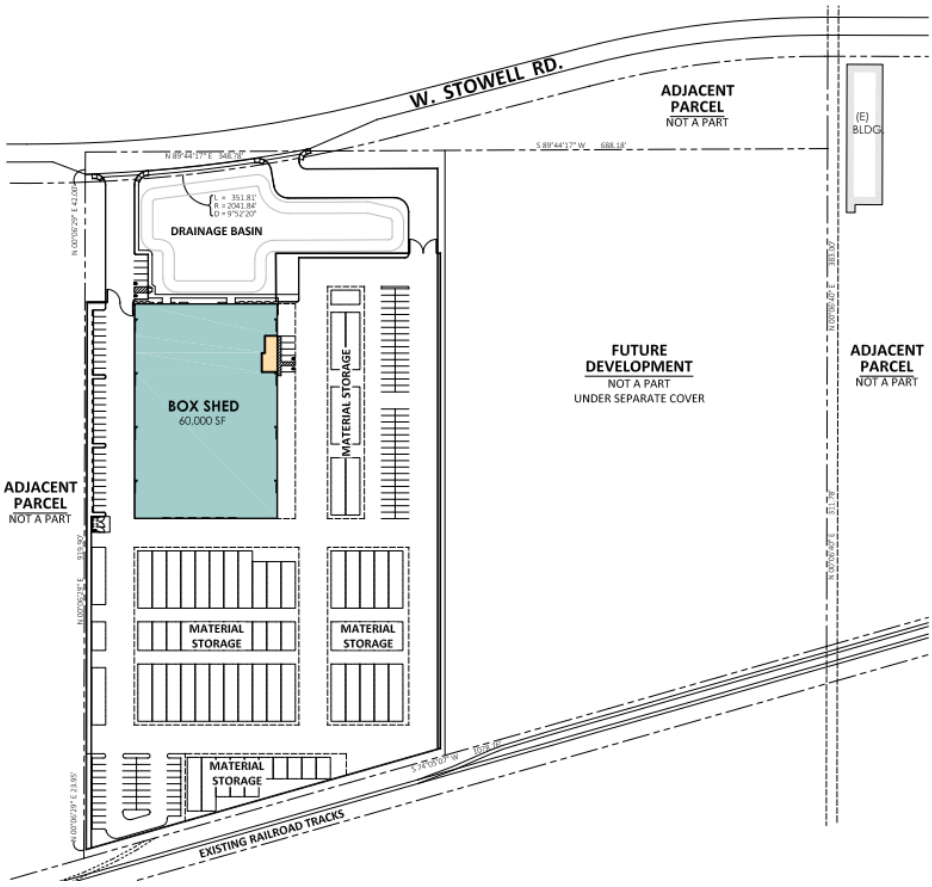
MAXCO BOXING FACILITY PROJECT
CITY OF SANTA MARIA, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY



March 9, 2022 **ATE #20082.01**

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TRAFFIC AND CIRCULATION STUDY FOR THE MAXCO BOXING FACILITY PROJECT, CITY OF SANTA MARIA

Associated Transportation Engineers (ATE) has prepared the following traffic and circulation study for the Maxco Boxing Facility Project, located in the City of Santa Maria. The study evaluates the Existing + Project and Cumulative + Project traffic conditions in order to determine the Project's consistency with the City's transportation policies; and determines the Project's potential CEQA traffic impacts based on the City's adopted "Vehicle Miles Traveled" (VMT) impact criteria.

Associated Transportation Engineers

Scott A. Schell
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INTRODUCTION

The following report contains analyses of the potential traffic and circulation issues associated with the Maxco Boxing Facility Project (the "Project") proposed in the City of Santa Maria. The report evaluates existing and future traffic operations within the Project study area and assesses the Project's consistency with City transportation policies. An analysis of site access and circulation is also provided. The roadways and intersections analyzed in the study were determined based on input provided by City of Santa Maria staff. An evaluation of the Project's potential CEQA impacts is also provided based on the City's CEQA requirements for Vehicle Miles Traveled (VMT) adopted under Senate Bill 743.

PROJECT DESCRIPTION

The Project site is located on a vacant parcel located on the south side of Stowell Road west of the Stowell Road/Hanson Way intersection, as shown on Figure 1. Figure 2 presents the Project site plan. As shown, the Project includes a 62,019 SF Box Shed with 2,019 SF of office space. The Box Shed will be used to assemble, store, and distribute boxes that are used to collect and transport agricultural crops. The Project would be built in a single phase. Access to the Project site would be provided via two driveways on Stowell Road.

EXISTING CONDITIONS

Street Network

The Project study area is served by a network of arterial and collector streets, as shown on Figure 3. The following text provides a brief discussion of the major components of the study-area street network.

Stowell Road, located along the northern frontage of the Project site, is a Secondary Arterial roadway that extends from US 101 on the east to Black Road on the west. Stowell Road is four-lane arterial road east and west of Blosser Road. The roadway narrows to two lanes west of the Santa Maria Valley Railroad tracks (just east of the Project site). Access to the Project site would be provided via two driveways on Stowell Road.

Blosser Road, located east of the Project site, is a four-lane Secondary Arterial roadway that extends north of Betteravia Road to the northern City limits. South of Betteravia Road, the roadway is named Skyway Driveway and extends to State Route 135.

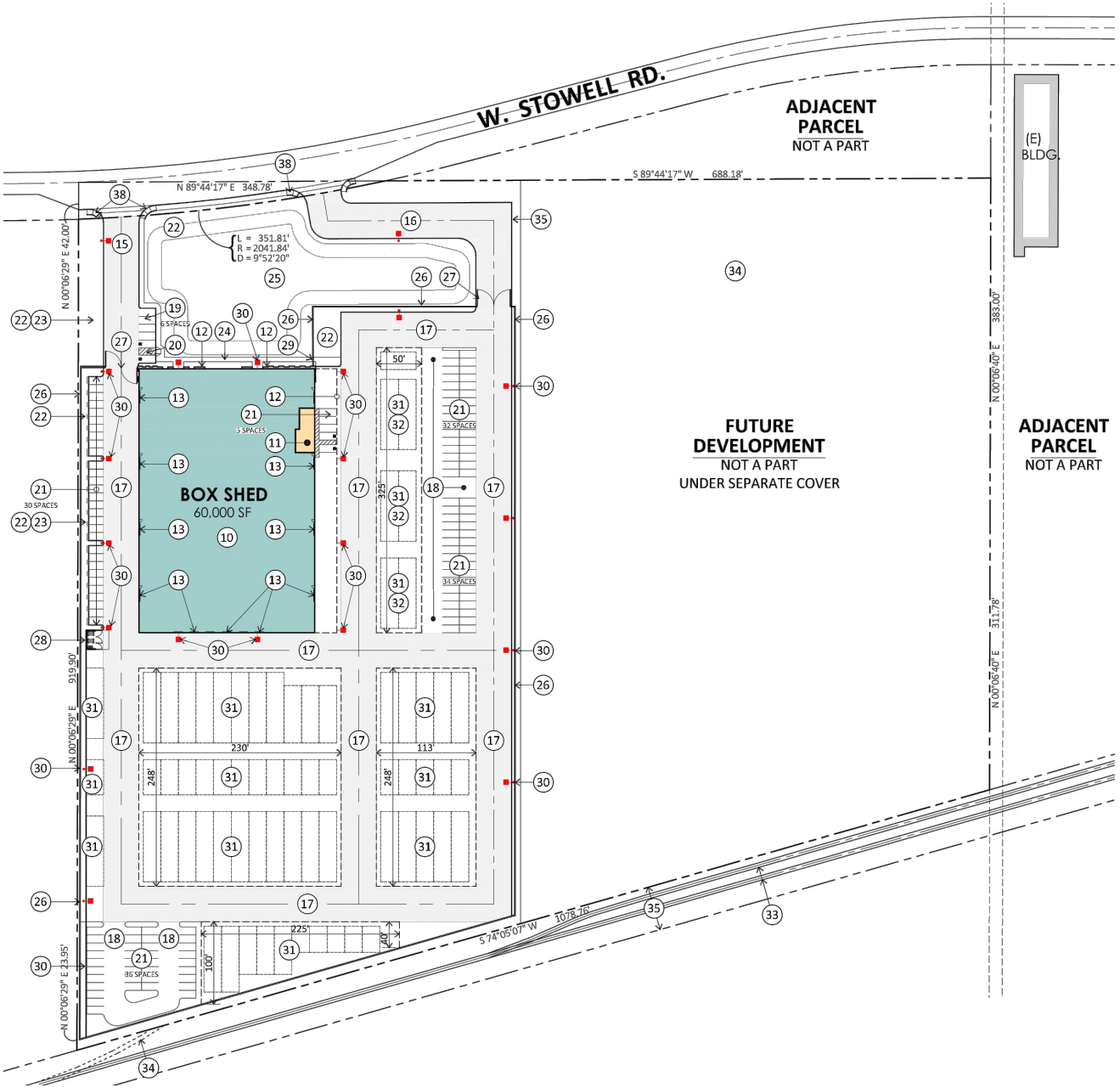


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PROJECT SITE LOCATION

FIGURE 1

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REFERENCE NOTES

10. PROPOSED BUILDING, SEE FLOOR PLAN
11. PROPOSED OFFICE, SEE FLOOR PLAN
12. ARCHITECTURAL FACADE, SEE ELEVATIONS
13. DOCK DOORS, SEE FLOOR PLAN
14. LOADING AREA
15. MAIN SITE ENTRANCE
16. SHARED SITE ENTRANCE
17. 40' WIDE DRIVE AISLE
18. 24' WIDE DRIVE AISLE
19. VISITOR PARKING (9'x19')
20. ACCESSIBLE PARKING SPACE (9'x19')
21. STANDARD PARKING (9' x 19')
22. LANDSCAPE AREA
23. 10'-0" WIDE LANDSCAPE BUFFER
24. CONCRETE WALK
25. DRAINAGE BASIN, SEE CIVIL PLANS
26. 8' TALL CHAIN LINK FENCE WITH PRIVACY SCREEN
27. SWING GATE
28. TRASH ENCLOSURE, TO COMPLY WITH CITY STANDARD DETAIL MS-16B. PER WAREHOUSE REQUIREMENTS, THIS ENCLOSURE WILL INCLUDE:
    - (1) 4-CUBIC YARD TRASH
    - (1) 4-CUBIC YARD RECYCLE
    - (2) 60-GALLON ORGANICS CONTAINERS
29. PEDESTRIAN ENTRANCE
30. SITE LIGHTING - SEE SHEET A 1.4
    - PARKING & DRIVE AISLE LIGHTING TO BE MOUNTED ON 25' TALL POLE
    - WALL MOUNTED LIGHTING TO BE SET AT 20' A.F.S.
    - ALL LIGHTING TO BE DARK SKY COMPLIANT.
31. EXTERIOR MATERIAL STORAGE INCLUDING:
    - PALLETS OF CORRUGATED MATERIAL FOR BOXES
    - MISCELLANEOUS MATERIALS
    - PALLETS OF COMPLETED BOXES FOR DISTRIBUTION
32. EXTERIOR MATERIAL STORAGE SHALL NOT EXCEED FENCE LINE IN THIS AREA.
33. EXISTING RAILROAD TRACKS
34. ABANDONED RAILROAD TRACKS, CUT OFF AT FENCE.
35. SANTA MARIA VALLEY RAILROAD, APN 117-110-007
36. FUTURE DEVELOPMENT, UNDER SEPARATE COVER.
37. FUTURE ACCESS TO VACANT PORTION OF SITE
38. PUBLIC STREET IMPROVEMENTS, SEE CIVIL PLANS

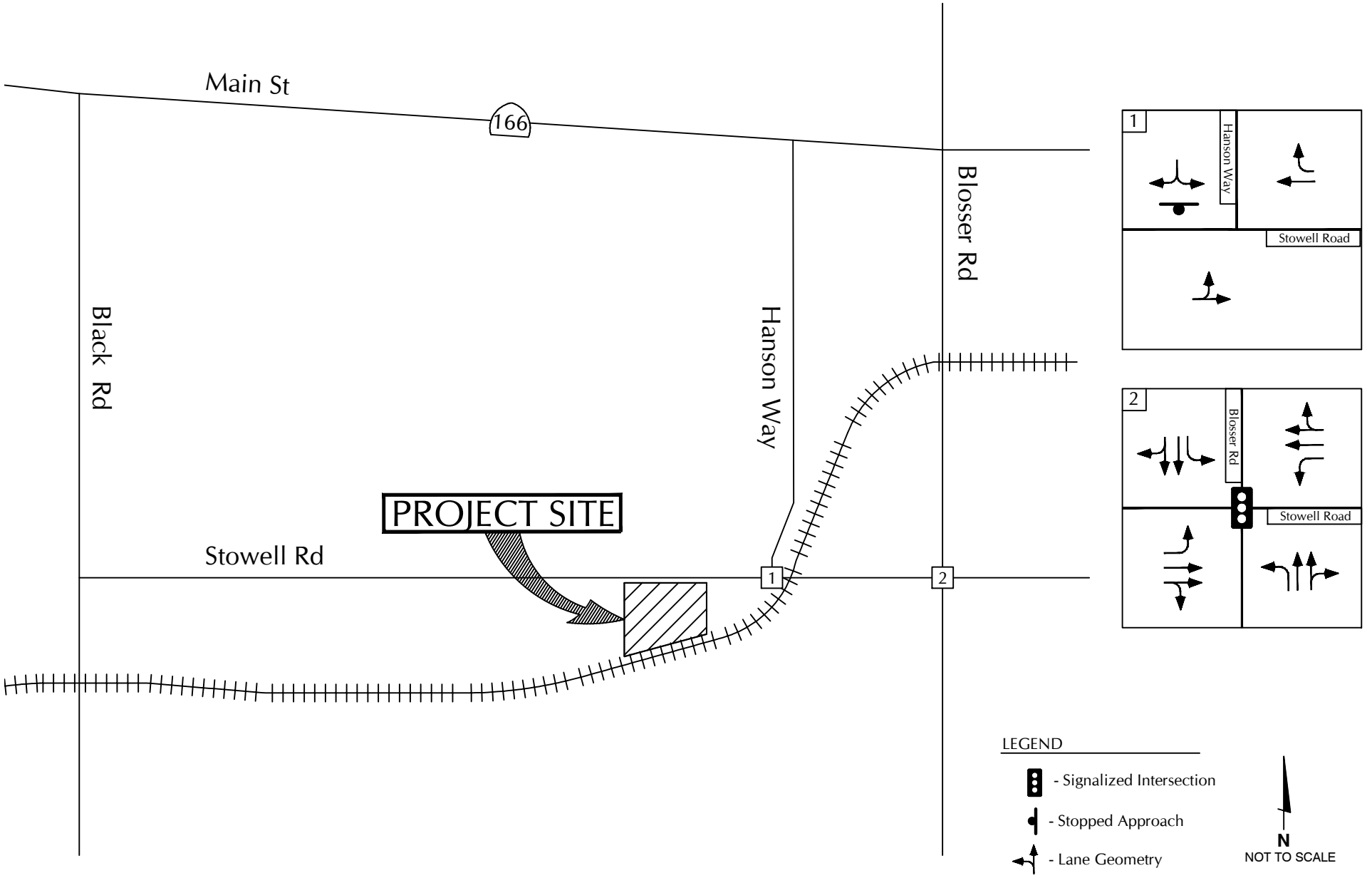
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NOT TO SCALE

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PROJECT SITE PLAN

FIGURE 2

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EXISTING STREET NETWORK

FIGURE 3

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Hanson Way, located north of the Project site, is a two-lane local street that extends north from Stowell Road.

Black Road, located west of the Project site, is a two-lane arterial road that extends north and south of Stowell Road.

Intersection Operations

Because traffic flow on urban arterials is most constrained at intersections, detailed traffic flow analyses focus on the operating conditions of critical intersections during peak travel periods. "Levels of Service" (LOS) A through F are used to rate intersection operations, with LOS A indicating very good operation and LOS F indicating poor operation (more complete definitions are contained in the Technical Appendix for reference). The City of Santa Maria considers LOS D as the performance standard for intersections (maintain LOS D or better).

Existing traffic volumes were obtained from traffic count data collected in September 2018 and April 2019 (see Technical Appendix for count data). Counts were conducted during the AM peak commuter period (7:00-9:00 AM) and PM peak commuter period (4:00-6:00 PM). The peak 1-hour volumes were then identified for the analysis. Figure 4 presents the existing peak hour traffic volumes for the study-area intersections.

Levels of service for the signalized intersections were calculated using the intersection capacity utilization (ICU) methodology and levels of service for the Stop sign controlled intersections were calculated using the operations method outlined in the Highway Capacity Manual,[1] which are methods adopted by the City. Table 1 lists the existing traffic control and levels of service for the study-area intersections identified for analyses.

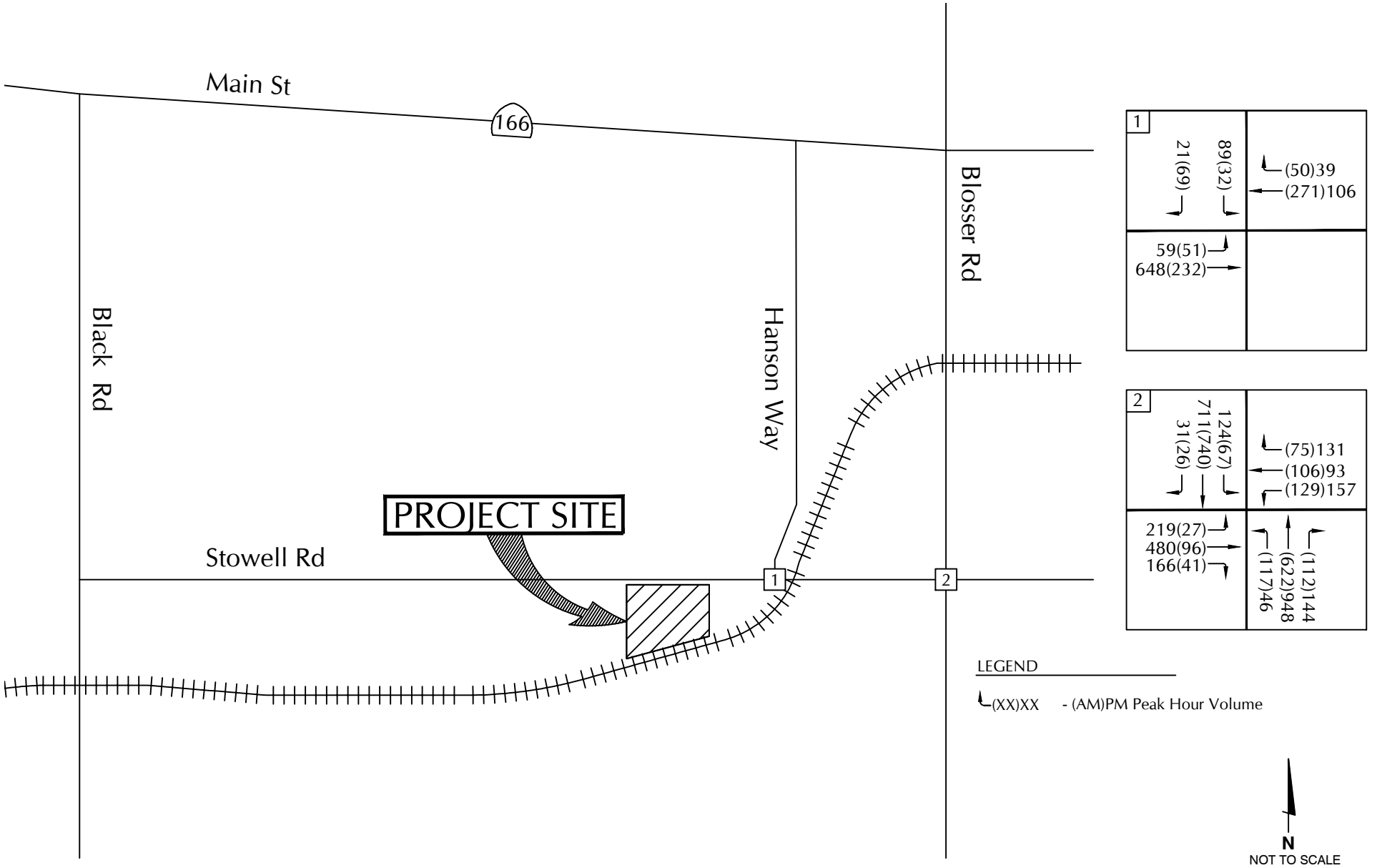
Table 1
Existing Levels of Service

Intersection	Control	AM Peak Hour		PM Peak Hour	
		ICU or Delay	LOS	ICU or Delay	LOS
Stowell Rd/Hanson Way(a)	Stop Sign	10.7 Sec.	LOS B	15.9 Sec.	LOS C
Stowell Rd/Blosser Rd	Signal	0.53	LOS A	0.81	LOS D

(a) Unsignalized intersection LOS based on average delay per vehicle in seconds.

The data presented in Table 1 show that the study-area intersections currently operate at LOS D or better during the AM and PM peak hours, which meet the City's LOS D operating standard.

[1] Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.



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EXISTING TRAFFIC VOLUMES

FIGURE 4

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CITY OF SANTA MARIA TRANSPORTATION POLICIES

The City of Santa Maria considers LOS D acceptable for roadway and intersection operations, with improvements required for LOS E and F.

PROJECT-SPECIFIC ANALYSIS

Trip Generation

Trip generation estimates were developed for the Project using the rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual.[2] The rates for Manufacturing (Land Use Code #140) and Small Office (Land Use Code # 712) were used for the Box Shed building. Table 2 shows the trip generation estimates developed for the Project based on the ITE rates (a worksheet showing the detailed calculations is included in the Technical Appendix for reference).

Table 2
Project Trip Generation Estimates

Land Use	Size	ADT		AM Peak		PM Peak	
		Rate	Trips	Rate	Trips	Rate	Trips
Box Shed	60,000 SF	4.75	285	0.68	41	0.74	44
Office	2,019 SF	14.39	29	1.67	3	2.16	4
Totals	**62,019 SF**		**314**		**44**		**48**

As shown in Table 2, the Project is forecast to generate 314 average daily trips (ADT), 44 AM peak hour trips (PHT), and 48 PM PHT.

[2] Trip Generation Manual, Institute of Transportation Engineers, 11th Edition, 2021.

Trip Distribution

The distribution pattern developed for the Project is based on the anticipated origins and destinations of the trucks that would be travelling to and from the facility as well as the employee housing locations within the Santa Maria area for employee trips. Table 3 lists the trip distribution pattern developed for the Project. Figure 5 illustrates the distribution and assignment of Project traffic at the study-area intersections. Figure 6 shows the Existing + Project traffic volumes.

Table 3
Project Trip Distribution

Origin/Destination	Direction	Percentage
Stowell Road	East West	35% 30%
Hanson Road	North	5%
Blosser Road	North South	15% 15%
Totals		**100%**

Project-Specific Intersection Operations

Levels of service were calculated for the study-area intersections assuming the Existing + Project volumes shown on Figure 6. Tables 4 and 5 compare the Existing and Existing + Project levels of service and identify the Project's consistency with the City's LOS D standard.

Table 4
Existing + Project Levels of Service – AM Peak Hour

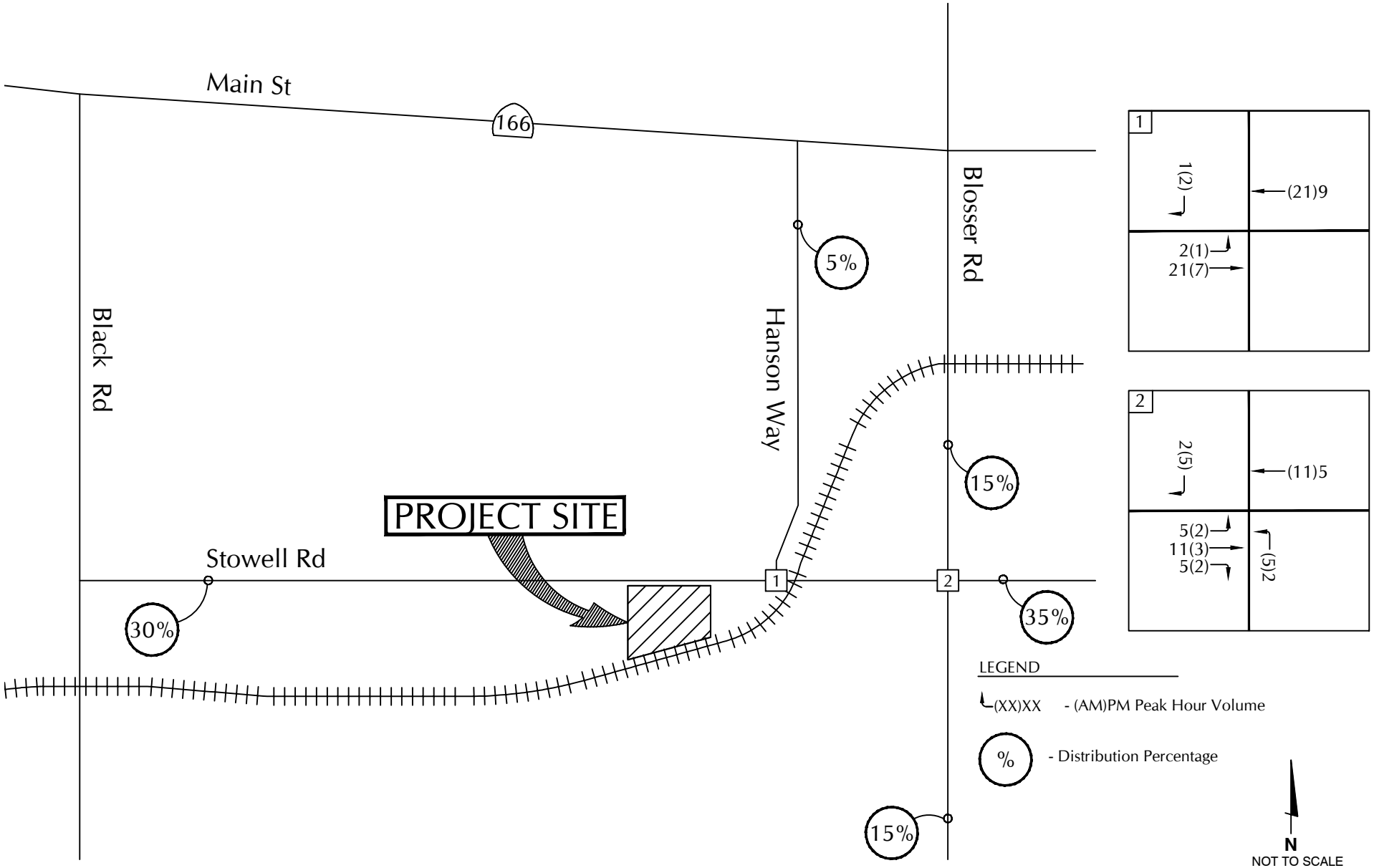
Intersection	Existing		Existing + Project		Exceed LOS D Standard?
	ICU or Delay	LOS	ICU or Delay	LOS	
Stowell Rd/Hanson Way(a)	10.7 Sec.	LOS B	10.8 Sec.	LOS B	No
Stowell Rd/Blosser Rd	0.53	LOS A	0.54	LOS A	No

(a) Unsignalized intersection LOS based on average delay per vehicle in seconds.

Table 5
Existing + Project Levels of Service – PM Peak Hour

Intersection	Existing		Existing + Project		Exceed LOS D Standard?
	ICU or Delay	LOS	ICU or Delay	LOS	
Stowell Rd/Hanson Way(a)	15.9 Sec.	LOS C	16.4 Sec.	LOS C	No
Stowell Rd/Blosser Rd	0.81	LOS D	0.81	LOS D	No

(a) Unsignalized intersection LOS based on average delay per vehicle in seconds.

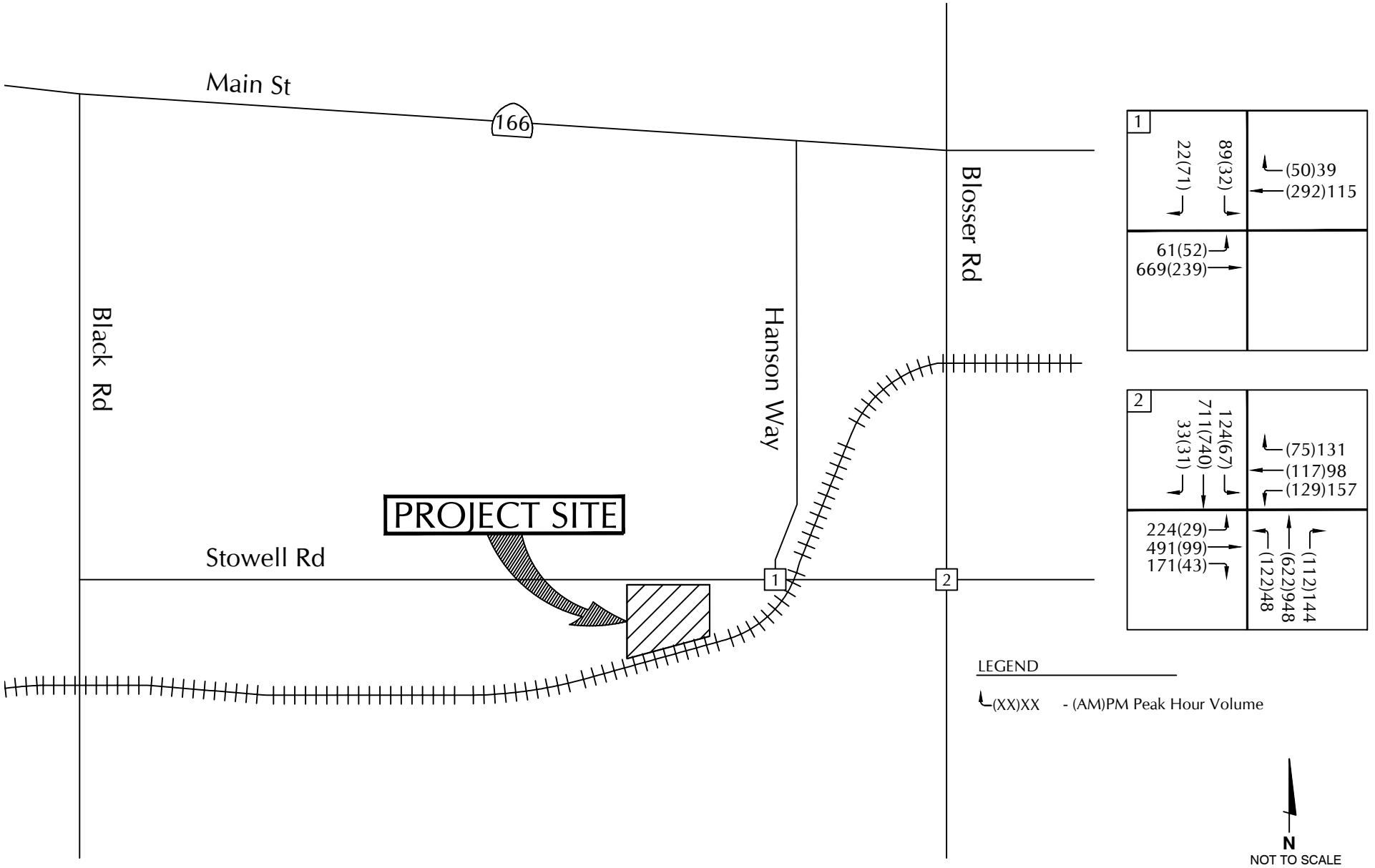


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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 5

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EXISTING + PROJECT TRAFFIC VOLUMES

FIGURE 6

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The data presented in Tables 4 and 5 indicate that the study-area intersections are forecast to operate at LOS D or better during the AM and PM peak hours under Existing + Project conditions – which meets the City's LOS D standard. Thus, the Project would not be inconsistent with the City's adopted level of service standards.

CUMULATIVE ANALYSIS

Traffic Forecasts

Cumulative conditions were forecast assuming the addition of traffic generated by the approved and pending development projects located in the Santa Maria area. The land uses for the approved and pending projects were incorporated into the Santa Maria Traffic Model to forecast Cumulative conditions. The Cumulative traffic forecasts for the study-area intersections are shown in Figure 7 and the Cumulative + Project forecasts are shown in Figure 8.

Cumulative Intersection Impacts

Tables 6 and 7 compare the Cumulative and Cumulative + Project AM and PM peak hour levels of service for the study-area intersections and identify locations that exceed the City's LOS D standard.

Table 6
Cumulative + Project Levels of Service – AM Peak Hour

Intersection	Cumulative		Cumulative + Project		Exceed LOS D Standard?
	ICU or Delay	LOS	ICU or Delay	LOS	
Stowell Rd/Hanson Way(a)	11.1 Sec.	LOS B	11.3 Sec.	LOS B	No
Stowell Rd/Blosser Rd	0.60	LOS A	0.60	LOS A	No

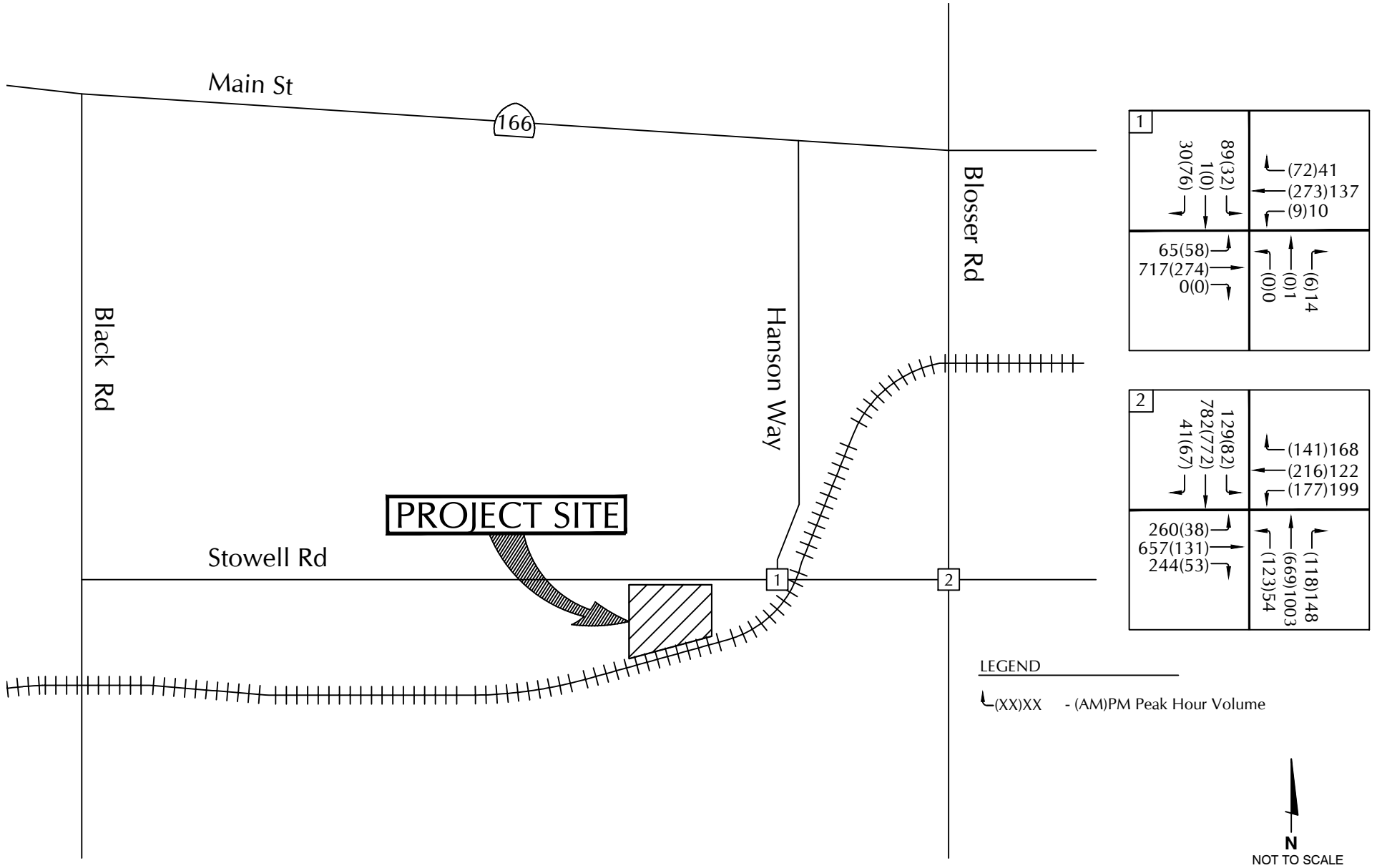
(a) Unsignalized intersection LOS based on average delay per vehicle in seconds.

Table 7
Cumulative + Project Levels of Service – PM Peak Hour

Intersection	Cumulative		Cumulative + Project		Exceed LOS D Standard?
	ICU or Delay	LOS	ICU or Delay	LOS	
Stowell Rd/Hanson Way(a)	23.0 Sec.	LOS C	24.6	LOS C	No
Stowell Rd/Blosser Rd	**0.93**	**LOS E**	**0.94**	**LOS E**	**Yes**

(a) Unsignalized intersection LOS based on average delay per vehicle in seconds.
Bolded values exceed City LOS D standard.

The data presented in Table 7 show that the Blosser Road/Stowell Road intersection is forecast to operate at LOS E during the PM peak hour with Cumulative and Cumulative + Project volumes, which exceeds the City's LOS D standard. Improvement measures for the intersections are presented in the Improvement Measures section of this report.

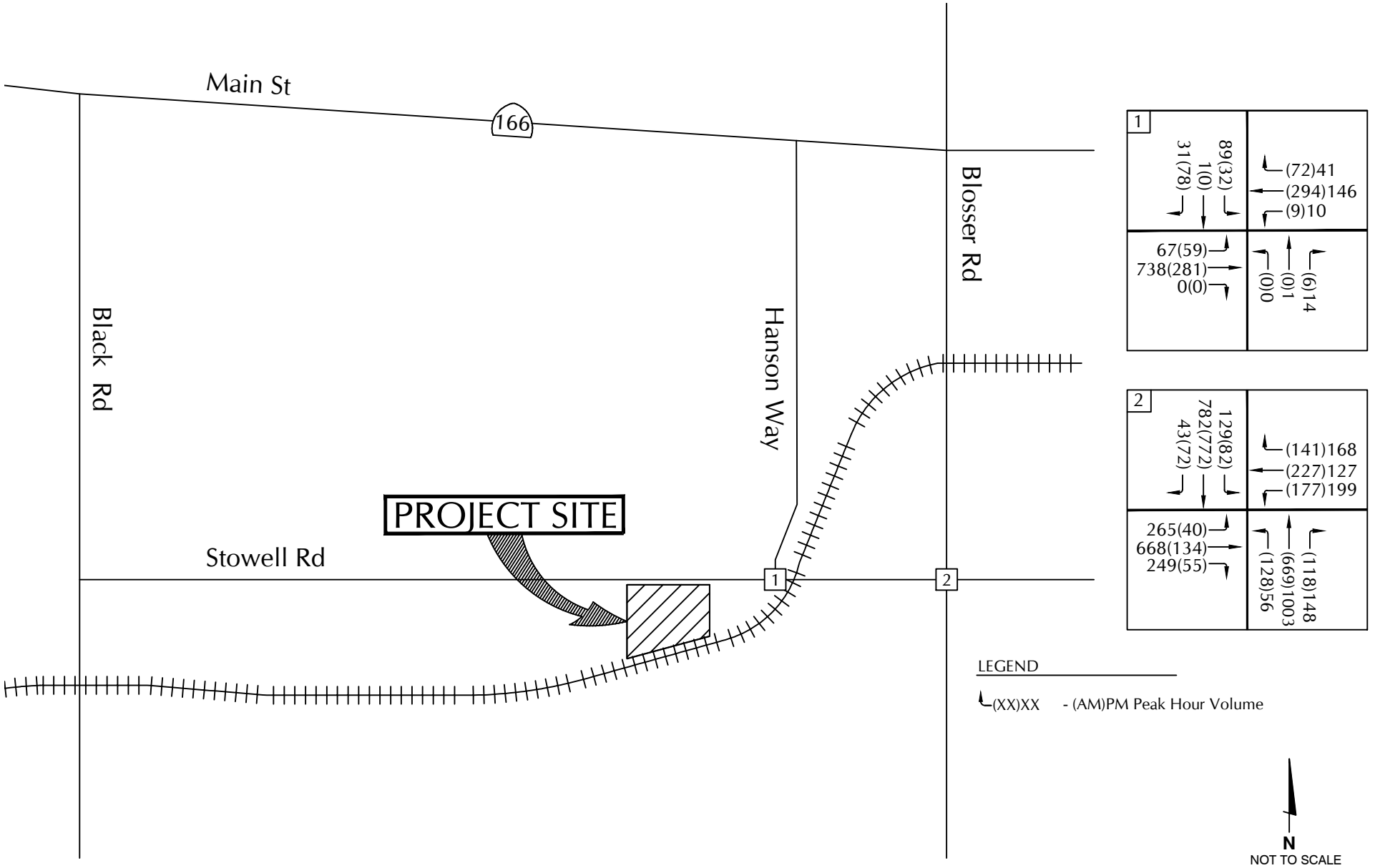


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CUMULATIVE TRAFFIC VOLUMES

FIGURE 7

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CUMULATIVE + PROJECT TRAFFIC VOLUMES

FIGURE 8

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SITE ACCESS

As shown on Figure 2 (Project Site Plan), access to the box shed building is proposed via two driveways on Stowell Road. Operations at the Project's access driveways are reviewed below.

Western Driveway

Driveway Operations. The western driveway is approximately 40 feet wide with one inbound lane and one outbound lane. Trucks delivering the raw materials to the Box Shed building will use the western driveway and deliver the products to the outdoor storage areas located south of the building. Trucks picking up the assembled boxes will use the western driveway and then access the truck loading area on the east side of the building. The western driveway would also provide access to the employee parking lots on the west and south sides of the Box Shed building.

Vehicle delays and levels of service were calculated for the western driveway assuming Cumulative + Project traffic conditions (level of service worksheets contained in the Technical Appendix). Table 8 summarizes the delays and levels of service for Project traffic at the western driveway.

Table 8
Cumulative + Project Levels of Service – Western Driveway

Intersection	Delay / LOS			
	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Stowell Road/Western Driveway				
Inbound Left Turn	8.1 Sec.	LOS A	9.6 Sec.	LOS A
Inbound Right Turn	0.0 Sec.	LOS A	0.0 Sec.	LOS A
Outbound Left and Right Turn	11.9 Sec.	LOS B	17.1 Sec.	LOS C

As shown in Table 8, the vehicle delay for turning into the driveway equate to LOS A operations and vehicle delay for turning out of the driveway equate to LOS B-C operations – which are considered relatively good operations.

Left-Turn Lane Warrants. Left-turn lane warrants were evaluated to determine if a separate left-turn lane should be installed on Stowell Road for turning into the Western driveway. The Project would generate 12 westbound left turns during the AM peak period and 6 westbound left turns during the PM peak period. These left-turn volumes – combined with the through volumes on Stowell Road – are below the minimums required to meet the left-turn lane warrant (separate left-turn lane is not warranted – see warrant worksheets in Technical Appendix). As shown in Table 8, the delays for inbound left turns are low (LOS A) and indicate that vehicles following the inbound left turns would not be significantly delayed.

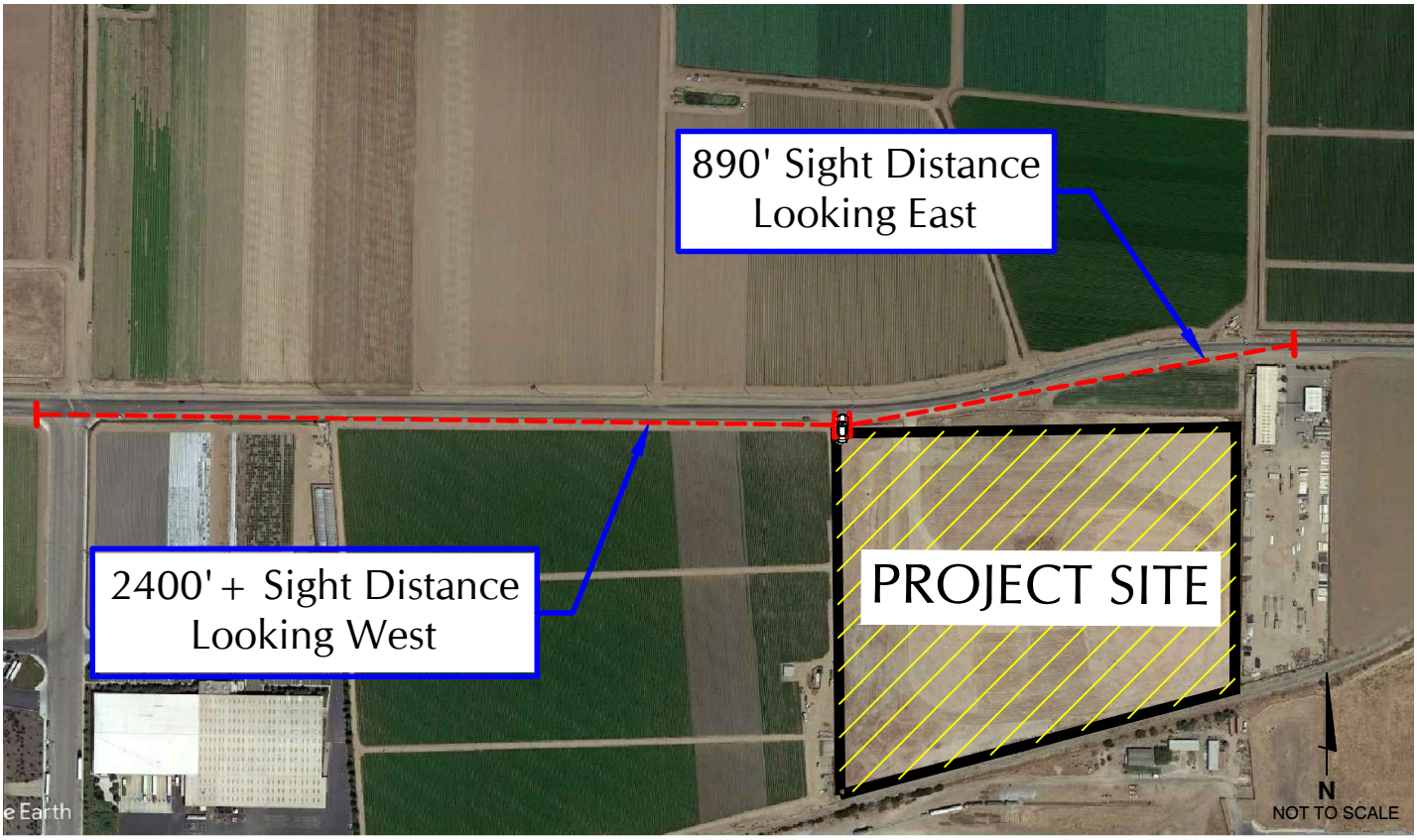
Sight Distances. Sight distances were measured at the western driveway location to determine if the sight lines along Stowell Road are sufficient in length to permit drivers to anticipate and avoid potential collisions when turning from the Project site. The Caltrans Highway Design Manual sight distance standards were used to determine minimum sight distance requirements at the driveway.[3] Stowell Road is posted with a speed limit of 55 MPH. Based on Caltrans criteria, the minimum corner sight distance standard for a 55 MPH design speed is 610 feet. The sight distance looking to the east was measured at about 1,100 feet and the sight distance looking to the west was measured at more than 2,100 feet (see Figure 9), which exceed the Caltrans 610-foot minimum standard.

Eastern Driveway

Driveway Operations. The eastern driveway is approximately 40 feet wide with one inbound lane and one outbound lane. The eastern driveway provides access to the employee parking spaces located east of the Box Shed building. Trucks picking up the assembled boxes will also use the eastern driveway to access the truck loading area on the east side of the building.

Vehicle delays and levels of service were calculated for the eastern driveway assuming Cumulative + Project traffic conditions (level of service worksheets contained in the Technical Appendix). Table 9 summarizes the delays and levels of service for Project traffic at the eastern driveway.

[3] Highway Design Manual, California Department of Transportation, July 2020.



Looking West



Looking East



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SIGHT DISTANCES - WESTERN DRIVEWAY

FIGURE 9

JH - ATE#20082.01

Table 9
Cumulative + Project Levels of Service – Eastern Driveway

Intersection	Delay / LOS			
	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Stowell Road/Eastern Driveway				
Inbound Left Turn	8.1 Sec.	LOS A	9.7 Sec.	LOS A
Inbound Right Turn	0.0 Sec.	LOS A	0.0 Sec.	LOS A
Outbound Left and Right Turn	12.3 Sec.	LOS B	17.3 Sec.	LOS C

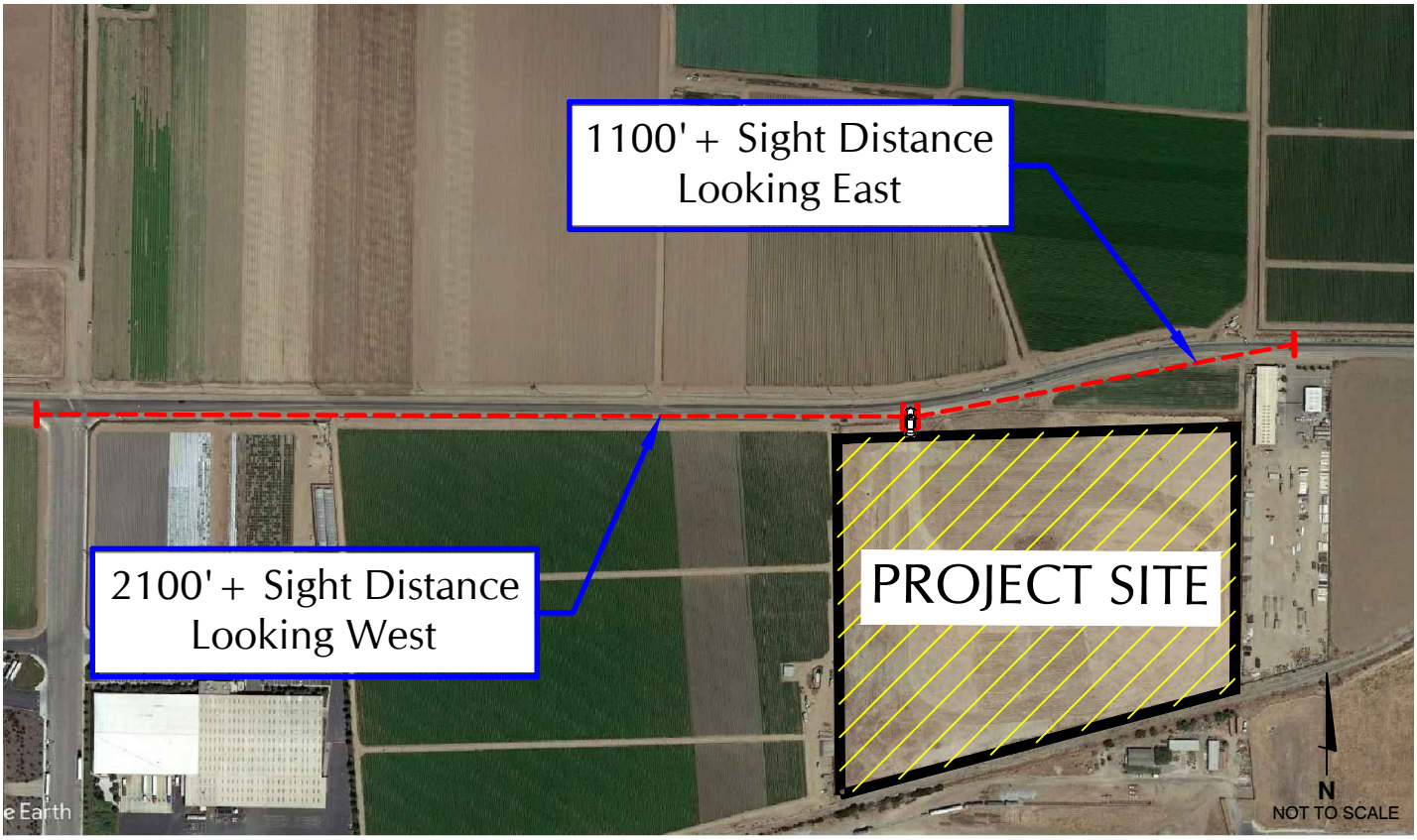
As shown in Table 9, delays for vehicles exiting the driveway equate to LOS B-C operations – which are considered relatively good operations.

Left-Turn Lane Warrants. Left-turn lane warrants were evaluated to determine if a separate left-turn lane should be installed on Stowell Road for turning into the Eastern driveway. The Project would generate 11 westbound left turns during the AM peak period and 5 westbound left turns during the PM peak period. These left-turn volumes – combined with the through volumes on Stowell Road – are below the minimums required to meet the left-turn lane warrant (separate left-turn lane is not warranted – see warrant worksheets in Technical Appendix). As shown in Table 9, the delays for inbound left turns are low (LOS A) and indicate that vehicles following the inbound left turns would not be significantly delayed.

Sight Distances. Sight distances were measured at the eastern driveway location to determine if the sight lines along Stowell Road are sufficient in length to permit drivers to anticipate and avoid potential collisions when turning from the driveway. As noted, the Caltrans minimum corner sight distance standard for a 55 MPH design speed is 610 feet. The sight distance looking to the east was measured at about 900 feet and the sight distance looking to the west was measured at more than 2,400 feet (see Figure 10), which exceed the Caltrans 610-foot minimum standard.

Frontage Improvements

Stowell Road is a two-lane road along the Project's frontage and includes 12-foot lanes in each direction with dirt shoulders. The Project would be responsible for widening the south side of Stowell Road to the City's Secondary Arterial roadway standards as part of the frontage improvements in order to provide a paved shoulder and curb, gutter, and sidewalk facilities if required by the City.



Looking West



Looking East



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SIGHT DISTANCES - EASTERN DRIVEWAY

FIGURE 10

JH - ATE#20082.01

INTERSECTION IMPROVEMENT MEASURES

Stowell Road/Blosser Road. The Stowell Road/Blosser Road intersection is forecast to operate at LOS E during the PM peak hour period under Cumulative and Cumulative + Project conditions. Evaluation of the existing lane geometry and traffic forecasts found that the intersection's operations could be improved by implementing one of the following three options (levels of service are shown in Table 10 below).

Option #1: Install a right-turn lane on the eastbound Stowell Road approach. This option would provide LOS D (ICU 0.87), which meets the City's LOS D standard. Option 1 may require acquisition of additional right-of-way from the adjacent developed property south of Stowell Road.

Option #2: *Install a right-turn lane on the northbound Blosser Road approach*. This option would provide LOS D (ICU 0.89), which meets the City's LOS D standard. Option 2 may require right-of-way from the adjacent undeveloped property east of Blosser Road.

Option #3: Install both the eastbound right-turn lane on Stowell Road and the northbound right-turn lane on Blosser Road. Option 3 would provide LOS D (ICU 0.83)), which also meets the City's LOS D standard and would provide additional intersection capacity for future traffic growth.

Table 10
Stowell Road/Blosser Road – LOS with Improvements

	Cumulative + Project – ICU / LOS – PM Peak Hour	
Mitigation Option	**Existing Geometry**	**Improved Geometry**
Option #1	0.94/LOS E	0.87/LOS D
Option #2	0.94/LOS E	0.89/LOS D
Option #3	0.94/LOS E	0.83 LOS D

TRAFFIC MITIGATION FEES

The Maxco Boxing Facility Project would be required to contribute to the City's traffic mitigation fee program to offset its contribution to future traffic within the Santa Maria region and fund the City's planned improvements that are required to accommodate future traffic.

VMT ANALYSIS

Per the State's Natural Resource Agency Updated Guidelines for the Implementation of the CEQA adopted in 2018, Vehicle Miles Traveled (VMT) has been designated as the most appropriate measure of transportation impacts. "Vehicle Miles Traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. For land use projects, vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. The City of Santa Maria recently published the new "SB 743 Implementation – Draft VMT Analysis Procedures report"[4], in compliance with Senate Bill 743, which includes a requirement to analyze VMT as the transportation impact metric for CEQA rather than the traditional Level of Service (LOS) metric used previously.

CEQA Guidelines. The Governor's Office of Planning and Research (OPR) published a Technical Advisory on Transportation that includes recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. [5] The Technical Advisory provides screening tools to determine when a project may have a significant VMT impacts, as follows:

> "Many agencies use "screening thresholds" to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. (See e.g., CEQA Guidelines, §§ 15063(c)(3)(C), 15128, and Appendix G.) As explained below, this technical advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing."

Screening Criteria

Consistent with the recommendations in the OPR Technical Advisory, Section 4.3.1 of the City of Santa Maria's Environmental Procedures and Guidelines manual establishes screening criteria for certain projects that are exempt from performing a detailed VMT analysis and may be presumed to have a less than significant VMT impact. Section 4.3.1-A states that:

> "The following discretionary development projects are not subject to VMT analysis:

[4] SB 743 Implementation – Draft VMT Analysis Procedures, City of Santa Maria, July 2020.

[5] Technical Advisory on Evaluating Transportation Impacts in CEQA, Governor's Office of Planning and Research, December 2018.

3. Small discretionary projects that would generate or attract fewer than 110 daily trips (per CEQA)."

VMT Assessment

The traffic analysis completed for the Project utilized the standard rates contained in the ITE Trip Generation Manual to determine the amount of traffic that would be generated by the Project. The ITE trip rates include both passenger vehicles and trucks that would be generated by the Box Shed. The VMT thresholds and analysis procedures outlined in the OPR Technical Advisory provide the following guidance on the types of vehicles that are subject to the VMT significance criteria:

> **"Vehicle Types**. Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks."

The City's thresholds for Industrial Projects also provide clarification on the types of vehicles that are subject to the VMT impact criteria, as follows:

> **"Industrial** – The CEQA guidelines specify that the VMT to be considered when analyzing transportation impacts is passenger vehicle VMT. Truck trips, often the predominant type at industrial facilities, would not come into play as a transportation impact (although they would be considered under noise or air quality). Instead, industrial land uses may have to be analyzed on a case-by-case basis to determine the net light-duty VMT impacts of proposed projects. If employee travel is the predominant source of light duty trips at a facility, this component might be assessed against the equivalent VMT per employee threshold for office land uses."

Since the State and City VMT analysis requirements are based on passenger vehicles (and not medium and heavy trucks), updated trip generation estimates were calculated for the Project based on the number of employees that would work at the office and the Box Shed facilities. The employee trip generation estimates for the Project are summarized in Table 11.

Table 11
Maxco Project Trip Generation – Employees

Project Component	Number per Day	Trip Generation (a)		
		ADT	AM Peak	PM Peak
Box Shed & Office Employees	30	48	12	12
(a) Employees: ADT assumes 1 inbound + 1 outbound trip per employee and 20% carpooling (Technical Appendix contains City of Santa Maria mode split data). Peak hour trips assume 25% in peak hour.				

The data presented in Table 11 indicate that the employee component of the Project would generate 48 average daily passenger vehicle trips. The Project would therefore have a "less-than-significant" VMT impact based on the City's CEQA guidelines screening criteria for small projects (less than 110 ADT).

■ ■ ■

REFERENCES AND PERSONS CONTACTED

Associated Transportation Engineers

Scott A. Schell, Principal Transportation Planner
Dan Dawson, Supervising Transportation Planner
Jiho Ha, Transportation Engineer II
Glenn Manaois, Transportation Engineer I

References

Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.

Highway Design Manual, California Department of Transportation, July 2020.

Trip Generation, Institute of Transportation Engineers, 10th Edition, 2018.

Persons Contacted

David Beas, City of Santa Maria
Mark Mueller, City of Santa Maria
Gil Palacios, Palacios Architects
Steve Rigor, Arris Studio Architects

TECHNICAL APPENDIX

CONTENTS:

LEVEL OF SERVICE DEFINITIONS

PROJECT TRIP GENERATION CALCULATIONS

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DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

Stowell Road/Western Driveway
Stowell Road/Eastern Driveway

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

"Levels of Service" (LOS) A through F are used to rate roadway and intersection operating conditions, with LOS A indicating very good operations and LOS F indicating poor operations. More complete level of service definitions are:

LOS	Definition
A	Low volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within traffic stream. Drivers can maintain their desired speeds with little or no delay.
B	Stable flow with potential for some restriction of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. Stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	Stable operations, however the ability to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail but adverse signal coordination or longer queues cause delays.
D	Approaching unstable traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in their ability to maneuver and their selection of travel speeds. Comfort and convenience are low but tolerable.
E	Operations characterized by significant approach delays and average travel speeds of one-half to one-third of free flow speed. Flow is unstable and potential for stoppages of brief duration. High signal density, extensive queuing, or signal progression/timing are the typical causes of delays.
F	Forced flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion.

PROJECT TRIP GENERATION CALCULATIONS

Associated Transportation Engineers
Trip Generation Worksheet

MAXCO BOXING FACILITY PROJECT (#20082.01)

Use	Size	Multi-Trip Factor	ADT		AM PEAK HOUR						PM PEAK HOUR					
			Rate	Trips	Rate	Trips	In %	Trips	Out %	Trips	Rate	Trips	In %	Trips	Out %	Trips
Box Shed(a)	60,000 SF	1.00	4.75	285	0.68	41	76%	31	24%	10	0.74	44	31%	14	69%	30
Office(b)	2,019 SF	1.00	14.39	29	1.67	3	82%	2	18%	1	2.16	4	34%	1	66%	3
Total	**62,019 SF**			**314**		**44**		**33**		**11**		**48**		**15**		**33**

(a) Trip generation based on ITE Code #140 (Manufacturing) using the Average Rate
(b) Trip generation based on ITE Code #712 (Small Office Building) using the Average Rate

TRAFFIC COUNTS

Prepared by National Data & Surveying Services

S Blosser Rd & W Stowell Rd

Peak Hour Turning Movement Count

ID: 18-02092-001
City: Santa Maria

Day: Thursday
Date: 09/06/2018

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

S Blosser Rd — SOUTHBOUND

AM	26	740	67	0	724	AM
NOON	0	0	0	0	0	NOON
PM	31	711	124	0	1298	PM

W Stowell Rd — EASTBOUND

AM	NOON	PM	
249	0	170	⇦
0	0	0	↶ 0
27	0	219	↑ 0
96	0	480	→ 0
41	0	166	↴ 0

W Stowell Rd — WESTBOUND

PM	NOON	AM	
131	0	75	0 ↰
93	0	106	0 ←
157	0	129	0 ↙
0	0	0	0 ↳
748	0	275	⇨

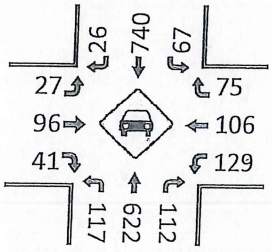
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TEV	2158 (AM)	0 (NOON)	3250 (PM)
PHF	0.82		0.98

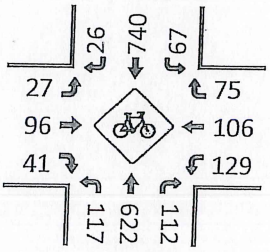
S Blosser Rd — NORTHBOUND

PM	1034	0	46	948	144	PM
NOON	0	0	0	0	0	NOON
AM	910	0	117	622	112	AM

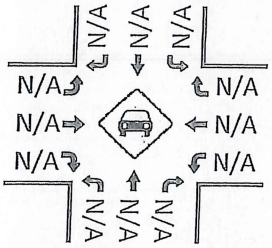
Total Vehicles (AM)



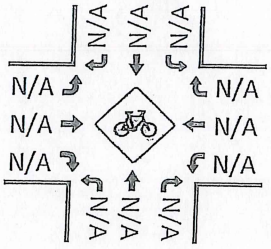
(AM)



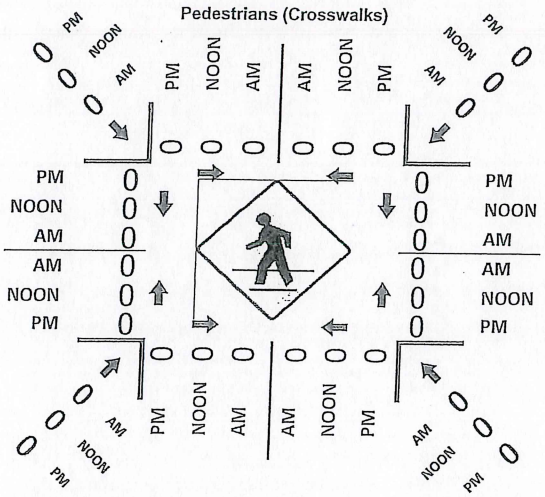
Total Vehicles (Noon)



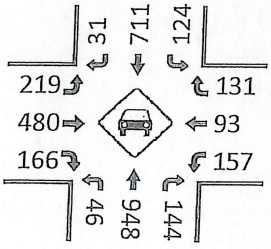
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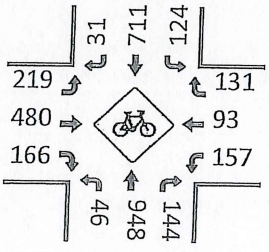
Pedestrians (Crosswalks)



Total Vehicles (PM)



(PM)



ASSOCIATED TRANSPORTATION ENGINEERS

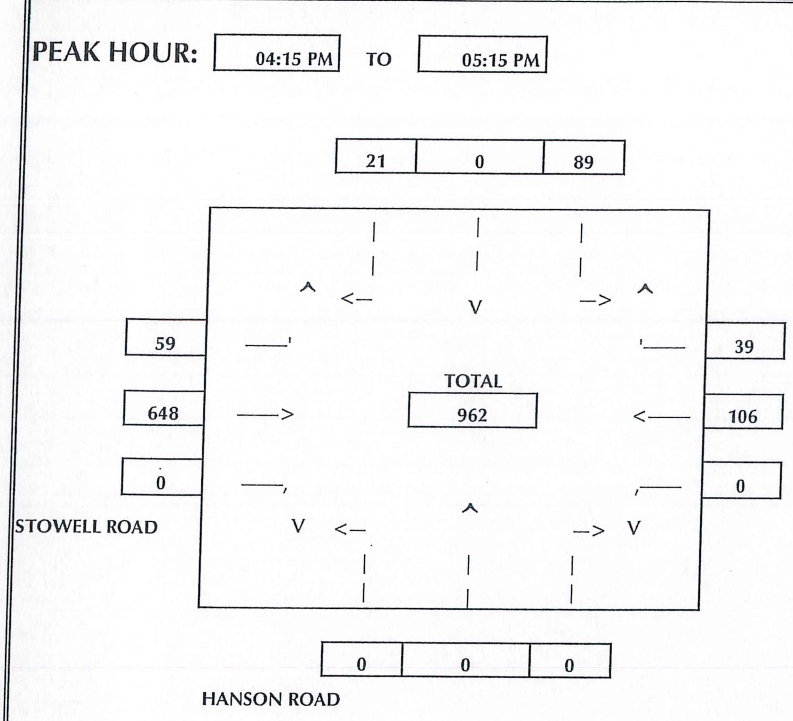
INTERSECTION TURNING MOVEMENT SUMMARY

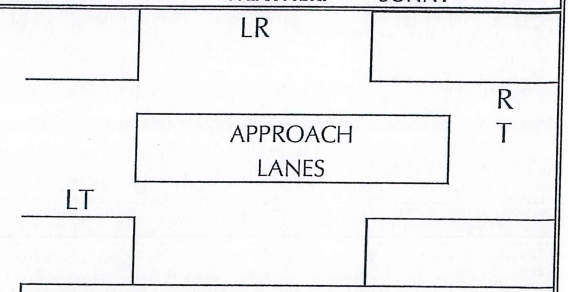
PROJECT: TRUCK CENTER | PROJECT #: 19024 | COUNT DATE: 04-30-19 | FILE NAME: 01PM

N-S Approach: HANSON ROAD | COUNT TIME: 4:00 PM TO 6:00 PM

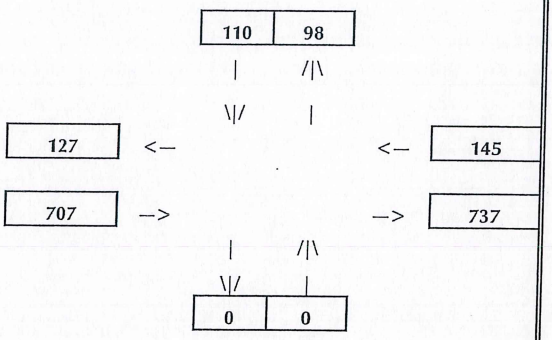
E-W Approach: STOWELL ROAD | CITY: SANTA MARIA | WEATHER: SUNNY

PEAK HOUR: 04:15 PM TO 05:15 PM





ARRIVAL / DEPARTURE VOLUMES



COUNT DATA

TIME PERIOD From	—	To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL VOLUMES
04:00 PM	—	04:15 PM	0	0	0	18	0	5	16	63	0	0	30	11	143
04:15 PM	—	04:30 PM	0	0	0	30	0	6	23	167	0	0	41	22	289
04:30 PM	—	04:45 PM	0	0	0	57	0	16	44	418	0	0	83	33	651
04:45 PM	—	05:00 PM	0	0	0	79	0	20	57	554	0	0	114	38	862
05:00 PM	—	05:15 PM	0	0	0	107	0	26	75	711	0	0	136	50	1105
05:15 PM	—	05:30 PM	0	0	0	126	0	26	82	779	0	0	155	64	1232
05:30 PM	—	05:45 PM	0	0	0	140	0	33	90	853	0	0	181	74	1371
05:45 PM	—	06:00 PM	0	0	0	157	0	38	96	918	0	0	204	86	1499

TOTAL BY PERIOD

04:00 PM	—	04:15 PM	0	0	0	18	0	5	16	63	0	0	30	11	143
04:15 PM	—	04:30 PM	0	0	0	12	0	1	7	104	0	0	11	11	146
04:30 PM	—	04:45 PM	0	0	0	27	0	10	21	251	0	0	42	11	362
04:45 PM	—	05:00 PM	0	0	0	22	0	4	13	136	0	0	31	5	211
05:00 PM	—	05:15 PM	0	0	0	28	0	6	18	157	0	0	22	12	243
05:15 PM	—	05:30 PM	0	0	0	19	0	0	7	68	0	0	19	14	127
05:30 PM	—	05:45 PM	0	0	0	14	0	7	8	74	0	0	26	10	139
05:45 PM	—	06:00 PM	0	0	0	17	0	5	6	65	0	0	23	12	128

HOURLY TOTALS

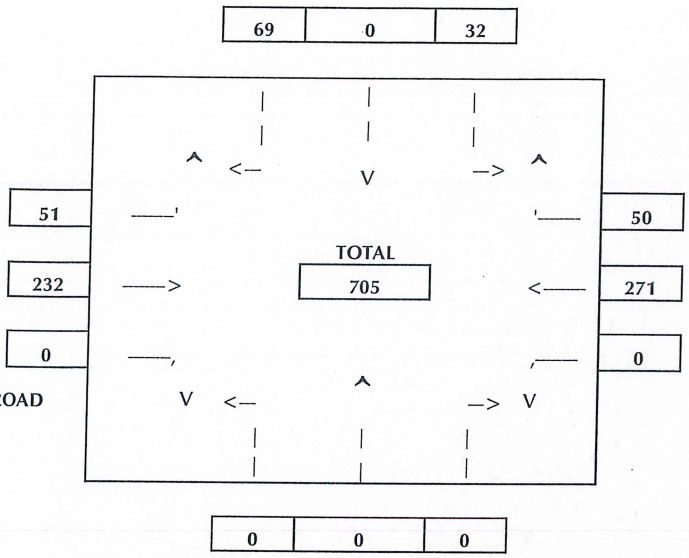
04:00 PM	—	05:00 PM	0	0	0	79	0	20	57	554	0	0	114	38	862
04:15 PM	—	05:15 PM	0	0	0	89	0	21	59	648	0	0	106	39	962
04:30 PM	—	05:30 PM	0	0	0	96	0	20	59	612	0	0	114	42	943
04:45 PM	—	05:45 PM	0	0	0	83	0	17	46	435	0	0	98	41	720
05:00 PM	—	06:00 PM	0	0	0	78	0	18	39	364	0	0	90	48	637

ASSOCIATED TRANSPORTATION ENGINEERS

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: TRUCK CENTER		PROJECT #: 19024	COUNT DATE: 05-01-19		FILE NAME: 01AM
N-S Approach:	HANSON ROAD		COUNT TIME: 7:00 AM	TO 9:00 AM	
E-W Approach:	STOWELL ROAD		CITY: SANTA MARIA		WEATHER: SUNNY

PEAK HOUR: 07:00 AM TO 08:00 AM



NORTH

APPROACH LANES

LR

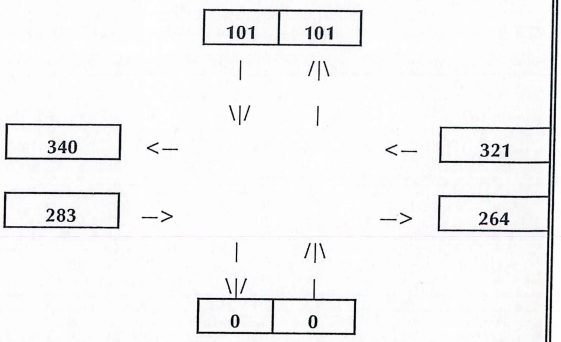
R

T

LT

CONTROL TYPE: Stop - NB

ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From	-- To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL VOLUMES
COUNT DATA														
07:00 AM	07:15 AM	0	0	0	9	0	18	17	75	0	0	99	12	230
07:15 AM	07:30 AM	0	0	0	22	0	36	21	150	0	0	173	27	429
07:30 AM	07:45 AM	0	0	0	29	0	55	35	201	0	0	205	33	558
07:45 AM	08:00 AM	0	0	0	32	0	69	51	232	0	0	271	50	705
08:00 AM	08:15 AM	0	0	0	55	0	75	60	301	0	0	358	61	910
08:15 AM	08:30 AM	0	0	0	81	0	102	67	343	0	0	413	78	1084
08:30 AM	08:45 AM	0	0	0	93	0	134	70	375	0	0	489	85	1246
08:45 AM	09:00 AM	0	0	0	109	0	149	72	409	0	0	532	92	1363
TOTAL BY PERIOD														
07:00 AM	07:15 AM	0	0	0	9	0	18	17	75	0	0	99	12	230
07:15 AM	07:30 AM	0	0	0	13	0	18	4	75	0	0	74	15	199
07:30 AM	07:45 AM	0	0	0	7	0	19	14	51	0	0	32	6	129
07:45 AM	08:00 AM	0	0	0	3	0	14	16	31	0	0	66	17	147
08:00 AM	08:15 AM	0	0	0	23	0	6	9	69	0	0	87	11	205
08:15 AM	08:30 AM	0	0	0	26	0	27	7	42	0	0	55	17	174
08:30 AM	08:45 AM	0	0	0	12	0	32	3	32	0	0	76	7	162
08:45 AM	09:00 AM	0	0	0	16	0	15	2	34	0	0	43	7	117
HOURLY TOTALS														
07:00 AM	08:00 AM	0	0	0	32	0	69	51	232	0	0	271	50	705
07:15 AM	08:15 AM	0	0	0	46	0	57	43	226	0	0	259	49	680
07:30 AM	08:30 AM	0	0	0	59	0	66	46	193	0	0	240	51	655
07:45 AM	08:45 AM	0	0	0	64	0	79	35	174	0	0	284	52	688
08:00 AM	09:00 AM	0	0	0	77	0	80	21	177	0	0	261	42	658

AASHTO LEFT-TURN LANE WARRANT WORKSHEETS

Stowell Road / Western Driveway (- AM PEAK)

Cumulative + Project

AASHTO Green Book

AASHTO's *Green Book*[4] contains a table for use in determining the need for a left-turn lane on two-lane highways (see Table 1). Similar tables were also present in the 1984,[5] 1990,[6] and 1994[7] editions of the *Green Book*. The values in the table are based upon Harmelink's work.

Table 1. AASHTO – Guide for Left-Turn Lanes on Two-Lane Highways, 2001.[4]

Opposing Volume (vph)	Advancing Volume (vph)			
	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
40 mph (60 km/h) operating speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph (80 km/h) operating speed				
800	280	210	165	135
600	350	260	195	170
400	363 ~~430~~	320	240	210
200	~~550~~	400	300	270
100	615	445	335	295
60 mph (100 km/h) operating speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

NCHRP Report 279

In 1985, the Transportation Research Board published NCHRP Report 279, *Intersection Channelization Design Guide*.[8] In that report, data from Harmelink's work were used to establish guidelines for determining the need for a left-turn lane. The following advice was provided for unsignalized intersections:

1. Left-turn lanes should be considered at all median cross-overs on divided, high-speed highways.
2. Left-turn lanes should be provided at all unstopped (i.e., through) approaches of primary, high-speed rural highway intersections with other arterials or collectors.
3. Left-turn lanes are recommended at approaches to intersection for which the combination of through, left, and opposing volumes exceeds the warrants shown in Figure 3.
4. Left-turn lanes on stopped or secondary approaches should be provided based on analysis of the capacity and operations of the unsignalized intersection. Considerations include minimizing delays to right turning or through vehicles and total approach capacity.

WB LEFTS = 12 (3%)

WB THRU = 351 (97%)

WB ADVANCING = 363

OPPOSING VOLUME = 337

NOT WARRANTED

Stowell Road / western Driveway – PM PEAK

Cumulative + Project

AASHTO Green Book

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800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph (80 km/h) operating speed				
800	180 ~~280~~	210	165	135
600	~~350~~	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60 mph (100 km/h) operating speed				
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4. Left-turn lanes on stopped or secondary approaches should be provided based on analysis of the capacity and operations of the unsignalized intersection. Considerations include minimizing delays to right turning or through vehicles and total approach capacity.

WB LEFTS = 6 (3%)
WB THRU = 174 (97%)
WB ADVANCING = 180
OPPOSING VOLUME = 784

NOT WARRANTED

Stowell Road / Eastern Driveway – AM PEAK

AASHTO Green Book

Cumulative + Project

AASHTO's *Green Book*[4] contains a table for use in determining the need for a left-turn lane on two-lane highways (see Table 1). Similar tables were also present in the 1984,[5] 1990,[6] and 1994[7] editions of the *Green Book*. The values in the table are based upon Harmelink's work.

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800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph (80 km/h) operating speed				
800	280	210	165	135
600	350	260	195	170
400	365 430	320	240	210
200	550	400	300	270
100	615	445	335	295
60 mph (100 km/h) operating speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
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3. Left-turn lanes are recommended at approaches to intersection for which the combination of through, left, and opposing volumes exceeds the warrants shown in Figure 3.
4. Left-turn lanes on stopped or secondary approaches should be provided based on analysis of the capacity and operations of the unsignalized intersection. Considerations include minimizing delays to right turning or through vehicles and total approach capacity.

WB LEFTS = 16 (4%)
WB THRU = 349 (96%)
WB ADVANCING = 365
OPPOSING VOLUME = 343

NOT WARRANTED

Stowell Road / Eastern Driveway — PM PEAK

AASHTO Green Book

Cumulative + Project

AASHTO's *Green Book*[4] contains a table for use in determining the need for a left-turn lane on two-lane highways (see Table 1). Similar tables were also present in the 1984,[5] 1990,[6] and 1994[7] editions of the *Green Book*. The values in the table are based upon Harmelink's work.

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600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph (80 km/h) operating speed				
800	174 280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60 mph (100 km/h) operating speed				
800	230	170	125	115
600	290	210	160	140
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In 1985, the Transportation Research Board published NCHRP Report 279, *Intersection Channelization Design Guide*.[8] In that report, data from Harmelink's work were used to establish guidelines for determining the need for a left-turn lane. The following advice was provided for unsignalized intersections:

1. Left-turn lanes should be considered at all median cross-overs on divided, high-speed highways.
2. Left-turn lanes should be provided at all unstopped (i.e., through) approaches of primary, high-speed rural highway intersections with other arterials or collectors.
3. Left-turn lanes are recommended at approaches to intersection for which the combination of through, left, and opposing volumes exceeds the warrants shown in Figure 3.
4. Left-turn lanes on stopped or secondary approaches should be provided based on analysis of the capacity and operations of the unsignalized intersection. Considerations include minimizing delays to right turning or through vehicles and total approach capacity.

WB LEFTS = 7 (4%)
WB THRU = 167 (96%)
WB ADVANCING = 174
OPPOSING VOLUME = 797

NOT WARRANTED

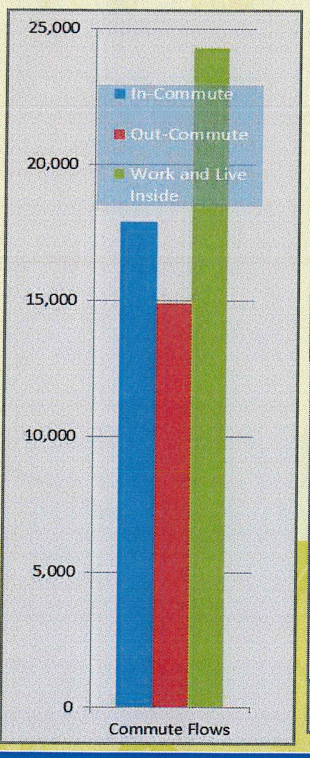
SBCAG SANTA BARBARA COUNTY COMMUTE AND MODE SPLIT DATA

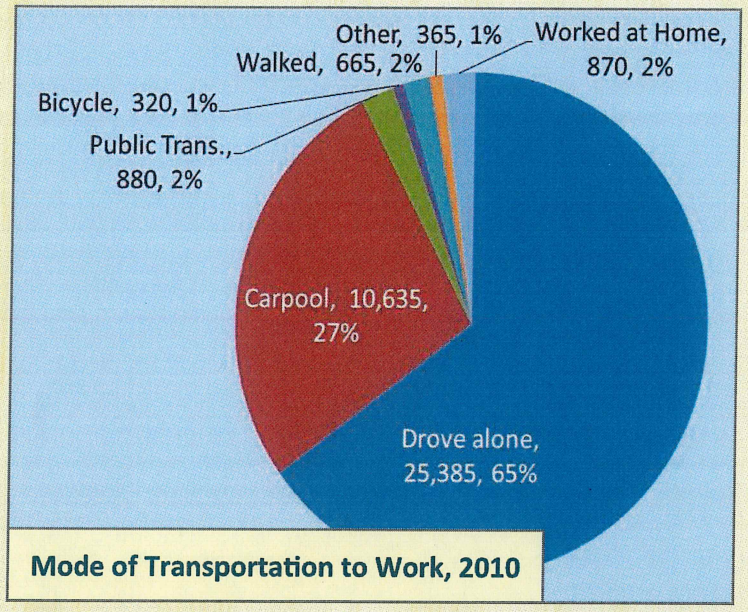
Santa Maria Valley Region—*City of Santa Maria*

Santa Maria has the highest proportion of commuters countywide that carpool. Commute trips from Santa Maria to S.L.O. County are significant.

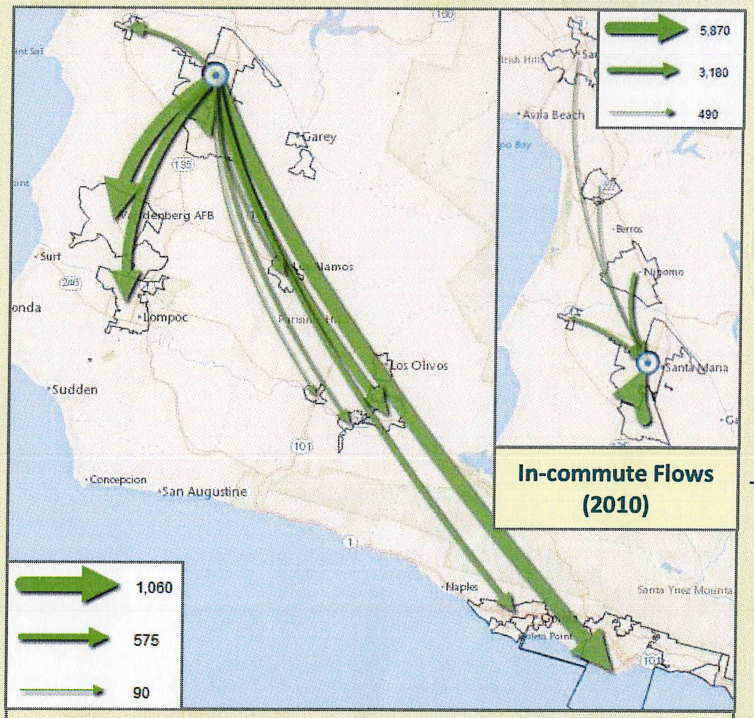
Santa Maria has a balance of jobs and housing with a 1.49 jobs/unit and a significant proportion of workers living and working in the city. Santa Maria has a proportional balance of 42,180 jobs or 21% of the county-wide total, (21.0% are in the education, health and social services categories), compared to 28,294 housing units or 19% of the county-wide total.

Although there is a balance of jobs and housing, there are more in-commuting workers than out-commuting workers.





Mode of Transportation to Work, 2010

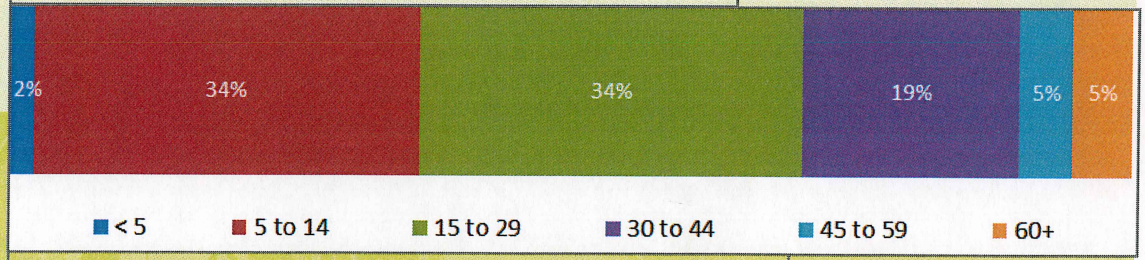


In-commute Flows (2010)

Out-commute Flows from Santa Maria (2010)

- The year 2010 out-commute flow from Santa Maria is 1,020 commuters/day to Santa Barbara, 350 to Goleta, and 580 to Santa Ynez.
- There is also a significant out-commute flow to Vandenberg AFB and the Chumash Casino,.
- The year 2000 out-commute flow from Santa Maria to San Luis Obispo County was 3,038 commuters/day, compared to 3,485 commuters/day in 2010, an increase of 447 or 14.7%.
- The year 2000 out-commute flow from Santa Maria to Santa Barbara was 1,215 commuters/day, compared to 1,020 commuters/day in 2010, a decrease of 195 or –16.0%.
- The year 2000 out-commute flow from Santa Maria to Santa Ynez was 45 commuters/day, compared to 580 commuters/day in 2010, an increase of 535 or 1,188.0%.

The highest proportion of commuters (34%) has a travel time between 5 to 14 minutes, many to VAFB and nearby agricultural areas. The mean travel time is 22 minutes.



Travel Time (Minutes, All Modes) for S.M. Commuters, 2010

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Stowell Road/Blosser Road
Stowell Road/Hanson Way

HCS7 Two-Way Stop-Control Report

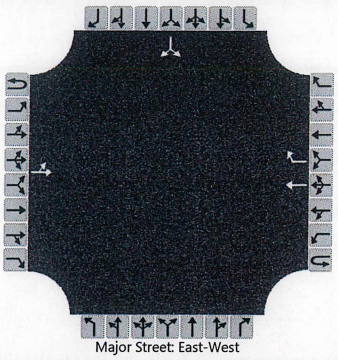
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	EXISTING CONDITIONS

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		51	232				271	50						32		69
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type | Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		51													101	
Capacity, c (veh/h)		1233													618	
v/c Ratio		0.04													0.16	
95% Queue Length, Q_{95} (veh)		0.1													0.6	
Control Delay (s/veh)		8.0													12.0	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.8												12.0		
Approach LOS														B		

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AWD= 10.7 SEC = LOS B

HCS7 Two-Way Stop-Control Report

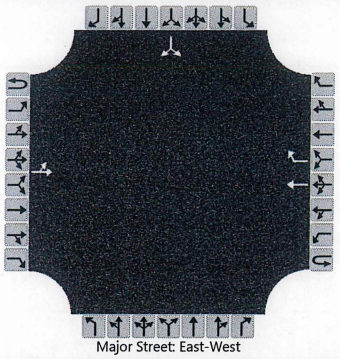
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	EXISTING + PROJECT

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		52	239				292	50						32		71
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized							No									
Median Type | Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		52													103	
Capacity, c (veh/h)		1211													600	
v/c Ratio		0.04													0.17	
95% Queue Length, Q_{95} (veh)		0.1													0.6	
Control Delay (s/veh)		8.1													12.2	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	1.8												12.2			
Approach LOS													B			

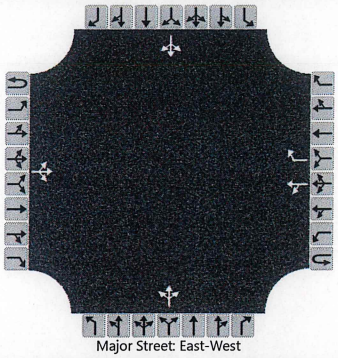
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AWD = 10.8 SEC = LOS B

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	GOM	Intersection	STOWELL/HANSON
Agency/Co.	ATE	Jurisdiction	SANTA MARIA
Date Performed	10/13/2021	East/West Street	STOWELL
Analysis Year		North/South Street	HANSON
Time Analyzed	AM PEAK HOUR	Peak Hour Factor	1.00
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	CUMULATIVE CONDITIONS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	1	0		0	1	0
Configuration			LTR			LT		R			LTR				LTR	
Volume (veh/h)		58	274	0		9	273	72		0	0	6		32	0	76
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		58				9					6				108	
Capacity, c (veh/h)		1208				1283					762				558	
v/c Ratio		0.05				0.01					0.01				0.19	
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.0				0.7	
Control Delay (s/veh)		8.1				7.8					9.8				13.0	
Level of Service (LOS)		A				A					A				B	
Approach Delay (s/veh)	1.8				0.2				9.8				13.0			
Approach LOS									A				B			

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AWD = 11.1 SEC = LOS B

HCS7 Two-Way Stop-Control Report

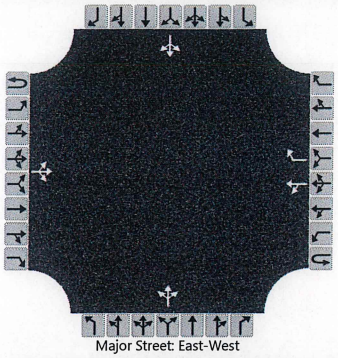
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	1	0		0	1	0
Configuration			LTR			LT		R			LTR				LTR	
Volume (veh/h)		59	281	0		9	294	72		0	0	6		32	0	78
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		59				9					6				110	
Capacity, c (veh/h)		1187				1276					755				540	
v/c Ratio		0.05				0.01					0.01				0.20	
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.0				0.8	
Control Delay (s/veh)		8.2				7.8					9.8				13.4	
Level of Service (LOS)		A				A					A				B	
Approach Delay (s/veh)	1.8				0.2				9.8				13.4			
Approach LOS									A				B			

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AWD= 11.3 SEC= LOS B

HCS7 Two-Way Stop-Control Report

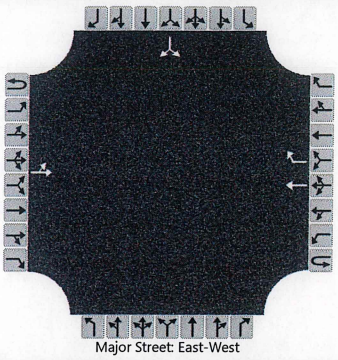
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	EXISTING CONDITIONS

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		59	648				106	39						89		21
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized						No										
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		59													110	
Capacity, c (veh/h)		1431													344	
v/c Ratio		0.04													0.32	
95% Queue Length, Q_{95} (veh)		0.1													1.3	
Control Delay (s/veh)		7.6													20.3	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)		1.1												20.3		
Approach LOS														C		

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AWD = 15.9 SEC = LOS C

HCS7 Two-Way Stop-Control Report

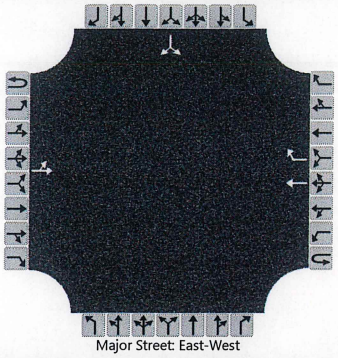
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	EXISTING + PROJECT

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	0	0		0	1	0
Configuration		LT					T	R							LR	
Volume (veh/h)		61	669				115	39						89		22
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		61													111	
Capacity, c (veh/h)		1420													330	
v/c Ratio		0.04													0.34	
95% Queue Length, Q_{95} (veh)		0.1													1.4	
Control Delay (s/veh)		7.6													21.3	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	1.1												21.3			
Approach LOS													C			

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AWD = 16.4 SEC = LOS C

HCS7 Two-Way Stop-Control Report

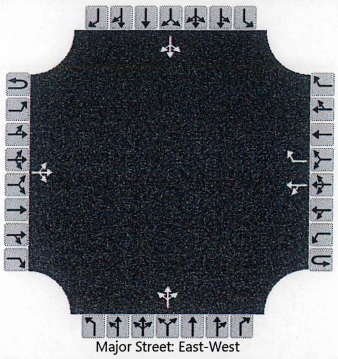
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE CONDITIONS

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	1	0		0	1	0
Configuration			LTR			LT		R			LTR				LTR	
Volume (veh/h)		65	717	0		10	137	41		0	1	14		89	1	30
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized						No										
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		65				10					15				120	
Capacity, c (veh/h)		1392				879					400				243	
v/c Ratio		0.05				0.01					0.04				0.49	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.1				2.5	
Control Delay (s/veh)		7.7				9.1					14.4				33.5	
Level of Service (LOS)		A				A					B				D	
Approach Delay (s/veh)	1.2				0.6				14.4				33.5			
Approach LOS									B				D			

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AVD = 23.0 SEC = LOS C

HCS7 Two-Way Stop-Control Report

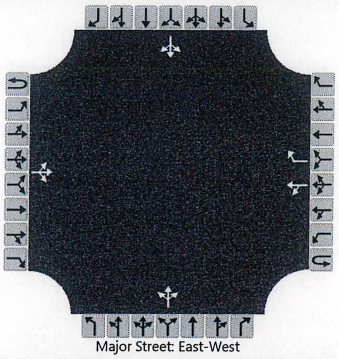
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/13/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/HANSON
Jurisdiction	SANTA MARIA
East/West Street	STOWELL
North/South Street	HANSON
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	1		0	1	0		0	1	0
Configuration			LTR			LT		R			LTR				LTR	
Volume (veh/h)		67	738	0		10	146	41		0	1	14		89	1	31
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized						No										
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		67				10					15				121	
Capacity, c (veh/h)		1381				863					387				231	
v/c Ratio		0.05				0.01					0.04				0.52	
95% Queue Length, Q_{95} (veh)		0.2				0.0					0.1				2.7	
Control Delay (s/veh)		7.7				9.2					14.7				36.5	
Level of Service (LOS)		A				A					B				E	
Approach Delay (s/veh)	1.2				0.6				14.7				36.5			
Approach LOS									B				E			

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AWD = 24.6 SEC = LOS C

#20082 - MAXCO BOXING FACILITY PROJECT **REF:** 02_AM

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: *9/6/18*

TIME PERIOD: *AM PEAK HOUR*

N/S STREET: *BLOSSER ROAD*

E/W STREET: *STOWELL ROAD*

CONTROL TYPE: *SIGNAL*

TRAFFIC VOLUME SUMMARY

VOLUMES		NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A)	EXISTING:	**117**	**622**	**112**	**67**	**740**	**26**	**27**	**96**	**41**	**129**	**106**	**75**
(B)	PROJECT-ADDED:	**5**	**0**	**0**	**0**	**0**	**5**	**2**	**3**	**2**	**0**	**11**	**0**
(C)	CUMULATIVE:	**123**	**669**	**118**	**82**	**772**	**67**	**38**	**131**	**53**	**177**	**216**	**141**

GEOMETRICS

LANE GEOMETRICS	NORTH BOUND L T TR	SOUTH BOUND L T TR	EAST BOUND L T TR	WEST BOUND L T TR

TRAFFIC SCENARIOS

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVEMENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	117	122	123	128	0.073 *	0.076 *	0.077 *	0.080 *
NBT	2	3200	622	622	669	669	0.227	0.227	0.243	0.243
NBR (a)	0	0	103	103	109	109	-	-	-	-
SBL	1	1600	67	67	82	82	0.042	0.042	0.051	0.051
SBT	2	3200	740	740	772	772	0.238 *	0.240 *	0.260 *	0.261 *
SBR (b)	0	0	23	27	59	63	-	-	-	-
EBL	1	1600	27	29	38	40	0.017	0.018	0.024	0.025
EBT	2	3200	96	99	131	134	0.037 *	0.038 *	0.049 *	0.051 *
EBR (c)	0	0	21	22	27	28	-	-	-	-
WBL	1	1600	129	129	177	177	0.081 *	0.081 *	0.111 *	0.111 *
WBT	2	3200	106	117	216	227	0.048	0.051	0.094	0.098
WBR (d)	0	0	46	46	86	86	-	-	-	-
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					TOTAL INTERSECTION CAPACITY UTILIZATION:		**0.529**	**0.535**	**0.597**	**0.603**
					SCENARIO LEVEL OF SERVICE:		A	A	A	A

NOTES:

RTOR: *(a) 8%*
(b) 12%
(c) 49%
(d) 39%

Printed: 03/08/22

EXISTING: <---- THIS COMPARES TO CONDITION (A)
SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

#20082 - MAXCO BOXING FACILITY PROJECT **REF:** 02_PM

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***9/6/2018***

TIME PERIOD: ***PM PEAK HOUR***

N/S STREET: ***BLOSSER ROAD***

E/W STREET: ***STOWELL ROAD***

CONTROL TYPE: ***SIGNAL***

TRAFFIC VOLUME SUMMARY

VOLUMES		NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A)	EXISTING:	**46**	**948**	**144**	**124**	**711**	**31**	**219**	**480**	**166**	**157**	**93**	**131**
(B)	PROJECT-ADDED:	**2**	**0**	**0**	**0**	**0**	**2**	**5**	**11**	**5**	**0**	**5**	**0**
(C)	CUMULATIVE:	**54**	**1003**	**148**	**129**	**782**	**41**	**260**	**657**	**244**	**199**	**122**	**168**

GEOMETRICS

LANE GEOMETRICS	NORTH BOUND L T TR	SOUTH BOUND L T TR	EAST BOUND L T TR	WEST BOUND L T TR

TRAFFIC SCENARIOS

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVEMENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	46	48	54	56	0.029	0.030	0.034	0.035
NBT	2	3200	948	948	1003	1003	0.338 *	0.338 *	0.356 *	0.356 *
NBR (a)	0	0	132	132	136	136	-	-	-	-
SBL	1	1600	124	124	129	129	0.078 *	0.078 *	0.081 *	0.081 *
SBT	2	3200	711	711	782	782	0.231	0.231	0.256	0.256
SBR (b)	0	0	27	29	36	37	-	-	-	-
EBL	1	1600	219	224	260	265	0.137	0.140	0.163	0.166
EBT	2	3200	480	491	657	668	0.193 *	0.198 *	0.269 *	0.274 *
EBR (c)	0	0	139	144	205	209	-	-	-	-
WBL	1	1600	157	157	199	199	0.098 *	0.098 *	0.124 *	0.124 *
WBT	2	3200	93	98	122	127	0.063	0.065	0.082	0.083
WBR (d)	0	0	109	109	139	139	-	-	-	-
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					TOTAL INTERSECTION CAPACITY UTILIZATION:		**0.807**	**0.812**	**0.930**	**0.935**
					SCENARIO LEVEL OF SERVICE:		**D**	**D**	**E**	**E**

NOTES:

RTOR: *(a) 8%*
(b) 13%
(c) 16%
(d) 17%

Printed: 03/08/22

EXISTING: <---- THIS COMPARES TO CONDITION (A)
SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

#20082 - MAXCO BOXING FACILITY PROJECT **REF:** 02_PM

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***9/6/2018***

TIME PERIOD: ***PM PEAK HOUR***

N/S STREET: ***BLOSSER ROAD***

E/W STREET: ***STOWELL ROAD*** ***MITIGATED WITH EB RIGHT TURN LANE***

CONTROL TYPE: ***SIGNAL***

TRAFFIC VOLUME SUMMARY

VOLUMES		NORTH BOUND L	NORTH BOUND T	NORTH BOUND R	SOUTH BOUND L	SOUTH BOUND T	SOUTH BOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WEST BOUND L	WEST BOUND T	WEST BOUND R
(A)	EXISTING:	**46**	**948**	**144**	**124**	**711**	**31**	**219**	**480**	**166**	**157**	**93**	**131**
(B)	PROJECT-ADDED:	**2**	**0**	**0**	**0**	**0**	**2**	**5**	**11**	**5**	**0**	**5**	**0**
(C)	CUMULATIVE:	**54**	**1003**	**148**	**129**	**782**	**41**	**260**	**657**	**244**	**199**	**122**	**168**

GEOMETRICS

LANE GEOMETRICS	NORTH BOUND	SOUTH BOUND	EAST BOUND	WEST BOUND
	L T TR	L T TR	L TT R	L T TR

TRAFFIC SCENARIOS

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVEMENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	46	48	54	56	0.029	0.030	0.034	0.035
NBT	2	3200	948	948	1003	1003	0.338 *	0.338 *	0.356 *	0.356 *
NBR (a)	0	0	132	132	136	136	-	-	-	-
SBL	1	1600	124	124	129	129	0.078 *	0.078 *	0.081 *	0.081 *
SBT	2	3200	711	711	782	782	0.231	0.231	0.256	0.256
SBR (b)	0	0	27	29	36	37	-	-	-	-
EBL	1	1600	219	224	260	265	0.137	0.140	0.163	0.166
EBT	2	3200	480	491	657	668	0.150 *	0.153 *	0.205 *	0.209 *
EBR (c)	1	1600	139	144	205	209	0.087	0.090	0.128	0.131
WBL	1	1600	157	157	199	199	0.098 *	0.098 *	0.124 *	0.124 *
WBT	2	3200	93	98	122	127	0.063	0.065	0.082	0.083
WBR (d)	0	0	109	109	139	139	-	-	-	-
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
			TOTAL INTERSECTION CAPACITY UTILIZATION:				**0.764**	**0.767**	**0.866**	**0.870**
			SCENARIO LEVEL OF SERVICE:				**C**	**C**	**D**	**D**

NOTES:

RTOR: *(a) 8%*
(b) 13%
(c) 16%
(d) 17%

Printed: 03/08/22

EXISTING: <---- THIS COMPARES TO CONDITION (A)
SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

#20082 - MAXCO BOXING FACILITY PROJECT **REF:** 02_PM

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***9/6/2018***

TIME PERIOD: ***PM PEAK HOUR***

N/S STREET: ***BLOSSER ROAD*** ***MITIGATED WITH NB RIGHT TURN LANE***

E/W STREET: ***STOWELL ROAD***

CONTROL TYPE: ***SIGNAL***

TRAFFIC VOLUME SUMMARY

VOLUMES		NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A)	EXISTING:	**46**	**948**	**144**	**124**	**711**	**31**	**219**	**480**	**166**	**157**	**93**	**131**
(B)	PROJECT-ADDED:	**2**	**0**	**0**	**0**	**0**	**2**	**5**	**11**	**5**	**0**	**5**	**0**
(C)	CUMULATIVE:	**54**	**1003**	**148**	**129**	**782**	**41**	**260**	**657**	**244**	**199**	**122**	**168**

GEOMETRICS

LANE GEOMETRICS	NORTH BOUND L TT R	SOUTH BOUND L T TR	EAST BOUND L T TR	WEST BOUND L T TR

TRAFFIC SCENARIOS

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVEMENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	46	48	54	56	0.029	0.030	0.034	0.035
NBT	2	3200	948	948	1003	1003	0.296 *	0.296 *	0.313 *	0.313 *
NBR *(a)*	1	1600	132	132	136	136	0.083	0.083	0.085	0.085
SBL	1	1600	124	124	129	129	0.078 *	0.078 *	0.081 *	0.081 *
SBT	2	3200	711	711	782	782	0.231	0.231	0.256	0.256
SBR *(b)*	0	0	27	29	36	37	-	-	-	-
EBL	1	1600	219	224	260	265	0.137	0.140	0.163	0.166
EBT	2	3200	480	491	657	668	0.193 *	0.198 *	0.269 *	0.274 *
EBR *(c)*	0	0	139	144	205	209	-	-	-	-
WBL	1	1600	157	157	199	199	0.098 *	0.098 *	0.124 *	0.124 *
WBT	2	3200	93	98	122	127	0.063	0.065	0.082	0.083
WBR *(d)*	0	0	109	109	139	139	-	-	-	-
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					TOTAL INTERSECTION CAPACITY UTILIZATION:		**0.765**	**0.770**	**0.887**	**0.892**
					SCENARIO LEVEL OF SERVICE:		**C**	**C**	**D**	**D**

NOTES:

RTOR: *(a) 8%*
(b) 13%
(c) 16%
(d) 17%

Printed: 03/08/22

EXISTING: <---- THIS COMPARES TO CONDITION (A)
SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

#20082 - MAXCO BOXING FACILITY PROJECT **REF:** 02_PM

INTERSECTION CAPACITY UTILIZATION WORKSHEET

COUNT DATE: ***9/6/2018***

TIME PERIOD: ***PM PEAK HOUR***

N/S STREET: ***BLOSSER ROAD*** ***MITIGATED WITH NB RIGHT TURN LANE***

E/W STREET: ***STOWELL ROAD*** ***MITIGATED WITH EB RIGHT TURN LANE***

CONTROL TYPE: ***SIGNAL***

TRAFFIC VOLUME SUMMARY

VOLUMES		NORTH BOUND L	T	R	SOUTH BOUND L	T	R	EAST BOUND L	T	R	WEST BOUND L	T	R
(A)	EXISTING:	**46**	**948**	**144**	**124**	**711**	**31**	**219**	**480**	**166**	**157**	**93**	**131**
(B)	PROJECT-ADDED:	**2**	**0**	**0**	**0**	**0**	**2**	**5**	**11**	**5**	**0**	**5**	**0**
(C)	CUMULATIVE:	**54**	**1003**	**148**	**129**	**782**	**41**	**260**	**657**	**244**	**199**	**122**	**168**

GEOMETRICS

LANE GEOMETRICS	NORTH BOUND L TT R	SOUTH BOUND L T TR	EAST BOUND L TT R	WEST BOUND L T TR

TRAFFIC SCENARIOS

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

LEVEL OF SERVICE CALCULATIONS

MOVE-MENTS	# OF LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	1	1600	46	48	54	56	0.029	0.030	0.034	0.035
NBT	2	3200	948	948	1003	1003	0.296 *	0.296 *	0.313 *	0.313 *
NBR (a)	1	1600	132	132	136	136	0.083	0.083	0.085	0.085
SBL	1	1600	124	124	129	129	0.078 *	0.078 *	0.081 *	0.081 *
SBT	2	3200	711	711	782	782	0.231	0.231	0.256	0.256
SBR (b)	0	0	27	29	36	37	-	-	-	-
EBL	1	1600	219	224	260	265	0.137	0.140	0.163	0.166
EBT	2	3200	480	491	657	668	0.150 *	0.153 *	0.205 *	0.209 *
EBR (c)	1	1600	139	144	205	209	0.087	0.090	0.128	0.131
WBL	1	1600	157	157	199	199	0.098 *	0.098 *	0.124 *	0.124 *
WBT	2	3200	93	98	122	127	0.063	0.065	0.082	0.083
WBR (d)	0	0	109	109	139	139	-	-	-	-
					LOST TIME:		0.100 *	0.100 *	0.100 *	0.100 *
					TOTAL INTERSECTION CAPACITY UTILIZATION:		**0.722**	**0.725**	**0.823**	**0.827**
					SCENARIO LEVEL OF SERVICE:		**C**	**C**	**D**	**D**

NOTES:

RTOR: *(a) 8%*
(b) 13%
(c) 16%
(d) 17%

Printed: 03/08/22

EXISTING: <---- THIS COMPARES TO CONDITION (A)

SCENARIO 1 = EXISTING VOLUMES (A)
SCENARIO 2 = EXISTING + PROJECT VOLUMES(A+B)
SCENARIO 3 = SHORT-TERM CUMULATIVE (C)
SCENARIO 4 = SHORT-TERM CUMULATIVE + PROJECT VOLUMES (B+C)

DRIVEWAY LEVEL OF SERVICE CALCULATION WORKSHEETS

Stowell Road/Western Driveway
Stowell Road/Eastern Driveway

HCS7 Two-Way Stop-Control Report

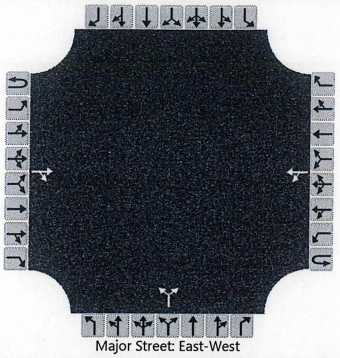
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/14/2021
Analysis Year	
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/WESTERN DRIVEWAY
Jurisdiction	SANTA MARIA
East/West Street	STOWELL ROAD
North/South Street	WESTERN DRIVEWAY
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			332	5		12	351			2		4				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						13					7					
Capacity, c (veh/h)						1187					525					
v/c Ratio						0.01					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						8.1					11.9					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.4				11.9							
Approach LOS									B							

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HCS7 Two-Way Stop-Control Report

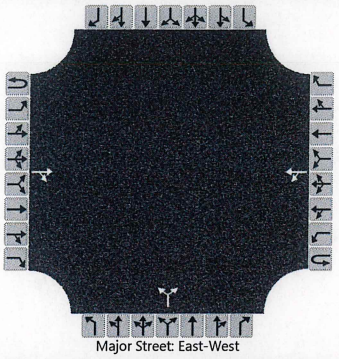
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/14/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/WESTERN DRIVEWAY
Jurisdiction	SANTA MARIA
East/West Street	STOWELL ROAD
North/South Street	WESTERN DRIVEWAY
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			782	2		6	174			5		12				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						7					18					
Capacity, c (veh/h)						782					316					
v/c Ratio						0.01					0.06					
95% Queue Length, Q_{95} (veh)						0.0					0.2					
Control Delay (s/veh)						9.6					17.1					
Level of Service (LOS)						A					C					
Approach Delay (s/veh)					0.4				17.1							
Approach LOS									C							

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HCS7 Two-Way Stop-Control Report

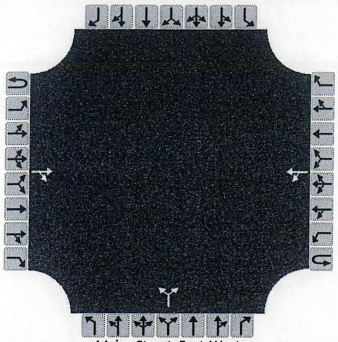
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/14/2021
Analysis Year	
Time Analyzed	AM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/EASTERN DRIVEWAY
Jurisdiction	SANTA MARIA
East/West Street	STOWELL ROAD
North/South Street	EASTERN DRIVEWAY
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			336	5		11	349			2		3				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						12					5					
Capacity, c (veh/h)						1182					502					
v/c Ratio						0.01					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						8.1					12.3					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.3				12.3							
Approach LOS									B							

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HCS7 Two-Way Stop-Control Report

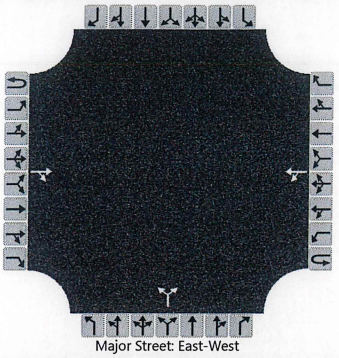
General Information

Analyst	GOM
Agency/Co.	ATE
Date Performed	10/14/2021
Analysis Year	
Time Analyzed	PM PEAK HOUR
Intersection Orientation	East-West
Project Description	CUMULATIVE + PROJECT

Site Information

Intersection	STOWELL/EASTERN DRIVEWAY
Jurisdiction	SANTA MARIA
East/West Street	STOWELL ROAD
North/South Street	EASTERN DRIVEWAY
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			794	2		5	167			5		11				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5					17					
Capacity, c (veh/h)						774					310					
v/c Ratio						0.01					0.06					
95% Queue Length, Q_{95} (veh)						0.0					0.2					
Control Delay (s/veh)						9.7					17.3					
Level of Service (LOS)						A					C					
Approach Delay (s/veh)					0.4				17.3							
Approach LOS									C							

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