--	--	--	--	--	--	--	--	10	396
	TOTAL			10,831		11,431		11,431		11,431		11,431		97,261

Notes: Shading denotes existing land use or development not a part of project

Landmark Village

			Existing		DP-A		DP-B1		DP-B2		DP-C		DP-D	
Zone	**Land Use Category**	**Units**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**
102	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	89	840
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	189	1,512
	13. Commercial Shops	TSF	--	--	--	--	--	--	--	--	--	--	30.8	1,141
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	48.2	469
	SUB-TOTAL			--		--		--		--		--		3,962
103	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	190	1,794
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	75	600
	SUB-TOTAL			--		--		--		--		--		2,394
104	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	204	1,926
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	557	4,456
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	140	762
	11. Commercial Center(10-30a)	TSF	--	--	--	--	--	--	--	--	--	--	272.1	14,710
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	750	1,418
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	272.1	2,650
	51. Developed Park	AC	--	--	--	--	--	--	--	--	--	--	16.1	13
	SUB-TOTAL			--		--		--		--		--		25,935
105	13. Commercial Shops	TSF	--	--	--	--	--	--	--	--	--	--	29.25	1,084
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	380.55	3,707
	SUB-TOTAL			--		--		--		--		--		4,791
TOTAL	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	483	4,560
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	821	6,568
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	140	762
	11. Commercial Center(10-30a)	TSF	--	--	--	--	--	--	--	--	--	--	272.1	14,710
	13. Commercial Shops	TSF	--	--	--	--	--	--	--	--	--	--	60.05	2,225
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	750	1,418
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	700.85	6,826
	51. Developed Park	AC	--	--	--	--	--	--	--	--	--	--	16.1	13
	TOTAL			--		--		--		--		--		37,082

Legacy Village

Zone	Land Use Category	Units	Existing		DP-A		DP-B1		DP-B2		DP-C		DP-D	
			Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT
123	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1,044	8,352
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	750	4,080
	SUB-TOTAL			--		--		--		--		--		12,432
124	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1,044	8,352
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	750	4,080
	SUB-TOTAL			--		--		--		--		--		12,432
126	11. Commercial Center(10-30a)	TSF	--	--	--	--	--	--	--	--	--	--	250	13,515
	SUB-TOTAL			--		--		--		--		--		13,515
131	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	589	5,737
	SUB-TOTAL			--		--		--		--		--		5,737
TOTAL	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	2,088	16,704
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	1,500	8,160
	11. Commercial Center(10-30a)	TSF	--	--	--	--	--	--	--	--	--	--	250	13,515
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	589	5,737
	TOTAL			--		--		--		--		--		44,116

Homestead South

Zone	Land Use Category	Units	Existing		DP-A		DP-B1		DP-B2		DP-C		DP-D	
			Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT
107	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	455	4,295
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	278	2,224
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	1,200	2,268
	21. High School	STU	--	--	--	--	--	--	--	--	--	--	2,500	5,075
	SUB-TOTAL			--		--		--		--		--		13,862
108	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	942	7,536
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	196	1,066
	13. Commercial Shops	TSF	--	--	--	--	--	--	--	--	--	--	66.4	2,461
	51. Developed Park	AC	--	--	--	--	--	--	--	--	--	--	17.1	13
	SUB-TOTAL			--		--		--		--		--		11,076
110	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	518	4,144
	SUB-TOTAL			--		--		--		--		--		4,144
118	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1228	9,824
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	900	1,701
	51. Developed Park	AC	--	--	--	--	--	--	--	--	--	--	5.3	4
	SUB-TOTAL			--		--		--		--		--		11,529
TOTAL	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	455	4,295
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	2966	23,728
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	196	1,066
	13. Commercial Shops	TSF	--	--	--	--	--	--	--	--	--	--	66.4	2,461
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	2100	3,969
	21. High School	STU	--	--	--	--	--	--	--	--	--	--	2500	5,075
	51. Developed Park	AC	--	--	--	--	--	--	--	--	--	--	22.4	17
	TOTAL			--		--		--		--		--		40,611

Homestead North

Zone	Land Use Category	Units	Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
			Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT	Amount	ADT
54	2. Single Family (1-5du/ac)	DU	--	--	--	--	--	--	--	--	--	--	62	585
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	588	4,704
	SUB-TOTAL			--		--		--		--		--		5,289
55	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	184	1,737
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	727	5,816
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	238	1,295
	SUB-TOTAL			--		--		--		--		--		8,848
56	2. Single Family (1-5du/ac)	DU	--	--	--	--	--	--	--	--	--	--	19	179
	SUB-TOTAL			--		--		--		--		--		179
57	12. Commercial Center (<10ac)	TSF	--	--	--	--	--	--	--	--	--	--	50	4,253
	31. Business Park	TSF	--	--	--	--	--	--	--	--	--	--	1,421	17,677
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	100	974
	SUB-TOTAL			--		--		--		--		--		22,904
TOTAL	2. Single Family (1-5du/ac)	DU	--	--	--	--	--	--	--	--	--	--	81	764
	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	184	1,737
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	1,315	10,520
	5. Apartment	DU	--	--	--	--	--	--	--	--	--	--	238	1,295
	12. Commercial Center (<10ac)	TSF	--	--	--	--	--	--	--	--	--	--	50	4,253
	31. Business Park	TSF	--	--	--	--	--	--	--	--	--	--	1,421	17,677
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	100	974
	TOTAL			--		--		--		--		--		37,220

Potrero Village

			Existing		Stage 1 / DP-A		Stage 2a / DP-B		Stage 2b / DP-B2		Stage 3 / DP-C		Stage 4 / DP-D	
Zone	**Land Use Category**	**Units**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**	**Amount**	**ADT**
Zones 112-119,127-129,153														
TOTAL	3. Single Family (6-10du/ac)	DU	--	--	--	--	--	--	--	--	--	--	1,167	11,015
	4. Condominium/Townhouse	DU	--	--	--	--	--	--	--	--	--	--	7,416	59,328
	11. Commercial Center(10-30a)	TSF	--	--	--	--	--	--	--	--	--	--	250	13,515
	20. Elementary/Middle School	STU	--	--	--	--	--	--	--	--	--	--	750	1,418
	40. Commercial Office	TSF	--	--	--	--	--	--	--	--	--	--	695	6,769
	TOTAL			--		--		--		--		--		92,045

ALL VILLAGES

TOTAL	2. Single Family (1-5du/ac)	DU	--	--	158	1,491	158	1,491	158	1,491	158	1,491	239	2,255
	3. Single Family (6-10du/ac)	DU	--	--	531	5,013	531	5,013	531	5,013	531	5,013	2,820	26,620
	4. Condominium/Townhouse	DU	--	--	3,671.00	29,368	3,671.00	29,368	3,671.00	29,368	3,671	29,368	19,427	155,416
	5. Apartment	DU	--	--	1,269.00	6,904	1,269.00	6,904	1,269.00	6,904	1,269	6,904	3,343	18,187
	10. Commercial Center (>30ac)	TSF	30	1,202	30	1,202	30	1,202	395	15,824	395	15,824	1,567.47	62,794
	11. Commercial Center(10-30a)	TSF	135	7,298	235	12,704	235	12,704	235	12,704	235	12,704	1,342.10	72,554
	12. Commercial Center (<10ac)	TSF	--	--	50	4,253	50	4,253	50	4,253	50	4,253	100	8,506
	13. Commercial Shops	TSF	--	--	153.1	5,674	153.1	5,674	153.1	5,674	153.1	5,674	279.55	10,360
	14. Hotel	ROOM	--	--	--	--	--	--	90	740	90	740	360	2,962
	20. Elementary/Middle School	STU	--	--	900	1,701	900	1,701	1,650.00	3,119	1,650.00	3,119	5,250	9,924
	21. High School	STU	--	--	--	--	--	--	--	--	--	--	2,500	5,075
	30. Industrial Park	TSF	606.32	3,638	706.32	4,238	706.32	4,238	706.32	4,238	2,606.32	15,638	2,606.32	15,638
	31. Business Park	TSF	200	2,488	900	11,196	900	11,196	900	11,196	950	11,818	2,471.00	30,739
	34. Utilities	TSF	--	--	100	238	100	238	100	238	100	238	100	238
	40. Commercial Office	TSF	377.6	3,678	927.6	9,035	1,227.60	11,957	1,886.69	18,377	2,036.69	19,838	5,138.54	50,050
	42. Medical Office	TSF	--	--	--	--	300	10,440	663.7	23,097	663.7	23,097	663.7	23,097
	51. Developed Park	AC	--	--	46.3	36	46.3	36	51.3	40	51.3	40	89.8	70
	60. Amphitheater	SG	--	--	--	--	--	--	--	--	--	--	10	396
	TOTAL			18,304		93,053		106,415		142,276		155,759		490,090

* Totals include some existing land use or development not a part of project

Appendix B Existing Conditions ICU Worksheets

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure A-1. The procedure is based on the critical movement methodology and shows the amount of capacity utilized by each critical move. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both through and right-turn traffic (typically with a width of 19 feet from curb to outside of through-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes. The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example of Right-turn Capacity Utilization for Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:

RTOG = V/C (NBT)

Otherwise,

RTOG = V/C (NBL) + V/C (SBT) - V/C (SBL)

2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:

RTOR = V/C (WBL)

Otherwise,

RTOR = V/C (EBL) + V/C (WBT) - V/C (EBT)

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

RTOG = RTOG + V/C (WBL)

RTOR = RTOR - V/C (WBL)

4. Total Right-Turn Capacity (RTC) Availability For NBR

$$\text{RTC} = \text{RTOG} + \text{factor} \times \text{RTOR}$$

Where factor = RTOR saturation flow factor (typically 75%)

5. Right-turn Adjustment for ICU Calculation

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available, and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet, and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/through, through/right, left/through/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example of Shared Lane Utilization for Shared Left/Through Lane

1. Average Lane Volume (ALV)

$$\text{ALV} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left+Through Approach Lanes (including shared lane)}}$$

2. ALV for Each Approach

$$\text{ALV (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}$$

$$\text{ALV (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Lanes (including shared lane)}}$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and through V/C ratios for this case are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Through) is greater than ALV then full dedication to the through approach is warranted, and left-turn and through V/C ratios are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (including shared lane)}}$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Through) are both less than ALV, the left/through lane is assumed to be truly shared and each left, left/through or through approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/through V/C ratio is calculated as follows:

$$\text{V/C (Left/Through)} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Capacity (including shared lane)}}$$

This V/C (Left/Through) ratio is assigned as the V/C (Through) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Through) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

V/C (Left) = V/C (Through)

If approach has only one left-turn lane (shared lane), then:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared through/right lanes. If full dedication of a shared through/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the through/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/through and through/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

7. I-5 SB Ramps & Newhall Ranch

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	911	.32*	699	.24*
SBT	0	0	0		0	
SBR	2	3200	193	.06	127	.04
EBL	0	0	0		0	
EBT	4	6400	427	.07	1244	.19*
EBR	f		486		1282	
WBL	0	0	0		0	
WBT	4	6400	1811	.28*	952	.15
WBR	f		362		513	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.70**		**.53**

9. The Old Rd & I-5 SB Ramps

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	45	.03	37	.02
NBT	2	3200	501	.16	357	.11
NBR	1	1600	770	.48*	1019	.64*
SBL	1	1600	48	.03*	183	.11*
SBT	2	3200	326	.10	603	.19
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		123		50	
WBT	0	3200	0	.04*	0	.02*
WBR	0.5		12		6	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.65**		**.87**

10. I-5 SB Ramps & Magic Mtn

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		326		304	
SBT	0.5	2880	0	.11*	0	.11*
SBR	2	3200	47	.01	63	.02
EBL	0	0	0		0	
EBT	3	4800	251	.05	564	.12*
EBR	2	3200	68	.02	239	.07
WBL	2	2880	437	.15	249	.09*
WBT	4	6400	1449	.23*	1108	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.44**		**.42**

12. I-5 SB ON/OFF Ramps & Valencia

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	148	.05	201	.07
SBT	0	0	0		0	
SBR	1	1600	236	.15*	218	.14*
EBL	0	0	0		0	
EBT	3	4800	629	.13	567	.12
EBR	f		258		108	
WBL	0	0	0		0	
WBT	2	3200	899	.28*	905	.28*
WBR	f		499		527	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.52**

14. I-5 SB ON/OFF Ramps & McBean

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	160	.10*	155	.10
SBT	0	0	0		0	
SBR	1	1600	143	.09	195	.12*
EBL	0	0	0		0	
EBT	2	3200	673	.21*	807	.25
EBR	1	1600	259	.16	107	.07
WBL	0	0	0		0	
WBT	2	3200	451	.14	803	.25*
WBR	1	1600	375	.23	450	.28
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .41 .47

16. I-5 SB ON/OFF Ramps & Pico Canyon/Lyons

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	52	.03	61	.04
SBL	1.5		347		366	
SBT	0.5	2880	227	.20*	112	.17*
SBR	1	1600	76	.05	106	.07
EBL	0	0	0		0	
EBT	3	4800	734	.16	894	.20
EBR	0	0	44		47	
WBL	1	1600	46	.03	45	.03
WBT	2	3200	597	.19*	1076	.34*
WBR	1	1600	185	.12	125	.08
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .49 .61

25. The Old Rd & Rye Canyon

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	343	.21*	265	.17*
NBR	f		1323		1192	
SBL	1	1600	241	.15*	343	.21*
SBT	2	3200	206	.06	406	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	309	.19*	502	.31*
WBT	0	0	0		0	
WBR	f		981		1143	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .65 .79

26. The Old Rd & Magic Mountain

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	30	.01	28	.01
NBT	3	4800	461	.10*	417	.09*
NBR	1	1600	99	.06	212	.13
SBL	2	2880	193	.07*	364	.13*
SBT	3	4800	297	.06	649	.14
SBR	1	1600	1	.00	5	.00
EBL	2	2880	20	.01	60	.02
EBT	5	8000	38	.00*	236	.03*
EBR	1	1600	5	.00	55	.03
WBL	2	2880	150	.05*	221	.08*
WBT	4	6400	239	.04	41	.01
WBR	f		1057		926	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .32 .43

28. Old Road & Stevenson Ranch

```
Existing 2018/2019

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1      1600       52   .03*     175   .11*
NBT      3      4800      344   .07      442   .09
NBR      1      1600      163   .10      420   .26

SBL      1      1600       73   .05       96   .06
SBT      2      3200      381   .12*     671   .21*
SBR      1      1600      357   .22      407   .25

EBL      2      2880      683   .24*     284   .10*
EBT      3      4800      642   .13      329   .07
EBR      1      1600      147   .09      109   .07

WBL      2      2880      236   .08      475   .16
WBT      2      3200      263   .11*     474   .17*
WBR      0         0       87             55

Clearance Interval              .10*           .10*
Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION      .60            .69
```

80. Wolcott & SR-126

```
Existing 2018/2019

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      0         0        0                0
NBT      1      1600        0   .00          0   .00
NBR      0         0        0                0

SBL      1.5                3               12
SBT      0.5    2880        0   .00*         0   .00*
SBR      1      1600       15   .01         64   .04

EBL      1      1600       49   .03*        16   .01
EBT      2      3200      623   .19        992   .31*
EBR      0         0        0                0

WBL      1      1600        0   .00          0   .00
WBT      2      3200      976   .31*       813   .25
WBR      1      1600        4   .00          7   .00

Clearance Interval              .10*           .10*

TOTAL CAPACITY UTILIZATION      .44            .41
```

81. Commerce Ctr & Henry Mayo

```
Existing 2018/2019

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      0         0        0                0
NBT      0         0        0                0
NBR      0         0        0                0

SBL      2      2880       53   .02*     243   .08*
SBT      0         0        0                0
SBR      1      1600        1   .00          1   .00

EBL      1      1600       33   .02*      13   .01*
EBT      2      3200       51   .02       34   .01
EBR      0         0        0                0

WBL      0         0        0                0
WBT      1      1600        0   .00          0   .00
WBR      1      1600      107   .07*     121   .08*

Clearance Interval              .10*           .10*

TOTAL CAPACITY UTILIZATION      .21            .27
```

82. Commerce Ctr & SR-126 EB

```
Existing 2018/2019

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      0         0        0                0
NBT      3      4800      129   .03        108   .02
NBR      f                 12               26

SBL      0         0        0                0
SBT      2      3200       58   .02        248   .08
SBR      f                175             1003

EBL      0         0        0                0
EBT      0         0        0                0
EBR      0         0        0                0

WBL      0         0        0                0
WBT      0         0        0                0
WBR      0         0        0                0

Clearance Interval              .00            .00

TOTAL CAPACITY UTILIZATION      .00            .00
```

83. Commerce Ctr & SR-126 WB

```
Existing 2018/2019

                         AM PK HOUR     PM PK HOUR
       LANES  CAPACITY   VOL    V/C     VOL    V/C

NBL      2      2880      31   .01*      60   .02*
NBT      3      4800      93   .02       44   .01
NBR      0         0       0              0

SBL      0         0       0              0
SBT      3      4800     216   .05*    1272   .26*
SBR      1      1600      29   .02       44   .03

EBL      0         0       0              0
EBT      0         0       0              0
EBR      0         0       0              0

WBL      1.5              16             15
WBT      0.5    3200       0   .01        0   .00*
WBR      2      3200    1033   .32*     203   .06

Clearance Interval             .10*           .10*

TOTAL CAPACITY UTILIZATION     .48            .38
```

96. San Martinez Grande Canyon & Henry Mayo

```
Existing 2018/2019

                         AM PK HOUR     PM PK HOUR
       LANES  CAPACITY   VOL    V/C     VOL    V/C

NBL      0         0       0              0
NBT      0         0       0              0
NBR      0         0       0              0

SBL      0         0       6              6
SBT      1      1600       0   .01*       0   .01*
SBR      0         0       2              2

EBL      1      1600       3   .00        2   .00
EBT      2      3200     765   .24     1337   .42*
EBR      0         0       0              0

WBL      0         0       0              0
WBT      2      3200     938   .29*     906   .29
WBR      0         0       4              7

Clearance Interval             .10*           .10*

TOTAL CAPACITY UTILIZATION     .40            .53
```

105. Westridge & Valencia

```
Existing 2018/2019

                         AM PK HOUR     PM PK HOUR
       LANES  CAPACITY   VOL    V/C     VOL    V/C

NBL      1      1600      28   .02        3   .00
NBT      1      1600       2   .00*       1   .00*
NBR      1      1600      33   .02       22   .01

SBL      2      2880     339   .12*     105   .04*
SBT      1      1600       4   .00        0   .00
SBR      1      1600      31   .02        0   .00

EBL      1      1600      13   .01*       2   .00
EBT      3      4800    1058   .22      279   .06*
EBR      d      1600       9   .01        4   .00

WBL      1      1600      19   .01       30   .02*
WBT      3      4800    1643   .34*     203   .04
WBR      1      1600     138   .09      108   .07

Clearance Interval             .10*           .10*

TOTAL CAPACITY UTILIZATION     .57            .22
```

110. Chiquito Canyon & Henry Mayo

```
Existing 2018/2019

                         AM PK HOUR     PM PK HOUR
       LANES  CAPACITY   VOL    V/C     VOL    V/C

NBL      0         0       0              1
NBT      1      1600       0   .00*       0   .00*
NBR      0         0       0              3

SBL      1      1600      80   .05*      36   .02*
SBT      0         0       0              0
SBR      1      1600      19   .01       15   .01

EBL      1      1600       7   .00       30   .02
EBT      2      3200     682   .21     1309   .41*
EBR      0         0       0              1

WBL      0         0       0              0
WBT      2      3200     990   .31*     885   .28
WBR      1      1600      24   .02       60   .04

Clearance Interval             .10*           .10*

TOTAL CAPACITY UTILIZATION     .46            .53
```

7. I-5 SB Ramps & Newhall Ranch

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	737	.26*	650	.23*
SBT	0	0	0		0	
SBR	2	3200	181	.06	142	.04
EBL	0	0	0		0	
EBT	4	6400	421	.07	1256	.20*
EBR	f		546		1223	
WBL	0	0	0		0	
WBT	4	6400	1745	.27*	933	.15
WBR	f		204		355	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.53**

9. The Old Rd & I-5 SB Ramps

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	0	.00	0	.00
NBT	2	3200	406	.13	357	.11
NBR	1	1600	723	.45*	960	.60*
SBL	1	1600	32	.02*	168	.11*
SBT	2	3200	247	.08	602	.19
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		115		63	
WBT	0	3200	0	.04*	0	.02*
WBR	0.5		1		5	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.61**		**.83**

10. I-5 SB Ramps & Magic Mountain

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		263		264	
SBT	0.5	3200	2	.08*	0	.08*
SBR	2	3200	72	.02	44	.01
EBL	0	0	0		0	
EBT	3	4800	222	.05	426	.09*
EBR	2	3200	90	.03	287	.09
WBL	2	2880	468	.16	316	.11*
WBT	4	6400	1391	.22*	898	.14
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.38**

12. I-5 SB Ramps & Valencia

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	161	.06	162	.06*
SBT	0	0	0		0	
SBR	1	1600	131	.08*	70	.04
EBL	0	0	0		0	
EBT	3	4800	488	.10	501	.10
EBR	f		322		117	
WBL	0	0	0		0	
WBT	2	3200	922	.29*	701	.22*
WBR	f		858		745	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.38**

14. I-5 SB Ramps & McBean

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	147	.09*	155	.10*
SBT	0	0	0		0	
SBR	1	1600	103	.06	174	.11
EBL	0	0	0		0	
EBT	2	3200	724	.23*	799	.25*
EBR	f		280		167	
WBL	0	0	0		0	
WBT	2	3200	486	.15	669	.21
WBR	1	1600	420	.26	446	.28
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .42 .45

16. I-5 SB Ramps & Pico Cyn

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	48	.03	60	.04
SBL	1.5		247		313	
SBT	0.5	2880	58	.11*	56	.13*
SBR	1	1600	86	.05	99	.06
EBL	0	0	0		0	
EBT	3	4800	644	.14	816	.18
EBR	0	0	24		31	
WBL	1	1600	35	.02	42	.03
WBT	2	3200	532	.17*	910	.28*
WBR	1	1600	261	.16	178	.11
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .38 .51

25. The Old Rd & Rye Cyn

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	314	.20*	265	.17*
NBR	f		1141		848	
SBL	1	1600	206	.13*	298	.19*
SBT	2	3200	152	.05	358	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	279	.17*	356	.22*
WBT	0	0	0		0	
WBR	f		842		1003	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .60 .68

26. The Old Rd & Magic Mountain

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	25	.01	26	.01
NBT	3	4800	380	.08*	366	.08*
NBR	1	1600	78	.05	155	.10
SBL	2	2880	174	.06*	331	.11*
SBT	3	4800	258	.05	501	.10
SBR	1	1600	33	.02	11	.01
EBL	2	2880	21	.01	57	.02
EBT	5	8000	66	.01*	269	.03*
EBR	1	1600	7	.00	42	.03
WBL	2	2880	128	.04*	159	.06*
WBT	4	6400	167	.03	53	.01
WBR	f		1168		727	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .29 .38

28. The Old Rd & Stevenson Ranch

```
Existing 2021

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL     V/C    VOL     V/C

NBL      1      1600       90    .06*    191    .12*
NBT      3      4800      289    .06     416    .09
NBR      1      1600      140    .09     382    .24

SBL      1      1600       74    .05     111    .07
SBT      2      3200      297    .09*    525    .16*
SBR      1      1600      418    .26     377    .24

EBL      2      2880      604    .21*    280    .10*
EBT      3      4800      682    .14     404    .08
EBR      1      1600      108    .07     110    .07

WBL      2      2880      204    .07     400    .14
WBT      2      3200      273    .11*    388    .14*
WBR      0         0       81             45

Clearance Interval               .10*           .10*
Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION       .57            .62
```

80. Wolcott & SR 126

```
Existing 2021

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL     V/C    VOL     V/C

NBL      0         0       18              3
NBT      1      1600        0    .03*      0    .00
NBR      0         0       25              3

SBL      1.5                2              6
SBT      0.5    3200        0    .00       0    .00*
SBR      1      1600        8    .01      65    .04

EBL      1      1600       53    .03*     21    .01
EBT      2      3200      716    .22    1240    .39*
EBR      0         0        3              2

WBL      1      1600        3    .00       2    .00
WBT      2      3200      902    .28*    880    .28
WBR      1      1600        7    .00       4    .00

Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .44            .49
```

81. Commerce Center & Henry Mayo

```
Existing 2021

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL     V/C    VOL     V/C

NBL      0         0        0              0
NBT      0         0        0              0
NBR      0         0        0              0

SBL      2      2880       62    .02*    271    .09*
SBT      0         0        0              0
SBR      1      1600        0    .00       3    .00

EBL      1      1600       35    .02*     32    .02*
EBT      2      3200       42    .01      48    .02
EBR      0         0        0              0

WBL      0         0        0              0
WBT      1      1600        0    .00       1    .00
WBR      1      1600      131    .08*    178    .11*

Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .22            .32
```

82. Commerce Center & SR 126 EB Ramps

```
Existing 2021

                          AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL     V/C    VOL     V/C

NBL      0         0        0              0
NBT      3      4800      142    .03     132    .03
NBR      f                 20             68

SBL      0         0        0              0
SBT      2      3200       69    .02     274    .09
SBR      f                225           1158

EBL      0         0        0              0
EBT      0         0        0              0
EBR      0         0        0              0

WBL      0         0        0              0
WBT      0         0        0              0
WBR      0         0        0              0

Clearance Interval               .00            .00

TOTAL CAPACITY UTILIZATION       .00            .00
```

83. Commerce Center & SR 126 WB Ramps

```
Existing 2021

                          AM PK HOUR      PM PK HOUR
       LANES  CAPACITY    VOL    V/C      VOL    V/C

NBL      2      2880       32   .01*       65   .02*
NBT      3      4800      108   .02        67   .01
NBR      0         0        0               0

SBL      0         0        0               0
SBT      3      4800      290   .06*     1524   .32*
SBR      1      1600       31   .02        47   .03

EBL      0         0        0               0
EBT      0         0        0               0
EBR      0         0        0               0

WBL      1.5               13               9
WBT      0.5    3200        2   .00         0   .00
WBR      2      3200     1132   .35*      328   .10*

Clearance Interval              .10*            .10*

TOTAL CAPACITY UTILIZATION     .52             .54
```

96. San Martinez Grande Cyn & SR 126

```
Existing 2021

                          AM PK HOUR      PM PK HOUR
       LANES  CAPACITY    VOL    V/C      VOL    V/C

NBL      0         0        0               0
NBT      0         0        0               0
NBR      0         0        0               0

SBL      0         0        4               5
SBT      1      1600        0   .00*        0   .00*
SBR      0         0        1               1

EBL      1      1600        1   .00         4   .00
EBT      2      3200      689   .22      1210   .38*
EBR      0         0        0               0

WBL      0         0        0               0
WBT      2      3200      827   .26*      882   .28
WBR      0         0        6               7

Clearance Interval              .10*            .10*

TOTAL CAPACITY UTILIZATION     .36             .48
```

105. Westridge & Valencia

```
Existing 2021

                          AM PK HOUR      PM PK HOUR
       LANES  CAPACITY    VOL    V/C      VOL    V/C

NBL      1      1600       18   .01         3   .00
NBT      1      1600        3   .00*        1   .00*
NBR      1      1600       34   .02        22   .01

SBL      2      2880      201   .07*       87   .03*
SBT      1      1600        5   .00         3   .00
SBR      1      1600       17   .01         0   .00

EBL      1      1600        8   .01*        1   .00
EBT      3      4800     1082   .23       153   .03*
EBR      d      1600       14   .01         4   .00

WBL      1      1600       24   .02        28   .02*
WBT      3      4800     1469   .31*      194   .04
WBR      1      1600       82   .05        82   .05

Clearance Interval              .10*            .10*

TOTAL CAPACITY UTILIZATION     .49             .18
```

110. Chiquito Cyn & SR 126

```
Existing 2021

                          AM PK HOUR      PM PK HOUR
       LANES  CAPACITY    VOL    V/C      VOL    V/C

NBL      0         0        0               0
NBT      1      1600        0   .00*        0   .00*
NBR      0         0        0               0

SBL      1      1600       95   .06*       47   .03*
SBT      0         0        0               0
SBR      1      1600       13   .01         9   .01

EBL      1      1600       15   .01*       16   .01
EBT      2      3200      672   .21      1190   .37*
EBR      0         0        0               0

WBL      0         0        0               0
WBT      2      3200      825   .26*      880   .28
WBR      1      1600       70   .04        67   .04

Clearance Interval              .10*            .10*

TOTAL CAPACITY UTILIZATION     .43             .50
```

11. I-5 NB Ramps & Magic Mtn

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	1082	.31*	739	.21*
NBT	0.5	3500	0	{.15}	0	.20
NBR	1.5		543		693	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	15	.00	56	.02
EBT	3	5250	558	.11	761	.14*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	807	.12*	636	.12
WBR	1.5		216	{.01}	399	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.45**

17. I-5 NB ON/OFF Ramps & Lyons

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		263	{.08}*	574	{.16}*
NBT	0.5	3500	0	.08	0	.16
NBR	f		272		530	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	163	.09*	184	.11*
EBT	2	3500	638	.18	975	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	726	.21*	833	.23*
WBR	0	0	487	.28	362	
Right Turn Adjustment			WBR	.07*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.60**

37. Tourney & Magic Mountain

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	126	.04*	265	.08*
NBT	0	0	0		0	
NBR	1	1750	72	.04	356	.20
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	843	.16*	1327	.25*
EBR	1	1750	276	.16	118	.07
WBL	1	1750	392	.22*	147	.08*
WBT	3	5250	899	.17	783	.15
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.57**

45. McBean & Magic Mountain

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	77	.02*	160	.05
NBT	4	7000	974	.14	1549	.22*
NBR	f		53		163	
SBL	2	3500	278	.08	309	.09*
SBT	4	7000	1539	.22*	1587	.23
SBR	f		650		269	
EBL	3	5250	397	.08*	843	.16
EBT	2	3500	395	.11	800	.23*
EBR	1	1750	64	.04	186	.11
WBL	2	3500	67	.02	263	.08*
WBT	3	5250	488	.09*	492	.09
WBR	1	1750	166	.09	410	.23
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for WBR						
TOTAL CAPACITY UTILIZATION				**.51**		**.72**

48. McBean & Newhall Ranch

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	290	.08*	325	.09
NBT	3	5250	567	.11	1759	.34*
NBR	1	1750	241	.14	880	.50
SBL	2	3500	344	.10	235	.07*
SBT	4	7000	1703	.24*	942	.13
SBR	f		241		59	
EBL	2	3500	129	.04*	227	.06
EBT	4	7000	739	.11	1703	.24*
EBR	1	1750	217	.12	349	.20
WBL	2	3500	586	.17	405	.12*
WBT	4	7000	1797	.26*	851	.12
WBR	1	1750	178	.10	244	.14
Right Turn Adjustment					NBR	.07*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.72**		**.94**

51. Wiley Canyon & Lyons

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	140	.08*	158	.09
NBT	2	3500	228	.07	423	.12*
NBR	1	1750	151	.09	235	.13
SBL	1	1750	117	.07	199	.11*
SBT	2	3500	557	.16*	340	.10
SBR	1	1750	304	.17	227	.13
EBL	2	3500	127	.04	347	.10
EBT	3	5250	564	.12*	998	.21*
EBR	0	0	87		99	
WBL	1	1750	222	.13*	160	.09*
WBT	3	5250	715	.15	738	.16
WBR	0	0	94		110	
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for SBR						
TOTAL CAPACITY UTILIZATION				**.59**		**.63**

54. Orchard Village & Wiley Canyon

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	201	.11*	106	.06*
NBT	2	3500	839	.24	697	.20
NBR	1	1750	181	.10	169	.10
SBL	1	1750	41	.02	74	.04
SBT	2	3500	856	.24*	904	.26*
SBR	1	1750	325	.19	256	.15
EBL	2	3500	180	.05	215	.06
EBT	2	3500	156	.09*	358	.15*
EBR	0	0	347	.20	165	
WBL	1	1750	169	.10*	109	.06*
WBT	2	3500	281	.08	227	.06
WBR	1	1750	108	.06	65	.04
Right Turn Adjustment			EBR	.03*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for SBR						
TOTAL CAPACITY UTILIZATION				**.67**		**.63**

55. Orchard Village & McBean

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		351		209	
NBT	0.5	3500	47	.11*	21	.07*
NBR	2	3500	674	.19	698	.20
SBL	1.5		28		59	.03
SBT	1.5	5250	47	.02*	78	.04*
SBR	0		29		74	.04
EBL	1	1750	30	.02	16	.01
EBT	3	5250	467	.13*	778	.22*
EBR	0	0	309	.18	413	.24
WBL	2	3500	634	.18*	790	.23*
WBT	3	5250	461	.09	626	.12
WBR	1	1750	88	.05	44	.03
Clearance Interval				.10*		.10*
Note: Assumes N/S Split Phasing						
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.54**		**.66**

57. Valencia & Magic Mountain

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	32	.02*	52	.03
NBT	3	5250	804	.15	1710	.33*
NBR	1	1750	108	.06	197	.11
SBL	1	1750	24	.01	80	.05*
SBT	3	5250	1675	.32*	1120	.21
SBR	2	3500	567	.16	363	.10
EBL	2	3500	147	.04*	675	.19*
EBT	2	3500	196	.07	561	.17
EBR	0	0	32		30	
WBL	2	3500	187	.05	224	.06
WBT	2	3500	339	.11*	380	.14*
WBR	0	0	45		96	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .59 .81

66. Bouquet Cyn & Newhall Ranch

Existing 2018/2019

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	333	.10*	497	.14
NBT	4	7000	717	.10	1872	.27*
NBR	1	1750	133	.08	369	.21
SBL	2	3500	451	.13	403	.12*
SBT	4	7000	2076	.30*	1117	.16
SBR	1	1750	457	.26	263	.15
EBL	3	5250	224	.04*	841	.16
EBT	4	7000	736	.11	1575	.23*
EBR	1	1750	369	.21	401	.23
WBL	2	3500	446	.13	369	.11*
WBT	4	7000	1469	.21*	936	.13
WBR	1	1750	403	.23	432	.25
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .75 .83

11. I-5 NB Ramps & Magic Mountain

```
Existing 2021

                           AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      2      3500     1062    .30*    615    .18
NBT      0.5    3500        1  {.12}       0    .21*
NBR      1.5              488            746

SBL      0         0        0              0
SBT      0         0        0              0
SBR      0         0        0              0

EBL      2      3500       32    .01*     71    .02*
EBT      3      5250      455    .09     619    .12
EBR      0         0        0              0

WBL      0         0        0              0
WBT      3.5    8750      798  {.11}*    599    .11*
WBR      1.5              253  {.02}     385

Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .52            .44
```

17. I-5 NB Ramps & Lyons

```
Existing 2021

                           AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1.5              286  {.08}*    532  {.15}*
NBT      0.5    3500        0    .08       0    .15
NBR      f                277            587

SBL      0         0        0              0
SBT      0         0        0              0
SBR      0         0        0              0

EBL      1      1750      167    .10*    166    .09*
EBT      2      3500      589    .17     937    .27
EBR      0         0        0              0

WBL      0         0        0              0
WBT      3      5250      753    .22*    824    .22*
WBR      0         0      426    .24     353

Right Turn Adjustment     WBR    .02*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .52            .56
```

37. Magic Mountain & Tourney

```
Existing 2021

                           AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      2      3500      109    .03*    218    .06*
NBT      0         0        0              0
NBR      1      1750       63    .04     288    .16

SBL      0         0        0              0
SBT      0         0        0              0
SBR      0         0        0              0

EBL      0         0        0              0
EBT      3      5250      775    .15*   1257    .24*
EBR      1      1750      221    .13     102    .06

WBL      1      1750      315    .18*    118    .07*
WBT      3      5250      924    .18     770    .15
WBR      0         0        0              0

Right Turn Adjustment                    NBR    .05*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .46            .52
```

45. McBean & Magic Mountain

```
Existing 2021

                           AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      2      3500       65    .02*    127    .04
NBT      4      7000      988    .14    1325    .19*
NBR      f                 65            156

SBL      2      3500      166    .05     311    .09*
SBT      4      7000     1263    .18*   1344    .19
SBR      f                584            285

EBL      3      5250      442    .08*    913    .17*
EBT      2      3500      321    .09     601    .17
EBR      1      1750       56    .03     142    .08

WBL      2      3500       57    .02     228    .07
WBT      3      5250      439    .08*    492    .09*
WBR      1      1750      149    .09     325    .19

Right Turn Adjustment                    WBR    .01*
Clearance Interval               .10*           .10*
Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION       .46            .65
```

48. McBean & Newhall Ranch

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	291	.08*	321	.09
NBT	3	5250	661	.13	1699	.32*
NBR	1	1750	253	.14	803	.46
SBL	2	3500	353	.10	229	.07*
SBT	4	7000	1397	.20*	765	.11
SBR	f		205		83	
EBL	2	3500	133	.04*	240	.07
EBT	4	7000	746	.11	1740	.25*
EBR	1	1750	229	.13	366	.21
WBL	2	3500	532	.15	400	.11*
WBT	4	7000	1663	.24*	812	.12
WBR	1	1750	228	.13	231	.13
Right Turn Adjustment					NBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.91**

51. Wiley Cyn & Lyons

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	97	.06*	129	.07
NBT	2	3500	216	.06	333	.10*
NBR	1	1750	159	.09	179	.10
SBL	1	1750	114	.07	156	.09*
SBT	2	3500	314	.09*	232	.07
SBR	1	1750	278	.16	191	.11
EBL	2	3500	148	.04	271	.08
EBT	3	5250	531	.11*	863	.18*
EBR	0	0	58		67	
WBL	1	1750	179	.10*	140	.08*
WBT	3	5250	662	.14	741	.16
WBR	0	0	93		90	
Right Turn Adjustment			SBR	.01*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.55**

Note: Assumes Right-Turn Overlap for SBR

54. Orchard Village & Wiley Cyn

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	205	.12*	113	.06*
NBT	2	3500	761	.22	623	.18
NBR	1	1750	185	.11	155	.09
SBL	1	1750	65	.04	87	.05
SBT	2	3500	765	.22*	733	.21*
SBR	1	1750	156	.09	222	.13
EBL	2	3500	128	.04	185	.05
EBT	2	3500	149	.09*	300	.12*
EBR	0	0	239	.14	137	
WBL	1	1750	150	.09*	96	.05*
WBT	2	3500	240	.07	191	.05
WBR	1	1750	107	.06	64	.04
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.62**		**.54**

Note: Assumes Right-Turn Overlap for SBR

55. Orchard Village & McBean

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		280		191	
NBT	0.5	3500	47	.09*	15	.06*
NBR	2	3500	521	.15	596	.17
SBL	1.5		20		37	.02
SBT	1.5	5250	32	.01*	58	.03*
SBR	0		24		74	.04
EBL	1	1750	31	.02	11	.01
EBT	3	5250	419	.12*	590	.17*
EBR	0	0	271	.15	341	.19
WBL	2	3500	524	.15*	676	.19*
WBT	3	5250	390	.07	494	.09
WBR	1	1750	79	.05	18	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.55**

Note: Assumes N/S Split Phasing
Note: Assumes Right-Turn Overlap for NBR

57. Valencia & Magic Mountain

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	34	.02*	85	.05
NBT	3	5250	817	.16	1538	.29*
NBR	1	1750	75	.04	197	.11
SBL	1	1750	33	.02	65	.04*
SBT	3	5250	1560	.30*	1036	.20
SBR	2	3500	522	.15	375	.11
EBL	2	3500	119	.03*	559	.16*
EBT	2	3500	178	.06	490	.15
EBR	0	0	34		35	
WBL	2	3500	158	.05	192	.05
WBT	2	3500	297	.10*	346	.11*
WBR	0	0	48		51	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .55 .70

66. Bouquet Canyon & Newhall Ranch

Existing 2021

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	374	.11*	450	.13
NBT	4	7000	800	.11	1791	.26*
NBR	1	1750	147	.08	360	.21
SBL	2	3500	470	.13	356	.10*
SBT	4	7000	1876	.27*	1247	.18
SBR	1	1750	490	.28	315	.18
EBL	3	5250	238	.05*	797	.15
EBT	4	7000	735	.11	1595	.23*
EBR	1	1750	267	.15	432	.25
WBL	2	3500	446	.13	387	.11*
WBT	4	7000	1531	.22*	876	.13
WBR	1	1750	344	.20	389	.22
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .75 .80

Appendix C Future Conditions ICU Worksheets

9. The Old Rd & I-5 SB Ramps

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	1000	.31*	380	.12
NBR	2	3200	700	.22	1620	.51*
SBL	2	2880	80	.03*	480	.17*
SBT	3	4800	340	.07	750	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	340	.12*	450	.16*
WBT	0	0	0		0	
WBR	1	1600	10	.01	20	.01
Right Turn Overlap Adjustment					NBR	-.16*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .56 .78

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	990	.31*	280	.09
NBR	2	3200	720	.23	1740	.54*
SBL	2	2880	70	.02*	570	.20*
SBT	3	4800	390	.08	650	.14
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	470	.16*	470	.16*
WBT	0	0	0		0	
WBR	1	1600	10	.01	20	.01
Right Turn Overlap Adjustment					NBR	-.16*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .59 .84

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	840	.26*	240	.08
NBR	2	3200	700	.22	1560	.49*
SBL	2	2880	80	.03*	580	.20*
SBT	3	4800	330	.07	430	.09
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	380	.13*	460	.16*
WBT	0	0	0		0	
WBR	1	1600	10	.01	20	.01
Right Turn Overlap Adjustment					NBR	-.16*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .52 .79

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	880	.28*	220	.07
NBR	2	3200	680	.21	1460	.46*
SBL	2	2880	80	.03*	620	.22*
SBT	3	4800	300	.06	500	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	370	.13*	450	.16*
WBT	0	0	0		0	
WBR	1	1600	10	.01	10	.01
Right Turn Overlap Adjustment					NBR	-.16*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .54 .78

9. The Old Rd & I-5 SB Ramps

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	1030	.32*	730	.23
NBR	2	3200	560	.18	1370	.43*
SBL	2	2880	140	.05*	490	.17*
SBT	3	4800	410	.09	1090	.23
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	380	.13*	290	.10*
WBT	0	0	0		0	
WBR	1	1600	50	.03	10	.01
Right Turn Overlap Adjustment					NBR	-.10*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .60 .70

10. I-5 SB Ramps & Magic Mtn

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		800		450	
SBT	0.5	2880	10	.28*	0	.16*
SBR	2	3200	150	.05	40	.01
EBL	0	0	0		0	
EBT	3	4800	690	.14	680	.14
EBR	2	3200	620	.19*	530	.17*
WBL	2	2880	400	.14*	150	.05*
WBT	4	6400	1170	.18	1130	.18
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.71**		**.48**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		940		520	
SBT	0.5	2880	10	.33*	0	.18*
SBR	2	3200	160	.05	90	.03
EBL	0	0	0		0	
EBT	3	4800	730	.15	860	.18
EBR	2	3200	610	.19*	670	.21*
WBL	2	2880	410	.14*	140	.05*
WBT	4	6400	1410	.22	1100	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.76**		**.54**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		1110		540	
SBT	0.5	2880	10	.39*	0	.19*
SBR	2	3200	160	.05	40	.01
EBL	0	0	0		0	
EBT	3	4800	540	.11	780	.16
EBR	2	3200	520	.16*	730	.23*
WBL	2	2880	410	.14*	110	.04*
WBT	4	6400	1650	.26	1080	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.79**		**.56**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		1060		570	
SBT	0.5	2880	10	.37*	0	.20*
SBR	2	3200	160	.05	30	.01
EBL	0	0	0		0	
EBT	3	4800	570	.12	780	.16
EBR	2	3200	500	.16*	870	.27*
WBL	2	2880	400	.14*	100	.03*
WBT	4	6400	1690	.26	1100	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.60**

10. I-5 SB Ramps & Magic Mtn

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2.5		1350		610	
SBT	0.5	3904	10	.35*	0	.16*
SBR	1	1600	150	.09	70	.04
EBL	0	0	0		0	
EBT	3	4800	1090	.23*	1400	.29*
EBR	2	3200	680	.21	760	.24
WBL	2	2880	590	.20*	260	.09*
WBT	4	6400	1840	.29	1700	.27
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.88**		**.64**

11. I-5 NB Ramps & Magic Mtn

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	880	.25*	560	.16
NBT	0.5	3500	0	.15	0	.31*
NBR	1.5		530		1100	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	110	.03	150	.04
EBT	3	5250	1400	.27*	990	.19*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	680	.10	780	.13
WBR	1.5		110		400	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.62**		**.60**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	1000	.29*	540	.15
NBT	0.5	3500	0	.13	0	.29*
NBR	1.5		470		1010	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	120	.03	250	.07
EBT	3	5250	1570	.30*	1130	.22*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	810	.12	730	.14
WBR	1.5		150		490	.14
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.61**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	1160	.33*	530	.15
NBT	0.5	3500	0	.13	0	.30*
NBR	1.5		470		1040	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	60	.02	120	.03
EBT	3	5250	1630	.31*	1210	.23*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	920	.13	690	.13
WBR	1.5		140		510	.15
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.74**		**.63**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	1210	.35*	540	.15
NBT	0.5	3500	0	.14	0	.29*
NBR	1.5		480		1030	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	60	.02	120	.03
EBT	3	5250	1610	.31*	1250	.24*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	910	.13	680	.13
WBR	1.5		140		510	.15
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.76**		**.63**

11. I-5 NB Ramps & Magic Mtn

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	680	.19	470	.13
NBT	0.5	3500	0	.32*	0	.38*
NBR	1.5		1130		1330	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	70	.02	150	.04
EBT	3	5250	2370	.45*	1980	.38*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	1760	.25	1600	.24
WBR	1.5		360	.21	530	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.87**		**.86**

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2.5		680	.19*	470	.13*
NBT	0	7000	0		0	
NBR	1.5		1130	.32	1330	.38
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	70	.02	150	.04
EBT	3	5250	2370	.45*	1980	.38*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	1760	.25	1600	{.23}
WBR	1.5		360	.21	530	{.21}
Right Turn Adjustment			NBR	.13*	NBR	.25*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.87**		**.86**

12. I-5 SB ON/OFF Ramps & Valencia

Stage 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	680	.24	430	.15*
SBT	0	0	0		0	
SBR	1	1600	410	.26*	120	.08
EBL	0	0	0		0	
EBT	3	4800	520	.11	460	.10
EBR	f		580		140	
WBL	0	0	0		0	
WBT	2	3200	800	.25*	1320	.41*
WBR	f		1740		1560	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .61 .66

Stage 2a

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	730	.25*	440	.15*
SBT	0	0	0		0	
SBR	1	1600	390	.24	120	.08
EBL	0	0	0		0	
EBT	3	4800	520	.11	500	.10
EBR	f		530		130	
WBL	0	0	0		0	
WBT	2	3200	870	.27*	1290	.40*
WBR	f		1690		1510	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .62 .65

Stage 2b

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	700	.24*	440	.15*
SBT	0	0	0		0	
SBR	1	1600	370	.23	100	.06
EBL	0	0	0		0	
EBT	3	4800	520	.11	470	.10
EBR	f		500		170	
WBL	0	0	0		0	
WBT	2	3200	980	.31*	1310	.41*
WBR	f		1690		1580	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .65 .66

Stage 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	690	.24*	450	.16*
SBT	0	0	0		0	
SBR	1	1600	360	.23	100	.06
EBL	0	0	0		0	
EBT	3	4800	480	.10	440	.09
EBR	f		480		170	
WBL	0	0	0		0	
WBT	2	3200	1070	.33*	1230	.38*
WBR	f		1650		1520	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 .64

12. I-5 SB ON/OFF Ramps & Valencia

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	800	.28*	480	.17*
SBT	0	0	0		0	
SBR	1	1600	370	.23	70	.04
EBL	0	0	0		0	
EBT	3	4800	930	.19	1200	.25
EBR	f		1120		380	
WBL	0	0	0		0	
WBT	3	4800	1620	.34*	2300	.48*
WBR	f		1440		1260	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.72**		**.75**

14. I-5 SB ON/OFF Ramps & McBean

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	400	.25	200	.13
SBT	0	0	0		0	
SBR	1	1600	700	.44*	500	.31*
EBL	0	0	0		0	
EBT	2	3200	750	.23*	1110	.35
EBR	f		200		150	
WBL	0	0	0		0	
WBT	2	3200	240	.08	1300	.41*
WBR	1	1600	210	.13	460	.29
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.82**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	430	.27	210	.13
SBT	0	0	0		0	
SBR	1	1600	700	.44*	610	.38*
EBL	0	0	0		0	
EBT	2	3200	680	.21*	1140	.36
EBR	f		180		160	
WBL	0	0	0		0	
WBT	2	3200	250	.08	1310	.41*
WBR	1	1600	210	.13	620	.39
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.89**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	410	.26	220	.14
SBT	0	0	0		0	
SBR	1	1600	760	.48*	540	.34*
EBL	0	0	0		0	
EBT	2	3200	630	.20*	1150	.36
EBR	f		170		150	
WBL	0	0	0		0	
WBT	2	3200	290	.09	1230	.38
WBR	1	1600	200	.13	660	.41*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.78**		**.85**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	420	.26	240	.15
SBT	0	0	0		0	
SBR	1	1600	750	.47*	470	.29*
EBL	0	0	0		0	
EBT	2	3200	640	.20*	1200	.38
EBR	f		160		150	
WBL	0	0	0		0	
WBT	2	3200	290	.09	1270	.40
WBR	1	1600	180	.11	680	.43*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.82**

14. I-5 SB ON/OFF Ramps & McBean

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	490	.31	240	.15
SBT	0	0	0		0	
SBR	1	1600	670	.42*	320	.20*
EBL	0	0	0		0	
EBT	2	3200	830	.26*	1130	.35
EBR	1	1600	150	.09	140	.09
WBL	0	0	0		0	
WBT	2	3200	280	.09	1450	.45*
WBR	1	1600	160	.10	520	.33
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .78 .75

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	490	.17	240	.08
SBT	0	0	0		0	
SBR	1	1600	670	.42*	320	.20*
EBL	0	0	0		0	
EBT	2	3200	830	.26*	1130	.35
EBR	1	1600	150	.09	140	.09
WBL	0	0	0		0	
WBT	2	3200	280	.09	1450	.45*
WBR	1	1600	160	.10	520	.33
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .78 .75

16. I-5 SB ON/OFF Ramps & Pico Canyon/Lyons

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		250		460	
SBT	0.5	2880	60	.11	160	.22*
SBR	1	1600	400	.25*	80	.05
EBL	0	0	0		0	
EBT	3	4800	1610	.34*	740	.17
EBR	0	0	40		60	
WBL	1	1600	40	.03*	70	.04
WBT	2	3200	760	.24	1160	.36*
WBR	1	1600	160	.10	370	.23
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .72 .68

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		280		460	
SBT	0.5	2880	60	.12	130	.20*
SBR	1	1600	410	.26*	70	.04
EBL	0	0	0		0	
EBT	3	4800	1620	.35*	880	.19
EBR	0	0	40		50	
WBL	1	1600	40	.03*	60	.04
WBT	2	3200	770	.24	1210	.38*
WBR	1	1600	200	.13	500	.31
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .74 .68

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		260		440	
SBT	0.5	2880	60	.11	130	.20*
SBR	1	1600	390	.24*	70	.04
EBL	0	0	0		0	
EBT	3	4800	1560	.33*	770	.17
EBR	0	0	40		50	
WBL	1	1600	40	.03*	60	.04
WBT	2	3200	770	.24	1110	.35*
WBR	1	1600	180	.11	410	.26
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .70 .65

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		250		460	
SBT	0.5	2880	60	.11	100	.19*
SBR	1	1600	380	.24*	70	.04
EBL	0	0	0		0	
EBT	3	4800	1520	.33*	830	.18
EBR	0	0	40		50	
WBL	1	1600	40	.03*	60	.04
WBT	2	3200	790	.25	1010	.32*
WBR	1	1600	170	.11	350	.22
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .70 .61

16. I-5 SB ON/OFF Ramps & Pico Canyon/Lyons

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		330		380	
SBT	0.5	2880	70	.14	90	.16*
SBR	1	1600	380	.24*	80	.05
EBL	0	0	0		0	
EBT	3	4800	1600	.34*	1520	.33
EBR	0	0	30		50	
WBL	1	1600	40	.03*	50	.03
WBT	2	3200	950	.30	1340	.42*
WBR	1	1600	150	.09	280	.18
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .71 .68

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1600	40	.03	20	.01
SBL	1.5		330		380	
SBT	0.5	2880	70	.14	90	.16*
SBR	1	1600	380	.24*	80	.05
EBL	0	0	0		0	
EBT	3	4800	1600	.34*	1520	.33
EBR	0	0	30		50	
WBL	1	1600	40	.03*	50	.03
WBT	2	3200	950	.30	1340	.42*
WBR	1	1600	150	.09	280	.18
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .71 .68

17. I-5 NB ON/OFF Ramps & Lyons

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		110	{.03}*	420	{.12}*
NBT	0.5	3500	10	.03	0	.12
NBR	f		160		370	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	240	.14	300	.17*
EBT	2	3500	1110	.32*	890	.25
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	590	.17	790	.23*
WBR	0	0	510	.29	560	.32
Right Turn Adjustment			WBR	.11*	WBR	.09*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .56 .71

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		120	{.04}*	390	{.11}*
NBT	0.5	3500	10	.04	0	.11
NBR	f		180		360	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	230	.13	280	.16*
EBT	2	3500	1190	.34*	970	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	630	.18	820	.23*
WBR	0	0	540	.31	630	.36
Right Turn Adjustment			WBR	.10*	WBR	.13*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .58 .73

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		110	{.03}*	380	{.11}*
NBT	0.5	3500	10	.03	0	.11
NBR	f		180		350	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	190	.11	290	.17*
EBT	2	3500	1170	.33*	950	.27
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	620	.18	820	.23*
WBR	0	0	570	.33	630	.36
Right Turn Adjustment			WBR	.11*	WBR	.13*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .57 .74

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		120	{.04}*	370	{.11}*
NBT	0.5	3500	10	.04	0	.11
NBR	f		190		350	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	180	.10	290	.17*
EBT	2	3500	1150	.33*	950	.27
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	620	.18	830	.24*
WBR	0	0	580	.33	620	.35
Right Turn Adjustment			WBR	.10*	WBR	.11*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .57 .73

17. I-5 NB ON/OFF Ramps & Lyons

Stage 4a

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		100	{.03}*	320	{.09}*
NBT	0.5	3500	10	.03	0	.09
NBR	f		110		240	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	210	.12	230	.13*
EBT	2	3500	1290	.37*	1110	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	770	.22	810	.23*
WBR	0	0	550	.31	650	.37
Right Turn Adjustment			WBR	.06*	WBR	.14*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.69**

Stage 4b

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		100	{.03}*	320	{.09}*
NBT	0.5	3500	10	.03	0	.09
NBR	f		110		240	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	210	.12	230	.13*
EBT	2	3500	1290	.37*	1110	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1.5	5250	770	.25	810	.28*
WBR	1.5		550		650	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.60**

25. Old Road & Rye Canyon

Stage 1
AM Peak Hour

	SBT	SBL	WBR
A	↓	↳	⬑
	0.12	0.12	0.12
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.21	0.21
	WBL	WBR	NBR
C	⬐	⬑	↱
	0.14	0.20	0.16
Clearance		0.10	
Total ICU		**0.63**	

Stage 1
PM Peak Hour

	SBT	SBL	WBR
A	↓	↳	⬑
	0.15	0.25	0.25
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.13	0.13
	WBL	WBR	NBR
C	⬐	⬑	↱
	0.43	0.25	0.23
Clearance		0.10	
Total ICU		**0.91**	

Movement Totals:	Vol	Cap	V/C
NBT	670	3200	0.21
NBR	1180	3200	0.37
SBL	350	2880	0.12
SBT	370	3200	0.12
WBL	230	1600	0.14
WBR	1020	3200	0.32

Movement Totals:	Vol	Cap	V/C
NBT	420	3200	0.13
NBR	1140	3200	0.36
SBL	720	2880	0.25
SBT	490	3200	0.15
WBL	680	1600	0.43
WBR	1610	3200	0.50

25. Old Road & Rye Canyon

Stage 2a
AM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.10	0.13	0.13
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.15	0.21
	WBL	WBR	NBR
C	↲	↰	↱
	0.08	0.17	0.17
Clearance		0.10	
Total ICU		**0.61**	

Stage 2a
PM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.08	0.27	0.27
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.05	0.10
	WBL	WBR	NBR
C	↲	↰	↱
	0.18	0.30	0.30
Clearance		0.10	
Total ICU		**0.77**	

Movement Totals:	Vol	Cap	
NBT	740	4800	0.15
NBR	1210	3200	0.38
SBL	380	2880	0.13
SBT	500	4800	0.10
WBL	330	3904	0.08
WBR	950	3200	0.30

Movement Totals:	Vol	Cap	
NBT	230	4800	0.05
NBR	1280	3200	0.40
SBL	780	2880	0.27
SBT	360	4800	0.08
WBL	700	3904	0.18
WBR	1830	3200	0.57

25. Old Road & Rye Canyon

Stage 2b
AM Peak Hour

	SBT	SBL	WBR
A			
	0.07	0.14	0.14
	SBT	NBT	NBR
B			
	0.00	0.09	0.13
	WBL	WBR	NBR
C			
	0.08	0.19	0.19
Clearance		0.10	
Total ICU		**0.56**	

Stage 2b
PM Peak Hour

	SBT	SBL	WBR
A			
	0.03	0.27	0.27
	SBT	NBT	NBR
B			
	0.00	0.03	0.15
	WBL	WBR	NBR
C			
	0.16	0.25	0.25
Clearance		0.10	
Total ICU		**0.77**	

Movement Totals:	Vol	Cap	
NBT	440	4800	0.09
NBR	1020	3200	0.32
SBL	390	2880	0.14
SBT	330	4800	0.07
WBL	300	3904	0.08
WBR	1050	3200	0.33

Movement Totals:	Vol	Cap	
NBT	150	4800	0.03
NBR	1270	3200	0.40
SBL	780	2880	0.27
SBT	140	4800	0.03
WBL	610	3904	0.16
WBR	1660	3200	0.52

25. Old Road & Rye Canyon

Stage 3
AM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.07	0.13	0.13
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.10	0.11
	WBL	WBR	NBR
C	↲	↰	↱
	0.08	0.20	0.20
Clearance		0.10	
Total ICU		**0.54**	

Stage 3
PM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.03	0.30	0.30
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.03	0.21
	WBL	WBR	NBR
C	↲	↰	↱
	0.18	0.18	0.18
Clearance		0.10	
Total ICU		**0.79**	

Movement Totals:	Vol	Cap	
NBT	490	4800	0.10
NBR	1000	3200	0.31
SBL	370	2880	0.13
SBT	330	4800	0.07
WBL	310	3904	0.08
WBR	1060	3200	0.33

Movement Totals:	Vol	Cap	
NBT	140	4800	0.03
NBR	1240	3200	0.39
SBL	850	2880	0.30
SBT	130	4800	0.03
WBL	710	3904	0.18
WBR	1530	3200	0.48

25. Old Road & Rye Canyon

Stage 4a
AM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.09	0.13	0.13
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.12	0.12
	WBL	WBR	NBR
C	↙	↰	↱
	0.06	0.18	0.18
Clearance		0.10	
Total ICU		**0.53**	

Stage 4a
PM Peak Hour

	SBT	SBL	WBR
A	↓	↳	↰
	0.12	0.29	0.29
	SBT	NBT	NBR
B	↓	↑	↱
	0.00	0.11	0.11
	WBL	WBR	NBR
C	↙	↰	↱
	0.22	0.26	0.22
Clearance		0.10	
Total ICU		**0.76**	

Movement Totals:	Vol	Cap	
NBT	570	4800	0.12
NBR	970	3200	0.30
SBL	370	2880	0.13
SBT	450	4800	0.09
WBL	240	3904	0.06
WBR	1000	3200	0.31

Movement Totals:	Vol	Cap	
NBT	530	4800	0.11
NBR	1050	3200	0.33
SBL	830	2880	0.29
SBT	580	4800	0.12
WBL	860	3904	0.22
WBR	1770	3200	0.55

26. The Old Rd & Magic Mountain

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	190	.07*	140	.05*
NBT	3	4800	370	.08	450	.09
NBR	1	1600	170	.11	140	.09
SBL	2	2880	130	.05	280	.10
SBT	3	4800	150	.03	240	.05
SBR	1	1600	350	.22*	1140	.71*
EBL	2	2880	770	.27*	530	.18*
EBT	5	8000	1250	.16	1190	.15
EBR	1	1600	60	.04	160	.10
WBL	2	2880	140	.05	60	.02
WBT	4	6400	350	.05*	520	.08*
WBR	f		1070		740	
Right Turn Overlap Adjustment				-.22*		-.18*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .49 .94

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	260	.09*	140	.05*
NBT	3	4800	440	.09	440	.09
NBR	1	1600	170	.11	160	.10
SBL	2	2880	140	.05	160	.06
SBT	2	3200	150	.05	250	.08
SBR	2	3200	580	.18*	1110	.35*
EBL	2	2880	740	.26*	570	.20*
EBT	5	8000	1290	.16	1670	.21
EBR	1	1600	60	.04	170	.11
WBL	2	2880	150	.05	70	.02
WBT	4	6400	550	.09*	630	.10*
WBR	f		1140		640	
Right Turn Overlap Adjustment				-.18*		-.20*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .54 .60

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	500	.17*	170	.06*
NBT	3	4800	300	.06	420	.09
NBR	1	1600	150	.09	150	.09
SBL	2	2880	140	.05	150	.05
SBT	3	4800	140	.03	250	.05
SBR	1	1600	410	.26*	710	.44*
EBL	2	2880	340	.12*	510	.18*
EBT	5	8000	1010	.13	1650	.21
EBR	1	1600	60	.04	210	.13
WBL	2	2880	150	.05	60	.02
WBT	4	6400	810	.13*	600	.09*
WBR	f		1180		600	
Right Turn Overlap Adjustment				-.12*		-.18*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .66 .69

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	540	.19*	150	.05*
NBT	3	4800	290	.06	410	.09
NBR	1	1600	160	.10	160	.10
SBL	2	2880	140	.05	160	.06
SBT	3	4800	140	.03	330	.07
SBR	1	1600	420	.26*	740	.46*
EBL	2	2880	330	.11*	510	.18*
EBT	5	8000	1000	.13	1790	.22
EBR	1	1600	60	.04	220	.14
WBL	2	2880	140	.05	60	.02
WBT	4	6400	820	.13*	610	.10*
WBR	f		1230		600	
Right Turn Overlap Adjustment				-.11*		-.18*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .68 .71

26. The Old Rd & Magic Mountain

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	470	.16*	190	.07*
NBT	3	4800	230	.05	610	.13
NBR	1	1600	130	.08	140	.09
SBL	2	2880	440	.15	680	.24
SBT	3	4800	150	.03	430	.09
SBR	1	1600	310	.19*	740	.46*
EBL	2	2880	570	.20*	370	.13*
EBT	5	8000	1520	.19	1990	.25
EBR	1	1600	120	.08	360	.23
WBL	2	2880	130	.05	80	.03
WBT	4	6400	910	.14*	940	.15*
WBR	f		1270		930	
Right Turn Overlap Adjustment				-.19*		-.13*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .60 .78

28. Old Road & Stevenson Ranch

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06*	210	.13*
NBT	3	4800	430	.09	410	.09
NBR	1	1600	100	.06	500	.31
SBL	1	1600	150	.09	90	.06
SBT	2	3200	250	.08	650	.20*
SBR	1	1600	300	.19*	310	.19
EBL	2	2880	720	.25*	130	.05*
EBT	3	4800	760	.16	440	.09
EBR	1	1600	190	.12	160	.10
WBL	2	2880	260	.09	670	.23
WBT	2	3200	570	.21*	980	.36*
WBR	0	0	100		160	
Right Turn Overlap Adjustment						
			SBR	-.07*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .74 .84

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06*	210	.13*
NBT	3	4800	480	.10	410	.09
NBR	1	1600	90	.06	510	.32
SBL	1	1600	170	.11	110	.07
SBT	3	4800	250	.05	760	.16
SBR	1	1600	300	.19*	300	.19*
EBL	2	2880	880	.31*	160	.06*
EBT	3	4800	650	.14	440	.09
EBR	1	1600	180	.11	150	.09
WBL	2	2880	270	.09	720	.25
WBT	2	3200	560	.18*	1040	.33*
WBR	1	1600	140	.09	160	.10
Right Turn Overlap Adjustment						
			SBR	-.04*	SBR	-.06*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .80 .75

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	100	.06*	200	.13*
NBT	3	4800	560	.12	400	.08
NBR	1	1600	90	.06	500	.31
SBL	1	1600	160	.10	110	.07
SBT	3	4800	240	.05	790	.16
SBR	1	1600	320	.20*	490	.31*
EBL	2	2880	990	.34*	140	.05
EBT	3	4800	600	.13	450	.09*
EBR	1	1600	180	.11	130	.08
WBL	2	2880	280	.10	730	.25*
WBT	2	3200	590	.18*	880	.28
WBR	1	1600	190	.12	140	.09
Right Turn Overlap Adjustment						
			SBR	-.04*	SBR	-.05*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .84 .83

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06	200	.13*
NBT	3	4800	590	.12*	380	.08
NBR	1	1600	100	.06	500	.31
SBL	1	1600	160	.10*	110	.07
SBT	3	4800	250	.05	810	.17
SBR	1	1600	300	.19	530	.33*
EBL	2	2880	1010	.35*	100	.03
EBT	3	4800	580	.12	490	.10*
EBR	1	1600	170	.11	130	.08
WBL	2	2880	270	.09	770	.27*
WBT	2	3200	590	.18*	830	.26
WBR	1	1600	180	.11	130	.08
Right Turn Overlap Adjustment						
					SBR	-.03*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .85 .90

28. Old Road & Stevenson Ranch

Stage 4a

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05	180	.11*
NBT	3	4800	580	.12*	500	.10
NBR	1	1600	90	.06	490	.31
SBL	1	1600	270	.17*	190	.12
SBT	3	4800	290	.06	1080	.23*
SBR	1	1600	300	.19	330	.21
EBL	2	2880	700	.24*	170	.06*
EBT	3	4800	690	.14	380	.08
EBR	1	1600	170	.11	110	.07
WBL	2	2880	260	.09	640	.22
WBT	2	3200	540	.17*	870	.27*
WBR	1	1600	150	.09	250	.16
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .80 .77

37. Tourney & Magic Mountain

```
Stage 1

                              AM PK HOUR     PM PK HOUR
       LANES  CAPACITY       VOL    V/C     VOL    V/C

NBL      2      3500        140    .04*    220    .06*
NBT      0         0          0              0
NBR      1      1750         90    .05     230    .13

SBL      0         0          0              0
SBT      0         0          0              0
SBR      0         0          0              0

EBL      0         0          0              0
EBT      3      5250       1660    .32*   1630    .31*
EBR      1      1750        280    .16     400    .23

WBL      1      1750        500    .29*    150    .09*
WBT      3      5250        640    .12     940    .18
WBR      0         0          0              0

Clearance Interval                 .10*           .10*

TOTAL CAPACITY UTILIZATION         .75            .56
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Stage 2a

                              AM PK HOUR     PM PK HOUR
       LANES  CAPACITY       VOL    V/C     VOL    V/C

NBL      2      3500        160    .05*    240    .07*
NBT      0         0          0              0
NBR      1      1750         90    .05     230    .13

SBL      0         0          0              0
SBT      0         0          0              0
SBR      0         0          0              0

EBL      0         0          0              0
EBT      3      5250       1750    .33*   1670    .32*
EBR      1      1750        280    .16     410    .23

WBL      1      1750        510    .29*    150    .09*
WBT      3      5250        790    .15     980    .19
WBR      0         0          0              0

Clearance Interval                 .10*           .10*

TOTAL CAPACITY UTILIZATION         .77            .58
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Stage 2b

                              AM PK HOUR     PM PK HOUR
       LANES  CAPACITY       VOL    V/C     VOL    V/C

NBL      2      3500        150    .04*    190    .05*
NBT      0         0          0              0
NBR      1      1750         90    .05     240    .14

SBL      0         0          0              0
SBT      0         0          0              0
SBR      0         0          0              0

EBL      0         0          0              0
EBT      3      5250       1820    .35*   1760    .34*
EBR      1      1750        280    .16     420    .24

WBL      1      1750        510    .29*    140    .08*
WBT      3      5250        880    .17     990    .19
WBR      0         0          0              0

Right Turn Adjustment                      NBR    .03*
Clearance Interval                 .10*           .10*

TOTAL CAPACITY UTILIZATION         .78            .60
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Stage 3

                              AM PK HOUR     PM PK HOUR
       LANES  CAPACITY       VOL    V/C     VOL    V/C

NBL      2      3500        140    .04*    190    .05*
NBT      0         0          0              0
NBR      1      1750         90    .05     230    .13

SBL      0         0          0              0
SBT      0         0          0              0
SBR      0         0          0              0

EBL      0         0          0              0
EBT      3      5250       1810    .34*   1790    .34*
EBR      1      1750        280    .16     420    .24

WBL      1      1750        510    .29*    150    .09*
WBT      3      5250        890    .17     980    .19
WBR      0         0          0              0

Right Turn Adjustment                      NBR    .01*
Clearance Interval                 .10*           .10*

TOTAL CAPACITY UTILIZATION         .77            .59
```

37. Tourney & Magic Mountain

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	140	.08*	160	.09*
NBT	2	3500	110	.05	160	.09
NBR	0	0	60		190	.11
SBL	1	1750	20	.01	90	.05
SBT	2	3500	150	.04*	270	.08*
SBR	2	3500	610	.17	750	.21
EBL	2	3500	880	.25	510	.15
EBT	4	7000	2280	.37*	2320	.38*
EBR	0	0	310		350	
WBL	1	1750	460	.26*	120	.07*
WBT	3	5250	1380	.27	1110	.22
WBR	0	0	60		40	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.85**		**.72**

45. McBean & Magic Mountain

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	40	.01*	130	.04
NBT	4	7000	1370	.20	2000	.29*
NBR	f		10		90	
SBL	2	3500	200	.06	150	.04*
SBT	4	7000	2110	.30*	1930	.28
SBR	f		870		210	
EBL	3	5250	740	.14	730	.14
EBT	2	3500	640	.18*	840	.24*
EBR	1	1750	30	.02	180	.10
WBL	2	3500	10	.00	160	.05*
WBT	3	5250	180	.03	740	.14
WBR	1	1750	150	.09	340	.19
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .59 .72

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	40	.01*	80	.02
NBT	4	7000	1390	.20	1980	.28*
NBR	f		10		80	
SBL	2	3500	220	.06	290	.08*
SBT	4	7000	2140	.31*	1930	.28
SBR	f		950		200	
EBL	3	5250	680	.13	730	.14
EBT	2	3500	750	.21*	880	.25*
EBR	1	1750	30	.02	150	.09
WBL	2	3500	10	.00	160	.05*
WBT	3	5250	220	.04	860	.16
WBR	1	1750	150	.09	540	.31
Right Turn Adjustment					WBR	.07*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .63 .83

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	50	.01*	120	.03
NBT	4	7000	1440	.21	2080	.30*
NBR	f		10		90	
SBL	2	3500	220	.06	70	.02*
SBT	4	7000	2150	.31*	2010	.29
SBR	f		980		190	
EBL	3	5250	750	.14	690	.13
EBT	2	3500	740	.21*	970	.28*
EBR	1	1750	30	.02	190	.11
WBL	2	3500	10	.00	160	.05*
WBT	3	5250	270	.05	820	.16
WBR	1	1750	160	.09	470	.27
Right Turn Adjustment					WBR	.05*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .63 .80

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	40	.01*	160	.05
NBT	4	7000	1440	.21	2170	.31*
NBR	f		10		100	
SBL	2	3500	210	.06	100	.03*
SBT	4	7000	2100	.30*	1980	.28
SBR	f		960		210	
EBL	3	5250	750	.14	660	.13
EBT	2	3500	730	.21*	1000	.29*
EBR	1	1750	30	.02	190	.11
WBL	2	3500	10	.00	160	.05*
WBT	3	5250	300	.06	780	.15
WBR	1	1750	160	.09	350	.20
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .62 .78

45. McBean & Magic Mountain

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	70	.02*	80	.02
NBT	4	7000	1180	.17	2100	.30*
NBR	f		10		60	
SBL	2	3500	190	.05	40	.01*
SBT	4	7000	1820	.26*	1780	.25
SBR	f		900		120	
EBL	3	5250	770	.15*	580	.11
EBT	2	3500	1010	.29	1470	.42*
EBR	1	1750	40	.02	260	.15
WBL	2	3500	10	.00	130	.04*
WBT	3	5250	750	.14*	1030	.20
WBR	1	1750	560	.32	50	.03
Right Turn Adjustment			WBR	.08*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .75 .87

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	70	.02*	80	.02
NBT	4	7000	1180	.17	2100	.30*
NBR	f		10		60	
SBL	2	3500	190	.05	40	.01*
SBT	4	7000	1820	.26*	1780	.25
SBR	f		900		120	
EBL	3	5250	770	.15*	580	.11
EBT	3	5250	1010	.19	1470	.28*
EBR	1	1750	40	.02	260	.15
WBL	2	3500	10	.00	130	.04*
WBT	3	5250	750	.14*	1030	.20
WBR	1	1750	560	.32	50	.03
Right Turn Adjustment			WBR	.08*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .75 .73

48. McBean & Newhall Ranch

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	90	.03*	500	.14
NBT	3	5250	690	.13	1630	.31*
NBR	1	1750	290	.17	540	.31
SBL	2	3500	400	.11	160	.05*
SBT	4	7000	2310	.33*	1100	.16
SBR	f		140		40	
EBL	2	3500	130	.04*	390	.11
EBT	4	7000	610	.09	1850	.26*
EBR	1	1750	190	.11	590	.34
WBL	2	3500	520	.15	450	.13*
WBT	4	7000	1940	.28*	810	.12
WBR	1	1750	70	.04	220	.13
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .85

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	60	.02*	540	.15
NBT	3	5250	680	.13	1660	.32*
NBR	1	1750	300	.17	590	.34
SBL	2	3500	430	.12	140	.04*
SBT	4	7000	2340	.33*	1000	.14
SBR	f		130		40	
EBL	2	3500	110	.03*	350	.10
EBT	4	7000	680	.10	1880	.27*
EBR	1	1750	180	.10	680	.39
WBL	2	3500	520	.15	410	.12*
WBT	4	7000	2130	.30*	960	.14
WBR	1	1750	100	.06	280	.16
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .85

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	200	.06*	550	.16
NBT	3	5250	680	.13	1640	.31*
NBR	1	1750	410	.23	650	.37
SBL	2	3500	390	.11	110	.03*
SBT	4	7000	2360	.34*	1010	.14
SBR	f		160		40	
EBL	2	3500	110	.03*	390	.11
EBT	4	7000	540	.08	2000	.29*
EBR	1	1750	180	.10	670	.38
WBL	2	3500	600	.17	420	.12*
WBT	4	7000	2130	.30*	900	.13
WBR	1	1750	90	.05	260	.15
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .83 .85

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	50	.01*	530	.15
NBT	3	5250	710	.14	1610	.31*
NBR	1	1750	390	.22	610	.35
SBL	2	3500	410	.12	100	.03*
SBT	4	7000	2300	.33*	990	.14
SBR	f		170		40	
EBL	2	3500	90	.03*	460	.13
EBT	4	7000	530	.08	2120	.30*
EBR	1	1750	180	.10	680	.39
WBL	2	3500	550	.16	430	.12*
WBT	4	7000	2260	.32*	880	.13
WBR	1	1750	80	.05	260	.15
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .79 .86

48. McBean & Newhall Ranch

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	410	.12*	700	.20*
NBT	3	5250	590	.11	1670	.32
NBR	1	1750	490	.28	530	.30
SBL	2	3500	320	.09	50	.01
SBT	4	7000	2070	.30*	930	.13*
SBR	f		310		30	
EBL	2	3500	130	.04*	440	.13
EBT	4	7000	530	.08	2160	.31*
EBR	1	1750	390	.22	640	.37
WBL	2	3500	720	.21	360	.10*
WBT	4	7000	1840	.26*	1260	.18
WBR	1	1750	50	.03	250	.14
Right Turn Adjustment			EBR	.04*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .86 .84

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	410	.12*	700	.20*
NBT	3	5250	590	.11	1670	.32
NBR	2	3500	490	.14	530	.15
SBL	2	3500	320	.09	50	.01
SBT	4	7000	2070	.30*	930	.13*
SBR	f		310		30	
EBL	2	3500	130	.04*	440	.13
EBT	4	7000	530	.08	2160	.31*
EBR	1	1750	390	.22	640	.37
WBL	2	3500	720	.21	360	.10*
WBT	4	7000	1840	.26*	1260	.18
WBR	1	1750	50	.03	250	.14
Right Turn Adjustment			EBR	.04*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .86 .84

57. Valencia & Magic Mountain

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	10	.01*	70	.04
NBT	3	5250	870	.17	1610	.31*
NBR	1	1750	120	.07	240	.14
SBL	1	1750	20	.01	70	.04*
SBT	3	5250	1870	.36*	1160	.22
SBR	2	3500	160	.05	730	.21
EBL	2	3500	320	.09*	580	.17*
EBT	2	3500	280	.08	850	.26
EBR	0	0	10		50	
WBL	2	3500	290	.08	270	.08
WBT	2	3500	820	.27*	620	.19*
WBR	0	0	110		50	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .83 .81

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	10	.01*	70	.04
NBT	3	5250	940	.18	1790	.34*
NBR	1	1750	140	.08	320	.18
SBL	1	1750	30	.02	70	.04*
SBT	3	5250	1910	.36*	1610	.31
SBR	2	3500	220	.06	680	.19
EBL	2	3500	370	.11*	490	.14
EBT	2	3500	330	.10	860	.26*
EBR	0	0	10		50	
WBL	2	3500	340	.10	320	.09*
WBT	2	3500	930	.30*	630	.19
WBR	0	0	130		50	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .88 .83

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	10	.01*	70	.04
NBT	3	5250	900	.17	1700	.32*
NBR	1	1750	140	.08	280	.16
SBL	1	1750	30	.02	70	.04*
SBT	3	5250	1920	.37*	1420	.27
SBR	2	3500	270	.08	820	.23
EBL	2	3500	370	.11*	640	.18*
EBT	2	3500	320	.09	890	.27
EBR	0	0	10		50	
WBL	2	3500	390	.11	290	.08
WBT	2	3500	890	.29*	680	.21*
WBR	0	0	130		50	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .88 .85

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	10	.01*	70	.04
NBT	3	5250	900	.17	1810	.34*
NBR	1	1750	140	.08	310	.18
SBL	1	1750	30	.02	60	.03*
SBT	3	5250	1960	.37*	1320	.25
SBR	2	3500	290	.08	930	.27
EBL	2	3500	370	.11*	540	.15
EBT	2	3500	310	.09	910	.27*
EBR	0	0	10		50	
WBL	2	3500	340	.10	320	.09*
WBT	2	3500	940	.31*	650	.20
WBR	0	0	130		40	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .90 .83

57. Valencia & Magic Mountain

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1750	10	.01*	80	.05
NBT	3	5250	840	.16	1570	.30*
NBR	1	1750	330	.19	680	.39
SBL	1	1750	50	.03	90	.05*
SBT	3	5250	1810	.34*	1520	.29
SBR	2	3500	320	.09	280	.08
EBL	2	3500	310	.09*	420	.12*
EBT	3	5250	590	.11	1400	.28
EBR	0	0	10		50	
WBL	2	3500	790	.23	460	.13
WBT	2	3500	1640	.47*	1140	.33*
WBR	1	1750	180	.10	60	.03
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION 1.01 .90

66. Bouquet Cyn & Newhall Ranch

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	270	.08*	510	.15
NBT	4	7000	680	.10	1810	.26*
NBR	1	1750	170	.10	660	.38
SBL	2	3500	290	.08	350	.10*
SBT	4	7000	2550	.36*	900	.13
SBR	1	1750	320	.18	180	.10
EBL	3	5250	110	.02	780	.15
EBT	4	7000	830	.12*	1340	.19*
EBR	1	1750	360	.21	470	.27
WBL	2	3500	530	.15*	640	.18*
WBT	4	7000	1710	.24	940	.13
WBR	1	1750	60	.03	480	.27
Right Turn Adjustment			EBR	.01*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .82 .83

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	320	.09*	500	.14
NBT	4	7000	690	.10	2240	.32*
NBR	1	1750	170	.10	730	.42
SBL	2	3500	390	.11	260	.07*
SBT	4	7000	2670	.38*	1710	.24
SBR	1	1750	280	.16	150	.09
EBL	3	5250	100	.02*	780	.15*
EBT	4	7000	850	.12	1410	.20
EBR	1	1750	440	.25	340	.19
WBL	2	3500	580	.17	330	.09
WBT	4	7000	1920	.27*	1060	.15*
WBR	1	1750	60	.03	450	.26
Right Turn Adjustment			EBR	.04*	Multi	.08*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .90 .87

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	330	.09*	470	.13
NBT	4	7000	650	.09	2160	.31*
NBR	1	1750	160	.09	740	.42
SBL	2	3500	320	.09	280	.08*
SBT	4	7000	2710	.39*	1720	.25
SBR	1	1750	290	.17	150	.09
EBL	3	5250	90	.02*	820	.16*
EBT	4	7000	810	.12	1540	.22
EBR	1	1750	390	.22	300	.17
WBL	2	3500	590	.17	330	.09
WBT	4	7000	1940	.28*	1030	.15*
WBR	1	1750	70	.04	460	.26
Right Turn Adjustment					Multi	.09*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .88 .89

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	330	.09*	440	.13
NBT	4	7000	660	.09	2130	.30*
NBR	1	1750	170	.10	720	.41
SBL	2	3500	330	.09	270	.08*
SBT	4	7000	2690	.38*	1720	.25
SBR	1	1750	340	.19	150	.09
EBL	3	5250	100	.02*	780	.15
EBT	4	7000	810	.12	1650	.24*
EBR	1	1750	400	.23	310	.18
WBL	2	3500	570	.16	330	.09*
WBT	4	7000	1980	.28*	1050	.15
WBR	1	1750	70	.04	440	.25
Right Turn Adjustment					Multi	.05*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .87 .86

66. Bouquet Cyn & Newhall Ranch

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3500	180	.05*	450	.13*
NBT	4	7000	460	.07	2030	.29
NBR	1	1750	130	.07	460	.26
SBL	2	3500	50	.01	60	.02
SBT	4	7000	2120	.30*	1340	.19*
SBR	1	1750	440	.25	180	.10
EBL	3	5250	100	.02	990	.19*
EBT	4	7000	960	.14*	1530	.22
EBR	1	1750	220	.13	250	.14
WBL	2	3500	490	.14*	330	.09
WBT	4	7000	1760	.25	1280	.18*
WBR	1	1750	10	.01	60	.03
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR EBR

TOTAL CAPACITY UTILIZATION .73 .79

80. Wolcott & SR-126

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01
SBT	0.5	2880	10	.01	10	.01
SBR	1	1600	20	.01	60	.04*
EBL	1	1600	120	.08*	70	.04*
EBT	2	3200	900	.28	880	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01	10	.01
WBT	2	3200	820	.26*	1140	.36*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.54**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01
SBT	0.5	2880	10	.01	10	.01
SBR	1	1600	20	.01	60	.04*
EBL	1	1600	110	.07	50	.03*
EBT	2	3200	1020	.32*	900	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01*	10	.01
WBT	2	3200	830	.26	1250	.39*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.56**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01
SBT	0.5	2880	10	.01	10	.01
SBR	1	1600	20	.01	60	.04*
EBL	1	1600	110	.07	40	.03*
EBT	2	3200	1070	.34*	890	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01*	10	.01
WBT	2	3200	830	.26	1320	.41*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.48**		**.58**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02*
NBR	0	0	10		10	
SBL	1.5		20	{.01}*	60	{.02}*
SBT	0.5	2880	10	.01	10	.02
SBR	1	1600	20	.01	70	.04
EBL	1	1600	120	.08	50	.03*
EBT	2	3200	1060	.33*	880	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01*	10	.01
WBT	2	3200	810	.25	1300	.41*
WBR	1	1600	60	.04	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.58**

80. Wolcott & SR-126

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	10	.01	10	.01*
NBT	1	1600	90	.06*	50	.03
NBR	2	3200	300	.09	460	.14
SBL	2	2880	30	.01*	150	.05
SBT	1	1600	10	.01	90	.06
SBR	1	1600	40	.03	530	.33*
EBL	2	2880	690	.24*	70	.02
EBT	4	6400	2360	.37	2130	.33*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	270	.09	490	.17*
WBT	4	6400	2100	.33*	2730	.43
WBR	1	1600	160	.10	10	.01
Right Turn Overlap Adjustment					SBR	-.02*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .74 .92

81. Commerce Ctr & Henry Mayo

Stage 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	50	.02*	180	.06*
SBT	0	0	0		0	
SBR	1	1600	40	.03	60	.04
EBL	1	1600	20	.01*	20	.01*
EBT	2	3200	60	.02	30	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01	10	.01
WBR	1	1600	110	.07*	160	.10*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.20**		**.27**

Stage 2a

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	70	.02*	240	.08*
SBT	0	0	0		0	
SBR	1	1600	40	.03	70	.04
EBL	1	1600	50	.03*	30	.02*
EBT	2	3200	60	.02	20	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01	10	.01
WBR	1	1600	150	.09*	160	.10*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.24**		**.30**

Stage 2b

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	10	.01	20	.01
NBT	3	4800	1090	.23*	1290	.28*
NBR	0	0	10		50	
SBL	2	2880	50	.02*	110	.04*
SBT	2	3200	710	.22	870	.27
SBR	1	1600	40	.03	50	.03
EBL	1	1600	40	.03	10	.01
EBT	2	3200	60	.02	10	.00
EBR	1	1600	120	.08*	60	.04*
WBL	1.5		20		40	
WBT	0.5	2880	10	.01	10	.02
WBR	1	1600	50	.03*	160	.10*
Clearance Interval				.10*		.10*
Note: Assumes E/W Split Phasing						
TOTAL CAPACITY UTILIZATION				**.46**		**.56**

Stage 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	20	.01	20	.01*
NBT	3	4800	1270	.27*	1140	.25
NBR	0	0	10		50	
SBL	2	2880	50	.02*	120	.04
SBT	2	3200	700	.22	910	.28*
SBR	1	1600	40	.03	50	.03
EBL	1	1600	40	.03	10	.01
EBT	2	3200	60	.02	10	.00
EBR	1	1600	120	.08*	60	.04*
WBL	1.5		20		40	
WBT	0.5	2880	10	.01	10	.02
WBR	1	1600	50	.03*	160	.10*
Clearance Interval				.10*		.10*
Note: Assumes E/W Split Phasing						
TOTAL CAPACITY UTILIZATION				**.50**		**.53**

81. Commerce Ctr & Henry Mayo

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	10	.01	20	.01
NBT	3	4800	1290	.29*	1360	.32*
NBR	0	0	90		190	
SBL	2	2880	90	.03*	240	.08*
SBT	2	3200	520	.16	930	.29
SBR	1	1600	40	.03	40	.03
EBL	1	1600	270	.17	30	.02
EBT	2	3200	240	.08	90	.03
EBR	1	1600	280	.18*	180	.11*
WBL	1.5		30		190	
WBT	0.5	2880	10	.01	10	.07
WBR	1	1600	130	.08*	470	.29*
Clearance Interval				.10*		.10*

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION **.68** **.90**

82. Commerce Ctr & SR-126 EB

Stage 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	90	.02	170	.04
NBR	f		40		90	
SBL	0	0	0		0	
SBT	2	3200	90	.03	250	.08
SBR	f		210		1150	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.00		.00

TOTAL CAPACITY UTILIZATION .00 .00

Stage 2a

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	160	.03	190	.04
NBR	f		40		90	
SBL	0	0	0		0	
SBT	2	3200	110	.03	310	.10
SBR	f		260		1550	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.00		.00

TOTAL CAPACITY UTILIZATION .00 .00

Stage 2b

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	860	.18	740	.15
NBR	f		280		780	
SBL	0	0	0		0	
SBT	2	3200	800	.25	1020	.32
SBR	f		230		1460	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.00		.00

TOTAL CAPACITY UTILIZATION .00 .00

Stage 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	1040	.22	740	.15
NBR	f		280		630	
SBL	0	0	0		0	
SBT	2	3200	790	.25	1070	.33
SBR	f		270		1750	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.00		.00

TOTAL CAPACITY UTILIZATION .00 .00

82. Commerce Ctr & SR-126 EB

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┌──────────────────────────────────────────────────────┐
│   Stage 4a                                           │
│                                                      │
│                            AM PK HOUR     PM PK HOUR │
│         LANES  CAPACITY    VOL    V/C     VOL    V/C │
│                                                      │
│   NBL     0         0        0              0        │
│   NBT     3      4800     1390    .29    1350    .28 │
│   NBR     f                250            560        │
│                                                      │
│   SBL     0         0        0              0        │
│   SBT     2      3200      650    .20    1100    .34 │
│   SBR     f                230           1120        │
│                                                      │
│   EBL     0         0        0              0        │
│   EBT     0         0        0              0        │
│   EBR     0         0        0              0        │
│                                                      │
│   WBL     0         0        0              0        │
│   WBT     0         0        0              0        │
│   WBR     0         0        0              0        │
│                                                      │
│   Clearance Interval              .00            .00 │
└──────────────────────────────────────────────────────┘
    TOTAL CAPACITY UTILIZATION       .00            .00
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83. Commerce Ctr & SR-126 WB

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	60	.02*	70	.02*
NBT	3	4800	30	.01	20	.00
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	260	.05*	1400	.29*
SBR	1	1600	30	.02	140	.09
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		50		50	
WBT	0.5	3200	0	.02	0	.02
WBR	2	3200	1310	.41*	250	.08*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .58 .49

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	70	.02*	70	.02*
NBT	3	4800	80	.02	30	.01
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	330	.07*	1900	.40*
SBR	1	1600	40	.03	150	.09
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		50		50	
WBT	0.5	3200	0	.02	0	.02
WBR	2	3200	1830	.57*	310	.10*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .76 .62

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	120	.04	260	.09*
NBT	3	4800	700	.15*	390	.08
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	460	.10	2150	.45*
SBR	1	1600	30	.02	80	.05
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		410		330	
WBT	0.5	3200	0	.13	0	.10*
WBR	2	3200	1260	.39*	150	.05
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .64 .74

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	120	.04	260	.09*
NBT	3	4800	880	.18*	400	.08
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	520	.11	2520	.52*
SBR	1	1600	30	.02	100	.06
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		400		330	
WBT	0.5	3200	0	.13	0	.10*
WBR	2	3200	1600	.50*	180	.06
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .81

83. Commerce Ctr & SR-126 WB

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	330	.11*	770	.27*
NBT	3	4800	1030	.21	480	.10
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	480	.10*	1920	.40*
SBR	1	1600	130	.08	330	.21
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		280		250	
WBT	0.5	3200	0	.09	0	.08*
WBR	2	3200	1460	.46*	170	.05
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.85**

96. San Martinez Cyn & SR-126

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	20		10	
SBT	1	1600	0	.02*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01*	10	.01*
EBT	2	3200	860	.27	920	.29
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	840	.27*	1120	.36*
WBR	0	0	20		20	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.48**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	30		10	
SBT	1	1600	0	.03*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	10	.01*
EBT	2	3200	940	.29*	910	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	840	.27	1220	.39*
WBR	0	0	20		30	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.42**		**.51**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	30		10	
SBT	1	1600	0	.03*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	10	.01*
EBT	2	3200	960	.30*	890	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	830	.26	1240	.40*
WBR	0	0	10		30	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.43**		**.52**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	30		10	
SBT	1	1600	0	.03*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	10	.01*
EBT	2	3200	970	.30*	880	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	810	.26	1250	.40*
WBR	0	0	20		30	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.43**		**.52**

96. San Martinez Cyn & SR-126

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	30		10	
SBT	1	1600	0	.02*	0	.01*
SBR	1	1600	20	.01	30	.02
EBL	1	1600	20	.01	30	.02*
EBT	2	3200	1250	.39*	1030	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	930	.29	1570	.49*
WBR	1	1600	20	.01	30	.02
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.62**

97. Long/Chiquito & SR-126 EB Ramps

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	710	.15	530	.11
NBR	2	3200	1440	.45*	610	.19*
SBL	2	2880	630	.22*	820	.28*
SBT	3	4800	1130	.24	2110	.44
SBR	0	0	0		0	
EBL	2	2880	100	.03	40	.01
EBT	0	0	0		0	
EBR	1	1600	180	.11*	180	.11*
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.88**		**.68**

98. Long/Chiquito & SR-126 WB Ramps

Stage 4b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	140	.05*	210	.07*
NBT	3	4800	670	.14	360	.08
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	890	.19*	1340	.28*
SBR	1	1600	40	.03	90	.06
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	500	.17	1290	.45*
WBT	0	0	0		0	
WBR	1	1600	910	.57*	610	.38
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.91**		**.90**

105. Westridge & Valencia

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01	10	.01*
NBR	1	1600	40	.03*	20	.01
SBL	2	2880	590	.20*	430	.15*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	130	.08	30	.02
EBL	1	1600	70	.04*	30	.02*
EBT	3	4800	1150	.24	220	.05
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02
WBT	3	4800	1400	.29*	170	.04
WBR	1	1600	330	.21	840	.52*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.80**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01	10	.01*
NBR	1	1600	40	.03*	20	.01
SBL	2	2880	570	.20*	520	.18*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	130	.08	20	.01
EBL	1	1600	60	.04*	30	.02*
EBT	3	4800	1160	.24	220	.05
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02
WBT	3	4800	1410	.29*	170	.04
WBR	1	1600	440	.28	810	.51*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.82**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01	10	.01*
NBR	1	1600	40	.03*	20	.01
SBL	2	2880	540	.19*	670	.23*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	120	.08	30	.02
EBL	1	1600	80	.05*	30	.02*
EBT	3	4800	1150	.24	230	.05
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02
WBT	3	4800	1420	.30	170	.04
WBR	1	1600	570	.36*	730	.46*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**.82**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01*	10	.01*
NBR	1	1600	40	.03	20	.01
SBL	2	2880	530	.18*	670	.23*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	120	.08	20	.01
EBL	1	1600	70	.04*	30	.02*
EBT	3	4800	1150	.24	220	.05
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02
WBT	3	4800	1430	.30	170	.04
WBR	1	1600	650	.41*	690	.43*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.74**		**.79**

105. Westridge & Valencia

```
Stage 4a

                             AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1      1600       30    .02      10    .01
NBT      1      1600       10    .01      10    .01*
NBR      1      1600       40    .03*     20    .01

SBL      2      2880      900    .31*   1050    .36*
SBT      1      1600       20    .01      10    .01
SBR      1      1600      250    .16     100    .06

EBL      1      1600      120    .08*    130    .08*
EBT      3      4800     2230    .46    1270    .26
EBR      d      1600       20    .01      10    .01

WBL      1      1600       20    .01      30    .02
WBT      3      4800     2190    .46*   1520    .32
WBR      1      1600      580    .36    1050    .66*

Right Turn Overlap Adjustment          WBR   -.36*
Clearance Interval              .10*          .10*
Note: Assumes Right-Turn Overlap for WBR
```

TOTAL CAPACITY UTILIZATION .98 .85

105. Westridge & Valencia

```
Stage 4b

                             AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1      1600       30    .02*     10    .01
NBT      1      1600       10    .01      10    .01*
NBR      1      1600       40    .03      20    .01

SBL     2.5               900           1050
SBT     0.5     4160       20    .22*     10    .25*
SBR      1      1600      250    .16     100    .06

EBL      1      1600      120    .08*    130    .08*
EBT      3      4800     2230    .46    1270    .26
EBR      d      1600       20    .01      10    .01

WBL      1      1600       20    .01      30    .02
WBT      3      4800     2190    .46*   1520    .32
WBR      1      1600      580    .36    1050    .66*

Right Turn Overlap Adjustment          WBR   -.25*
Clearance Interval              .10*          .10*
Note: Assumes N/S Split Phasing
Note: Assumes Right-Turn Overlap for WBR
```

TOTAL CAPACITY UTILIZATION .88 .85

110. Long/Chiquito Cyn & SR-126

Stage 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	180	.11*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03*	40	.03*
EBT	2	3200	840	.26	900	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	820	.26*	1090	.34*
WBR	1	1600	30	.02	50	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.50**

Stage 2a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	200	.13*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	50	.03	40	.03*
EBT	2	3200	920	.29*	890	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	830	.26	1200	.38*
WBR	1	1600	30	.02	60	.04
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.54**

Stage 2b

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	210	.13*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03	30	.02*
EBT	2	3200	960	.30*	870	.27
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	820	.26	1230	.38*
WBR	1	1600	30	.02	80	.05
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.53**

Stage 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	210	.13*	60	.04*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03	30	.02*
EBT	2	3200	960	.30*	860	.27
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	800	.25	1230	.38*
WBR	1	1600	30	.02	90	.06
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.54**

110. Long/Chiquito Cyn & SR-126

Stage 4a

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	140	.05	210	.07*
NBT	2	3200	670	.21	360	.11
NBR	2	3200	1440	.45*	610	.19
SBL	2	2880	630	.22*	820	.28
SBT	2	3200	1130	.35	2110	.66*
SBR	1	1600	40	.03	90	.06
EBL	2	2880	180	.06*	180	.06*
EBT	3	4800	1280	.27	1040	.22
EBR	1	1600	110	.07	40	.03
WBL	2	2880	600	.21	1330	.46
WBT	3	4800	2150	.45	3270	.68*
WBR	1	1600	1090	.68*	790	.49
Right Turn Overlap Adjustment						
			WBR	-.22*		
			NBR	-.21*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION 1.08 1.57

Appendix D Commerce Center Drive Bridge Traffic Sensitivity Analysis

Stantec

Memo

To: Alex Herrell
FivePoint
Project/File: 2042604600

From: Maria Morris and Daryl Zerfass
Stantec
Date: June 6, 2022

Reference: Commerce Center Drive Bridge Traffic Sensitivity Analysis

This memorandum summarizes the findings of a sensitivity analysis conducted for the future proposed Commerce Center Drive (CCD) Bridge over the Santa Clara River. The amount of traffic generated by development within the Mission Village and Entrada South planning areas that can occur prior to constructing the CCD Bridge is evaluated.

Analysis Findings

Key findings of this sensitivity analysis include:

- Approximately 5,600 residential units and 1,250,000 square feet of non-residential uses can be built in the Mission Village and Entrada South planning areas prior to the construction of the CCD Bridge without negatively effecting the surrounding roadway system.
- The off-site roadway system in its current configuration can accommodate the level of development noted above except at one location under three of the four scenarios where intersection improvements would improve the level of service (LOS) to an acceptable level.
- At The Old Road & I-5 Southbound (SB) Ramps (at Rye Canyon Road) intersection, traffic is constrained by the ramps, where turning movements on and off the ramps are at LOS F. Meanwhile, the through movements on The Old Road operate at LOS B or better, showing that there is enough capacity on The Old Road itself and the roadway is not negatively affected due to the CCD Bridge not being constructed.
- At The Old Road & Rye Canyon Road intersection, interim improvements on Rye Canyon Road are needed to improve LOS to an acceptable level but would not require widening Rye Canyon Road under the I-5 freeway.

Methodology

The Santa Clarita Valley Consolidated Traffic Model (SCVCTM) is a traffic demand model for the Santa Clarita Valley area and is the traffic model used in this analysis. A mix of residential units and non-residential square footage, referred to here as land use scenarios, was inputted into an interim-year version of the SCVCTM and the resulting future forecast traffic volumes are used to evaluate the local roadway system. Each land use scenario evaluated herein assumes that the CCD Bridge is not yet constructed.

A two-step process is used to determine if a land use scenario would result in undesirable conditions on the local roadway system. First, a volume to capacity (V/C) analysis for intersections is carried out using SCVCTM estimates of AM and PM peak hour intersection volumes. Locations that have a V/C ratio above

90% are further evaluated using the HCM delay-based methodology and Synchro software. LOS D or better is utilized as the target operational condition.

Table 1 summarizes the land use scenarios included in this evaluation.

Table 1 Land Use Scenario

Category	**Units**	**Land Use Scenario 1**	**Land Use Scenario 2**	**Land Use Scenario 3**	**Land Use Scenario 4**
Mission Village					
Residential	DU	4,055	4,055	4,055	4,055
Non-Residential	TSF	1,555	723	907	1,050
Entrada South					
Residential	DU	0	1,574	1,574	1,574
Non-Residential	TSF	365	30	50	200
Total					
Residential	DU	4,055	5,629	5,629	5,629
Non-Residential	TSF	1,920	753	1,007	1,250
DU = dwelling units; TSF = thousand square feet					

Analysis Summary

Intersection capacity utilization (ICU) methodology is used to calculate the intersection's V/C ratio to identify potential capacity constraints associated with each land use scenario. The attached **Table A** presents the ICU values for each land use scenario based on the existing lane configuration at key intersections affected by the development (i.e., assumes no lane improvements). The following two intersections would have an ICU above 90 percent:

9. The Old Road & I-5 SB Ramps (at Rye Canyon Road)
25. The Old Road & Rye Canyon Road

An operation analysis has been prepared for the two intersections listed above using Synchro software. The resulting delay and LOS are summarized in the attached **Table B** and discussed in detail below.

The Old Road & I-5 SB Ramps (at Rye Canyon Road) – At this location, the V/C ratio is above 90% in the PM peak hour. The HCM analysis shows that the total average vehicular delay at the intersection in the PM peak hour ranges from 191.4 to 201.7 seconds, which corresponds to LOS F. An evaluation of each movement shows that traffic is constrained by the one-lane on-ramp, with the southbound left-turn and northbound right-turn movements (going onto the on-ramp) exceeding the capacity of a single lane. The westbound movements exiting the ramp are also at LOS F. Meanwhile, the northbound through movement and the southbound through movement operate at LOS B and LOS A, respectively. This shows that there is enough capacity on The Old Road itself and the roadway is not negatively affected due to the CCD Bridge not being constructed for all four land use scenarios. With future intersection improvements to be constructed by Caltrans, the intersection operates at LOS C (see Table C for a description of improvements).

The Old Road & Rye Canyon Road – The ICU at this location is above 90% in the PM peak hour. The HCM analysis for land use scenario 3 shows that the average delay at the intersection in the PM peak hour is 54.8 seconds, which corresponds to LOS D. Therefore, this location in its current configuration is not negatively affected by the CCD Bridge not being constructed for land use Scenario 3. However, for land use Scenarios 1, 2, and 4, the intersection would have a delay between 55.4 and 60.3 seconds, which corresponds to LOS E. With intersection improvements, the intersection operates at LOS C. The interim improvements on Rye Canyon Road would not require the I-5 Freeway bridge to be widened.

Conclusion

The purpose of this sensitivity analysis is to evaluate how much development in the Mission Village and Entrada South planning areas can occur prior to construction the CCD bridge. SCVCTM estimates of AM and PM peak hour intersection volumes from four land use scenarios is evaluated for undesirable conditions on the local roadway system.

The V/C analysis shows that two intersections, The Old Road & I-5 SB Ramps (at Rye Canyon Road) and The Old Road & Rye Canyon Road, would have a V/C ratio above 90% in the PM peak hour and all other key intersections would have a V/C ratio below 90%.

An operational analysis of The Old Road & I-5 SB Ramps (at Rye Canyon Road) intersection shows that traffic is constrained by the one-lane on-ramp, while there is enough capacity on The Old Road itself and, therefore, The Old Road would not be negatively affected due to the CCD bridge not being constructed for all land use scenarios. With future intersection improvements to be constructed by Caltrans, the intersection operates at LOS C.

The operational analysis of The Old Road & Rye Canyon Road shows that the intersection in its current configuration would operate at LOS D under land use Scenario 3 and would not be negatively affected by the CCD bridge not being constructed. However, for land use Scenarios 1, 2, and 4, the intersection would operate at LOS E. With interim improvements to The Old Road (without affecting Rye Canyon Road under the I-5 freeway), the intersection operates at LOS C.

Therefore, this analysis shows that 5,629 residential units and 1,250,000 square feet of non-residential uses can be built in the Mission Village and Entrada South planning areas prior to the construction of the CCD Bridge based on each of the four land use scenarios evaluated herein.

Sincerely,

STANTEC CONSULTING SERVICES INC.

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Attachment: Figure 1 Intersection Location Map
Table A ICU Summary
Table B LOS Summary
ICU Worksheet
HCM Worksheets

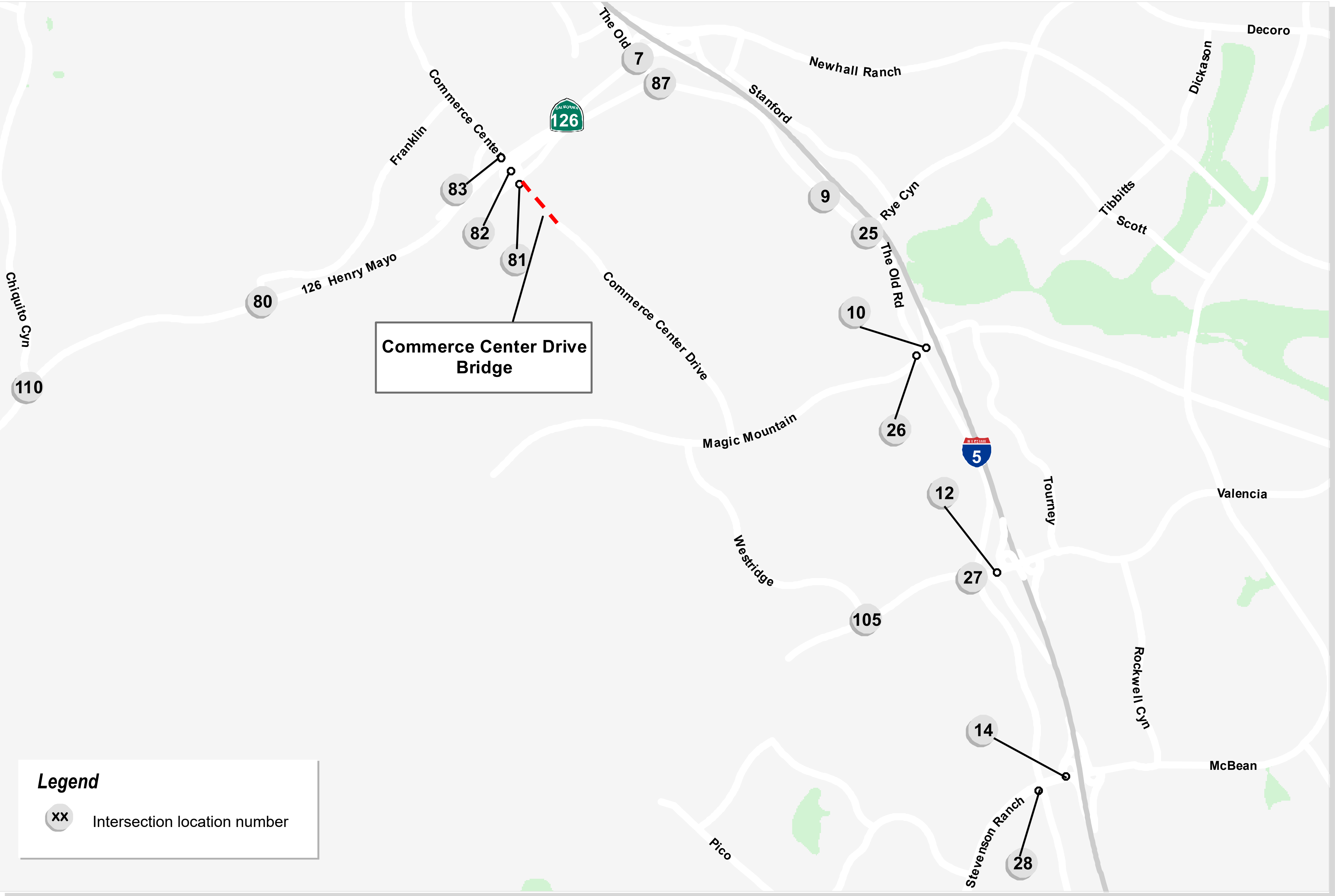

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Figure 1

Intersection Location Map

Table A: ICU Summary

	Land Use Scenario 1		Land Use Scenario 2		Land Use Scenario 3		Land Use Scenario 4	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Description	**ICU**	**ICU**	**ICU**	**ICU**	**ICU**	**ICU**	**ICU**	**ICU**
7. I-5 SB Ramps & SR-126	0.74	0.43	0.76	0.43	0.75	0.44	0.76	0.43
9. The Old Rd & I-5 SB Ramps	0.62	1.45	0.62	1.46	0.64	1.44	0.63	1.44
10. I-5 SB Ramps & Magic Mtn	0.63	0.52	0.68	0.52	0.66	0.50	0.66	0.52
12. I-5 SB On/Off Ramps & Valencia	0.63	0.62	0.58	0.64	0.62	0.66	0.61	0.65
14. I-5 SB On/Off Ramps & McBean	0.68	0.78	0.66	0.82	0.65	0.79	0.65	0.81
25. The Old Rd & Rye Canyon	0.89	1.22	0.90	1.24	0.89	1.21	0.85	1.24
26. The Old Rd & Magic Mountain	0.57	0.68	0.58	0.71	0.58	0.72	0.58	0.74
27. The Old Road & Valencia	0.63	0.44	0.60	0.42	0.63	0.44	0.62	0.45
28. The Old Road & Stevenson Ranch	0.83	0.84	0.75	0.84	0.76	0.81	0.83	0.81
35. Copper Hill & Decoro	0.68	0.64	0.70	0.63	0.69	0.62	0.67	0.63
80. Wolcott & SR-126	0.46	0.53	0.47	0.53	0.46	0.53	0.46	0.53
81. Commerce Ctr & Henry Mayo	0.16	0.24	0.16	0.23	0.19	0.24	0.21	0.23
82. Commerce Ctr & SR-126 EB	0.13	0.18	0.13	0.18	0.13	0.17	0.13	0.16
83. Commerce Ctr & SR-126 WB	0.52	0.43	0.53	0.44	0.53	0.47	0.55	0.48
87. The Old Road & Henry Mayo	0.37	0.46	0.39	0.47	0.37	0.47	0.34	0.47
105. Westridge & Valencia	0.62	0.55	0.63	0.64	0.64	0.67	0.65	0.63
110. Long/Chiquito Cyn & SR-126	0.49	0.50	0.50	0.49	0.50	0.51	0.50	0.51
Shading denotes ICU above .90								

Table B: LOS Summary

	Land Use Scenario 1				Land Use Scenario 2				Land Use Scenario 3				Land Use Scenario 4			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Location	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
9. The Old Rd & I-5 SB Ramps	15.6	B	196.6	F	13.6	B	201.7	F	13.7	B	191.4	F	13.8	B	198.1	F
25. The Old Rd & Rye Canyon	21.6	C	55.4	E	23.3	C	59.8	E	22.0	C	54.8	D	19.2	B	60.3	E

Shading denotes LOS E or F

Table C: LOS Summary with Intersection Improvements

	Land Use Scenario 1		Land Use Scenario 2		Land Use Scenario 3		Land Use Scenario 4	
	PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
Location	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
9. The Old Rd & I-5 SB Ramps	22.5	C	24.1	C	21.9	C	23.4	C
25. The Old Rd & Rye Canyon	24.4	C	24.9	C	24.1	C	25.9	C
Intersection Improvement Descriptions								
9. The Old Rd & I-5 SB Ramps	County/Caltrans project: Relocate ramps to new location north of existing location. Add 2nd northbound right-turn lane, 2nd southbound left-turn lane, and 3rd southbound through lane. Convert shared westbound left/right-turn lane to a 2nd westbound left-turn lane and add a dedicated right-turn lane.							
25. The Old Rd & Rye Canyon	Add 2nd northbound through lane, 2nd southbound left-tun lane and covert free westbound dual right-turn lanes to conventional dual right-turn lanes with overlap phasing.							

Notes: FivePoint is obligated to pay 1.4% fair share and 7.1% fair-share of cost of improvement as Mission Village mitigation at The Old Rd & I-5 SB Ramps and The Old Rd & Rye Canyon intersections, respectively.

7. I-5 SB Ramps & SR-126

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	1020	.35*	380	.13*
SBT	0	0	0		0	
SBR	2	3200	230	.07	80	.03
EBL	0	0	0		0	
EBT	4	6400	580	.09	1270	.20*
EBR	f		620		980	
WBL	0	0	0		0	
WBT	4	6400	1860	.29*	810	.13
WBR	f		360		420	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.74**		**.43**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	1030	.36*	370	.13*
SBT	0	0	0		0	
SBR	2	3200	240	.08	80	.03
EBL	0	0	0		0	
EBT	4	6400	570	.09	1290	.20*
EBR	f		610		940	
WBL	0	0	0		0	
WBT	4	6400	1900	.30*	810	.13
WBR	f		360		420	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.76**		**.43**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	1030	.36*	390	.14*
SBT	0	0	0		0	
SBR	2	3200	230	.07	80	.03
EBL	0	0	0		0	
EBT	4	6400	580	.09	1310	.20*
EBR	f		600		1080	
WBL	0	0	0		0	
WBT	4	6400	1870	.29*	820	.13
WBR	f		360		420	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.44**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	1030	.36*	380	.13*
SBT	0	0	0		0	
SBR	2	3200	230	.07	90	.03
EBL	0	0	0		0	
EBT	4	6400	580	.09	1290	.20*
EBR	f		610		1190	
WBL	0	0	0		0	
WBT	4	6400	1910	.30*	820	.13
WBR	f		360		420	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.76**		**.43**

9. The Old Rd & I-5 SB Ramps

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	940	.29*	410	.13*
NBR	1	1600	680	.43	1650	1.03
SBL	1	1600	90	.06*	460	.29*
SBT	2	3200	360	.11	750	.23
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		420		430	
WBT	0	3200	0	.13*	0	.14*
WBR	0.5		10		20	
Right Turn Adjustment			NBR	.04*	NBR	.79*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .62 1.45

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	1010	.32*	380	.12*
NBR	1	1600	690	.43	1640	1.03
SBL	1	1600	90	.06*	480	.30*
SBT	2	3200	360	.11	770	.24
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		360		440	
WBT	0	3200	0	.12*	0	.14*
WBR	0.5		10		20	
Right Turn Adjustment			NBR	.02*	NBR	.80*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .62 1.46

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	990	.31*	400	.13*
NBR	1	1600	720	.45	1630	1.02
SBL	1	1600	90	.06*	460	.29*
SBT	2	3200	360	.11	750	.23
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		370		420	
WBT	0	3200	0	.12*	0	.14*
WBR	0.5		10		20	
Right Turn Adjustment			NBR	.05*	NBR	.78*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .64 1.44

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	40	.03	20	.01
NBT	2	3200	890	.28*	400	.13*
NBR	1	1600	710	.44	1630	1.02
SBL	1	1600	90	.06*	470	.29*
SBT	2	3200	350	.11	740	.23
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		380		440	
WBT	0	3200	0	.12*	0	.14*
WBR	0.5		10		20	
Right Turn Adjustment			NBR	.07*	NBR	.78*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 1.44

10. I-5 SB Ramps & Magic Mtn

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		870		480	
SBT	0.5	3200	0	.27*	0	.15*
SBR	2	3200	60	.02	30	.01
EBL	0	0	0		0	
EBT	3	4800	650	.14	1250	.26*
EBR	2	3200	520	.16	610	.19
WBL	2	2880	290	.10	30	.01*
WBT	4	6400	1640	.26*	1380	.22
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.52**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		850		500	
SBT	0.5	3200	0	.27*	0	.16*
SBR	2	3200	50	.02	30	.01
EBL	0	0	0		0	
EBT	3	4800	810	.17*	1080	.23*
EBR	2	3200	640	.20	440	.14
WBL	2	2880	310	.11*	90	.03*
WBT	4	6400	1580	.25	1330	.21
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.03*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.52**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		840		500	
SBT	0.5	3200	0	.26*	0	.16*
SBR	2	3200	60	.02	20	.01
EBL	0	0	0		0	
EBT	3	4800	810	.17*	1120	.23*
EBR	2	3200	650	.20	470	.15
WBL	2	2880	300	.10*	40	.01*
WBT	4	6400	1490	.23	1360	.21
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.03*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.50**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		820		490	
SBT	0.5	3200	0	.26*	0	.15*
SBR	2	3200	60	.02	30	.01
EBL	0	0	0		0	
EBT	3	4800	780	.16*	1170	.24*
EBR	2	3200	640	.20	500	.16
WBL	2	2880	300	.10*	80	.03*
WBT	4	6400	1520	.24	1410	.22
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.04*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.52**

12. I-5 SB ON/OFF Ramps & Valencia

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	700	.24*	430	.15*
SBT	0	0	0		0	
SBR	1	1600	380	.24	120	.08
EBL	0	0	0		0	
EBT	3	4800	520	.11	460	.10
EBR	f		540		140	
WBL	0	0	0		0	
WBT	2	3200	920	.29*	1170	.37*
WBR	f		1690		1660	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 .62

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	680	.24*	420	.15*
SBT	0	0	0		0	
SBR	1	1600	390	.24	120	.08
EBL	0	0	0		0	
EBT	3	4800	470	.10	460	.10
EBR	f		550		140	
WBL	0	0	0		0	
WBT	2	3200	770	.24*	1260	.39*
WBR	f		1740		1570	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .58 .64

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	670	.23*	430	.15*
SBT	0	0	0		0	
SBR	1	1600	420	.26	120	.08
EBL	0	0	0		0	
EBT	3	4800	500	.10	430	.09
EBR	f		560		140	
WBL	0	0	0		0	
WBT	2	3200	840	.26*	1310	.41*
WBR	f		1720		1610	
Right Turn Adjustment			SBR	.03*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .62 .66

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	690	.24*	430	.15*
SBT	0	0	0		0	
SBR	1	1600	420	.26	120	.08
EBL	0	0	0		0	
EBT	3	4800	590	.12	430	.09
EBR	f		540		150	
WBL	0	0	0		0	
WBT	2	3200	790	.25*	1280	.40*
WBR	f		1730		1560	
Right Turn Adjustment			SBR	.02*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .61 .65

14. I-5 SB ON/OFF Ramps & McBean

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	360	.23*	210	.13*
SBT	0	0	0		0	
SBR	1	1600	730	.46	470	.29
EBL	0	0	0		0	
EBT	2	3200	700	.22*	1140	.36
EBR	f		190		150	
WBL	0	0	0		0	
WBT	2	3200	300	.09	1260	.39*
WBR	1	1600	200	.13	470	.29
Right Turn Adjustment			SBR	.13*	SBR	.16*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .68 .78

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	410	.26*	210	.13*
SBT	0	0	0		0	
SBR	1	1600	700	.44	500	.31
EBL	0	0	0		0	
EBT	2	3200	780	.24*	1100	.34
EBR	f		200		150	
WBL	0	0	0		0	
WBT	2	3200	240	.08	1300	.41*
WBR	1	1600	220	.14	460	.29
Right Turn Adjustment			SBR	.06*	SBR	.18*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .66 .82

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	400	.25*	200	.13*
SBT	0	0	0		0	
SBR	1	1600	700	.44	480	.30
EBL	0	0	0		0	
EBT	2	3200	740	.23*	1120	.35
EBR	f		200		150	
WBL	0	0	0		0	
WBT	2	3200	230	.07	1260	.39*
WBR	1	1600	210	.13	460	.29
Right Turn Adjustment			SBR	.07*	SBR	.17*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .65 .79

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	380	.24*	210	.13*
SBT	0	0	0		0	
SBR	1	1600	700	.44	490	.31
EBL	0	0	0		0	
EBT	2	3200	670	.21*	1150	.36
EBR	f		190		150	
WBL	0	0	0		0	
WBT	2	3200	260	.08	1270	.40*
WBR	1	1600	220	.14	450	.28
Right Turn Adjustment			SBR	.10*	SBR	.18*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .65 .81

25. The Old Rd & Rye Canyon

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	600	.38*	450	.28*
NBR	f		1060		1260	
SBL	1	1600	350	.22*	730	.46*
SBT	2	3200	460	.14	460	.14
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	310	.19*	600	.38*
WBT	0	0	0		0	
WBR	f		990		1640	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.89**		**1.22**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	680	.43*	410	.26*
NBR	f		1180		1140	
SBL	1	1600	350	.22*	760	.48*
SBT	2	3200	400	.13	470	.15
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	240	.15*	640	.40*
WBT	0	0	0		0	
WBR	f		1010		1630	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.90**		**1.24**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	650	.41*	430	.27*
NBR	f		1170		1160	
SBL	1	1600	350	.22*	690	.43*
SBT	2	3200	410	.13	490	.15
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	260	.16*	650	.41*
WBT	0	0	0		0	
WBR	f		1040		1630	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.89**		**1.21**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	590	.37*	440	.28*
NBR	f		1180		1190	
SBL	1	1600	350	.22*	720	.45*
SBT	2	3200	410	.13	480	.15
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	260	.16*	660	.41*
WBT	0	0	0		0	
WBR	f		980		1620	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.85**		**1.24**

26. The Old Rd & Magic Mountain

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	270	.09	80	.03
NBT	3	4800	470	.10*	440	.09*
NBR	1	1600	170	.11	220	.14
SBL	2	2880	200	.07*	330	.11*
SBT	3	4800	200	.04	450	.09
SBR	1	1600	410	.26	720	.45
EBL	2	2880	470	.16*	480	.17*
EBT	5	8000	780	.10	1350	.17
EBR	1	1600	20	.01	90	.06
WBL	2	2880	160	.06	90	.03
WBT	4	6400	540	.08*	340	.05*
WBR	f		960		1030	
Right Turn Adjustment			SBR	.06*	Multi	.16*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.68**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	210	.07	70	.02
NBT	3	4800	470	.10*	440	.09*
NBR	1	1600	170	.11	220	.14
SBL	2	2880	200	.07*	330	.11*
SBT	3	4800	200	.04	450	.09
SBR	1	1600	280	.18	790	.49
EBL	2	2880	680	.24*	330	.11*
EBT	5	8000	1060	.13	990	.12
EBR	1	1600	20	.01	70	.04
WBL	2	2880	160	.06	90	.03
WBT	4	6400	460	.07*	300	.05*
WBR	f		960		1030	
Right Turn Adjustment					Multi	.25*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.71**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	210	.07	70	.02
NBT	3	4800	470	.10*	420	.09*
NBR	1	1600	170	.11	210	.13
SBL	2	2880	190	.07*	330	.11*
SBT	3	4800	200	.04	430	.09
SBR	1	1600	310	.19	840	.52
EBL	2	2880	680	.24*	370	.13*
EBT	5	8000	1080	.14	1060	.13
EBR	1	1600	30	.02	70	.04
WBL	2	2880	140	.05	80	.03
WBT	4	6400	450	.07*	310	.05*
WBR	f		910		1030	
Right Turn Adjustment					SBR	.24*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.72**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	230	.08	90	.03
NBT	3	4800	470	.10*	430	.09*
NBR	1	1600	160	.10	220	.14
SBL	2	2880	190	.07*	330	.11*
SBT	3	4800	200	.04	420	.09
SBR	1	1600	310	.19	840	.52
EBL	2	2880	650	.23*	410	.14*
EBT	5	8000	1040	.13	1150	.14
EBR	1	1600	30	.02	80	.05
WBL	2	2880	150	.05	90	.03
WBT	4	6400	480	.08*	370	.06*
WBR	f		890		1020	
Right Turn Adjustment					SBR	.24*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.74**

27. Old Road & Valencia

Land Use Scenario 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	470	.16*	290	.10
NBT	3	4800	570	.12	430	.09*
NBR	1	1600	240	.15	140	.09
SBL	2	2880	60	.02	140	.05*
SBT	3	4800	150	.03*	170	.04
SBR	1	1600	20	.01	50	.03
EBL	2	2880	270	.09*	70	.02
EBT	4	6400	780	.12	330	.05*
EBR	1	1600	520	.33	260	.16
WBL	2	2880	60	.02	410	.14*
WBT	3	4800	1190	.25*	510	.11
WBR	f		70		320	
Right Turn Adjustment					EBR	.01*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR EBR

TOTAL CAPACITY UTILIZATION .63 .44

Land Use Scenario 2

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	460	.16*	300	.10
NBT	3	4800	490	.10	410	.09*
NBR	1	1600	130	.08	160	.10
SBL	2	2880	50	.02	130	.05*
SBT	3	4800	160	.03*	150	.03
SBR	1	1600	20	.01	50	.03
EBL	2	2880	280	.10*	60	.02
EBT	4	6400	850	.13	310	.05*
EBR	1	1600	550	.34	210	.13
WBL	2	2880	60	.02	380	.13*
WBT	3	4800	1020	.21*	600	.13
WBR	f		80		340	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR EBR

TOTAL CAPACITY UTILIZATION .60 .42

Land Use Scenario 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	450	.16*	320	.11
NBT	3	4800	510	.11	420	.09*
NBR	1	1600	200	.13	120	.08
SBL	2	2880	50	.02	130	.05*
SBT	3	4800	160	.03*	160	.03
SBR	1	1600	30	.02	50	.03
EBL	2	2880	290	.10*	60	.02
EBT	4	6400	830	.13	320	.05*
EBR	1	1600	550	.34	230	.14
WBL	2	2880	60	.02	440	.15*
WBT	3	4800	1130	.24*	590	.12
WBR	f		70		330	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR EBR

TOTAL CAPACITY UTILIZATION .63 .44

Land Use Scenario 4

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	450	.16*	320	.11
NBT	3	4800	520	.11	440	.09*
NBR	1	1600	300	.19	120	.08
SBL	2	2880	50	.02	130	.05*
SBT	3	4800	160	.03*	140	.03
SBR	1	1600	20	.01	50	.03
EBL	2	2880	290	.10*	60	.02
EBT	4	6400	800	.13	330	.05*
EBR	1	1600	550	.34	240	.15
WBL	2	2880	60	.02	460	.16*
WBT	3	4800	1090	.23*	550	.11
WBR	f		60		330	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR EBR

TOTAL CAPACITY UTILIZATION .62 .45

28. Old Road & Stevenson Ranch

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06	210	.13*
NBT	3	4800	470	.10*	380	.08
NBR	1	1600	100	.06	500	.31
SBL	1	1600	160	.10*	100	.06
SBT	2	3200	240	.08	690	.22*
SBR	1	1600	280	.18	320	.20
EBL	2	2880	860	.30*	130	.05*
EBT	3	4800	670	.14	460	.10
EBR	1	1600	170	.11	160	.10
WBL	2	2880	270	.09	650	.23
WBT	2	3200	600	.23*	960	.34*
WBR	0	0	150		130	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .83 .84

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06	210	.13*
NBT	3	4800	460	.10*	400	.08
NBR	1	1600	90	.06	500	.31
SBL	1	1600	160	.10*	90	.06
SBT	2	3200	250	.08	630	.20*
SBR	1	1600	310	.19	290	.18
EBL	2	2880	690	.24*	130	.05*
EBT	3	4800	790	.16	440	.09
EBR	1	1600	180	.11	160	.10
WBL	2	2880	260	.09	670	.23
WBT	2	3200	560	.21*	1000	.36*
WBR	0	0	110		140	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .75 .84

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06	210	.13*
NBT	3	4800	440	.09*	400	.08
NBR	1	1600	110	.07	500	.31
SBL	1	1600	150	.09*	90	.06
SBT	2	3200	250	.08	670	.21*
SBR	1	1600	310	.19	330	.21
EBL	2	2880	790	.27*	100	.03*
EBT	3	4800	730	.15	460	.10
EBR	1	1600	180	.11	150	.09
WBL	2	2880	260	.09	650	.23
WBT	2	3200	550	.21*	940	.34*
WBR	0	0	110		150	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .76 .81

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	90	.06	210	.13*
NBT	3	4800	460	.10*	410	.09
NBR	1	1600	100	.06	500	.31
SBL	1	1600	160	.10*	90	.06
SBT	2	3200	250	.08	670	.21*
SBR	1	1600	320	.20	360	.23
EBL	2	2880	880	.31*	100	.03*
EBT	3	4800	650	.14	470	.10
EBR	1	1600	180	.11	150	.09
WBL	2	2880	270	.09	680	.24
WBT	2	3200	570	.22*	940	.34*
WBR	0	0	120		150	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for SBR NBR

TOTAL CAPACITY UTILIZATION .83 .81

35. Copper Hill & Decoro

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	730	.15*	2140	.45*
NBR	f		160		160	
SBL	1	1600	440	.28*	70	.04*
SBT	3	4800	1540	.32	780	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	420	.15*	130	.05*
WBT	0	0	0		0	
WBR	1	1600	270	.17	70	.04
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .68 .64

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	760	.16*	2090	.44*
NBR	f		160		170	
SBL	1	1600	440	.28*	70	.04*
SBT	3	4800	1500	.31	780	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	460	.16*	130	.05*
WBT	0	0	0		0	
WBR	1	1600	270	.17	70	.04
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .70 .63

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	760	.16*	2100	.44*
NBR	f		150		160	
SBL	1	1600	440	.28*	60	.04*
SBT	3	4800	1530	.32	780	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	420	.15*	120	.04*
WBT	0	0	0		0	
WBR	1	1600	270	.17	70	.04
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .69 .62

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	740	.15*	2110	.44*
NBR	f		160		150	
SBL	1	1600	440	.28*	60	.04*
SBT	3	4800	1560	.33	790	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	390	.14*	130	.05*
WBT	0	0	0		0	
WBR	1	1600	260	.16	70	.04
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 .63

80. Wolcott & SR-126

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02*
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01*
SBT	0.5	3200	10	.01	10	.01
SBR	1	1600	20	.01	60	.04
EBL	1	1600	130	.08*	70	.04*
EBT	2	3200	940	.30	860	.27
EBR	0	0	10		10	
WBL	1	1600	10	.01	10	.01
WBT	2	3200	800	.25*	1160	.36*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.53**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02*
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01*
SBT	0.5	3200	10	.01	10	.01
SBR	1	1600	20	.01	60	.04
EBL	1	1600	130	.08*	60	.04*
EBT	2	3200	910	.29	870	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01	10	.01
WBT	2	3200	820	.26*	1140	.36*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.53**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02*
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01*
SBT	0.5	3200	10	.01	10	.01
SBR	1	1600	20	.01	60	.04
EBL	1	1600	130	.08*	70	.04*
EBT	2	3200	910	.29	860	.27
EBR	0	0	10		10	
WBL	1	1600	10	.01	10	.01
WBT	2	3200	810	.25*	1150	.36*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.53**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		10	
NBT	1	1600	10	.02*	10	.02*
NBR	0	0	10		10	
SBL	1.5		10	.01*	10	.01*
SBT	0.5	3200	10	.01	10	.01
SBR	1	1600	20	.01	60	.04
EBL	1	1600	130	.08*	60	.04*
EBT	2	3200	920	.29	870	.28
EBR	0	0	10		10	
WBL	1	1600	10	.01	10	.01
WBT	2	3200	800	.25*	1160	.36*
WBR	1	1600	10	.01	10	.01
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.53**

81. Commerce Ctr & Henry Mayo

Land Use Scenario 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	50	.02*	170	.06*
SBT	0	0	0		0	
SBR	1	1600	40	.03	60	.04
EBL	1	1600	20	.01*	30	.02*
EBT	2	3200	60	.02	20	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01*	10	.01*
WBR	1	1600	80	.05	170	.11
Right Turn Adjustment			WBR	.02*	WBR	.05*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.16**		**.24**

Land Use Scenario 2

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	50	.02*	200	.07*
SBT	0	0	0		0	
SBR	1	1600	40	.03	60	.04
EBL	1	1600	10	.01*	20	.01*
EBT	2	3200	60	.02	30	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01*	10	.01*
WBR	1	1600	80	.05	160	.10
Right Turn Adjustment			WBR	.02*	WBR	.04*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.16**		**.23**

Land Use Scenario 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	50	.02*	150	.05*
SBT	0	0	0		0	
SBR	1	1600	40	.03	60	.04
EBL	1	1600	10	.01*	30	.02*
EBT	2	3200	60	.02	20	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01*	10	.01*
WBR	1	1600	120	.08	170	.11
Right Turn Adjustment			WBR	.05*	WBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.19**		**.24**

Land Use Scenario 4

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	50	.02*	140	.05*
SBT	0	0	0		0	
SBR	1	1600	40	.03	70	.04
EBL	1	1600	20	.01*	20	.01*
EBT	2	3200	60	.02	30	.01
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	10	.01*	10	.01*
WBR	1	1600	160	.10	170	.11
Right Turn Adjustment			WBR	.07*	WBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.21**		**.23**

82. Commerce Ctr & SR-126 EB

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	60	.01	180	.04
NBR	f		40		100	
SBL	0	0	0		0	
SBT	2	3200	100	.03*	240	.08*
SBR	f		210		1200	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .13 .18

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	60	.01	170	.04
NBR	f		40		90	
SBL	0	0	0		0	
SBT	2	3200	90	.03*	270	.08*
SBR	f		220		1180	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .13 .18

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	100	.02	180	.04
NBR	f		40		100	
SBL	0	0	0		0	
SBT	2	3200	90	.03*	210	.07*
SBR	f		210		1310	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .13 .17

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	130	.03	180	.04
NBR	f		40		100	
SBL	0	0	0		0	
SBT	2	3200	100	.03*	200	.06*
SBR	f		220		1400	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .13 .16

83. Commerce Ctr & SR-126 WB

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	50	.02*	70	.02*
NBT	3	4800	10	.00	20	.00
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	250	.05*	1460	.30*
SBR	1	1600	40	.03	140	.09
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		60		40	
WBT	0.5	3200	0	.02*	0	.01*
WBR	2	3200	1280	.40	240	.08
Right Turn Adjustment			WBR	.33*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.43**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	50	.02*	70	.02*
NBT	3	4800	10	.00	20	.00
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	250	.05*	1460	.30*
SBR	1	1600	40	.03	140	.09
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		60		50	
WBT	0.5	3200	0	.02*	0	.02*
WBR	2	3200	1310	.41	250	.08
Right Turn Adjustment			WBR	.34*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.44**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	60	.02*	80	.03*
NBT	3	4800	30	.01	20	.00
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	260	.05*	1560	.33*
SBR	1	1600	30	.02	130	.08
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		50		40	
WBT	0.5	3200	0	.02*	0	.01*
WBR	2	3200	1300	.41	240	.08
Right Turn Adjustment			WBR	.34*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.47**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	60	.02*	70	.02*
NBT	3	4800	70	.01	20	.00
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	270	.06*	1650	.34*
SBR	1	1600	30	.02	140	.09
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		50		50	
WBT	0.5	3200	0	.02*	0	.02*
WBR	2	3200	1340	.42	240	.08
Right Turn Adjustment			WBR	.35*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.48**

87. The Old Road & Henry Mayo

```
Land Use Scenario 1

                            AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1       1600       30    .02     100    .06*
NBT      2       3200      790    .25*    260    .08
NBR      0          0        0              0

SBL      0          0        0              0
SBT      2       3200      380    .12     940    .29*
SBR      f                  20             50

EBL      1       1600       10    .01*     10    .01*
EBT      0          0        0              0
EBR      f                  50             70

WBL      0          0        0              0
WBT      0          0        0              0
WBR      1       1600       10    .01      10    .01

Right Turn Adjustment     WBR    .01*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .37            .46
```

```
Land Use Scenario 2

                            AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1       1600       30    .02     100    .06*
NBT      2       3200      870    .27*    250    .08
NBR      0          0        0              0

SBL      0          0        0              0
SBT      2       3200      380    .12     950    .30*
SBR      f                  20             50

EBL      1       1600       10    .01*     10    .01*
EBT      0          0        0              0
EBR      f                  60             80

WBL      0          0        0              0
WBT      0          0        0              0
WBR      1       1600       10    .01      10    .01

Right Turn Adjustment     WBR    .01*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .39            .47
```

```
Land Use Scenario 3

                            AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1       1600       70    .04     100    .06*
NBT      2       3200      810    .25*    250    .08
NBR      0          0        0              0

SBL      0          0        0              0
SBT      2       3200      390    .12     950    .30*
SBR      f                  20             50

EBL      1       1600       10    .01*     10    .01*
EBT      0          0        0              0
EBR      f                  50             60

WBL      0          0        0              0
WBT      0          0        0              0
WBR      1       1600       10    .01      10    .01

Right Turn Adjustment     WBR    .01*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .37            .47
```

```
Land Use Scenario 4

                            AM PK HOUR     PM PK HOUR
       LANES  CAPACITY    VOL    V/C     VOL    V/C

NBL      1       1600      110    .07     100    .06*
NBT      2       3200      690    .22*    260    .08
NBR      0          0        0              0

SBL      0          0        0              0
SBT      2       3200      380    .12     970    .30*
SBR      f                  20             50

EBL      1       1600       10    .01*     10    .01*
EBT      0          0        0              0
EBR      f                  50             50

WBL      0          0        0              0
WBT      0          0        0              0
WBR      1       1600       10    .01      10    .01

Right Turn Adjustment     WBR    .01*
Clearance Interval               .10*           .10*

TOTAL CAPACITY UTILIZATION       .34            .47
```

105. Westridge & Valencia

Land Use Scenario 1

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01*	10	.01*
NBR	1	1600	40	.03	20	.01
SBL	2	2880	510	.18*	460	.16*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	100	.06	10	.01
EBL	1	1600	40	.03*	20	.01
EBT	3	4800	1180	.25	240	.05*
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02*
WBT	3	4800	1440	.30*	180	.04
WBR	1	1600	450	.28	630	.39
Right Turn Adjustment					WBR	.21*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.62**		**.55**

Land Use Scenario 2

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01*	10	.01*
NBR	1	1600	40	.03	20	.01
SBL	2	2880	580	.20*	390	.14*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	130	.08	30	.02
EBL	1	1600	50	.03*	30	.02
EBT	3	4800	1170	.24	220	.05*
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02*
WBT	3	4800	1410	.29*	170	.04
WBR	1	1600	270	.17	760	.48
Right Turn Adjustment					WBR	.32*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.64**

Land Use Scenario 3

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01*	10	.01*
NBR	1	1600	40	.03	20	.01
SBL	2	2880	570	.20*	420	.15*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	130	.08	20	.01
EBL	1	1600	60	.04*	30	.02
EBT	3	4800	1160	.24	220	.05*
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02*
WBT	3	4800	1400	.29*	170	.04
WBR	1	1600	380	.24	800	.50
Right Turn Adjustment					WBR	.34*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.67**

Land Use Scenario 4

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	30	.02	10	.01
NBT	1	1600	10	.01*	10	.01*
NBR	1	1600	40	.03	20	.01
SBL	2	2880	570	.20*	440	.15*
SBT	1	1600	20	.01	10	.01
SBR	1	1600	130	.08	20	.01
EBL	1	1600	60	.04*	30	.02
EBT	3	4800	1160	.24	230	.05*
EBR	d	1600	20	.01	10	.01
WBL	1	1600	20	.01	30	.02*
WBT	3	4800	1420	.30*	160	.03
WBR	1	1600	330	.21	730	.46
Right Turn Adjustment					WBR	.30*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.65**		**.63**

110. Long/Chiquito Cyn & SR-126

Land Use Scenario 1

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	170	.11*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03	30	.02*
EBT	2	3200	890	.28*	880	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	800	.25	1120	.35*
WBR	1	1600	30	.02	50	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.49**		**.50**

Land Use Scenario 2

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	170	.11*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03*	30	.02*
EBT	2	3200	850	.27	890	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	820	.26*	1100	.34*
WBR	1	1600	20	.01	50	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.49**

Land Use Scenario 3

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	180	.11*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03*	40	.03*
EBT	2	3200	850	.27	880	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	820	.26*	1120	.35*
WBR	1	1600	20	.01	40	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.51**

Land Use Scenario 4

	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	1	1600	180	.11*	50	.03*
SBT	0	0	0		0	
SBR	1	1600	30	.02	50	.03
EBL	1	1600	40	.03*	40	.03*
EBT	2	3200	860	.27	880	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	820	.26*	1110	.35*
WBR	1	1600	20	.01	50	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.51**

9: The Old Road & I-5 SB Ramps

	↙	↖	↰	↑	↗	↘	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↖↖↗		⮌	↑↑	↗	↖	↑↑
Traffic Volume (vph)	420	10	40	940	680	90	360
Future Volume (vph)	420	10	40	940	680	90	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3430	0	1770	3539	1583	1770	3539
Flt Permitted	0.953		0.950			0.950	
Satd. Flow (perm)	3430	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	3				739		
Link Speed (mph)	30			30			30
Link Distance (ft)	308			1293			819
Travel Time (s)	7.0			29.4			18.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	468	0	43	1022	739	98	391
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	14.0		10.0	34.0	34.0	12.0	36.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	9.0		5.0	29.6	29.6	6.7	35.0
Actuated g/C Ratio	0.16		0.09	0.51	0.51	0.12	0.60
v/c Ratio	0.87		0.28	0.57	0.63	0.48	0.18
Control Delay	44.7		30.9	12.1	3.7	33.4	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	44.7		30.9	12.1	3.7	33.4	6.2
LOS	D		C	B	A	C	A
Approach Delay	44.7			9.1			11.7
Approach LOS	D			A			B

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 15.6 Intersection LOS: B

Intersection Capacity Utilization 55.8% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

25: The Old Road & Rye Cyn

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	350	460	600	1060	310	990
Future Volume (vph)	350	460	600	1060	310	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				777		1076
Link Speed (mph)		30	30		30	
Link Distance (ft)		1293	1312		639	
Travel Time (s)		29.4	29.8		14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	500	652	1152	337	1076
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	23.0	60.0	37.0		30.0	
Total Lost Time (s)	5.0	4.5	5.0		5.0	
Act Effct Green (s)	18.0	55.6	32.1	85.5	20.4	85.5
Actuated g/C Ratio	0.21	0.65	0.38	1.00	0.24	1.00
v/c Ratio	1.02	0.22	0.93	0.73	0.80	0.39
Control Delay	88.0	6.9	49.6	3.0	45.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	6.9	49.6	3.0	45.6	0.4
LOS	F	A	D	A	D	A
Approach Delay		41.9	19.8		11.2	
Approach LOS		D	B		B	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 85.5
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn

	↙	↖	↶	↑	↗	↘	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↖↖↗		⮌	↑↑	↗	↖	↑↑
Traffic Volume (vph)	430	20	20	410	1650	460	750
Future Volume (vph)	430	20	20	410	1650	460	750
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3423	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3423	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	3				431		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	489	0	22	446	1793	500	815
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	19.0		11.0	98.0	98.0	33.0	120.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	14.0		5.9	93.0	93.0	28.0	119.4
Actuated g/C Ratio	0.09		0.04	0.62	0.62	0.19	0.80
v/c Ratio	1.52		0.32	0.20	1.57	1.52	0.29
Control Delay	291.4		82.5	12.7	280.0	286.9	4.7
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	291.4		82.5	12.7	280.0	286.9	4.7
LOS	F		F	B	F	F	A
Approach Delay	291.4			225.4			112.0
Approach LOS	F			F			F

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.57

Intersection Signal Delay: 196.6 Intersection LOS: F

Intersection Capacity Utilization 136.0% ICU Level of Service H

Analysis Period (min) 15

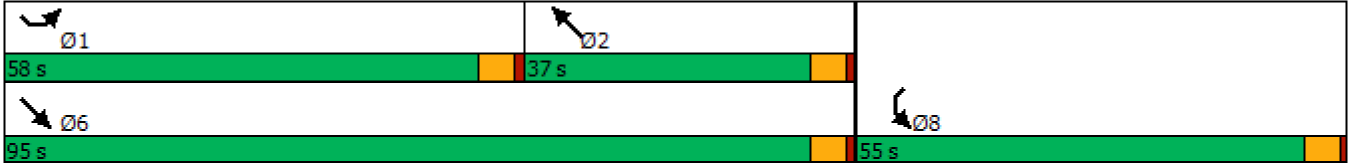
Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	730	460	450	1260	600	1640
Future Volume (vph)	730	460	450	1260	600	1640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				684		722
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	793	500	489	1370	652	1783
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	58.0	95.0	37.0		55.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Act Effct Green (s)	53.0	90.0	32.0	150.0	50.0	150.0
Actuated g/C Ratio	0.35	0.60	0.21	1.00	0.33	1.00
v/c Ratio	1.27	0.24	1.23	0.87	1.11	0.64
Control Delay	173.4	14.3	172.3	6.8	115.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.4	14.3	172.3	6.8	115.0	1.1
LOS	F	B	F	A	F	A
Approach Delay		111.9	50.3		31.6	
Approach LOS		F	D		C	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 56.4 Intersection LOS: E
Intersection Capacity Utilization 109.9% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



9: The Old Road & I-5 SB Ramps

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰↱		↶	↑↑	↱	↰	↑↑
Traffic Volume (vph)	360	10	40	1010	680	90	360
Future Volume (vph)	360	10	40	1010	680	90	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3434	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3434	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	4				739		
Link Speed (mph)	30			30			30
Link Distance (ft)	308			1293			819
Travel Time (s)	7.0			29.4			18.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	402	0	43	1098	739	98	391
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	14.0		10.0	34.0	34.0	12.0	36.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	8.9		5.0	29.6	29.6	6.7	35.0
Actuated g/C Ratio	0.15		0.09	0.51	0.51	0.12	0.60
v/c Ratio	0.75		0.28	0.61	0.63	0.48	0.18
Control Delay	35.0		30.9	12.7	3.7	33.4	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	35.0		30.9	12.7	3.7	33.4	6.2
LOS	C		C	B	A	C	A
Approach Delay	35.0			9.6			11.7
Approach LOS	C			A			B

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.9
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 56.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

25: The Old Road & Rye Cyn

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	350	400	680	1180	240	1010
Future Volume (vph)	350	400	680	1180	240	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				764		1098
Link Speed (mph)		30	30		30	
Link Distance (ft)		1293	1312		639	
Travel Time (s)		29.4	29.8		14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	435	739	1283	261	1098
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	23.0	60.0	37.0		30.0	
Total Lost Time (s)	5.0	4.5	5.0		5.0	
Act Effct Green (s)	18.1	55.7	32.1	82.4	17.2	82.4
Actuated g/C Ratio	0.22	0.68	0.39	1.00	0.21	1.00
v/c Ratio	0.98	0.18	1.02	0.81	0.71	0.39
Control Delay	76.5	5.8	66.3	4.6	41.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	5.8	66.3	4.6	41.0	0.4
LOS	E	A	E	A	D	A
Approach Delay		38.8	27.2		8.2	
Approach LOS		D	C		A	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 82.4
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 80.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰↱		↶	↑↑	↱	↰	↑↑
Traffic Volume (vph)	440	20	20	380	1640	480	770
Future Volume (vph)	440	20	20	380	1640	480	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3423	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3423	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	2				428		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	500	0	22	413	1783	522	837
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	19.0		11.0	98.0	98.0	33.0	120.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	14.0		5.9	93.0	93.0	28.0	119.4
Actuated g/C Ratio	0.09		0.04	0.62	0.62	0.19	0.80
v/c Ratio	1.56		0.32	0.19	1.56	1.58	0.30
Control Delay	307.4		82.5	12.5	276.8	314.2	4.7
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	307.4		82.5	12.5	276.8	314.2	4.7
LOS	F		F	B	F	F	A
Approach Delay	307.4			225.7			123.6
Approach LOS	F			F			F

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.58

Intersection Signal Delay: 201.7 Intersection LOS: F

Intersection Capacity Utilization 136.5% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	760	470	410	1140	640	1630
Future Volume (vph)	760	470	410	1140	640	1630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				668		672
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	826	511	446	1239	696	1772
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	60.0	95.0	35.0		55.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Act Effct Green (s)	55.0	90.0	30.0	150.0	50.0	150.0
Actuated g/C Ratio	0.37	0.60	0.20	1.00	0.33	1.00
v/c Ratio	1.27	0.24	1.20	0.78	1.18	0.64
Control Delay	173.9	14.4	162.4	3.9	141.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.9	14.4	162.4	3.9	141.0	1.1
LOS	F	B	F	A	F	A
Approach Delay		113.0	45.9		40.6	
Approach LOS		F	D		D	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Control Type: Actuated-Uncoordinated

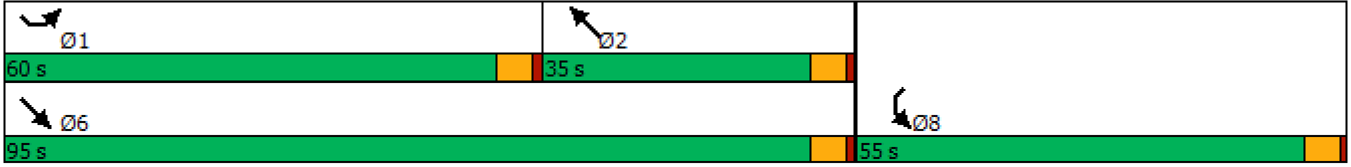
Maximum v/c Ratio: 1.27

Intersection Signal Delay: 59.8 Intersection LOS: E

Intersection Capacity Utilization 111.6% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



	↙	↖	↶	↑	↗	↘	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↖↖↗		↶	↑↑	↗	↖	↑↑
Traffic Volume (vph)	370	10	40	990	720	90	360
Future Volume (vph)	370	10	40	990	720	90	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3434	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3434	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	4				783		
Link Speed (mph)	30			30			30
Link Distance (ft)	308			1293			819
Travel Time (s)	7.0			29.4			18.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	413	0	43	1076	783	98	391
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	14.0		10.0	34.0	34.0	12.0	36.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	9.0		5.0	29.6	29.6	6.7	35.0
Actuated g/C Ratio	0.16		0.09	0.51	0.51	0.12	0.60
v/c Ratio	0.77		0.28	0.59	0.66	0.48	0.18
Control Delay	36.0		30.9	12.5	4.0	33.4	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	36.0		30.9	12.5	4.0	33.4	6.2
LOS	D		C	B	A	C	A
Approach Delay	36.0			9.4			11.7
Approach LOS	D			A			B

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 57.9

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.7 Intersection LOS: B

Intersection Capacity Utilization 57.9% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	350	410	650	1170	260	1040
Future Volume (vph)	350	410	650	1170	260	1040
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				792		1130
Link Speed (mph)		30	30		30	
Link Distance (ft)		1293	1312		639	
Travel Time (s)		29.4	29.8		14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	446	707	1272	283	1130
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	23.0	60.0	37.0		30.0	
Total Lost Time (s)	5.0	4.5	5.0		5.0	
Act Effct Green (s)	18.0	55.6	32.1	83.3	18.1	83.3
Actuated g/C Ratio	0.22	0.67	0.39	1.00	0.22	1.00
v/c Ratio	0.99	0.19	0.99	0.80	0.74	0.41
Control Delay	80.1	6.1	58.7	4.4	42.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	6.1	58.7	4.4	42.1	0.4
LOS	F	A	E	A	D	A
Approach Delay		40.1	23.8		8.8	
Approach LOS		D	C		A	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 83.3
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn

	↙	↖	↶	↑	↗	↘	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↖↗		↶	↑↑	↱	↰	↑↑
Traffic Volume (vph)	420	20	20	400	1630	460	750
Future Volume (vph)	420	20	20	400	1630	460	750
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3423	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3423	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	3				431		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	479	0	22	435	1772	500	815
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	19.0		11.0	98.0	98.0	33.0	120.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	14.0		5.9	93.0	93.0	28.0	119.4
Actuated g/C Ratio	0.09		0.04	0.62	0.62	0.19	0.80
v/c Ratio	1.49		0.32	0.20	1.55	1.52	0.29
Control Delay	279.0		82.5	12.6	271.9	286.9	4.7
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	279.0		82.5	12.6	271.9	286.9	4.7
LOS	F		F	B	F	F	A
Approach Delay	279.0			219.4			112.0
Approach LOS	F			F			F

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.55
Intersection Signal Delay: 191.4 Intersection LOS: F
Intersection Capacity Utilization 134.7% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

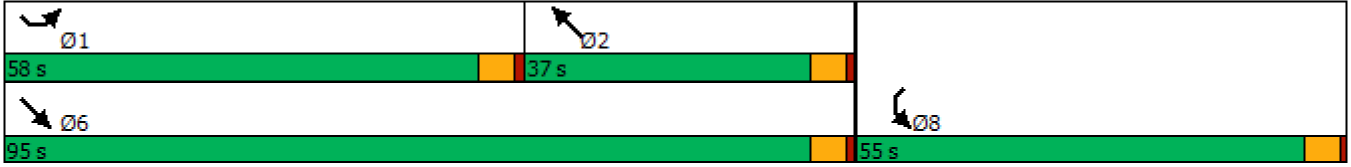
25: The Old Road & Rye Cyn

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	690	490	430	1160	650	1630
Future Volume (vph)	690	490	430	1160	650	1630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				688		662
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	750	533	467	1261	707	1772
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	58.0	95.0	37.0		55.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Act Effct Green (s)	53.0	90.0	32.0	150.0	50.0	150.0
Actuated g/C Ratio	0.35	0.60	0.21	1.00	0.33	1.00
v/c Ratio	1.20	0.25	1.18	0.80	1.20	0.64
Control Delay	146.7	14.5	152.7	4.3	147.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	146.7	14.5	152.7	4.3	147.9	1.1
LOS	F	B	F	A	F	A
Approach Delay		91.8	44.4		43.0	
Approach LOS		F	D		D	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 54.8   Intersection LOS: D
Intersection Capacity Utilization 109.4%   ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↖↖↗		↶	↑↑	↗	↖	↑↑
Traffic Volume (vph)	380	10	40	890	710	90	350
Future Volume (vph)	380	10	40	890	710	90	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3434	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3434	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	4				772		
Link Speed (mph)	30			30			30
Link Distance (ft)	308			1293			819
Travel Time (s)	7.0			29.4			18.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	424	0	43	967	772	98	380
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	14.0		10.0	34.0	34.0	12.0	36.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	9.0		5.0	29.6	29.6	6.7	35.0
Actuated g/C Ratio	0.16		0.09	0.51	0.51	0.12	0.60
v/c Ratio	0.79		0.28	0.54	0.65	0.48	0.18
Control Delay	37.0		30.9	11.7	3.9	33.4	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	37.0		30.9	11.7	3.9	33.4	6.2
LOS	D		C	B	A	C	A
Approach Delay	37.0			8.8			11.8
Approach LOS	D			A			B

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: The Old Road & I-5 SB Ramps

25: The Old Road & Rye Cyn

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	350	410	590	1180	260	980
Future Volume (vph)	350	410	590	1180	260	980
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				850		1065
Link Speed (mph)		30	30		30	
Link Distance (ft)		1293	1312		639	
Travel Time (s)		29.4	29.8		14.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	446	641	1283	283	1065
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	23.0	60.0	37.0		30.0	
Total Lost Time (s)	5.0	4.5	5.0		5.0	
Act Effct Green (s)	18.0	55.6	32.1	83.3	18.1	83.3
Actuated g/C Ratio	0.22	0.67	0.39	1.00	0.22	1.00
v/c Ratio	0.99	0.19	0.89	0.81	0.74	0.38
Control Delay	80.1	6.1	42.6	4.6	42.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	6.1	42.6	4.6	42.1	0.4
LOS	F	A	D	A	D	A
Approach Delay		40.1	17.3		9.2	
Approach LOS		D	B		A	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 83.3

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 19.2 Intersection LOS: B

Intersection Capacity Utilization 76.9% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰↱		⮌	↑↑	↱	↰	↑↑
Traffic Volume (vph)	440	20	20	400	1630	470	740
Future Volume (vph)	440	20	20	400	1630	470	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		1	1	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3423	0	1770	3539	1583	1770	3539
Flt Permitted	0.954		0.950			0.950	
Satd. Flow (perm)	3423	0	1770	3539	1583	1770	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)	2				429		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	500	0	22	435	1772	511	804
Turn Type	Prot		Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases					2		
Total Split (s)	19.0		11.0	98.0	98.0	33.0	120.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	14.0		5.9	93.0	93.0	28.0	119.4
Actuated g/C Ratio	0.09		0.04	0.62	0.62	0.19	0.80
v/c Ratio	1.56		0.32	0.20	1.55	1.55	0.29
Control Delay	307.4		82.5	12.6	272.5	300.5	4.7
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	307.4		82.5	12.6	272.5	300.5	4.7
LOS	F		F	B	F	F	A
Approach Delay	307.4			219.9			119.6
Approach LOS	F			F			F

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.56
Intersection Signal Delay: 198.1 Intersection LOS: F
Intersection Capacity Utilization 135.3% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰	↑↑	↑	↱	↰	↱↱
Traffic Volume (vph)	720	480	440	1190	660	1620
Future Volume (vph)	720	480	440	1190	660	1620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	1			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	3539	1863	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	1863	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				672		648
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	783	522	478	1293	717	1761
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6	2		8	
Permitted Phases				Free		Free
Total Split (s)	60.0	95.0	35.0		55.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Act Effct Green (s)	55.0	90.0	30.0	150.0	50.0	150.0
Actuated g/C Ratio	0.37	0.60	0.20	1.00	0.33	1.00
v/c Ratio	1.21	0.25	1.28	0.82	1.22	0.63
Control Delay	148.0	14.4	193.8	4.8	154.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.0	14.4	193.8	4.8	154.3	1.1
LOS	F	B	F	A	F	A
Approach Delay		94.6	55.8		45.4	
Approach LOS		F	E		D	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Control Type: Actuated-Uncoordinated

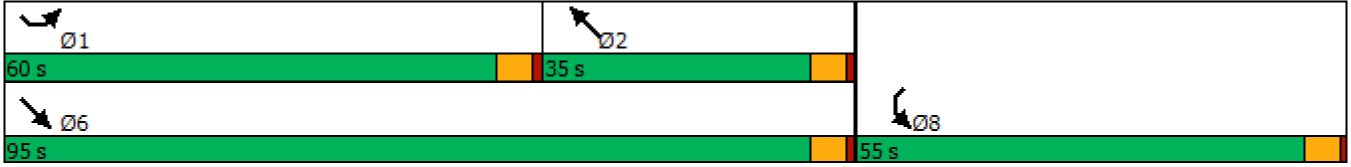
Maximum v/c Ratio: 1.28

Intersection Signal Delay: 60.3 Intersection LOS: E

Intersection Capacity Utilization 112.1% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↶	↑↑	↱↱	↰↰	↑↑↑
Traffic Volume (vph)	430	20	20	410	1650	460	750
Future Volume (vph)	430	20	20	410	1650	460	750
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		2	2	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3433	1583	1770	3539	2787	3433	5085
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3433	1583	1770	3539	2787	3433	5085
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		22			1184		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	467	22	22	446	1793	500	815
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases		3			2		
Total Split (s)	16.0	16.0	10.0	42.0	42.0	17.0	49.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	11.0	11.0	5.0	37.0	37.0	12.0	50.0
Actuated g/C Ratio	0.15	0.15	0.07	0.49	0.49	0.16	0.67
v/c Ratio	0.93	0.09	0.19	0.26	0.91	0.91	0.24
Control Delay	59.6	13.3	37.0	11.5	14.2	54.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	13.3	37.0	11.5	14.2	54.6	5.8
LOS	E	B	D	B	B	D	A
Approach Delay	57.5			13.9			24.4
Approach LOS	E			B			C

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

25: The Old Road & Rye Cyn

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰↰	↑↑	↑↑	↱	↰	↱↱
Traffic Volume (vph)	730	460	450	1260	600	1640
Future Volume (vph)	730	460	450	1260	600	1640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	3539	3539	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				748		35
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	793	500	489	1370	652	1783
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	1	6	2		8	1
Permitted Phases				Free		8
Total Split (s)	29.0	49.0	20.0		41.0	29.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	24.0	44.0	15.0	88.5	34.4	63.5
Actuated g/C Ratio	0.27	0.50	0.17	1.00	0.39	0.72
v/c Ratio	0.85	0.28	0.81	0.87	0.95	0.89
Control Delay	41.4	13.9	48.3	7.4	51.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	13.9	48.3	7.4	51.0	16.7
LOS	D	B	D	A	D	B
Approach Delay		30.7	18.1		25.9	
Approach LOS		C	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 24.4 Intersection LOS: C
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn

Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	⮌	↑↑	↱↱	↰↰	↑↑
Traffic Volume (vph)	440	20	20	380	1640	480	770
Future Volume (vph)	440	20	20	380	1640	480	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		2	2	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3433	1583	1770	3539	2787	3433	3539
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3433	1583	1770	3539	2787	3433	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		22			1182		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	478	22	22	413	1783	522	837
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases		3			2		
Total Split (s)	16.0	16.0	10.0	42.0	42.0	17.0	49.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	11.0	11.0	5.0	37.0	37.0	12.0	50.0
Actuated g/C Ratio	0.15	0.15	0.07	0.49	0.49	0.16	0.67
v/c Ratio	0.95	0.09	0.19	0.24	0.90	0.95	0.35
Control Delay	63.6	13.3	37.0	11.4	13.8	61.5	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	13.3	37.0	11.4	13.8	61.5	6.7
LOS	E	B	D	B	B	E	A
Approach Delay	61.4			13.6			27.7
Approach LOS	E			B			C

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 24.1 Intersection LOS: C
Intersection Capacity Utilization 79.4% ICU Level of Service D
Analysis Period (min) 15

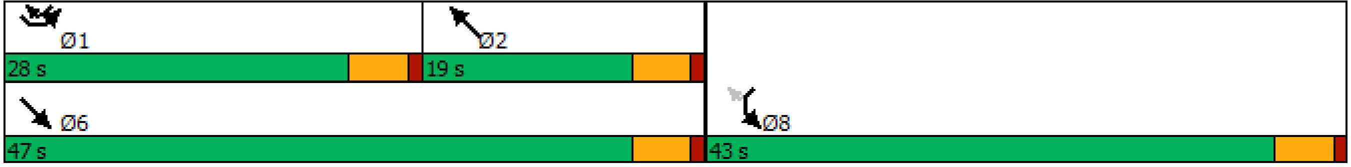
Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰↰	↑↑	↑↑	↱	↰	↱↱
Traffic Volume (vph)	760	470	410	1140	640	1630
Future Volume (vph)	760	470	410	1140	640	1630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	3539	3539	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				760		39
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	826	511	446	1239	696	1772
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	1	6	2		8	1
Permitted Phases				Free		8
Total Split (s)	28.0	47.0	19.0		43.0	28.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	23.0	42.0	14.0	88.6	36.6	64.6
Actuated g/C Ratio	0.26	0.47	0.16	1.00	0.41	0.73
v/c Ratio	0.93	0.30	0.80	0.78	0.95	0.87
Control Delay	50.3	15.2	48.4	3.9	50.3	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	15.2	48.4	3.9	50.3	14.7
LOS	D	B	D	A	D	B
Approach Delay		36.9	15.7		24.8	
Approach LOS		D	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.6
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↶	↑↑	↱↱	↰↰	↑↑
Traffic Volume (vph)	420	20	20	400	1630	460	750
Future Volume (vph)	420	20	20	400	1630	460	750
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		250	185	
Storage Lanes	2	1	1		1	2	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3433	1583	1770	3539	2787	3433	3539
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3433	1583	1770	3539	2787	3433	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		22			1184		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	457	22	22	435	1772	500	815
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases		3			2		
Total Split (s)	16.0	16.0	10.0	42.0	42.0	17.0	49.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	11.0	11.0	5.0	37.0	37.0	12.0	50.0
Actuated g/C Ratio	0.15	0.15	0.07	0.49	0.49	0.16	0.67
v/c Ratio	0.91	0.09	0.19	0.25	0.90	0.91	0.35
Control Delay	56.4	13.3	37.0	11.5	13.2	54.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	13.3	37.0	11.5	13.2	54.6	6.6
LOS	E	B	D	B	B	D	A
Approach Delay	54.4			13.1			24.9
Approach LOS	D			B			C

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 21.9 Intersection LOS: C

Intersection Capacity Utilization 78.5% ICU Level of Service D

Analysis Period (min) 15

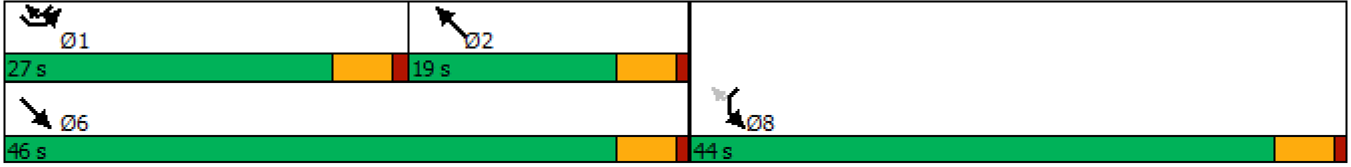
Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰↰	↑↑	↑↑	↱	↰	↱↱
Traffic Volume (vph)	690	490	430	1160	650	1630
Future Volume (vph)	690	490	430	1160	650	1630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	3539	3539	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				776		32
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	750	533	467	1261	707	1772
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	1	6	2		8	1
Permitted Phases				Free		8
Total Split (s)	27.0	46.0	19.0		44.0	27.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	22.0	41.1	14.0	88.3	37.2	64.3
Actuated g/C Ratio	0.25	0.47	0.16	1.00	0.42	0.73
v/c Ratio	0.88	0.32	0.83	0.80	0.95	0.87
Control Delay	45.3	15.9	50.8	4.3	48.4	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	15.9	50.8	4.3	48.4	14.9
LOS	D	B	D	A	D	B
Approach Delay		33.1	16.8		24.5	
Approach LOS		C	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 24.1 Intersection LOS: C
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn



	↙	↖	⤺	↑	↗	↘	↓
Lane Group	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	⤺	↑↑	↱↱	↰↰	↑↑
Traffic Volume (vph)	440	20	20	400	1630	470	740
Future Volume (vph)	440	20	20	400	1630	470	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	410	260		0	185	
Storage Lanes	2	1	1		2	2	
Taper Length (ft)	25		25			25	
Satd. Flow (prot)	3433	1583	1770	3539	2787	3433	3539
Flt Permitted	0.950		0.950			0.950	
Satd. Flow (perm)	3433	1583	1770	3539	2787	3433	3539
Right Turn on Red		Yes			Yes		
Satd. Flow (RTOR)		22			1183		
Link Speed (mph)	30			30			30
Link Distance (ft)	388			1263			429
Travel Time (s)	8.8			28.7			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							
Lane Group Flow (vph)	478	22	22	435	1772	511	804
Turn Type	Prot	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	3		5	2		1	6
Permitted Phases		3			2		
Total Split (s)	16.0	16.0	10.0	42.0	42.0	17.0	49.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	11.0	11.0	5.0	37.0	37.0	12.0	50.0
Actuated g/C Ratio	0.15	0.15	0.07	0.49	0.49	0.16	0.67
v/c Ratio	0.95	0.09	0.19	0.25	0.90	0.93	0.34
Control Delay	63.6	13.3	37.0	11.5	13.2	57.8	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	13.3	37.0	11.5	13.2	57.8	6.6
LOS	E	B	D	B	B	E	A
Approach Delay	61.4			13.1			26.5
Approach LOS	E			B			C

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 23.4 Intersection LOS: C
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: The Old Road & I-5 SB Ramps

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↰↰	↑↑	↑↑	↱	↰	↱↱
Traffic Volume (vph)	720	480	440	1190	660	1620
Future Volume (vph)	720	480	440	1190	660	1620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			0	510	0
Storage Lanes	2			1	1	2
Taper Length (ft)	25				25	
Satd. Flow (prot)	3433	3539	3539	1583	1770	2787
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	2787
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				775		39
Link Speed (mph)		30	30		30	
Link Distance (ft)		1263	1166		632	
Travel Time (s)		28.7	26.5		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	783	522	478	1293	717	1761
Turn Type	Prot	NA	NA	Free	Prot	pm+ov
Protected Phases	1	6	2		8	1
Permitted Phases				Free		8
Total Split (s)	27.0	47.0	20.0		43.0	27.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	22.0	42.0	15.0	89.3	37.3	64.3
Actuated g/C Ratio	0.25	0.47	0.17	1.00	0.42	0.72
v/c Ratio	0.93	0.31	0.80	0.82	0.97	0.87
Control Delay	51.6	15.5	47.8	4.8	53.7	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	15.5	47.8	4.8	53.7	15.6
LOS	D	B	D	A	D	B
Approach Delay		37.2	16.4		26.6	
Approach LOS		D	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 81.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 25: The Old Road & Rye Cyn