DRAFT

Billingsley Ranch

Transportation Impact Study
January 4, 2022

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722

Billingsley Ranch
Transportation Impact Study

Study Team

- ✓ Georgiena Vivian, President, VRPA Technologies, Inc., gvivian@vrpatechnologies.com, (559) 259-9257
- ✓ Erik Ruehr, Dir. of Traffic Engineering, VRPA Technologies, Inc., eruehr@vrpatechnologies.com, (858) 566-1766
- ✓ Jeff Stine, Senior Transportation Planner, VRPA Technologies, Inc. jstine@vrpatechnologies.com,
- ✓ (858) 566-1766
- ✓ Nisha Pathak, Transportation Engineer, VRPA Technologies, Inc., npathak@vrpatechnologies.com, (559) 271-1200

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1.0 Introduction

1.1 Description of the Region/Project

This Transportation Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Billingsley Residential Development (Project). The Project is located in the Hanford City limits in the western portion of the City. The site is currently planned for Low Density Residential by the City of Hanford General Plan. The Project is adjacent to Hanford-Armona Road to the north and between South 12th Avenue and 13th Avenue. Hanford-Armona Road and the future Aquifer Drive are considered major collectors. Figure 1-1 shows the site's regional context. Figure 1-2 shows the Project location within the City of Hanford. Figure 1-3 shows the tentative layout of the proposed Project.

1.1.1 *Project Access*

Vehicular access to the site would be provided by the future Aquifer Drive.

1.1.2 *Study Area*

The following intersections included in this TIS were determined in consultation with City of Hanford staff and include:

Intersections

- ✓ Hanford-Armona Road and 13th Avenue
- ✓ Hanford-Armona Road and Aquifer Drive (Future Road)
- ✓ Hanford-Armona Road and 12th Avenue

Street Segments

- ✓ All connecting street segments

1.1.3 *Study Scenarios*

The study time periods for the traffic analysis will include the weekday AM and PM peak hours determined between 7:00 and 9:00 AM and between 4:00 and 6:00 PM. Level of service analysis for the AM and PM peak hours will be analyzed for the following scenarios:

- ✓ Existing Conditions
- ✓ Existing Plus Project
- ✓ Opening Year 2022 Without Project
- ✓ Opening year 2022 With Project

1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the Level of Service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance by rating intersections on a scale of LOS "A" through "F". In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized intersections or other improvements.

1.2.1 *Intersection Analysis*

Intersection LOS analysis was conducted using the Synchro 11 software program. Synchro 11 supports the Highway Capacity Manual (HCM) 6th Edition methodologies and is an acceptable program by City of Hanford staff for assessment of traffic effects of projects. Levels of Service were determined for signalized and unsignalized intersections, as shown in Figure 2-1. One of the study intersections is currently signalized and another is unsignalized while one of the intersection is future intersection.

Tables 1-1 and 1-2 define LOS "A" to "F" by indicating the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for each level of service ranging from LOS "A" to "F".
When an intersection does not meet acceptable LOS standards, analysis is conducted to determine if the Project would (1) trigger an intersection operating at acceptable LOS to operate at unacceptable levels of service (LOS E or F); (2) trigger an intersection operating at unacceptable LOS (LOS E) to operate at LOS F; or (3) increase the average delay for a study intersection that is already operating at an unacceptable LOS.

Table 1-1
Signalized Intersections Level of Service Definitions (Highway Capacity Manual)

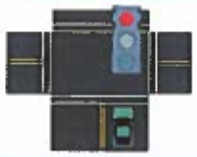
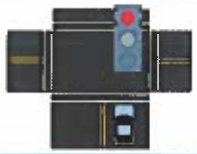
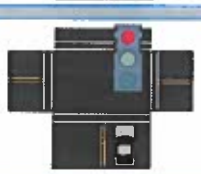
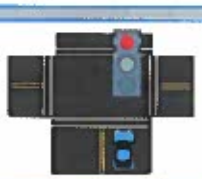
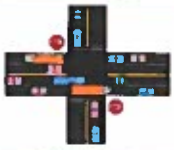
LEVEL OF SERVICE	DEFINITION		AVERAGE TOTAL DELAY (sec/veh)
A	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street.		≤ 10.0
B	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay.		> 10.0 - 20.0
C	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer.		> 20.0 - 35.0
D	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing.		> 35.0 - 55.0
E	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues.		> 55.0 - 80.0
F	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely.		> 80.0

Table 1-2
Unsignalized Intersections Level of Service Definitions (Highway Capacity Manual)

LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	No delay for stop-controlled approaches. 	0 - 10.0
B	Describes operations with minor delay. 	> 10.0 - 15.0
C	Describes operations with moderate delays. 	> 15.0 - 25.0
D	Describes operations with some delays. 	> 25.0 - 35.0
E	Describes operations with high delays and long queues. 	> 35.0 - 50.0
F	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers. 	> 50.0

1.3 Policies to Maintain Level of Service

1.3.1 *City of Hanford*

The City of Hanford General Plan states the City will plan for LOS "D" for street segments and intersections.

1.3.2 *Kings County*

The Kings County General Plan states the minimum LOS is "D" for street segments and intersections.

1.4 VMT Analysis

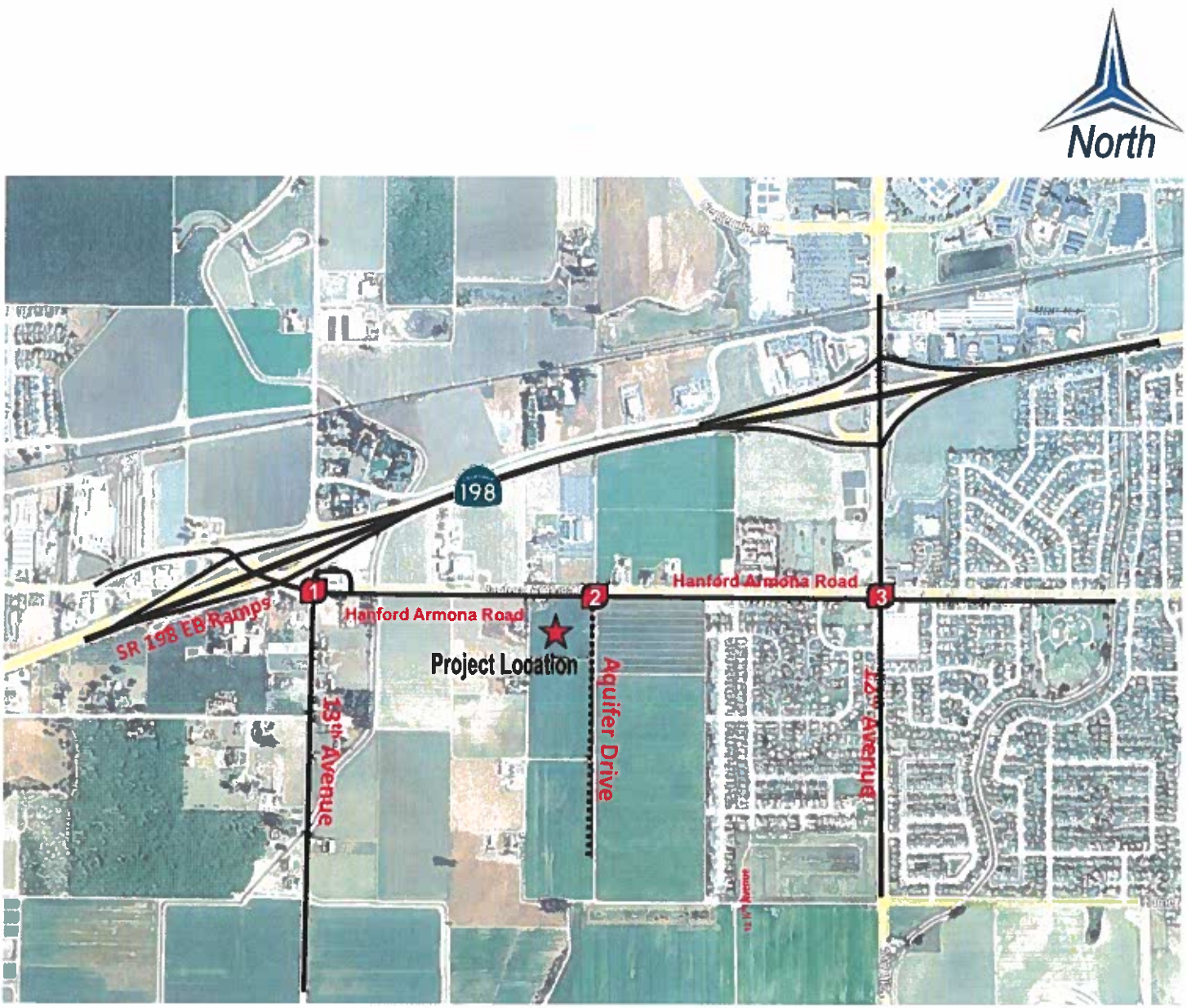
Senate Bill 743 (SB 743) went into effect throughout California on July 1, 2020. This legislation changed the performance measure for CEQA transportation studies from level of service to vehicle miles traveled (VMT). An assessment of potential VMT impacts associated with the Project is provided in Chapter 3 to address changes in CEQA requirements.

Billingsley Ranch
Regional Location

Figure 1-1

Billingsley Ranch
Project Location

Figure 1-2



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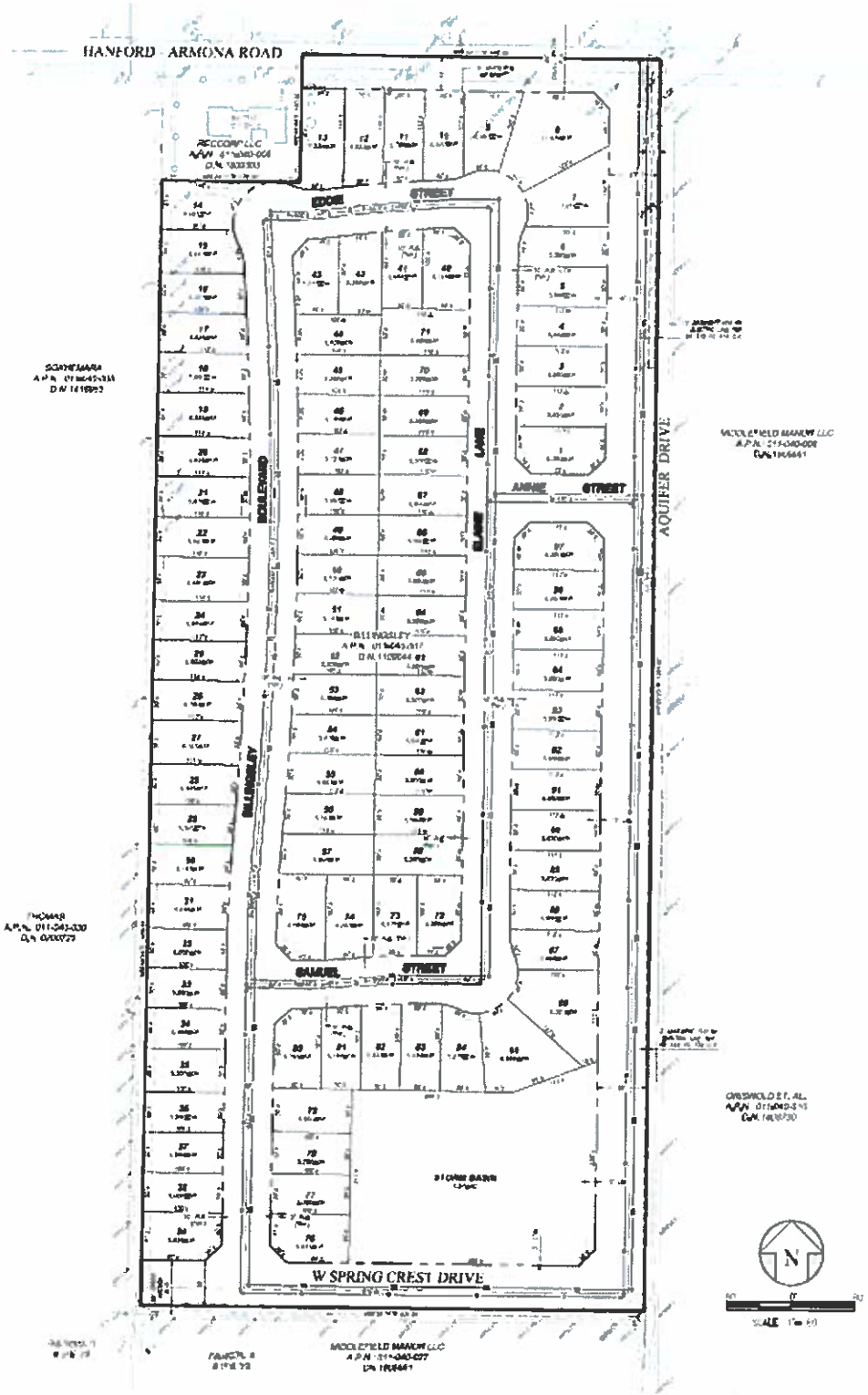
2 Study Intersection

xxx Existing streets

Project Location

Billingsley Ranch
Project Site Plan

Figure 1-3



LEGEND
Site Plan

North

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2.0 Existing Conditions

2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing AM and PM peak hour turning movements were collected at each Project intersection by National Data and Surveying Services. Traffic counts were conducted for the peak hour periods of 7:00-9:00 AM and 4:00-6:00 PM for all key intersections on Wednesday, September 28, 2021.

Traffic count data worksheets are provided in Appendix A.

2.2 Affected Streets and Highways

Street and highway intersections and segments near and adjacent to the Project site were analyzed to determine levels of service utilizing HCM-based methodologies described previously. The study intersections included in this TIS are listed below.

Intersections

- ✓ Hanford-Armona Avenue and 13th Avenue
- ✓ Hanford-Armona Avenue and Aquifer Drive
- ✓ Hanford-Armona Avenue and 12th Avenue

The existing lane geometry at study area intersections is shown in Figure 2-1. Figures 2-2a and 2-2b shows existing traffic volumes for the AM and PM peak hours in the study area.

2.3 Level of Service

2.3.1 *Intersection Capacity Analysis*

All intersection LOS analyses were estimated using Synchro 10 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc) were input into the Synchro 10 Software program to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 6th Edition HCM outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

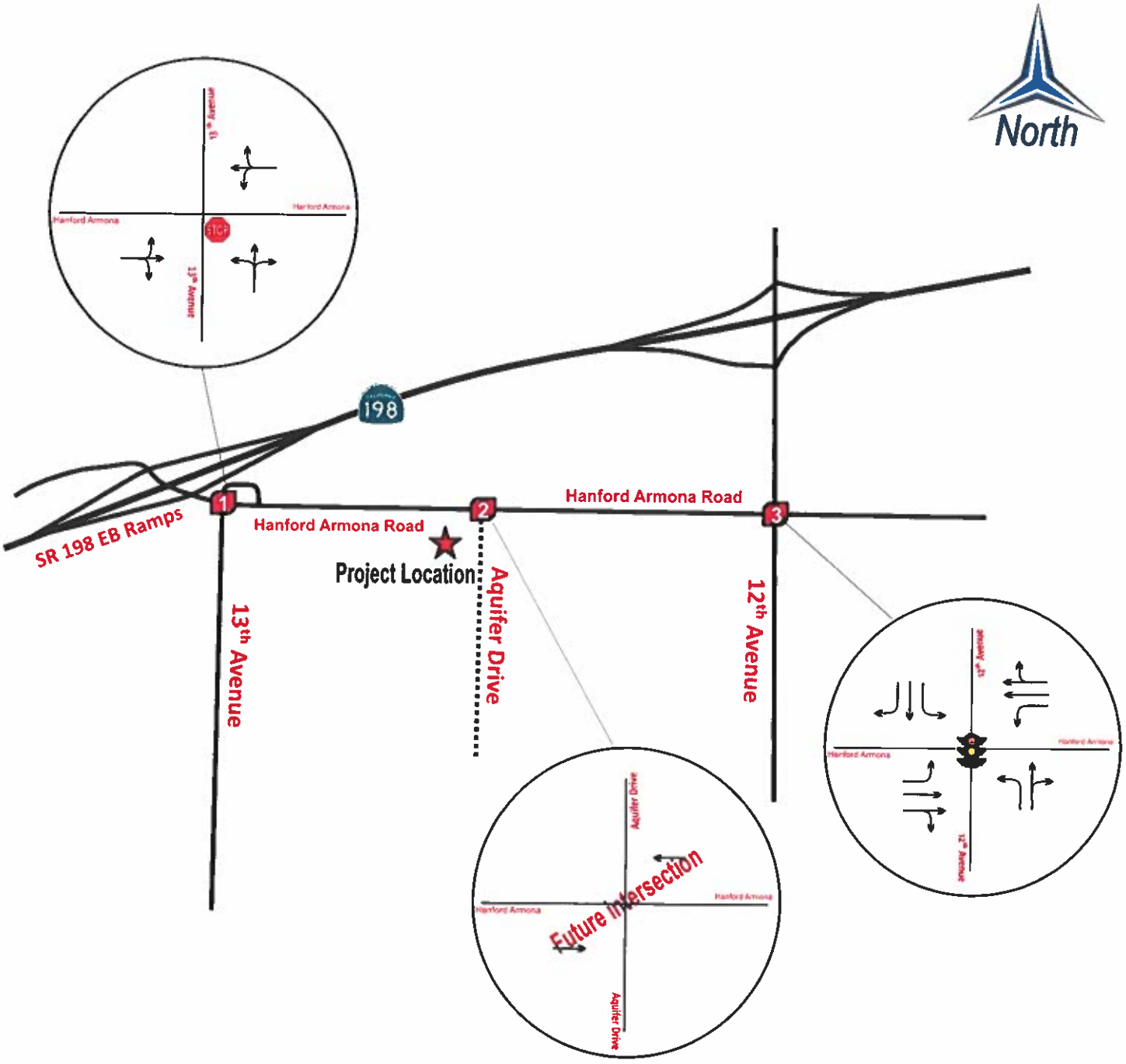
- ✓ **Lane Geometry**
  - Storage lengths for turn lanes for existing intersections were obtained from aerial photos and rounded to the nearest 25 feet
  - VRPA conducted a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data such as signal timing and phasing, where applicable.

- ✓ **Traffic Conditions**
  - Peak hour factors (PHF) for each intersection approach were obtained from traffic counts in the study area and were utilized for Existing Conditions, Existing Plus Project, and Near-term (Opening Year) Plus Project conditions. For all future scenarios, a PHF of 0.92 was applied unless the existing PHF was greater than 0.92, as this was recommended value in HCM.
  - Heavy vehicle percentages were based on the HCM default
  - Roadway link speed limits were observed in the field and input into the Synchro network to determine roadway link speeds

Results of the analysis show that most of the study intersections currently operate at or below the City of Hanford minimum level of service criteria that is LOS 'D' during the peak hour. Table 2-1 shows the intersection LOS for the existing conditions. Synchro 10 (HCM 6th Edition) Worksheets are provided in Appendix B.

Billingsley Ranch
Existing Lane Geometry

Figure 2-1



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- # Study Intersection
- STOP Stop Sign
- ···· Proposed Roadway
- Traffic Signal
- Lane Geometry
- — Existing Roadway
- Project Location

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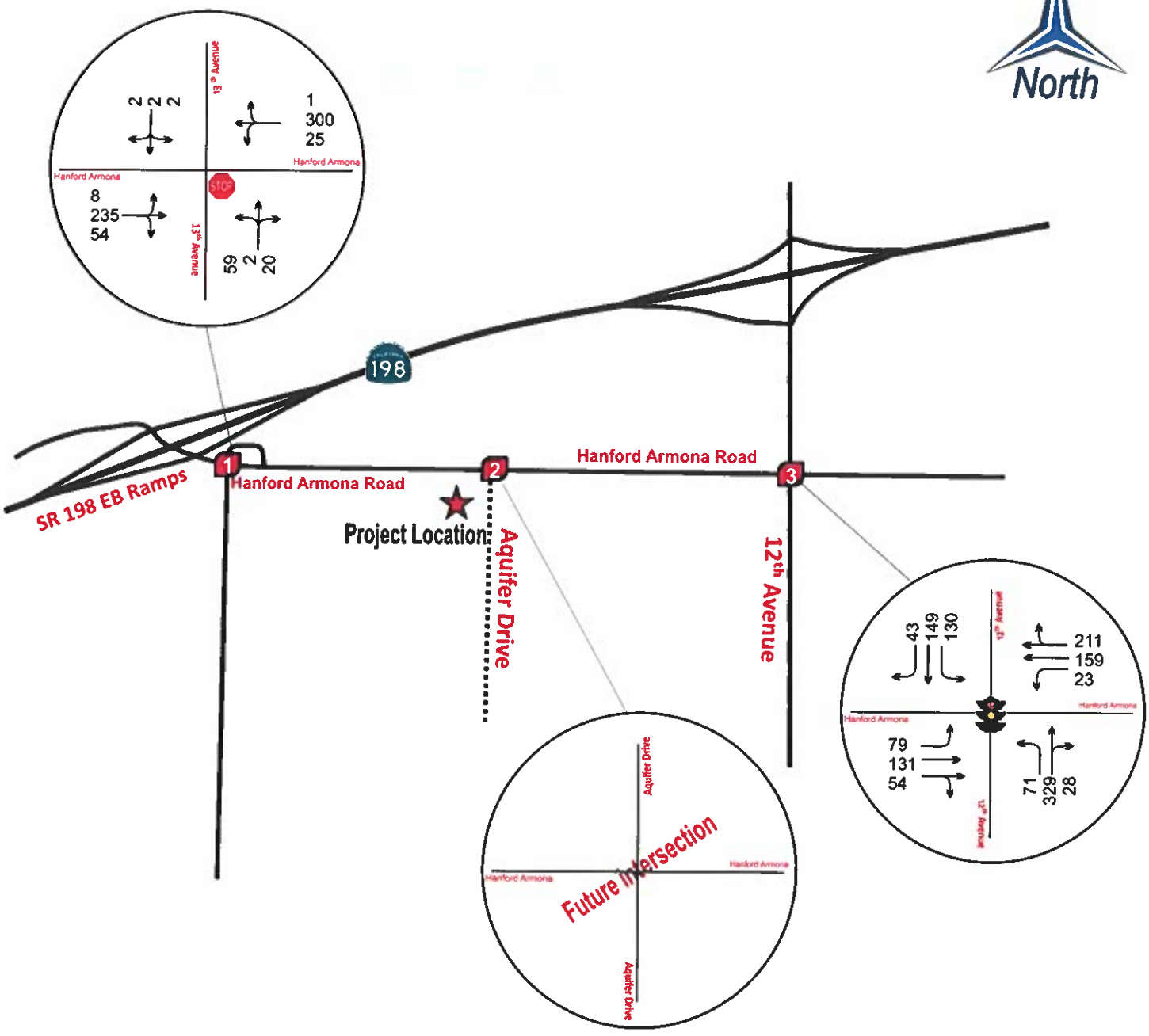
Billingsley Ranch
Existing 2021 AM Peak Hour Traffic

Figure 2-2a



LEGEND

- # Study Intersection
- STOP Stop Sign
- ····Proposed Roadway
- Traffic Signal
- Lane Geometry
- — Existing Roadway
- Project Location

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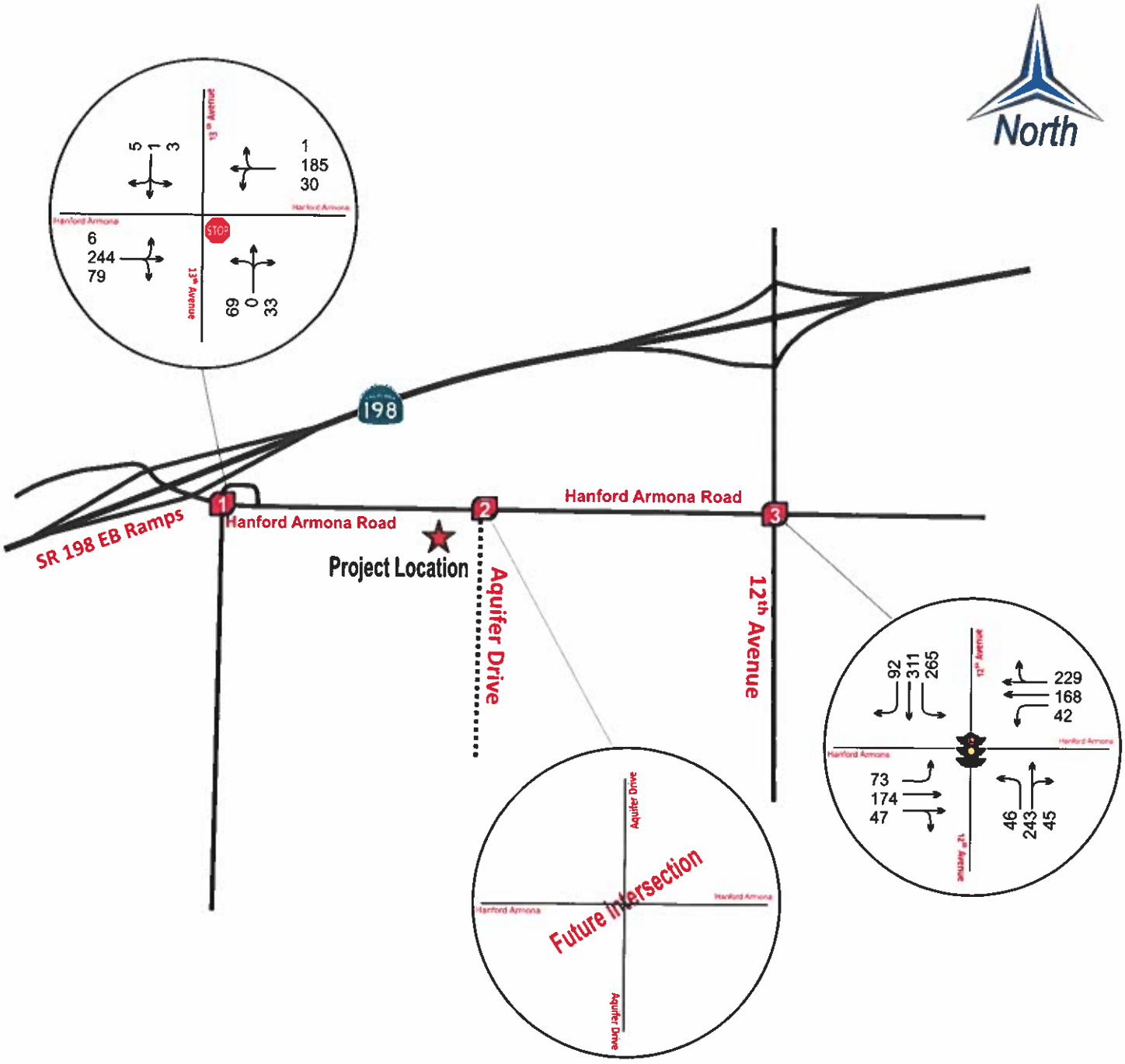
Billingsley Ranch
Existing 2021 PM Peak Hour Traffic

Figure 2-2b



LEGEND

# Study Intersection	STOP Stop Sign	···· Proposed Roadway		
Traffic Signal	Lane Geometry	— Existing Roadway	Project Location	

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Table 2-1
Billingsley Ranch
Existing Intersection operation

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
Hanford Armona Road and 13th Avenue	Two-Way Stop	D	AM	16.5	C
			PM	15.0	C
Hanford Armona Road and Aquifer Drive	Two-Way Stop	D	AM	Future Intersection	
			PM		
Hanford Armona Road and 12th Avenue	Signalized	D	AM	21.5	C
			PM	22.8	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection. For two-way stop controlled intersections, delay results show the delay for the worst movement.

3.0 Traffic Impacts

This chapter provides an assessment of the traffic the Project is expected to generate and the impact of that traffic on the surrounding street system.

3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and the ITE Trip Generation Handbook (3rd Edition). The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Table 3-1.

3.2 Trip Distribution

Project trip distribution percentages for the Opening years of the Project is shown in Figure 3-1. These percentages are based upon knowledge of the study area, engineering judgement, prevailing traffic patterns in the study area, major routes, population centers, and other existing development.

Vehicular access to the site would be provided by Hanford-Armona Road and Aquifer Drive (future road). The extension of Aquifer Drive would be constructed to City standards and would be dedicated as public right of way. The Existing Hanford-Armona Road will be Further improvised to dedicate it as the access for the Project as per City Standards.

3.3 Project Traffic

Project traffic as shown in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figures 3-1. A graphical representation of the resulting AM and PM peak hour Project trips used is shown in Figures 3-2a and 3-2b.

3.4 Existing Plus Project Traffic Conditions

An Existing Plus Project Scenario was analyzed to include existing traffic plus traffic generated by the Project. The resulting traffic is shown in Figures 3-3a, 3-3b.

3.5 Approved/Pending Project Traffic

Traffic impact analyses typically require the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. There are several development projects in the Project's vicinity that will add new trips to the intersections and roadway segments being evaluated in this TIS. The approved and pending developments are listed below.

- ✓ 133 Single Family residential lots by Lennar Homes at northeast corner of Grangeville Boulevard and 13th Avenue.
- ✓ 194 residential lots located north of Stagecoach Drive and Mustang Drive, east of 13th Avenue, and west of Centennial Drive
- ✓ 158 Single family residential lots by Woodside homes at northeast corner of Devon Street and 13th Avenue.
- ✓ 283 residential lots located at the southeast corner of Centennial Drive and Fargo Avenue.
- ✓ 142 Single family lots by San Joaquin valley homes at Centennial Drive and Cortner Street.
- ✓ 125 Single family lots by San Joaquin valley homes Centennial Drive and South of Fargo Ave.

Trip generation and distribution information for the approved and pending developments was estimated using trip generation rates from the ITE Trip Generation Manual (10th Edition) and engineering judgement and prevailing traffic patterns. Trip generation for the approved and pending developments is shown in Table 3-2. Figures 3-4a and 3-4b show the AM and PM peak hour trips for Approved and Pending project traffic. The peak hour trips for the Approved and Pending project traffic was applied to the Near-Term and Cumulative Year Opening year traffic conditions discussed later in the report.

3.6 Opening Year 2022 Without Project Traffic Conditions

The impacts of the Project were analyzed considering opening year traffic conditions, approximately year 2022 assumed opening day of the Project. Traffic conditions without the Project in the Year 2022 were estimated by applying an annual growth rate of 2% per year to existing traffic volumes. Traffic conditions resulting from this scenario are shown in Figures 3-5a and 3-5b.

3.7 Opening Year 2022 With Project Traffic Conditions

The addition of Project trips, which were distributed to the roadway system using the trip distribution percentages shown in Figure 3-1 (Section 3.3), were added to Cumulative Year 2022 Without Project traffic volumes. This leads to the results shown in Figures 3-6a and 3-6b.

3.8 Impacts

3.8.1 *Intersection Capacity Analysis*

Table 3-3 provides the intersection level of service analysis for the study intersections considering the study scenarios discussed above. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the Project will not contribute any unacceptable LOS when comparing the Opening Year 2022 scenarios.

3.9 Vehicle Miles Traveled (VMT) Analysis

Since the City of Hanford has not adopted methodologies or thresholds for VMT analyses related to SB 743, the VMT analysis was conducted using statewide guidance provided by the Governor's Office of Planning and Research (OPR) in their Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR, December 2018). For residential projects, OPR recommends comparing project VMT/capita to the regional average or city-wide average VMT/capita to determine the level of significance of project impacts. A less than significant VMT impact is considered to occur when the project has a VMT/capita no greater than 15% below either the regional average or city-wide average. For projects in the City of Hanford, only the comparison to the regional average is applicable because the city-wide average VMT/capita is less that the regional average VMT/capita.

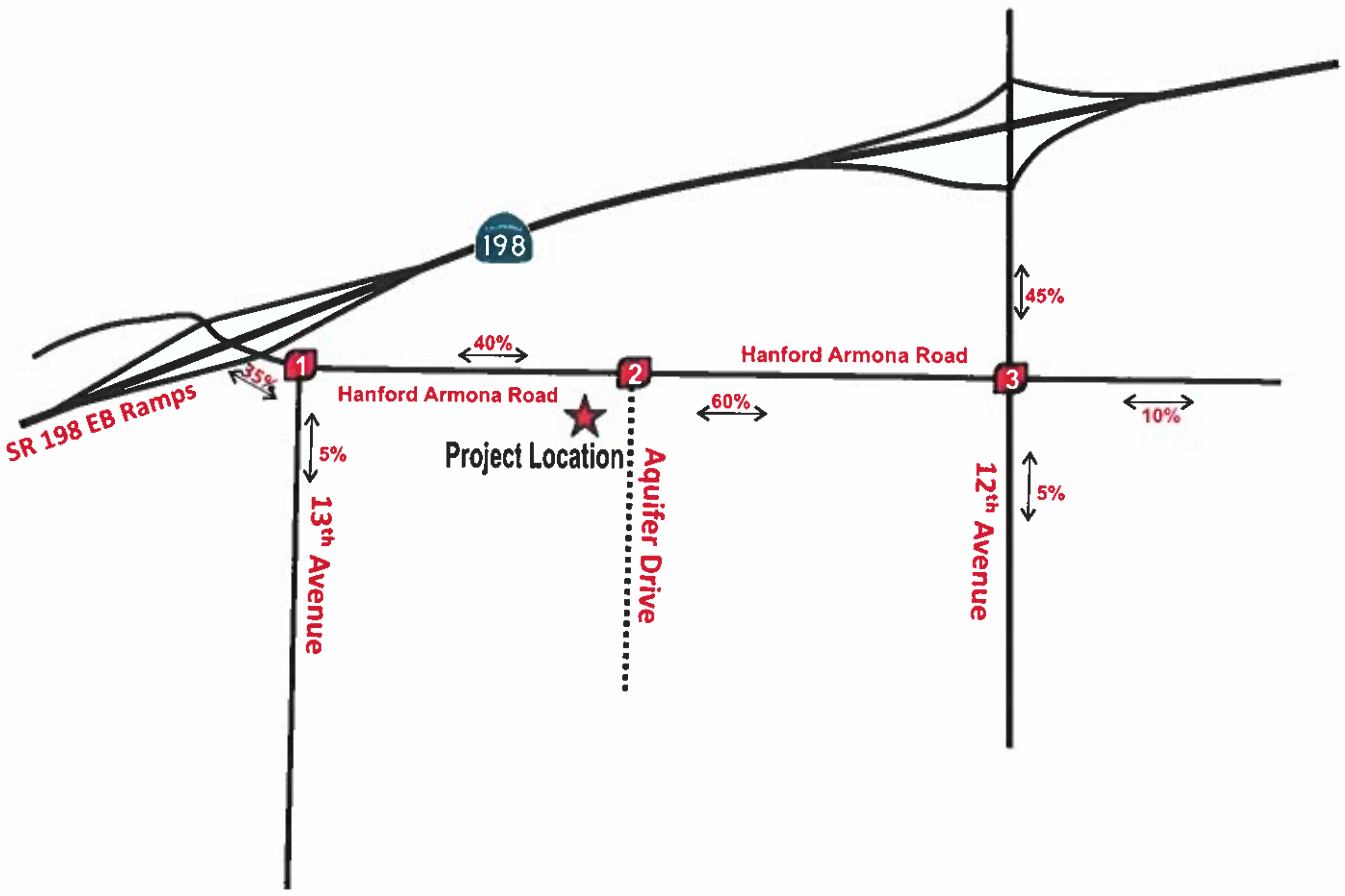
VMT/capita values for the project as well as regional averages were obtained from VMT/capita results prepared by the Kings County Association of Governments (KCAG) using the Kings County regional travel model, as documented in Appendix C. The regional average VMT/capita is 9.6. The VMT/capita value 15% below the regional average is 8.16. Therefore, the significant threshold for VMT/capita for residential projects in the City of Hanford is 8.16 and projects with a VMT/capita less 8.16 would be considered to have a less than significant VMT impact.

In the KCAG regional travel model, Kings County is broken down into geographic areas known as traffic analysis zones (TAZ's). VMT/capita information is provided for each TAZ. Typically, the VMT/capita value of the TAZ would be considered to apply to all residential development within the TAZ and that would also apply to proposed residential projects. However, in the area of the project site there is a wide variation of VMT/capita values of adjacent TAZ's, ranging from 2.1 for the TAZ just west of the project site to 11.3 for the TAZ where the project site is located and 11.4 for the project just south of the project site. In order to provide a more stable VMT result, it was considered necessary to determine the VMT/capita value of the project based on an average value of VMT/capita for nearby TAZ's. The geographic area for this calculation was the area bounded on the north by SR 198, on the east by 12th Avenue, on the south by Houston Avenue, and on the west by the 13 ½ Avenue Alignment and Oak Avenue. Table 3-4 shows the calculation used to determine the average VMT of this geographic area based on the average VMT/capita of the TAZ's located within this area.

Based on the results of Table 3-4, the project VMT/capita is 7.79. Since this is less that the significance threshold for the City of Hanford of 8.16, the project has a less than significant VMT impact.

Billingsley Ranch
Trip Distribution

Figure 3-1



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Study Intersection ····Proposed Roadway ★ Project Location

X% ⟷ Trip Distribution percentage — Existing Roadway

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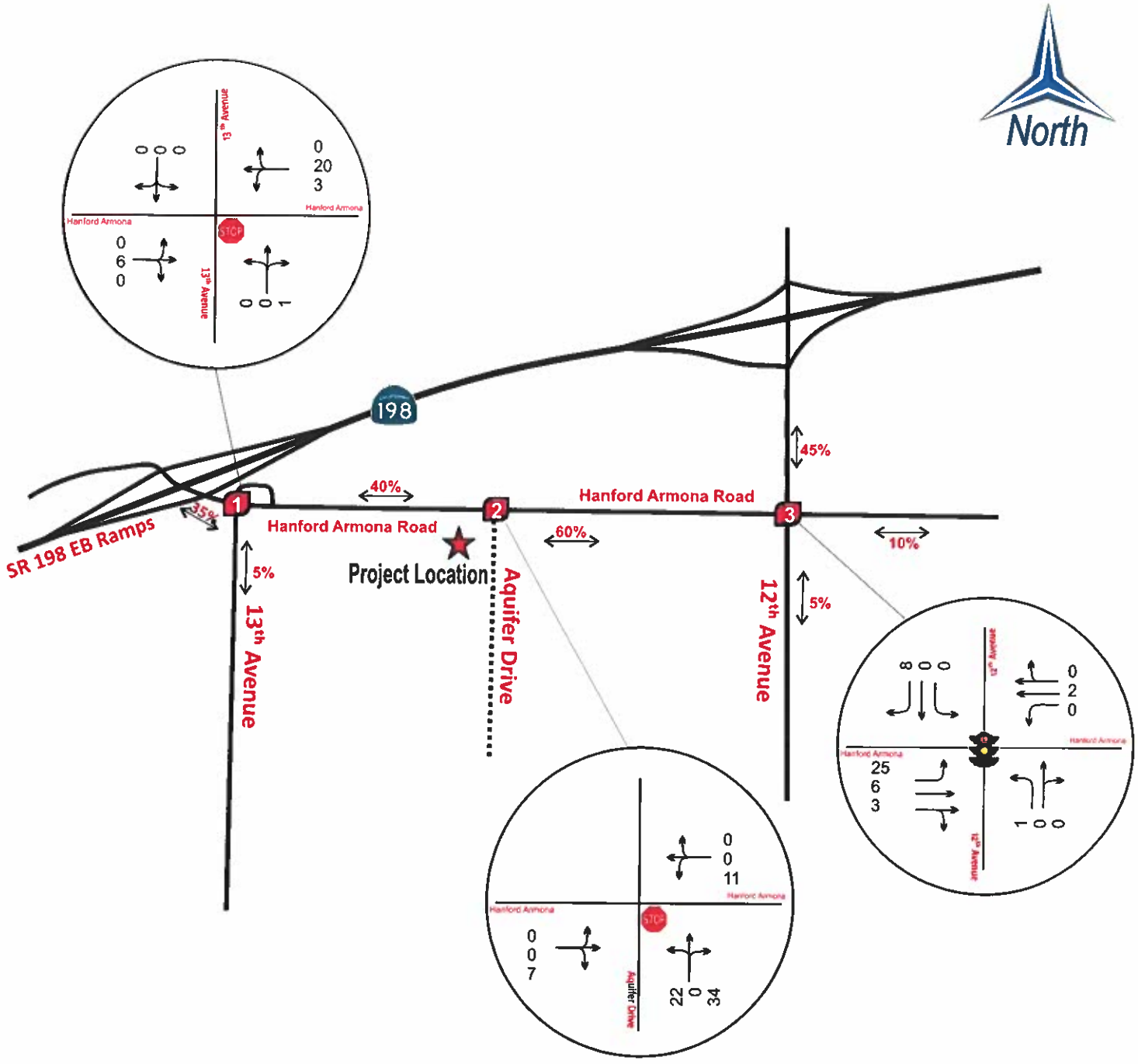
Billingsley Ranch
Project AM Peak Hour Traffic

Figure 3-2a



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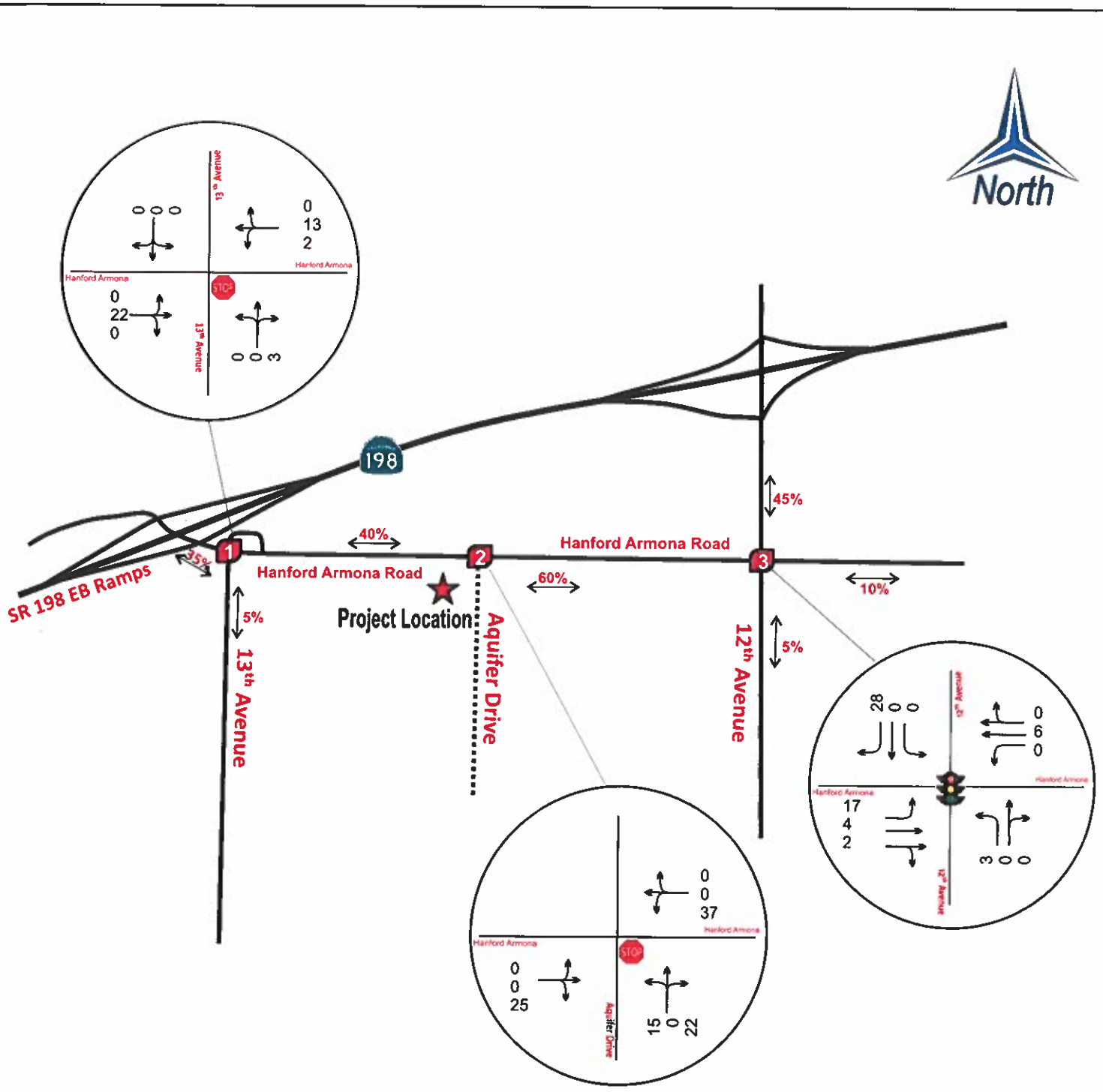
# Study Intersection	STOP Stop Sign	····Proposed Roadway	★ Project Location
Traffic Signal	Lane Geometry	— Existing Roadway	

Billingsley Ranch
Project PM Peak Hour Traffic

Figure 3-2b



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# Study Intersection	STOP Stop Sign	····Proposed Roadway	
Traffic Signal	Lane Geometry	— Existing Roadway	Project Location

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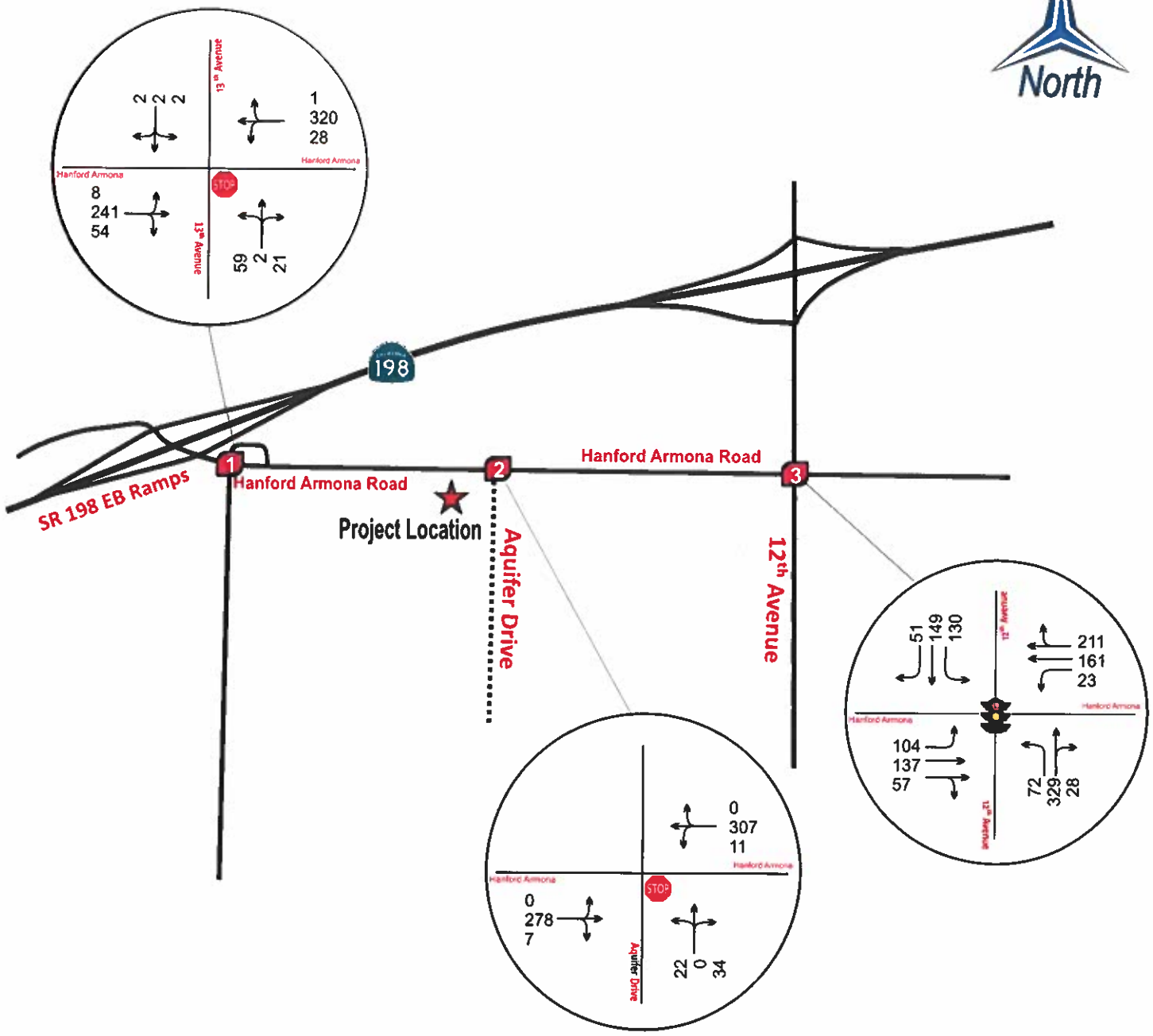
Existing Plus Project AM Peak Hour Traffic

Figure 3-3a



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- # Study Intersection
- STOP Stop Sign
- ···· Proposed Roadway
- Traffic Signal
- Lane Geometry
- — Existing Roadway
- ★ Project Location

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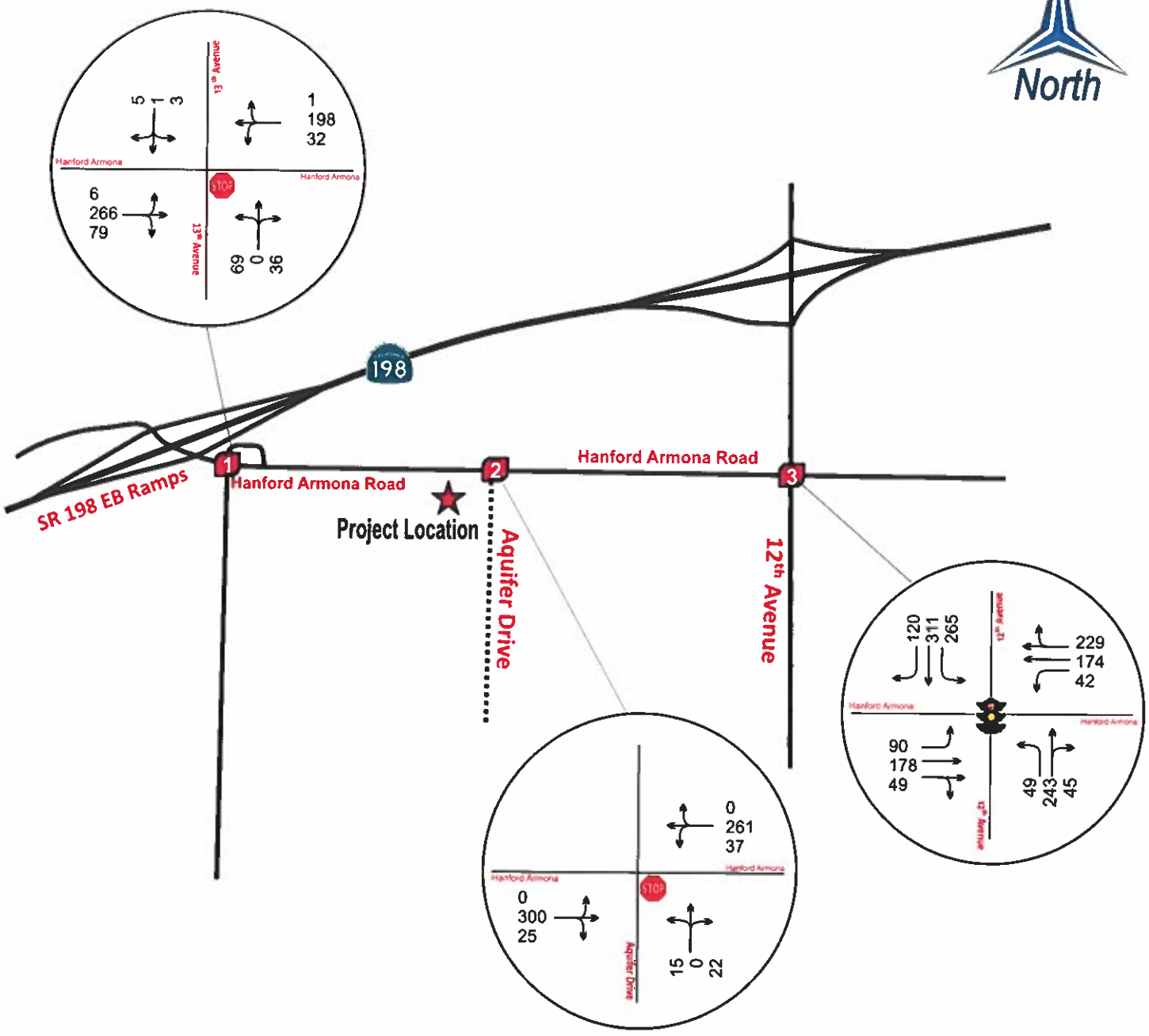
Existing Plus Project PM Peak Hour Traffic

Figure 3-3b



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- # Study Intersection
- STOP Stop Sign
- ···· Proposed Roadway
- Traffic Signal
- Lane Geometry
- — Existing Roadway
- Project Location

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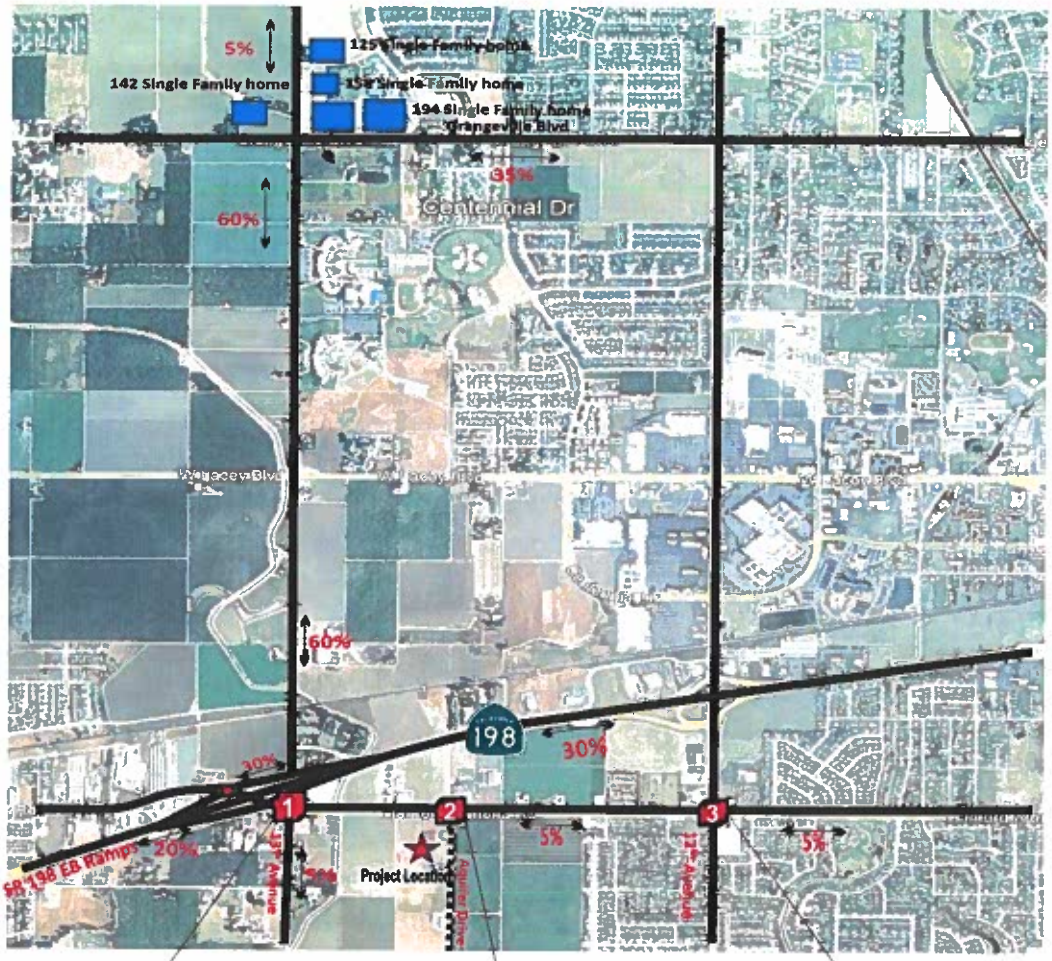
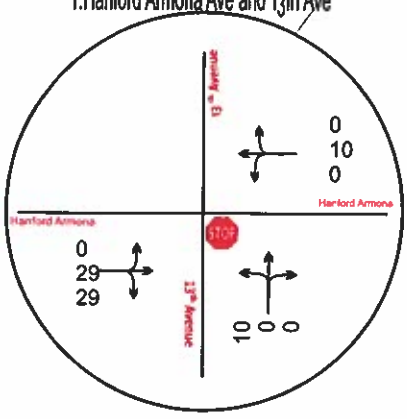
Billingsley Ranch

Near Term Projects AM Peak Hour Traffic

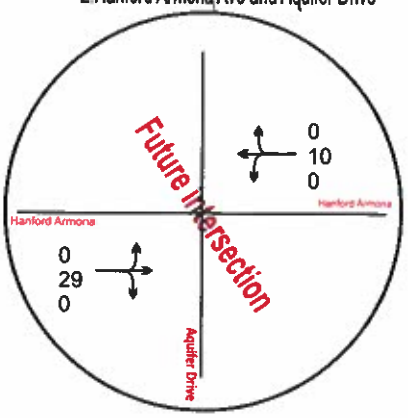
Figure 3-4a



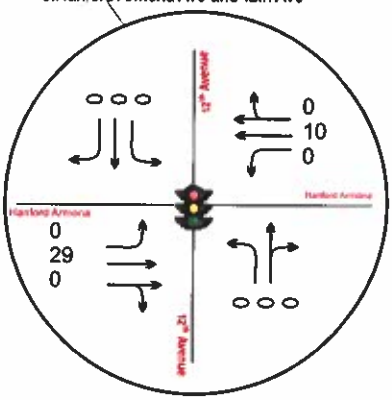
1.Hanford Armona Ave and 13th Ave



2 Hanford Armona Ave and Aquifer Drive



3.Hanford Armona Ave and 12th Ave



LEGEND

Study Intersection | Near Term Project | ····Proposed Roadway | Traffic Signal | STOP Stop Sign

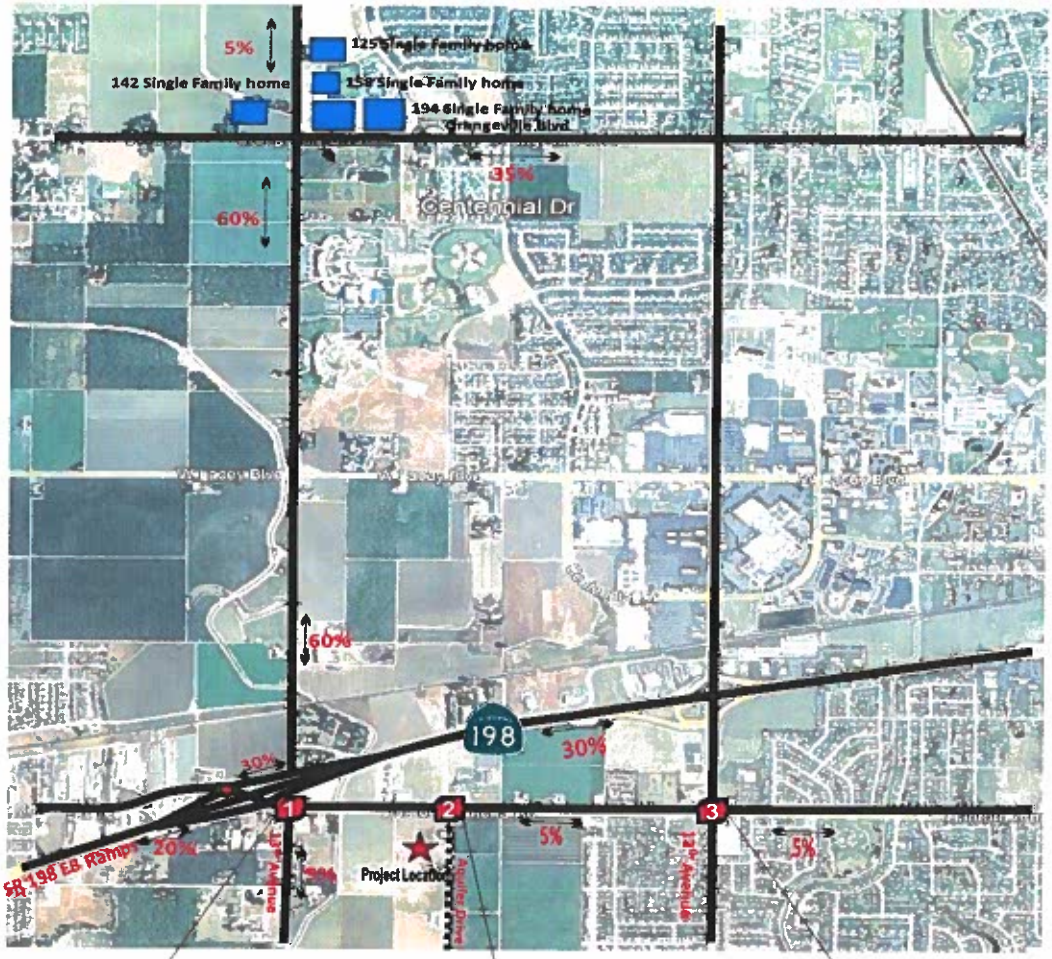
— Existing Roadway | Project Location | Roundabout | Lane Geometry | 5% NT Trip distribution

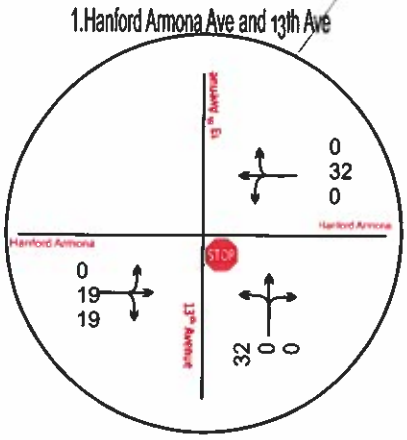
VRPA TECHNOLOGIES, INC

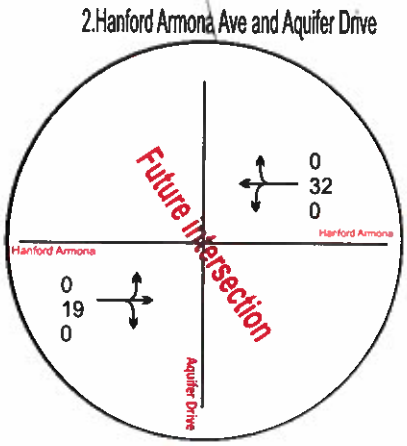
Billingsley Ranch

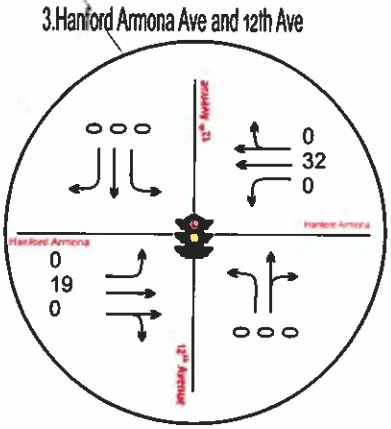
Near Term Projects PM Peak Hour Traffic

Figure 3-4b









LEGEND

Study Intersection ■ Near Term Project ····Proposed Roadway Traffic Signal STOP Stop Sign

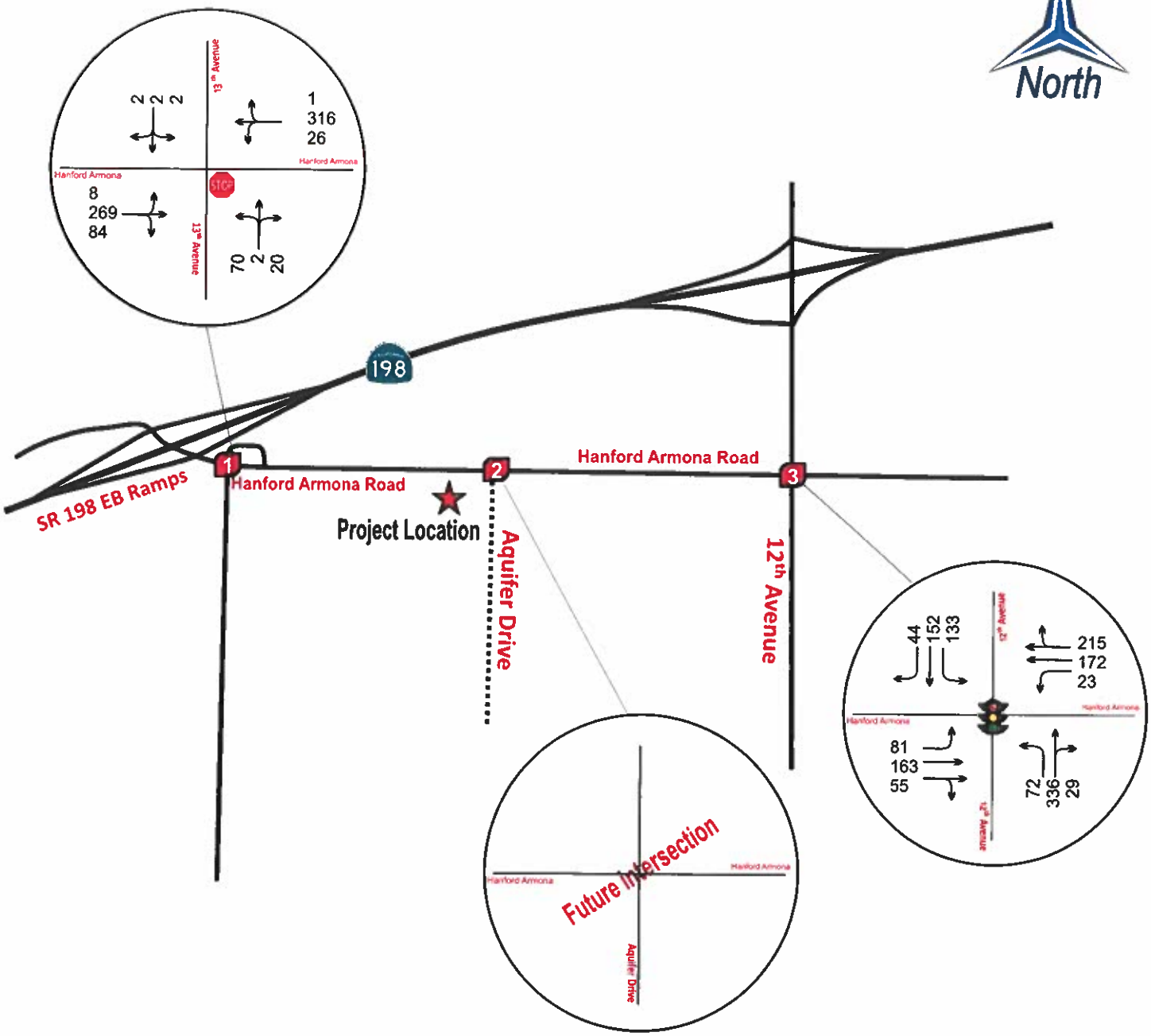
— Existing Roadway ★ Project Location ● Roundabout Lane Geometry 5% NT Trip distribution

VRPA TECHNOLOGIES, INC.

Billingsley Ranch

Opening Year (2022) Without Project AM Peak Hour Traffic

Figure 3-5a



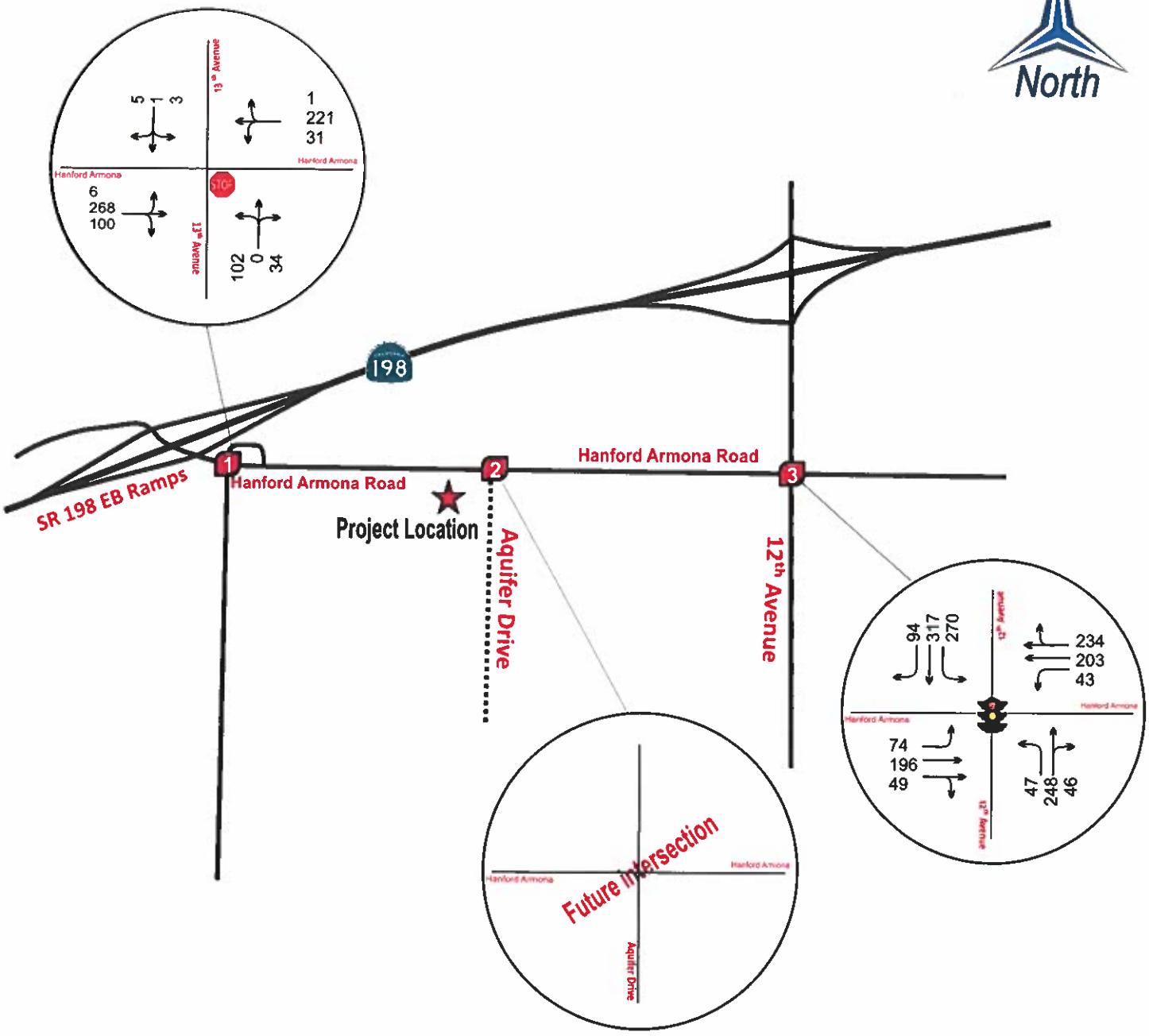
LEGEND

# Study Intersection	STOP Stop Sign	····Proposed Roadway		
Traffic Signal	Lane Geometry	— Existing Roadway	Project Location	

Billingsley Ranch

Opening Year 2022 Without Project PM Peak Hour Traffic

Figure 3-5b



LEGEND

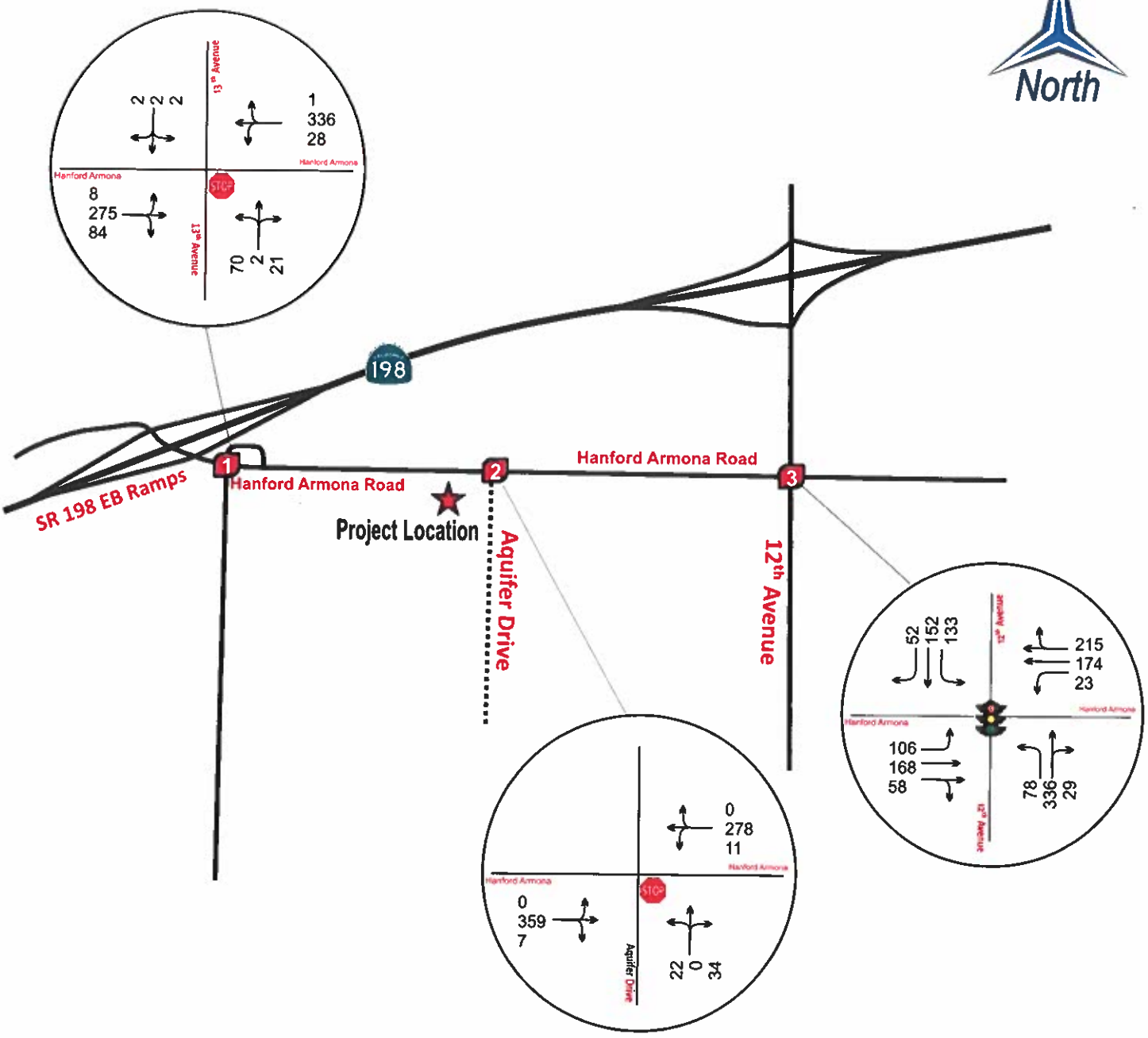
- # Study Intersection
- STOP Stop Sign
- ···· Proposed Roadway
- Traffic Signal
- Lane Geometry
- — Existing Roadway
- Project Location

VRPA TECHNOLOGIES, INC

Billingsley Ranch

Opening Year (2022) With Project AM Peak Hour Traffic

Figure 3-6a



LEGEND

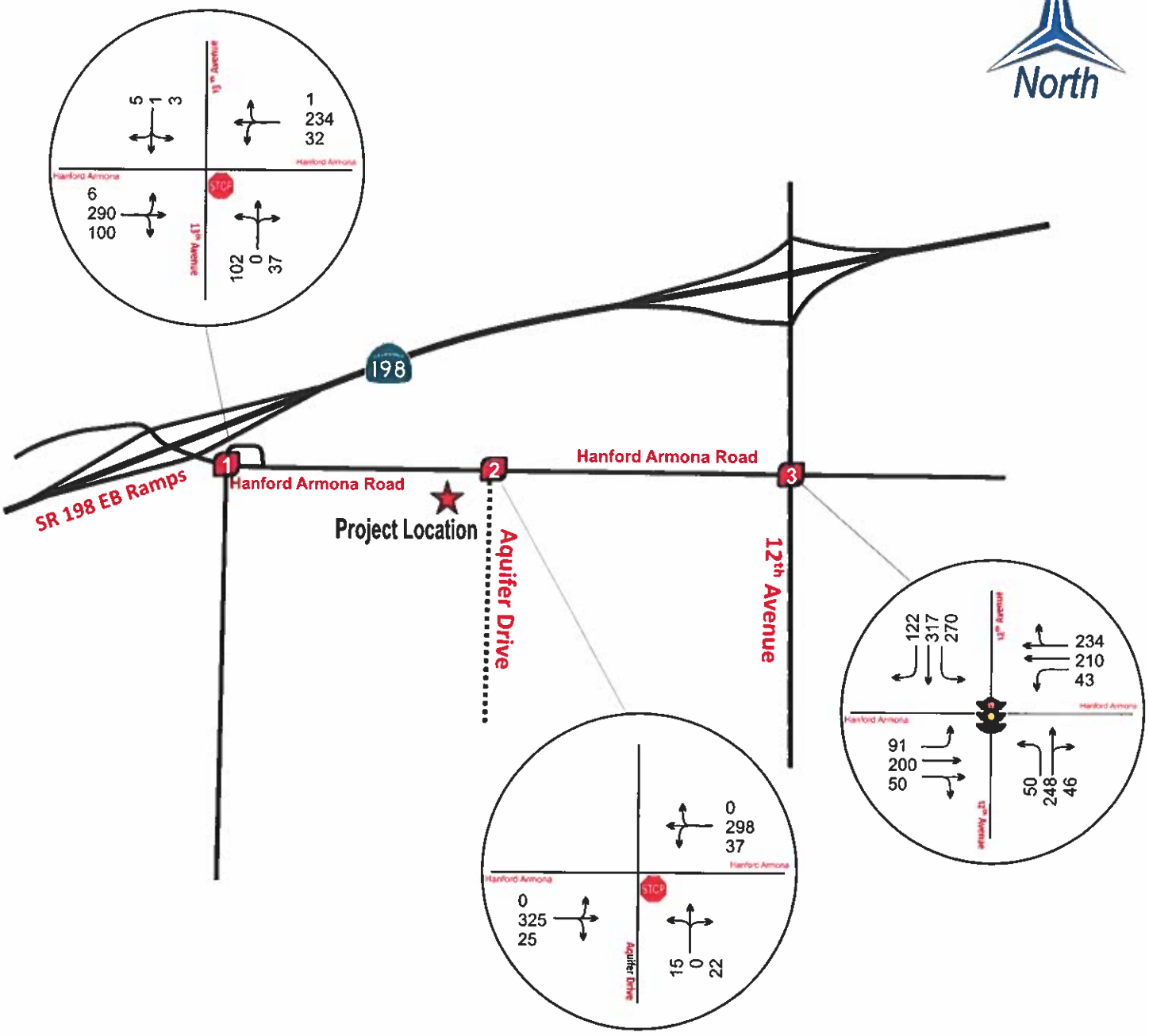
- # Study Intersection
- STOP Stop Sign
- ···· Proposed Roadway
- Project Location
- Traffic Signal
- Lane Geometry
- — Existing Roadway

VRPA TECHNOLOGIES, INC

Billingsley Ranch

Opening Year (2022) With Project PM Peak Hour Traffic

Figure 3-6b



LEGEND

- # Study Intersection
- STOP Stop Sign
- ····Proposed Roadway
- Project Location
- Traffic Signal
- Lane Geometry
- — Existing Roadway

VRPA TECHNOLOGIES, INC

Table 3-1
Billingsley Ranch
Project Trip Generation

PROJECT NAME	LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR				WEEKDAY PM PEAK HOUR			
			RATE	VOLUME	RATE	VOLUME			RATE	VOLUME		
						IN	OUT	TOTAL		IN	OUT	TOTAL
Billingsley Ranch Residential Devleopment	210-Single Family Residential	97 D.U.	9.44	1,011	0.74	18	56	74	0.99	62	37	99
TOTAL TRIP GENERATION				**1,011**		**18**	**56**	**74**		**62**	**37**	**99**

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

Table 3-2
Billingsley Ranch
Near Term Projects Trip Generation

PROJECT NAME	LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
			RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME IN	VOLUME OUT	VOLUME TOTAL	RATE	IN:OUT SPLIT	VOLUME IN	VOLUME OUT	VOLUME TOTAL
C.U.P. 2017-08	Tract 927:Lennar	133 D.U.	9.44	1,352	0.74		25	74	99	0.99		84	50	134
Building Permit B204641	Tract 922:Lennar	194 D.U.	9.44	1,913	0.74		36	107	143	0.99		121	71	192
	Tract 929: Woodside Homes	158 D.U.	9.44	1,584	0.74		29	88	117	0.99		99	59	158
Summerstone Tentative Subdivision Map No. 5580	Tract 918: San joquain valley homes	142 D.U.	9.44	1,436	0.74		26	80	106	0.99		89	53	142
C.U.P. 2021-01	Tract 919: San joquain valley homes	125 D.U.	9.44	1,277	0.74		23	71	94	0.99		79	47	126
Walnut Park Estates Tentative Subdivision Map No. 5572	Tract 928: San joquain valley homes	283 D.U.	9.44	2,708	0.74		51	155	206	0.99		174	102	276
TOTAL TRIP GENERATION				**10,270**			**190**	**575**	**765**			**646**	**382**	**1028**

Source: Generation factors from ITE Trip Generation Manual, 10th Edition
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

Table 3-3
Billingsley Ranch
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT		OPENING YEAR 2022 WITHOUT PROJECT		OPENING YEAR 2022 WITH PROJECT	
				DELAY	LOS	DELAY	LOS	DELAY	LOS
Hanford Armona Road and 13th Avenue	Two-Way Stop	D	AM	17.2	C	19.3	C	20.1	C
			PM	15.8	C	19.0	C	20.4	C
Hanford Armona Road and Aquifer Drive	Two-Way Stop	D	AM	12.7	B	Future Intersection		13.6	B
			PM	13.0	B			13.7	B
Hanford Armona Road and 12th Avenue	Signalized	D	AM	22.3	C	21.8	C	22.7	C
			PM	23.4	C	23.2	C	23.8	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection. For two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-4
Billingsley Ranch
VMT Analysis

TRAFFIC ANALYSIS ZONE BOUNDARIES	VMT/CAPITA (1)
SR 198/Greenbrier Drive/Hanford - Armona Road	11.3
SR 198/12th Avenue/Hanford - Armona Road/Greenbrier Drive	7.9
SR 198/Hanford - Armona Road/13th Avenue/Hood Avenue	9.2
Hood Avenue/13 1/2 Avenue Alignment/Hume Avenue/Oak Avenue	2.9
Hood Avenue/13th Avenue/Hume Avenue/13 1/2 Avenue Alignment	2.1
Hanford - Armona Road/Aquifer Drive/Hume Avenue/13th Avenue	11.3
Hanford - Armona Road/13th Avenue/Hume Avenue/Aquifer Drive	8.4
Hume Avenue/13th Avenue/Houston Avenue/13 1/2 Avenue Alignment	2.3
Hume Avenue/Acquifer Drive/Houston Avenue/13th Avenue	11.4
Hume Avenue/12th Avenue/Houston Avenue/Acquifer Drive	11.1
Average	7.79

(1) Source: Kings County Associatioon of Governments VMT/Capita Map (See Appendix C)

4.0 Mitigation

Based on the results of Table 3-3, there are no intersections where improvements are needed for any of the existing or future scenarios. Therefore, no mitigation measures are needed to address traffic concerns.

Based on the results of Section 3.9, the project has a less than significant impact on VMT and no mitigation measures are needed.

Billingsley Ranch

Transportation Impact Study - Appendix

January 4, 2022

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722

APPENDIX A

Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: 13th Ave & Hanford Armona Rd
City: Hanford
Control: 1-Way Stop(NB)

Project ID: 21-090140-001
Date: 9/28/2021

Data - Totals

NS/EW Streets: 13th Ave | 13th Ave | Hanford Armona Rd | Hanford Armona Rd

AM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0.5	0.5	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	0	1	0	0	0	1	0	2	27	8	0	3	30	0	0	76
7:15 AM	10	0	2	0	1	0	1	0	2	24	2	0	4	46	0	0	92
7:30 AM	11	1	4	0	0	0	1	0	3	37	11	0	5	72	0	0	145
7:45 AM	20	1	4	0	0	2	1	0	1	52	17	0	9	100	0	0	207
8:00 AM	13	0	11	0	1	0	0	0	1	81	18	0	6	73	1	0	205
8:15 AM	15	0	1	0	1	0	0	0	3	65	8	1	5	55	0	0	154
8:30 AM	12	1	5	0	1	0	3	0	4	31	15	0	0	28	0	0	100
8:45 AM	10	0	4	0	0	1	4	0	4	26	7	0	4	25	1	0	86
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	95	3	32	0	4	3	11	0	20	343	86	1	36	429	2	0	1065
APPROACH %'s :	73.08%	2.31%	24.62%	0.00%	22.22%	16.67%	61.11%	0.00%	4.44%	76.22%	19.11%	0.22%	7.71%	91.86%	0.43%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	59	2	20	0	2	2	2	0	8	235	54	1	25	300	1	0	711
PEAK HR FACTOR :	0.738	0.500	0.455	0.000	0.500	0.250	0.500	0.000	0.667	0.725	0.750	0.250	0.694	0.750	0.250	0.000	0.859
	0.810				0.500				0.745				0.748				

PM

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0.5	0.5	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	12	0	9	0	1	0	2	0	2	62	19	0	12	52	1	0	172
4:15 PM	11	0	11	0	1	1	0	0	0	63	14	0	7	42	0	0	150
4:30 PM	20	0	6	0	1	0	0	0	3	61	24	0	8	44	0	0	167
4:45 PM	26	0	7	0	0	0	3	0	1	58	22	0	3	47	0	0	167
5:00 PM	23	0	8	0	0	0	0	0	0	43	21	0	10	58	0	0	163
5:15 PM	18	0	8	0	0	0	0	0	0	53	22	0	9	47	0	0	157
5:30 PM	19	0	9	0	0	0	0	0	0	65	15	0	9	47	0	0	164
5:45 PM	7	0	2	0	0	0	0	0	0	52	21	0	4	37	0	0	123
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	136	0	60	0	3	1	5	0	6	457	158	0	62	374	1	0	1263
APPROACH %'s :	69.39%	0.00%	30.61%	0.00%	33.33%	11.11%	55.56%	0.00%	0.97%	73.59%	25.44%	0.00%	14.19%	85.58%	0.23%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	69	0	33	0	3	1	5	0	6	244	79	0	30	185	1	0	656
PEAK HR FACTOR :	0.663	0.000	0.750	0.000	0.750	0.250	0.417	0.000	0.500	0.968	0.823	0.000	0.625	0.889	0.250	0.000	0.953
	0.773				0.750				0.935				0.831				

National Data & Surveying Services Intersection Turning Movement Count

Location: 12th Ave & Hanford Armona Rd
City: Hanford
Control: Signalized

Project ID: 21-090095-002
Date: 9/28/2021

Data - Totals

NS/EW Streets:	12th Ave				12th Ave				Hanford Armona Rd				Hanford Armona Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	39	3	0	27	43	6	0	6	18	8	0	6	28	25	0	219
7:15 AM	17	52	8	0	13	34	4	0	15	16	10	0	6	34	37	0	246
7:30 AM	21	76	8	0	21	30	8	0	19	23	11	0	9	38	47	0	311
7:45 AM	12	99	7	0	29	44	16	1	29	33	10	0	5	59	63	0	407
8:00 AM	21	86	11	0	45	45	11	3	15	42	15	0	5	39	62	0	400
8:15 AM	17	68	2	0	35	30	8	5	16	33	18	0	4	23	39	0	298
8:30 AM	5	48	5	0	42	39	8	2	9	22	6	0	4	15	48	0	253
8:45 AM	8	43	4	0	32	36	5	1	12	17	6	0	5	22	38	0	229
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	111	511	48	0	244	301	66	12	121	204	84	0	44	258	359	0	2363
APPROACH %'s :	16.57%	76.27%	7.16%	0.00%	39.17%	48.31%	10.59%	1.93%	29.58%	49.88%	20.54%	0.00%	6.66%	39.03%	54.31%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	71	329	28	0	130	149	43	9	79	131	54	0	23	159	211	0	1416
PEAK HR FACTOR :	0.845	0.831	0.636	0.000	0.722	0.828	0.672	0.450	0.681	0.780	0.750	0.000	0.639	0.674	0.837	0.000	0.870
	0.907				0.796				0.917				0.774				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1	2	0	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	7	63	18	0	75	75	27	3	18	48	16	0	11	46	38	0	445
4:15 PM	13	56	11	0	72	65	15	7	12	52	13	0	14	41	42	0	413
4:30 PM	13	76	11	0	63	77	15	6	16	42	15	0	9	43	46	0	432
4:45 PM	12	59	12	0	63	71	28	6	26	46	8	0	15	36	59	0	432
5:00 PM	7	60	10	0	74	83	23	2	14	45	11	0	9	46	61	0	445
5:15 PM	14	57	12	0	65	80	26	1	17	41	13	0	9	43	63	0	441
5:30 PM	12	56	12	0	50	65	16	3	19	42	17	0	11	33	52	0	388
5:45 PM	9	66	14	0	61	66	23	4	12	38	11	0	7	29	58	0	398
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	87	484	100	0	523	582	173	32	134	354	104	0	85	317	419	0	3394
APPROACH %'s :	12.97%	72.13%	14.90%	0.00%	39.92%	44.43%	13.21%	2.44%	22.64%	59.80%	17.57%	0.00%	10.35%	38.61%	51.04%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	46	243	45	0	265	311	92	15	73	174	47	0	42	168	229	0	1750
PEAK HR FACTOR :	0.821	0.799	0.938	0.000	0.895	0.937	0.821	0.625	0.702	0.946	0.783	0.000	0.700	0.913	0.909	0.000	0.983
	0.835				0.938				0.919				0.946				

APPENDIX B

Capacity Analysis Worksheets

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	235	54	25	300	1	59	2	20	2	2	2
Future Vol, veh/h	8	235	54	25	300	1	59	2	20	2	2	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	255	59	27	326	1	64	2	22	2	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	327	0	0	314	0	0	686	684	285	696	713	327
Stage 1	-	-	-	-	-	-	303	303	-	381	381	-
Stage 2	-	-	-	-	-	-	383	381	-	315	332	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1227	-	-	1241	-	-	360	370	752	355	356	712
Stage 1	-	-	-	-	-	-	704	662	-	639	612	-
Stage 2	-	-	-	-	-	-	638	612	-	694	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1227	-	-	1241	-	-	347	357	752	334	343	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	347	357	-	334	343	-
Stage 1	-	-	-	-	-	-	698	656	-	633	595	-
Stage 2	-	-	-	-	-	-	617	595	-	666	637	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	16.5	13.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	401	1227	-	-	1241	-	-	410
HCM Lane V/C Ratio	0.22	0.007	-	-	0.022	-	-	0.016
HCM Control Delay (s)	16.5	8	0	-	8	0	-	13.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↱	
Traffic Vol, veh/h	0	324	0	0	263	0	0	0	0	0	0	0
Future Vol, veh/h	0	324	0	0	263	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	352	0	0	286	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	352	0	0	638	638	352	638	638	-
Stage 1	-	-	-	-	-	-	352	352	-	286	286	-
Stage 2	-	-	-	-	-	-	286	286	-	352	352	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	-
Pot Cap-1 Maneuver	1270	-	-	1201	-	-	388	393	689	388	393	0
Stage 1	-	-	-	-	-	-	663	630	-	719	673	0
Stage 2	-	-	-	-	-	-	719	673	-	663	630	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1270	-	-	1201	-	-	388	393	689	388	393	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	388	393	-	388	393	-
Stage 1	-	-	-	-	-	-	663	630	-	719	673	-
Stage 2	-	-	-	-	-	-	719	673	-	663	630	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1270	-	-	1201	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	131	54	23	159	211	71	329	28	130	149	43
Future Volume (veh/h)	79	131	54	23	159	211	71	329	28	130	149	43
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	91	151	62	26	183	243	82	378	32	149	171	49
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	124	473	400	53	398	337	118	615	52	198	631	176
Arrive On Green	0.07	0.25	0.25	0.03	0.21	0.21	0.07	0.19	0.19	0.11	0.23	0.23
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	3291	277	1767	2724	758
Grp Volume(v), veh/h	91	151	62	26	183	243	82	202	208	149	109	111
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1806	1767	1763	1719
Q Serve(g_s), s	2.6	3.4	1.6	0.8	4.5	7.4	2.4	5.4	5.5	4.2	2.6	2.8
Cycle Q Clear(g_c), s	2.6	3.4	1.6	0.8	4.5	7.4	2.4	5.4	5.5	4.2	2.6	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.44
Lane Grp Cap(c), veh/h	124	473	400	53	398	337	118	329	337	198	409	398
V/C Ratio(X)	0.73	0.32	0.15	0.49	0.46	0.72	0.69	0.61	0.62	0.75	0.27	0.28
Avail Cap(c_a), veh/h	566	1310	1110	293	1023	867	532	1006	1031	804	1278	1247
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	15.7	15.0	24.8	17.8	18.9	23.7	19.4	19.4	22.3	16.3	16.4
Incr Delay (d2), s/veh	8.0	0.4	0.2	6.8	0.8	2.9	7.1	1.8	1.8	5.7	0.3	0.4
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	1.2	1.3	0.5	0.4	1.7	2.6	1.1	2.1	2.1	1.8	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	16.1	15.2	31.5	18.6	21.8	30.8	21.2	21.2	28.1	16.7	16.7
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		304			452			492			369	
Approach Delay, s/veh		20.5			21.1			22.8			21.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	15.1	7.0	18.6	8.9	17.4	9.1	16.5
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	23.6	29.6	8.6	36.6	15.6	37.6	16.6	28.6
Max Q Clear Time (g_c+I1), s	6.2	7.5	2.8	5.4	4.4	4.8	4.6	9.4
Green Ext Time (p_c), s	0.3	2.2	0.0	1.0	0.1	1.2	0.1	1.7

Intersection Summary	
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	244	79	30	185	1	69	0	33	3	1	5
Future Vol, veh/h	6	244	79	30	185	1	69	0	33	3	1	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	265	86	33	201	1	75	0	36	3	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	202	0	0	351	0	0	593	590	308	608	633	202
Stage 1	-	-	-	-	-	-	322	322	-	268	268	-
Stage 2	-	-	-	-	-	-	271	268	-	340	365	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1364	-	-	1202	-	-	416	419	730	406	396	836
Stage 1	-	-	-	-	-	-	688	649	-	735	685	-
Stage 2	-	-	-	-	-	-	733	685	-	673	622	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1364	-	-	1202	-	-	401	403	730	375	381	836
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	403	-	375	381	-
Stage 1	-	-	-	-	-	-	684	645	-	731	664	-
Stage 2	-	-	-	-	-	-	705	664	-	636	618	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	15	11.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	1364	-	-	1202	-	-	542
HCM Lane V/C Ratio	0.236	0.005	-	-	0.027	-	-	0.018
HCM Control Delay (s)	15	7.7	0	-	8.1	0	-	11.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↑	
Traffic Vol, veh/h	0	300	0	0	261	0	0	0	0	0	0	0
Future Vol, veh/h	0	300	0	0	261	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	326	0	0	284	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	284	0	0	326	0	0	610	610	326	610	610	-
Stage 1	-	-	-	-	-	-	326	326	-	284	284	-
Stage 2	-	-	-	-	-	-	284	284	-	326	326	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	-
Pot Cap-1 Maneuver	1273	-	-	1228	-	-	405	408	713	405	408	0
Stage 1	-	-	-	-	-	-	684	647	-	721	675	0
Stage 2	-	-	-	-	-	-	721	675	-	684	647	0
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1273	-	-	1228	-	-	405	408	713	405	408	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	405	408	-	405	408	-
Stage 1	-	-	-	-	-	-	684	647	-	721	675	-
Stage 2	-	-	-	-	-	-	721	675	-	684	647	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1273	-	-	1228	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	174	47	42	168	229	46	243	45	265	311	92
Future Volume (veh/h)	73	174	47	42	168	229	46	243	45	265	311	92
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	79	189	51	46	183	249	50	264	49	288	338	100
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	111	422	358	80	391	331	85	434	79	358	809	236
Arrive On Green	0.06	0.23	0.23	0.05	0.21	0.21	0.05	0.15	0.15	0.20	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	2976	544	1767	2692	785
Grp Volume(v), veh/h	79	189	51	46	183	249	50	155	158	288	220	218
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1758	1767	1763	1714
Q Serve(g_s), s	2.5	5.0	1.5	1.5	4.9	8.5	1.6	4.7	4.8	8.9	5.7	5.8
Cycle Q Clear(g_c), s	2.5	5.0	1.5	1.5	4.9	8.5	1.6	4.7	4.8	8.9	5.7	5.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.46
Lane Grp Cap(c), veh/h	111	422	358	80	391	331	85	257	257	358	530	515
V/C Ratio(X)	0.71	0.45	0.14	0.57	0.47	0.75	0.59	0.60	0.62	0.81	0.41	0.42
Avail Cap(c_a), veh/h	421	930	788	297	800	678	328	760	758	1103	1532	1490
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	18.9	17.6	26.7	19.7	21.1	26.6	22.8	22.9	21.7	15.9	16.0
Incr Delay (d2), s/veh	8.3	0.7	0.2	6.3	0.9	3.5	6.4	2.3	2.4	4.3	0.5	0.6
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	2.0	0.5	0.7	2.0	3.0	0.8	1.9	1.9	3.6	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	19.7	17.8	33.0	20.6	24.6	33.0	25.1	25.3	26.0	16.5	16.6
LnGrp LOS	C	B	B	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		319			478			363			726	
Approach Delay, s/veh		23.1			23.9			26.2			20.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	13.7	8.0	18.4	8.1	22.5	9.0	17.4
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	35.6	24.6	9.6	28.6	10.6	49.6	13.6	24.6
Max Q Clear Time (g_c+I1), s	10.9	6.8	3.5	7.0	3.6	7.8	4.5	10.5
Green Ext Time (p_c), s	0.8	1.5	0.0	1.1	0.0	2.6	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	241	54	28	320	1	59	2	21	2	2	2
Future Vol, veh/h	8	241	54	28	320	1	59	2	21	2	2	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	262	59	30	348	1	64	2	23	2	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	349	0	0	321	0	0	721	719	292	731	748	349
Stage 1	-	-	-	-	-	-	310	310	-	409	409	-
Stage 2	-	-	-	-	-	-	411	409	-	322	339	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1204	-	-	1233	-	-	341	353	745	336	340	692
Stage 1	-	-	-	-	-	-	698	657	-	617	594	-
Stage 2	-	-	-	-	-	-	616	594	-	688	638	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1233	-	-	328	339	745	314	327	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	328	339	-	314	327	-
Stage 1	-	-	-	-	-	-	692	651	-	611	576	-
Stage 2	-	-	-	-	-	-	593	576	-	659	632	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	17.2	14.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	383	1204	-	-	1233	-	-	390
HCM Lane V/C Ratio	0.233	0.007	-	-	0.025	-	-	0.017
HCM Control Delay (s)	17.2	8	0	-	8	0	-	14.4
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	278	7	11	307	0	22	0	34	0	0	0
Future Vol, veh/h	0	278	7	11	307	0	22	0	34	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	302	8	12	334	0	24	0	37	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	334	0	0	310	0	0	664	664	306	683	668	334
Stage 1	-	-	-	-	-	-	306	306	-	358	358	-
Stage 2	-	-	-	-	-	-	358	358	-	325	310	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1220	-	-	1245	-	-	373	380	732	362	378	706
Stage 1	-	-	-	-	-	-	702	660	-	658	626	-
Stage 2	-	-	-	-	-	-	658	626	-	685	657	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1220	-	-	1245	-	-	370	375	732	341	373	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	375	-	341	373	-
Stage 1	-	-	-	-	-	-	702	660	-	658	618	-
Stage 2	-	-	-	-	-	-	650	618	-	650	657	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	12.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	529	1220	-	-	1245	-	-	-
HCM Lane V/C Ratio	0.115	-	-	-	0.01	-	-	-
HCM Control Delay (s)	12.7	0	-	-	7.9	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	137	57	23	161	211	72	329	28	130	149	51
Future Volume (veh/h)	104	137	57	23	161	211	72	329	28	130	149	51
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	120	157	66	26	185	243	83	378	32	149	171	59
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	158	504	427	53	394	334	117	606	51	197	596	199
Arrive On Green	0.09	0.27	0.27	0.03	0.21	0.21	0.07	0.18	0.18	0.11	0.23	0.23
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	3291	277	1767	2596	866
Grp Volume(v), veh/h	120	157	66	26	185	243	83	202	208	149	114	116
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1806	1767	1763	1700
Q Serve(g_s), s	3.6	3.6	1.7	0.8	4.7	7.7	2.5	5.7	5.7	4.4	2.9	3.0
Cycle Q Clear(g_c), s	3.6	3.6	1.7	0.8	4.7	7.7	2.5	5.7	5.7	4.4	2.9	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.51
Lane Grp Cap(c), veh/h	158	504	427	53	394	334	117	325	333	197	405	390
V/C Ratio(X)	0.76	0.31	0.15	0.49	0.47	0.73	0.71	0.62	0.63	0.76	0.28	0.30
Avail Cap(c_a), veh/h	547	1265	1072	283	989	838	514	972	996	777	1235	1191
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	15.5	14.9	25.6	18.5	19.7	24.6	20.2	20.2	23.1	17.0	17.1
Incr Delay (d2), s/veh	7.3	0.3	0.2	6.9	0.9	3.0	7.7	1.9	1.9	5.8	0.4	0.4
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	1.6	1.3	0.5	0.4	1.8	2.7	1.2	2.2	2.3	1.9	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	15.9	15.0	32.5	19.4	22.7	32.3	22.1	22.1	28.9	17.4	17.5
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		343			454			493			379	
Approach Delay, s/veh		21.1			21.9			23.8			22.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	15.3	7.0	20.0	8.9	17.7	10.2	16.8
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	23.6	29.6	8.6	36.6	15.6	37.6	16.6	28.6
Max Q Clear Time (g_c+I1), s	6.4	7.7	2.8	5.6	4.5	5.0	5.6	9.7
Green Ext Time (p_c), s	0.3	2.2	0.0	1.0	0.1	1.3	0.2	1.7

Intersection Summary	
HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	266	79	32	198	1	69	0	36	3	1	5
Future Vol, veh/h	6	266	79	32	198	1	69	0	36	3	1	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	289	86	35	215	1	75	0	39	3	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	216	0	0	375	0	0	635	632	332	652	675	216
Stage 1	-	-	-	-	-	-	346	346	-	286	286	-
Stage 2	-	-	-	-	-	-	289	286	-	366	389	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1348	-	-	1178	-	-	390	396	707	380	374	821
Stage 1	-	-	-	-	-	-	668	634	-	719	673	-
Stage 2	-	-	-	-	-	-	716	673	-	651	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1348	-	-	1178	-	-	374	380	707	348	359	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	374	380	-	348	359	-
Stage 1	-	-	-	-	-	-	663	630	-	714	650	-
Stage 2	-	-	-	-	-	-	686	650	-	611	603	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	15.8	12.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	446	1348	-	-	1178	-	-	514
HCM Lane V/C Ratio	0.256	0.005	-	-	0.03	-	-	0.019
HCM Control Delay (s)	15.8	7.7	0	-	8.1	0	-	12.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	300	25	37	261	0	15	0	22	0	0	0
Future Vol, veh/h	0	300	25	37	261	0	15	0	22	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	326	27	40	284	0	16	0	24	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	284	0	0	353	0	0	704	704	340	716	717	284
Stage 1	-	-	-	-	-	-	340	340	-	364	364	-
Stage 2	-	-	-	-	-	-	364	364	-	352	353	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1273	-	-	1200	-	-	350	360	700	344	354	753
Stage 1	-	-	-	-	-	-	673	637	-	653	622	-
Stage 2	-	-	-	-	-	-	653	622	-	663	629	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1273	-	-	1200	-	-	339	346	700	322	340	753
Mov Cap-2 Maneuver	-	-	-	-	-	-	339	346	-	322	340	-
Stage 1	-	-	-	-	-	-	673	637	-	653	597	-
Stage 2	-	-	-	-	-	-	627	597	-	640	629	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	13	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	1273	-	-	1200	-	-	-
HCM Lane V/C Ratio	0.082	-	-	-	0.034	-	-	-
HCM Control Delay (s)	13	0	-	-	8.1	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	178	49	42	172	229	49	243	45	265	311	120
Future Volume (veh/h)	90	178	49	42	172	229	49	243	45	265	311	120
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	98	193	53	46	187	249	53	264	49	288	338	130
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	128	439	372	80	389	330	87	431	79	357	744	281
Arrive On Green	0.07	0.24	0.24	0.05	0.21	0.21	0.05	0.14	0.14	0.20	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	2976	544	1767	2502	946
Grp Volume(v), veh/h	98	193	53	46	187	249	53	155	158	288	236	232
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1758	1767	1763	1685
Q Serve(g_s), s	3.2	5.2	1.5	1.5	5.2	8.6	1.7	4.8	4.9	9.0	6.3	6.5
Cycle Q Clear(g_c), s	3.2	5.2	1.5	1.5	5.2	8.6	1.7	4.8	4.9	9.0	6.3	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.56
Lane Grp Cap(c), veh/h	128	439	372	80	389	330	87	255	255	357	524	501
V/C Ratio(X)	0.77	0.44	0.14	0.58	0.48	0.76	0.61	0.61	0.62	0.81	0.45	0.46
Avail Cap(c_a), veh/h	413	913	773	292	785	665	322	746	744	1082	1504	1438
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	18.9	17.5	27.2	20.2	21.6	27.1	23.3	23.4	22.1	16.6	16.7
Incr Delay (d2), s/veh	9.2	0.7	0.2	6.4	0.9	3.5	6.6	2.3	2.5	4.4	0.6	0.7
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	1.5	2.0	0.5	0.7	2.1	3.1	0.8	1.9	2.0	3.7	2.3	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	19.6	17.7	33.7	21.1	25.1	33.7	25.6	25.8	26.5	17.2	17.3
LnGrp LOS	D	B	B	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		344			482			366			756	
Approach Delay, s/veh		23.9			24.4			26.9			20.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	13.8	8.0	19.2	8.3	22.7	9.6	17.6
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	35.6	24.6	9.6	28.6	10.6	49.6	13.6	24.6
Max Q Clear Time (g_c+I1), s	11.0	6.9	3.5	7.2	3.7	8.5	5.2	10.6
Green Ext Time (p_c), s	0.8	1.5	0.0	1.1	0.0	2.9	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	275	84	28	336	1	70	2	21	2	2	2
Future Vol, veh/h	8	275	84	28	336	1	70	2	21	2	2	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	299	91	30	365	1	76	2	23	2	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	366	0	0	390	0	0	791	789	345	801	834	366
Stage 1	-	-	-	-	-	-	363	363	-	426	426	-
Stage 2	-	-	-	-	-	-	428	426	-	375	408	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1187	-	-	1163	-	-	306	322	696	301	303	677
Stage 1	-	-	-	-	-	-	654	623	-	604	584	-
Stage 2	-	-	-	-	-	-	603	584	-	644	595	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1187	-	-	1163	-	-	294	308	696	280	290	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	294	308	-	280	290	-
Stage 1	-	-	-	-	-	-	647	617	-	598	565	-
Stage 2	-	-	-	-	-	-	580	565	-	614	589	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	20.1	15.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	338	1187	-	-	1163	-	-	353
HCM Lane V/C Ratio	0.299	0.007	-	-	0.026	-	-	0.018
HCM Control Delay (s)	20.1	8.1	0	-	8.2	0	-	15.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	359	0	11	278	0	22	0	34	0	0	0
Future Vol, veh/h	0	359	0	11	278	0	22	0	34	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	390	0	12	302	0	24	0	37	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	302	0	0	390	0	0	716	716	390	735	716	302
Stage 1	-	-	-	-	-	-	390	390	-	326	326	-
Stage 2	-	-	-	-	-	-	326	326	-	409	390	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1253	-	-	1163	-	-	344	355	656	334	355	735
Stage 1	-	-	-	-	-	-	632	606	-	684	647	-
Stage 2	-	-	-	-	-	-	684	647	-	617	606	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1253	-	-	1163	-	-	341	351	656	312	351	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	351	-	312	351	-
Stage 1	-	-	-	-	-	-	632	606	-	684	639	-
Stage 2	-	-	-	-	-	-	676	639	-	582	606	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	13.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	481	1253	-	-	1163	-	-	-
HCM Lane V/C Ratio	0.127	-	-	-	0.01	-	-	-
HCM Control Delay (s)	13.6	0	-	-	8.1	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	168	58	23	174	215	78	336	29	133	152	52
Future Volume (veh/h)	106	168	58	23	174	215	78	336	29	133	152	52
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	122	193	67	26	200	247	90	386	33	153	175	60
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	161	512	434	53	398	338	120	610	52	202	602	200
Arrive On Green	0.09	0.28	0.28	0.03	0.21	0.21	0.07	0.19	0.19	0.11	0.23	0.23
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	3288	280	1767	2601	863
Grp Volume(v), veh/h	122	193	67	26	200	247	90	206	213	153	117	118
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1805	1767	1763	1700
Q Serve(g_s), s	3.7	4.6	1.8	0.8	5.2	8.0	2.7	5.9	6.0	4.6	3.0	3.1
Cycle Q Clear(g_c), s	3.7	4.6	1.8	0.8	5.2	8.0	2.7	5.9	6.0	4.6	3.0	3.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.51
Lane Grp Cap(c), veh/h	161	512	434	53	398	338	120	327	335	202	408	394
V/C Ratio(X)	0.76	0.38	0.15	0.49	0.50	0.73	0.75	0.63	0.64	0.76	0.29	0.30
Avail Cap(c_a), veh/h	633	1342	1137	245	935	793	504	921	943	729	1146	1106
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	16.0	15.0	26.2	18.9	20.0	25.1	20.6	20.6	23.5	17.3	17.4
Incr Delay (d2), s/veh	7.1	0.5	0.2	7.0	1.0	3.1	8.9	2.0	2.0	5.8	0.4	0.4
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	1.7	1.7	0.6	0.4	2.0	2.8	1.3	2.3	2.4	2.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	16.5	15.2	33.1	19.9	23.1	33.9	22.6	22.6	29.3	17.7	17.8
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		382			473			509			388	
Approach Delay, s/veh		21.0			22.3			24.6			22.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	15.6	7.0	20.5	9.1	18.1	10.4	17.2
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	22.6	28.6	7.6	39.6	15.6	35.6	19.6	27.6
Max Q Clear Time (g_c+I1), s	6.6	8.0	2.8	6.6	4.7	5.1	5.7	10.0
Green Ext Time (p_c), s	0.3	2.2	0.0	1.3	0.1	1.3	0.2	1.7

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	290	100	32	234	1	102	0	37	3	1	5
Future Vol, veh/h	6	290	100	32	234	1	102	0	37	3	1	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	315	109	35	254	1	111	0	40	3	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	255	0	0	424	0	0	712	709	370	729	763	255
Stage 1	-	-	-	-	-	-	384	384	-	325	325	-
Stage 2	-	-	-	-	-	-	328	325	-	404	438	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1304	-	-	1130	-	-	346	358	673	337	333	781
Stage 1	-	-	-	-	-	-	637	610	-	685	647	-
Stage 2	-	-	-	-	-	-	683	647	-	621	577	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1304	-	-	1130	-	-	331	343	673	307	319	781
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	343	-	307	319	-
Stage 1	-	-	-	-	-	-	633	606	-	680	624	-
Stage 2	-	-	-	-	-	-	653	624	-	580	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	20.4	12.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	383	1304	-	-	1130	-	-	466
HCM Lane V/C Ratio	0.394	0.005	-	-	0.031	-	-	0.021
HCM Control Delay (s)	20.4	7.8	0	-	8.3	0	-	12.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	325	25	37	298	0	15	0	22	0	0	0
Future Vol, veh/h	0	325	25	37	298	0	15	0	22	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	353	27	40	324	0	16	0	24	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	324	0	0	380	0	0	771	771	367	783	784	324
Stage 1	-	-	-	-	-	-	367	367	-	404	404	-
Stage 2	-	-	-	-	-	-	404	404	-	379	380	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1230	-	-	1173	-	-	316	330	676	310	324	715
Stage 1	-	-	-	-	-	-	650	620	-	621	597	-
Stage 2	-	-	-	-	-	-	621	597	-	641	612	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1230	-	-	1173	-	-	306	316	676	290	310	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	316	-	290	310	-
Stage 1	-	-	-	-	-	-	650	620	-	621	572	-
Stage 2	-	-	-	-	-	-	595	572	-	618	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	13.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	454	1230	-	-	1173	-	-	-
HCM Lane V/C Ratio	0.089	-	-	-	0.034	-	-	-
HCM Control Delay (s)	13.7	0	-	-	8.2	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	200	50	43	210	234	50	248	46	270	317	122
Future Volume (veh/h)	91	200	50	43	210	234	50	248	46	270	317	122
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	99	217	54	47	228	254	54	270	50	293	345	133
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	129	452	383	80	400	339	88	431	79	360	748	283
Arrive On Green	0.07	0.24	0.24	0.05	0.22	0.22	0.05	0.14	0.14	0.20	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	2977	544	1767	2500	948
Grp Volume(v), veh/h	99	217	54	47	228	254	54	158	162	293	242	236
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1758	1767	1763	1685
Q Serve(g_s), s	3.3	6.0	1.6	1.6	6.5	9.0	1.8	5.0	5.2	9.4	6.6	6.8
Cycle Q Clear(g_c), s	3.3	6.0	1.6	1.6	6.5	9.0	1.8	5.0	5.2	9.4	6.6	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.56
Lane Grp Cap(c), veh/h	129	452	383	80	400	339	88	255	254	360	527	504
V/C Ratio(X)	0.77	0.48	0.14	0.59	0.57	0.75	0.62	0.62	0.64	0.81	0.46	0.47
Avail Cap(c_a), veh/h	433	984	834	285	828	702	314	669	667	1026	1379	1318
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	19.3	17.7	27.9	20.9	21.9	27.8	23.9	24.0	22.6	17.0	17.0
Incr Delay (d2), s/veh	9.1	0.8	0.2	6.6	1.3	3.3	6.9	2.5	2.6	4.5	0.6	0.7
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	1.6	2.4	0.5	0.7	2.6	3.2	0.9	2.1	2.1	3.9	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	20.1	17.8	34.5	22.2	25.2	34.6	26.4	26.6	27.1	17.6	17.7
LnGrp LOS	D	C	B	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		370			529			374			771	
Approach Delay, s/veh		24.1			24.7			27.7			21.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	14.0	8.1	19.9	8.4	23.2	9.8	18.3
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	34.6	22.6	9.6	31.6	10.6	46.6	14.6	26.6
Max Q Clear Time (g_c+I1), s	11.4	7.2	3.6	8.0	3.8	8.8	5.3	11.0
Green Ext Time (p_c), s	0.8	1.5	0.0	1.3	0.0	2.9	0.1	1.8

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	269	84	26	320	1	70	2	20	2	2	2
Future Vol, veh/h	8	269	84	26	320	1	70	2	20	2	2	2
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	9	292	91	28	348	1	76	2	22	2	2	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	349	0	0	383	0	0	763	761	338	773	806	349
Stage 1	-	-	-	-	-	-	356	356	-	405	405	-
Stage 2	-	-	-	-	-	-	407	405	-	368	401	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1204	-	-	1170	-	-	320	334	702	315	314	692
Stage 1	-	-	-	-	-	-	659	627	-	620	597	-
Stage 2	-	-	-	-	-	-	619	597	-	650	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1204	-	-	1170	-	-	308	321	702	295	301	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	321	-	295	301	-
Stage 1	-	-	-	-	-	-	652	621	-	614	579	-
Stage 2	-	-	-	-	-	-	596	579	-	621	593	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	19.3	15
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	351	1204	-	-	1170	-	-	368
HCM Lane V/C Ratio	0.285	0.007	-	-	0.024	-	-	0.018
HCM Control Delay (s)	19.3	8	0	-	8.2	0	-	15
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	313	0	0	323	0	0	0	0	0	0	0
Future Vol, veh/h	0	313	0	0	323	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	340	0	0	351	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	351	0	0	340	0	0	691	691	340	691	691	351
Stage 1	-	-	-	-	-	-	340	340	-	351	351	-
Stage 2	-	-	-	-	-	-	351	351	-	340	340	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1202	-	-	1214	-	-	358	366	700	358	366	690
Stage 1	-	-	-	-	-	-	673	637	-	664	630	-
Stage 2	-	-	-	-	-	-	664	630	-	673	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1202	-	-	1214	-	-	358	366	700	358	366	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	366	-	358	366	-
Stage 1	-	-	-	-	-	-	673	637	-	664	630	-
Stage 2	-	-	-	-	-	-	664	630	-	673	637	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1202	-	-	1214	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	163	55	23	172	215	72	336	29	133	152	44
Future Volume (veh/h)	81	163	55	23	172	215	72	336	29	133	152	44
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	93	187	63	26	198	247	83	386	33	153	175	51
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	125	478	405	53	403	341	118	620	53	203	642	182
Arrive On Green	0.07	0.26	0.26	0.03	0.22	0.22	0.07	0.19	0.19	0.11	0.24	0.24
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	3288	280	1767	2712	768
Grp Volume(v), veh/h	93	187	63	26	198	247	83	206	213	153	112	114
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1805	1767	1763	1717
Q Serve(g_s), s	2.7	4.4	1.6	0.8	4.9	7.7	2.4	5.7	5.7	4.4	2.7	2.9
Cycle Q Clear(g_c), s	2.7	4.4	1.6	0.8	4.9	7.7	2.4	5.7	5.7	4.4	2.7	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.45
Lane Grp Cap(c), veh/h	125	478	405	53	403	341	118	333	341	203	417	406
V/C Ratio(X)	0.75	0.39	0.16	0.49	0.49	0.72	0.70	0.62	0.63	0.76	0.27	0.28
Avail Cap(c_a), veh/h	556	1286	1090	288	1005	852	522	988	1012	790	1255	1223
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	16.2	15.2	25.2	18.1	19.2	24.1	19.7	19.7	22.7	16.4	16.5
Incr Delay (d2), s/veh	8.6	0.5	0.2	6.8	0.9	2.9	7.5	1.9	1.9	5.6	0.3	0.4
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	1.3	1.6	0.5	0.4	1.9	2.7	1.1	2.2	2.2	1.9	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	16.7	15.3	32.0	19.0	22.1	31.6	21.6	21.6	28.3	16.8	16.9
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		343			471			502			379	
Approach Delay, s/veh		20.8			21.4			23.2			21.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	15.4	7.0	19.0	8.9	17.9	9.1	16.9
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	23.6	29.6	8.6	36.6	15.6	37.6	16.6	28.6
Max Q Clear Time (g_c+I1), s	6.4	7.7	2.8	6.4	4.4	4.9	4.7	9.7
Green Ext Time (p_c), s	0.3	2.2	0.0	1.2	0.1	1.2	0.1	1.8

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	268	100	31	221	1	102	0	34	3	1	5
Future Vol, veh/h	6	268	100	31	221	1	102	0	34	3	1	5
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	291	109	34	240	1	111	0	37	3	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	241	0	0	400	0	0	672	669	346	687	723	241
Stage 1	-	-	-	-	-	-	360	360	-	309	309	-
Stage 2	-	-	-	-	-	-	312	309	-	378	414	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1320	-	-	1153	-	-	368	377	695	360	351	795
Stage 1	-	-	-	-	-	-	656	625	-	699	658	-
Stage 2	-	-	-	-	-	-	696	658	-	642	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1320	-	-	1153	-	-	353	362	695	330	337	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	353	362	-	330	337	-
Stage 1	-	-	-	-	-	-	651	621	-	694	636	-
Stage 2	-	-	-	-	-	-	667	636	-	604	587	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	19	12.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1320	-	-	1153	-	-	491
HCM Lane V/C Ratio	0.367	0.005	-	-	0.029	-	-	0.02
HCM Control Delay (s)	19	7.7	0	-	8.2	0	-	12.5
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	325	0	0	298	0	0	0	0	0	0	0
Future Vol, veh/h	0	325	0	0	298	0	0	0	0	0	0	0
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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	353	0	0	324	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	324	0	0	353	0	0	677	677	353	677	677	324
Stage 1	-	-	-	-	-	-	353	353	-	324	324	-
Stage 2	-	-	-	-	-	-	324	324	-	353	353	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1230	-	-	1200	-	-	365	373	688	365	373	715
Stage 1	-	-	-	-	-	-	662	629	-	686	648	-
Stage 2	-	-	-	-	-	-	686	648	-	662	629	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1230	-	-	1200	-	-	365	373	688	365	373	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	373	-	365	373	-
Stage 1	-	-	-	-	-	-	662	629	-	686	648	-
Stage 2	-	-	-	-	-	-	686	648	-	662	629	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1230	-	-	1200	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

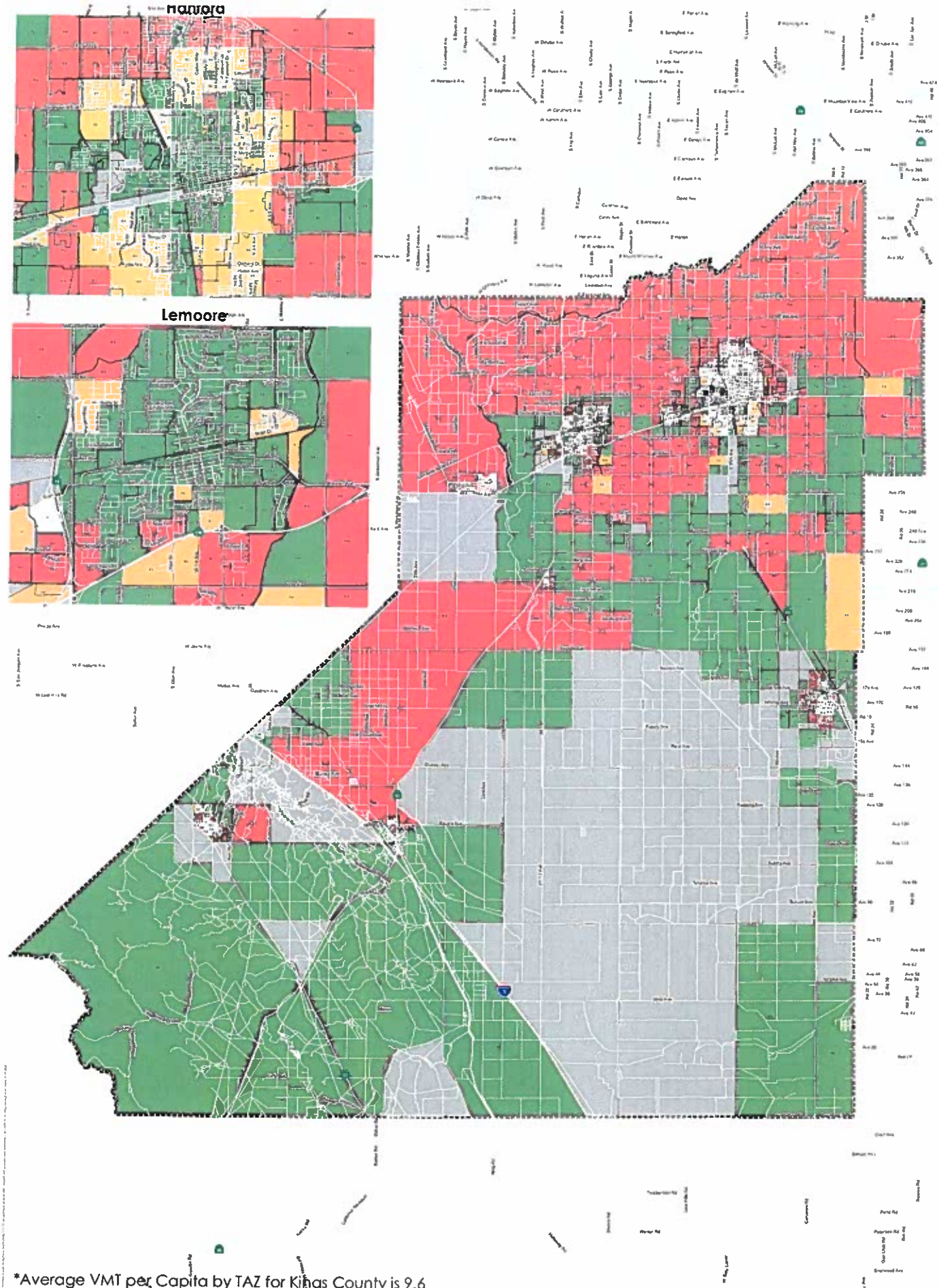
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	196	49	43	203	234	47	248	46	270	317	94
Future Volume (veh/h)	74	196	49	43	203	234	47	248	46	270	317	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	213	53	47	221	254	51	270	50	293	345	102
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, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	110	430	364	81	399	338	85	438	80	362	818	238
Arrive On Green	0.06	0.23	0.23	0.05	0.22	0.22	0.05	0.15	0.15	0.20	0.30	0.30
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	2977	544	1767	2693	784
Grp Volume(v), veh/h	80	213	53	47	221	254	51	158	162	293	224	223
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1763	1758	1767	1763	1714
Q Serve(g_s), s	2.6	5.8	1.6	1.5	6.2	8.8	1.6	4.9	5.0	9.2	5.9	6.1
Cycle Q Clear(g_c), s	2.6	5.8	1.6	1.5	6.2	8.8	1.6	4.9	5.0	9.2	5.9	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.46
Lane Grp Cap(c), veh/h	110	430	364	81	399	338	85	259	259	362	535	521
V/C Ratio(X)	0.73	0.50	0.15	0.58	0.55	0.75	0.60	0.61	0.63	0.81	0.42	0.43
Avail Cap(c_a), veh/h	412	911	772	291	783	664	321	744	742	1080	1500	1459
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	19.4	17.8	27.3	20.4	21.4	27.2	23.3	23.3	22.1	16.2	16.2
Incr Delay (d2), s/veh	8.8	0.9	0.2	6.5	1.2	3.4	6.6	2.3	2.5	4.4	0.5	0.6
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	1.3	2.3	0.5	0.7	2.5	3.2	0.8	2.0	2.0	3.8	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	20.3	18.0	33.7	21.6	24.8	33.7	25.6	25.8	26.4	16.7	16.8
LnGrp LOS	D	C	B	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		346			522			371			740	
Approach Delay, s/veh		23.5			24.2			26.8			20.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.3	14.0	8.1	18.9	8.2	23.1	9.0	17.9
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	35.6	24.6	9.6	28.6	10.6	49.6	13.6	24.6
Max Q Clear Time (g_c+I1), s	11.2	7.0	3.5	7.8	3.6	8.1	4.6	10.8
Green Ext Time (p_c), s	0.8	1.5	0.0	1.2	0.0	2.7	0.1	1.7

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

APPENDIX C

Kings County Association of Governments VMT/Capita Map



*Average VMT per Capita by TAZ for Kings County is 9.6

15% or More Below Average

14% Below Average to Average

Above Average

No Data

Kings County

0 2.25 Miles

Average VMT per Capita by TAZ
Kings County, CA