

ALDI Food Market (PDS 2017-IC-17-025)
Northwest corner of SR-67 at 16th St, Ramona, CA
March 4, 2020

Traffic Impact Study

Project Owner:

ALDI, Inc.
12661 Aldi Place
Moreno Valley, CA 92555

Prepared for The County of San Diego by Justin Rasas (RCE 60690) with:



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Job #1714



SEALING ON 3/4/2020

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Glossary of Terms and Acronyms

ADT.....	Average Daily Traffic
LOS.....	Level of Service
MPH.....	Miles per Hour
TIS.....	Traffic Impact Study
V/C.....	Volume to Capacity Ratio

Executive Summary

ALDI Food Market (PDS 2017-IC-17-025)

The project is an ALDI food market with hours of operation from 9 AM to 9 PM located on the northwest corner of SR-67 (Main St) and 16th Street in the unincorporated San Diego County community of Ramona, California. The site is approximately 2.5 net acres and is currently vacant.

The project traffic generation consists of pass-by, diverted, and primary trips. The project is calculated to attract pass-by traffic (already on 16th St adjacent to the project site) in the amount of 292 ADT, 0 AM peak hour trips, and 28 PM peak hour trips. The project is calculated to attract diverted traffic (already on SR-67 and 16th St south of SR-67) in the amount of 779 ADT, 0 AM peak hour trips, and 71 PM peak hour trips. The project is calculated to generate primary traffic (new traffic) in the amount of 877 ADT, 14 AM peak hour trips, and 82 PM peak hour trips.

The project is calculated to have one (1) direct impacts and potential cumulative impacts. A summary of project impacts is shown in **Table E-1**.

TABLE E-1: SUMMARY OF PROJECT IMPACTS AND MITIGATION

Roadway Facility	Direct Impacts (Proposed Mitigation)	Cumulative Impacts (Proposed Mitigation)
Intersections	1) SR-67 at 16 th Street (install a traffic signal – signal warrants 1b, 2 and 3 are satisfied under existing conditions)	Potential (TIF)
Segments	0 (no mitigation required)	Potential (TIF)

Note: To mitigate potential cumulative impacts, the County has established a Traffic Impact Fee (TIF) program.

As part of the project, the applicant will construct half street improvements along the project frontage to the satisfaction of the County engineer. Additionally, the project applicant will construct a full access project driveway on 16th Street to the satisfaction of the County engineer.

1.0 Introduction

This report describes the existing roadway network in the vicinity of the project site and includes a review of the existing and proposed activities for weekday peak AM and PM periods, and daily traffic conditions when the project is completed. The format of this study includes the following chapters:

- 1.0 Introduction
- 2.0 Existing Conditions
- 3.0 Project Impact Analysis
- 4.0 General Plan Consistency and Build Out Analysis
- 5.0 Summary of Recommended Mitigation Measures
- 6.0 References
- 7.0 List of Preparers and Persons and Organizations Contacted

1.1 Purpose of the Report

The purpose of this Traffic Impact Study (TIS) is to determine and analyze potential traffic impacts for the proposed ALDI Food Market.

1.2 Project Location and Description

The ALDI Food Market is proposed on the northwest corner of State Route 67 (SR-67) aka Main Street and 16th Street in the unincorporated San Diego County community of Ramona, California. The proposed ALDI Food Market consists of a 19,057 SF building with hours of operation from 9 AM to 9 PM on approximately 2.5 net acres of undeveloped land. Project access is provided through a single driveway on 16th Street. The location of the project is shown in **Figure 1**. The map of the TIS area is shown in **Figure 2**. A preliminary site plan is shown in **Figure 3**.

1.3 Planning Requirements

The project applicant does not propose a General Plan Amendment, does not propose a Specific Plan Amendment, and does not propose a rezone.

Figure 1: Project Location

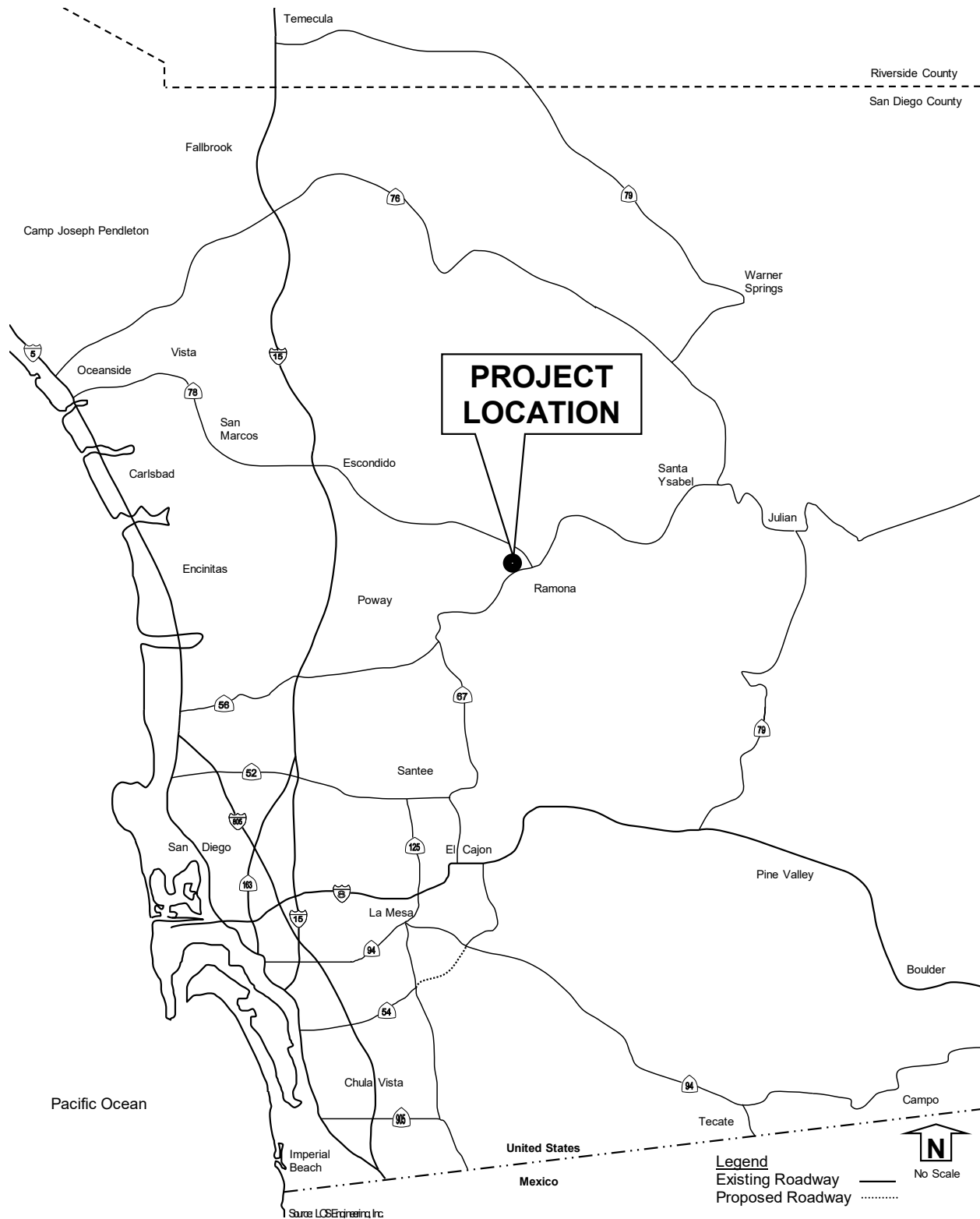
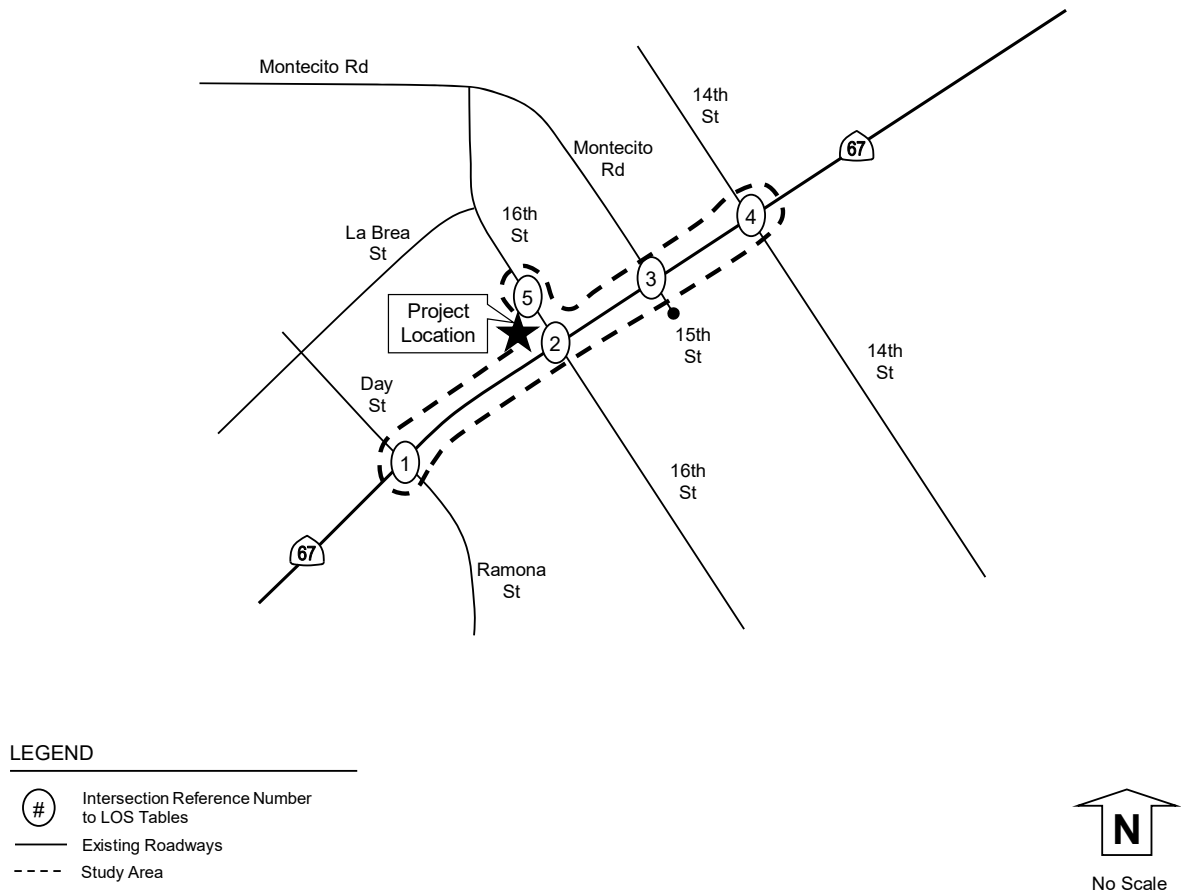


Figure 2: Traffic Impact Study Area



CONTRACT
 300 N. MAIN STREET, SUITE B
 300 N. MAIN STREET, SUITE B
 300 N. MAIN STREET, SUITE B

PROPERTY OWNER INFORMATION

NAME: A.D. INC.
 ADDRESS: 17001 A.D. PLACE
 WILSON VALLEY, CA 92593
 TELEPHONE NUMBER: 951-929-1335
 ON-PAGE CONTACT: JERRY
 SITE APPROVAL NUMBER: 2010-01-00
 SITE ADDRESS: 300 N. MAIN STREET
 BAKERSFIELD, CA 93301

PROPOSED ALDI FOOD MARKET
 119,33' x 153,33'
 (19,057 SQ. FT.)
 88 TOTAL PARKING SPACES
 (9' X 18')

EXISTING UTILITIES
 12" WATER MAIN
 12" GAS MAIN
 12" SANITARY MAIN
 12" ELECTRIC MAIN
 12" CABLE MAIN

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LOS Engineering, Inc.
Traffic and Transportation

March 4, 2020

1.4 Significance Criteria

This section describes traffic impact significance criteria applied to this project and the SANDAG Congestion Management Program (CMP) requirements.

1.4.1 County of San Diego Guidelines for Determining Significance

Based on the San Diego County *Report Format & Content Requirements Transportation and Traffic*, dated August 24, 2011, a project may have the following allowable increases on congested roadway segments and intersections as shown in **Table 1**.

TABLE 1: COUNTY OF SAN DIEGO SIGNIFICANT TRAFFIC IMPACT THRESHOLDS

Measures of Significant Project Impacts to Congestion Allowable Increases on Congested Roads and Intersections					
Operations	Road Segments			Intersections	
	2-Lane Road	4-Lane Road	6-Lane Road	Signalized	Un-signalized
LOS E	200 ADT	400 ADT	600 ADT	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	100 ADT	200 ADT	300 ADT	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

Source: County of San Diego *Guidelines for Determining Significance* Tables 1 and 2. Note: A critical movement is one that is experiencing excessive queues. By adding proposed project trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes any trips must mitigate its share of the cumulative impacts. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

A direct impact would occur when the significance criteria are exceeded. If the proposed project exceeds the values provided in the above table, then the individually proposed project would result in a direct traffic impact. Specific improvements to mitigate direct impacts must be identified.

A cumulative impact would occur when two conditions are met: 1) build-out of all near-term projects results in a cumulative traffic impact and 2) the amount of traffic generated by the individual proposed project contributes (even in a small part) to that cumulative impact. Both conditions must be met for an individual project to result in a cumulative traffic impact.

Potential mitigation measures may include traffic signal improvements (i.e. signal coordination), physical road improvements, street re-striping and parking prohibitions, fair-share contributions, and transportation demand management programs.

1.4.2 SANDAG Congestion Management Program Requirements

The San Diego Association of Governments (SANDAG) has the following statement on their website regarding the Congestion Management Program (CMP) - details included in **Appendix A**:

“In October 2009, the San Diego region elected to be exempt from the State CMP and, since this decision, SANDAG has been abiding by 23 CFR 450.320 to ensure the region’s continued compliance with the federal congestion management process.”



2.0 Existing Conditions

This section describes the study area street system, peak hour intersection volumes and daily roadway volumes.

2.1 Existing Transportation Conditions

The study area includes the segments of SR-67 (Main St) from Ramona/Day Street to 14th Street, and 16th Street from SR-67 to La Brea Street.

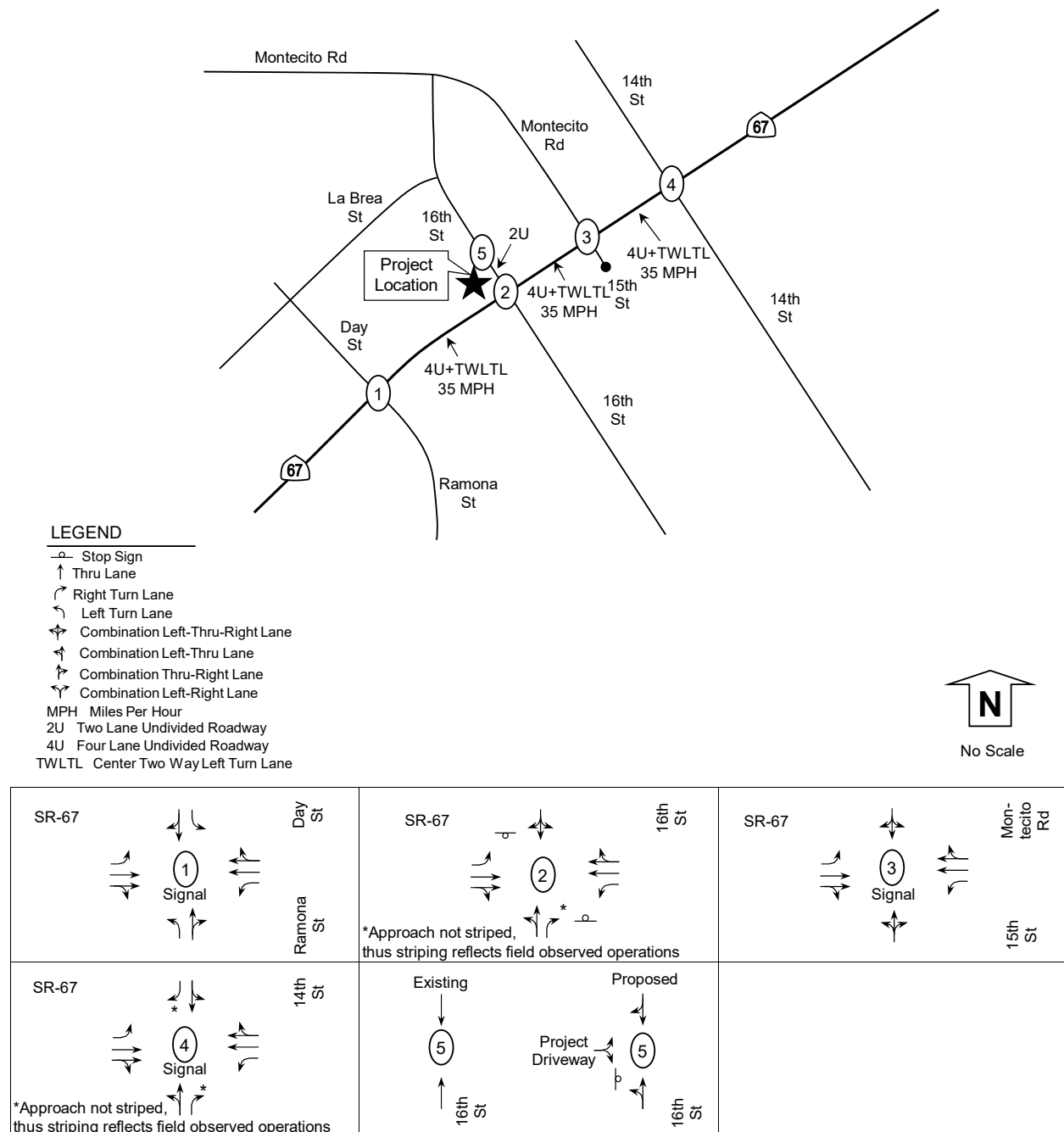
SR-67 (Main St) from Day/Ramona Street to 14th Street is classified as a *4.1B Major Road* on the County Mobility Element Network map (a copy of the County Mobility Element map is included in **Appendix B**). SR-67 (Main St) from Day/Ramona Street to 14th Street is generally constructed with two travel lanes in each direction, a center Two Way Left Turn Lane (TWLTL), with curb, gutter and sidewalks on both side of the roadway. The posted speed limit is 35 Miles per Hour (MPH). A roadway capacity of 34,200 ADT at LOS E for this segment of SR-67 (Main St) was based on the functional classification of 4.1B Major Road with intermittent Turn Lanes to reflect current roadway conditions.

16th Street from SR-67 (Main St) to La Brea Street not classified on the County Mobility Element Network map. This segment of 16th Street is generally constructed with one travel lane in each direction within a cross section of approximately 28 feet of pavement. There is curb, gutter, and side walk on the east side of the street and only curb and gutter on the west side. No parking symbols are posted along this segment. A posted speed limit was not observed on this segment. A roadway capacity of 4,500 ADT at LOS C for this segment of 16th was based on the non-mobility classification of Residential Collector to reflect current roadway conditions.

The existing roadway conditions are shown in **Figure 4**.



Figure 4: Existing Roadway Conditions



2.1.1 Existing Traffic Volumes and LOS Analyses

Existing peak hour intersection volumes were collected from 7-9 AM and 4-6 PM for the following intersections as noted below:

- 1) SR-67/Day St/Ramona St (Thursday 6/1/2017)
- 2) SR-67/16th St (Thursday 6/1/2017)
- 3) SR-67/15th St/Montecito Rd (Thursday 6/1/2017)
- 4) SR-67/14th St (Thursday 6/1/2017)

Additionally, existing daily traffic volumes were collected on the following segments:

- 1) SR-67 from Day/Ramona St to 16th St (Tuesday, 6/27/2017)
- 2) SR-67 from 16th St to 15th/Montecito Rd (Tuesday, 6/27/2017)
- 3) SR-67 from 15th/Montecito Rd to 14th St (Tuesday, 6/27/2017)
- 4) 16th Street from SR-67 to La Brea St (Tuesday, 6/27/2017)

The existing AM, PM, and daily volumes are shown on **Figure 5**, with count data included in **Appendix C**. Intersection and segment LOS are shown in **Tables 2 and 3**, respectively.

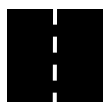
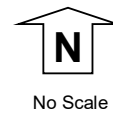
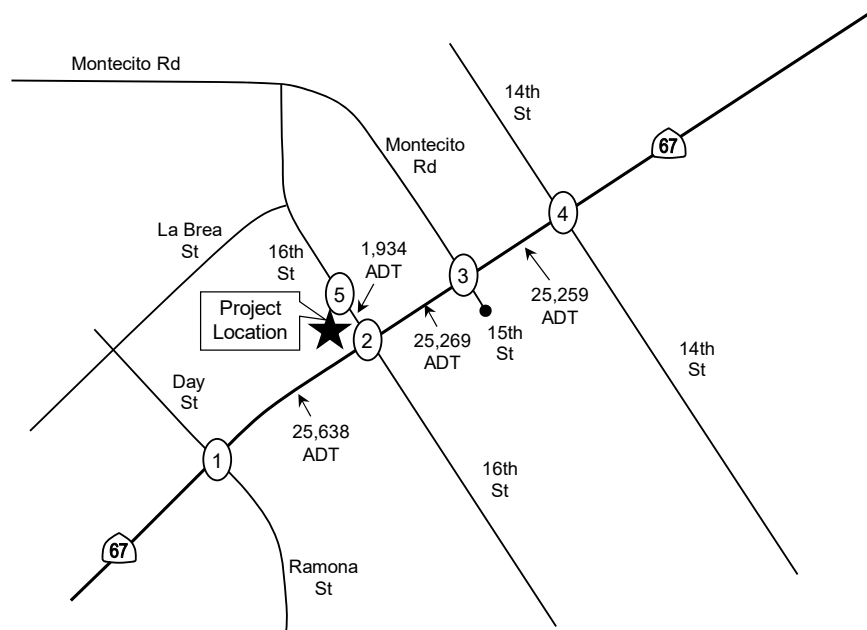


Figure 5: Existing Volumes



SR-67 36 (31) 45 (87) 46 (122) Day St 7 (23) ↓ 39 (58) 423 (875) → ① ← 546 (594) 71 (143) ↓ 115 (88) 155 (151) 56 (78) 190 (115) Ramona St	SR-67 52 (48) 3 (3) 8 (6) 16th St 46 (69) ↓ 29 (35) 599 (997) → ② ← 671 (762) 24 (67) ↓ 55 (143) 10 (10) 2 (3) 61 (146)	SR-67 74 (137) 3 (16) 67 (71) Montecito Rd 58 (129) ↓ 43 (53) 614 (998) → ③ ← 694 (779) 28 (81) ↓ 7 (37) 22 (52) 5 (22) 12 (55) 15th St
SR-67 26 (27) 30 (43) 105 (214) 14th St 16 (28) ↓ 53 (116) 592 (989) → ④ ← 648 (799) 35 (93) ↓ 16 (38) 135 (172) 33 (42) 40 (33)	Proposed Project Driveway 63 (57) 16th St ↓ ⑤ ↓ 77 (107)	LEGEND XX AM peak hour volumes at intersections (YY) PM peak hour volumes at intersections Z,ZZZ ADT volumes shown along segments ① Intersection Reference Number to LOS Tables — Existing Roadways

TABLE 2: EXISTING INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Existing	
			Delay ²	LOS ³
1) SR-67 at Day-Ramona St (S)	All	AM	21.5	C
	All	PM	25.7	C
2) SR-67 at 16th St (U)	NB LTR	AM	16.9	C
	SB LTR	AM	19.8	C
	NB LTR	PM	32.6	D
	SB LTR	PM	52.5	F
3) SR-67 at 15th-Montecito Rd (S)	All	AM	18.6	B
	All	PM	26.2	C
4) SR-67 at 14th St (S)	All	AM	28.6	C
	All	PM	42.8	D
5) 16th St at Project Dwy (U)	EB LR	AM	Does Not Exist	Not Applicable
	NB L	AM	Does Not Exist	Not Applicable
	EB LR	PM	Does Not Exist	Not Applicable
	NB L	PM	Does Not Exist	Not Applicable

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 3: EXISTING SEGMENT ADT VOLUMES AND LEVEL OF SERVICE

Segment	Mobility/Non-Mobility Classification (as built)	LOS E Capacity	Existing			
			Daily Volume	V/C	LOS	
State Route 67 (Main St)						
Ramona/Day St to 16th St	Major 4.1B (4U+TWLTL)	34,200	25,638	0.750	C	
16th St to 15th St/Montecito Rd	Major 4.1B (4U+TWLTL)	34,200	25,269	0.739	C	
15th St/Montecito Rd to 14th St	Major 4.1B (4U+TWLTL)	34,200	25,259	0.739	C	
16th Street						
La Brea St to SR-67	Non-Mobility (2U)	4,500 *	1,934	0.430	C	

Notes: 4U+TWLTL = 4 un-divided lanes + two way left turn lane. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. * At LOS C.

Under existing conditions, all study intersections and segments were calculated to operate at LOS D or better (calculations in **Appendix D**) except for the intersection of SR-67/16th St (LOS F PM southbound approach).

2.2 Existing Parking, Transit and On-site Circulation

The existing project site is vacant; therefore, no existing on-site parking and no on-site circulation exist. The Metropolitan Transit System shows Bus Route 891 and 892 on SR-67 in the vicinity of the project site (map included in **Appendix E**).



3.0 Project Impact Analysis

This section describes the traffic analysis methodology.

3.1 Analysis and Methodology

The project study area was based on direction from County staff and guidelines as outlined in the County of San Diego *Guidelines for Determining Significance and Report Format and Content Requirements Transportation and Traffic* dated August 24, 2011.

The traffic analyses prepared for this study were based on the *2010 Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections, roadway segments, and highway segments are measured using the HCM LOS designations, which range from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The individual LOS criteria for each roadway component are described below.

3.1.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 2010 HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 8.0 (Trafficware Corporation). The HCM LOS for the range of delay by seconds for un-signalized and signalized intersections is described in **Table 4**.

TABLE 4: INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2010)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (seconds/vehicle)	Signalized Control Delay (seconds/vehicle)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: Highway Capacity Manual 2010 (exhibit 19-1 for two way stop control, exhibit 20-2 for all way stop control, and exhibit 18-4 for signalized intersections).

3.1.2 Street Segments

The street segments were analyzed based on the functional classification of the roadway using the County of San Diego *Average Daily Vehicle Trips* capacity lookup table. The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 5**.



TABLE 5: STREET SEGMENT DAILY CAPACITY AND LOS (COUNTY OF SAN DIEGO GENERAL PLAN UPDATE)

Mobility Element Roads Classification		LOS A	LOS B	LOS C	LOS D	LOS E
Expressway	6.1	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial	6.2	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road w/raised median	4.1A	<14,800	<24,700	<29,600	<33,400	<37,000
Major Rd w/intermittent turn lanes	4.1B	<13,700	<22,800	<27,400	<30,800	<34,200
Boulevard w/raised median	4.2A	<18,000	<21,000	<24,000	<27,000	<30,000
Boulevard w/Intermittent turn lanes	4.2B	<16,800	<19,600	<22,500	<25,000	<28,000
Community Collector w/raised median	2.1A	<10,000	<11,700	<13,400	<15,000	<19,000
Community Collector w/cont. turn lane	2.1B	<3,000	<6,000	<9,500	<13,500	<19,000
Community Collector w/intermit. turn lane	2.1C	<3,000	<6,000	<9,500	<13,500	<19,000
Community Collector w/improvement opt.	2.1D	<3,000	<6,000	<9,500	<13,500	<19,000
Community Collector	2.1E	<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector w/raised median	2.2A	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector w/continuous left turn lane	2.2B	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector w/intermittent turn lane	2.2C	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector w/ passing lane	2.2D	<3,000	<6,000	<9,500	<13,500	<19,000
Light Collector - no median	2.2E	<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector w/ reduced shoulder	2.2F	<5,800	<6,800	<7,800	<8,700	<9,700
Minor Collector w/raised median	2.3A	<3,000	<6,000	<7,000	<8,000	<9,000
Minor Collector w/intermittent turn lane	2.3B	<3,000	<6,000	<7,000	<8,000	<9,000
Minor Collector – no median	2.3C	<1,900	<4,100	<6,000	<7,000	<8,000
Non-Mobility Element Roads Classification				LOS C		
Residential Collector 2 lanes				<4,500		

Source: County of San Diego Public Road Standards, March, 2012.

3.2 Project Trip Generation

A review of trip generation rates from the SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002 and the 9th Edition of Institute of Transportation Engineers (ITE) *Trip Generation*, 2012 were reviewed for applicability to the proposed project. The project is open from 9 AM to 9 PM and is smaller than typical grocery stores (i.e. Von's or Ralphs); therefore, the following sources and trends were reviewed to determine an appropriate trip rate:

- 1) SANDAG trip rates were calculated using two data points that included a Von's (open 24 hours a day) from data collected in 1988 and an Alpha Beta & Central Liquor from data collected in 1981. The proposed ALDI project with hours of operation from 9 AM to 9 PM (12 hours) is exactly half of Von's 24 hours of operation used in calculating the SANDAG trip rate. The SANDAG rate does not match ALDI's hours of operation (i.e. not open 24 hours and not open between 7 AM and 9 AM).
- 2) SANDAG supermarket trip rates were from two data points in 1981 and 1988. ITE trip rates for supermarkets were averaged from approximately 23 sources with data collected between 1960s and 2000s throughout the United States. The ITE rate is calculated using significantly more data points.
- 3) The ITE trip rate of supermarket (land use: 850) was used in at least 4 traffic studies/analyses throughout southern California to represent ALDI. The California cities



included Encinitas, La Habra, La Puente, and Rialto.

- 4) The ITE trip rate of supermarket (land use: 850) was also used in traffic studies/analyses for similarly sized food markets such as Fresh and Easy (Oceanside and Rosemead), and Trader Joe's (Berkeley). This information documents that other non-traditional food markets also used ITE rates that included a Fresh and Easy in Oceanside.
- 5) The County of San Diego has allowed use of different trips rates to best represent a project. The County of San Diego Tiered Winery Zoning Ordinance Amendment Project EIR developed trip generation rates to best represent the project winery operations. The approach of finding a representative trip generation rate for ALDI is consistent with the County's approach documented in the Tiered Winery Zoning Ordinance Amendment Project EIR.
- 6) ALDI is more similar to a no-frills or discount store and typically carries a tenth as many products as a conventional supermarket, which usually carries between 20,000 and 30,000 branded products [Economist, June 17, 2017 edition]. ITE has a trip rate for discount supermarket (land use: 854) of 90.86 trips/1,000 sf; however, the ITE land use 850 should be used in order to be consistent with the precedence of the aforementioned traffic studies (items #3 and #4 above).
- 7) The project is open from 9 AM to 9 PM; therefore; there are either no customers or a negligible few (2 or 3) arriving before the doors open at 9 AM. However, there will be up to 8 employees and up to 3 deliveries between 8 AM and 9 AM. Therefore, the project AM peak hour would include up to 14 inbound (3 early bird customers, 8 employees, and 3 deliveries) and 0 outbound trips from 7 AM to 9 AM.

Based on the above findings, the more appropriate trip generation for the ALDI project is the ITE land use 850 with a trip rate of 102.24 daily trips/1,000 sf, an AM peak hour based on site specific information, and a PM peak hour based on the ITE land use 850 rate of 9.48 PM trips/1,000 sf. Supporting data for the above sources and trends are included in **Appendix F**.

SANDAG's *Analysis of Trip Diversion*, revised November 1990 documented the percentages of pass-by, diverted, and primary trips for various land uses. The amount of traffic based on SANDAG's pass-by, diverted, and primary percentages applied to the above noted trip generation is as follows:

- 1) The project is calculated to attract pass-by traffic (already on 16th St adjacent to the project site) in the amount of 292 ADT, 0 AM peak hour trips, and 28 PM peak hour trips (14 inbound and 14 outbound).
- 2) The project is calculated to attract diverted traffic (already on SR-67 and 16th St south of SR-67) in the amount of 779 ADT, 0 AM peak hour trips, and 71 PM peak hour trips (36 inbound and 35 outbound).
- 3) The project is calculated to generate primary traffic (new traffic) in the amount of 877 ADT, 14 AM peak hour trips (14 inbound, and 0 outbound), and 82 PM peak hour trips (42 inbound and 40 outbound).



The trip generation showing pass-by, diverted, and primary trips is shown in **Table 6**.

TABLE 6: PROJECT TRIP GENERATION

Proposed Land Use	Rate	Size & Units	ADT	AM*		Rate	Split	PM				
				IN	OUT			IN	OUT			
<u>Total Driveway Trips (Pass-by plus Diverted plus Primary)</u>												
Supermarket (ITE 850)	102.24	/KSF	19,057	SF	1,948	14	0	9.48	0.51	0.49	92	89
<u>Pass-By Trips (Existing trips already on study roadways)</u>												
SANDAG Percentage for Pass-By Trips = 15%					292						14	14
<u>Diverted Trips (Existing trips already on study roadways)</u>												
SANDAG Percentage for Diverted Trips = 40%					779						36	35
<u>Primary Trips (NEW trips added to the study roadways)</u>												
SANDAG Percentage for Primary Trips = 45%					877	14	0				42	40

Source: ITE 9th Edition Trip Generation, 2012. *AM trips based on project specific information. KSF: 1,000 sf;
ADT-Average Daily Traffic; Split-percent inbound and outbound. Rounding may result in ± 1 to above numbers

3.3 Project Trip Distribution and Assignment

Project trips were distributed based on a SANDAG Select Zone Assignment (SZA) from a Traffic Analysis Zone (TAZ). A TAZ was selected that was adjacent to the project site (immediately south of SR-67) that represented a large shopping center to match the project's characteristics (**Appendix G**).

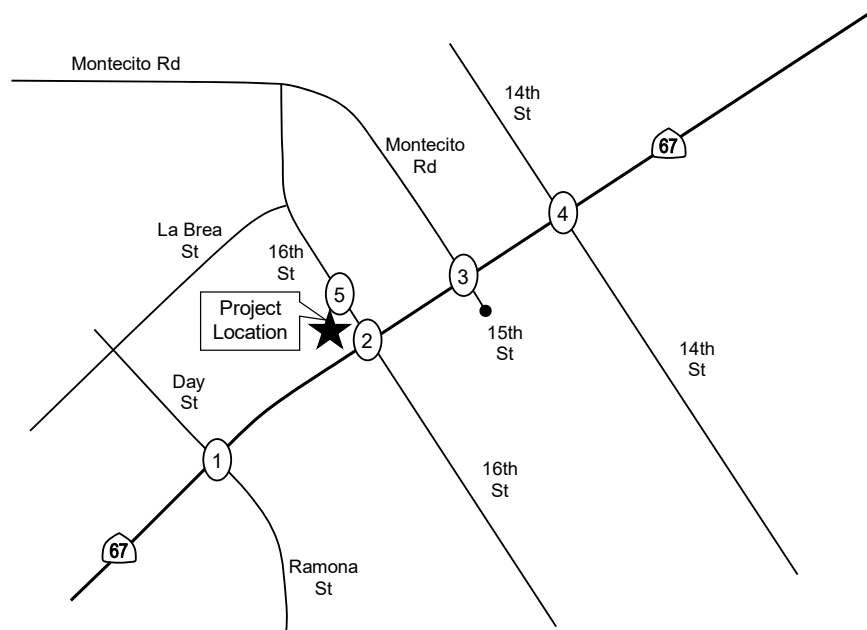
The pass-by distribution as shown in **Figure 6** is specific to the adjacent segment of 16th Street (i.e. vehicles already on 16th Street will turn into the project site [hence a negative distribution shown at intersection #5], shop, and then resume travel on 16th St in their original direction of travel). The assignment of the pass-by trips is shown in **Figure 7**.

The diverted distribution shown in **Figure 8** is specific to SR-67 and 16th Street south of SR-67 (i.e. vehicles near the project site will divert to 16th St, visit the project site, then resume original travel direction). The assignment of the diverted trips is shown in **Figure 9**.

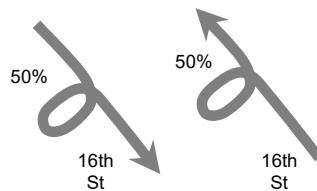
The primary distribution as shown in **Figure 10** covers the entire study area. The assignment of the primary or new trips is shown in **Figure 11**.

The total project assignment that includes pass-by, diverted, and primary trips are shown in **Figure 12**.

Figure 6: Pass-By Distribution



Pass-by Distribution Pattern (already on 16th St and will enter project site and then resume travel on 16th St), thus no new segment traffic.



SR-67 Day St Ramona St 1	SR-67 16th St 2	SR-67 Montecito Rd 15th St 3
SR-67 14th St 4	Project Driveway 50% 50% 50% 50% 16th St 5 -50% -50%	LEGEND ↔ Distribution Ⓢ Intersection Reference Number to LOS Tables — Existing Roadways



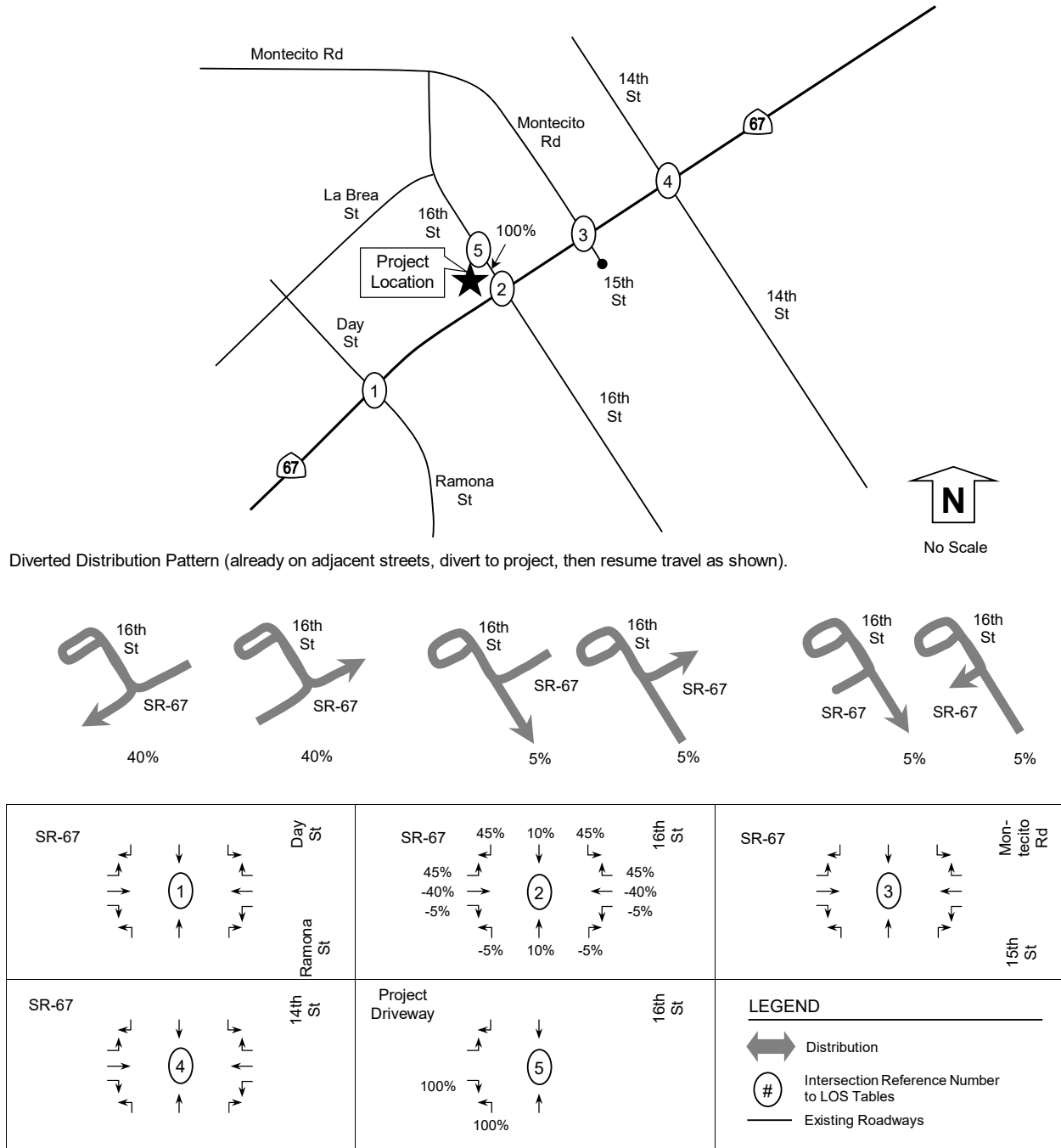


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ALDI Food Market (PDS 2017-IC-17-025) TIS
16 March 4, 2020

Figure 8: Diverted Distribution



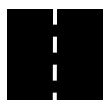
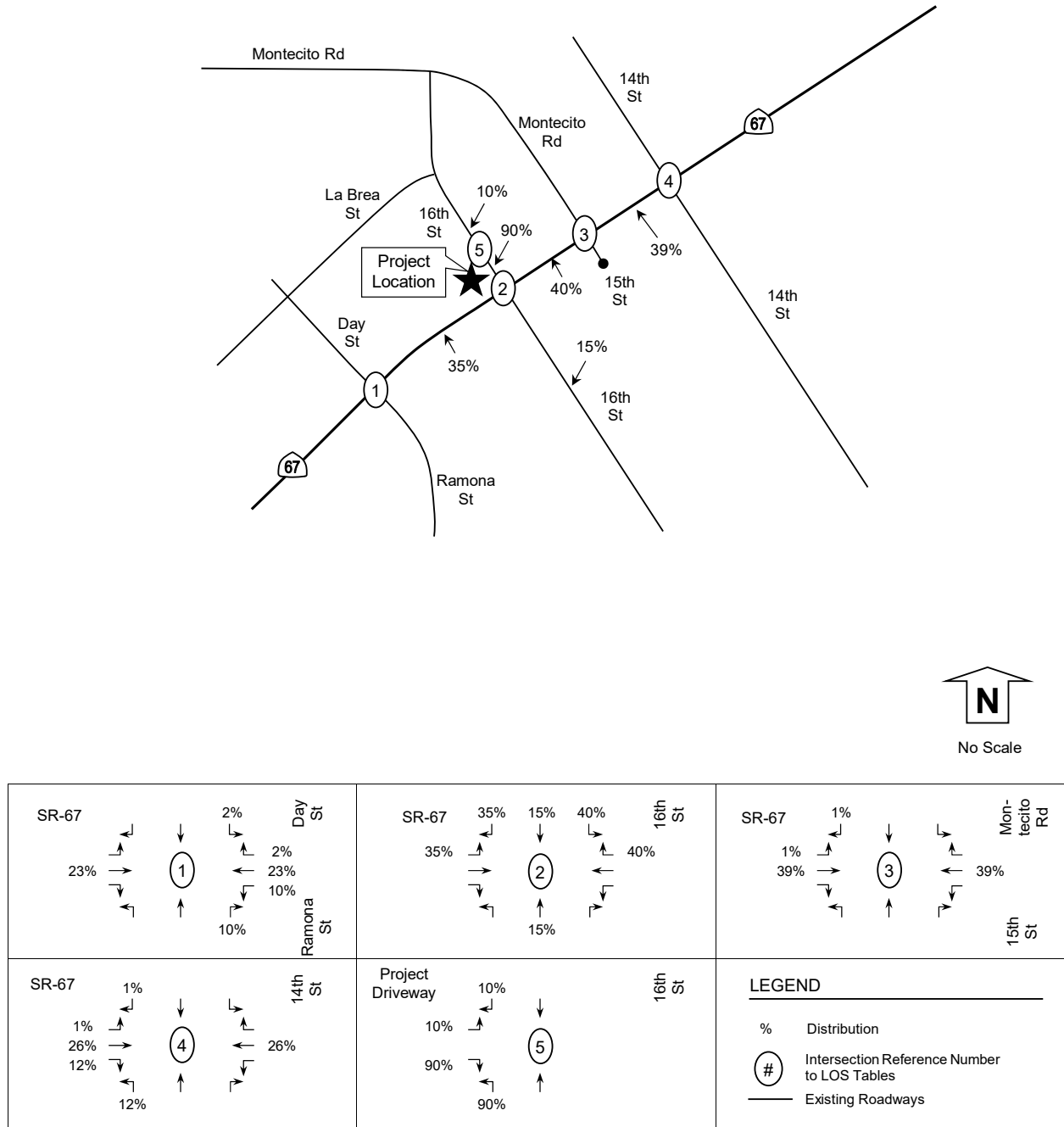


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ALDI Food Market (PDS 2017-IC-17-025) TIS
18 March 4, 2020

Figure 10: Primary Distribution



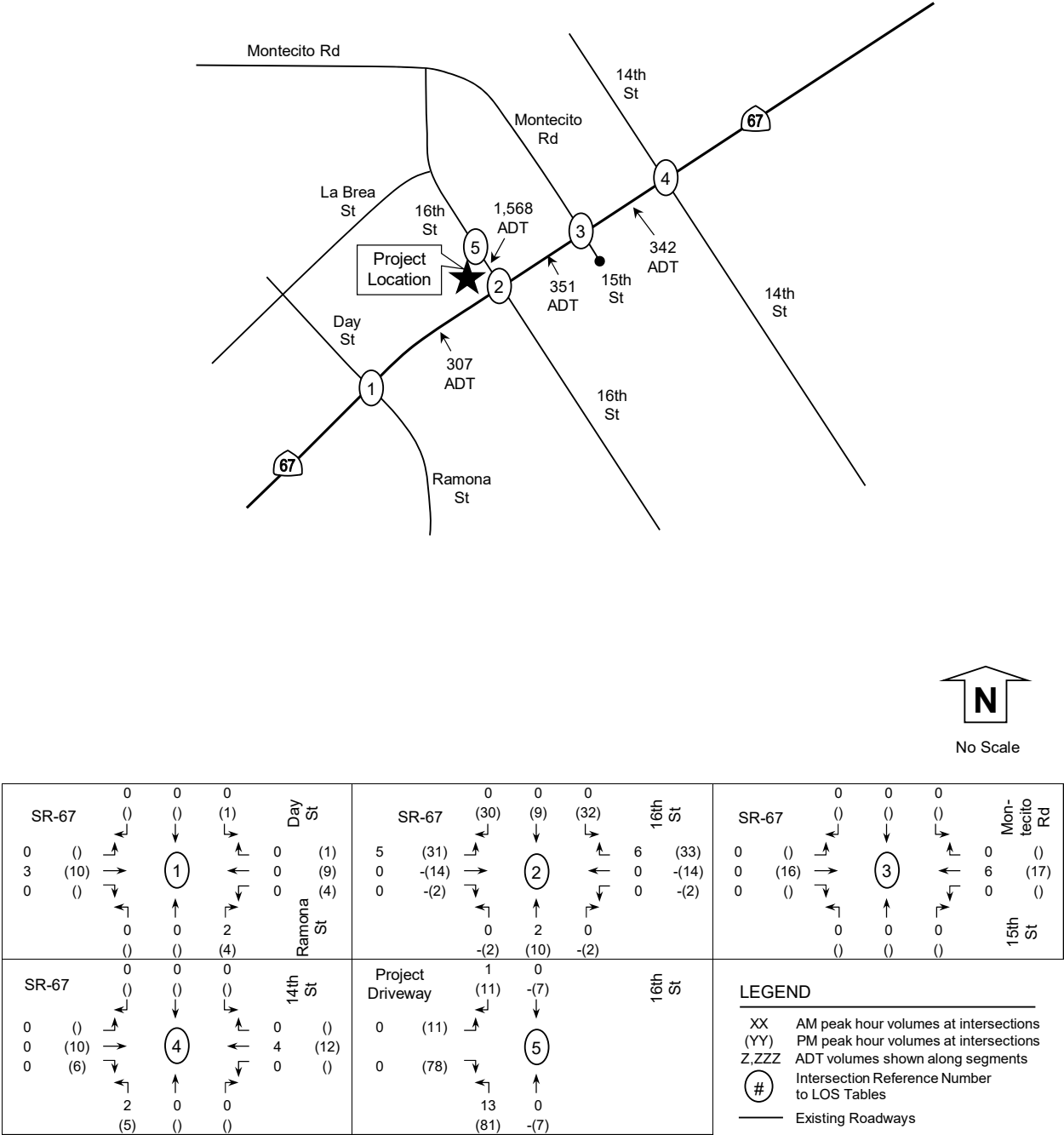


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ALDI Food Market (PDS 2017-IC-17-025) TIS
20 March 4, 2020

Figure 12: Total Project Trip Assignment



3.4 Existing + Project Conditions

This section will summarize the analysis for the addition of project traffic onto the existing background traffic for AM, PM, and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario of existing + project are shown in **Figure 13**. The LOS calculated for the intersections and street segments are shown in **Tables 7 and 8**, respectively.

TABLE 7: EXISTING + PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and Movement (Analysis) ¹	Study Period	Existing		Existing + Project					
		Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	CM Vol ⁵	Direct Impact? ⁶	
1) SR-67 at Day-Ramona St (S)	All AM	21.5	C	21.6	C	0.1	2	No	
	All PM	25.7	C	26.1	C	0.4	10	No	
2) SR-67 at 16th St (U)	NB LTR AM	16.9	C	18.4	C	1.5	2	No	
	SB LTR AM	19.8	C	20.3	C	0.5	0	No	
	NB LTR PM	32.6	D	82.2	F	49.6	10	Yes	
	SB LTR PM	52.5	F	1332.5	F	1280.0	71	Yes	
3) SR-67 at 15th-Montecito Rd (S)	All AM	18.6	B	18.6	B	0.0	0	No	
	All PM	26.2	C	26.4	C	0.2	0	No	
4) SR-67 at 14th St (S)	All AM	28.6	C	28.6	C	0.0	2	No	
	All PM	42.8	D	43.2	D	0.4	11	No	
5) 16th St at Project Dwy (U)	EB LR AM	DNE	NA	0.0	A	NA	0	No	
	NB L AM	DNE	NA	1.1	A	NA	13	No	
	EB LR PM	DNE	NA	9.3	A	NA	89	No	
	NB L PM	DNE	NA	3.4	A	NA	81	No	

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Critical Movement Volume. 6) Direct Impact if project traffic exceeds threshold. DNE: Does not exist. NA: Not Applicable.

The County of San Diego trigger for an intersection impact is based on the amount of critical movement volume being added under LOS E/F conditions. At LOS E, up to 20 peak hour trips are allowed on critical movement while 21 would be considered an impact. At LOS F, up to 5 peak hour trips are allowed on a critical movement while 6 would be considered an impact.

TABLE 8: EXISTING + PROJECT SEGMENT ADT VOLUMES AND LEVEL OF SERVICE

Segment	Mobility/Non-Mobility Classification (as built)	LOS E Capacity	Existing			Project		Existing + Project				
			Daily Volume	V/C	LOS	Daily Volume	Daily Volume	V/C	LOS	Change in V/C	Project Impact?	
State Route 67 (Main St)												
Ramona/Day St to 16th St Major	4.1B (4U+TWLTL)	34,200	25,638	0.750	C	307	25,945	0.759	C	0.009	No	
16th St to 15th St/Montecito Rd Major	4.1B (4U+TWLTL)	34,200	25,269	0.739	C	351	25,620	0.749	C	0.010	No	
15th St/Montecito Rd to 14th St Major	4.1B (4U+TWLTL)	34,200	25,259	0.739	C	342	25,601	0.749	C	0.010	No	
16th Street												
La Brea St to SR-67	Non-Mobility (2U)	4,500*	1,934	0.430	C	1,568	3,502	0.778	C	0.348	No	

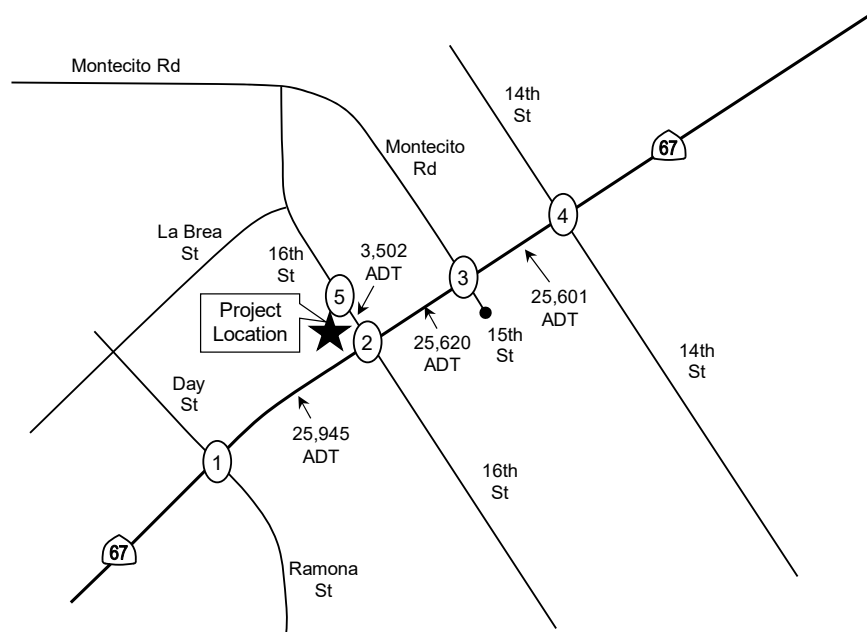
Notes: 4U+TWLTL = 4 un-divided lanes + two way left turn lane. Daily volume is a 24 hour volume. LOS: Level of Service.

V/C: Volume to Capacity Ratio. * At LOS C.

Under existing + project conditions, all study intersections and roadways were calculated to operate at LOS D or better except for the intersection of SR-67/16th St (LOS F PM). The project is calculated to have direct impact to the intersection of SR-67/16th St. Intersection LOS calculations are included in **Appendix H**.



Figure 13: Existing + Project Volumes



SR-67 36 (31) 45 (87) 46 (123) Day St 7 (23) ↗ ↘ 39 (59) 426 (885) → ① ← 546 (603) 71 (143) ↘ ↗ 115 (92) 155 (151) 56 (78) 192 (119) Ramona St	SR-67 52 (78) 3 (12) 8 (38) 16th St 51 (100) ↗ ↘ 35 (68) 599 (983) → ② ← 671 (748) 24 (65) ↘ ↗ 55 (141) 10 (8) 4 (13) 61 (144) 16th St	SR-67 74 (137) 3 (16) 67 (71) Montecito Rd 58 (129) ↗ ↘ 43 (53) 614 (1014) → ③ ← 700 (796) 28 (81) ↘ ↗ 7 (37) 22 (52) 5 (22) 12 (55) 15th St
SR-67 26 (27) 30 (43) 105 (214) 14th St 16 (28) ↗ ↘ 53 (116) 592 (999) → ④ ← 652 (811) 35 (99) ↘ ↗ 16 (38) 137 (177) 33 (42) 40 (33) 14th St	Project Driveway 1 (11) 63 (50) 16th St 0 (11) ↗ ↘ 13 (81) 0 (78) ↘ ↗ 77 (100) 16th St	LEGEND XX AM peak hour volumes at intersections (YY) PM peak hour volumes at intersections Z,ZZZ ADT volumes shown along segments ① Intersection Reference Number to LOS Tables — Existing Roadways

3.5 Ramps

There are no freeway on-ramps in the project vicinity; therefore, a ramp meter analysis is not provided.

3.6 Congestion Management Program

The San Diego Association of Governments (SANDAG) has the following statement on their website regarding the Congestion Management Program (CMP) - details included in Appendix A:

“In October 2009, the San Diego region elected to be exempt from the State CMP and, since this decision, SANDAG has been abiding by 23 CFR 450.320 to ensure the region’s continued compliance with the federal congestion management process.”

3.7 Hazards Due To An Existing Transportation Design Feature

Project has frontage on SR-67 and 16th Street. Any required improvements will be constructed to maintain existing conditions as it relates to existing design features.

3.8 Hazards To Pedestrians or Bicyclists

Project has frontage on SR-67 and 16th Street. Any required improvements will be constructed to maintain existing conditions as it relates to pedestrian and bicyclists.

3.9 Public Transportation

Metropolitan Transit System Bus Route 891 and 892 (map included in Appendix E) is shown on SR-67. Bus stop are located on SR-67 near the project site.

3.10 Impact Summary Table

The project is calculated to have one (1) direct impact and the potential for cumulative impacts as summarized in **Table 12**.

TABLE 9: IMPACT SUMMARY TABLE

Roadway Facility	Direct Impacts	Cumulative Impacts
Intersections	1) SR-67 (Main St)/16 th St	Potential
Segments	0	Potential

Note: To mitigate potential cumulative impacts, the County has established a Traffic Impact Fee (TIF) program.



4.0 General Plan Consistency and Build-out Analysis

The project use is consistent with the existing general plan. The project applicant does not propose a General Plan Amendment, Specific Plan Amendment, or Rezone. Therefore, a build-out analysis is not required.



5.0 Summary of Recommended Mitigation Measures

The project is calculated to have one (1) direct impact due to the addition of project traffic that exceeds the allowable thresholds at the intersection of SR-67 (Main St)/16th Street. Additionally, the project may contribute to potential cumulative impacts.

5.1 Direct Impacts

The direct intersection impact can be mitigated to below a level of significance through the installation of a traffic signal at SR-67 (Main St)/16th Street. Signal Warrants 1b, 2, and 3 are satisfied under existing conditions for data collected on 6/27/17 and for a three day average of data from 9/26/17, 9/27/17, and 9/28/17 (calculations are included in **Appendix I**). The intersection operations are shown in **Table 10** (LOS calculations included in **Appendix J**).

TABLE 10: INTERSECTION LOS WITH MITIGATION FOR EXISTING + PROJECT CONDITIONS

Intersection and Movement (Analysis) ¹	Study Period	Existing		Existing + Project					
		Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	CM Vol ⁵	Direct Impact? ⁶	
2) SR-67 at 16th St (U)	NB LTR	AM	16.9	C	18.4	C	1.5	2	No
	SB LTR	AM	19.8	C	20.3	C	0.5	0	No
	NB LTR	PM	32.6	D	82.2	F	49.6	10	Yes
	SB LTR	PM	52.5	F	1332.5	F	1280.0	71	Yes
With Mitigation of a traffic signal	All	AM	NA	NA	13.6	B	NA	10	No
	All	PM	NA	NA	23.4	C	NA	71	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Critical Movement Volume. 6) Direct Impact if project traffic exceeds threshold. NA: Not Applicable.

5.2 Cumulative Impacts

Because the proposed project is located within the Ramona TIF area, the project applicant would pay into the TIF program to mitigate any potential cumulative impacts. The County of San Diego has developed an overall programmatic solution that addresses existing and projected future road deficiencies in the unincorporated portion of San Diego County. This program includes the adoption of a TIF program to fund improvements to roadways necessary to mitigate potential cumulative impacts caused by traffic from future development. Based on SANDAG regional growth and land use forecasts, the SANDAG Regional Transportation Model was utilized to analyze projected build-out development conditions on the existing mobility element roadway network throughout the unincorporated area of the County. Based on the results of the traffic modeling, funding necessary to construct transportation facilities that will mitigate cumulative impacts from new development was identified. Existing roadway deficiencies will be corrected through improvement project funded by other public funding sources, such as TransNet, gas tax, and grants. Potential cumulative impacts to the region's freeways have been addressed in SANDAG's Regional Transportation Plan (RTP). This plan, which considers freeway build-out over the next 30 years, will use funds from TransNET, state, and federal funding to improve freeways to projected level of service objectives in the RTP.



The proposed project is calculated to generate 877 primary daily trips. These trips will be distributed on mobility element roadways in the County that were analyzed by the TIF program, some of which currently are projected to operate at inadequate levels of service. These project trips therefore contribute to a potential significant cumulative impact and mitigation is required. The potential growth represented by this project was included in the growth projections upon which the TIF project is based. The TIF cost is based on the year when building permits are pulled and type of building permit.

5.3 Summary of Impacts, Mitigation, and Project Improvements

The project is calculated to have one (1) direct impact due to the addition of project traffic that exceeds the allowable thresholds at the intersection of SR-67 (Main St)/16th Street. A summary of project impacts and proposed mitigation is shown in **Table 11**.

TABLE 11: SUMMARY OF PROJECT IMPACTS AND MITIGATION

Roadway Facility	Direct Impacts (Proposed Mitigation)	Cumulative Impacts (Proposed Mitigation)
Intersections	1) SR-67 at 16 th Street (install a traffic signal – signal warrants 1b, 2, and 3 are satisfied under existing conditions)	Potential (TIF)
Segments	0 (no mitigation required)	Potential (TIF)

Note: To mitigate potential cumulative impacts, the County has established a Traffic Impact Fee (TIF) program.

As part of the project, the applicant will construct half street improvements along the project frontage to the satisfaction of the County engineer. Additionally, the project applicant will construct a full access project driveway on 16th Street to the satisfaction of the County engineer.



6.0 References

County of San Diego. August 24, 2011. *Guidelines for Determining Significance and Report Format and Content Requirements Traffic and Transportation*. Print.

San Diego Association of Governments (SANDAG). April 2002. *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*. Print.

Trafficware Corporation, 2014. Synchro 8.0 computer software. CD ROM.

Transportation Research Board National Research Council Washington, D.C. 2010. *Highway Capacity Manual 2010*. CD ROM.

7.0 List of Preparers and Persons and Organizations Contacted

7.1 List of Preparers

Justin Rasas, P.E. (RCE 60690), LOS Engineering, Inc. Author

7.2 Organizations Contacted

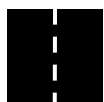
ALDI, Skip Janes (client)

CALTRANS, Jacob Armstrong and Joshua Reese

IngenAE, LLC, Ryan Vliek (client representative)

National Data & Surveying Services, Josie Crivello

SANDAG, Mike Calandra and Limeng Yu



Appendix A

Congestion Management Program SANDAG Position



**BOARD OF DIRECTORS
OCTOBER 23, 2009**

**AGENDA ITEM NO. 09-10-6
ACTION REQUESTED – INFORMATION**

CONGESTION MANAGEMENT PROGRAM PROCESS

File Number 3100400

Introduction

SANDAG, as the Congestion Management Agency (CMA), is required by state law to prepare and regularly update a Congestion Management Program (CMP) for the San Diego region. The last CMP update was adopted by SANDAG in November 2008. On May 8, 2009, the Board of Directors directed staff to work with local jurisdictions that wished to prepare resolutions electing to opt out of the state CMP. A majority of the jurisdictions representing a majority of the population have adopted resolutions electing to be exempt from the state CMP. This informational report also was presented at the October 16, 2009, Transportation Committee meeting.

Discussion

The purposes of the CMP are to monitor the performance of the transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. SANDAG staff evaluated options for future direction of the CMP and discussed these options at multiple meetings of the Cities/County Transportation Advisory Committee and the Regional Planning Technical Working Group. One option was to streamline the SANDAG CMP process and the other was to opt out of the state CMP process. As previously stated, at its May 8, 2009, meeting, the Board of Directors discussed these options and voted to direct staff to work with local jurisdictions that wished to prepare resolutions electing to opt out of the state CMP.

Assembly Bill (AB) 2419, passed in 1996, allows congestion management agencies to “opt out” of the state CMP process. Section 65088.3 of the California Government Code states *“This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program.”* Over the past few months 14 out of the 19 local jurisdictions, representing a majority of the population in San Diego County have adopted resolutions electing to be exempt from the state CMP process. The local jurisdictions that adopted resolutions include: Carlsbad, Chula Vista, El Cajon, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, City of San Diego, County of San Diego, San Marcos, and Santee.

SANDAG will continue to meet the federal congestion management provisions through existing SANDAG planning and performance monitoring activities, such as the Regional Transportation Plan (RTP) and other multimodal performance monitoring efforts. Federal congestion management provisions are more flexible and utilize the RTP as the primary tool to provide solutions for congestion. The RTP includes identification and evaluation of anticipated performance and expected benefits of appropriate congestion management strategies (demand management, operational improvements, transit improvements, systems management improvements, etc.).

Additionally, appropriate analysis of multimodal strategies and alternatives for corridors is required when an increase in single occupancy vehicle capacity is proposed.

Next Steps

SANDAG staff will notify the California Transportation Commission and State Controller of the region's decision to elect to be exempt from the state CMP.

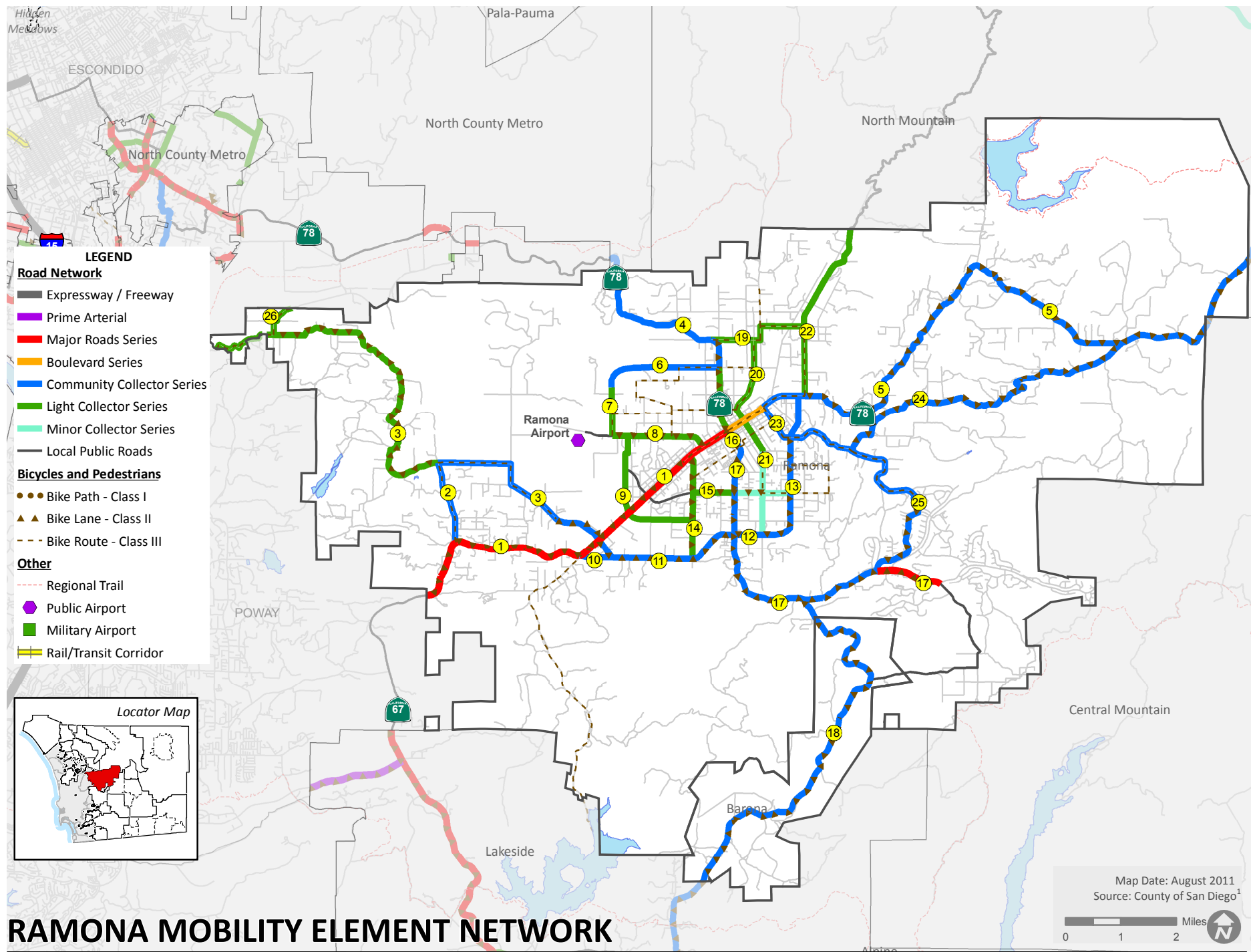
GARY L. GALLEGOS
Executive Director

Key Staff Contact: Heather Werdick, (619) 699-6967, hwe@sandag.org

Funds are budgeted in Work Element #3100400

Appendix B

County of San Diego Mobility Element Excerpts





Mobility Element Network—Ramona Community Planning Area Matrix			
ID ^a	Road Segment	Designation/Improvement #.X = [# of lanes].[roadway classification][improvement]	Special Circumstances
1	State Route 67/Main Street <u>Segment</u> : Poway city limits to SR-78/Pine Street	4.1A Major Road Raised Median—Poway city limits to Etcheverry Street 4.1B Major Road Intermittent Turn Lanes—Etcheverry Street to SR-78/Pine Street	Accepted at LOS E <u>Segment</u> : 11 th Street to Pine Street
2	Archie Moore Road (SC 324) <u>Segment</u> : Highland Valley Road to SR-67	2.1C Community Collector Intermittent Turn Lanes	None
3	Highland Valley Road (SC 959) <u>Segment</u> : San Diego city limits to SR-67	2.2A Light Collector Raised Median—San Diego city limits to Archie Moore Road 2.1E Community Collector Archie Moore Road to SR-67	None
4	Pine Street [State Route 78] <u>Segment</u> : North Mountain Subregion boundary to SR-67/Main Street	2.1D Community Collector Improvement Options [Passing Lanes]—North Mountain Subregion boundary to Ash Street 2.2D Light Collector Improvement Options [Left/Right Turn Lanes]—Ash Street to SR-67/Main Street	None
5	Main Street [State Route 78] <u>Segment</u> : Pine Street to North Mountain Subregion boundary	4.2B Boulevard Intermittent Turn Lanes—Pine Street to 3 rd Street 2.1D Community Collector Improvement Options [Passing Lanes]—3 rd Street to Central Mountain Subregion boundary	Accepted at LOS E <u>Segment</u> : Pine Street to Ninth Street Shoulder as Parking Lane Separate Bike Lane required—10 th Street to 4 th Street
6	SA 330 <u>Segment</u> : Montecito Way to SR-78/Pine Street	2.1E Community Collector	None
7	Montecito Way <u>Segment</u> : Montecito Road to SA 330	2.2E Light Collector	None

Appendix C

Count Data

ITM Peak Hour Summary

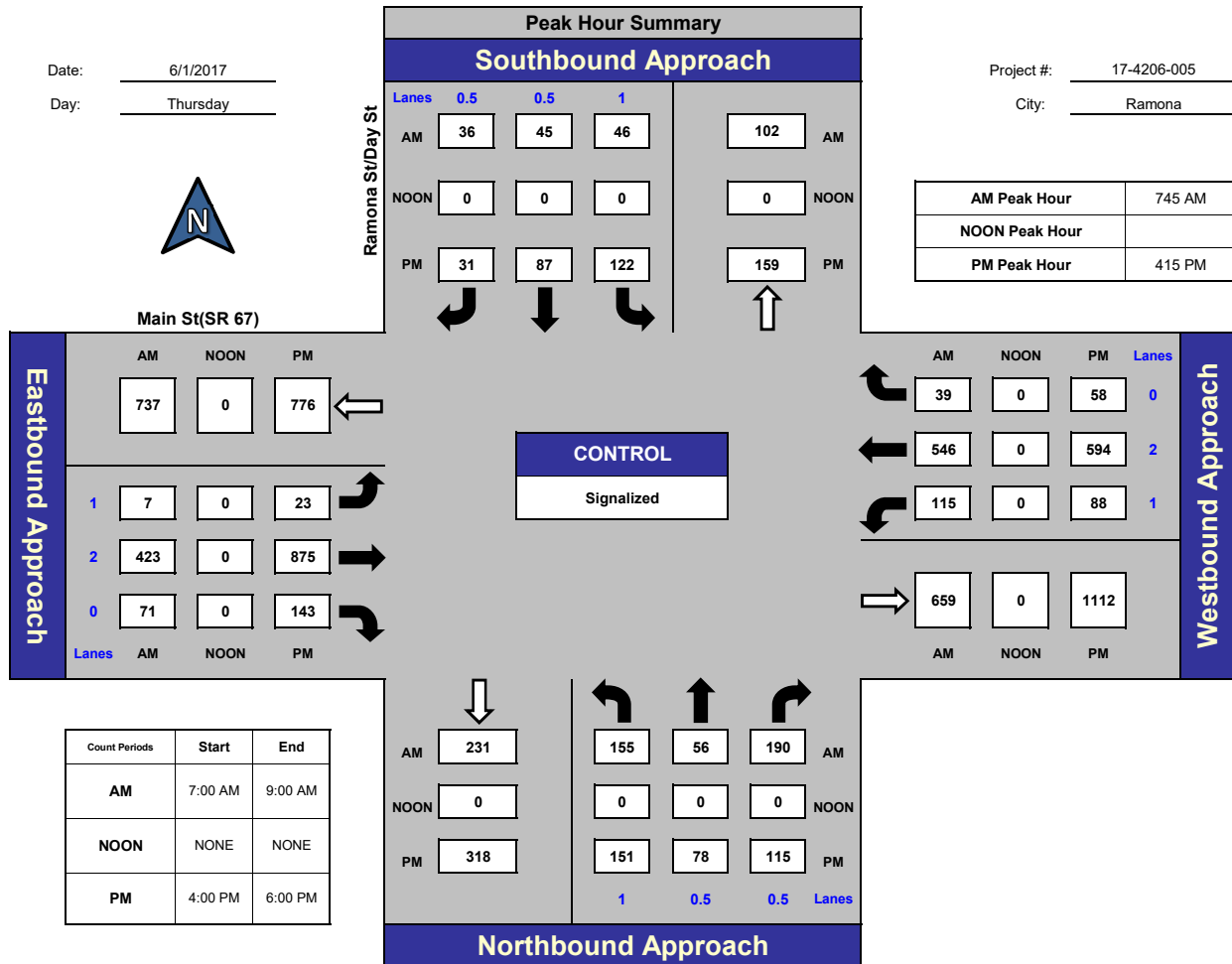
Prepared by:

 National Data & Surveying Services

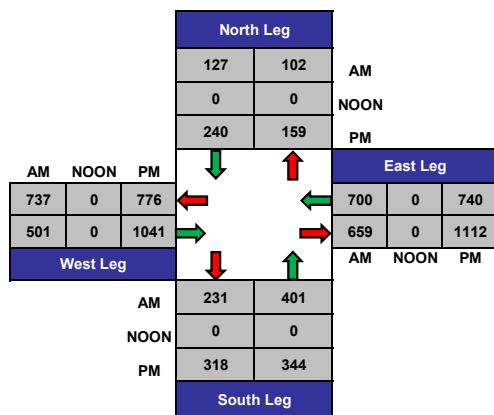
Ramona St/Day St and Main St(SR 67) , Ramona

Date: 6/1/2017
 Day: Thursday

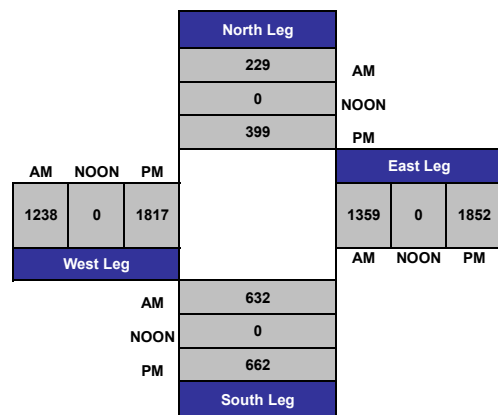
Project #: 17-4206-005
 City: Ramona



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-005

Day: Thursday

City: Ramona

Date: 6/1/2017

AM													
NS/EW Streets:	Ramona St/Day St			Ramona St/Day St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	34	5	30	4	15	7	1	87	21	20	124	3	351
7:15 AM	21	9	48	9	17	5	2	98	20	29	126	0	384
7:30 AM	36	10	45	11	18	3	1	91	20	26	114	5	380
7:45 AM	36	16	63	12	14	5	0	96	19	39	139	13	452
8:00 AM	56	10	42	8	13	16	2	96	27	35	131	10	446
8:15 AM	32	16	50	12	13	12	1	117	11	25	134	7	430
8:30 AM	31	14	35	14	5	3	4	114	14	16	142	9	401
8:45 AM	36	9	30	11	11	6	5	123	7	10	129	11	388
TOTAL VOLUMES :	NL 282	NT 89	NR 343	SL 81	ST 106	SR 57	EL 16	ET 822	ER 139	WL 200	WT 1039	WR 58	TOTAL 3232
APPROACH %'s :	39.50%	12.46%	48.04%	33.20%	43.44%	23.36%	1.64%	84.14%	14.23%	15.42%	80.11%	4.47%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	155	56	190	46	45	36	7	423	71	115	546	39	1729
PEAK HR FACTOR :	0.872			0.858			0.949			0.916			0.956

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
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
NB 0	SB 0	EB 1	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-005

Day: Thursday

City: Ramona

Date: 6/1/2017

PM													
NS/EW Streets:	Ramona St/Day St			Ramona St/Day St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	42	16	35	38	29	5	5	201	26	24	139	15	575
4:15 PM	44	11	25	31	19	7	7	233	40	16	163	12	608
4:30 PM	34	26	28	32	20	5	3	219	25	27	136	21	576
4:45 PM	33	27	36	29	22	8	8	213	35	21	145	8	585
5:00 PM	40	14	26	30	26	11	5	210	43	24	150	17	596
5:15 PM	44	24	28	32	27	6	4	193	31	31	138	18	576
5:30 PM	57	17	23	35	18	5	2	221	32	18	132	15	575
5:45 PM	32	19	29	33	17	8	1	174	30	15	101	13	472
TOTAL VOLUMES :	NL 326	NT 154	NR 230	SL 260	ST 178	SR 55	EL 35	ET 1664	ER 262	WL 176	WT 1104	WR 119	TOTAL 4563
APPROACH %'s :	45.92%	21.69%	32.39%	52.74%	36.11%	11.16%	1.78%	84.85%	13.36%	12.58%	78.91%	8.51%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	151	78	115	122	87	31	23	875	143	88	594	58	2365
PEAK HR FACTOR :	0.896			0.896			0.929			0.969			0.972

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
NB 0	SB 0	EB 2	WB 0

ITM Peak Hour Summary

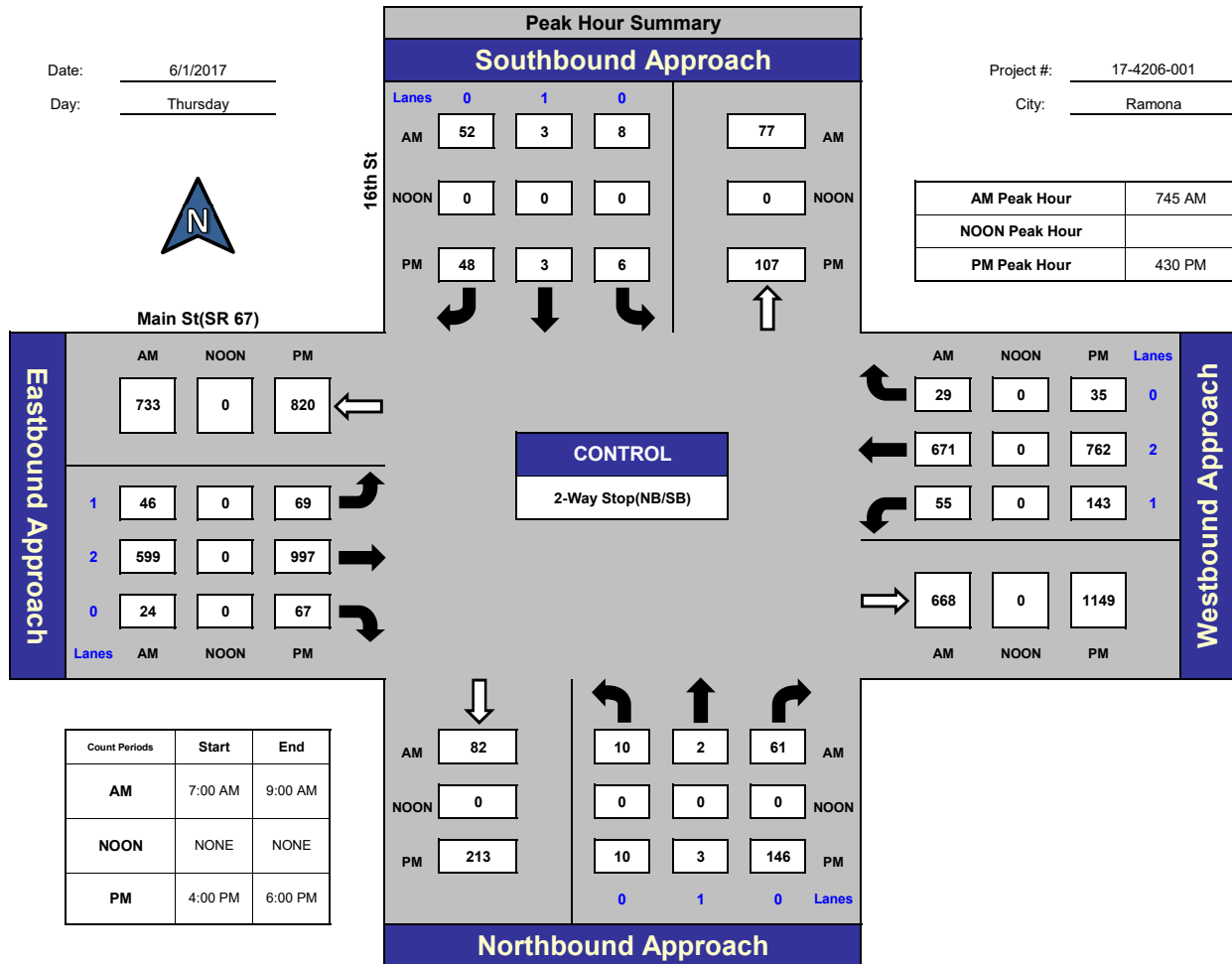
Prepared by:

 National Data & Surveying Services

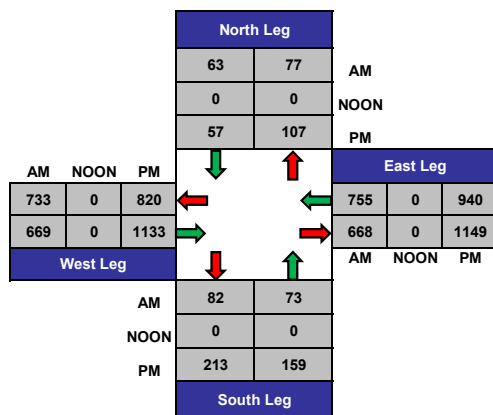
16th St and Main St(SR 67) , Ramona

Date: 6/1/2017
 Day: Thursday

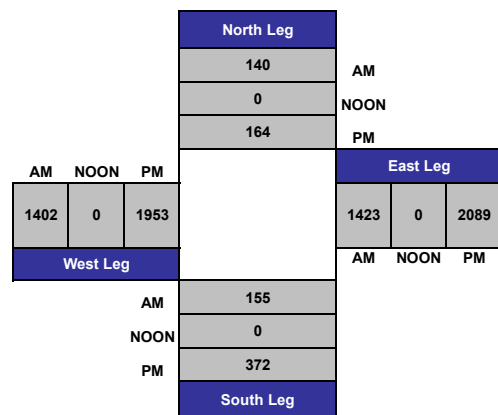
Project #: 17-4206-001
 City: Ramona



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-001

Day: Thursday

City: Ramona

Date: 6/1/2017

AM													
NS/EW Streets:	16th St			16th St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	1	0	7	3	3	12	7	115	2	9	147	3	309
7:15 AM	1	2	7	3	2	9	18	128	3	7	150	2	332
7:30 AM	2	2	12	3	0	13	12	144	5	8	122	4	327
7:45 AM	2	2	11	5	1	19	21	132	11	12	194	13	423
8:00 AM	4	0	13	2	1	12	6	153	2	10	167	8	378
8:15 AM	2	0	22	1	1	13	8	169	3	16	144	3	382
8:30 AM	2	0	15	0	0	8	11	145	8	17	166	5	377
8:45 AM	3	0	24	1	1	8	6	160	3	12	152	2	372
TOTAL VOLUMES :	NL 17	NT 6	NR 111	SL 18	ST 9	SR 94	EL 89	ET 1146	ER 37	WL 91	WT 1242	WR 40	TOTAL 2900
APPROACH %'s :	12.69%	4.48%	82.84%	14.88%	7.44%	77.69%	7.00%	90.09%	2.91%	6.63%	90.46%	2.91%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	10	2	61	8	3	52	46	599	24	55	671	29	1560
PEAK HR FACTOR :	0.760			0.630			0.929			0.862			0.922

CONTROL : 2-Way Stop(NB/SB)

UTURNS			
NB	SB	EB	WB
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
NB 0	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-001

Day: Thursday

City: Ramona

Date: 6/1/2017

PM													
NS/EW Streets:	16th St			16th St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	1	1	32	1	1	10	24	249	18	26	197	9	569
4:15 PM	1	2	28	2	1	9	13	249	18	26	210	8	567
4:30 PM	3	1	41	1	0	10	13	253	19	25	178	9	553
4:45 PM	2	1	36	3	1	14	24	242	13	43	186	4	569
5:00 PM	3	0	37	2	1	15	17	247	20	44	194	11	591
5:15 PM	2	1	32	0	1	9	15	255	15	31	204	11	576
5:30 PM	2	0	32	3	0	10	13	248	15	27	174	7	531
5:45 PM	2	0	37	0	1	4	12	205	14	22	141	4	442
TOTAL VOLUMES :	NL 16	NT 6	NR 275	SL 12	ST 6	SR 81	EL 131	ET 1948	ER 132	WL 244	WT 1484	WR 63	TOTAL 4398
APPROACH %'s :	5.39%	2.02%	92.59%	12.12%	6.06%	81.82%	5.92%	88.10%	5.97%	13.62%	82.86%	3.52%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	10	3	146	6	3	48	69	997	67	143	762	35	2289
PEAK HR FACTOR :	0.883			0.792			0.994			0.944			0.968

CONTROL : 2-Way Stop(NB/SB)

UTURNS			
NB	SB	EB	WB
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
NB 0	SB 0	EB 0	WB 0

ITM Peak Hour Summary

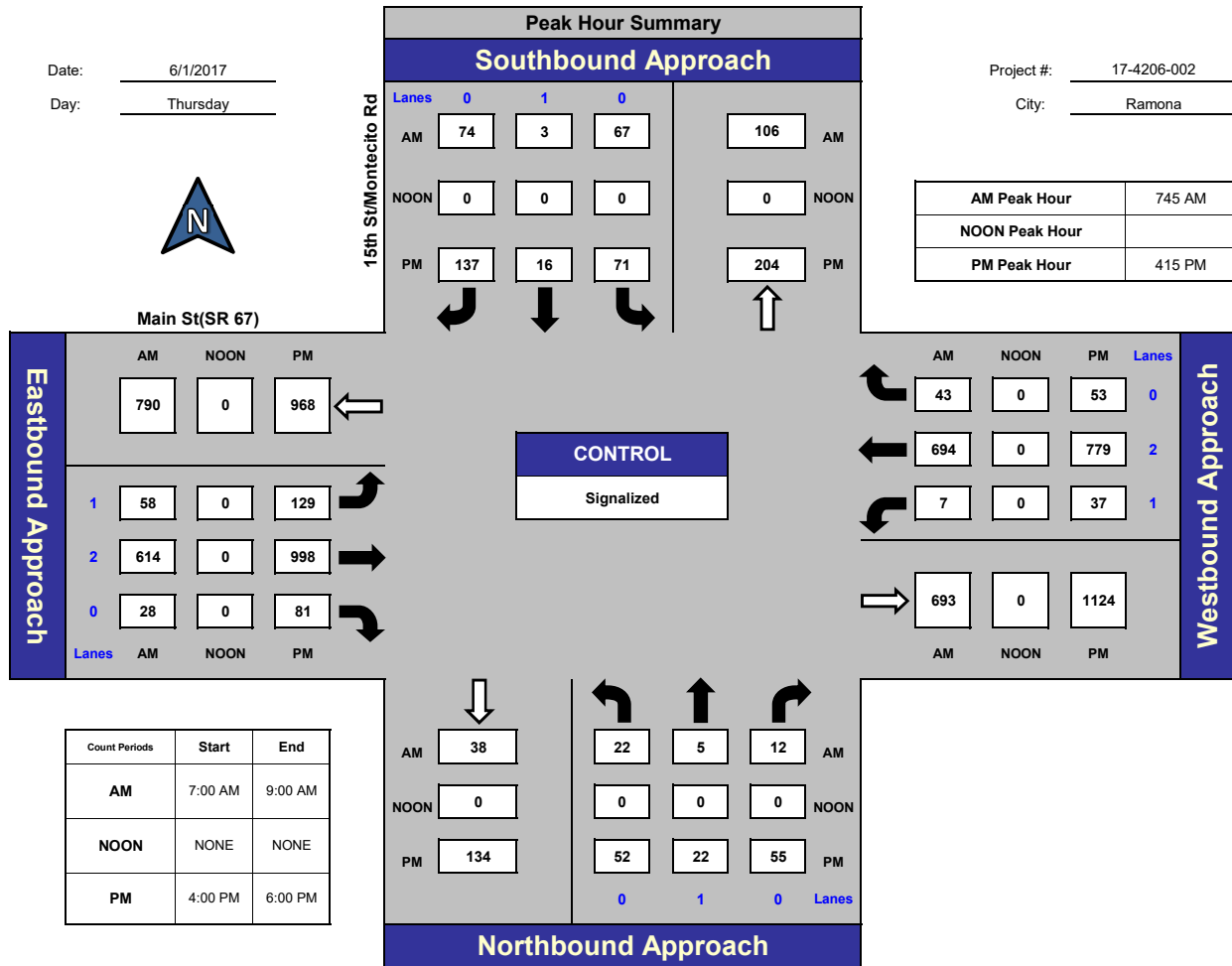
Prepared by:

 National Data & Surveying Services

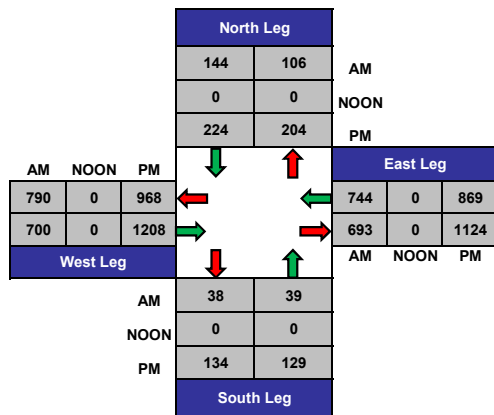
15th St/Montecito Rd and Main St(SR 67) , Ramona

Date: 6/1/2017
 Day: Thursday

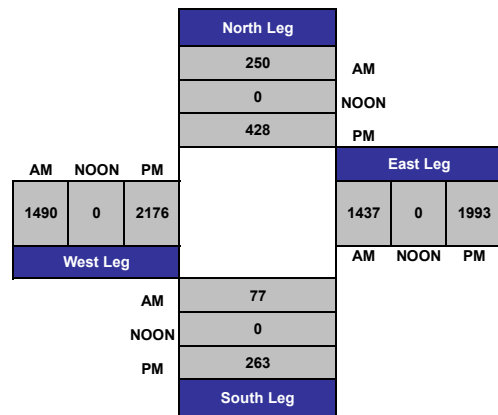
Project #: 17-4206-002
 City: Ramona



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-002

Day: Thursday

City: Ramona

Date: 6/1/2017

AM													
NS/EW Streets:	15th St/Montecito Rd			15th St/Montecito Rd			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	3	0	2	15	0	17	10	100	6	0	147	8	308
7:15 AM	0	1	2	14	1	18	12	134	4	1	142	3	332
7:30 AM	5	1	3	13	2	10	17	119	10	1	125	11	317
7:45 AM	7	2	4	18	1	21	15	137	5	0	208	10	428
8:00 AM	4	0	3	18	0	17	15	160	6	1	169	14	407
8:15 AM	7	1	3	23	1	15	19	164	7	1	137	9	387
8:30 AM	4	2	2	8	1	21	9	153	10	5	180	10	405
8:45 AM	9	2	3	11	1	18	21	167	12	4	141	13	402
TOTAL VOLUMES :	NL 39	NT 9	NR 22	SL 120	ST 7	SR 137	EL 118	ET 1134	ER 60	WL 13	WT 1249	WR 78	TOTAL 2986
APPROACH %'s :	55.71%	12.86%	31.43%	45.45%	2.65%	51.89%	8.99%	86.43%	4.57%	0.97%	93.21%	5.82%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	22	5	12	67	3	74	58	614	28	7	694	43	1627
PEAK HR FACTOR :	0.750			0.900			0.921			0.853			0.950

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
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	0	0	0
0	0	0	0
NB 0	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-002

Day: Thursday

City: Ramona

Date: 6/1/2017

PM													
NS/EW Streets:	15th St/Montecito Rd			15th St/Montecito Rd			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	9	5	11	16	4	23	20	260	18	5	209	11	591
4:15 PM	9	4	15	15	7	31	26	238	20	8	201	7	581
4:30 PM	10	4	11	15	4	41	33	247	23	10	178	14	590
4:45 PM	18	8	16	17	3	35	35	255	22	13	185	17	624
5:00 PM	15	6	13	24	2	30	35	258	16	6	215	15	635
5:15 PM	6	3	5	22	2	28	27	240	9	2	214	13	571
5:30 PM	2	2	9	18	2	25	22	255	8	6	183	10	542
5:45 PM	7	4	4	16	3	23	25	210	10	4	147	14	467
TOTAL VOLUMES :	NL 76	NT 36	NR 84	SL 143	ST 27	SR 236	EL 223	ET 1963	ER 126	WL 54	WT 1532	WR 101	TOTAL 4601
APPROACH %'s :	38.78%	18.37%	42.86%	35.22%	6.65%	58.13%	9.65%	84.90%	5.45%	3.20%	90.81%	5.99%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	52	22	55	71	16	137	129	998	81	37	779	53	2430
PEAK HR FACTOR :	0.768			0.933			0.968			0.921			0.957

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
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
NB 0	SB 0	EB 0	WB 0

ITM Peak Hour Summary

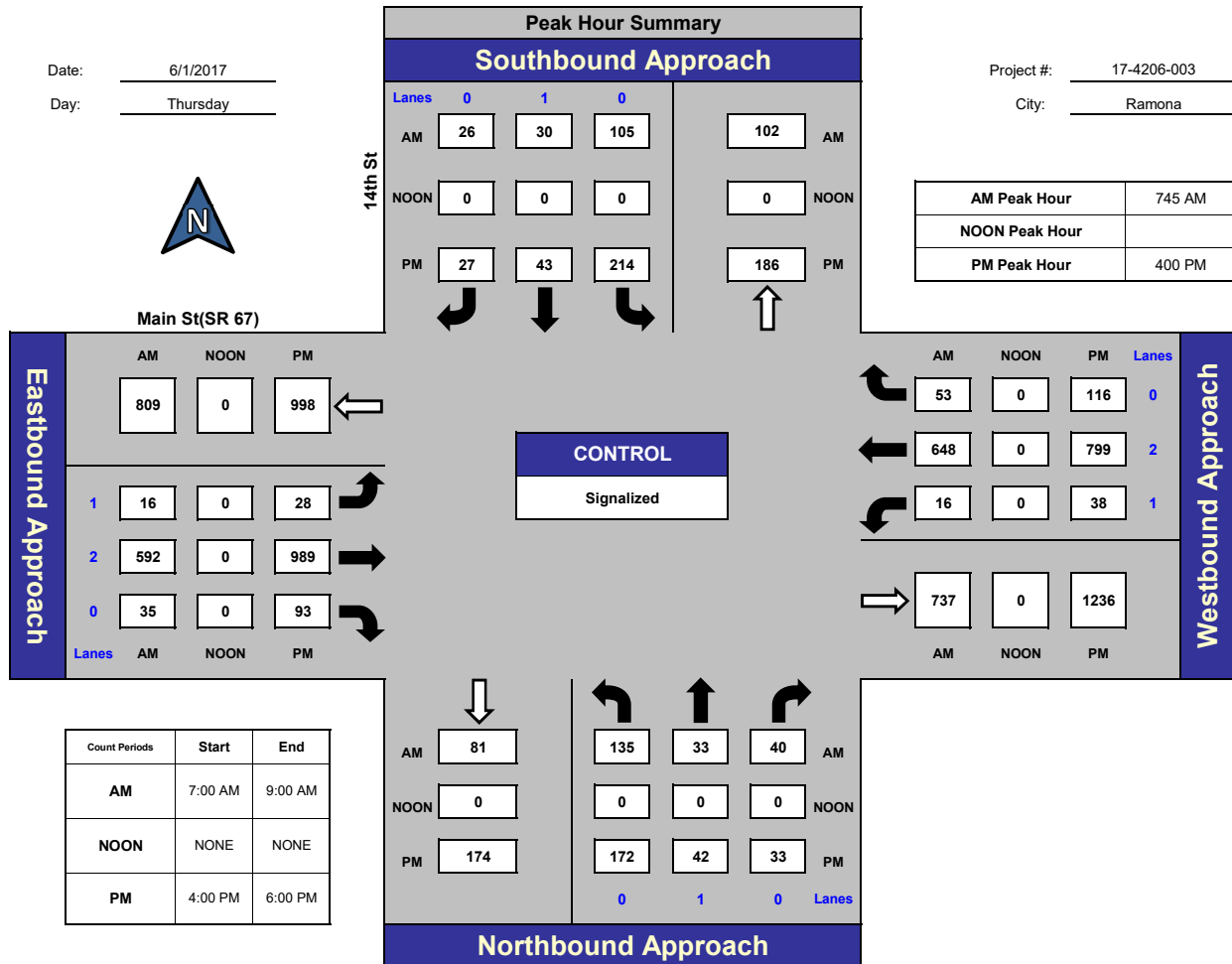
Prepared by:

 National Data & Surveying Services

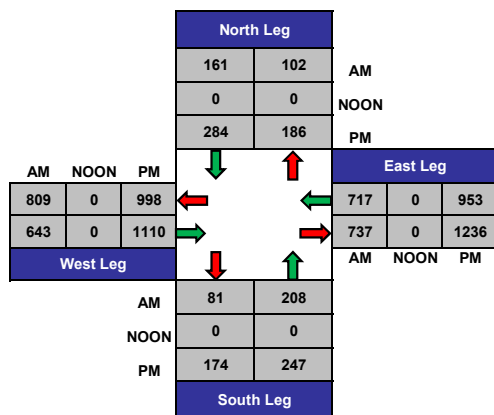
14th St and Main St(SR 67) , Ramona

Date: 6/1/2017
 Day: Thursday

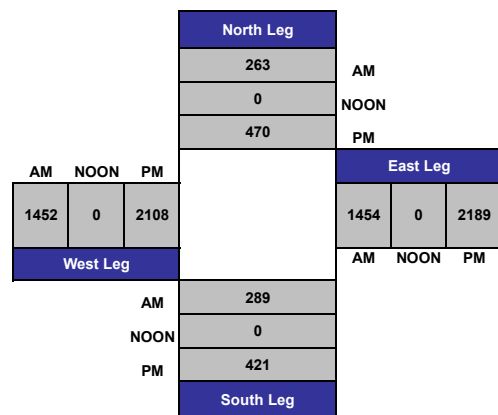
Project #: 17-4206-003
 City: Ramona



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-003

Day: Thursday

City: Ramona

Date: 6/1/2017

AM													
NS/EW Streets:	14th St			14th St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	17	4	12	22	8	13	4	108	17	2	142	14	363
7:15 AM	30	15	8	22	7	10	5	134	1	5	129	12	378
7:30 AM	26	13	6	18	7	3	1	143	6	5	125	12	365
7:45 AM	40	3	12	30	12	7	4	130	10	5	178	14	445
8:00 AM	41	12	12	22	3	8	2	154	11	2	147	13	427
8:15 AM	23	5	9	34	9	9	5	163	8	3	149	7	424
8:30 AM	31	13	7	19	6	2	5	145	6	6	174	19	433
8:45 AM	33	12	8	31	1	4	1	155	15	7	138	24	429
TOTAL VOLUMES :	NL 241	NT 77	NR 74	SL 198	ST 53	SR 56	EL 27	ET 1132	ER 74	WL 35	WT 1182	WR 115	TOTAL 3264
APPROACH %'s :	61.48%	19.64%	18.88%	64.50%	17.26%	18.24%	2.19%	91.81%	6.00%	2.63%	88.74%	8.63%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	135	33	40	105	30	26	16	592	35	16	648	53	1729
PEAK HR FACTOR :	0.800			0.774			0.913			0.901			0.971

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
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	0	0	0
0	0	0	0
NB 0	SB 0	EB 0	WB 0

Intersection Turning Movement

Prepared by:
National Data & Surveying Services

Project ID: 17-4206-003

Day: Thursday

City: Ramona

Date: 6/1/2017

PM													
NS/EW Streets:	14th St			14th St			Main St(SR 67)			Main St(SR 67)			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	51	11	7	62	12	6	12	264	19	11	197	40	692
4:15 PM	35	11	9	51	6	10	4	240	26	4	209	16	621
4:30 PM	40	13	10	55	13	6	5	253	22	14	201	30	662
4:45 PM	46	7	7	46	12	5	7	232	26	9	192	30	619
5:00 PM	43	14	13	46	13	6	12	257	23	6	182	33	648
5:15 PM	39	22	12	46	10	5	11	243	29	12	194	34	657
5:30 PM	37	20	6	35	17	6	8	270	17	10	173	27	626
5:45 PM	29	11	8	52	10	5	6	211	26	13	166	32	569
TOTAL VOLUMES :	NL 320	NT 109	NR 72	SL 393	ST 93	SR 49	EL 65	ET 1970	ER 188	WL 79	WT 1514	WR 242	TOTAL 5094
APPROACH %'s :	63.87%	21.76%	14.37%	73.46%	17.38%	9.16%	2.92%	88.62%	8.46%	4.31%	82.51%	13.19%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	172	42	33	214	43	27	28	989	93	38	799	116	2594
PEAK HR FACTOR :	0.895			0.888			0.941			0.961			0.937

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
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	0	0	0
0	0	0	0
NB 0	SB 0	EB 0	WB 0

VOLUME

Main St (SR67) W/O 16th St

Day: Tuesday

Date: 6/27/2017

City: Ramona

Project #: CA17_4207_002

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						13,684	11,954	25,638	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			19	11	30		12:00			236	222	458			
00:15			27	13	40		12:15			207	211	418			
00:30			24	9	33		12:30			229	205	434			
00:45			21	91	5	38	12:45			198	870	199	837	397	1707
01:00			18	11	29		13:00			211	208	419			
01:15			18	9	27		13:15			213	175	388			
01:30			11	7	18		13:30			202	191	393			
01:45			12	59	8	35	13:45			251	877	171	745	422	1622
02:00			10	9	19		14:00			236	192	428			
02:15			6	13	19		14:15			278	191	469			
02:30			9	13	22		14:30			271	150	421			
02:45			10	35	9	44	14:45			283	1068	149	682	432	1750
03:00			17	11	28		15:00			299	182	481			
03:15			9	16	25		15:15			286	196	482			
03:30			15	16	31		15:30			252	161	413			
03:45			11	52	26	69	15:45			283	1120	145	684	428	1804
04:00			19	31	50		16:00			299	222	521			
04:15			14	36	50		16:15			273	202	475			
04:30			15	47	62		16:30			289	226	515			
04:45			16	64	81	195	16:45			276	1137	167	817	443	1954
05:00			23	131	154		17:00			267	185	452			
05:15			38	160	198		17:15			285	175	460			
05:30			63	166	229		17:30			274	193	467			
05:45			61	185	191	648	17:45			237	1063	194	747	431	1810
06:00			72	180	252		18:00			266	140	406			
06:15			76	154	230		18:15			247	145	392			
06:30			118	114	232		18:30			289	141	430			
06:45			122	388	148	596	18:45			293	1095	158	584	451	1679
07:00			128	145	273		19:00			246	121	367			
07:15			155	149	304		19:15			210	111	321			
07:30			160	166	326		19:30			204	112	316			
07:45			164	607	190	650	19:45			196	856	128	472	324	1328
08:00			168	170	338		20:00			140	118	258			
08:15			173	180	353		20:15			135	115	250			
08:30			177	177	354		20:30			117	95	212			
08:45			158	676	153	680	20:45			145	537	77	405	222	942
09:00			161	192	353		21:00			132	87	219			
09:15			155	196	351		21:15			122	75	197			
09:30			149	185	334		21:30			101	72	173			
09:45			158	623	222	795	21:45			82	437	55	289	137	726
10:00			142	211	353		22:00			77	45	122			
10:15			180	219	399		22:15			69	36	105			
10:30			182	229	411		22:30			64	25	89			
10:45			191	695	225	884	22:45			37	247	32	138	69	385
11:00			200	215	415		23:00			44	27	71			
11:15			172	223	395		23:15			37	19	56			
11:30			188	193	381		23:30			28	17	45			
11:45			195	755	214	845	23:45			38	147	12	75	50	222
TOTALS			4230	5479	9709		TOTALS			9454	6475	15929			
SPLIT %			43.6%	56.4%	37.9%		SPLIT %			59.4%	40.6%	62.1%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						13,684	11,954	25,638	
AM Peak Hour			11:45	10:30	11:45		PM Peak Hour			15:45	12:00	16:00			
AM Pk Volume			867	892	1719		PM Pk Volume			1144	837	1954			
Pk Hr Factor			0.918	0.974	0.938		Pk Hr Factor			0.957	0.943	0.938			
7 - 9 Volume	0	0	1283	1330	2613		4 - 6 Volume	0	0	2200	1564	3764			
7 - 9 Peak Hour			07:45	07:45	07:45		4 - 6 Peak Hour			16:00	16:00	16:00			
7 - 9 Pk Volume	0	0	682	717	1399		4 - 6 Pk Volume	0	0	1137	817	1954			
Pk Hr Factor	0.000	0.000	0.963	0.943	0.988		Pk Hr Factor	0.000	0.000	0.951	0.904	0.938			

VOLUME

Main St (SR67) E/O 16th St

Day: Tuesday

Date: 6/27/2017

City: Ramona

Project #: CA17_4207_001

DAILY TOTALS					NB	SB	EB					WB	Total		
					0	0						13,465	11,804	25,269	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			29	11	40		12:00			223	199	422			
00:15			17	14	31		12:15			209	190	399			
00:30			17	8	25		12:30			215	201	416			
00:45			15	78	5	38	12:45			219	866	215	805	434	1671
01:00			12	9	21		13:00			201	209	410			
01:15			18	9	27		13:15			199	167	366			
01:30			12	7	19		13:30			200	184	384			
01:45			8	50	9	34	13:45			205	805	161	721	366	1526
02:00			12	7	19		14:00			226	180	406			
02:15			11	9	20		14:15			213	183	396			
02:30			9	11	20		14:30			224	146	370			
02:45			12	44	7	34	14:45			235	898	136	645	371	1543
03:00			10	11	21		15:00			261	170	431			
03:15			15	16	31		15:15			265	192	457			
03:30			18	13	31		15:30			241	165	406			
03:45			13	56	25	65	15:45			258	1025	146	673	404	1698
04:00			22	25	47		16:00			270	243	513			
04:15			12	31	43		16:15			273	232	505			
04:30			20	42	62		16:30			299	254	553			
04:45			25	79	71	169	16:45			306	1148	209	938	515	2086
05:00			27	112	139		17:00			287	202	489			
05:15			57	141	198		17:15			288	209	497			
05:30			65	148	213		17:30			291	214	505			
05:45			67	216	166	567	17:45			258	1124	217	842	475	1966
06:00			69	166	235		18:00			222	144	366			
06:15			73	133	206		18:15			290	139	429			
06:30			77	131	208		18:30			223	121	344			
06:45			113	332	137	567	18:45			203	938	153	557	356	1495
07:00			110	146	256		19:00			153	119	272			
07:15			157	156	313		19:15			220	109	329			
07:30			120	179	299		19:30			171	101	272			
07:45			197	584	199	680	19:45			167	711	125	454	292	1165
08:00			145	183	328		20:00			162	110	272			
08:15			193	192	385		20:15			137	115	252			
08:30			185	187	372		20:30			169	97	266			
08:45			180	703	160	722	20:45			139	607	77	399	216	1006
09:00			172	188	360		21:00			127	88	215			
09:15			175	192	367		21:15			120	67	187			
09:30			183	184	367		21:30			101	72	173			
09:45			171	701	212	776	21:45			96	444	59	286	155	730
10:00			159	207	366		22:00			80	44	124			
10:15			177	204	381		22:15			96	36	132			
10:30			195	219	414		22:30			69	27	96			
10:45			221	752	203	833	22:45			54	299	27	134	81	433
11:00			195	192	387		23:00			42	27	69			
11:15			214	211	425		23:15			34	19	53			
11:30			247	180	427		23:30			28	16	44			
11:45			223	879	206	789	23:45			22	126	14	76	36	202
TOTALS			4474	5274	9748		TOTALS			8991	6530	15521			
SPLIT %			45.9%	54.1%	38.6%		SPLIT %			57.9%	42.1%	61.4%			

DAILY TOTALS					NB	SB					EB	WB	Total
					0	0					13,465	11,804	25,269
AM Peak Hour			11:15	09:45	11:15		PM Peak Hour			16:30	16:00	16:00	
AM Pk Volume			907	842	1703		PM Pk Volume			1180	938	2086	
Pk Hr Factor			0.918	0.961	0.992		Pk Hr Factor			0.964	0.923	0.943	
7 - 9 Volume	0	0	1287	1402	2689		4 - 6 Volume	0	0	2272	1780	4052	
7 - 9 Peak Hour			07:45	07:45	07:45		4 - 6 Peak Hour			16:30	16:00	16:00	
7 - 9 Pk Volume	0	0	720	761	1481		4 - 6 Pk Volume	0	0	1180	938	2086	
Pk Hr Factor	0.000	0.000	0.914	0.956	0.935		Pk Hr Factor	0.000	0.000	0.964	0.923	0.943	

VOLUME

Main St (SR67) Bet. Montecito Rd & 14th St

Day: Tuesday
Date: 6/27/2017City: Ramona
Project #: CA17_4207_005

DAILY TOTALS					NB	SB	EB					WB	Total		
					0	0						12,927			12,332
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			30	11	41		12:00			211	198	409			
00:15			18	18	36		12:15			202	205	407			
00:30			17	11	28		12:30			210	219	429			
00:45			14	79	5	45	12:45			218	841	238	860	456	1701
01:00			11	9	20		13:00			216	224	440			
01:15			19	14	33		13:15			185	183	368			
01:30			11	6	17		13:30			206	188	394			
01:45			9	50	8	37	13:45			191	798	185	780	376	1578
02:00			11	6	17		14:00			227	189	416			
02:15			10	11	21		14:15			198	198	396			
02:30			3	12	15		14:30			190	155	345			
02:45			12	36	8	37	14:45			219	834	137	679	356	1513
03:00			10	12	22		15:00			249	190	439			
03:15			5	17	22		15:15			243	216	459			
03:30			18	17	35		15:30			221	179	400			
03:45			11	44	27	73	15:45			233	946	148	733	381	1679
04:00			22	25	47		16:00			257	238	495			
04:15			11	33	44		16:15			257	258	515			
04:30			20	41	61		16:30			285	256	541			
04:45			24	77	79	178	16:45			293	1092	215	967	508	2059
05:00			29	110	139		17:00			299	204	503			
05:15			58	127	185		17:15			267	213	480			
05:30			66	147	213		17:30			289	215	504			
05:45			69	222	157	541	17:45			257	1112	207	839	464	1951
06:00			79	153	232		18:00			210	157	367			
06:15			79	131	210		18:15			268	164	432			
06:30			82	115	197		18:30			213	141	354			
06:45			122	362	126	525	18:45			206	897	171	633	377	1530
07:00			119	142	261		19:00			153	146	299			
07:15			151	155	306		19:15			210	113	323			
07:30			125	186	311		19:30			161	120	281			
07:45			196	591	194	677	19:45			163	687	152	531	315	1218
08:00			134	184	318		20:00			155	126	281			
08:15			176	180	356		20:15			134	136	270			
08:30			190	176	366		20:30			167	121	288			
08:45			166	666	190	730	20:45			140	596	97	480	237	1076
09:00			148	203	351		21:00			126	90	216			
09:15			171	188	359		21:15			114	84	198			
09:30			162	175	337		21:30			105	93	198			
09:45			162	643	196	762	21:45			94	439	63	330	157	769
10:00			145	217	362		22:00			77	55	132			
10:15			159	203	362		22:15			96	37	133			
10:30			186	220	406		22:30			69	33	102			
10:45			210	700	207	847	22:45			54	296	32	157	86	453
11:00			155	188	343		23:00			40	29	69			
11:15			211	216	427		23:15			33	22	55			
11:30			221	197	418		23:30			28	15	43			
11:45			207	794	210	811	23:45			24	125	14	80	38	205
TOTALS			4264	5263	9527		TOTALS			8663	7069	15732			
SPLIT %			44.8%	55.2%	37.7%		SPLIT %			55.1%	44.9%	62.3%			

DAILY TOTALS			NB	SB				EB	WB				Total
			0	0				12,927	12,332				25,259
AM Peak Hour			11:15	10:00	11:15	PM Peak Hour			16:45	16:00	16:15		
AM Pk Volume			850	847	1671	PM Pk Volume			1148	967	2067		
Pk Hr Factor			0.962	0.963	0.978	Pk Hr Factor			0.960	0.937	0.955		
7 - 9 Volume			0	0	1257	4 - 6 Volume			0	0	2204		
7 - 9 Peak Hour			07:45	07:30	07:45	4 - 6 Peak Hour			16:45	16:00	16:15		
7 - 9 Pk Volume			0	0	696	4 - 6 Pk Volume			0	0	1148		
Pk Hr Factor			0.000	0.000	0.888	Pk Hr Factor			0.000	0.000	0.960		

VOLUME

16th St N/O Main St (SR 67)

Day: Tuesday

Date: 6/27/2017

City: Ramona

Project #: CA17_4207_003

DAILY TOTALS					NB	SB	EBWB					Total
					1,059	875						0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00	2	1			3	12:00	11	16			27	
00:15	2	1			3	12:15	9	14			23	
00:30	2	2			4	12:30	12	12			24	
00:45	1	7	1	5	2 12	12:45	16	48	9	51	25 99	
01:00	2	3			5	13:00	19	8			27	
01:15	4	3			7	13:15	17	11			28	
01:30	5	0			5	13:30	14	13			27	
01:45	2	13	2	8	4 21	13:45	17	67	14	46	31 113	
02:00	3	2			5	14:00	15	16			31	
02:15	0	2			2	14:15	15	15			30	
02:30	2	1			3	14:30	12	8			20	
02:45	1	6	1	6	2 12	14:45	16	58	9	48	25 106	
03:00	1	0			1	15:00	16	11			27	
03:15	1	1			2	15:15	17	11			28	
03:30	1	1			2	15:30	18	8			26	
03:45	1	4	2	4	3 8	15:45	30	81	6	36	36 117	
04:00	0	4			4	16:00	20	14			34	
04:15	1	7			8	16:15	28	17			45	
04:30	3	3			6	16:30	20	17			37	
04:45	4	8	5	19	9 27	16:45	20	88	8	56	28 144	
05:00	1	14			15	17:00	20	11			31	
05:15	4	16			20	17:15	21	10			31	
05:30	5	21			26	17:30	24	15			39	
05:45	10	20	22	73	32 93	17:45	20	85	16	52	36 137	
06:00	8	19			27	18:00	21	11			32	
06:15	2	13			15	18:15	18	6			24	
06:30	4	12			16	18:30	20	12			32	
06:45	4	18	10	54	14 72	18:45	24	83	11	40	35 123	
07:00	10	12			22	19:00	19	6			25	
07:15	13	14			27	19:15	14	7			21	
07:30	11	14			25	19:30	12	14			26	
07:45	19	53	16	56	35 109	19:45	14	59	11	38	25 97	
08:00	17	15			32	20:00	17	6			23	
08:15	14	11			25	20:15	15	9			24	
08:30	11	15			26	20:30	23	10			33	
08:45	14	56	19	60	33 116	20:45	16	71	5	30	21 101	
09:00	9	12			21	21:00	12	3			15	
09:15	7	14			21	21:15	10	6			16	
09:30	8	11			19	21:30	10	4			14	
09:45	9	33	7	44	16 77	21:45	13	45	3	16	16 61	
10:00	11	9			20	22:00	6	7			13	
10:15	10	14			24	22:15	15	4			19	
10:30	16	15			31	22:30	10	4			14	
10:45	12	49	11	49	23 98	22:45	11	42	8	23	19 65	
11:00	12	13			25	23:00	3	3			6	
11:15	14	11			25	23:15	6	3			9	
11:30	13	15			28	23:30	1	1			2	
11:45	13	52	13	52	26 104	23:45	3	13	2	9	5 22	
TOTALS	319	430			749	TOTALS	740	445			1185	
SPLIT %	42.6%	57.4%			38.7%	SPLIT %	62.4%	37.6%			61.3%	

DAILY TOTALS					NB	SB						EB	WB						Total
					1,059	875						0	0						1,934
AM Peak Hour	07:30	05:15				07:15	PM Peak Hour	15:45	13:30						15:45				
AM Pk Volume	61	78				119	PM Pk Volume	98	58						152				
Pk Hr Factor	0.803	0.886				0.850	Pk Hr Factor	0.817	0.906						0.844				
7 - 9 Volume	109	116	0	0	225	4 - 6 Volume	173	108	0	0					281				
7 - 9 Peak Hour	07:30	08:00				07:15	4 - 6 Peak Hour	16:00	16:00						16:00				
7 - 9 Pk Volume	61	60	0	0	119	4 - 6 Pk Volume	88	56	0	0					144				
Pk Hr Factor	0.803	0.789	0.000	0.000	0.850	Pk Hr Factor	0.786	0.824	0.000	0.000					0.800				

Appendix D

Existing LOS Calculations

AM Existing
1: Ramona/Day St & Main St (SR-67)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	423	71	115	546	39	155	56	190	46	45	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	7	441	74	120	569	41	161	58	198	48	47	38
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	855	142	196	1261	91	210	80	274	128	164	133
Arrive On Green	0.02	0.28	0.28	0.11	0.38	0.38	0.12	0.22	0.22	0.07	0.17	0.17
Sat Flow, veh/h	1774	3015	502	1774	3339	240	1774	362	1237	1774	938	758
Grp Volume(v), veh/h	7	257	258	120	301	309	161	0	256	48	0	85
Grp Sat Flow(s),veh/h/ln	1774	1770	1747	1774	1770	1809	1774	0	1599	1774	0	1697
Q Serve(g_s), s	0.2	7.8	7.9	4.1	8.1	8.2	5.6	0.0	9.4	1.6	0.0	2.8
Cycle Q Clear(g_c), s	0.2	7.8	7.9	4.1	8.1	8.2	5.6	0.0	9.4	1.6	0.0	2.8
Prop In Lane	1.00		0.29	1.00		0.13	1.00		0.77	1.00		0.45
Lane Grp Cap(c), veh/h	29	502	495	196	668	683	210	0	354	128	0	297
V/C Ratio(X)	0.24	0.51	0.52	0.61	0.45	0.45	0.77	0.00	0.72	0.38	0.00	0.29
Avail Cap(c_a), veh/h	287	1109	1095	649	1470	1503	788	0	969	371	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.9	19.1	19.2	27.0	14.9	14.9	27.2	0.0	23.0	28.2	0.0	22.8
Incr Delay (d2), s/veh	4.1	0.8	0.8	3.1	0.5	0.5	5.7	0.0	2.8	1.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.9	3.9	2.2	4.0	4.1	3.1	0.0	4.4	0.9	0.0	1.3
LnGrp Delay(d),s/veh	35.1	19.9	20.0	30.1	15.3	15.3	33.0	0.0	25.8	30.0	0.0	23.3
LnGrp LOS	D	B	C	C	B	B	C		C	C		C
Approach Vol, veh/h		522			730			417			133	
Approach Delay, s/veh		20.2			17.8			28.5			25.7	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	23.1	12.2	16.5	5.7	29.1	9.3	19.5				
Change Period (Y+Rc), s	* 4.7	5.1	* 4.7	* 5.4	* 4.7	5.1	* 4.7	5.4				
Max Green Setting (Gmax), s	* 23	39.9	* 28	* 24	* 10	52.9	* 13	38.6				
Max Q Clear Time (g_c+l1), s	6.1	9.9	7.6	4.8	2.2	10.2	3.6	11.4				
Green Ext Time (p_c), s	0.3	8.2	0.4	2.1	0.0	8.7	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			21.5									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	46	599	24	55	671	29	10	2	61	8	3	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	50	-	-	-
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	50	651	26	60	729	32	11	2	66	9	3	57
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	761	0	0	677	0	0	1250	1644	339	1292	1642	380
Stage 1	-	-	-	-	-	-	764	764	-	865	865	-
Stage 2	-	-	-	-	-	-	486	880	-	427	777	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	847	-	-	911	-	-	129	99	657	120	99	618
Stage 1	-	-	-	-	-	-	362	411	-	315	369	-
Stage 2	-	-	-	-	-	-	531	363	-	576	405	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	847	-	-	911	-	-	103	87	657	96	87	618
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	87	-	96	87	-
Stage 1	-	-	-	-	-	-	341	387	-	296	345	-
Stage 2	-	-	-	-	-	-	446	339	-	485	381	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.7			16.9			19.8		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	100	657	847	-	-	911	-	-	312			
HCM Lane V/C Ratio	0.13	0.101	0.059	-	-	0.066	-	-	0.219			
HCM Control Delay (s)	46.3	11.1	9.5	-	-	9.2	-	-	19.8			
HCM Lane LOS	E	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	0.4	0.3	0.2	-	-	0.2	-	-	0.8			

AM Existing

3: 15th St/Montecito Rd & Main St (SR-67)/SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	614	28	7	694	43	22	5	12	67	3	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1700	1667	1863	1900	1700	1863	1700	1900	1863	1900
Adj Flow Rate, veh/h	61	646	29	7	731	45	23	5	13	71	3	78
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1388	62	23	1129	69	131	28	74	109	5	120
Arrive On Green	0.08	0.40	0.40	0.01	0.33	0.33	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1774	3444	154	1587	3378	208	950	207	537	764	32	839
Grp Volume(v), veh/h	61	332	343	7	383	393	41	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1587	1770	1816	1693	0	0	1635	0	0
Q Serve(g_s), s	2.1	8.7	8.7	0.3	11.6	11.6	1.3	0.0	0.0	5.5	0.0	0.0
Cycle Q Clear(g_c), s	2.1	8.7	8.7	0.3	11.6	11.6	1.3	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.11	0.56		0.32	0.47		0.51
Lane Grp Cap(c), veh/h	148	713	737	23	591	607	234	0	0	233	0	0
V/C Ratio(X)	0.41	0.47	0.47	0.30	0.65	0.65	0.18	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	403	1712	1769	234	1571	1612	495	0	0	712	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.4	13.8	13.8	30.7	17.8	17.8	24.0	0.0	0.0	25.5	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.5	0.5	7.1	1.2	1.2	0.4	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.3	4.5	0.2	5.8	6.0	0.6	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	29.2	14.3	14.3	37.8	19.0	19.0	24.3	0.0	0.0	28.6	0.0	0.0
LnGrp LOS	C	B	B	D	B	B	C			C		
Approach Vol, veh/h		736			783			41			152	
Approach Delay, s/veh		15.5			19.2			24.3			28.6	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	30.5		13.6	9.9	26.1		13.3				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	60.9		27.4	* 14	55.9		18.4				
Max Q Clear Time (g_c+I1), s	2.3	10.7		7.5	4.1	13.6		3.3				
Green Ext Time (p_c), s	0.0	7.5		0.8	0.1	7.5		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			18.6									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing
4: 14th St & SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	592	35	16	648	53	135	33	40	105	30	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	16	610	36	16	668	55	139	34	41	108	31	27
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1507	89	49	1469	121	370	90	396	145	42	157
Arrive On Green	0.03	0.44	0.44	0.03	0.44	0.44	0.26	0.26	0.26	0.10	0.10	0.10
Sat Flow, veh/h	1774	3389	200	1774	3301	272	1439	352	1540	1393	400	1504
Grp Volume(v), veh/h	16	318	328	16	358	365	173	0	41	139	0	27
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1803	1791	0	1540	1793	0	1504
Q Serve(g_s), s	1.0	13.9	14.0	1.0	16.1	16.1	9.1	0.0	2.3	8.6	0.0	1.9
Cycle Q Clear(g_c), s	1.0	13.9	14.0	1.0	16.1	16.1	9.1	0.0	2.3	8.6	0.0	1.9
Prop In Lane	1.00		0.11	1.00		0.15	0.80		1.00	0.78		1.00
Lane Grp Cap(c), veh/h	49	787	809	49	787	802	460	0	396	187	0	157
V/C Ratio(X)	0.32	0.40	0.41	0.32	0.45	0.46	0.38	0.00	0.10	0.74	0.00	0.17
Avail Cap(c_a), veh/h	160	787	809	160	787	802	460	0	396	398	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	21.5	21.5	54.6	22.1	22.1	35.0	0.0	32.5	49.8	0.0	46.7
Incr Delay (d2), s/veh	3.7	1.5	1.5	3.7	1.9	1.9	2.3	0.0	0.5	5.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.1	7.4	0.5	8.3	8.4	4.8	0.0	1.0	4.6	0.0	0.8
LnGrp Delay(d),s/veh	58.3	23.0	23.0	58.3	24.0	24.0	37.3	0.0	33.0	55.5	0.0	47.3
LnGrp LOS	E	C	C	E	C	C	D		C	E		D
Approach Vol, veh/h	662				739				214		166	
Approach Delay, s/veh	23.9				24.7				36.5		54.2	
Approach LOS	C				C				D		D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	7.9	56.0			16.5	7.9	56.0	34.0				
Change Period (Y+Rc), s	4.7	5.1			4.6	* 4.7	5.1	4.6				
Max Green Setting (Gmax), s	10	50.9			25.4	* 10	50.9	29.4				
Max Q Clear Time (g_c+1.3, s)	13.0	16.0			10.6	3.0	18.1	11.1				
Green Ext Time (p_c), s	0.0	11.0			0.7	0.0	10.8	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									
Notes												

PM Existing
1: Ramona/Day St & Main St (SR-67)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	875	143	88	594	58	151	78	115	122	87	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	902	147	91	612	60	156	80	119	126	90	32
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	1352	220	142	1560	153	195	107	159	160	185	66
Arrive On Green	0.05	0.45	0.45	0.08	0.48	0.48	0.11	0.16	0.16	0.09	0.14	0.14
Sat Flow, veh/h	1774	3030	494	1774	3246	318	1774	661	984	1774	1297	461
Grp Volume(v), veh/h	24	527	522	91	333	339	156	0	199	126	0	122
Grp Sat Flow(s),veh/h/ln	1774	1770	1754	1774	1770	1794	1774	0	1645	1774	0	1759
Q Serve(g_s), s	1.2	21.1	21.1	4.5	10.8	10.9	7.7	0.0	10.4	6.2	0.0	5.7
Cycle Q Clear(g_c), s	1.2	21.1	21.1	4.5	10.8	10.9	7.7	0.0	10.4	6.2	0.0	5.7
Prop In Lane	1.00		0.28	1.00		0.18	1.00		0.60	1.00		0.26
Lane Grp Cap(c), veh/h	80	789	783	142	851	862	195	0	267	160	0	251
V/C Ratio(X)	0.30	0.67	0.67	0.64	0.39	0.39	0.80	0.00	0.75	0.79	0.00	0.49
Avail Cap(c_a), veh/h	184	1338	1327	322	1476	1496	500	0	542	421	0	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	19.6	19.6	40.1	14.9	14.9	39.0	0.0	35.9	40.0	0.0	35.5
Incr Delay (d2), s/veh	2.1	1.0	1.0	4.8	0.3	0.3	7.5	0.0	4.1	8.2	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.5	10.4	2.4	5.3	5.4	4.2	0.0	5.0	3.4	0.0	2.9
LnGrp Delay(d),s/veh	43.6	20.6	20.6	44.8	15.2	15.2	46.5	0.0	40.0	48.2	0.0	36.9
LnGrp LOS	D	C	C	D	B	B	D		D	D		D
Approach Vol, veh/h	1073				763			355			248	
Approach Delay, s/veh	21.1				18.7			42.8			42.6	
Approach LOS	C				B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	45.1	14.5	18.2	8.8	48.3	12.8	19.9				
Change Period (Y+Rc), s	* 4.7	5.1	* 4.7	* 5.4	* 4.7	5.1	* 4.7	5.4				
Max Green Setting (Gmax), s	* 16	67.9	* 25	* 26	* 9.3	74.9	* 21	29.6				
Max Q Clear Time (g_c+l1), s	6.5	23.1	9.7	7.7	3.2	12.9	8.2	12.4				
Green Ext Time (p_c), s	0.1	17.0	0.3	1.8	0.0	18.4	0.2	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay	25.7											
HCM 2010 LOS	C											
Notes												

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	69	997	67	143	762	35	10	3	146	6	3	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	50	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	1028	69	147	786	36	10	3	151	6	3	49
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	822	0	0	1097	0	0	1894	2321	548	1756	2337	411
Stage 1	-	-	-	-	-	-	1205	1205	-	1098	1098	-
Stage 2	-	-	-	-	-	-	689	1116	-	658	1239	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	803	-	-	632	-	-	43	37	480	54	36	590
Stage 1	-	-	-	-	-	-	195	255	-	227	287	-
Stage 2	-	-	-	-	-	-	402	281	-	420	246	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	803	-	-	632	-	-	28	26	480	26	25	590
Mov Cap-2 Maneuver	-	-	-	-	-	-	28	26	-	26	25	-
Stage 1	-	-	-	-	-	-	178	232	-	207	220	-
Stage 2	-	-	-	-	-	-	279	216	-	259	224	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			1.9			32.6			52.5		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	28	480	803	-	-	632	-	-	132			
HCM Lane V/C Ratio	0.479	0.314	0.089	-	-	0.233	-	-	0.445			
HCM Control Delay (s)	219.9	15.9	9.9	-	-	12.4	-	-	52.5			
HCM Lane LOS	F	C	A	-	-	B	-	-	F			
HCM 95th %tile Q(veh)	1.5	1.3	0.3	-	-	0.9	-	-	2			

PM Existing

3: 15th St/Montecito Rd & Main St (SR-67)/SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	129	998	81	37	779	53	52	22	55	71	16	137
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1700	1667	1863	1900	1700	1863	1700	1900	1863	1900
Adj Flow Rate, veh/h	134	1040	84	39	811	55	54	23	57	74	17	143
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	1425	115	89	1312	89	77	33	82	91	21	177
Arrive On Green	0.10	0.43	0.43	0.06	0.39	0.39	0.12	0.12	0.12	0.18	0.18	0.18
Sat Flow, veh/h	1774	3307	267	1587	3354	227	670	286	708	513	118	990
Grp Volume(v), veh/h	134	556	568	39	428	438	134	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1804	1587	1770	1812	1664	0	0	1621	0	0
Q Serve(g_s), s	6.4	22.6	22.7	2.1	16.8	16.8	6.7	0.0	0.0	12.0	0.0	0.0
Cycle Q Clear(g_c), s	6.4	22.6	22.7	2.1	16.8	16.8	6.7	0.0	0.0	12.0	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.13	0.40		0.43	0.32		0.61
Lane Grp Cap(c), veh/h	170	763	778	89	692	709	192	0	0	289	0	0
V/C Ratio(X)	0.79	0.73	0.73	0.44	0.62	0.62	0.70	0.00	0.00	0.81	0.00	0.00
Avail Cap(c_a), veh/h	456	1440	1468	194	1201	1230	410	0	0	624	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.4	20.5	20.5	39.6	21.2	21.2	36.9	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	7.8	1.4	1.3	3.3	0.9	0.9	4.5	0.0	0.0	5.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	11.3	11.5	1.0	8.4	8.6	3.3	0.0	0.0	5.8	0.0	0.0
LnGrp Delay(d),s/veh	46.1	21.8	21.8	43.0	22.1	22.1	41.4	0.0	0.0	39.6	0.0	0.0
LnGrp LOS	D	C	C	D	C	C	D			D		
Approach Vol, veh/h	1258			905			134			234		
Approach Delay, s/veh	24.4			23.0			41.4			39.6		
Approach LOS	C			C			D			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	42.5		20.1	13.0	39.0		14.6				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 11	70.6		33.4	* 22	58.9		21.4				
Max Q Clear Time (g_c+I1), s	4.1	24.7		14.0	8.4	18.8		8.7				
Green Ext Time (p_c), s	0.0	12.7		1.4	0.3	12.4		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay	26.2											
HCM 2010 LOS	C											
Notes												

PM Existing
4: 14th St & SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	989	93	38	799	116	172	42	33	214	43	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	30	1052	99	40	850	123	183	45	35	228	46	29
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	1452	137	79	1393	202	295	72	314	257	52	263
Arrive On Green	0.04	0.45	0.45	0.04	0.45	0.45	0.21	0.21	0.21	0.17	0.17	0.17
Sat Flow, veh/h	1774	3259	306	1774	3088	447	1437	353	1533	1488	300	1527
Grp Volume(v), veh/h	30	571	580	40	487	486	228	0	35	274	0	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1796	1774	1770	1765	1791	0	1533	1788	0	1527
Q Serve(g_s), s	2.4	37.9	37.9	3.2	29.9	29.9	16.6	0.0	2.7	21.5	0.0	2.3
Cycle Q Clear(g_c), s	2.4	37.9	37.9	3.2	29.9	29.9	16.6	0.0	2.7	21.5	0.0	2.3
Prop In Lane	1.00		0.17	1.00		0.25	0.80		1.00	0.83		1.00
Lane Grp Cap(c), veh/h	69	789	800	79	798	796	367	0	314	308	0	263
V/C Ratio(X)	0.43	0.72	0.72	0.51	0.61	0.61	0.62	0.00	0.11	0.89	0.00	0.11
Avail Cap(c_a), veh/h	100	789	800	103	798	796	367	0	314	429	0	366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.4	32.5	32.6	67.0	29.8	29.8	51.9	0.0	46.4	58.0	0.0	50.1
Incr Delay (d2), s/veh	4.3	5.7	5.7	5.0	3.5	3.5	7.7	0.0	0.7	15.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	19.7	20.0	1.7	15.4	15.3	9.0	0.0	1.2	11.9	0.0	1.0
LnGrp Delay(d),s/veh	71.6	38.3	38.2	71.9	33.3	33.3	59.6	0.0	47.1	73.4	0.0	50.2
LnGrp LOS	E	D	D	E	C	C	E		D	E		D
Approach Vol, veh/h	1181			1013			263			303		
Approach Delay, s/veh	39.1			34.8			57.9			71.2		
Approach LOS	D			C			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	69.0		29.3	10.3	69.8		34.0				
Change Period (Y+Rc), s	4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	10.3	63.9		34.4	* 8.1	64.1		29.4				
Max Q Clear Time (g_c+1.2), s	15.2	39.9		23.5	4.4	31.9		18.6				
Green Ext Time (p_c), s	0.0	16.1		1.2	0.0	19.5		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay	42.8											
HCM 2010 LOS	D											
Notes												

Appendix E

Transit Service Near Project



Appendix F

Trip Generation Support Information

(NOT SO)
BRIEF GUIDE OF VEHICULAR TRAFFIC GENERATION RATES
FOR THE SAN DIEGO REGION

APRIL 2002



401 B Street, Suite 800
San Diego, California 92101
(619) 699-1900 • Fax (619) 699-1950

NOTE: This listing only represents a **guide** of average, or estimated, traffic generation "driveway" rates and some very general trip data for land uses (emphasis on acreage and building square footage) in the San Diego region. These rates (both local and national) are subject to change as future documentation becomes available, or as regional sources are updated. For more specific information regarding traffic data and trip rates, please refer to the San Diego Traffic Generators manual. **Always check with local jurisdictions for their preferred or applicable rates.**

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY] ^P	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M. Between 3:00-6:30 P.M.				TRIP LENGTH (Miles) ^L
AGRICULTURE (Open Space)	[80:18:2]	2/acre**					10.8
AIRPORT	[78:20:2]						12.5
Commercial		60/acre, 100/flight, 70/1000 sq. ft. * **	5%	(6:4)	8%	(5:5)	
General Aviation		6/acre, 2/flight, 6/based aircraft * **	9%	(7:3)	15%	(5:5)	
Heliports		100/acre**					
AUTOMOBILE ^S							
Car Wash							
Automatic		900/site, 600/acre**	4%	(5:5)	9%	(5:5)	
Self-serve		100/wash stall**	4%	(5:5)	8%	(5:5)	
Gasoline	[21:51:28]						2.8
with/Food Mart		160/vehicle fueling space**	7%	(5:5)	8%	(5:5)	
with/Food Mart & Car Wash		155/vehicle fueling space**	8%	(5:5)	9%	(5:5)	
Older Service Station Design		150/vehicle fueling space, 900/station**	7%	(5:5)	9%	(5:5)	
Sales (Dealer & Repair)		50/1000 sq. ft., 300/acre, 60/service stall* **	5%	(7:3)	8%	(4:6)	
Auto Repair Center		20/1000 sq. ft., 400/acre, 20/service stall*	8%	(7:3)	11%	(4:6)	
Auto Parts Sales		60/1000 sq. ft. **	4%		10%		
Quick Lube		40/service stall**	7%	(6:4)	10%	(5:5)	
Tire Store		25/1000 sq. ft., 30/service stall**	7%	(6:4)	11%	(5:5)	
CEMETERY		5/acre*					
CHURCH (or Synagogue)	[64:25:11]	9/1000 sq. ft., 30/acre** (quadruple rates for Sunday, or days of assembly)	5%	(6:4)	8%	(5:5)	5.1
COMMERCIAL/RETAIL ^S							
Super Regional Shopping Center (More than 80 acres, more than 800,000 sq. ft., w/usually 3+ major stores)		35/1000 sq. ft., ^C 400/acre*	4%	(7:3)	10%	(5:5)	
Regional Shopping Center	[54:35:11]	50/1000 sq. ft., ^C 500/acre*	4%	(7:3)	9%	(5:5)	5.2
(40-80acres, 400,000-800,000 sq. ft., w/usually 2+ major stores)							
Community Shopping Center	[47:31:22]	80/1000 sq. ft., 700/acre* **	4%	(6:4)	10%	(5:5)	3.6
(15-40 acres, 125,000-400,000 sq. ft., w/usually 1 major store, detached restaurant(s), grocery and drugstore)							
Neighborhood Shopping Center (Less than 15 acres, less than 125,000 sq. ft., w/usually grocery & drugstore, cleaners, beauty & barber shop, & fast food services)		120/1000 sq. ft., 1200/acre* **	4%	(6:4)	10%	(5:5)	
Commercial Shops	[45:40:15]						
Specialty Retail/Strip Commercial		40/1000 sq. ft., 400/acre*	3%	(6:4)	9%	(5:5)	4.3
Electronics Superstore		50/1000 sq. ft**			10%	(5:5)	
Factory Outlet		40/1000 sq. ft.**	3%	(7:3)	9%	(5:5)	
Supermarket		150/1000 sq. ft., 2000/acre* **	4%	(7:3)	10%	(5:5)	
Drugstore		90/1000 sq. ft.**	4%	(6:4)	10%	(5:5)	
Convenience Market (15-16 hours)		500/1000 sq. ft.**	8%	(5:5)	8%	(5:5)	
Convenience Market (24 hours)		700/1000 sq. ft.**	9%	(5:5)	7%	(5:5)	
Convenience Market (w/gasoline pumps)		850/1000 sq. ft., 550/vehicle fueling space**	6%	(5:5)	7%	(5:5)	
Discount Club		60/1000 sq. ft., 600/acre* **	1%	(7:3)	9%	(5:5)	
Discount Store		60/1000 sq. ft., 600/acre**	3%	(6:4)	8%	(5:5)	
Furniture Store		6/1000 sq. ft., 100/acre**	4%	(7:3)	9%	(5:5)	
Lumber Store		30/1000 sq. ft., 150/acre**	7%	(6:4)	9%	(5:5)	
Home Improvement Superstore		40/1000 sq. ft.**	5%	(6:4)	8%	(5:5)	
Hardware/Paint Store		60/1000 sq. ft., 600/acre**	2%	(6:4)	9%	(5:5)	
Garden Nursery		40/1000 sq. ft., 90/acre**	3%	(6:4)	10%	(5:5)	
Mixed Use: Commercial (w/supermarket)/Residential		110/1000 sq. ft., 2000/acre* (commercial only)	3%	(6:4)	9%	(5:5)	
		5/dwelling unit, 200/acre* (residential only)	9%	(3:7)	13%	(6:4)	
EDUCATION							
University (4 years)	[91:9:0]	2.4/student, 100 acre*	10%	(8:2)	9%	(3:7)	8.9
Junior College (2 years)	[92:7:1]	1.2/student, 24/1000 sq. ft., 120/acre* **	12%	(8:2)	9%	(6:4)	9.0
High School	[75:19:6]	1.3/student, 15/1000 sq. ft., 60/acre* **	20%	(7:3)	10%	(4:6)	4.8
Middle/Junior High	[63:25:12]	1.4/student, 12/1000 sq. ft. 50/acre**	30%	(6:4)	9%	(4:6)	5.0
Elementary	[57:25:10]	1.6/student, 14/1000 sq. ft., 90/acre* **	32%	(6:4)	9%	(4:6)	3.4
Day Care	[28:58:14]	5/child, 80/1000 sq. ft.**	17%	(5:5)	18%	(5:5)	3.7
FINANCIAL ^S	[35:42:23]						3.4
Bank (Walk-In only)		150/1000 sq. ft., 1000/acre* **	4%	(7:3)	8%	(4:6)	
with Drive-Through		200/1000 sq. ft., 1500/acre*	5%	(6:4)	10%	(5:5)	
Drive-Through only		250 (125 one-way)/lane*	3%	(5:5)	13%	(5:5)	
Savings & Loan		60/1000 sq. ft., 600/acre**	2%		9%		
Drive-Through only		100 (50 one-way)/lane**	4%		15%		
HOSPITAL	[73:25:2]						8.3
General		20/bed, 25/1000 sq. ft., 250/acre*	8%	(7:3)	10%	(4:6)	
Convalescent/Nursing		3/bed**	7%	(6:4)	7%	(4:6)	
INDUSTRIAL							
Industrial/Business Park (commercial included)	[79:19:2]	16/1000 sq. ft., 200/acre* **	12%	(8:2)	12%	(2:8)	9.0
Industrial Park (no commercial)		8/1000 sq. ft., 90/acre**	11%	(9:1)	12%	(2:8)	
Industrial Plant (multiple shifts)	[92:5:3]	10/1000 sq. ft., 120/acre*	14%	(8:2)	15%	(3:7)	11.7
Manufacturing/Assembly		4/1000 sq. ft., 50/acre**	19%	(9:1)	20%	(2:8)	
Warehousing		5/1000 sq. ft., 60/acre**	13%	(7:3)	15%	(4:6)	
Storage		2/1000 sq. ft., 0.2/vault, 30/acre*	6%	(5:5)	9%	(5:5)	
Science Research & Development		8/1000 sq. ft., 80/acre*	16%	(9:1)	14%	(1:9)	
Landfill & Recycling Center		6/acre	11%	(5:5)	10%	(4:6)	

(OVER)

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista and County of San Diego.
ADVISORY/LIAISON MEMBERS: California Department of Transportation, County Water Authority, U.S. Department of Defense, S.D. Unified Port District and Tijuana/Baja California.

LAND USE	TRIP CATEGORIES [PRIMARY:DIVERTED:PASS-BY] ^p	ESTIMATED WEEKDAY VEHICLE TRIP GENERATION RATE (DRIVEWAY)	HIGHEST PEAK HOUR % (plus IN:OUT ratio) Between 6:00-9:30 A.M. Between 3:00-6:30 P.M.				TRIP LENGTH (Miles) ^L
LIBRARY	[44:44:12]	50/1000 sq. ft., 400/acre**	2%	(7:3)	10%	(5:5)	3.9
LODGING	[58:38:4]						7.6
Hotel (w/convention facilities/restaurant)		10/occupied room, 300/acre	8%	(6:4)	8%	(6:4)	
Motel		9/occupied room, 200/acre*	8%	(4:6)	9%	(6:4)	
Resort Hotel		8/occupied room, 100/acre*	5%	(6:4)	7%	(4:6)	
Business Hotel		7/occupied room**	8%	(4:6)	9%	(6:4)	
MILITARY	[82:16:2]	2.5/military & civilian personnel*	9%	(9:1)	10%	(2:8)	11.2
OFFICE							
Standard Commercial Office	[77:19:4]	20/1000 sq. ft., ^o 300/acre*	14%	(9:1)	13%	(2:8)	8.8
(less than 100,000 sq. ft.)							
Large (High-Rise) Commercial Office	[82:15:3]	17/1000 sq. ft., ^o 600/acre*	13%	(9:1)	14%	(2:8)	10.0
(more than 100,000 sq. ft., 6 + stories)							
Office Park (400,000 + sq. ft.)		12/1000 sq.ft., 200/acre* **	13%	(9:1)	13%	(2:8)	
Single Tenant Office		14/1000 sq. ft., 180/acre*	15%	(9:1)	15%	(2:8)	8.8
Corporate Headquarters		7/1000 sq. ft., 110/acre*	17%	(9:1)	16%	(1:9)	
Government (Civic Center)	[50:34:16]	30/1000 sq. ft.**	9%	(9:1)	12%	(3:7)	6.0
Post Office							
Central/Walk-In Only		90/1000sq. ft.**	5%		7%		
Community (not including mail drop lane)		200/1000 sq. ft., 1300/acre*	8%	(6:4)	9%	(5:5)	
Community (w/mail drop lane)		300/1000 sq. ft., 2000/acre*	7%	(5:5)	10%	(5:5)	
Mail Drop Lane only		1500 (750 one-way)/lane*	7%	(5:5)	12%	(5:5)	
Department of Motor Vehicles		180/1000 sq. ft., 900/acre**	8%	(6:4)	10%	(4:6)	
Medical-Dental	[60:30:10]	50/1000 sq. ft., 500/acre*	8%	(8:2)	11%	(3:7)	6.4
PARKS	[66:28:6]		4%		8%		5.4
City (developed w/meeting rooms and sports facilities)		50/acre*	13%	(5:5)	9%	(5:5)	
Regional (developed)		20/acre*					
Neighborhood/County (undeveloped)		5/acre (add for specific sport uses), 6/picnic site* **					
State (average 1000 acres)		1/acre, 10/picnic site**					
Amusement (Theme)		80/acre, 130/acre (summer only)**			8%	(6:4)	
San Diego Zoo		115/acre*					
Sea World		80/acre*					
RECREATION							
Beach, Ocean or Bay	[52:39:9]	600/1000 ft. shoreline, 60/acre*					6.3
Beach, Lake (fresh water)		50/1000 ft. shoreline, 5/acre*					
Bowling Center		30/1000 sq. ft., 300/acre, 30/lane **	7%	(7:3)	11%	(4:6)	
Campground		4/campsite**	4%		8%		
Golf Course		7/acre, 40/hole, 700/course* **	7%	(8:2)	9%	(3:7)	
Driving Range only		70/acre, 14/tee box*	3%	(7:3)	9%	(5:5)	
Marinas		4/berth, 20/acre* **	3%	(3:7)	7%	(6:4)	
Multi-purpose (miniature golf, video arcade, batting cage, etc.)		90/acre	2%		8%		
Racquetball/Health Club		30/1000 sq. ft., 300/acre, 40/court*	4%	(6:4)	9%	(6:4)	
Tennis Courts		16/acre, 30/court**	5%		11%	(5:5)	
Sports Facilities							
Outdoor Stadium		50/acre, 0.2/seat*					
Indoor Arena		30/acre, 0.1/seat*					
Racetrack		40/acre, 0.6 seat*					
Theaters (multiplex w/matinee)	[66:17:17]	80/1000 sq. ft., 1.8/seat, 360/screen*	1/3%		8%	(6:4)	6.1
RESIDENTIAL	[86:11:3]						7.9
Estate, Urban or Rural		12/dwelling unit * ^R	8%	(3:7)	10%	(7:3)	
(average 1-2 DU/acre)							
Single Family Detached		10/dwelling unit * ^R	8%	(3:7)	10%	(7:3)	
(average 3-6 DU/acre)							
Condominium		8/dwelling unit * ^R	8%	(2:8)	10%	(7:3)	
(or any multi-family 6-20 DU/acre)							
Apartment		6/dwelling unit * ^R	8%	(2:8)	9%	(7:3)	
(or any multi-family units more than 20 DU/acre)							
Military Housing (off-base, multi-family)							
(less than 6 DU/acre)		8/dwelling unit	7%	(3:7)	9%	(6:4)	
(6-20 DU/acre)		6/dwelling unit	7%	(3:7)	9%	(6:4)	
Mobile Home							
Family		5/dwelling unit, 40/acre*	8%	(3:7)	11%	(6:4)	
Adults Only		3/dwelling unit, 20/acre*	9%	(3:7)	10%	(6:4)	
Retirement Community		4/dwelling unit**	5%	(4:6)	7%	(6:4)	
Congregate Care Facility		2.5/dwelling unit**	4%	(6:4)	8%	(5:5)	
RESTAURANT^S	[51:37:12]						4.7
Quality		100/1000 sq. ft., 3/seat, 500/acre* **	1%	(6:4)	8%	(7:3)	
Sit-down, high turnover		160/1000 sq. ft., 6/seat, 1000/acre* **	8%	(5:5)	8%	(6:4)	
Fast Food (w/drive-through)		650/1000 sq. ft., 20/seat, 3000/acre* **	7%	(5:5)	7%	(5:5)	
Fast Food (without drive-through)		700/1000 sq. ft.**	5%	(6:4)	7%	(5:5)	
Delicatessen (7am-4pm)		150/1000 sq. ft., 11/seat*	9%	(6:4)	3%	(3:7)	
TRANSPORTATION							
Bus Depot		25/1000 sq. ft.**					
Truck Terminal		10/1000 sq. ft., 7/bay, 80/acre**	9%	(4:6)	8%	(5:5)	
Waterport/Marine Terminal		170/berth, 12/acre**					
Transit Station (Light Rail w/parking)		300/acre, 2 ^{1/2} /parking space (4/occupied)**	14%	(7:3)	15%	(3:7)	
Park & Ride Lots		400/acre (600/paved acre), 5/parking space (8/occupied)* **	14%	(7:3)	15%	(3:7)	

* Primary source: *San Diego Traffic Generators*.

* Other sources: *ITE Trip Generation Report [6th Edition]*, Trip Generation Rates (other agencies and publications), various SANDAG & CALTRANS studies, reports and estimates.

^p Trip category percentage ratios are daily from local household surveys, often cannot be applied to very specific land uses, and do not include non-resident drivers (draft SANDAG *Analysis of Trip Diversion*, revised November, 1990):

PRIMARY - one trip directly between origin and primary destination.

DIVERTED - linked trip (having one or more stops along the way to a primary destination) whose distance compared to direct distance ≥ 1 mile.

PASS-BY - undiverted or diverted < 1 mile.

^L Trip lengths are average weighted for all trips to and from general land use site. (All trips system-wide average length = 6.9 miles)

Fitted curve equation: Ln(T) = 0.502 Ln(x) + 6.945

Fitted curve equation: Ln(T) = 0.756 Ln(x) + 3.950

T = total trips, x = 1,000 sq. ft.

Fitted curve equation: t = -2.169 Ln(d) + 12.85

t = trips/DU, d = density (DU/acre), DU = dwelling unit

^s Suggested PASS-BY [undiverted or diverted < 1 mile] percentages for trip rate reductions only during P.M. peak period (based on combination of local data/review and Other sources**):

COMMERCIAL/RETAIL

Regional Shopping Center20%

Community"30%

Neighborhood"40%

Specialty Retail/Strip Commercial (other)10%

Supermarket40%

Convenience Market50%

Discount Club/Store30%

FINANCIAL

Bank25%

AUTOMOBILE

Gasoline Station50%

RESTAURANT

Quality10%

Sit-down high turnover20%

Fast Food40%

^t Trip Reductions - In order to help promote regional "smart growth" policies, and acknowledge San Diego's expanding mass transit system, consider vehicle trip rate reductions (with proper documentation and necessary adjustments for peak periods). The following are some examples:

[1] A 5% daily trip reduction for land uses with transit access or near transit stations accessible within 1/4 mile.

[2] Up to 10% daily trip reduction for mixed-use developments where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips).

ALDI Food Market Traffic Impact Study Appendix

Page 37 of 98

SUPERMARKET

Vehicle Occupancy = 1.34 Persons per auto (Weekday)
Date: April 20, 1983
Time: 3:30 — 5:30 P.M. (Inbound & Outbound)

Study GS-1



ALPHA BETA & CENTRAL LIQUOR

This combination grocery and liquor store is part of a small neighborhood shopping center in the north end of Coronado. The geometrics of the parking lot separated the grocery and liquor store from the rest of the stores. Also, the large parking lot in front of the Alpha Beta store discourages on-street parking, even though it is available.

TRIP GENERATION STUDY SUMMARY

Name of study site Alpha Beta & Central Liquor
 Location 2nd St. & B Ave., Coronado
 Type of facility Grocery & Liquor Store
 Date Jan. 5 - 12, 1981

Study GS - 1

BACKGROUND DATA

44 Employees
22,880 Sq. Ft. of Gross Floor Area
2.41 Acres (gross)
158 Parking Spaces

TRAFFIC DATA

Average Weekday Vehicle Trip Ends (AWDT)			Traffic Volumes	% of AWDT
			3,864	
Highest Hour of Generator during Commuter Peaks	A.M. Between 7 and 9	Enter		
		Exit		
		Total	178	4.6%
	P.M. Between 4 and 6	Enter		
		Exit		
		Total	426	11.0%
Peak Hour of Generator	A.M. 10:30 - 11:30	Enter		
		Exit		
		Total	290	7.5%
	P.M. 4:30 - 5:30	Enter		
		Exit		
		Total	426	11.0%

Saturday Vehicle Trip Ends			Traffic Volumes
			4,357
Peak	P.M.	Enter	
Hour of	4:00 -	Exit	
Generator	5:00	Total	517
Sunday Vehicle Trip Ends			3,444
Peak	P.M.	Enter	
Hour of	12:00 (noon)	Exit	
Generator	1:00	Total	407

TRIP RATIOS

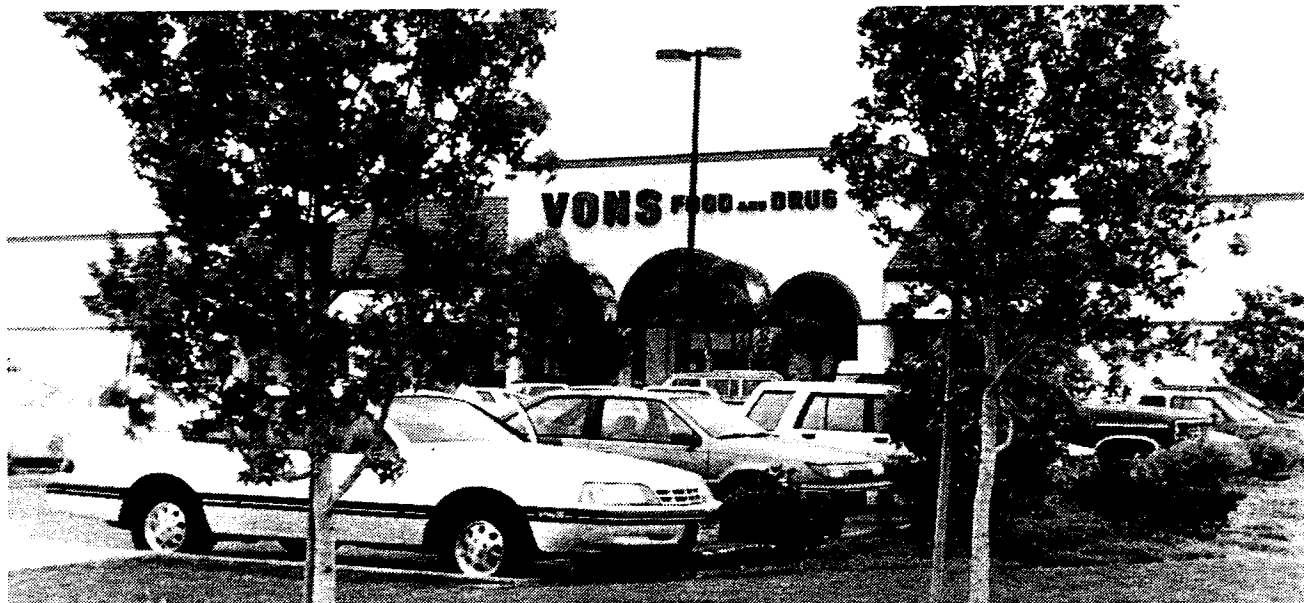
	Weekday	Saturday	Sunday
Trips/Employee	88	99	78
Trips/1000 Sq. Ft. of GFA	169	190	150
Trips/Acre	1,603	1,808	1,430
Trips/Parking Space	24	28	22

Vehicle Occupancy: = 1.16 Persons per auto (Weekday)

Study GS-2

Date: May 17, 1989

Time: 3:30 - 5:30 P.M. (Inbound and Outbound)



VON'S

This combination grocery and liquor store was previously a Safeway store, but has been converted to a Von's market. It covers almost all of a city block in one of the City of San Diego's older neighborhoods, and operates for 24 hours per day. The market's ample parking lot has three separate driveways along three different city streets; however, on-street parking is also available.

TRIP GENERATION STUDY SUMMARY

Name of Study Site Von's Study GS-2
 Location Adams Ave. & Cherokee Ave., San Diego
 Type of Facility Grocery Store
 Date January 23-29, 1988

BACKGROUND DATA

100 Employees
32,000 Square Feet of Gross Floor Area
2.00 Acres (Gross)
100 Parking Spaces Off-Street

TRAFFIC DATA

			Traffic Volumes	% of AWDT
Average Weekday Vehicle Trip Ends (AWDT)			4,830	
Highest Hour of Generator	A.M. Between 7 and 9	Enter		
		Exit		
		Total	193	4.0%
During Commuter Peaks	P.M. Between 4 and 6	Enter	231	
		Exit	248	
		Total	479	9.9%
Peak Hour of Generator	A.M. 11:30 - 12:30	Enter		
		Exit		
		Total	278	5.8%
	P.M. 5:45 - 6:45	Enter		
		Exit		
		Total	522	10.8%

		Traffic Volumes	
Saturday Vehicle Trip Ends			5,389
Peak	5:45 -	Enter	
Hour of	6:45 P.M.	Exit	
Generator		Total	588
Sunday Vehicle Trip Ends			5,690
Peak	5:00 -	Enter	
Hour of	6:00 P.M.	Exit	
Generator		Total	632

TRIP RATIOS

Trips/Employee

" /1,000 Sq. Ft. of G.F.A. (Occupied)

" /Acre

" /Parking Space

Weekday

48

151

2,415

48

Saturday

54

168

2,694

54

Sunday

57

178

2,845

57

* Counts by Linscott, Law & Greenspan, Engineers

TRIP GENERATION MANUAL

9th Edition • Volume 3: Data

Trip Generation Rates, Plots and Equations

- Institutional (Land Uses 500–599)
- Medical (Land Uses 600–699)
- Office (Land Uses 700–799)
- Retail (Land Uses 800–899)
- Services (Land Uses 900–999)



Institute of Transportation Engineers

Supermarket (850)

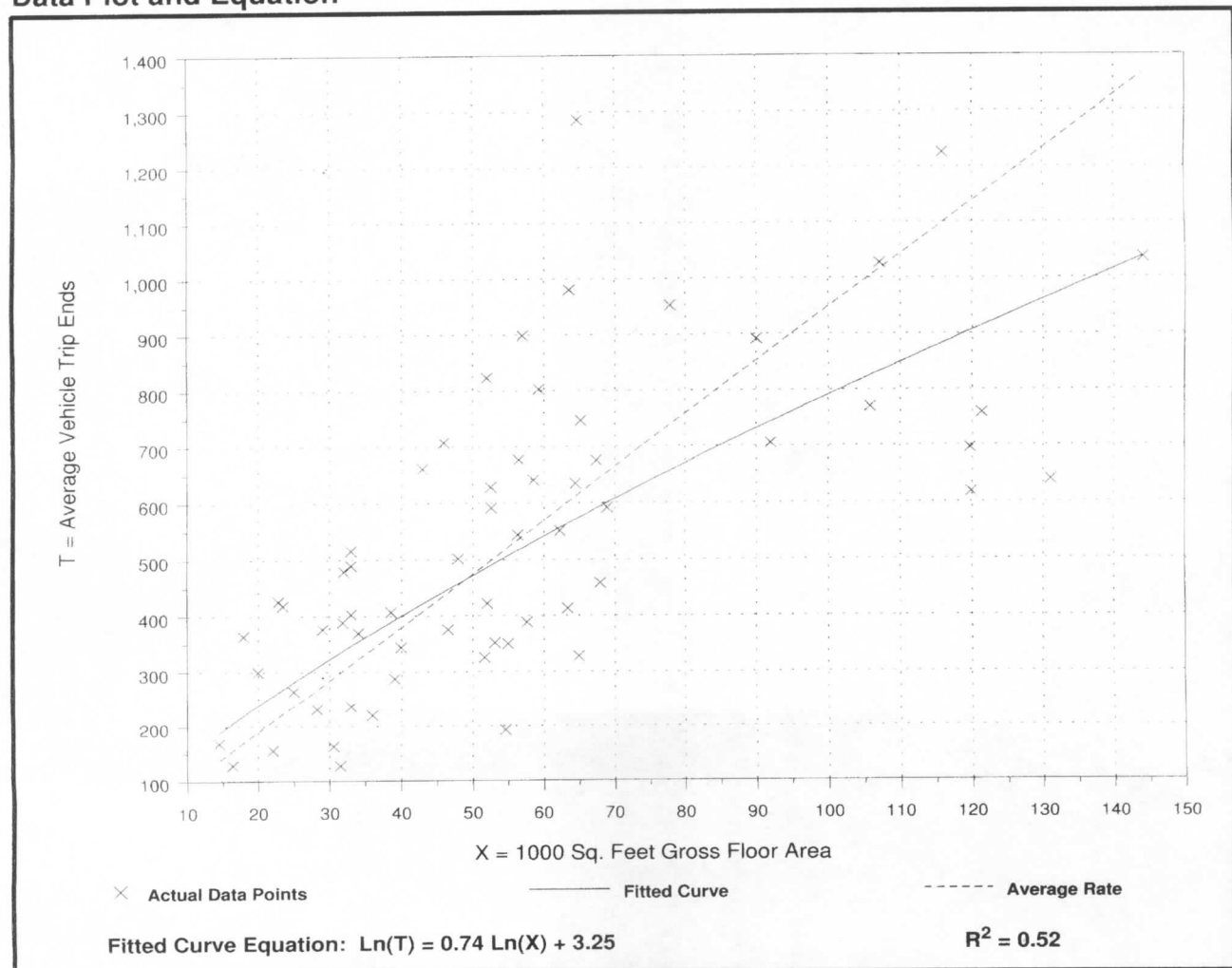
Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 62
 Average 1000 Sq. Feet GFA: 56
 Directional Distribution: 51% entering, 49% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
9.48	3.53 - 20.29	4.81

Data Plot and Equation



Supermarket (850)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area
On a: Weekday

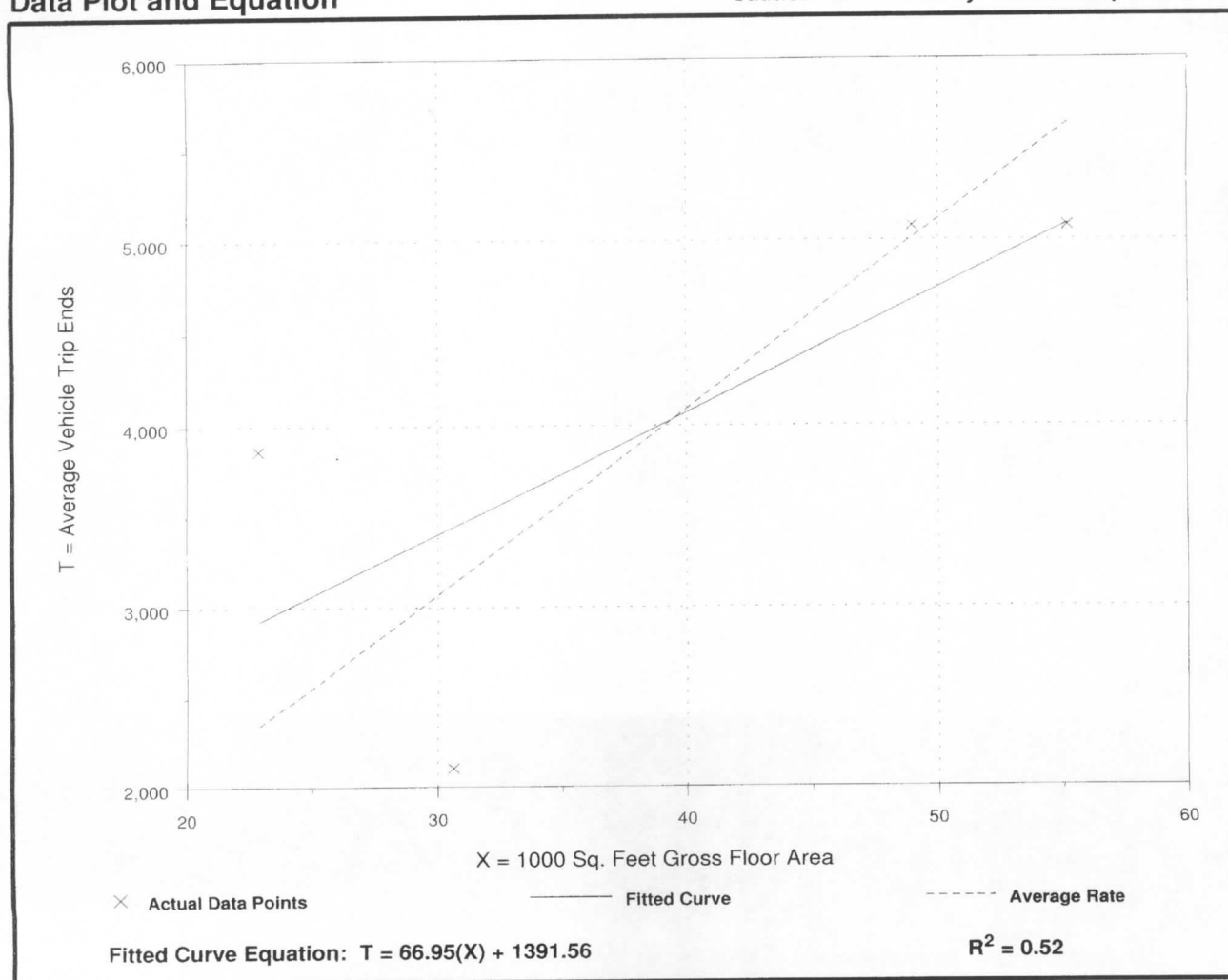
Number of Studies: 4
Average 1000 Sq. Feet GFA: 39
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
102.24	68.65 - 168.88	31.73

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



The following list includes Cities where ITE trip rates have been applied to the following food market projects (ALDI, Fresh and Easy Trader Joe's). Excerpts from the individual studies are included on the following pages.

Berkeley, CA 13,515 sf Fresh & Easy: ITE trip rate of 102.24 ADT/KSF

Encinitas, CA 18,000 sf ALDI: ITE trip rate of 102.24 ADT/KSF

La Habra, CA 18,783 sf ALDI: ITE trip rate of 102.24 ADT/KSF

La Puente, CA 18,552 sf ALDI: ITE trip rate of 102.24 ADT/KSF

Oceanside, CA 14,000 sf Fresh & Easy: ITE trip rate of 102.24 ADT/KSF

Rialto, CA 18,841 sf ALDI: ITE trip rate of 90.86 ADT/KSF

Rosemead, CA 13,969 sf Fresh & Easy: ITE trip rate of 102.24 ADT/KSF



California Environmental Quality Act (CEQA) Initial Study and Environmental Review Checklist

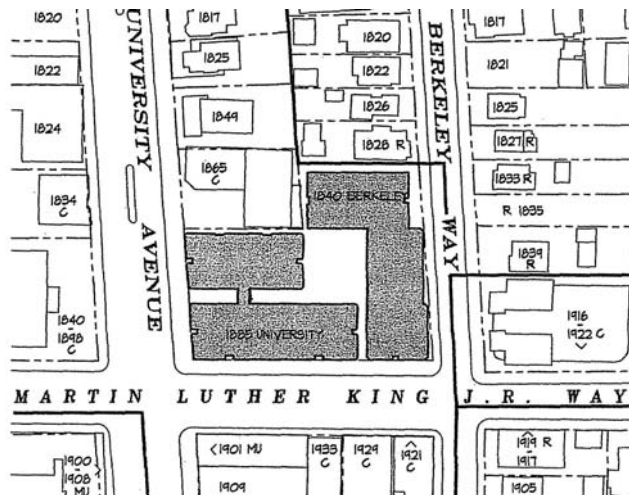
1885 University Avenue

June 2006

Planning and Development Department
Land Use Planning Division



Rendering of Northwest corner of University Avenue and Martin Luther King Jr. Way.



Vicinity Map

DESCRIPTION OF PROJECT

The project would demolish the existing building, parking lot, and other improvements on the property and replace them with a new mixed-use project that would span the entire parcel. The project proposes a total of 156 rental dwelling units and approximately 14,390 square feet of retail floor area in one mixed-use structure comprised of two separate residential buildings built on a common basement and ground floor podium containing commercial uses and two separate parking garages with a total of 157 parking spaces.

DEMOLITION

The proposed project would demolish the existing 20,375 square-foot building at 1950 Martin Luther King, Jr. Way and would remove the existing surface parking lot and landscaping. Street trees abutting the site would also be removed and replaced, as recommended by the City Forester. The project applicant estimates that demolition, site clearance and grading would take approximately 6 weeks.

PROPOSED BUILDING COMPONENTS

Ground Floor. The project's ground floor includes 14,390 sq.ft of commercial space. The applicant intends to lease the large 13,515 sq.ft. space at the corner of University and Martin Luther King Jr. Way to Trader Joe's, a specialty grocery store. An 875 sq.ft. retail space is also proposed at the northeast corner of the building. The ground floor would also house separate lobbies (with elevators and stairways) for the two residential structures, as well as support facilities for the residential and commercial uses (refuse storage areas, mechanical equipment, emergency ingress and egress areas, loading dock, wheelchair/shopping cart ramp from parking area into larger retail space, etc.). The Trader Joe's space is designed with an entrance at the corner of University Avenue and Martin Luther King Jr. Way as well as an entrance from the ground floor parking garage. The store's stockroom, food preparation area, and bathrooms would be located in the western-most portion of the lease space. Refer to Figure 2, Site Plan / Ground Floor Plan.

Parking and Vehicle Access. The plan for the ground floor calls for 48 parking spaces within a garage on the north side of the building, with driveway access via Berkeley Way. The applicant intends that this parking would be for the exclusive use of the commercial tenants. The project includes a basement level with 109 residential parking spaces that would be accessed via a driveway on University Avenue. Some of the residential parking would be located in parking lifts, as the basement plan can only accommodate 89 at-grade parking spaces. The basement parking area is also designed to accommodate additional parking lifts in the future, should there be sufficient demand. The required truck loading space and loading dock for the large commercial space would be located on the western side of the building, adjacent to the driveway leading down to the residential garage. In addition, an on-street loading zone would be designated in front of the store on University Avenue for large trucks.

Architecture. The project is designed to appear as two separate buildings above a unified ground floor. Building "A," with frontage on both University Avenue and Martin Luther King Jr. Way, would be addressed as 1885 University Avenue, and Building "B" would have an address of 1840 Berkeley Way due to its primary frontage on that street. The latter building would be located on the northern portion of the lot. Both buildings would be of roughly equal size, five stories and fifty-four feet in average height.

the unsignalized study intersections of the Martin Luther King, Jr. Way / Berkeley Way and University / Grant Street experience delays, with the former operating at LOS E/F during both peak hours, and the latter operating at LOS F during the evening peak hour (and LOS D during the morning peak hour).

Cumulative traffic conditions in 2020 (without the project) were forecast on the basis of information developed for the City of Berkeley's General Plan traffic analysis. The signalized study intersections are projected to operate at LOS D or better in 2020. The MLK Jr. Way / University Avenue AM and PM peak hours drop from LOS C to LOS D in cumulative conditions. The side streets at the unsignalized study intersections would operate at LOS F during both peak hours. The delay experienced by approaching vehicles will increase, even at intersections where the overall level of service remains the same.

The number of vehicle trips that would be generated by the proposed project was estimated using data in the Institute of Transportation Engineer's (ITE), *Trip Generation Manual*, Sixth Edition, adjusted to reflect local conditions. A conservative 25 percent modal split adjustment was applied to trips forecast to be generated by the residential portion of the proposed project. This adjustment is based on 2000 Census data for Tract 4223, including the project site, which indicates that 47 percent of area residents commuted by automobile, while 53 percent used transit, walked or biked.

The trip generation rate for the proposed Trader Joe's Grocery store utilizes ITE's rate for Supermarket (ITE Land Use #850). This rate was found to be comparable with the actual trip generation rate of the Trader Joe's store in San Francisco at Bay Street & Mission Street, which is assumed to have similar trip generation characteristics as the proposed Berkeley store. The 875 sq.ft. retail space proposed at the northeast corner of the building was categorized as Specialty Retail Center for the purposes of trip generation.

The trip generation analysis indicates that the existing commercial floor area of the site generates approximately 903 average daily trips¹² (ADT) when fully leased out¹³, and 55 of those trips would occur during the peak hour in the afternoon. The proposed project is expected to generate 2,207 ADT, with 216 trips during the PM peak hour. The net increase in trips generated by uses at the site would be 1,304 ADT, with 93 new trips during the AM peak hour and 161 trips in the PM peak hour. The net trip generation is summarized in Table 8, below.

¹² One trip is from an origin to a destination. Thus, a typical commute from home to work and back home would count as two trips.

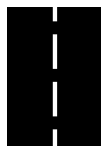
¹³ The existing commercial building is only 50% occupied, so trips currently generated by the site are lower than if the building were fully leased. However, existing traffic counts were conducted when the project application was submitted to the City and the commercial storefronts were fully occupied, so the traffic analysis calculates existing traffic as if the entire 20,375 square foot building were occupied. The building could be leased out again as is, and likely would be if the project were denied.

CITY OF ENCINITAS
ALDI Supermarket (1509 Encinitas Blvd)
July 1, 2015

Draft Traffic Impact Analysis

Prepared for:
ALDI Inc. Moreno Valley Division
1770 Iowa Street, Suite 240
Riverside, CA 92507

Prepared by Justin Rasas (RCE 60690), a principal with:



LOS Engineering, Inc.

11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, Fax 619-374-7247

Job #1516

4.0 Project Description

The proposed project is an ALDI Supermarket of 18,000 square feet located at 1509 Encinitas Boulevard, Encinitas, California.

4.1 Project Traffic Generation

For the San Diego region, project trip generation is typically calculated using the SANDAG *Brief Guide of Vehicular Traffic Generation Rates*, April 2002. However, SANDAG defaults to the Institute of Transportation Engineers (ITE) trip rates when local data is unavailable. Therefore, the ITE 9th Edition Trip Generation was used to calculate the project trip generation. The ITE 9th Edition Trip Generation Code 850 “Supermarket” was used because it best fit the project description, and other California jurisdictions used the ITE rate for supermarket projects such as Trader Joe’s and Fresh & Easy. ITE trip rates and other California supermarket analyses using ITE are included in **Attachment D**. Additionally, the local SANDAG pass-by trip reduction for PM peak hour was applied. Using the *ITE 9th Edition Trip Generation*, the project is calculated to have a driveway generate of 1,840 Average Daily Trips (ADT), with 61 AM peak hour trips (38 inbound and 23 outbound), and 171 PM peak hour trips (87 inbound and 84 outbound). Driveway trips are project trips that use the project driveway or access points. However, there is a percentage of project trips that are already on Encinitas Blvd driving to another destination and make a pass-by stop and then return to their original travel route. With application of a SANDAG pass-by reduction, the study area trip generation is calculated at 1,840 ADT, with 61 AM peak hour trips (38 inbound and 23 outbound), and 103 PM peak hour trips (52 inbound and 51 outbound). The project trips (with and without pass-by) are shown in **Table 6**.

TABLE 6: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units	Daily	Rate	Split	AM			PM		
						IN	OUT	Rate	Split	IN	OUT
ITE (code 850) Supermarket	102.24 /KSF	18,000 SF	1,840	3.40	0.62 0.38	38	23	9.48	0.51 0.49	87	84
<u>Pass-By Trip Reductions</u>											
		Supermarket (PM -40%)								-35	-33
ITE TRIP GENERATION			1,840			38	23			52	51

Source: Institute of Transportation Engineers (ITE) 9th Edition *Trip Generation*. SF - Square Feet; KSF - 1,000 SF. Daily: 24 hour traffic. Split-percent inbound & outbound. Excel rounding may cause values to be slightly higher or lower than whole number.

4.2 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on a review of surrounding residential areas and other supermarkets. The project distribution is shown in **Figure 5** with assignment of the project volumes shown in **Figure 6**.

4.3 Project Access

Project access is proposed from one driveways on Encinitas Boulevard and to the Village Square Drive intersection at Encinitas Boulevard through a shared access agreement with the westerly property owner. The client has noted that a copy of the shared access agreement is on file with the City.

***Draft Initial Study
Proposed Mitigated Negative Declaration***

**ALDI FOOD MARKET
951 & 1001 EAST IMPERIAL HIGHWAY**

***City Of La Habra
Community Development Department
201 East La Habra Boulevard
La Habra, CA 90631***

Prepared by:

*Keeton Kreitzer Consulting
P. O. Box 3905
Tustin, CA 92781-3905*

September 2016

CHAPTER 4.0 – ENVIRONMENTAL ANALYSIS

Project-Related Trip Generation

Table 16-3 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed project. As indicated in the table, the vacant fast food restaurant that exists on the subject site has a forecasted generation of 1,116 net trips per day, including 58 AM peak hour and 41 PM peak hour trips. The existing trips have been reduced to reflect a “pass-by” factor associated with fast food restaurants.

Table 16-3

**Project Traffic Generation Forecast¹
ALDI Food Market – La Habra**

ITE Land Use Code/Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Rates							
950: Supermarket (TE/1,000 SF)	102.24	62%	38%	3.40	51%	49%	9.48
934: Fast Food w/Drive-Thru (TE/1,000 SF)	496.12	51%	49%	45.42	52%	48%	32.65
Existing Trip Generation							
Alberto's (2,500 SF)	1,240	58	46	114	43	39	82
Pass-by Trips ²	-124	-28	-28	-56	-22	-19	-41
Total Existing Trips	1,116	30	28	58	21	20	41
Trip Generation Forecasts							
ALDI Food Market (18,783 SF)	1,920	40	24	64	91	87	178
Pass-by Trips ²	-192	-4	-2	-6	-33	-31	-64
Total Project-Related Trips	1,728	36	22	58	58	56	114
¹ Comparison to the existing fast foot restaurants' trip generation is provided for information purposes only. No credit was taken for the "existing" trip generation associated with Alberto's, which is closed.							
² Passby reductions for fast food with drive-thru consist of the following: estimated 10% daily, 49% AM and 50% PM. Pass-by reductions for supermarket use consists of the following: estimated 10% daily, estimated 10% AM and 36% PM. Pass-by reduction estimates are taken from Trip Generation, 9 th Edition (ITE, 2012).							
SOURCE: Linscott, Law & Greenspan Engineers, Inc. (August 29, 2016)							

Development of the site as proposed with the 18,783 square foot ALDI Food Market would result in a total of 1,728 trips per day, including 58 AM peak hour trips and 114 PM peak hour trips. It should be noted that since the existing land use/development is currently vacant, no “existing trip credit” was applied in the traffic impact analysis conducted for the proposed project.

Existing Plus Project Traffic Conditions

ICU Methodology

Table 16-4 summarizes the results of the ICU analysis of existing traffic with the addition of project-related traffic. As indicated in the table, the addition of project-related traffic would not result in any project-related traffic impacts at any of the key study intersections based on the City's significance criteria for LOS. All of the key study intersections will continue to operate at acceptable levels of service during both the AM and PM peak hours based on the LOS standards established by the City.

To: ☐ Office of Planning and Research
1400 Tenth Street, Room 222
Sacramento, CA 95814

From: City of La Puente
15900 East Main Street
La Puente, CA 91744

☒ Los Angeles County Registrar-Recorder /County Clerk
12400 Imperial Highway
Norwalk, CA 90650

Project Title: ALDI Market

Project Location: 1545 Hacienda Boulevard, La Puente, CA 91744

Description of Nature, Purpose, and Beneficiaries of Project: The proposed project consists of the demolition of existing improvements on the property and the construction of a new +/- 18,552 square foot grocery store with alcohol sales (Type 20 license for beer and wine only) and associated improvements including landscaping, parking stalls, drive aisles, site lighting, and utilities. The proposed Conceptual Site Plan is illustrated in Exhibit 1. The ALDI store will generally operate between the hours of 9:00 a.m. to 9:00 p.m., seven days a week (hours subject to change). The store will have a total of approximately 20 employees, with 3-6 employees per shift. Deliveries will occur Monday through Sunday, during and after business hours. Project implementation will require the approval of a Conditional Use Permit (CUP), which is necessary for the proposed sale of alcoholic beverages. In addition, approval of a Disposition and Development Agreement (DDA) is also required by the Successor Agency to the former Community Development Commission of the City of La Puente for reuse of the site by the applicant.

Name of Public Agency Approving Project: City of La Puente

Name of Person or Agency Carrying Out Project: ALDI, Inc., 1770 Iowa Avenue, Suite 240, Riverside, CA 92507 and 1545 Hacienda LLC, 610 Newport Center Drive, Suite 400, Newport Beach, CA 92660

Exempt Status: (check one)

- ☐ Ministerial (Sec. 21080(b); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption; Type and Section Number: Article 19, Section 15332 (Infill Development)
- ☐ Statutory Exemptions; Code Number:

Reasons why project is exempt:

The development of the proposed project by the applicant complies with the requirements prescribed in Section 15332 of the CEQA Guidelines for "in-fill" development. Specifically, the proposed project is: (1) consistent with the land use and zoning adopted for the site; (2) located within the City of La Puente; (3) surrounded by development on all sides of the property; (4) less than five acres in size; (5) has no value as habitat for endangered and/or sensitive species; (6) will not result in significant noise, traffic, air quality or water quality impacts; and (7) can be served by the existing public services and utilities as discussed below.

Boulevard and Francisquito Avenue. A pass-by trip reduction¹ of 36 percent was included in the p.m. trip calculations. The Project trip generation calculation is summarized in Table 4-2.

Table 4-2

**Project Trip Generation
ALDI Market – La Puente**

Land Use	ITE Code	Intensity	Average Weekday	AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	
Trip Generation Rates										
Supermarket	850	--	Unit	102.24	61%	39%	3.59	51%	49%	10.50
Restaurant	932	00	KSF	127.15	55%	45%	10.81	60%	40%	9.85
Proposed Project Land Use										
ALDI Grocery Store	850	18.429	KSF	1,884	40	26	66	99	95	194
PM Pass-by Reduction (36%)								(360)	(34)	(70)
Sub-Total				1,884	40	26	66	63	61	124
Existing Land Use										
Pizza Hut	932	2.000	KSF	(254)	(12)	(10)	(22)	(12)	(8)	(20)
Net New Project Trips										
Total Net New Project Trips				1,630	28	16	44	51	53	104
KSF – Thousand Square Feet										
SOURCE: KOA Corporation (November 12, 2014) Institute of Traffic Engineers <i>Trip Generation Handbook</i> (9 th Edition).										

As indicated in Table 4-2, the proposed project would generate a net total of 1,630 daily vehicle trips after accounting for the elimination of the trips generated by the existing Pizza Hut restaurant and the 36 percent reduction in p.m. trips resulting from “pass-by” traffic. The net project-related peak hour trips include 44 a.m. peak hour trips (28 inbound and 16 outbound) and 104 p.m. peak hour trips (51 inbound and 53 outbound).

Significance Thresholds

Traffic impacts occur if a proposed development will result in significant changes in traffic conditions at a study location. A significant impact is typically identified if project-related traffic will cause LOS to deteriorate beyond a threshold limit specified by the reviewing agency. Impacts can also be significant if an intersection is already operating below the acceptable level of service and project traffic will cause a further decline in operations beyond the threshold. Although the City of La Puente has established LOS D as the maximum acceptable operational level for intersections throughout the City, it has also established specific thresholds for project-related increases in the Intersection Capacity Utilization (ICU) value, similar to a volume-to-capacity ratio (V/C), at signalized intersections. Projects that contribute traffic that results in an increase in the final V/C ratio of an intersection are deemed to have a potentially significant traffic impact. Table 4-3 reflects final V/C ratios for the relevant levels of service and the project-related V/C increase that serves as the threshold of significance for each.

¹Pass-by trips are defined by the ITE *Trip Generation Handbook* as trips that are likely already being taken in the area that divert to the new use as a mid-trip stop when the new use is opened.

Land Use	Daily (per unit)	AM Peak		PM Peak			
		Total (of daily)	Inbound (% AM)	Outbound (% AM)	Total (of daily)	Inbound (% PM)	Outbound (% PM)
Trip Generation Rates							
Specialty Retail	40	3%	60%	40%	9%	50%	50%
Supermarket	102.24	3%	61%	39%	10%	51%	49%
Forecast Project Generated Trips							
Specialty Retail*	100	3	2	1	9	5	5
Supermarket**	1,431	3	2	1	150	77	74
Subtotal	1,531	6	4	2	159	82	79
Less 10% Pass-by (Retail)	-10	0	0	0	-1	-1	-1
Less 40% Pass-by (Supermarket)	-572	-1	-1	0	-60	-31	-30
TOTAL	949	5	3	2	98	51	49
**SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates							

*SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates

**ITE Trip Generation 7th Edition

DRAFT ALDI/WSS Cactus & Foothill Shopping Center Transportation Impact Analysis



Prepared for:



April 2017

OC17-0498

FEHR & PEERS

8141 East Kaiser Boulevard, Suite 110
Anaheim, CA 92808

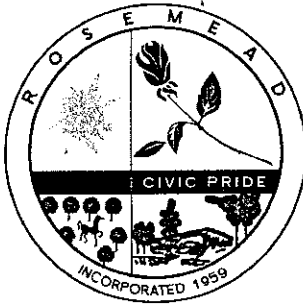
TABLE 5 TRIP GENERATION RATES AND ESTIMATES

TRIP GENERATION RATES										
Proposed Project	Land Use	ITE#	Units	Daily	AM Peak			PM Peak		
					In %	Out %	Total	In %	Out %	Total
ALDI	Discount Supermarket	854	per KSF	90.86	58%	42%	2.53	50%	50%	8.34
WSS	Shopping Center	820	per KSF	42.7	62%	38%	0.96	48%	52%	3.71
TRIP GENERATION ESTIMATES										
Proposed Project	Land Use	Size	Units	Daily	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
ALDI	Discount Supermarket	18,841	KSF	1,712	28	20	48	79	79	157
WSS	Shopping Center	12.43	KSF	531	7	5	12	22	24	46
Subtotal				2,243	34	25	60	101	103	203
15% Pass-By Trip Allowance				-336	-5	-4	-9	-15	-15	-30
Total Project Trips				1,907	29	21	51	86	88	173
PCE Adjusted¹				2,010	31	22	54	91	93	182

Notes:

1. PCE adjusted data is provided for informational purposes only.

Source: *Trip Generation, 9th Edition (ITE, 2012)*



ROSEMEAD PLANNING COMMISSION

STAFF REPORT

TO: THE HONORABLE CHAIRWOMAN AND MEMBERS OF THE
ROSEMEAD PLANNING COMMISSION

FROM: PLANNING DIVISION

DATE: JULY 6, 2009

SUBJECT: **DESIGN REVIEW 09-04 AND CONDITIONAL USE PERMIT 09-03**
9000 E. VALLEY BOULEVARD

Summary

Amstead Residuals, LLC has submitted a design review application for the construction of a new 13,969 square-foot Fresh and Easy Neighborhood Market, and a conditional use permit application for a new Off-Sale beer and wine (Type 20) ABC license, located at 9000 E. Valley Boulevard in the CBD-D (Central Business District with a Design Overlay) zone.

Environmental Determination: Section 15332(b) of the California Environmental Quality Act (CEQA) guidelines exempt projects where the proposed development occurs within city limits on a project site of no more than five (5) acres substantially surrounded by urban areas. Accordingly, Design Review 09-04 is classified as a Class 32 Categorical Exemption pursuant to Section 15332(b) of CEQA. Section 15309 of the California Environmental Quality Act (CEQA) guidelines exempt projects that consist of the inspections to check for the performance of an operation, or quality, health, or safety of a project. Accordingly, Conditional Use Permit 09-03 is classified as a Class 9 Categorical Exemption pursuant to Section 15309 of CEQA.

Municipal Code Requirements:

Section 17.72.030 of the RMC states that design review procedures shall be followed for all improvements involving visible changes in form, texture, color, exterior façade or landscaping.

Section 17.72.030 of the Rosemead Municipal Code (RMC) states that design review procedures shall be followed for all proposed improvements requiring a building permit or visible changes in form, texture, color, exterior façade or landscaping.

Section 17.72.050 of the RMC provides the criteria by which the Planning Commission may approve, approve with conditions, or deny any application requiring a design review based on the following:

**TRAFFIC ANALYSIS
FOR THE PROPOSED
COMMERCIAL / MIXED-USE DEVELOPMENT
IN THE CITY OF ROSEMEAD**



Prepared for:

Grae Ventures, LLC
1801 Century Park East, Suite 1080
Los Angeles, CA 90067

Prepared by:

Kimley-Horn and Associates, Inc.
765 The City Drive, Suite 400
Orange, CA 92868

Revised May, 2009
April, 2007
December, 2006

TRAFFIC STUDY FOR A COMMERCIAL / MIXED-USE DEVELOPMENT CITY OF ROSEMEAD

INTRODUCTION

Kimley-Horn and Associates, Inc. has been retained by Grae Ventures, LLC to prepare a traffic impact study for the proposed commercial/mixed-use development at the southeast corner of Rosemead Boulevard and Valley Boulevard in the City of Rosemead. The project site is shown in its regional setting on the vicinity map in **Figure 1**. A copy of the site plan is provided on **Figure 2**.

The Traffic Study will be prepared in accordance with the City of Rosemead criteria for preparation of traffic impact studies. The study will address project-related traffic impacts on the surrounding street system. If applicable, the report will identify necessary mitigation measures associated with project traffic impacts. The study will address requirements in the Los Angeles County Congestion Management Program (CMP) guidelines.

PROJECT DESCRIPTION

The proposed project is located on the southeast corner of Rosemead Boulevard and Valley Boulevard. The proposed project is a commercial/mixed-use development consisting of a 4,010 SF bank with a drive-thru ATM and 13,969 SF Fresh & Easy store. The project proposes to have the bank with drive-thru at the west end of the site and the Fresh & Easy store at the northeast corner of the site. Currently existing on the site is a 4,010 SF walk-in bank building in operation. Access to the site would be via three driveways, one right-in/right-out driveway on Valley Boulevard and two full access driveways on Steele Street. The project is planned to open in 2009.

TRAFFIC IMPACT ANALYSIS

The impact of project traffic will be evaluated for typical weekday peak hour operations at ten study intersections. The evaluation of traffic impacts will be conducted in accordance with the City of Rosemead's "Transportation Impact Analysis Guidelines".

The study will evaluate morning and evening peak hour intersection operating conditions for the following conditions:

- Existing Conditions
- Existing plus Project Conditions

PROJECT TRAFFIC

Project Trip Generation

Trip generation estimates for the proposed Commercial/Mixed-Use Development were derived from the Institute of Transportation Engineers (ITE) publication Trip Generation, 7th Edition. ITE Category 850, Supermarket and Category 912, Bank with Drive-thru.

As mentioned previously, the project site is currently occupied by an existing bank without a drive-thru ATM. The trips associated with the existing use can be taken as trip credit. ITE Category 911, Walk-in Bank was used for the existing use trip credit.

The ITE Trip Generation Handbook, June 2004 edition was consulted to determine the pass-by factors for the bank with drive-thru and the Fresh & Easy neighborhood market. The bank with drive-thru land use has a pass-by rate of 47% and the supermarket land use has a pass-by rate of 36%. Both percentages are applied to the PM peak hour only. The ITE Trip Generation Handbook does not apply a pass-by reduction percentage in the AM peak hour.

Trip generation rates and resulting trip generation for the project are summarized on **Table 2**. The resulting net trips are the trips generated by proposed lane uses minus the trips due to pass-by and minus the trips generated by the existing land use. Table 2 indicates that the Commercial/Mixed-Use Development will generate a net of about 1,789 trips per day, with 46 inbound trips and 32 outbound trips in the morning peak hour. The net trips in the afternoon peak hour, after subtraction of trips from the existing walk-in bank, resulted in 30 inbound and 28 outbound trips. The resulting net trips are the added traffic to the roadway network.

Project Trip Distribution and Assignment

Project trip distribution assumptions for the project site were based on proximity to regional arterials, local arterials, residential areas, and discussions with City of Rosemead staff. Trip distribution assumptions are shown on **Figure 5**. The resulting project trips to be added to the study area street system are shown on **Figure 6**.

TABLE 2
SUMMARY OF TRIP GENERATION COMMERCIAL/MIXED-USE RETAIL DEVELOPMENT

Land Use	Trips Per:	Trip Generation Rates						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed								
Supermarket	KSF	102.24	1.98	1.27	3.25	5.33	5.12	10.45
Bank w/ Drive-thru	KSF	246.49	6.91	5.43	12.34	22.87	22.87	45.74
Existing								
Walk-in Bank (a)	TSF	156.48	2.28	1.79	4.07	16.58	16.58	33.16
Land Use	Units	Trip Generation						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed								
Supermarket	13.969 KSF	1,428	28	18	45	74	72	146
Pass-by Reduction 36% (b)		--	--	--	--	27	26	53
Bank w/ Drive-thru	4.01 KSF	988	28	22	49	92	92	183
Pass-by Reduction 47% (b)		--	--	--	--	43	43	86
Existing								
Walk-in Bank (a)	4.01 KSF	627	9	7	16	66	66	133
Total		1,789	46	32	78	100	97	196
Total Trips with Pass-by		1,789	46	32	78	30	28	58

Trip generation rates are from the Trip Generation (7th Edition) publication of the Institute of Transportation Engineers (ITE), Category 850 (Supermarket), Category 911 (Walk-in Bank), Category 912 (Drive-In Bank)

(a) Existing building on-site

(b) Pass-by Reduction Percentage per ITE Trip Generation Handbook, June 2004 (2nd Edition)

Rounding in the calculations may have caused nominal errors/differences in the addition within columns

KSF = Thousand Square Feet

**DRAFT FINAL ENVIRONMENTAL IMPACT REPORT
Part 2 Revised Draft EIR**

**Project EIR
Tiered Winery Zoning Ordinance Amendment
POD 08-012; LOG No. 08-00-004
State Clearinghouse (SCH) No. 2008101047**

Lead Agency/Project Proponent:

**County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego, CA 92123**

July 14, 2010

SR-94 and Lyons Valley Road in the Jamul-Dulzura Subregional Plan Area would operate at LOS E or F by the year 2030 despite the anticipated increase in capacity at buildout that would result from implementation of the Circulation Element.

**TABLE 2.6-4
ROADWAY LANE MILES BY LEVEL OF SERVICE
BUILD-OUT CONDITIONS**

CPA	Lane Miles					
	LOS E			LOS F		
	State Highway	CE Roads	Total	State Highway	CE Roads	Total
North County						
Fallbrook	0.0	23.3	23.3	0.6	4.1	4.7
Bonsall	2.7	8.7	11.4	9.0	9.5	18.5
Valley Center	0.0	17.9	17.9	0.0	15.1	15.1
Ramona	0.5	6.3	6.8	1.7	1.8	3.5
East County						
Jamul-Dulzura	4.4	7.3	11.7	14.1	14.1	28.2
Backcountry						
North Mountain*	0.0	0.0	0.0	0.0	0.0	0.0
Julian	0.0	0.0	0.0	0.0	0.0	0.0
Total	7.6	63.5	71.1	25.4	44.6	114.6

Source: County of San Diego General Plan Update Circulation Element Framework 2006. The information in this table is current as of the date of the date on the Traffic Impact Analysis.

Values shown are miles of roadway.

CPA = Community Plan Area

CE Roads = Circulation Element Roadways.

*North Mountain Community Plan Area includes Warner Springs.

2.6.1.5 Trip Generation

There are no published trip generation rates for wineries either in the national Institute of Transportation Engineers *Trip Generation Manual*, or in the regional SANDAG *Brief Guide to Vehicular Traffic Generation Rates for the San Diego Region*. Research was conducted in California counties known for wineries, including Napa, Sonoma, Santa Barbara, San Luis Obispo, Placer and Amador counties and none had developed formal trip generation rates for wineries for use in determining traffic impacts.

Thus, the traffic study prepared for this analysis selected three representative winery types and considered trip generation rates to determine a typical winery's trip generation. The wineries selected for study were chosen because they best represent the variety of operations that could occur under the by-right Boutique Winery classification if the amendment is approved. One operating winery was selected from outside the study area (Temecula) but in an area easily accessible from more urban areas because it currently produces the maximum amount of wine (12,000 gallons/5,000 cases annually) allowed for Boutique Wineries. It should be noted that owners of wineries of all three types studied live on-site within a single-family home. Although individually not a big generator of traffic, each single-family home generates approximately 10 ADT based on SANDAG's *Brief Guide to Vehicular Traffic Generation Rates for the San Diego Region*. The following provides a more detailed description of the three wineries studied, and estimated trip generation rates.

Appendix G

SANDAG Select Zone Assignment

SANDAG
SR13
2035rc

Select Zone Run

TAZ 1622

Selected Zone(s)

Select Zone Vol and %

Model Estimated ADT

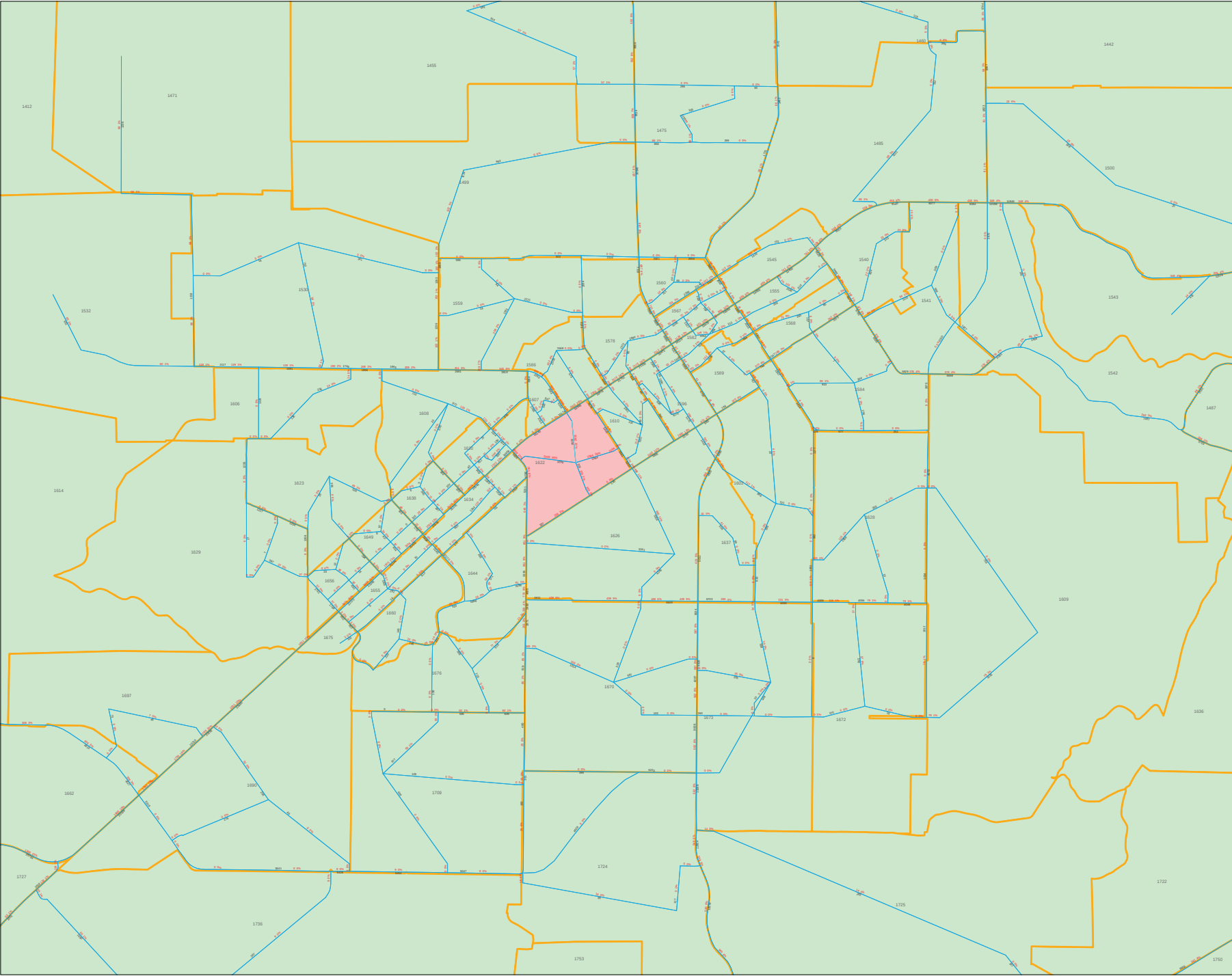
Portions of this map contain information from the San Diego Association of Governments (SANDAG) Regional Information System. This product cannot be reproduced without the written permission of SANDAG.

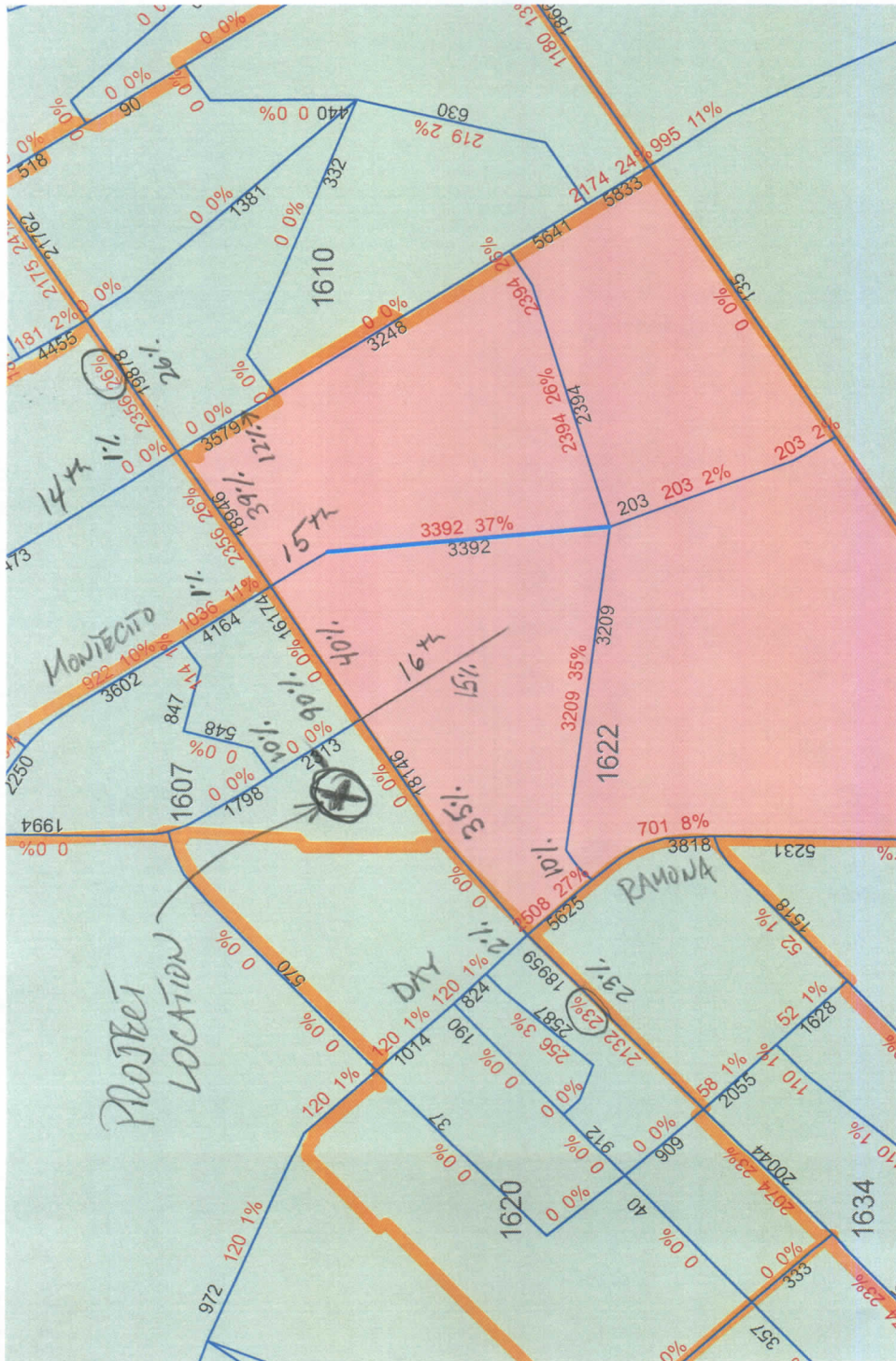
SAN DIEGO ASSOCIATION OF GOVERNMENTS
481 S STREET, SUITE 800
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E-mail: sandag@sandag.org
Web site: www.sandag.org

N
0 0.085 0.17 0.255
Miles



Date: June 13, 2017





Appendix H

Existing + Project LOS Calculations

AM Existing + Project
1: Ramona/Day St & Main St (SR-67)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	426	71	115	546	39	155	56	192	46	45	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	7	444	74	120	569	41	161	58	200	48	47	38
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	857	142	196	1261	91	210	80	276	127	165	133
Arrive On Green	0.02	0.28	0.28	0.11	0.38	0.38	0.12	0.22	0.22	0.07	0.18	0.18
Sat Flow, veh/h	1774	3018	499	1774	3339	240	1774	359	1239	1774	938	759
Grp Volume(v), veh/h	7	259	259	120	301	309	161	0	258	48	0	85
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1809	1774	0	1599	1774	0	1697
Q Serve(g_s), s	0.2	7.8	8.0	4.1	8.1	8.2	5.6	0.0	9.6	1.6	0.0	2.8
Cycle Q Clear(g_c), s	0.2	7.8	8.0	4.1	8.1	8.2	5.6	0.0	9.6	1.6	0.0	2.8
Prop In Lane	1.00		0.29	1.00		0.13	1.00		0.78	1.00		0.45
Lane Grp Cap(c), veh/h	29	502	496	196	669	684	210	0	356	127	0	298
V/C Ratio(X)	0.24	0.52	0.52	0.61	0.45	0.45	0.77	0.00	0.73	0.38	0.00	0.28
Avail Cap(c_a), veh/h	286	1105	1091	647	1465	1498	786	0	966	369	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.0	19.2	19.2	27.1	14.9	14.9	27.3	0.0	23.0	28.3	0.0	22.8
Incr Delay (d2), s/veh	4.2	0.8	0.9	3.1	0.5	0.5	5.8	0.0	2.8	1.8	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.9	3.9	2.2	4.0	4.1	3.1	0.0	4.5	0.9	0.0	1.3
LnGrp Delay(d),s/veh	35.2	20.0	20.1	30.2	15.4	15.4	33.1	0.0	25.9	30.1	0.0	23.4
LnGrp LOS	D	C	C	C	B	B	C		C	C		C
Approach Vol, veh/h		525			730			419			133	
Approach Delay, s/veh		20.2			17.8			28.6			25.8	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	23.2	12.3	16.6	5.8	29.2	9.3	19.6				
Change Period (Y+Rc), s	* 4.7	5.1	* 4.7	* 5.4	* 4.7	5.1	* 4.7	5.4				
Max Green Setting (Gmax), s	* 23	39.9	* 28	* 24	* 10	52.9	* 13	38.6				
Max Q Clear Time (g_c+I1), s	6.1	10.0	7.6	4.8	2.2	10.2	3.6	11.6				
Green Ext Time (p_c), s	0.3	8.2	0.4	2.1	0.0	8.8	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			21.6									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	599	24	55	671	35	10	4	61	8	3	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	50	-	-	-
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	55	651	26	60	729	38	11	4	66	9	3	57
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	767	0	0	677	0	0	1261	1662	339	1307	1656	384
Stage 1	-	-	-	-	-	-	775	775	-	868	868	-
Stage 2	-	-	-	-	-	-	486	887	-	439	788	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	842	-	-	911	-	-	127	96	657	117	97	614
Stage 1	-	-	-	-	-	-	357	406	-	314	368	-
Stage 2	-	-	-	-	-	-	531	360	-	567	400	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	842	-	-	911	-	-	101	84	657	91	85	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	101	84	-	91	85	-
Stage 1	-	-	-	-	-	-	334	379	-	293	344	-
Stage 2	-	-	-	-	-	-	446	336	-	471	374	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.7			18.4			20.3		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	95	657	842	-	-	911	-	-	303			
HCM Lane V/C Ratio	0.16	0.101	0.066	-	-	0.066	-	-	0.226			
HCM Control Delay (s)	50	11.1	9.6	-	-	9.2	-	-	20.3			
HCM Lane LOS	F	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	0.5	0.3	0.2	-	-	0.2	-	-	0.9			

AM Existing + Project

3: 15th St/Montecito Rd & Main St (SR-67)/SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	614	28	7	700	43	22	5	12	67	3	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1700	1667	1863	1900	1700	1863	1700	1900	1863	1900
Adj Flow Rate, veh/h	61	646	29	7	737	45	23	5	13	71	3	78
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1393	62	23	1135	69	131	28	74	109	5	120
Arrive On Green	0.08	0.40	0.40	0.01	0.34	0.34	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1774	3444	154	1587	3380	206	950	207	537	764	32	839
Grp Volume(v), veh/h	61	332	343	7	386	396	41	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1829	1587	1770	1816	1693	0	0	1635	0	0
Q Serve(g_s), s	2.1	8.7	8.7	0.3	11.7	11.7	1.4	0.0	0.0	5.5	0.0	0.0
Cycle Q Clear(g_c), s	2.1	8.7	8.7	0.3	11.7	11.7	1.4	0.0	0.0	5.5	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.11	0.56		0.32	0.47		0.51
Lane Grp Cap(c), veh/h	148	716	739	23	594	610	233	0	0	233	0	0
V/C Ratio(X)	0.41	0.46	0.46	0.30	0.65	0.65	0.18	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	402	1707	1763	234	1566	1608	493	0	0	709	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.5	13.8	13.8	30.8	17.8	17.8	24.1	0.0	0.0	25.6	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.5	0.5	7.1	1.2	1.2	0.4	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.3	4.5	0.2	5.9	6.0	0.6	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	29.3	14.3	14.2	37.9	19.0	19.0	24.4	0.0	0.0	28.7	0.0	0.0
LnGrp LOS	C	B	B	D	B	B	C			C		
Approach Vol, veh/h		736			789			41			152	
Approach Delay, s/veh		15.5			19.2			24.4			28.7	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	30.6		13.6	10.0	26.3		13.3				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	60.9		27.4	* 14	55.9		18.4				
Max Q Clear Time (g_c+I1), s	2.3	10.7		7.5	4.1	13.7		3.4				
Green Ext Time (p_c), s	0.0	7.6		0.8	0.1	7.5		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			18.6									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing + Project
4: 14th St & SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

	           											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	592	35	16	652	53	137	33	40	105	30	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	16	610	36	16	672	55	141	34	41	108	31	27
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1507	89	49	1469	120	371	89	396	145	42	157
Arrive On Green	0.03	0.44	0.44	0.03	0.44	0.44	0.26	0.26	0.26	0.10	0.10	0.10
Sat Flow, veh/h	1774	3389	200	1774	3303	270	1443	348	1540	1393	400	1504
Grp Volume(v), veh/h	16	318	328	16	360	367	175	0	41	139	0	27
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	1770	1804	1791	0	1540	1793	0	1504
Q Serve(g_s), s	1.0	13.9	14.0	1.0	16.2	16.2	9.2	0.0	2.3	8.6	0.0	1.9
Cycle Q Clear(g_c), s	1.0	13.9	14.0	1.0	16.2	16.2	9.2	0.0	2.3	8.6	0.0	1.9
Prop In Lane	1.00		0.11	1.00		0.15	0.81		1.00	0.78		1.00
Lane Grp Cap(c), veh/h	49	787	809	49	787	802	460	0	396	187	0	157
V/C Ratio(X)	0.32	0.40	0.41	0.32	0.46	0.46	0.38	0.00	0.10	0.74	0.00	0.17
Avail Cap(c_a), veh/h	160	787	809	160	787	802	460	0	396	398	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	21.5	21.5	54.6	22.1	22.1	35.0	0.0	32.5	49.8	0.0	46.7
Incr Delay (d2), s/veh	3.7	1.5	1.5	3.7	1.9	1.9	2.4	0.0	0.5	5.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.1	7.4	0.5	8.3	8.5	4.9	0.0	1.0	4.6	0.0	0.8
LnGrp Delay(d),s/veh	58.3	23.0	23.0	58.3	24.0	24.0	37.4	0.0	33.0	55.5	0.0	47.3
LnGrp LOS	E	C	C	E	C	C	D		C	E		D
Approach Vol, veh/h	662			743			216			166		
Approach Delay, s/veh	23.9			24.8			36.6			54.2		
Approach LOS	C			C			D			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	56.0		16.5	7.9	56.0		34.0				
Change Period (Y+Rc), s	4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	10	50.9		25.4	* 10	50.9		29.4				
Max Q Clear Time (g_c+1.3, s)	13.0	16.0		10.6	3.0	18.2		11.2				
Green Ext Time (p_c), s	0.0	11.0		0.7	0.0	10.8		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay	28.6											
HCM 2010 LOS	C											
Notes												

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	13	77	63	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	14	84	68	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	181	69	70	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	112	-	-	-	-	-
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	808	994	1531	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	800	994	1531	-	-	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	1.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1531	-	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	7.4	0	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

PM Existing + Project
1: Ramona/Day St & Main St (SR-67)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	885	143	92	603	59	151	78	119	123	87	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	912	147	95	622	61	156	80	123	127	90	32
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	1360	219	142	1567	153	194	106	162	161	188	67
Arrive On Green	0.04	0.45	0.45	0.08	0.48	0.48	0.11	0.16	0.16	0.09	0.14	0.14
Sat Flow, veh/h	1774	3036	489	1774	3245	318	1774	647	995	1774	1298	461
Grp Volume(v), veh/h	24	531	528	95	339	344	156	0	203	127	0	122
Grp Sat Flow(s),veh/h/ln	1774	1770	1756	1774	1770	1794	1774	0	1643	1774	0	1759
Q Serve(g_s), s	1.2	21.6	21.6	4.7	11.2	11.2	7.8	0.0	10.8	6.4	0.0	5.8
Cycle Q Clear(g_c), s	1.2	21.6	21.6	4.7	11.2	11.2	7.8	0.0	10.8	6.4	0.0	5.8
Prop In Lane	1.00		0.28	1.00		0.18	1.00		0.61	1.00		0.26
Lane Grp Cap(c), veh/h	80	793	786	142	854	866	194	0	268	161	0	254
V/C Ratio(X)	0.30	0.67	0.67	0.67	0.40	0.40	0.80	0.00	0.76	0.79	0.00	0.48
Avail Cap(c_a), veh/h	181	1318	1307	317	1454	1473	492	0	533	414	0	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.2	19.9	19.9	40.8	15.1	15.1	39.6	0.0	36.4	40.6	0.0	35.9
Incr Delay (d2), s/veh	2.1	1.0	1.0	5.4	0.3	0.3	7.5	0.0	4.4	8.2	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.7	10.6	2.5	5.5	5.6	4.3	0.0	5.2	3.5	0.0	2.9
LnGrp Delay(d),s/veh	44.2	20.9	20.9	46.2	15.4	15.4	47.2	0.0	40.8	48.8	0.0	37.3
LnGrp LOS	D	C	C	D	B	B	D		D	D		D
Approach Vol, veh/h	1083			778			359			249		
Approach Delay, s/veh	21.4			19.1			43.6			43.2		
Approach LOS	C			B			D			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	45.9	14.7	18.6	8.8	49.1	13.0	20.3				
Change Period (Y+Rc), s	* 4.7	5.1	* 4.7	* 5.4	* 4.7	5.1	* 4.7	5.4				
Max Green Setting (Gmax), s	* 16	67.9	* 25	* 26	* 9.3	74.9	* 21	29.6				
Max Q Clear Time (g_c+I1), s	6.7	23.6	9.8	7.8	3.2	13.2	8.4	12.8				
Green Ext Time (p_c), s	0.1	17.2	0.3	1.9	0.0	18.8	0.2	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									
Notes												

Intersection												
Int Delay, s/veh	77.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	100	983	65	141	748	68	8	13	144	38	12	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	50	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	1013	67	145	771	70	8	13	148	39	12	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	841	0	0	1080	0	0	1935	2385	540	1817	2384	421
Stage 1	-	-	-	-	-	-	1253	1253	-	1097	1097	-
Stage 2	-	-	-	-	-	-	682	1132	-	720	1287	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	790	-	-	641	-	-	40	34	486	49	34	581
Stage 1	-	-	-	-	-	-	182	242	-	227	287	-
Stage 2	-	-	-	-	-	-	406	276	-	385	233	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	790	-	-	641	-	-	15	23	486	~ 14	23	581
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	23	-	~ 14	23	-
Stage 1	-	-	-	-	-	-	158	210	-	197	222	-
Stage 2	-	-	-	-	-	-	256	214	-	218	203	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	1.8	82.2	\$ 1332.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	19	486	790	-	-	641	-	-	38
HCM Lane V/C Ratio	1.139	0.305	0.13	-	-	0.227	-	-	3.473
HCM Control Delay (s)	\$ 539.1	15.6	10.2	-	-	12.3	-	-	\$ 1332.5
HCM Lane LOS	F	C	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3	1.3	0.4	-	-	0.9	-	-	15

Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

PM Existing + Project

3: 15th St/Montecito Rd & Main St (SR-67)/SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	129	1014	81	37	796	53	52	22	55	71	16	137
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1700	1667	1863	1900	1700	1863	1700	1900	1863	1900
Adj Flow Rate, veh/h	134	1056	84	39	829	55	54	23	57	74	17	143
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	1443	115	89	1330	88	77	33	81	91	21	176
Arrive On Green	0.10	0.44	0.44	0.06	0.40	0.40	0.12	0.12	0.12	0.18	0.18	0.18
Sat Flow, veh/h	1774	3311	263	1587	3360	223	670	286	708	512	118	990
Grp Volume(v), veh/h	134	564	576	39	437	447	134	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1805	1587	1770	1813	1663	0	0	1621	0	0
Q Serve(g_s), s	6.5	23.2	23.3	2.1	17.4	17.4	6.8	0.0	0.0	12.2	0.0	0.0
Cycle Q Clear(g_c), s	6.5	23.2	23.3	2.1	17.4	17.4	6.8	0.0	0.0	12.2	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.12	0.40		0.43	0.32		0.61
Lane Grp Cap(c), veh/h	170	771	787	89	700	718	191	0	0	288	0	0
V/C Ratio(X)	0.79	0.73	0.73	0.44	0.62	0.62	0.70	0.00	0.00	0.81	0.00	0.00
Avail Cap(c_a), veh/h	449	1419	1447	191	1184	1213	404	0	0	615	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	38.9	20.6	20.6	40.2	21.3	21.3	37.5	0.0	0.0	34.8	0.0	0.0
Incr Delay (d2), s/veh	7.9	1.4	1.3	3.4	0.9	0.9	4.6	0.0	0.0	5.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	11.6	11.8	1.0	8.7	8.9	3.4	0.0	0.0	5.9	0.0	0.0
LnGrp Delay(d),s/veh	46.8	21.9	21.9	43.6	22.2	22.2	42.1	0.0	0.0	40.3	0.0	0.0
LnGrp LOS	D	C	C	D	C	C	D			D		
Approach Vol, veh/h		1274			923			134			234	
Approach Delay, s/veh		24.5			23.1			42.1			40.3	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	43.5		20.2	13.1	39.9		14.7				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 11	70.6		33.4	* 22	58.9		21.4				
Max Q Clear Time (g_c+I1), s	4.1	25.3		14.2	8.5	19.4		8.8				
Green Ext Time (p_c), s	0.0	13.1		1.4	0.3	12.7		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			26.4									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Project
4: 14th St & SR-67 (Main St)

HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	999	99	38	811	116	177	42	33	214	43	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	30	1063	105	40	863	123	188	45	35	228	46	29
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	1445	143	79	1396	199	296	71	314	257	52	263
Arrive On Green	0.04	0.45	0.45	0.04	0.45	0.45	0.21	0.21	0.21	0.17	0.17	0.17
Sat Flow, veh/h	1774	3242	320	1774	3095	441	1445	346	1533	1488	300	1527
Grp Volume(v), veh/h	30	580	588	40	493	493	233	0	35	274	0	29
Grp Sat Flow(s),veh/h/ln	1774	1770	1793	1774	1770	1766	1791	0	1533	1788	0	1527
Q Serve(g_s), s	2.4	38.7	38.8	3.2	30.4	30.4	17.1	0.0	2.7	21.5	0.0	2.3
Cycle Q Clear(g_c), s	2.4	38.7	38.8	3.2	30.4	30.4	17.1	0.0	2.7	21.5	0.0	2.3
Prop In Lane	1.00		0.18	1.00		0.25	0.81		1.00	0.83		1.00
Lane Grp Cap(c), veh/h	69	789	799	79	798	797	367	0	314	308	0	263
V/C Ratio(X)	0.43	0.74	0.74	0.51	0.62	0.62	0.63	0.00	0.11	0.89	0.00	0.11
Avail Cap(c_a), veh/h	100	789	799	103	798	797	367	0	314	429	0	366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.4	32.8	32.8	67.0	29.9	29.9	52.1	0.0	46.4	58.0	0.0	50.1
Incr Delay (d2), s/veh	4.3	6.0	6.0	5.0	3.6	3.6	8.1	0.0	0.7	15.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	20.2	20.4	1.7	15.6	15.6	9.2	0.0	1.2	11.9	0.0	1.0
LnGrp Delay(d),s/veh	71.6	38.8	38.8	71.9	33.5	33.5	60.2	0.0	47.1	73.4	0.0	50.2
LnGrp LOS	E	D	D	E	C	C	E		D	E		D
Approach Vol, veh/h	1198			1026			268			303		
Approach Delay, s/veh	39.6			35.0			58.5			71.2		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	69.0		29.3	10.3	69.8		34.0				
Change Period (Y+Rc), s	4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	10.3	63.9		34.4	* 8.1	64.1		29.4				
Max Q Clear Time (g_c+1.2), s	15.2	40.8		23.5	4.4	32.4		19.1				
Green Ext Time (p_c), s	0.0	15.9		1.2	0.0	19.7		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay	43.2											
HCM 2010 LOS	D											
Notes												

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	11	78	81	100	50	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	85	88	109	54	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	345	60	66 0
Stage 1	60	-	- -
Stage 2	285	-	- -
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	652	1005	1536 -
Stage 1	963	-	- -
Stage 2	763	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	612	1005	1536 -
Mov Cap-2 Maneuver	612	-	- -
Stage 1	963	-	- -
Stage 2	716	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	9.3	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	931	-	-
HCM Lane V/C Ratio	0.057	-	0.104	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Appendix I

Signal Warrants for SR-67/16th Street

Prepared by NDS/ATD
APPROACH VOLUMES

Main St (SR67) at 16th St

Day: Tuesday
 Date: 6/27/2017

City: Ramona
 Project #: CA17_4207_001

DAILY TOTALS						NB		SB		EB								WB				Total	
						1,882		875		13,684				11,804				28,245					
AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL			
	Approach		Approach		Approach		Approach					Approach		Approach		Approach		Approach					
00:00	0		1		19		11		31		12:00	34		16		236		199		485			
00:15	2		1		27		14		44		12:15	30		14		207		190		441			
00:30	3		2		24		8		37		12:30	28		12		229		201		470			
00:45	2	7	1	5	21	91	5	38	29	141	12:45	25	117	9	51	198	870	215	805	447	1843		
01:00	0		3		18		9		30		13:00	29		8		211		209		457			
01:15	3		3		18		9		33		13:15	32		11		213		167		423			
01:30	1		0		11		7		19		13:30	36		13		202		184		435			
01:45	1	5	2	8	12	59	9	34	24	106	13:45	35	132	14	46	251	877	161	721	461	1776		
02:00	0		2		10		7		19		14:00	33		16		236		180		465			
02:15	2		2		6		9		19		14:15	36		15		278		183		512			
02:30	5		1		9		11		26		14:30	32		8		271		146		457			
02:45	0	7	1	6	10	35	7	34	18	82	14:45	29	130	9	48	283	1068	136	645	457	1891		
03:00	3		0		17		11		31		15:00	38		11		299		170		518			
03:15	2		1		9		16		28		15:15	38		11		286		192		527			
03:30	1		1		15		13		30		15:30	39		8		252		165		464			
03:45	1	7	2	4	11	52	25	65	39	128	15:45	40	155	6	36	283	1120	146	673	475	1984		
04:00	1		4		19		25		49		16:00	32		14		299		243		588			
04:15	1		7		14		31		53		16:15	36		17		273		232		558			
04:30	7		3		15		42		67		16:30	40		17		289		254		600			
04:45	7	16	5	19	16	64	71	169	99	268	16:45	36	144	8	56	276	1137	209	938	529	2275		
05:00	3		14		23		112		152		17:00	36		11		267		202		516			
05:15	13		16		38		141		208		17:15	31		10		285		209		535			
05:30	11		21		63		148		243		17:30	38		15		274		214		541			
05:45	13	40	22	73	61	185	166	567	262	865	17:45	27	132	16	52	237	1063	217	842	497	2089		
06:00	9		19		72		166		266		18:00	28		11		266		144		449			
06:15	7		13		76		133		229		18:15	42		6		247		139		434			
06:30	12		12		118		131		273		18:30	34		12		289		121		456			
06:45	13	41	10	54	122	388	137	567	282	1050	18:45	33	137	11	40	293	1095	153	557	490	1829		
07:00	7		12		128		146		293		19:00	33		6		246		119		404			
07:15	10		14		155		156		335		19:15	37		7		210		109		363			
07:30	13		14		160		179		366		19:30	31		14		204		101		350			
07:45	9	39	16	56	164	607	199	680	388	1382	19:45	20	121	11	38	196	856	125	454	352	1469		
08:00	8		15		168		183		374		20:00	28		6		140		110		284			
08:15	10		11		173		192		386		20:15	31		9		135		115		290			
08:30	20		15		177		187		399		20:30	34		10		117		97		258			
08:45	18	56	19	60	158	676	160	722	355	1514	20:45	17	110	5	30	145	537	77	399	244	1076		
09:00	16		12		161		188		377		21:00	27		3		132		88		250			
09:15	22		14		155		192		383		21:15	26		6		122		67		221			
09:30	18		11		149		184		362		21:30	33		4		101		72		210			
09:45	24	80	7	44	158	623	212	776	401	1523	21:45	15	101	3	16	82	437	59	286	159	840		
10:00	22		9		142		207		380		22:00	13		7		77		44		141			
10:15	42		14		180		204		440		22:15	12		4		69		36		121			
10:30	30		15		182		219		446		22:30	7		4		64		27		102			
10:45	26	120	11	49	191	695	203	833	431	1697	22:45	9	41	8	23	37	247	27	134	81	445		
11:00	26		13		200		192		431		23:00	3		3		44		27		77			
11:15	34		11		172		211		428		23:15	3		3		37		19		62			
11:30	38		15		188		180		421		23:30	2		1		28		16		47			
11:45	37	135	13	52	195	755	206	789	451	1731	23:45	1	9	2	9	38	147	14	76	55	241		
TOTALS	553		430		4230		5274		10487		TOTALS	1329		445		9454		6530		17758			
SPLIT %	5.3%		4.1%		40.3%		50.3%		37.1%		SPLIT %	7.5%		2.5%		53.2%		36.8%		62.9%			

DAILY TOTALS						NB	SB						Total
						1,882	875						13,684
AM Peak Hour	11:15	05:15	11:45	09:45	11:45	PM Peak Hour	15:00	13:30	15:45	16:00	16:00		
AM Pk Volume	143	78	867	842	1847	PM Pk Volume	155	58	1144	938	2275		
Pk Hr Factor	0.941	0.886	0.918	0.961	0.952	Pk Hr Factor	0.969	0.906	0.957	0.923	0.948		
7 - 9 Volume	95	116	1283	1402	2896	4 - 6 Volume	276	108	2200	1780	4364		
7 - 9 Peak Hour	08:00	08:00	07:45	07:45	07:45	4 - 6 Peak Hour	16:15	16:00	16:00	16:00	16:00		
7 - 9 Pk Volume	56	60	682	761	1547	4 - 6 Pk Volume	148	56	1137	938	2275		
Pk Hr Factor	0.700	0.789	0.963	0.956	0.969	Pk Hr Factor	0.925	0.824	0.951	0.923	0.948		

SR-67/16th Street Approach Volumes by Hour

Time	Combined Approach Volumes	Highest 8 hrs
00:00	141	
01:00	106	
02:00	82	
03:00	128	
04:00	268	
05:00	865	
06:00	1050	
07:00	1382	
08:00	1514	
09:00	1523	
10:00	1697	
11:00	1731	8
12:00	1843	5
13:00	1776	7
14:00	1891	4
15:00	1984	3
16:00	2275	1
17:00	2089	2
18:00	1829	6
19:00	1469	
20:00	1076	
21:00	840	
22:00	445	
23:00	241	

Warrant 1 Condition A

	Major	Major	Minor	Minor	
	100%	80%	Minor	100%	80%
Major both approaches	600	480	NB	150	120
				SB	
11:00	Yes	Yes	135		Yes
12:00	Yes	Yes	117		51
13:00	Yes	Yes	132		Yes
14:00	Yes	Yes	130		Yes
15:00	Yes	Yes	155	Yes	Yes
16:00	Yes	Yes	144		Yes
17:00	Yes	Yes	132		Yes
18:00	Yes	Yes	137		Yes

Warrant 1 Condition B

	Major	Major	Minor	Minor	
	100%	80%	Minor	100%	80%
Major both approaches	900	720	NB	75	60
					SB
11:00	Yes	Yes	135	Yes	Yes
12:00	Yes	Yes	117	Yes	Yes
13:00	Yes	Yes	132	Yes	Yes
14:00	Yes	Yes	130	Yes	Yes
15:00	Yes	Yes	155	Yes	Yes
16:00	Yes	Yes	144	Yes	Yes
17:00	Yes	Yes	132	Yes	Yes
18:00	Yes	Yes	137	Yes	Yes

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 6/27/17
 CALC JR DATE _____
 CHK _____ DATE _____

DIST 11 CO SD RTE 67 PM 23.7
 Major St: SR-67 (MAIN ST) Critical Approach Speed 35 mph
 Minor St: 16th ST Critical Approach Speed 25 mph

Speed limit or critical speed on major street traffic > 40 mph.....NO ☐ }
 In built up area of isolated community of < 10,000 population.....NO ☐ } RURAL (R)
☒ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☒ NO ☐
 (Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☒

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												Hour
	U	R	U	R	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1544	1675	1598	1713	1793	2075	1905	1652	✓
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	135	117	132	130	155	144	132	137	✓

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☒ NO ☐

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												Hour
	U	R	U	R	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1544	1675	1598	1713	1793	2075	1905	1652	✓
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	135	117	132	130	155	144	132	137	✓

Combination of Conditions A & B NA SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume

SATISFIED* YES ☒ NO ☐

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	1 PM	2 PM	3 PM	4 PM	5 PM	Hour
Both Approaches - Major Street		☒	1713	1793	2075	1905		
Higher Approach - Minor Street	☒		130	155	144	132		

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☒	No ☐
<u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

NA

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)

SATISFIED YES ☒ NO ☐

PART A NA

SATISFIED YES ☐ NO ☐ NA

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	Yes ☐	No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>	Yes ☐	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐	No ☐

PART B

SATISFIED YES ☒ NO ☐

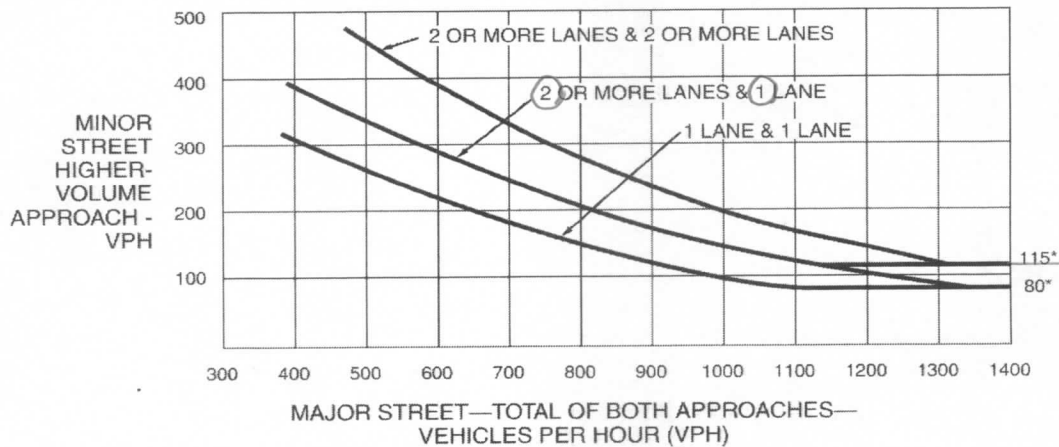
APPROACH LANES	One	2 or More	4 PM	Hour
Both Approaches - Major Street		☒	2075	
Higher Approach - Minor Street	☒		144	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
<u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

NA

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume

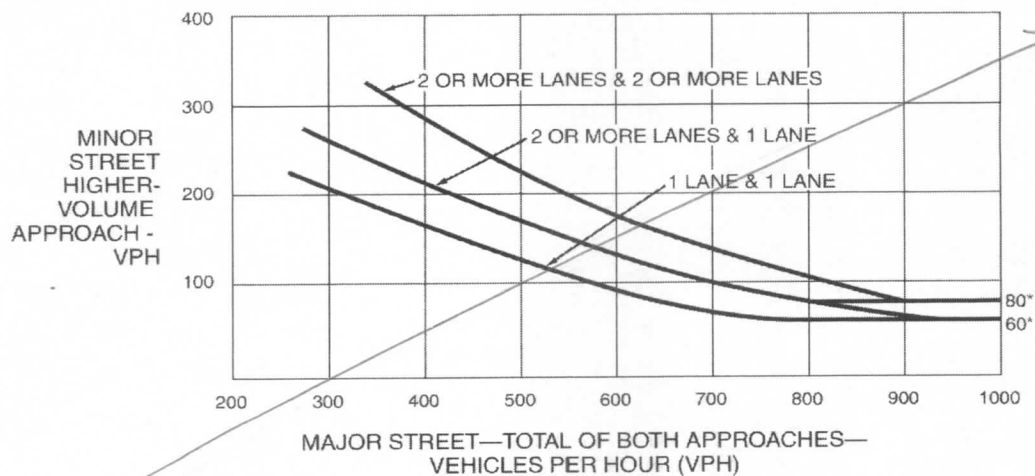


*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

(1713, 130)
(1793, 155)
(1905, 132)
(2075, 155)

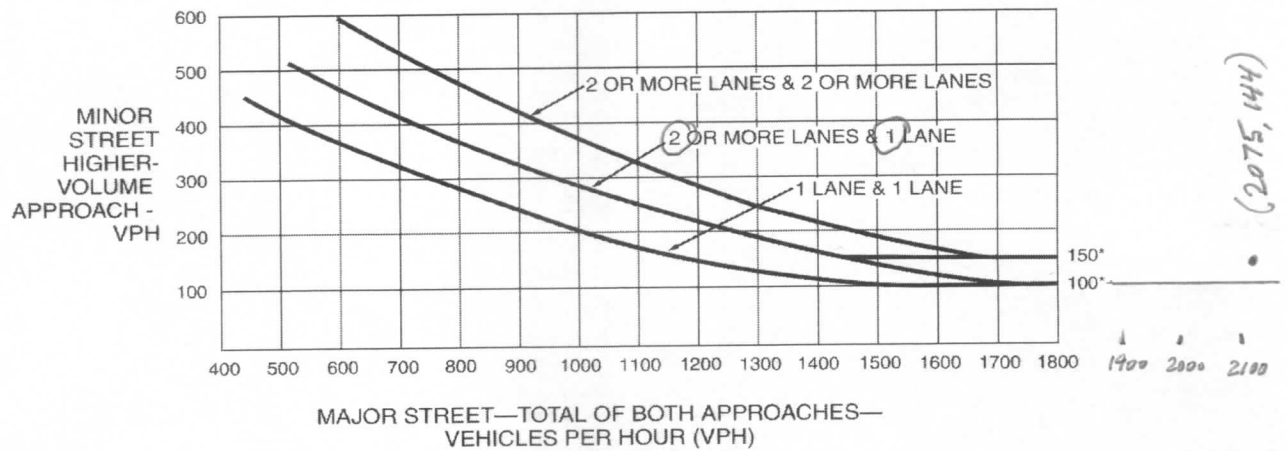
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



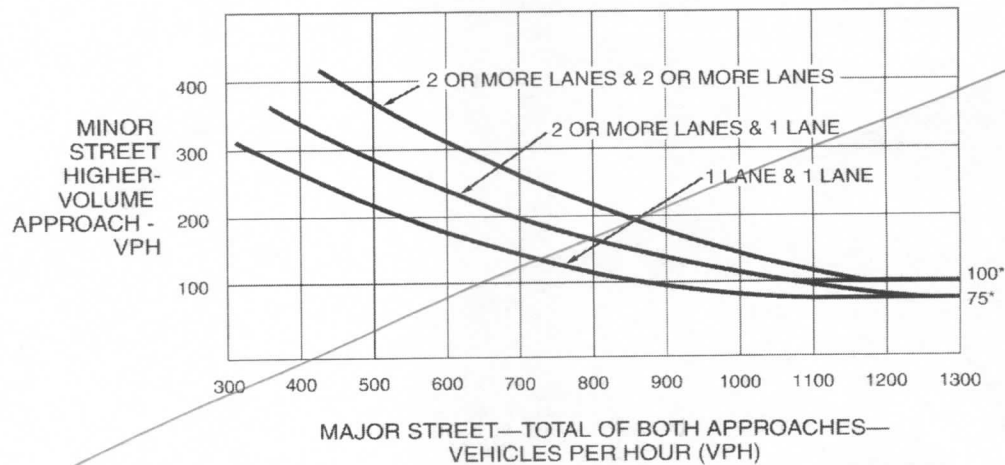
*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

TUESDAY - SEPTEMBER 26TH, 2017

CITY: RAMONA

PROJECT: PTD17-0922-02

SR-67 & MAIN-16TH APPROACH COUNT

AM Period	NB		SB		EB		WB		PM Period		NB		SB		EB		WB		
00:00	23		21		1		2			12:00	208		244		14		41		
00:15	21		19		1		2			12:15	212		251		10		35		
00:30	19		11		0		1			12:30	216		238		19		41		
00:45	21	84	8	59	2	4	2	7	154	12:45	235	871	247	980	11	54	38	155	2060
01:00	16		9		1		0			13:00	222		205		8		28		
01:15	11		9		0		1			13:15	205		219		6		33		
01:30	9		12		0		2			13:30	218		205		10		40		
01:45	12	48	8	38	0	1	0	3	90	13:45	219	864	222	851	8	32	28	129	1876
02:00	5		9		0		1			14:00	222		213		4		27		
02:15	9		6		1		0			14:15	265		205		9		35		
02:30	9		5		1		1			14:30	233		242		12		44		
02:45	12	35	7	27	0	2	1	3	67	14:45	242	962	219	879	11	36	41	147	2024
03:00	5		9		0		0			15:00	288		235		10		41		
03:15	8		12		0		1			15:15	295		214		10		35		
03:30	9		11		0		1			15:30	305		205		9		28		
03:45	11	33	25	57	1	1	1	3	94	15:45	318	1206	218	872	12	41	33	137	2256
04:00	19		21		2		2			16:00	306		205		8		40		
04:15	22		35		4		2			16:15	333		190		9		51		
04:30	28		44		3		3			16:30	332		235		10		44		
04:45	33	102	68	168	4	13	4	11	294	16:45	305	1276	244	874	7	34	37	172	2356
05:00	48		91		8		4			17:00	318		258		9		40		
05:15	51		121		9		4			17:15	288		260		18		33		
05:30	66		145		12		6			17:30	291		222		11		38		
05:45	84	249	168	525	18	47	8	22	843	17:45	270	1167	218	958	16	54	31	142	2321
06:00	88		184		22		9			18:00	262		170		9		28		
06:15	91		191		20		12			18:15	242		184		10		33		
06:30	105		165		15		11			18:30	222		191		7		31		
06:45	121	405	177	717	19	76	18	50	1248	18:45	235	961	165	710	9	35	28	120	1826
07:00	156		195		21		22			19:00	205		135		12		20		
07:15	168		225		24		28			19:15	189		144		8		19		
07:30	195		242		25		21			19:30	191		151		6		33		
07:45	235	754	235	897	28	98	20	91	1840	19:45	180	765	111	541	5	31	27	99	1436
08:00	222		245		22		28			20:00	141		105		4		20		
08:15	218		235		15		22			20:15	128		88		8		19		
08:30	205		242		11		16			20:30	105		90		6		20		
08:45	189	834	222	944	9	57	28	94	1929	20:45	88	462	70	353	5	23	15	74	912
09:00	199		219		10		20			21:00	95		65		4		19		
09:15	184		235		8		21			21:15	70		77		3		16		
09:30	177		205		12		30			21:30	65		54		4		10		
09:45	181	741	223	882	16	46	33	104	1773	21:45	77	307	40	236	4	15	9	54	612
10:00	190		206		11		28			22:00	54		45		2		9		
10:15	184		242		14		27			22:15	55		51		3		12		
10:30	184		222		12		32			22:30	58		35		4		8		
10:45	198	756	219	889	11	48	31	118	1811	22:45	35	202	28	159	2	11	4	33	405
11:00	211		230		8		25			23:00	40		22		1		3		
11:15	205		214		9		33			23:15	33		19		0		2		
11:30	218		215		12		40			23:30	28		20		1		2		
11:45	222	856	240	899	11	40	44	142	1937	23:45	21	122	16	77	0	2	1	8	209
Total Vol.	4897		6102		433		648		12080		9165		7490		368		1270		18293
										Daily Totals									
										NB		SB		EB		WB		Combined	
										14062		13592		801		1918		30373	
AM										PM									
Split %	40.5%		50.5%		3.6%		5.4%		39.8%		50.1%		40.9%		2.0%		6.9%		60.2%
Peak Hour	07:45		11:45		07:15		11:45		11:45		15:45		16:30		12:00		16:00		16:30
Volume	880		973		99		161		2046		1289		997		54		172		2438
P.H.F.	0.94		0.97		0.88		0.91		0.99		0.97		0.96		0.71		0.84		0.98

WEDNESDAY - SEPTEMBER 27TH, 2017

CITY: RAMONA

PROJECT: PTD17-0922-02

SR-67 & MAIN-16TH APPROACH COUNT

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
00:00	30		19		3		4			12:00	179		260		10		30		
00:15	17		9		0		1			12:15	218		243		11		36		
00:30	10		10		1		0			12:30	200		245		10		43		
00:45	24	81	6	44	0	4	0	5	134	12:45	221	818	234	982	15	46	35	144	1990
01:00	5		5		1		1			13:00	216		194		10		32		
01:15	10		9		0		2			13:15	214		216		12		34		
01:30	8		7		1		2			13:30	224		239		7		34		
01:45	14	37	5	26	0	2	0	5	70	13:45	240	894	184	833	11	40	32	132	1899
02:00	10		8		2		0			14:00	240		240		18		35		
02:15	7		6		1		0			14:15	282		221		9		38		
02:30	10		4		0		0			14:30	218		243		13		48		
02:45	6	33	5	23	0	3	1	1	60	14:45	255	995	209	913	7	47	33	154	2109
03:00	5		6		0		1			15:00	261		221		18		30		
03:15	5		19		1		2			15:15	318		230		4		41		
03:30	9		16		2		1			15:30	297		230		15		34		
03:45	23	42	22	63	1	4	3	7	116	15:45	285	1161	215	896	12	49	34	139	2245
04:00	11		29		1		2			16:00	296		185		14		39		
04:15	15		38		3		2			16:15	258		214		15		30		
04:30	20		50		3		4			16:30	315		250		8		38		
04:45	29	75	66	183	3	10	3	11	279	16:45	328	1197	232	881	9	46	47	154	2278
05:00	43		109		13		4			17:00	307		253		15		28		
05:15	33		144		8		8			17:15	291		208		21		41		
05:30	69		133		14		7			17:30	279		232		13		32		
05:45	69	214	156	542	20	55	6	25	836	17:45	283	1160	194	887	9	58	35	136	2241
06:00	69		176		24		10			18:00	276		183		8		35		
06:15	92		196		17		10			18:15	258		173		12		38		
06:30	92		143		17		11			18:30	223		167		8		23		
06:45	150	403	171	686	17	75	21	52	1216	18:45	211	968	149	672	10	38	29	125	1803
07:00	134		234		27		15			19:00	202		152		10		43		
07:15	160		238		18		18			19:15	213		173		11		33		
07:30	207		219		23		21			19:30	166		124		7		27		
07:45	233	734	234	925	24	92	15	69	1820	19:45	167	748	109	558	4	32	27	130	1468
08:00	186		262		17		33			20:00	143		85		9		22		
08:15	203		227		13		20			20:15	111		102		8		11		
08:30	216		216		10		20			20:30	111		109		8		27		
08:45	193	798	232	937	11	51	22	95	1881	20:45	100	465	81	377	7	32	20	80	954
09:00	181		259		10		17			21:00	90		68		1		11		
09:15	169		209		15		26			21:15	78		63		3		10		
09:30	181		217		16		23			21:30	70		52		6		3		
09:45	195	726	218	903	11	52	28	94	1775	21:45	81	319	43	226	6	16	8	32	593
10:00	181		235		15		26			22:00	79		63		8		11		
10:15	177		242		9		21			22:15	59		36		4		8		
10:30	183		205		10		26			22:30	64		26		0		4		
10:45	205	746	216	898	8	42	28	101	1787	22:45	44	246	20	145	2	14	5	28	433
11:00	203		223		9		22			23:00	38		17		1		4		
11:15	189		203		12		35			23:15	41		15		1		1		
11:30	195		213		11		34			23:30	35		9		0		1		
11:45	212	799	233	872	9	41	41	132	1844	23:45	26	140	12	53	1	3	1	7	203
Total Vol.	4688		6102		431		597	11818		9111		7423		421		1261	18216		

THURSDAY - SEPTEMBER 28TH, 2017

CITY: RAMONA

PROJECT: PTD17-0922-02

SR-67 & MAIN-16TH APPROACH COUNT

AM Period	NB		SB		EB		WB		PM Period		NB		SB		EB		WB										
00:00	31		9		1		0			12:00	229		249		13		32										
00:15	10		7		0		2			12:15	195		211		5		44										
00:30	21		6		0		2			12:30	232		231		13		42										
00:45	14	76	12	34	1	2	1	5	117	12:45	229	885	241	932	14	45	34	152	2014								
01:00	13		6		0		0			13:00	207		212		9		44										
01:15	11		0		0		1			13:15	242		234		10		39										
01:30	5		7		0		1			13:30	217		233		13		44										
01:45	8	37	7	20	0	0	0	2	59	13:45	229	895	218	897	13	45	33	160	1997								
02:00	9		3		1		0			14:00	238		244		10		35										
02:15	6		8		1		0			14:15	290		235		11		52										
02:30	10		2		1		2			14:30	272		244		12		41										
02:45	4	29	3	16	2	5	1	3	53	14:45	274	1074	212	935	13	46	42	170	2225								
03:00	5		12		1		1			15:00	269		255		21		40										
03:15	5		11		1		0			15:15	336		222		24		45										
03:30	11		15		3		0			15:30	314		215		14		35										
03:45	19	40	12	50	1	6	3	4	100	15:45	299	1218	202	894	16	75	37	157	2344								
04:00	11		30		3		1			16:00	297		221		11		44										
04:15	12		47		3		3			16:15	283		223		15		33										
04:30	23		58		4		5			16:30	299		216		12		29										
04:45	31	77	55	190	4	14	1	10	291	16:45	314	1193	223	883	9	47	33	139	2262								
05:00	41		121		9		1			17:00	276		230		13		37										
05:15	32		150		15		11			17:15	286		198		14		36										
05:30	68		159		21		10			17:30	285		200		11		39										
05:45	71	212	166	596	28	73	7	29	910	17:45	297	1144	183	811	13	51	35	147	2153								
06:00	80		199		25		6			18:00	275		176		14		18										
06:15	96		195		16		13			18:15	261		180		17		28										
06:30	99		161		17		10			18:30	248		169		15		33										
06:45	131	406	182	737	25	83	14	43	1269	18:45	226	1010	190	715	19	65	35	114	1904								
07:00	137		225		30		10			19:00	203		165		11		33										
07:15	157		236		22		13			19:15	201		144		13		33										
07:30	203		217		23		11			19:30	173		149		9		30										
07:45	198	695	223	901	22	97	24	58	1751	19:45	133	710	145	603	12	45	29	125	1483								
08:00	178		259		24		19			20:00	157		118		10		22										
08:15	190		246		12		20			20:15	118		124		10		19										
08:30	205		195		8		15			20:30	92		97		9		21										
08:45	217	790	202	902	8	52	24	78	1822	20:45	114	481	97	436	6	35	24	86	1038								
09:00	198		226		8		12			21:00	150		82		6		16										
09:15	172		201		11		27			21:15	104		53		4		16										
09:30	162		231		11		24			21:30	76		75		5		8										
09:45	188	720	221	879	5	35	25	88	1722	21:45	64	394	53	263	7	22	7	47	726								
10:00	171		237		9		20			22:00	76		51		6		8										
10:15	187		227		13		25			22:15	57		35		2		11										
10:30	183		222		8		22			22:30	53		23		3		5										
10:45	216	757	201	887	5	35	24	91	1770	22:45	42	228	18	127	1	12	4	28	395								
11:00	187		221		11		31			23:00	44		21		2		3										
11:15	184		232		15		42			23:15	37		25		2		1										
11:30	197		220		8		46			23:30	25		13		1		4										
11:45	235	803	227	900	10	44	30	149	1896	23:45	19	125	7	66	1	6	1	9	206								
Total Vol.	4642		6112		446		560		11760			9357		7562		494		1334		18747							
																Daily Totals											
																NB		SB		EB		WB		Combined			
																		13999		13674		940		1894		30507	

3 Day Avg (9/26, 9/27, 9/28)

CITY: RAMONA

PROJECT: PTD17-0922-02

SR-67 & MAIN-16TH APPROACH COUNT

AM Period	NB		SB		EB		WB		PM Period			NB		SB		EB		WB		
00:00	28		16		2		2			12:00	205		251		12		34			
00:15	16		12		0		2			12:15	208		235		9		38			
00:30	17		9		0		1			12:30	216		238		14		42			
00:45	20	80	9	46	1	3	1	6	135	12:45	228	858	241	965	13	48	36	150	2021	
01:00	11		7		1		0			13:00	215		204		9		35			
01:15	11		6		0		1			13:15	220		223		9		35			
01:30	7		9		0		2			13:30	220		226		10		39			
01:45	11	41	7	28	0	1	0	3	73	13:45	229	884	208	860	11	39	31	140	1924	
02:00	8		7		1		0			14:00	233		232		11		32			
02:15	7		7		1		0			14:15	279		220		10		42			
02:30	10		4		1		1			14:30	241		243		12		44			
02:45	7	32	5	22	1	3	1	2	60	14:45	257	1010	213	909	10	43	39	157	2119	
03:00	5		9		0		1			15:00	273		237		16		37			
03:15	6		14		1		1			15:15	316		222		13		40			
03:30	10		14		2		1			15:30	305		217		13		32			
03:45	18	38	20	57	1	4	2	5	103	15:45	301	1195	212	887	13	55	35	144	2282	
04:00	14		27		2		2			16:00	300		204		11		41			
04:15	16		40		3		2			16:15	291		209		13		38			
04:30	24		51		3		4			16:30	315		234		10		37			
04:45	31	85	63	180	4	12	3	11	288	16:45	316	1222	233	879	8	42	39	155	2299	
05:00	44		107		10		3			17:00	300		247		12		35			
05:15	39		138		11		8			17:15	288		222		18		37			
05:30	68		146		16		8			17:30	285		218		12		36			
05:45	75	225	163	554	22	58	7	25	863	17:45	283	1157	198	885	13	54	34	142	2238	
06:00	79		186		24		8			18:00	271		176		10		27			
06:15	93		194		18		12			18:15	254		179		13		33			
06:30	99		156		16		11			18:30	231		176		10		29			
06:45	134	405	177	713	20	78	18	48	1244	18:45	224	980	168	699	13	46	31	120	1844	
07:00	142		218		26		16			19:00	203		151		11		32			
07:15	162		233		21		20			19:15	201		154		11		28			
07:30	202		226		24		18			19:30	177		141		7		30			
07:45	222	728	231	908	25	96	20	73	1804	19:45	160	741	122	567	7	36	28	118	1462	
08:00	195		255		21		27			20:00	147		103		8		21			
08:15	204		236		13		21			20:15	119		105		9		16			
08:30	209		218		10		17			20:30	103		99		8		23			
08:45	200	807	219	928	9	53	25	89	1877	20:45	101	469	83	389	6	30	20	80	968	
09:00	193		235		9		16			21:00	112		72		4		15			
09:15	175		215		11		25			21:15	84		64		3		14			
09:30	173		218		13		26			21:30	70		60		5		7			
09:45	188	729	221	888	11	44	29	95	1757	21:45	74	340	45	242	6	18	8	44	644	
10:00	181		226		12		25			22:00	70		53		5		9			
10:15	183		237		12		24			22:15	57		41		3		10			
10:30	183		216		10		27			22:30	58		28		2		6			
10:45	206	753	212	891	8	42	28	103	1789	22:45	40	225	22	144	2	12	4	30	411	
11:00	200		225		9		26			23:00	41		20		1		3			
11:15	193		216		12		37			23:15	37		20		1		1			
11:30	203		216		10		40			23:30	29		14		1		2			
11:45	223	819	233	890	10	42	38	141	1892	23:45	22	129	12	65	1	4	1	8	206	
Total Vol.	4742		6105		437		602		11886				9211	7492		428		1288		18419
										Daily Totals										
										NB		SB		EB		WB		Combined		
										13953		13597		864.3		1890		30305		
AM										PM										
Split %	39.9%		51.4%		3.7%		5.1%		39.2%				50.0%	40.7%		2.3%		7.0%		60.8%
Peak Hour	11:45		11:45		07:00		11:45		11:45				16:15	12:00		15:00		14:15		16:30
Volume	853		957		96		153		2008				1223	965		55		162		2351
P.H.F.	0.96		0.95		0.92		0.91		0.98				0.98	0.96		0.84		0.91		0.99

SR-67/16th Street Approach Volumes by Hour (3 day average of 9/26/17, 9/27/17, and 9/28/17)

Time	Major St Combined Approach Volumes	Minor St Approach Volumes (higher WB)	Minor St Approach Volumes (lower EB)	Highest 8 hrs
00:00	126	6	3	
01:00	69	3	1	
02:00	54	2	3	
03:00	95	5	4	
04:00	265	11	12	
05:00	779	25	58	
06:00	1,118	48	78	
07:00	1,635	73	96	
08:00	1,735	89	53	7
09:00	1,617	95	44	
10:00	1,644	103	42	
11:00	1,710	141	42	8
12:00	1,823	150	48	5
13:00	1,745	140	39	6
14:00	1,919	157	43	4
15:00	2,082	144	55	2
16:00	2,101	155	42	1
17:00	2,042	142	54	3
18:00	1,679	120	46	
19:00	1,308	118	36	
20:00	858	80	30	
21:00	582	44	18	
22:00	369	30	12	
23:00	194	8	4	

Warrant 1 Condition A

	Major	Major	Minor	Minor	
Major both approaches	100%	80%	Minor St WB	100%	80%
	600	480		150	120
					EB

Warrant 1 Condition B

	Major	Major	Minor	Minor	
Major both approaches	100%	80%	Minor St WB	100%	80%
	900	720		75	60
					EB

1735	Yes	Yes	89			53
------	-----	-----	----	--	--	----

1735	Yes	Yes	89	Yes	Yes	53
------	-----	-----	----	-----	-----	----

1710	Yes	Yes	141		Yes	42
1823	Yes	Yes	150	Yes	Yes	48
1745	Yes	Yes	140		Yes	39
1919	Yes	Yes	157	Yes	Yes	43
2082	Yes	Yes	144		Yes	55
2101	Yes	Yes	155	Yes	Yes	42
2042	Yes	Yes	142		Yes	54

1710	Yes	Yes	141	Yes	Yes	42
1823	Yes	Yes	150	Yes	Yes	48
1745	Yes	Yes	140	Yes	Yes	39
1919	Yes	Yes	157	Yes	Yes	43
2082	Yes	Yes	144	Yes	Yes	55
2101	Yes	Yes	155	Yes	Yes	42
2042	Yes	Yes	142	Yes	Yes	54

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3 DAY AVG OF 9/26/17, 9/27/17 & 9/28/17
 CALC JR DATE _____
 CHK _____ DATE _____

11 SD 67 23.7
 DIST CO RTE PM

Major St: SR-67 (MAIN ST) Critical Approach Speed 35 mph
 Minor St: 16th ST Critical Approach Speed 25 mph

Speed limit or critical speed on major street traffic > 40 mph NO ☐ or ☐ } **RURAL (R)**
 In built up area of isolated community of < 10,000 population NO ☐ ☒ **URBAN (U)**

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☒ NO ☐
 (Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☒
 80% SATISFIED YES ☐ NO ☒

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
	1		2 or More									
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1735	1710	1823	1745	1919	2082	2101	2042
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	89 ^x	141 ^x	150	140 ^x	157	144 ^x	155	142 ^x

Hour: 8 AM, 11 AM, 12 PM, 1 PM, 2 PM, 3 PM, 4 PM, 5 PM

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☒ NO ☐
 80% SATISFIED YES ☒ NO ☐

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
	1		2 or More									
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1735	1710	1823	1745	1919	2082	2101	2042
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	89	141	150	140	157	144	155	142

Hour: 8 AM, 11 AM, 12 PM, 1 PM, 2 PM, 3 PM, 4 PM, 5 PM

Combination of Conditions A & B NA SATISFIED YES ☐ NO ☐

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☐
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume

SATISFIED* YES ☒ NO ☐

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	2 PM	3 PM	4 PM	5 PM	Hour
Both Approaches - Major Street		✓	1919	2082	2101	2042	
Higher Approach - Minor Street	✓		157	144	155	142	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☒	No ☐
<u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

NA

WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)

SATISFIED YES ☒ NO ☐

PART A

NA

SATISFIED YES ☐ NO ☐ NA

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	Yes ☐	No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>	Yes ☐	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐	No ☐

PART B

SATISFIED YES ☒ NO ☐

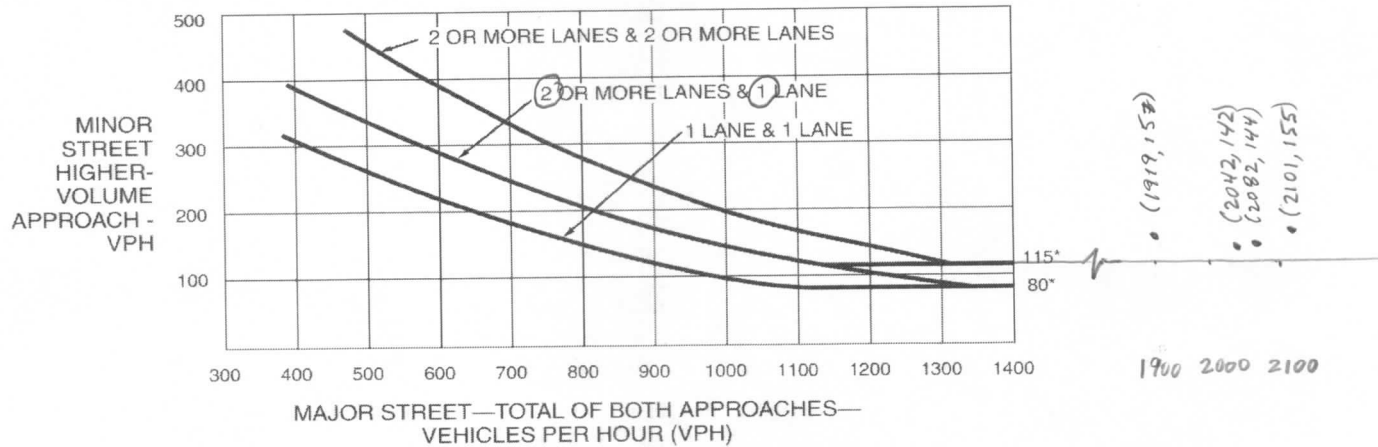
APPROACH LANES	One	2 or More	4 PM	Hour
Both Approaches - Major Street		✓	2101	
Higher Approach - Minor Street	✓		155	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☒	No ☐
<u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

NA

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

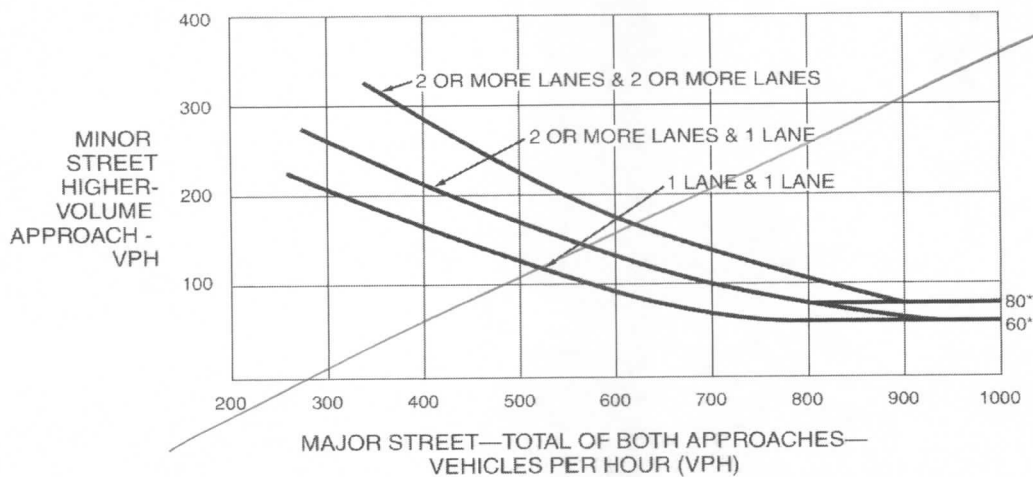
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



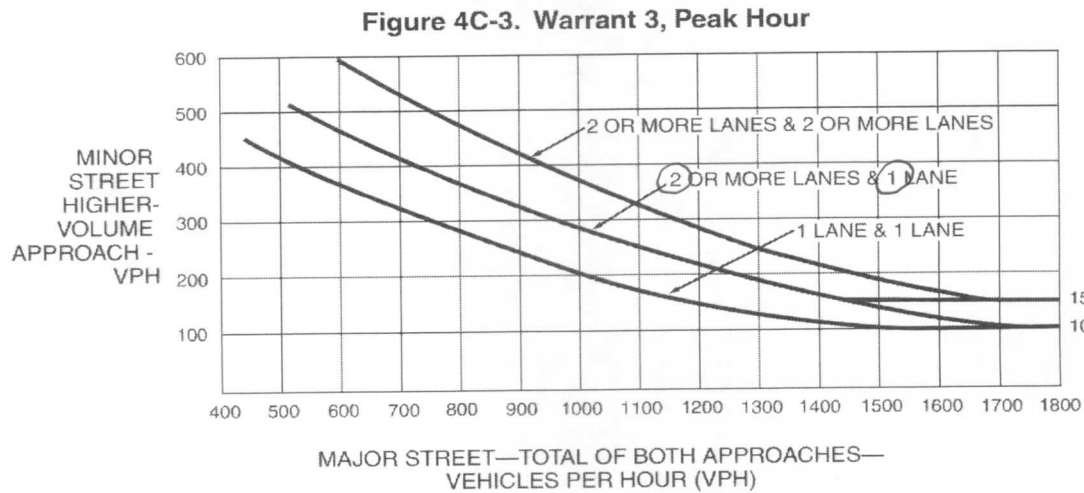
*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

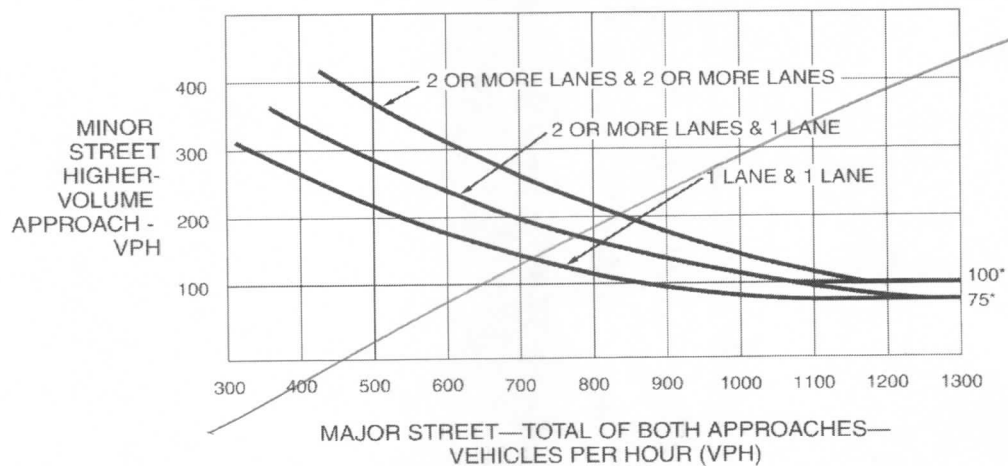


*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix J

Existing + Project with Mitigation LOS Calculations

AM Existing + Project
2: 16th St & Main St (SR-67)

With Mitigation of a traffic signal
HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	51	599	24	55	671	35	10	4	61	8	3	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	55	651	26	60	729	38	11	4	66	9	3	57
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1510	60	80	1498	78	109	40	131	18	6	114
Arrive On Green	0.04	0.44	0.44	0.04	0.44	0.44	0.08	0.08	0.08	0.09	0.09	0.09
Sat Flow, veh/h	1774	3469	138	1774	3423	178	1318	479	1583	211	70	1335
Grp Volume(v), veh/h	55	332	345	60	377	390	15	0	66	69	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1838	1774	1770	1831	1797	0	1583	1617	0	0
Q Serve(g_s), s	1.6	6.7	6.7	1.7	7.8	7.8	0.4	0.0	2.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.6	6.7	6.7	1.7	7.8	7.8	0.4	0.0	2.0	2.1	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.10	0.73		1.00	0.13		0.83
Lane Grp Cap(c), veh/h	75	770	800	80	775	802	149	0	131	137	0	0
V/C Ratio(X)	0.73	0.43	0.43	0.75	0.49	0.49	0.10	0.00	0.50	0.50	0.00	0.00
Avail Cap(c_a), veh/h	537	1954	2030	537	1954	2022	825	0	727	679	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.2	10.0	10.0	24.2	10.3	10.3	21.7	0.0	22.4	22.4	0.0	0.0
Incr Delay (d2), s/veh	12.7	0.4	0.4	13.4	0.5	0.5	0.3	0.0	2.9	2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.3	3.4	1.1	3.9	4.0	0.2	0.0	1.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	36.9	10.4	10.4	37.5	10.7	10.7	22.0	0.0	25.4	25.2	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	C		C	C		
Approach Vol, veh/h		732			827			81			69	
Approach Delay, s/veh		12.4			12.7			24.8			25.2	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		8.7	6.8	26.8		8.8	6.7	26.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		23.5	15.5	56.5		21.5	15.5	56.5				
Max Q Clear Time (g_c+I1), s		4.0	3.7	8.7		4.1	3.6	9.8				
Green Ext Time (p_c), s		0.2	0.1	12.7		0.3	0.1	12.6				
Intersection Summary												
HCM 2010 Ctrl Delay			13.6									
HCM 2010 LOS			B									

PM Existing + Project
2: 16th St & Main St (SR-67)

With Mitigation of a traffic signal
HCM 2010 Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	983	65	141	748	68	8	13	144	38	12	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	103	1013	67	145	771	70	8	13	148	39	12	80
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	1589	105	183	1639	149	82	134	188	52	16	106
Arrive On Green	0.07	0.47	0.47	0.10	0.50	0.50	0.12	0.12	0.12	0.10	0.10	0.10
Sat Flow, veh/h	1774	3370	223	1774	3282	298	696	1132	1583	494	152	1013
Grp Volume(v), veh/h	103	532	548	145	416	425	21	0	148	131	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1823	1774	1770	1810	1828	0	1583	1659	0	0
Q Serve(g_s), s	5.1	20.2	20.2	7.1	13.7	13.7	0.9	0.0	8.1	6.8	0.0	0.0
Cycle Q Clear(g_c), s	5.1	20.2	20.2	7.1	13.7	13.7	0.9	0.0	8.1	6.8	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.16	0.38		1.00	0.30		0.61
Lane Grp Cap(c), veh/h	133	835	860	183	884	904	216	0	188	174	0	0
V/C Ratio(X)	0.77	0.64	0.64	0.79	0.47	0.47	0.10	0.00	0.79	0.75	0.00	0.00
Avail Cap(c_a), veh/h	369	1322	1362	488	1441	1474	503	0	436	401	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.4	17.8	17.8	39.0	14.6	14.6	35.0	0.0	38.2	38.7	0.0	0.0
Incr Delay (d2), s/veh	9.2	0.8	0.8	7.6	0.4	0.4	0.2	0.0	7.2	6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	9.9	10.2	3.8	6.7	6.8	0.5	0.0	3.9	3.4	0.0	0.0
LnGrp Delay(d),s/veh	49.6	18.6	18.6	46.6	15.0	15.0	35.2	0.0	45.4	45.2	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	D		D	D		
Approach Vol, veh/h	1183			986			169			131		
Approach Delay, s/veh	21.3			19.6			44.1			45.2		
Approach LOS	C			B			D			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.0	13.7	46.5		13.8	11.2	49.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		24.5	24.5	66.5		21.5	18.5	72.5				
Max Q Clear Time (g_c+l1), s		10.1	9.1	22.2		8.8	7.1	15.7				
Green Ext Time (p_c), s		0.5	0.3	19.8		0.5	0.2	21.6				
Intersection Summary												
HCM 2010 Ctrl Delay			23.4									
HCM 2010 LOS			C									