Mount Vernon Avenue Overhead Replacement Project

Traffic/Circulation Study
FINAL

CIP Contract No.SS04-012

Prepared for
The City of San Bernardino

October 2017

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1. Introduction and Background

The City of San Bernardino is proposing to replace the Mount Vernon Avenue Bridge, No. 54C-0066. The bridge, which was constructed in 1934, carries four traffic lanes (two in each direction), with raised sidewalks on each side. The lane widths and sidewalk widths are non-standard. The bridge has been rated by the California Division of Structure Maintenance & Investigations as structurally deficient and functionally obsolete. In 2004, Caltrans established the Sufficiency Rating for the bridge as 2.0 after cracks were found in the main steel girders supporting the bridge. The bridge was closed by the City of San Bernardino for 6 months while timber shoring supports were installed to carry loads in the vicinity of the cracks. The bridge is currently closed to all commercial traffic including trucks and buses. The existing bridge will be replaced to improve seismic performance, provide standard vertical clearance over the rail tracks and comply with American Association of State Highway and Transportation Officials (AASHTO) roadway cross section standards. This report presents the methodology and results of the traffic and circulation analysis for the reconstruction of the Mount Vernon Avenue Bridge. A separate report titled, "*Mount Vernon Avenue Bridge Pedestrian and Vehicular Detour Analysis*" (Detour Analysis Report) provides an analysis and recommendations related to the impacts of closing Mount Vernon Avenue during construction of the bridge.

2. Project Description

The Mount Vernon Avenue Bridge carries Mount Vernon Avenue over the Burlington Northern Santa Fe (BNSF) Intermodal Yard. Mount Vernon Avenue is a major north/south arterial in western City of San Bernardino. The bridge provides the only arterial crossing over the BNSF rail lines between Rancho Avenue (approximately 1.1 miles to the west) and 5th Street (approximately 0.6 miles to the east), which provide north-south access in the area. The profile of the replacement bridge will be different from that of the existing bridge, necessitating the raising of the intersection of Mount Vernon Avenue and 2nd Street. The proposed project striping plans are provided in Appendix A. Mount Vernon Avenue is proposed to be closed from 2019/2020 to 2022 while the bridge is replaced.

Since the purpose of the project is to replace a structurally deficient bridge and not to increase capacity, the study area is limited to the intersections directly affected by the project. The following three study intersections were specifically evaluated this traffic analysis report and to support the environmental documentation of the project:

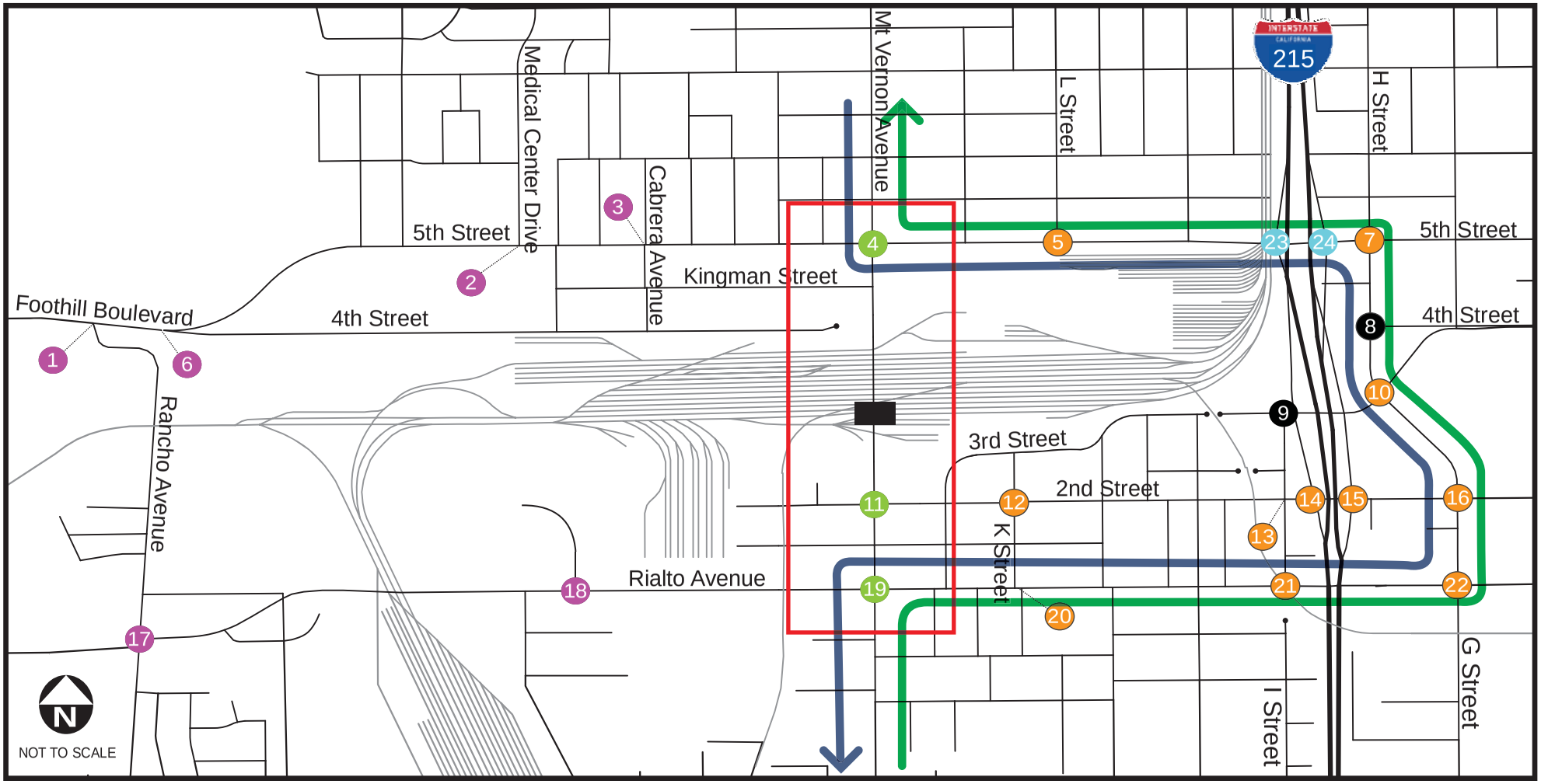
1. Mt. Vernon Avenue/5th Street (signalized)
2. Mt. Vernon Avenue/2nd Street (signalized)
3. Mt. Vernon Avenue/Rialto Avenue (signalized)

Additionally, the aforementioned three study intersections in this traffic report are also included in the updated Detour Analysis Report, which is currently under preparation as a separate document from this study. The scope of the updated detour analysis report encompass 16 study locations along Mt. Vernon Avenue and the detour area to the east. The six detour study intersections to the west of Mt. Vernon Avenue that were previously evaluated were found to have sufficient capacity to handle the potential detour trips (10 percent of north-south Mt. Vernon traffic) and were not further evaluated in detail in the detour analysis.

The locations of the project site and the three study area intersections including the previous and current the Detour Analysis intersections are illustrated in Figure 1. A roadway capacity analysis for Mount Vernon Avenue between Kingman Street and 2nd Street is also included in the traffic analysis.

Traffic conditions are evaluated for each of the following scenarios:

- Existing (2017) Conditions
- Opening year (2022) without project
- Opening year (2022) with project
- Design year (2040) without project
- Design year (2040) with project



Legend

- # Traffic Study Intersections #1, #2 and #3
- # Proposed new counts for detour study
- # Proposed new counts for detour study (New locations)
- # No new counts proposed as these locations were largely not impacted as part of original detour analysis
- # Intersections no longer relevant in the detour analysis
- Study Area
- Study Roadway Segment
- Proposed Detour Route

Figure 1

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Study Area Map

3. Methodology

This section details the methodologies for data collection, traffic projections, level of service analysis, queuing analysis, and roadway segment analysis.

3.1. Data Collection

Intersection turning movement counts, including heavy vehicle (truck-axle classification) counts were obtained during typical (weekday) AM/PM peak periods at the study intersections. The counts were collected on Tuesday, May 9, 2017, during the following peak periods:

- Weekday AM period: 7:00 AM – 9:00 AM
- Weekday PM period: 4:00 PM – 6:00 PM

The peak hour volume used in the analysis is the highest single hour of traffic during each of the peak periods. In addition, daily traffic volumes including typical AM/PM peak hour heavy vehicle (truck) classification counts on Mount Vernon Avenue between Kingman Street and 2nd Street were also collected on the same day as the turning movement counts. Table 1 summarizes the daily roadway segment traffic on Mount Vernon Avenue showing the breakdown of vehicle class totals and percent share of the daily traffic total.

Table 1: Mt. Vernon Avenue Vehicle Classification Counts

Vehicle Class	Count (% of Daily Total)
Class 1 - Motorcycles	15 (<1%)
Class 2 – Passenger Cars	12,182 (78%)
Class 3 - 2-Axle, 4-Tire Single Units	2,214 (14%)
Class 4 - Buses	35 (<1%)
Class 5 - 2-Axle, 6-Tire Single Units	2,092 (7%)
Class 6 - 3-Axle Single Units	44 (<1%)
Class 7 - > =4-Axle Single Units	-
Class 8 - <=4-Axle Single Trailers	-
Class 9 - 5-Axle Single Trailers	-
Class 10 - >=6-Axle Single Trailers	-
Class 11 - <=5-Axle Multi-Trailers	-
Class 12 - 6-Axle Multi-Trailers	-
Class 13 - >=7-Axle Multi-Trailers	-

Source: National Data & Surveying Services (NDS), Mt Vernon Ave between Kingman St & 2nd St Daily Classification Counts.

Existing lane geometry and traffic volumes are shown in Figures 2 and 3, respectively. The updated traffic counts are included in Appendix B.

3.2. Volume Development

Traffic volume forecasts for Design Year (2040) conditions were developed using the San Bernardino Transportation Analysis Model (SBTAM). The model has a base year of 2012 and forecast year of 2040. AECOM obtained the raw SBTAM model link volumes for the base year and the forecast year from San Bernardino County Transportation Authority (SBCTA). The raw data included AM peak period, PM peak

period, and daily volumes for vehicular and heavy truck traffic. Design year (2040) traffic volumes for No-Build and Build scenarios were developed using the post-processing methodology described below:

- For each link, modeled 2012 volumes were subtracted from modeled 2040 volumes. This difference represents 28 years of growth on each link.
- For design year (2040) volumes, changes in peak hour volumes represent the growth that would be expected in the 23-year span between existing counts (2017) and the design year (2040). The 28 years of growth was multiplied by 0.82 (23/28) to develop 23 years of growth.
- The 23 years of growth was then added to the 2017 link volumes (existing counts) to obtain future 2040 link volumes.
- For all intersections future turning movement volumes were developed from existing turning movement volumes and post-processed future link volumes using the methodology described in National Cooperative Highway Research Program (NCHRP) 255, *Highway Traffic Data for Urbanized Area Project Planning and Design* (Transportation Research Board, 1982).

Year 2022 intersection volumes were developed by interpolating between existing volumes and post-processed 2040 volumes.

Once completed, the project is not anticipated to shift traffic patterns within the study area along Mount Vernon Avenue, and the reconstruction of the bridge itself is not anticipated to increase traffic demand along Mount Vernon Avenue or any study area location. Therefore, the intersection volumes with the project would remain the same as without the project.

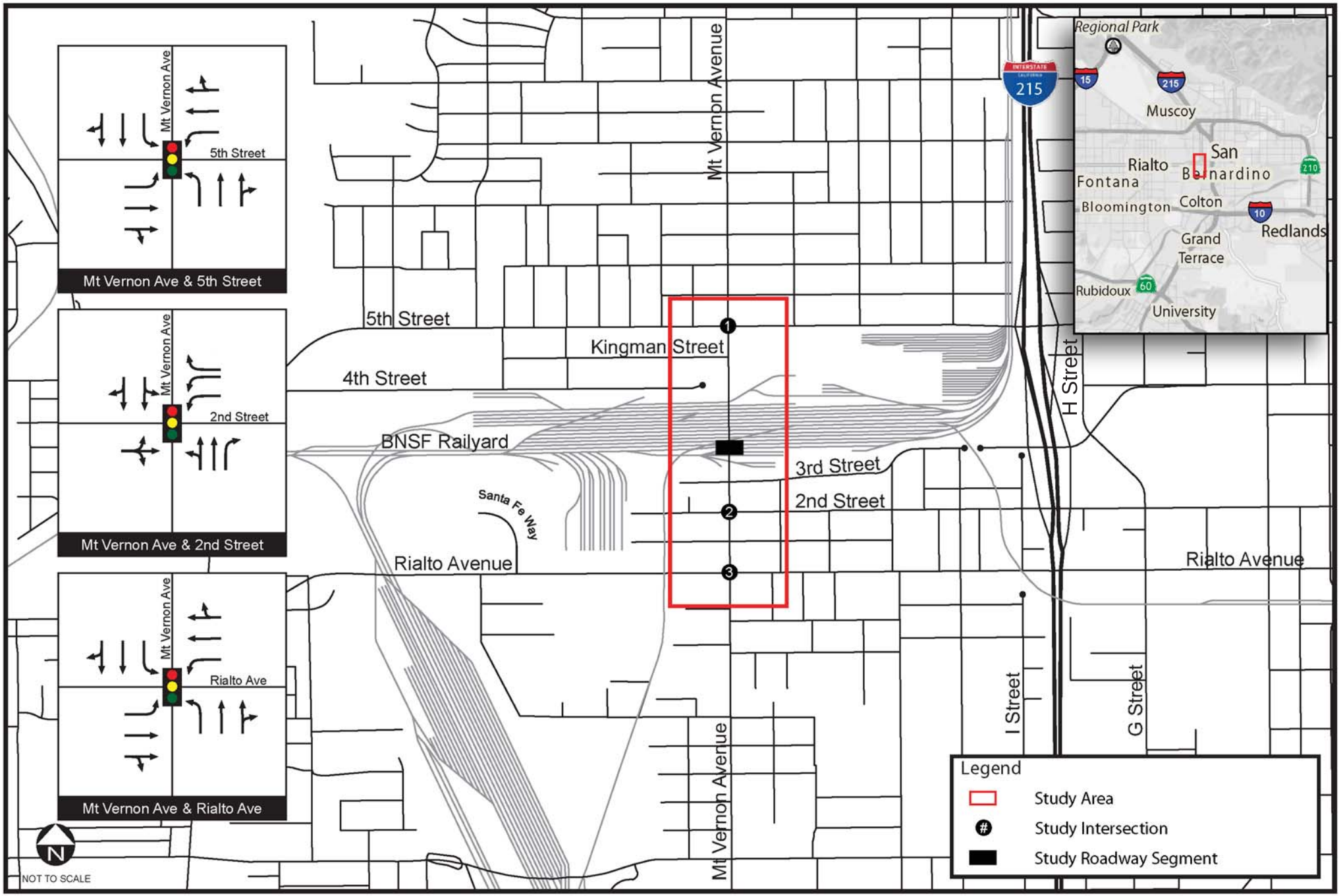

Figure 2

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Existing Lane Geometry

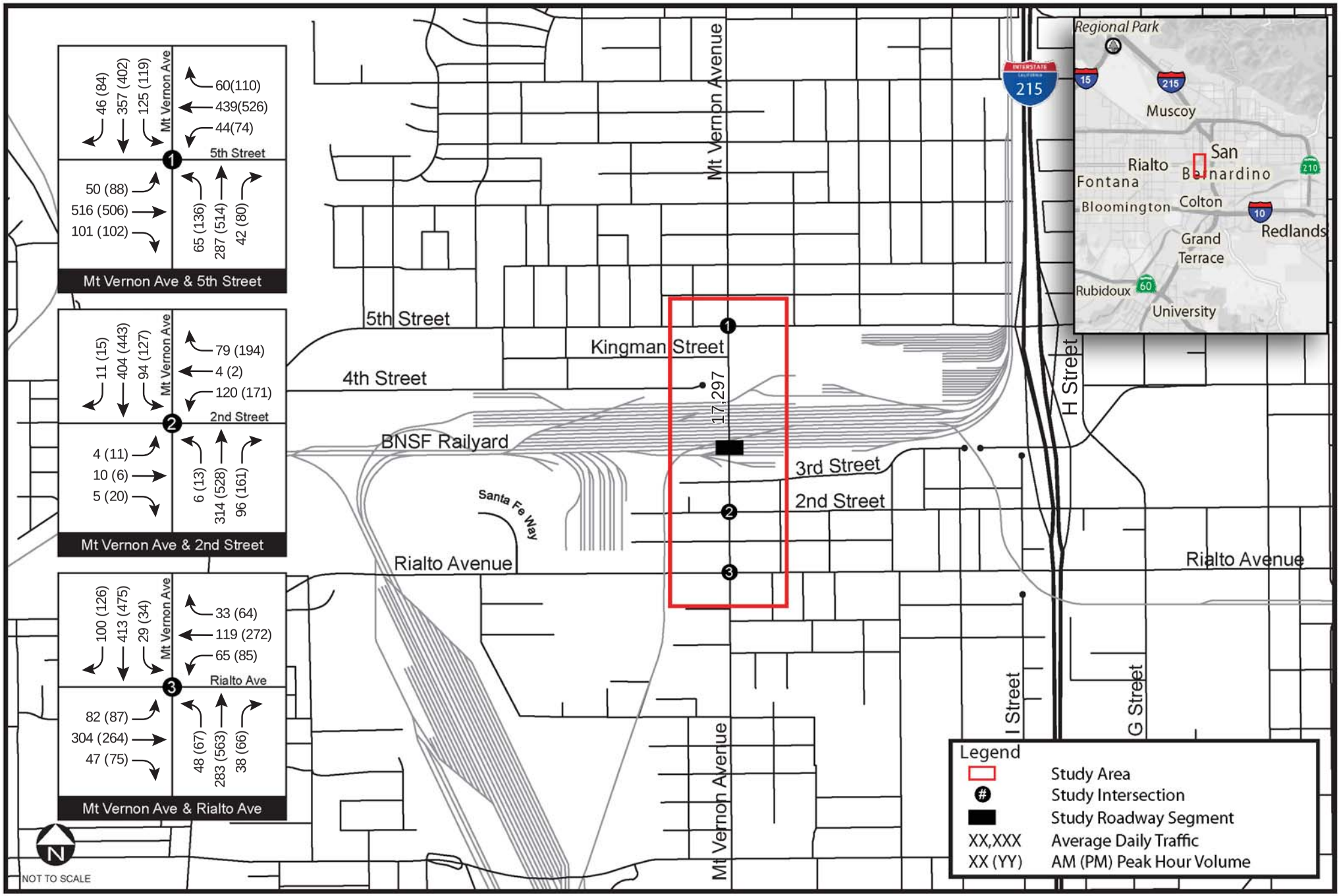

Figure 3

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Existing Traffic Counts

3.3. Analysis Methodology

3.3.1. Intersection Level of Service Analysis

This section presents the methodology used to perform the intersection level of service (LOS) analysis, consistent with the *City of San Bernardino Traffic Impact Study Guidelines (2004)* and the CMP (2016). The *City of San Bernardino Traffic Impact Study Guidelines (2004)* establishes LOS D as the acceptable LOS threshold for intersection operations. The methodology used to assess the operation of signalized intersections in San Bernardino County is the *Highway Capacity Manual* (HCM 2010) methodology. Under the HCM 2010 methodology, LOS thresholds are based on the average delay incurred by vehicles traveling through an intersection. Delay is dependent on a number of factors including the signal cycle length, the roadway capacity (number of travel lanes) provided on each intersection approach, and the traffic demand.

The LOS analysis is used to evaluate congestion and delay on streets and highways. The relative level of congestion is evaluated on a scale from A through F. Level of Service A indicates free-flow conditions with no delay. Level of Service F indicates breakdown of the system with very long delays. The relationship between the LOS and delay for signalized intersections are shown in Table 2.

Table 2: Levels of Service for Signalized Intersections

Level of Service	Signalized Intersection Control Delay (seconds)
A	0 -10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	80 or more

Source: Highway Capacity Manual 2010

The computer software program Synchro (version 9) was used to calculate the intersection delay and resulting LOS. Synchro is a traffic signal progression analysis software tool that is capable of performing intersection delay analyses using various methodologies, including the HCM 2010 method. The CMP requires specific assumptions regarding input values to the HCM methodology. These assumptions include the following:

- Saturation flow rate of 1,800 vehicles per hour per lane (vphpl) for through and right-turn lanes and 1,700 vphpl for left-turn lanes for existing and opening year conditions;
- Saturation flow rate of 1,900 vehicles per hour per lane (vphpl) for through and right-turn lanes and 1,800 vphpl for left-turn lanes for design year conditions; and,
- Two seconds lost time per phase.

3.3.2. Roadway Capacity Analysis

A roadway segment capacity analysis is included in this traffic analysis to determine the appropriate number of lanes for the Mount Vernon Avenue Bridge. The *City of San Bernardino General Plan Circulation Element (2005)* provides daily roadway capacities and establishes the acceptable LOS

threshold for roadway operations as LOS C. According to the General Plan, Mount Vernon Avenue is designated as a major arterial in the City of San Bernardino. The General Plan determines roadway segment LOS based on the volume to capacity (V/C) ratio, as shown in Table 3.

Table 3: Levels of Service for Roadway Segments

Level of Service	Volume/Capacity Ratio Thresholds
A	0.0 – 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

Source: *City of San Bernardino General Plan Circulation Element (2005)*

According to the City's General Plan, the capacities of two-lane and four-lane major arterials are 15,000 and 40,000 vehicles per day, respectively. Using roadway capacities and daily traffic volumes, the volume to capacity ratio indicates if the number of lanes on the roadway is sufficient for the volume of vehicles. If the V/C ratio is greater than the LOS C threshold, the roadway capacity is insufficient; if the V/C ratio is less than or equal to the LOS C threshold, the capacity is sufficient for the number of vehicles on the roadway.

3.3.3. Queue Length Analysis

A queue length analysis is included to determine the required turn pocket lengths, including access to turning lanes from the through lanes. This traffic analysis analyzed the vehicle queues for all approaches to the study intersections. Vehicle queues for lane approaches that exceed the capacity of available queue space indicate locations of potential spillover queues that may contribute to congestion, weaving, and safety issues. Also, vehicle queues in the through lane that are longer than the adjacent left-turn pocket length indicate the through lane may be blocking the left-turn vehicles from accessing the left-turn lane.

4. Existing Conditions

This section presents an overview of the existing roadway system, transit network, and pedestrian/bicycle facilities within the study area.

4.1. Existing Roadway System

Key roadway facilities within the project study area are described below. The discussion presented here focuses on roadways that are approaches to the study intersections or roadways that are directly affected by the proposed project. The classification of the roadways is based on the *City of San Bernardino General Plan Circulation Element (2005)*.

- Mount Vernon Avenue: Between 5th Street and Rialto Avenue, Mount Vernon Avenue is a four-lane undivided major arterial. On-street parking is not permitted along Mount Vernon Avenue in the study area, and the posted speed limit is 25 mph approaching the bridge, otherwise the speed limit is 35 mph.

- Mount Vernon Avenue (Frontage Road): A short grade-separated segment functioning as a frontage road of Mount Vernon Avenue extends from 3rd Street to 2nd Street with one lane in each direction. This local frontage road intersects the Mount Vernon Avenue/2nd Street intersection as a fifth leg.

- 5th Street: 5th Street is a four lane major arterial that is divided by a two-way left-turn lane east of Mount Vernon Avenue and is undivided west of Mount Vernon Avenue. On-street parking is not permitted on 5th Street, and the speed limit is 35 mph.

- 2nd Street: East of Mount Vernon Avenue, 2nd Street is a four-lane major arterial that is divided by a two-way left-turn lane. West of Mount Vernon Avenue, 2nd Street is a two-lane local street providing access to a residential neighborhood. East of Mount Vernon Avenue, on-street parking is not permitted, and the posted speed limit is 35 mph. West of Mount Vernon Avenue, on-street parking is permitted on 2nd Street, and the speed limit is 25 mph for the residential neighborhood.

- Rialto Avenue: Rialto Avenue is a four lane undivided secondary arterial. On-street parking is permitted on Rialto Avenue, and the posted speed limit is 35 mph east of Mount Vernon Avenue and 45 mph west of Mount Vernon Avenue.

4.2. Existing Intersection Level of Service Analysis

A level of service analysis was conducted to evaluate existing intersection operations during the weekday AM and PM peak hours. As shown in Table 4, all study area intersections currently operate at acceptable levels of service. Level of service calculation worksheets are included in Appendix C.

Table 4: Existing (2017) Conditions Intersection Level of Service

Intersections		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay[1]	LOS	Delay[1]	LOS
1	Mt. Vernon Ave/5th St	Signal	48.0	D	47.5	D
2	Mt. Vernon Ave/2nd St	Signal	22.4	C	24.5	C
3	Mt. Vernon Ave/Rialto Ave	Signal	16.4	B	16.3	B

[1] Average control delay, in seconds per vehicle

4.3. Existing Roadway Capacity Analysis

A roadway segment capacity analysis was conducted to evaluate existing conditions during a typical weekday. Under existing conditions, Mount Vernon Avenue is a four-lane undivided major arterial between Kingman Street and 2nd Street. With the capacity of four lanes, the roadway V/C ratio is 0.43 (LOS A) as shown in Table 5. The capacity of Mount Vernon Avenue is adequate for the travel demand.

Table 5: Existing (2017) Conditions Roadway Capacity

Location	Number of Lanes	Capacity	Existing Weekday Volume	Volume/ Capacity	LOS
Mt Vernon Ave between 5th St and 2nd St	4	40,000	17,297	0.43	A

Note: Capacity based on *City of San Bernardino General Plan Circulation Element (2005).*

4.4. Existing Queue Length Analysis

A queue length analysis was completed for existing conditions during AM and PM peak hours. As shown in Table6 below, the left-turn lane vehicle queues for the Mount Vernon Avenue/2nd Street intersection are currently operating within the available turn pocket lengths for both peak hours. In addition, the through movement queues adjacent to the left-turn pockets do not extend beyond the existing turn pocket lengths, so the left-turn vehicles do not experience difficulty accessing the left-turn lane.

For the Mount Vernon Avenue/5th Street intersection, the left-turn vehicle queue length for the southbound approach exceeds the available left-turn lane length in both of the peak hours. In addition, for all approaches at the Mount Vernon Avenue/5th Street intersection in either or both of the peak hours, the through movement queues exceed the adjacent left-turn pocket lengths indicating that through movement queues may be blocking access to the left-turn lane. For the Mount Vernon Avenue/Rialto Avenue intersection, the left-turn queue length for the eastbound approach exceeds the available storage length in PM peak hour. In addition, the through movement queues exceed the adjacent left-turn pocket lengths for all approaches in either or both of the peak hours. Queuing analysis worksheets are provided in Appendix D.

Table 6: Existing (2017) Conditions Queue Length Analysis

Intersection		Approach Direction	Lane	Available Storage Length (feet)	Queue Length (feet)	
					AM Peak Hour	PM Peak Hour
1	Mt. Vernon Ave/5th St	Northbound	Left	100	56	114
			Thru	2,045	93	*164*
		Southbound	Left	80	101	127
			Thru	680	*115*	*128*
		Eastbound	Left	150	56	106
			Thru	1,780	*182*	*178*
		Westbound	Left	95	51	95
			Thru	1,460	*144*	*192*
2	Mt. Vernon Ave/2nd St	Northbound	Thru	680	141	246
		Southbound	Thru	2,045	191	226
		Eastbound	Thru	630	24	32
		Westbound	Left	550	108	150
			Thru	550	50	69
3	Mt. Vernon Ave/Rialto Ave	Northbound	Left	85	26	35
			Thru	1,610	54	*108*
		Southbound	Left	80	17	20
			Thru	680	*85*	*98*
		Eastbound	Left	80	77	82
			Thru	2,420	*119*	*104*
		Westbound	Left	90	66	80
			Thru	1,880	49	*106*

Note: Bold indicates queues longer than capacity. *Italic* indicates the through movement queue is longer than the adjacent turning pocket length.

4.5. Existing Transit Facilities

Public transportation in the San Bernardino area is provided by Omnitrans, as the regional public transit operator for San Bernardino County. Omnitrans operates 14 local-fixed routes in the City of San Bernardino. The following weekday Omnitrans bus routes directly serve the study area:

- Route 1 (Colton – Del Rosa): Local fixed-route service that operates along Mount Vernon Avenue (south of 2nd Street) and 2nd Street (east of Mount Vernon Avenue) in the study area with service provided every 15 minutes.
- Route 3 & 4 (West San Bernardino – Baseline – Highland): Local fixed-route service that provides service along Mount Vernon Avenue (north of 5th Street) and 5th Street (east of Mount Vernon Avenue) in the study area with service provided every 20 minutes.
- Route 14 (Fontana – Foothill – San Bernardino): Local fixed-route service that provides service along 5th Street in the study area with service provided every 15 minutes.

4.6. Existing Pedestrian Facilities

According to the *Pedestrian and Vehicular Detour Analysis* (2004), 242 pedestrians and cyclists crossed the bridge on Monday, May 3, 2004, with the greatest number of trips, 26 trips, occurring between 4:00 and 5:00 p.m. As part of this Traffic Study, new 24-hour pedestrian and bicycle counts were collected in May 2017. The new counts show that 175 pedestrians (90 northbound and 85 southbound or 175 combined directions) and 74 cyclists (32 northbound and 42 southbound or 74 combined directions) crossed the bridge resulting in a total of 249 pedestrian and cyclist crossings. The results of the new pedestrians and cyclists counts show that counts collected in 2004 remain largely unchanged as compared to 2017. On Mount Vernon Avenue, sidewalks are provided; however, on the bridge structure, the sidewalks are reduced to 3 feet 6 inches. Continuous sidewalks are provided on both sides of the street on 5th Street, 2nd Street, and Rialto Avenue. Striped crosswalks are provided on all four approaches for all study area intersections as well.

4.7. Existing Bicycle Facilities

Bicycle usage is encouraged within the City of San Bernardino; however, there are currently no striped or marked bicycle facilities within the study area. A Class II facility is planned on Mount Vernon Avenue from Highland Avenue to Grant Street in the study area as shown in the *San Bernardino County Non-Motorized Transportation Plan – March 2011(Revised May 6, 2015).*

5. Future Without Project Conditions

Without the bridge reconstruction, there would be no changes to the lane geometry of the study area intersections; therefore, the existing lane geometry was used for the without project analysis at study area intersections and roadway segments.

The opening year (2022) and design year (2040) volumes were developed as described previously in Section 3.2, "Volume Development." Opening year (2022), design year (2040) traffic volumes, and network changes are shown in Figures 4 and 5.

5.1. Opening Year (2022) Conditions

5.1.1. Intersection Level of Service Analysis

An intersection level of service analysis was conducted to evaluate opening year (2022) without project conditions during the weekday AM and PM peak hours. Table 7 summarizes the opening year (2022) without project level of service at the study area intersections. As shown in Table7, all study area intersections would operate at acceptable levels of service, with only minor increases in delay over existing conditions.

Table 7: Opening Year (2022) Without Project Intersection LOS

Intersections		Peak Hour	Existing (2017)		2022 Without Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Mt. Vernon Ave/5th St	AM	48.0	D	47.1	D
		PM	47.5	D	48.5	D
2	Mt. Vernon Ave/2nd St	AM	22.4	C	21.9	C
		PM	24.5	C	25.5	C
3	Mt. Vernon Ave/Rialto Ave	AM	16.4	B	16.3	B
		PM	16.3	B	16.7	B

[1] Average control delay, in seconds per vehicle

5.1.2. Roadway Capacity Analysis

A roadway segment capacity analysis was conducted to evaluate opening year (2022) without project conditions. The number of lanes provided for the opening year (2022) without project scenario would remain the same as existing conditions. With four lanes of capacity, the V/C ratio would be 0.47 (LOS A) as shown in Table 8. The capacity of Mount Vernon Avenue would continue to adequately serve the travel demand.

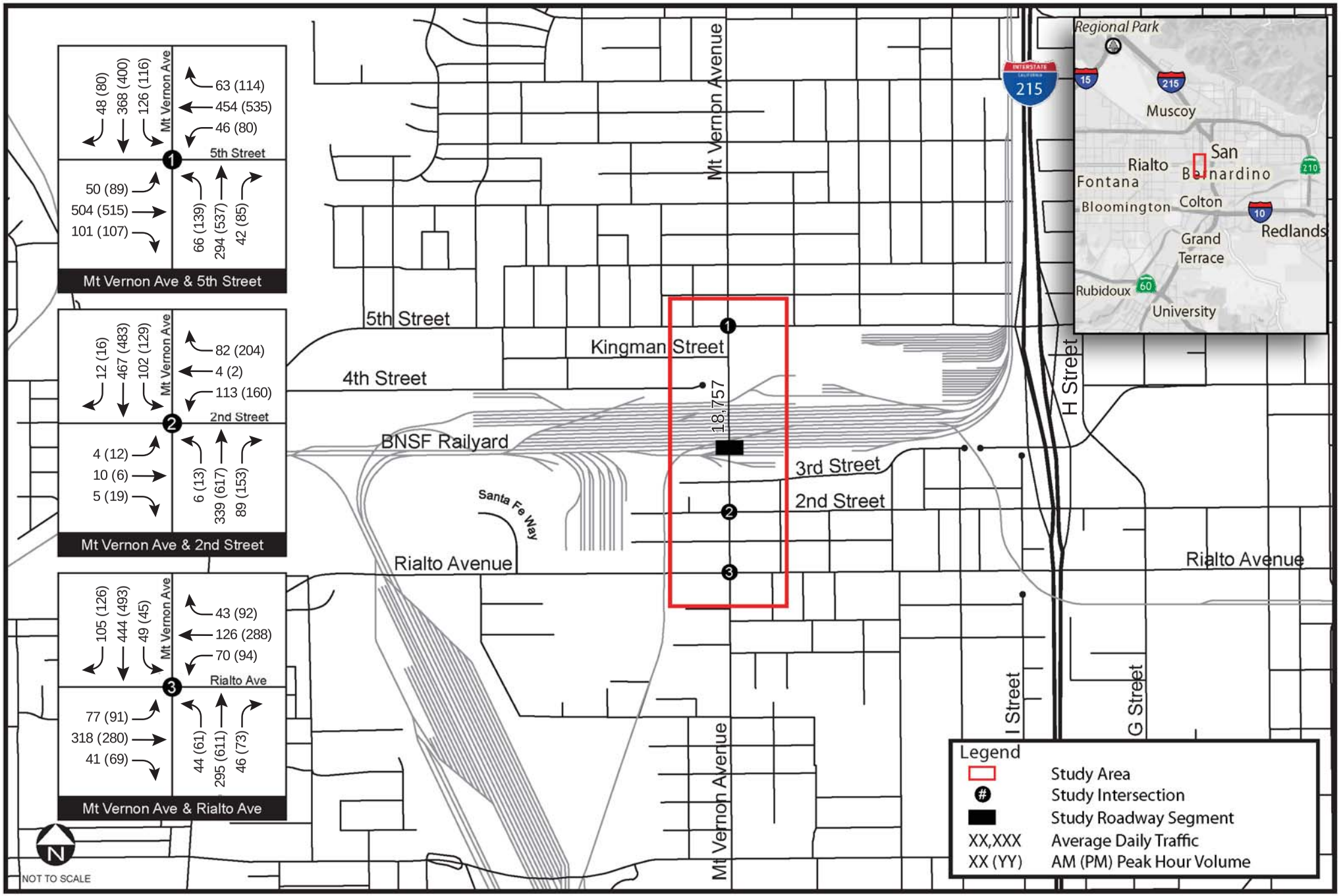

Figure 4

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Opening Year (2022) Traffic Volumes

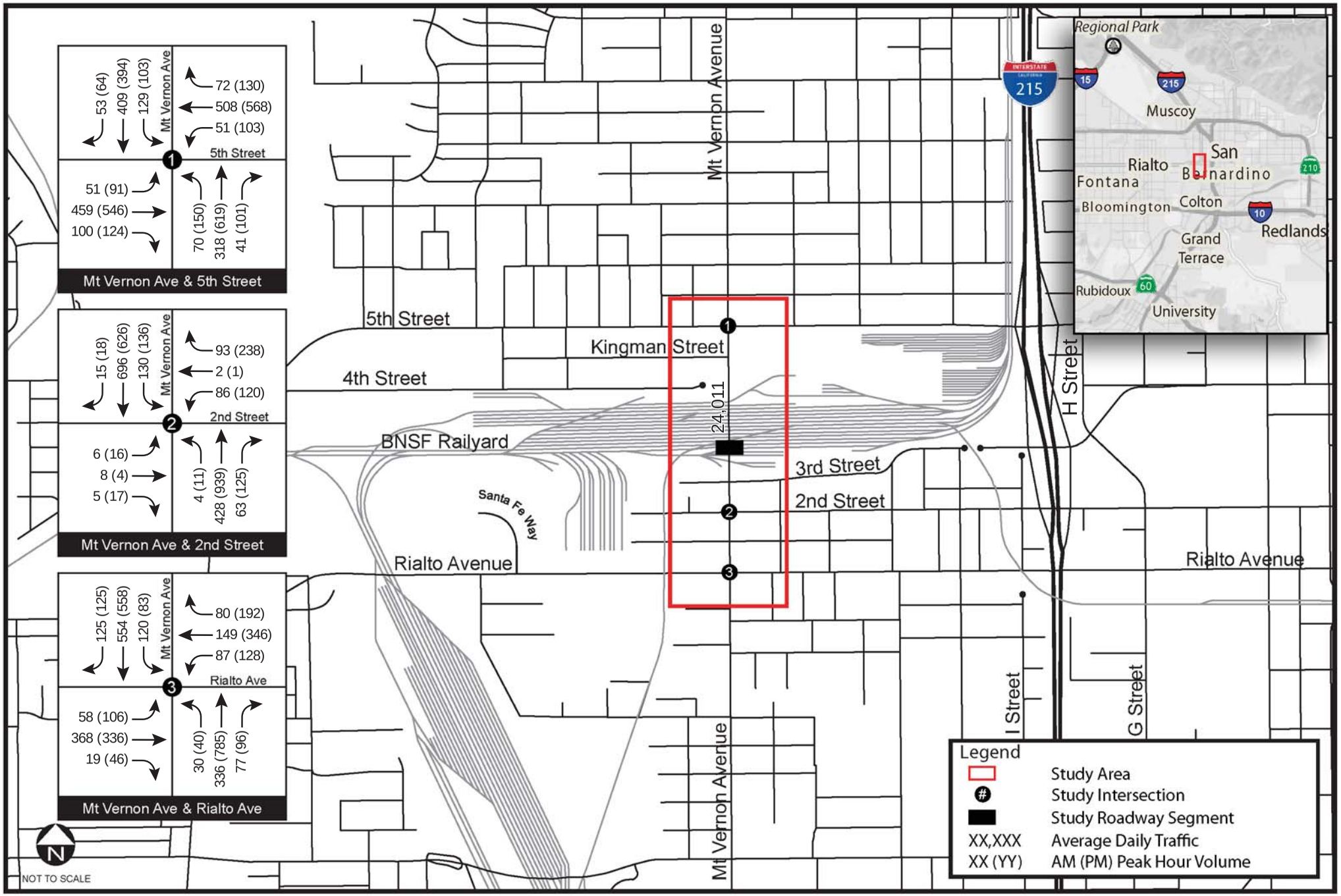

Figure 5

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Design Year (2040) Traffic Volumes

Table 8: Opening Year (2022) Without Project Roadway Capacity

Location	Number of Lanes	Capacity	2022 Without Project Weekday Volume	Volume/ Capacity	LOS
Mt Vernon Ave between 5th St and 2nd St	4	40,000	18,757	0.47	A

Note: Capacity based on *City of San Bernardino General Plan Circulation Element (2005)*

5.1.3. Queue Length Analysis

A queue length analysis was completed for opening year (2022) without project conditions during AM and PM peak hours. As shown in Table9 below, the left-turn lane vehicle queues for the Mount Vernon Avenue/2nd Street intersection would operate within the available turn pocket lengths for both peak hours. In addition, the through movement queues adjacent to the left-turn pockets would not extend beyond the existing turn pocket lengths, so the left-turn vehicles would not experience difficulty accessing the left-turn lane.

For the Mount Vernon Avenue/5th Street intersection, the left-turn vehicle queue lengths for the southbound and westbound approaches would exceed the available left-turn lane length in either or both of the peak hours. In addition, for all approaches at the Mount Vernon Avenue/5th Street intersection in either or both of the peak hours, the through movement queues would exceed the adjacent left-turn pocket lengths indicating that through movement queues might block access to the left-turn lane. For the Mount Vernon Avenue/Rialto Avenue intersection, the left-turn queue length for the eastbound approach would exceed the available storage length in PM peak hour. In addition, the through movement queues would exceed the adjacent left-turn pocket lengths for all approaches in either or both of the peak hours. Queuing analysis worksheets are provided in Appendix D.

Table 9: Opening Year (2022) Without Project Queue Length Analysis

Intersection		Approach Direction	Lane	Available Storage Length (feet)	Existing (2017) Queue Length (feet)		2022 Without Project Queue Length (feet)	
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Mt. Vernon Ave/5th St	Northbound	Left	100	56	114	57	115
			Thru	2,045	93	*164*	95	*173*
		Southbound	Left	80	101	127	102	130
			Thru	680	*115*	*128*	*118*	*127*
		Eastbound	Left	150	56	106	56	107
			Thru	1,780	*182*	*178*	*178*	*187*
		Westbound	Left	95	51	95	53	93
			Thru	1,460	*144*	*192*	*151*	*197*
2	Mt. Vernon Ave/2nd St	Northbound	Thru	680	141	246	157	314
		Southbound	Thru	2,045	191	226	212	265
		Eastbound	Thru	630	24	32	25	33
		Westbound	Left	550	108	150	107	141
			Thru	550	50	69	49	69
3	Mt. Vernon Ave/Rialto Ave	Northbound	Left	85	26	35	25	34
			Thru	1,610	54	*108*	57	*124*
		Southbound	Left	80	17	20	26	26
			Thru	680	85	*98*	94	*105*
		Eastbound	Left	80	77	82	73	85
			Thru	2,420	*119*	*104*	*123*	*107*
		Westbound	Left	90	66	80	70	85
			Thru	1,880	49	*106*	51	*113*

Note: Bold indicates queues longer than capacity. *Italic* indicates the through movement queue is longer than the adjacent turning pocket length.

5.2. Design Year (2040) Conditions

5.2.1. Intersection Level of Service Analysis

An intersection level of service analysis was conducted to evaluate design year (2040) without project conditions during the weekday AM and PM peak hours. Table 10 summarizes the design year (2040) without level of service at the study area intersections. As shown in the table, all study area intersections would operate at acceptable levels of service

Table 10: Design Year (2040) Without Project Intersection LOS

Intersections		Peak Hour	Existing (2017)		2040 Without Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Mt. Vernon Ave/5th St	AM	48.0	D	39.1	D
		PM	47.5	D	50.0	D
2	Mt. Vernon Ave/2nd St	AM	22.4	C	23.5	C
		PM	24.5	C	29.9	C
3	Mt. Vernon Ave/Rialto Ave	AM	16.4	B	15.8	B
		PM	16.3	B	19.3	B

[1] Average control delay, in seconds per vehicle

5.2.2. Roadway Capacity Analysis

A roadway segment capacity analysis was conducted to evaluate design year (2040) without project conditions during typical weekday conditions. The number of lanes provided for the design year (2040) without project scenario would remain the same as existing conditions. With four lanes of capacity, the V/C ratio would be 0.60 (LOS A) as shown in Table 11. The capacity of Mount Vernon Avenue would continue to adequately serve the traffic demand.

Table 11: Design Year (2040) Without Project Roadway Capacity

Location	Number of Lanes	Capacity	2040 Without Project Weekday Volumes	Volume/ Capacity	LOS
Mt Vernon Ave between 5th St and 2nd St	4	40,000	24,011	0.60	A

Note: Capacity based on *City of San Bernardino General Plan Circulation Element (2005).*

5.2.3. Queue Length Analysis

A queue length analysis was completed for design year (2040) without project conditions during AM and PM peak hours. As shown in Table 12 below, the left-turn lane vehicle queues for the Mount Vernon Avenue/2nd Street intersection would operate within the available turn pocket lengths for both peak hours. In addition, the through movement queues adjacent to the left-turn pockets would not extend

beyond the existing turn pocket lengths, so the left-turn vehicles would not experience difficulty accessing the left-turn lane.

For the Mount Vernon Avenue/5th Street intersection, the left-turn vehicle queue lengths for the northbound, southbound and westbound approaches would exceed the available left-turn lane length in either or both of the peak hours. In addition, for all approaches at the Mount Vernon Avenue/5th Street intersection in either or both of the peak hours, the through movement queues would exceed the adjacent left-turn pocket lengths indicating that through movement queues might block access to the left-turn lane. For the Mount Vernon Avenue/Rialto Avenue intersection, the left-turn queue lengths for the eastbound and westbound approaches would exceed the available storage length in PM peak hour. In addition, the through movement queues would exceed the adjacent left-turn pocket lengths for all approaches in either or both of the peak hours. Queuing analysis worksheets are provided in Appendix D.

Table 12: Design Year (2040) Without Project Queue Length Analysis

Intersection		Approach Direction	Lane	Available Storage Length (feet)	Existing (2017) Queue Length (feet)		2040 Without Project Queue Length (feet)	
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Mt. Vernon Ave/5th St	Northbound	Left	100	56	114	61	122
			Thru	2,045	93	*164*	102	*205*
		Southbound	Left	80	101	127	104	129
			Thru	680	*115*	*128*	*132*	*123*
		Eastbound	Left	150	56	106	57	107
			Thru	1,780	*182*	*178*	155	*204*
		Westbound	Left	95	51	95	57	123
			Thru	1,460	*144*	*192*	*165*	*214*
2	Mt. Vernon Ave/2nd St	Northbound	Thru	680	141	246	161	480
		Southbound	Thru	2,045	191	226	286	342
		Eastbound	Thru	630	24	32	24	35
		Westbound	Left	550	108	150	82	107
			Thru	550	50	69	48	71
3	Mt. Vernon Ave/Rialto Ave	Northbound	Left	85	26	35	18	31
			Thru	1,610	54	*108*	64	*222*
		Southbound	Left	80	17	20	56	68
			Thru	680	85	*98*	*112*	*158*
		Eastbound	Left	80	77	82	56	109
			Thru	2,420	*119*	*104*	*130*	*120*
		Westbound	Left	90	66	80	83	113
			Thru	1,880	49	*106*	61	*146*

Note: Bold indicates queues longer than capacity. *Italic* indicates the through movement queue is longer than the adjacent turning pocket length.

6. Future With Project Conditions

This section analyzes the geometric improvements to the study area as part of the proposed project. The proposed project would replace the existing four-lane, undivided bridge with a four-lane, divided bridge. The design of the bridge would be able to accommodate a future Class III bicycle facility and provide 5 feet of sidewalk width on both sides of the bridge for pedestrians. Intersection lane geometry changes are proposed at the Mount Vernon Avenue/2nd Street intersection. The lane geometry of Mount Vernon Avenue/5th Street and Mount Vernon Avenue/Rialto Avenue would remain the same as existing. The proposed Mount Vernon Avenue/2nd Street intersection lane changes are as follows:

- Addition of southbound left-turn lane
- Addition of a northbound left-turn lane
- Addition of a westbound right-turn lane
- Removal of the access from the local frontage road to the intersection (removing the 5th leg at the intersection)

The turn pocket length for each of the proposed turning lanes would be 150 feet. Project lane geometry for study area intersections is shown in Figure 6, and striping plans are shown in Appendix A. Once completed, the project is not anticipated to shift traffic patterns within the study area along Mount Vernon Avenue, and the reconstruction of the bridge itself is not anticipated to increase traffic demand along Mount Vernon Avenue or any study area location. Therefore, the intersection volumes with the project would remain the same as without the project as shown previously in Figures 4 and 5.

6.1. Opening Year (2022) Conditions

6.1.1. Intersection Level of Service Analysis

A level of service analysis was conducted to evaluate opening year (2022) with project conditions during the weekday AM and PM peak hours. Table 13 summarizes the opening year (2022) level of service at the study area intersections with the completion of the project. With the project, all of the study intersections are anticipated to continue to operate at satisfactory levels of service (LOS D or better).

Table 13: Opening Year (2022) With Project Intersection LOS

Intersections		Peak Hour	2022 Without Project		2022 With Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Mt. Vernon Ave/5th St	AM	47.1	D	47.1	D
		PM	48.5	D	48.5	D
2	Mt. Vernon Ave/2nd St	AM	21.9	C	27.9	C
		PM	25.5	C	45.5	D
3	Mt. Vernon Ave/Rialto Ave	AM	16.3	B	16.2	B
		PM	16.7	B	16.7	B

[1] Average control delay, in seconds per vehicle

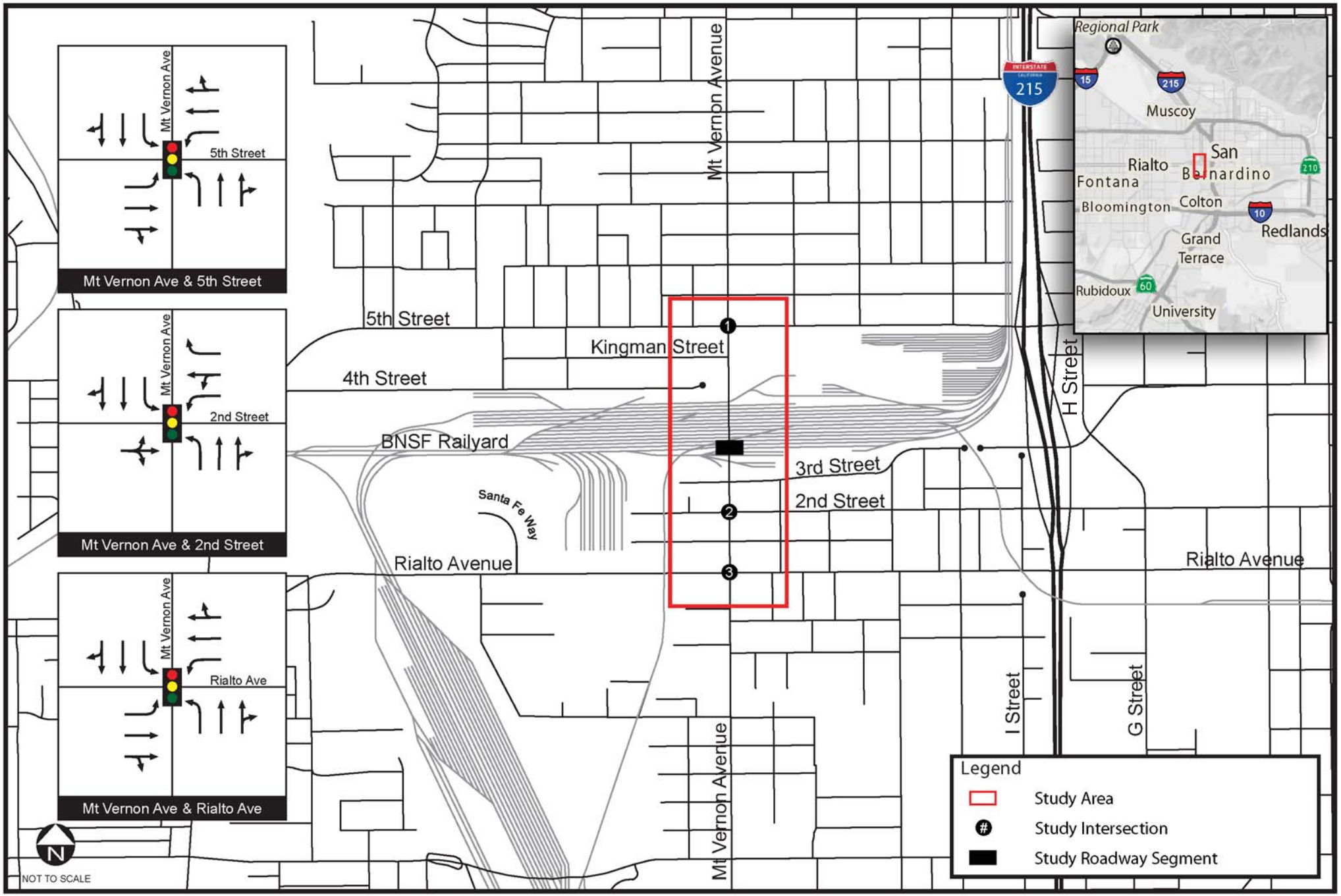


Figure 6

AECOM

With Project Lane Geometry

6.1.2. Roadway Capacity Analysis

A roadway segment capacity analysis was conducted to evaluate opening year (2022) with project conditions. Table 14 summarizes the opening year (2022) ADT volumes and the V/C ratio of Mount Vernon Avenue as a two-lane or a four-lane roadway. A two-lane facility can accommodate 15,000 ADT; however, the demand volume would be 18,757 in opening year (2022). The resulting V/C ratio of 1.25 (LOS F) indicates that a two-lane roadway would not accommodate demand at an acceptable LOS, and congestion would occur. With the design of a four-lane facility, the V/C ratio would be 0.47 (LOS A). The roadway capacity analysis suggests that a four-lane design provides sufficient capacity.

Table 14: Opening Year (2022) With Project Roadway Capacity

Location	Number of Lanes	Capacity	2022 With Project Weekday Volume	Volume/ Capacity	LOS
Mt Vernon Ave between 5th St and 2nd St	2	15,000	18,757	1.25	F
	4	40,000	18,757	0.47	A

Notes: Capacity based on *City of San Bernardino General Plan Circulation Element (2005).*

6.1.3. Queue Length Analysis

A queue length analysis was completed for opening year (2022) with project conditions during AM and PM peak hours. As shown in Table 15 below, for the Mount Vernon Avenue/5th Street intersection, the queues would remain the same as the without project conditions. For the Mount Vernon Avenue/Rialto Avenue intersection, the queues would be very similar to the without project conditions with a very few differences in either or both of the peak hours. The with project vehicle queues at the Mount Vernon Avenue/2nd Street intersection would decrease in length compared to the without project scenario at most of the approaches, and the proposed turning pocket lengths of 150 feet would be sufficient for the turning movement vehicle queues. However, the northbound through movement queue would extend beyond the entrance of the left-turn pocket in the PM peak hour and drivers may need to utilize the extended two-way left turn lane to access the turning lane. Overall, the added turning lanes and protected left-turn phases for the northbound, southbound, and westbound approaches of the Mount Vernon Avenue/2nd Street intersection would improve the intersection operation and decrease the vehicle queues.

Table 15: Opening Year (2022) With Project Queue Length Analysis

Intersection		Approach Direction	Lane	Available Storage Length (feet)	2022 Without Project Queue Length (feet)		2022 With Project Queue Length (feet)	
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Mt. Vernon Ave/ 5th St	Northbound	Left	100	57	115	57	115
			Thru	2,045	95	*173*	95	*173*
		Southbound	Left	80	102	130	102	130
			Thru	680	*118*	*127*	*118*	*127*
		Eastbound	Left	150	56	107	56	107
			Thru	1,780	*178*	*187*	*178*	*187*
		Westbound	Left	95	53	93	53	93
			Thru	1,460	*151*	*197*	*151*	*197*
2	Mt. Vernon Ave/ 2nd St	Northbound	Left	150	--	--	16	27
			Thru	680	157	*314*	144	*333*
		Southbound	Left	150	--	--	100	122
			Thru	2,045	212	*265*	132	139
		Eastbound	Thru	630	25	33	29	39
		Westbound	Left	550	107	141	70	90
			Thru	550	49	69	69	88
			Right	150	--	--	8	60
3	Mt. Vernon Ave/Rialto Ave	Northbound	Left	85	25	34	25	34
			Thru	1,610	57	*124*	57	*124*
		Southbound	Left	80	26	26	26	26
			Thru	680	94	*105*	93	*105*
		Eastbound	Left	80	73	85	72	85
			Thru	2,420	*123*	*107*	*121*	*107*
		Westbound	Left	90	70	85	70	85
			Thru	1,880	51	*113*	51	*113*

Note: Bold indicates queues longer than capacity. *Italic* indicates the through movement queue is longer than the adjacent turning pocket length.

6.2. Design Year (2040) Conditions

6.2.1. Intersection Level of Service Analysis

A level of service analysis was conducted to evaluate design year (2040) with project intersection operating conditions during the weekday AM and PM peak hours. The results of the analysis are shown in Table 16. With the project, all of the study intersections are anticipated to continue to operate at satisfactory levels of service (LOS D or better).

Table 16: Design Year (2040) With Project Intersection LOS

Intersections		Peak Hour	2040 Without Project		2040 With Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Mt. Vernon Ave/5th St	AM	39.1	D	39.1	D
		PM	50.0	D	50.0	D
2	Mt. Vernon Ave/2nd St	AM	23.5	C	20.7	C
		PM	29.9	C	42.9	D
3	Mt. Vernon Ave/Rialto Ave	AM	15.8	B	15.8	B
		PM	19.3	B	19.3	B

[1] Average control delay, in seconds per vehicle

6.2.2. Roadway Capacity Analysis

A roadway segment capacity analysis was conducted to evaluate design year (2040) with project conditions. Table 17 summarizes the design year (2040) ADT volumes and the V/C ratio of Mount Vernon Avenue as a two-lane or a four-lane roadway. A two-lane facility can accommodate 15,000 ADT; however, the demand volume would be 24,011 in design year (2040). Therefore, the V/C ratio of 1.60 (LOS F) indicates that a two-lane roadway would not accommodate travel demand at an acceptable LOS, and congestion would occur. With the design of a four-lane facility, the V/C ratio would be 0.60 (LOS A). Similar to the opening year (2022) analysis, the roadway capacity analysis for design year (2040) also suggests that a four-lane design provides sufficient capacity.

Table 17: Design Year (2040) With Project Roadway Capacity

Location	Number of Lanes	Capacity	2040 With Project Weekday Volumes	Volume/ Capacity	LOS
Mt Vernon Ave between 5th St and 2nd St	2	15,000	24,011	1.60	F
	4	40,000	24,011	0.60	A

Notes: Capacity based on *City of San Bernardino General Plan Circulation Element (2005).*
Bold indicates unacceptable LOS.

6.2.3. Queue Length Analysis

A queue length analysis was completed for design year (2040) with project conditions during AM and PM peak hours. As shown in Table 18 below, for the Mount Vernon Avenue/5th Street and Mount Vernon Avenue/Rialto Avenue intersections, the queues would remain the same as the without project conditions. The project vehicle queues at the Mount Vernon Avenue/2nd Street intersection would decrease in length compared to the without project scenario at most approaches, and the proposed turning pocket lengths of 150 feet would be sufficient for the turning movement vehicle queues. However, the northbound through movement queue would extend beyond the entrance of the left-turn pocket in the PM peak hour and drivers may need to utilize the extended two-way left turn lane to access the turning lane. Overall, the added turning lanes and protected left-turn phases for the northbound, southbound, and westbound approaches of the Mount Vernon Avenue/2nd Street intersection would improve the intersection operation and decrease vehicle queues.

Table 18: Design Year (2040) With Project Queue Length Analysis

Intersection		Approach Direction	Lane	Available Storage Length (feet)	2040 Without Project Queue Length (feet)		2040 With Project Queue Length (feet)	
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Mt. Vernon Ave/5th St	Northbound	Left	100	61	122	61	122
			Thru	2,045	102	*205*	102	*205*
		Southbound	Left	80	104	129	104	129
			Thru	680	*132*	*123*	*132*	*123*
		Eastbound	Left	150	57	107	57	107
			Thru	1,780	155	*204*	155	*204*
		Westbound	Left	95	57	123	57	123
			Thru	1,460	*165*	*214*	*165*	*214*
2	Mt. Vernon Ave/2nd St	Northbound	Left	150	--	--	11	18
			Thru	680	161	*480*	153	*508*
		Southbound	Left	150	--	--	113	125
			Thru	2,045	286	*342*	178	139
		Eastbound	Thru	630	24	35	26	40
		Westbound	Left	550	82	107	54	70
			Thru	550	48	71	55	70
			Right	150	--	--	13	64
3	Mt. Vernon Ave/Rialto Ave	Northbound	Left	85	18	31	18	31
			Thru	1,610	64	*222*	64	*222*
		Southbound	Left	80	56	68	56	68
			Thru	680	*112*	*158*	*112*	*158*
		Eastbound	Left	80	56	109	56	109
			Thru	2,420	*130*	*120*	*130*	*120*
		Westbound	Left	90	83	113	83	113
			Thru	1,880	61	*146*	61	*146*

Note: Bold indicates queues longer than capacity. *Italic* indicates the through movement queue is longer than the adjacent turning pocket length.

7. Conclusion

The City of San Bernardino is proposing to replace the Mount Vernon Avenue Bridge, which has been rated by the California Division of Structure Maintenance & Investigations as structurally deficient and functionally obsolete. The existing bridge will be replaced to improve seismic performance, provide standard vertical clearance over the rail tracks and comply with American Association of State Highway and Transportation Officials (AASHTO) roadway cross section standards. The main purpose of the project is to address the safety concerns of a structurally deficient bridge.

Based on the results of the level of service analysis, the proposed bridge reconstruction and associated improvements at the Mount Vernon Avenue/2nd Street intersection would continue to operate at acceptable levels of service. In addition, the roadway capacity analysis indicates that the traffic demand on Mount Vernon Avenue justifies a four-lane facility in order to operate without congestion. Finally, the queue length analysis indicates that the proposed turning pocket lengths are sufficient for the Mount Vernon Avenue/2nd Street intersection.

8. List of References

City of San Bernardino. 2005. General Plan Circulation Element.

City of San Bernardino. 2004. Traffic Impact Study Guidelines.

City of San Bernardino. 1994. Bicycle Facilities Master Plan.

LSA Associates Inc. 2004. Pedestrian and Vehicular Detour Analysis.

San Bernardino County. 2016. Congestion Management Program.

Transportation Research Board. 1982. National Cooperative Highway Research Program Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design.

Appendix A: Proposed Project Striping Plans

GENERAL SIGNING AND STRIPING NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK), LATEST EDITION, WITH ALL SUPPLEMENTS AND CITY OF SAN BERNARDINO STANDARD DRAWINGS.

2. APPROVAL OF THIS PLAN BY THE CITY OF SAN BERNARDINO DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE PROTECTION OF ALL UTILITIES WITHIN THE LIMITS OF THE PROJECT. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT 48 HOURS PRIOR TO START OF WORK.

3. INSPECTION SHALL BE BY THE CITY OF SAN BERNARDINO DEPARTMENT OF PUBLIC WORKS. ALL REQUESTS FOR INSPECTION SHALL BE MADE AT LEAST 24 HOURS IN ADVANCE OF THE PROPOSED CONSTRUCTION.

4. ALL EXISTING PAVEMENT MARKINGS THAT ARE BEING RELOCATED OR REMOVED SHALL BE REMOVED BY SAND BLASTING. NO BLACK-OVER PAINTING OF LINES IS PERMITTED IN THE CITY.

5. DURING THE PERIOD OF CONSTRUCTION, THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN SUCH WARNINGS, SIGNS, STOP SIGNS, BARRICADES AND OTHER SAFETY MEASURES IN THE CONFORMANCE WITH THE W.A.T.C.H MANUAL OR OTHER CITY REFERENCES MANULS LISTED.

6. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT, (800) 227-2600, AND ALL CONCERNED UTILITY COMPANIES AT LEAST TWO WORKING DAYS IN ADVANCE OF EXCAVATION. LOCATIONS OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY ALL CONDITIONS ON THE JOB SITE PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL DAMAGES OCCURRED DUE TO FAILURE TO LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES. HAND DIG AS NEEDED OR AS DIRECTED BY THE ENGINEER UNTIL CLEAR OF OBSTRUCTIONS.

7. ALL TRAFFIC STRIPES, PAVEMENT MARKINGS, AND SIGNS SHALL BE REFLECTORIZED AND STANDARD SIZE. ALL STRIPING AND MARKING DETAILS SHALL MATCH CALTRANS STANDARD PLANS DETAILS. STENCILS FOR PAVEMENT MARKING SHALL MATCH CALTRANS STANDARD PLANS.

8. THE CONTRACTOR SHALL REMOVE ALL CONFLICTING STRIPES, PAVEMENT MARKINGS, AND RAISED PAVEMENT MARKERS IN ACCORDANCE WITH THE PLANS AND AS DIRECTED BY THE ENGINEER. WORD OR SYMBOL PAVEMENT MARKINGS SHALL BE REMOVED BY SANDBLASTING OR GRINDING A RECTANGULAR AREA COVERING THE WHOLE MARKING.

9. ALL CROSSWALKS SHALL HAVE 10 FEET IN BETWEEN THE 12-INCH WHITE OR YELLOW STRIPES.

10. ALL DOUBLE YELLOW STRIPES SHALL HAVE 3-INCH PAINTED BLACK LINE SEPARATING THE YELLOW STRIPES.

11. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRAFFIC STRIPES, RAISED PAVEMENT MARKERS (RPMS), PAVEMENT MARKINGS, AND SIGNS IN ACCORDANCE WITH THE PLANS AND AS DIRECTED BY THE ENGINEER.

12. ALL PAVEMENT MARKINGS INCLUDING CROSSWALKS, LIMIT LINES, AND STOP BARS SHALL BE APPLIED WITH THERMOPLASTIC MATERIAL. ALL OTHER TRAFFIC STRIPES SHALL BE PAINTED IN TWO COATS.

13. ALL RPMS SHALL BE INSTALLED WITHIN SEVEN WORKING DAYS OF ROADWAY STRIPING. ALL EXISTING RPMS WITHIN THE PROJECT AREA SHALL BE REPLACED IN KIND OR REMOVED IN ACCORDANCE WITH THE PLANS, OR AS DIRECTED BY THE ENGINEER.

14. THE CONTRACTOR SHALL INSTALL STANDARD SIZE SIGN PANEL ON 2" SQUARE PERFORATED STEEL TUBE POST WITH TWO PIECE ANCHOR AND SLEEVE, FASTENED WITH ⅜" RIVETS WITH STAINLESS STEEL WASHERS, UNLESS OTHERWISE NOTED. THE EXACT LOCATION OF ALL SIGNS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

15. THE CONTRACTOR SHALL LAYOUT (CAT-TRACK) THE PROPOSED SIGNING, STRIPING, AND PAVEMENT MARKINGS IN ACCORDANCE WITH THE PLANS AND OBTAIN THE ENGINEER'S APPROVAL PRIOR TO ACTUAL INSTALLATION.

16. ALL PAVEMENT MARKINGS INCLUDING CROSSWALKS, LIMIT LINES, LANE LINES AND STOP BARS SHALL BE APPLIED WITH THERMOPLASTIC MATERIAL.

17. TRAFFIC SIGN FACE SHALL BE 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING (ASTM XI) OR APPROVED EQUAL WITH PROTECTIVE GRAFFITI OVERLAY FILM OR AS OTHERWISE NOTED. ALL WARNING SIGNS SHALL HAVE A FLOURESCENT YELLOW BACKGROUND.

LEGEND

(1)	ON LIGHT POLE (PER CALTRANS STD PLAN RS4)
(2)	WALL SURFACE MOUNTED
■	EXISTING SIGN TO REMAIN
●	REMOVE AND SALVAGE EXISTING SIGN
▲	RELOCATE EXISTING SIGN
⟨XXX⟩	DETAIL NUMBER PER CALTRANS STANARD PLANS, A20A, A20B, A20C, A20D
PM	INSTALL PAVEMENT MARKING PER CALTRANS STANDARD PLANS, A24A, A24B, A24C, A24D, A24E

Underground Service Alert

Call: TOLL FREE
1-800
422-4133

TWO WORKING DAYS BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
BRIAN SMITH
No. 70690
Exp. 6/30/15
CIVIL
STATE OF CALIFORNIA

AECOM
901 VIA PIEMONTE
5TH FLOOR
ONTARIO, CA 91764

APPROVED BY: _____ DATE: _____

MARK	REVISIONS	BY	APPR	DATE

BENCHMARK:
CITY OF SAN BERNARDINO B7-1
USC & GS DESIGNATION: H-524 RESET 1962
ELEVATION = 1011.231 (NGVD 29/1972 ADJ.)

REGISTERED PROFESSIONAL ENGINEER
ROBERT G. EISENBEISZ
No. 54931
CIVIL
STATE OF CALIFORNIA

APPROVED 20 13
CITY ENGINEER ROBERT G. EISENBEISZ
RCE NO. 54931 EXP 6-30-15
DRAWN BY: A CADD
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES~PUBLIC WORKS/ENGINEERING

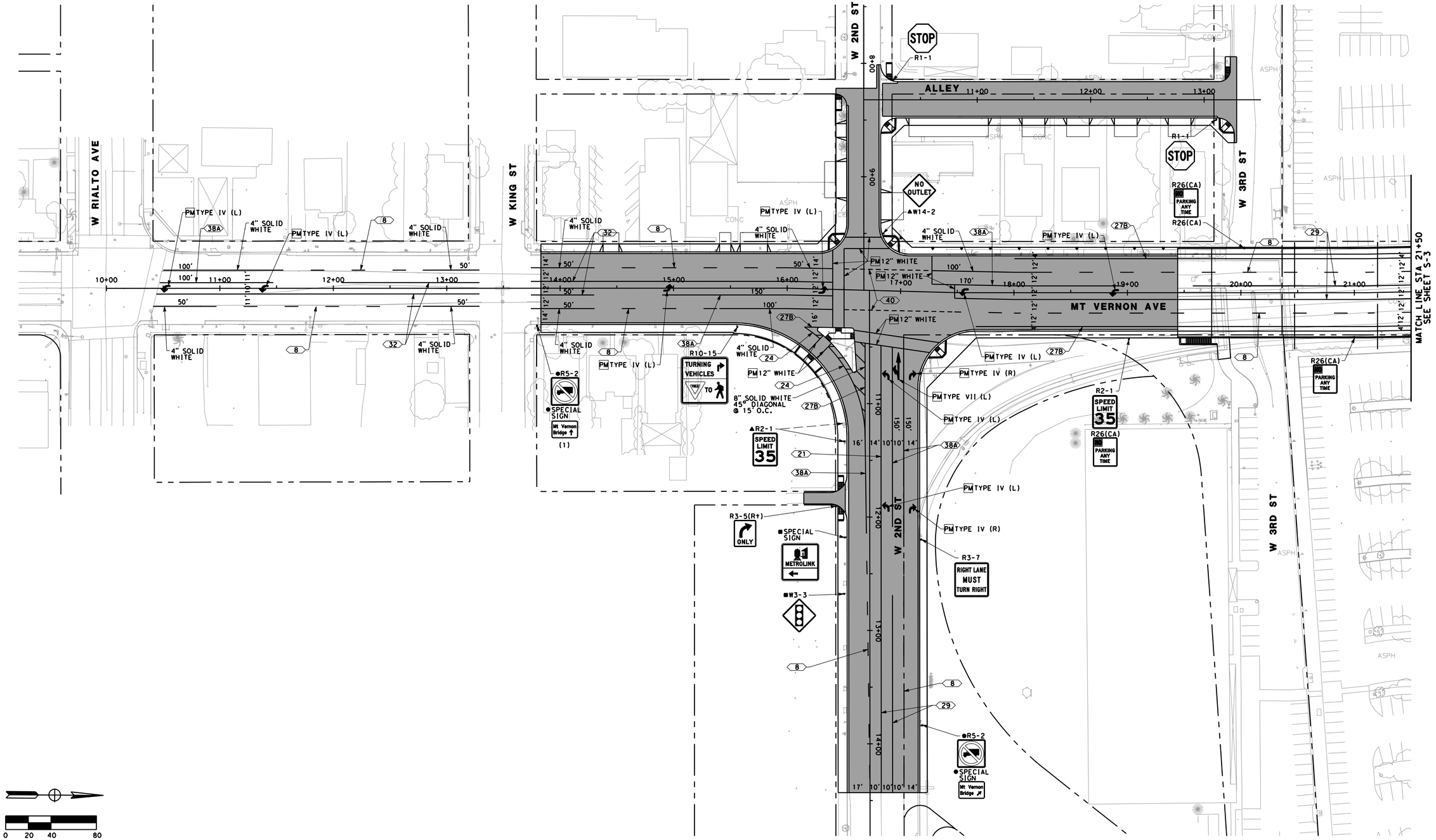
MOUNT VERNON GRADE SEPARATION BRIDGE REPLACEMENT

SIGNING AND STRIPING

FOR CITY USE ONLY: FILE NO. W.O. NO.

DRAWING NO. *S-1*

SHEET _1_ OF __3__ SHEETS



Underground Service Alert

Call: TOLL FREE 1-800 422-4133

TWO WORKING DAYS BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER BRIAN SMITH No. 70690 Exp. 6/30/15 CIVIL STATE OF CALIFORNIA

AECOM
901 VIA PIEMONTE
5TH FLOOR
ONTARIO, CA 91764

APPROVED BY: _____ DATE: _____

MARK	REVISIONS	BY	APPR	DATE

BENCHMARK:
CITY OF SAN BERNARDINO B7-1
USC & GS DESIGNATION: H-524 RESET 1962
ELEVATION = 1011.231 (NGVD 29/1972 ADJ.)

REGISTERED PROFESSIONAL ENGINEER ROBERT G. EISENBEISZ No. 54931 CIVIL STATE OF CALIFORNIA

APPROVED _____ 20 13

CITY ENGINEER ROBERT G. EISENBEISZ
RCE NO. 54931 EXP 6-30-15

DRAWN BY: A. CADD

CHECKED BY:

RECOMMENDED BY:

FOR CITY USE ONLY: FILE NO. W.O. NO.

CITY OF SAN BERNARDINO

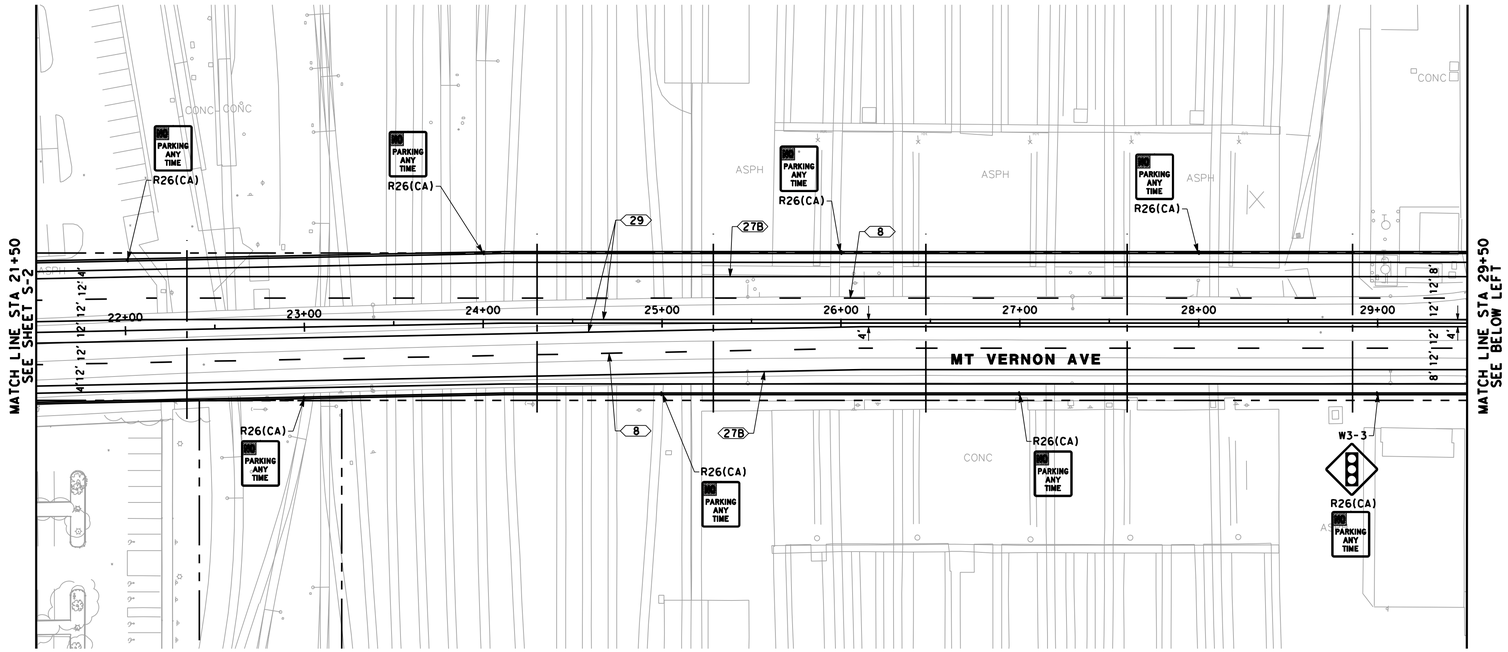
DEVELOPMENT SERVICES–PUBLIC WORKS/ENGINEERING

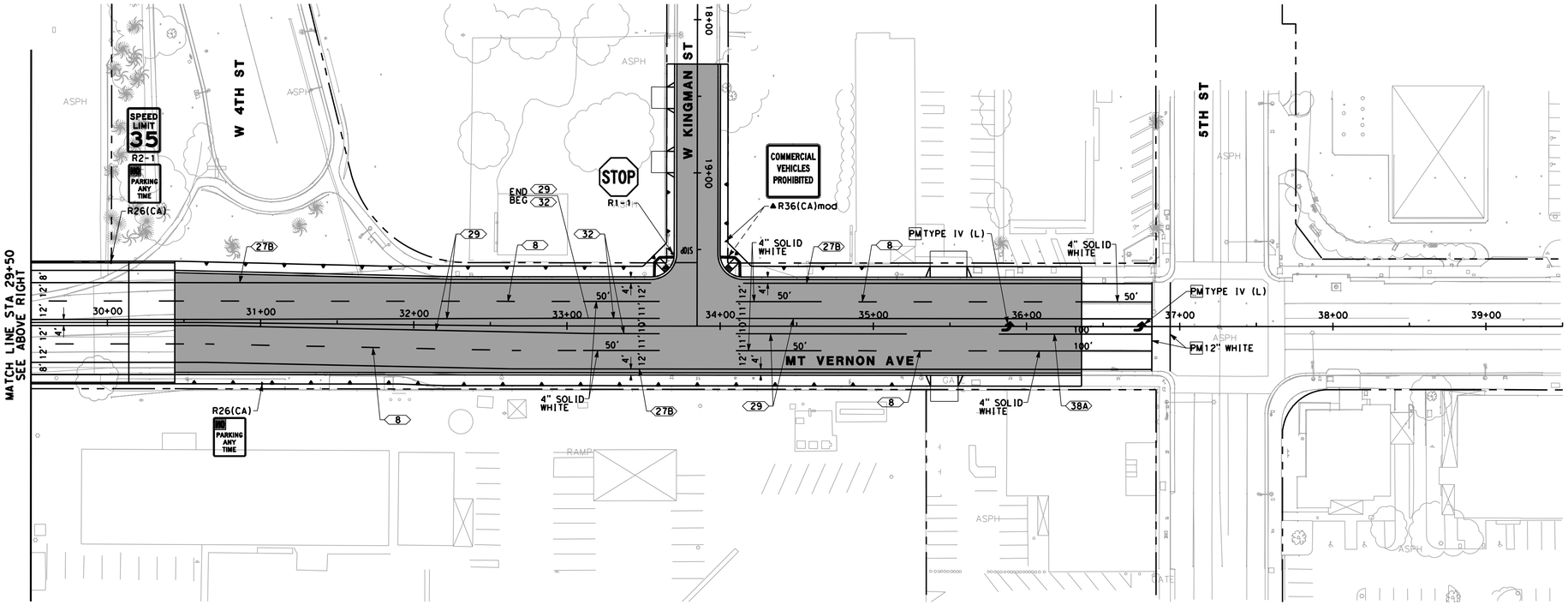
MOUNT VERNON GRADE SEPARATION BRIDGE REPLACEMENT

SIGNING AND STRIPING

DRAWING NO. S-2

SHEET ___ OF _____SHEETS





0 20 40 80
SCALE: 1" = 40'

Underground Service Alert
Call: TOLL FREE
1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

REGISTERED PROFESSIONAL ENGINEER
BRIAN SMITH
No. 70690
Exp. 6/30/15
CIVIL
STATE OF CALIFORNIA

AECOM
901 VIA PIEMONTE
5TH FLOOR
ONTARIO, CA 91764

APPROVED BY: _____ DATE: _____

MARK	REVISIONS	BY	APPR	DATE

BENCHMARK:
CITY OF SAN BERNARDINO B7-1
USC & GS DESIGNATION: H-524 RESET 1962
ELEVATION = 1011.231 (NGVD 29/1972 ADJ.)

REGISTERED PROFESSIONAL ENGINEER
ROBERT G. EISENBEISZ
No. 54931
CIVIL
STATE OF CALIFORNIA

APPROVED _____ 20 13
CITY ENGINEER ROBERT G. EISENBEISZ
RCE NO. 54931 EXP 6-30-15
DRAWN BY: A CADD
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES~PUBLIC WORKS/ENGINEERING
MOUNT VERNON GRADE SEPARATION BRIDGE REPLACEMENT
SIGNING AND STRIPING

DRAWING NO. *S-3*
SHEET ___ OF _____SHEETS
FOR CITY USE ONLY: FILE NO. W.O. NO.

Appendix B: Existing Traffic Counts

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
7:00 AM	22	87	12	30	60	11	8	117	21	7	97	15	487	0			
7:15 AM	16	65	8	29	98	12	14	147	32	9	118	9	557	0			
7:30 AM	13	58	10	40	102	11	14	129	27	15	112	15	546	0			
7:45 AM	14	77	12	26	97	12	14	123	21	13	112	21	542	0			
8:00 AM	10	59	14	30	64	14	12	134	20	3	83	28	471	0			
8:15 AM	22	58	7	40	70	12	18	101	17	8	77	32	462	0			
8:30 AM	12	58	8	49	73	11	10	117	19	17	90	26	490	1			
8:45 AM	10	69	9	42	78	15	20	104	16	11	105	21	500	0			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	119	531	80	286	642	98	110	972	173	83	794	167	4055	1	0	0	0
APPROACH %'s :	16.30%	72.74%	10.96%	27.88%	62.57%	9.55%	8.76%	77.45%	13.78%	7.95%	76.05%	16.00%					
PEAK HR START TIME :	700 AM												TOTAL				
PEAK HR VOL :	65	287	42	125	357	46	50	516	101	44	439	60	2132				
PEAK HR FACTOR :		0.814			0.863			0.864			0.930		0.957				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
4:00 PM	22	115	14	37	87	14	13	129	20	15	151	31	648				
4:15 PM	27	88	21	37	88	18	20	139	16	16	132	31	633				
4:30 PM	24	88	17	22	73	15	23	112	21	28	148	27	598				
4:45 PM	29	119	25	23	90	14	24	130	23	22	138	28	665				
5:00 PM	35	120	25	33	107	15	17	134	32	16	121	31	686				
5:15 PM	35	124	20	24	78	19	20	141	26	17	145	28	677				
5:30 PM	35	130	17	37	113	23	23	131	22	20	126	27	704				
5:45 PM	31	140	18	25	104	27	28	100	22	21	134	24	674				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	238	924	157	238	740	145	168	1016	182	155	1095	227	5285	0	0	0	0
APPROACH %'s :	18.04%	70.05%	11.90%	21.19%	65.89%	12.91%	12.30%	74.38%	13.32%	10.49%	74.14%	15.37%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	136	514	80	119	402	84	88	506	102	74	526	110	2741				
PEAK HR FACTOR :		0.966			0.874			0.930			0.934		0.973				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

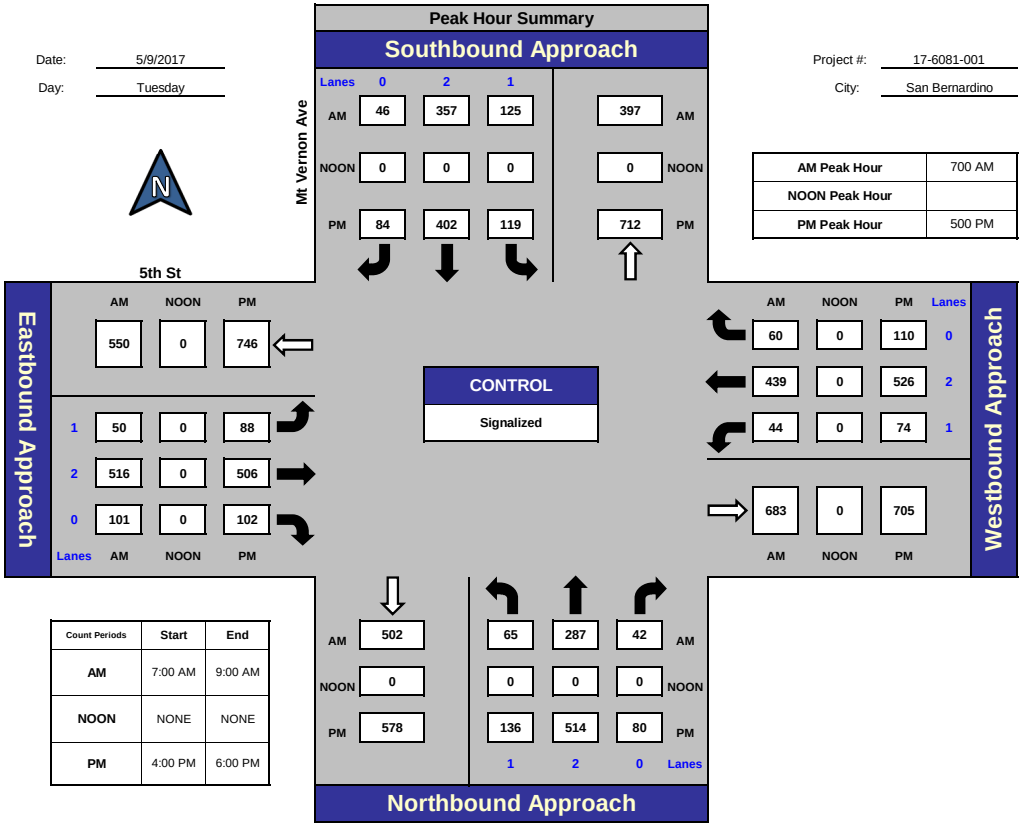
Mt Vernon Ave and 5th St , San Bernardino

Date: 5/9/2017

Day: Tuesday

Project #: 17-6081-001

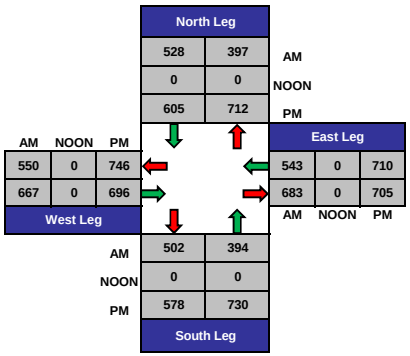
City: San Bernardino



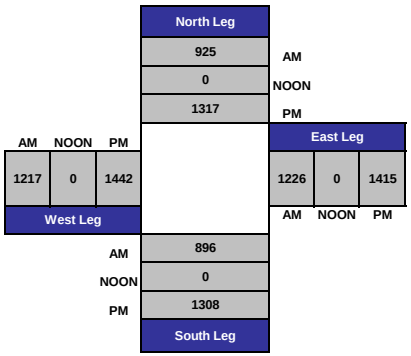
AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

Cars

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
7:00 AM	22	86	12	29	60	10	8	100	21	7	86	14	455	0			
7:15 AM	16	65	7	28	97	12	13	121	32	9	104	7	511	0			
7:30 AM	13	58	10	40	100	10	14	119	27	15	98	13	517	0			
7:45 AM	14	75	12	25	97	12	13	107	21	13	98	19	506	0			
8:00 AM	10	59	14	27	64	13	11	117	20	3	74	28	440	0			
8:15 AM	22	57	6	33	70	10	16	88	17	8	64	28	419	0			
8:30 AM	11	58	8	46	73	11	9	100	19	17	78	25	455	1			
8:45 AM	10	69	9	40	77	13	20	87	16	11	94	19	465	0			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	118	527	78	268	638	91	104	839	173	83	696	153	3768	1	0	0	0
APPROACH %'s :	16.32%	72.89%	10.79%	26.88%	63.99%	9.13%	9.32%	75.18%	15.50%	8.91%	74.68%	16.42%					
PEAK HR START TIME :	700 AM												TOTAL				
PEAK HR VOL :	65	284	41	122	354	44	48	447	101	44	386	53	1989				
PEAK HR FACTOR :		0.813			0.867			0.898			0.929		0.962				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001 | Day: Tuesday

Cars

City: San Bernardino | Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	22	113	13	35	87	14	13	117	20	15	137	30	616
4:15 PM	27	88	21	35	84	18	20	114	16	16	116	28	583
4:30 PM	24	87	17	21	73	14	23	104	21	27	125	26	562
4:45 PM	29	118	25	23	90	14	24	112	23	22	127	27	634
5:00 PM	35	120	24	31	106	15	16	118	32	16	111	31	655
5:15 PM	35	124	20	23	78	19	20	129	26	17	134	25	650
5:30 PM	35	130	17	35	112	22	23	114	22	20	119	27	676
5:45 PM	31	140	18	24	104	27	26	96	22	21	125	22	656
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	238	920	155	227	734	143	165	904	182	154	994	216	5032
APPROACH %'s :	18.13%	70.07%	11.81%	20.56%	66.49%	12.95%	13.19%	72.26%	14.55%	11.29%	72.87%	15.84%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	136	514	79	113	400	83	85	457	102	74	489	105	2637
PEAK HR FACTOR :		0.964			0.882			0.920			0.949		0.975

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

2 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	1	0	1	0	0	0	2	0	0	2	1	7
7:15 AM	0	0	1	1	1	0	1	3	0	0	3	2	12
7:30 AM	0	0	0	0	2	0	0	5	0	0	2	2	11
7:45 AM	0	2	0	1	0	0	1	5	0	0	5	2	16
8:00 AM	0	0	0	3	0	1	1	5	0	0	0	0	10
8:15 AM	0	1	1	7	0	2	2	4	0	0	3	4	24
8:30 AM	1	0	0	3	0	0	1	3	0	0	5	1	14
8:45 AM	0	0	0	2	1	1	0	4	0	0	2	2	12
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	4	2	18	4	4	6	31	0	0	22	14	106
APPROACH %'s :	14.29%	57.14%	28.57%	69.23%	15.38%	15.38%	16.22%	83.78%	0.00%	0.00%	61.11%	38.89%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	3	1	3	3	0	2	15	0	0	12	7	46
PEAK HR FACTOR :		0.500			0.750			0.708			0.679		0.962

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

2 Axle Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	0	2	1	2	0	0	0	1	0	0	2	1	9
4:15 PM	0	0	0	2	4	0	0	3	0	0	3	3	15
4:30 PM	0	1	0	1	0	1	0	2	0	0	2	1	8
4:45 PM	0	1	0	0	0	0	0	3	0	0	1	1	6
5:00 PM	0	0	1	2	1	0	0	2	0	0	2	0	8
5:15 PM	0	0	0	1	0	0	0	2	0	0	2	3	8
5:30 PM	0	0	0	2	1	0	0	4	0	0	2	0	9
5:45 PM	0	0	0	1	0	0	1	0	0	0	1	2	5
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	4	2	11	6	1	1	17	0	0	15	11	68
APPROACH %'s :	0.00%	66.67%	33.33%	61.11%	33.33%	5.56%	5.56%	94.44%	0.00%	0.00%	57.69%	42.31%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	1	6	2	0	1	8	0	0	7	5	30
PEAK HR FACTOR :		0.250			0.667			0.563			0.600		0.975

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

3 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	5
7:15 AM	0	0	0	0	0	0	0	2	0	0	6	0	8
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	6
7:45 AM	0	0	0	0	0	0	0	3	0	0	2	0	5
8:00 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
8:15 AM	0	0	0	0	0	0	0	2	0	0	5	0	7
8:30 AM	0	0	0	0	0	0	0	5	0	0	2	0	7
8:45 AM	0	0	0	0	0	1	0	7	0	0	1	0	9
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	20	0	0	31	0	52
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	5	0	0	19	0	24
PEAK HR FACTOR :		0.000			0.000			0.417			0.792		0.962

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

3 Axle Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	0	0	0	0	0	0	0	3	0	0	1	0	4
4:15 PM	0	0	0	0	0	0	0	12	0	0	1	0	13
4:30 PM	0	0	0	0	0	0	0	0	0	1	4	0	5
4:45 PM	0	0	0	0	0	0	0	7	0	0	3	0	10
5:00 PM	0	0	0	0	0	0	1	3	0	0	3	0	7
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	0	3	0	0	1	0	5
5:45 PM	0	0	0	0	0	0	1	2	0	0	0	0	3
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	2	32	0	1	13	0	49
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.00%	100.00%	5.88%	94.12%	0.00%	7.14%	92.86%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	1	2	10	0	0	4	0	17
PEAK HR FACTOR :		0.000			0.250			0.750			0.333		0.975

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	0	0	0	0	1	0	15	0	0	4	0	20
7:15 AM	0	0	0	0	0	0	0	21	0	0	5	0	26
7:30 AM	0	0	0	0	0	1	0	5	0	0	6	0	12
7:45 AM	0	0	0	0	0	0	0	8	0	0	7	0	15
8:00 AM	0	0	0	0	0	0	0	11	0	0	5	0	16
8:15 AM	0	0	0	0	0	0	0	7	0	0	5	0	12
8:30 AM	0	0	0	0	0	0	0	9	0	0	5	0	14
8:45 AM	0	0	0	0	0	0	0	6	0	0	8	0	14
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	2	0	82	0	0	45	0	129
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	2	0	49	0	0	22	0	73
PEAK HR FACTOR :		0.000			0.500			0.583			0.786		0.962

UTURNS				
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-001

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			5th St			5th St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
4:00 PM	0	0	0	0	0	0	0	8	0	0	11	0	19				
4:15 PM	0	0	0	0	0	0	0	10	0	0	12	0	22				
4:30 PM	0	0	0	0	0	0	0	6	0	0	17	0	23				
4:45 PM	0	0	0	0	0	0	0	8	0	0	7	0	15				
5:00 PM	0	0	0	0	0	0	0	11	0	0	5	0	16				
5:15 PM	0	0	0	0	0	0	0	8	0	0	9	0	17				
5:30 PM	0	0	0	0	0	0	0	10	0	0	4	0	14				
5:45 PM	0	0	0	0	0	0	0	2	0	0	8	0	10				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	0	0	0	0	63	0	0	73	0	136	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	0	0	0	0	0	0	0	31	0	0	26	0	57				
PEAK HR FACTOR :		0.000			0.000			0.705			0.722		0.975				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
7:00 AM	2	93	22	17	56	1	2	4	0	19	1	22	239
7:15 AM	1	72	20	34	114	3	2	3	4	28	1	18	300
7:30 AM	1	65	23	22	109	3	0	3	0	38	2	17	283
7:45 AM	2	84	31	21	125	4	0	0	1	35	0	22	325
8:00 AM	4	68	28	16	66	2	2	2	4	22	2	12	228
8:15 AM	0	63	25	17	69	4	1	3	5	25	0	19	231
8:30 AM	0	62	27	27	83	0	0	3	3	29	1	17	252
8:45 AM	1	64	29	23	73	2	1	2	2	32	2	18	249
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	11	571	205	177	695	19	8	20	19	228	9	145	2107
APPROACH %'s :	1.40%	72.55%	26.05%	19.87%	78.00%	2.13%	17.02%	42.55%	40.43%	59.69%	2.36%	37.96%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	6	314	96	94	404	11	4	10	5	120	4	79	1147
PEAK HR FACTOR :		0.889			0.843			0.528			0.890		0.882

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5					
4:00 PM	1	115	37	35	99	2	1	3	2	44	3	35	377	0			0
4:15 PM	3	114	41	23	92	4	2	5	3	46	5	29	367	0			1
4:30 PM	1	92	45	29	84	2	0	3	0	50	2	42	350	0			0
4:45 PM	6	137	53	38	89	0	1	2	5	43	0	44	418	0			1
5:00 PM	1	123	41	30	105	5	1	3	4	54	0	48	415	0			0
5:15 PM	5	127	38	32	93	2	3	0	8	43	1	51	403	0			0
5:30 PM	5	143	36	32	125	5	2	1	4	40	1	49	443	1			0
5:45 PM	2	135	46	33	120	3	5	2	4	34	0	46	430	0			0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	24	986	337	252	807	23	15	19	30	354	12	344	3203	1	0	0	2
APPROACH %'s :	1.78%	73.20%	25.02%	23.29%	74.58%	2.13%	23.44%	29.69%	46.88%	49.86%	1.69%	48.45%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	13	528	161	127	443	15	11	6	20	171	2	194	1691				
PEAK HR FACTOR :		0.954			0.903			0.841			0.900		0.954				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

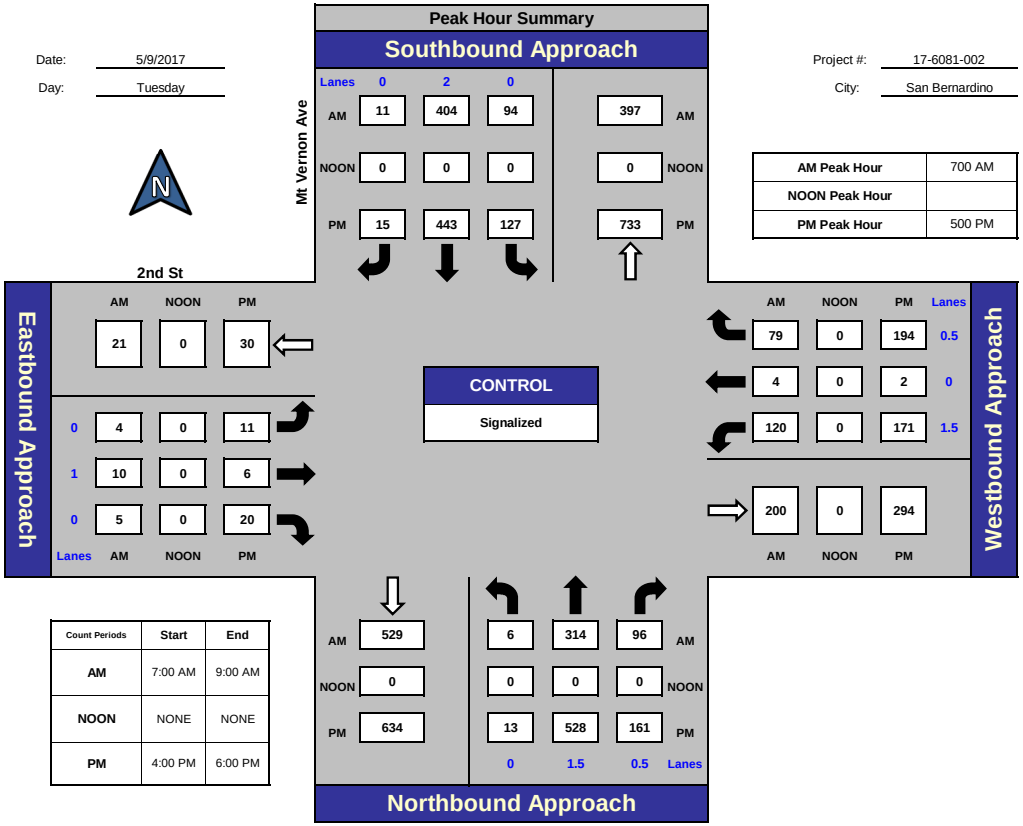
Mt Vernon Ave and 2nd St , San Bernardino

Date: 5/9/2017

Day: Tuesday

Project #: 17-6081-002

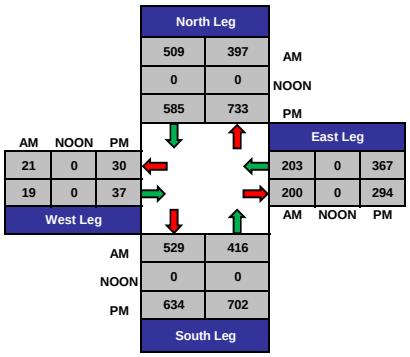
City: San Bernardino



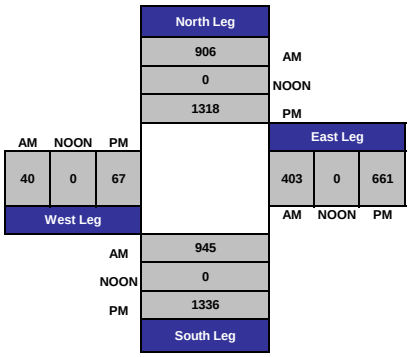
AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

Cars

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
7:00 AM	2	92	16	17	55	1	2	4	0	16	1	22	228
7:15 AM	1	72	14	34	114	3	2	3	4	23	1	17	288
7:30 AM	1	65	20	22	107	3	0	3	0	36	2	17	276
7:45 AM	2	83	22	21	124	4	0	0	1	29	0	21	307
8:00 AM	4	68	24	16	66	2	2	2	3	18	2	12	219
8:15 AM	0	63	19	17	69	4	0	3	5	22	0	18	220
8:30 AM	0	62	19	27	83	0	0	3	3	24	1	16	238
8:45 AM	1	64	24	23	72	2	1	2	2	30	2	18	241
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	11	569	158	177	690	19	7	20	18	198	9	141	2017
APPROACH %'s :	1.49%	77.10%	21.41%	19.98%	77.88%	2.14%	15.56%	44.44%	40.00%	56.90%	2.59%	40.52%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	6	312	72	94	400	11	4	10	5	104	4	77	1099
PEAK HR FACTOR :		0.886			0.836			0.528			0.841		0.895

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002 | Day: Tuesday

City: San Bernardino | Cars | Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5					
4:00 PM	1	113	33	35	99	2	1	3	2	37	2	35	363	0			0
4:15 PM	3	113	38	22	89	4	2	4	3	41	5	29	353	0			1
4:30 PM	1	91	40	29	84	2	0	3	0	46	2	42	340	0			0
4:45 PM	6	137	50	38	88	0	0	2	5	40	0	44	410	0			1
5:00 PM	1	123	39	30	105	4	1	3	4	50	0	47	407	0			0
5:15 PM	5	127	37	32	93	2	3	0	8	39	1	51	398	0			0
5:30 PM	5	143	35	32	124	5	2	1	4	38	1	49	439	1			0
5:45 PM	2	135	42	33	120	3	5	2	4	31	0	46	423	0			0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	24	982	314	251	802	22	14	18	30	322	11	343	3133	1	0	0	2
APPROACH %'s :	1.82%	74.39%	23.79%	23.35%	74.60%	2.05%	22.58%	29.03%	48.39%	47.63%	1.63%	50.74%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	13	528	153	127	442	14	11	6	20	158	2	193	1667				
PEAK HR FACTOR :		0.948			0.905			0.841			0.910		0.949				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

2 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
7:00 AM	0	1	2	0	1	0	0	0	0	1	0	0	5
7:15 AM	0	0	1	0	0	0	0	0	0	1	0	1	3
7:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:45 AM	0	1	6	0	1	0	0	0	0	2	0	1	11
8:00 AM	0	0	1	0	0	0	0	0	1	3	0	0	5
8:15 AM	0	0	2	0	0	0	1	0	0	2	0	1	6
8:30 AM	0	0	3	0	0	0	0	0	0	3	0	1	7
8:45 AM	0	0	1	0	1	0	0	0	0	2	0	0	4
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	2	16	0	5	0	1	0	1	14	0	4	43
APPROACH %'s :	0.00%	11.11%	88.89%	0.00%	100.00%	0.00%	50.00%	0.00%	50.00%	77.78%	0.00%	22.22%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	2	9	0	4	0	0	0	0	4	0	2	21
PEAK HR FACTOR :		0.393			0.500			0.000			0.500		0.895

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002 | Day: Tuesday

2 Axle Trucks

City: San Bernardino | Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
4:00 PM	0	2	2	0	0	0	0	0	0	3	1	0	8
4:15 PM	0	1	3	1	3	0	0	1	0	1	0	0	10
4:30 PM	0	1	4	0	0	0	0	0	0	2	0	0	7
4:45 PM	0	0	1	0	0	0	1	0	0	1	0	0	3
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	1	3
5:15 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	0	1	0	1	0	0	0	0	1	0	0	3
5:45 PM	0	0	2	0	0	0	0	0	0	2	0	0	4
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	4	14	1	4	1	1	1	0	12	1	1	40
APPROACH %'s :	0.00%	22.22%	77.78%	16.67%	66.67%	16.67%	50.00%	50.00%	0.00%	85.71%	7.14%	7.14%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	4	0	1	1	0	0	0	5	0	1	12
PEAK HR FACTOR :		0.500			0.500			0.000			0.750		0.949

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

3 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	2
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	2	0	0	0	0	0	0	3	0	0	5
APPROACH %'s :	0.00%	0.00%	100.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	100.00%	0.00%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	3	0	0	3
PEAK HR FACTOR :		0.000			0.000			0.000			0.375		0.895

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

3 Axle Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
4:00 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	2	0	1	0	0	0	0	1	0	0	4
5:00 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	6	0	1	0	0	0	0	5	0	0	12
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	100.00%	0.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	2	0	0	0	0	0	0	2	0	0	4
PEAK HR FACTOR :		0.500			0.000			0.000			0.500		0.949

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
7:00 AM	0	0	4	0	0	0	0	0	0	1	0	0	5
7:15 AM	0	0	5	0	0	0	0	0	0	4	0	0	9
7:30 AM	0	0	3	0	0	0	0	0	0	2	0	0	5
7:45 AM	0	0	3	0	0	0	0	0	0	2	0	0	5
8:00 AM	0	0	2	0	0	0	0	0	0	1	0	0	3
8:15 AM	0	0	3	0	0	0	0	0	0	1	0	0	4
8:30 AM	0	0	5	0	0	0	0	0	0	2	0	0	7
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	29	0	0	0	0	0	0	13	0	0	42
APPROACH %'s :	0.00%	0.00%	100.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	100.00%	0.00%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	15	0	0	0	0	0	0	9	0	0	24
PEAK HR FACTOR :		0.750			0.000			0.000			0.563		0.895

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-002

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			2nd St			2nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1.5	0.5	0	2	0	0	1	0	1.5	0	0.5	
4:00 PM	0	0	1	0	0	0	0	0	0	3	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	1	0	0	0	0	0	0	2	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	3	0	0	0	0	0	0	15	0	0	18
APPROACH %'s :	0.00%	0.00%	100.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	100.00%	0.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	2	0	0	0	0	0	0	6	0	0	8
PEAK HR FACTOR :		0.500			0.000			0.000			0.750		0.949

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
7:00 AM	5	84	9	7	46	19	22	47	4	8	32	9	292				
7:15 AM	9	62	5	10	107	22	17	87	7	9	26	9	370				
7:30 AM	16	64	16	7	108	21	24	74	14	23	37	8	412				
7:45 AM	11	90	11	5	125	33	26	86	19	21	30	5	462				
8:00 AM	12	67	6	7	73	24	15	57	7	12	26	11	317				
8:15 AM	7	78	8	11	80	21	19	53	7	16	20	1	321				
8:30 AM	9	61	14	3	75	16	24	58	9	10	21	1	301				
8:45 AM	15	68	6	4	91	26	22	56	9	12	23	7	339				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	84	574	75	54	705	182	169	518	76	111	215	51	2814	0	0	0	0
APPROACH %'s :	11.46%	78.31%	10.23%	5.74%	74.92%	19.34%	22.15%	67.89%	9.96%	29.44%	57.03%	13.53%					
PEAK HR START TIME :	715 AM												TOTAL				
PEAK HR VOL :	48	283	38	29	413	100	82	304	47	65	119	33	1561				
PEAK HR FACTOR :		0.824			0.831			0.826			0.798		0.845				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

TOTALS

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
4:00 PM	14	123	11	8	101	37	32	60	10	20	66	17	499		0		
4:15 PM	16	109	14	10	95	33	29	50	10	20	56	11	453		1		
4:30 PM	16	99	21	7	94	38	29	61	14	25	70	10	484		0		
4:45 PM	11	152	10	4	98	30	32	38	18	20	69	8	490		0		
5:00 PM	15	139	21	13	127	29	25	61	18	19	77	24	568		0		
5:15 PM	19	143	22	7	97	39	22	66	21	25	75	15	551		0		
5:30 PM	22	138	9	9	119	31	19	78	16	19	70	12	542		1		
5:45 PM	11	143	14	5	132	27	21	59	20	22	50	13	517		0		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	124	1046	122	63	863	264	209	473	127	170	533	110	4104	0	2	0	0
APPROACH %'s :	9.60%	80.96%	9.44%	5.29%	72.52%	22.18%	25.83%	58.47%	15.70%	20.91%	65.56%	13.53%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	67	563	66	34	475	126	87	264	75	85	272	64	2178				
PEAK HR FACTOR :		0.946			0.939			0.942			0.877		0.959				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

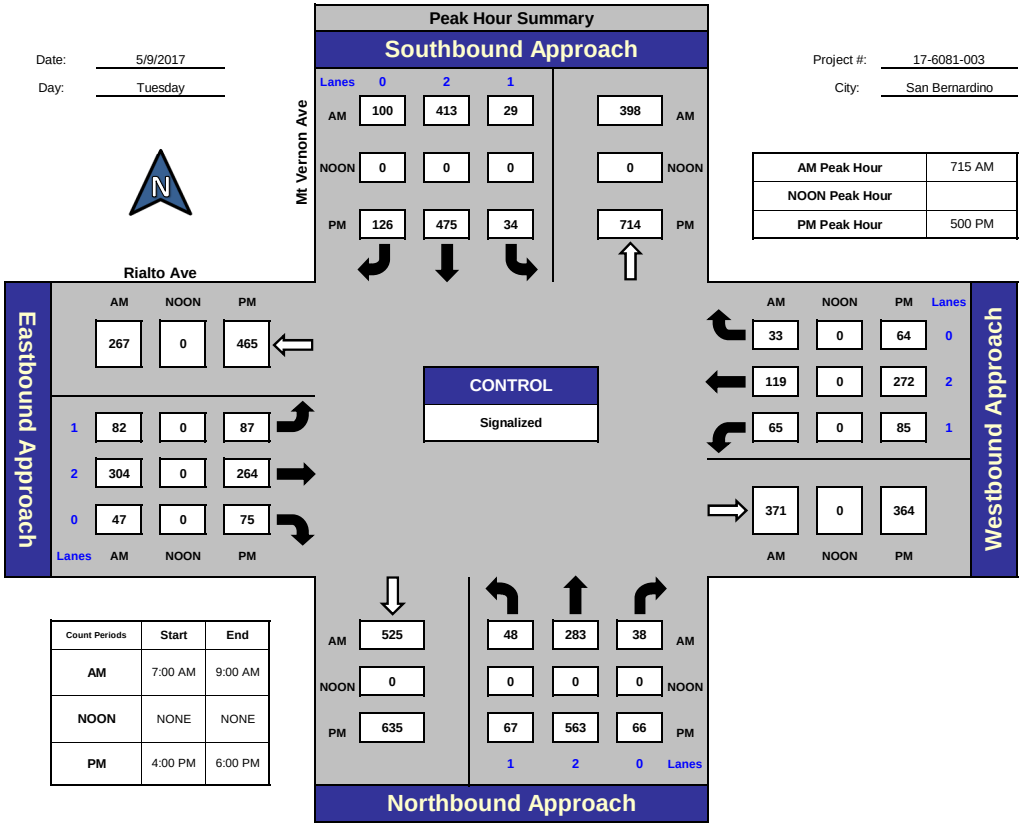
Mt Vernon Ave and Rialto Ave , San Bernardino

Date: 5/9/2017

Day: Tuesday

Project #: 17-6081-003

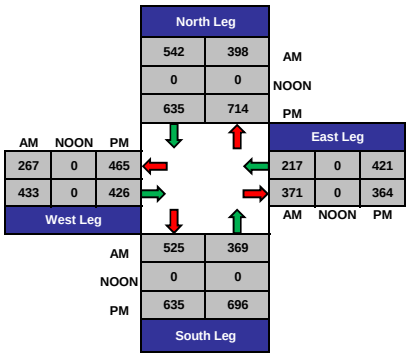
City: San Bernardino



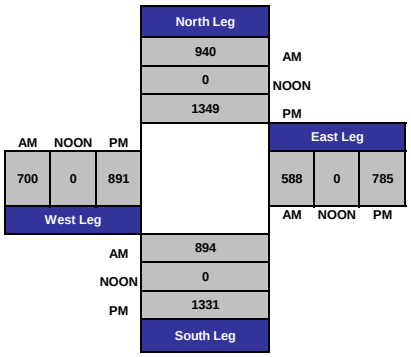
Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

Cars

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
7:00 AM	5	81	9	7	45	17	18	46	4	8	31	9	280				
7:15 AM	9	61	5	10	105	18	12	87	7	9	26	9	358				
7:30 AM	15	64	16	7	106	19	21	72	13	23	36	8	400				
7:45 AM	10	86	10	4	123	31	21	83	18	19	30	5	440				
8:00 AM	11	64	6	6	72	22	12	55	7	12	26	11	304				
8:15 AM	6	75	8	11	77	18	15	51	6	16	20	1	304				
8:30 AM	7	59	13	3	72	14	19	57	7	10	20	1	282				
8:45 AM	14	66	6	4	91	26	17	56	9	11	20	7	327				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	77	556	73	52	691	165	135	507	71	108	209	51	2695	0	0	0	0
APPROACH %'s :	10.91%	78.75%	10.34%	5.73%	76.10%	18.17%	18.93%	71.11%	9.96%	29.35%	56.79%	13.86%					
PEAK HR START TIME :	715 AM												TOTAL				
PEAK HR VOL :	45	275	37	27	406	90	66	297	45	63	118	33	1502				
PEAK HR FACTOR :		0.842			0.828			0.836			0.799		0.853				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003 | Day: Tuesday

Cars

City: San Bernardino | Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
4:00 PM	14	119	11	8	100	32	30	59	10	20	66	17	486		0		
4:15 PM	16	105	14	10	92	27	29	50	9	20	55	11	438		1		
4:30 PM	16	97	21	7	93	36	24	59	14	25	69	10	471		0		
4:45 PM	11	151	10	4	96	27	30	38	17	20	66	8	478		0		
5:00 PM	15	138	20	13	126	26	23	59	18	18	76	24	556		0		
5:15 PM	19	142	22	7	96	36	22	64	20	25	75	15	543		0		
5:30 PM	22	137	9	9	118	30	19	78	16	18	70	12	538		1		
5:45 PM	11	142	14	5	129	27	19	59	19	22	49	13	509		0		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	124	1031	121	63	850	241	196	466	123	168	526	110	4019	0	2	0	0
APPROACH %'s :	9.72%	80.80%	9.48%	5.46%	73.66%	20.88%	24.97%	59.36%	15.67%	20.90%	65.42%	13.68%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	67	559	65	34	469	119	83	260	73	83	270	64	2146				
PEAK HR FACTOR :		0.944			0.942			0.920			0.883		0.965				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

2 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	3	0	0	1	0	0	1	0	0	1	0	6
7:15 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
7:30 AM	1	0	0	0	2	0	0	2	0	0	0	0	5
7:45 AM	0	4	1	1	1	1	2	1	1	2	0	0	14
8:00 AM	1	3	0	1	1	0	0	0	0	0	0	0	6
8:15 AM	0	3	0	0	3	1	0	0	1	0	0	0	8
8:30 AM	0	2	0	0	3	0	0	1	0	0	0	0	6
8:45 AM	0	2	0	0	0	0	0	0	0	1	2	0	5
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	2	18	1	2	13	2	2	5	2	3	3	0	53
APPROACH %'s :	9.52%	85.71%	4.76%	11.76%	76.47%	11.76%	22.22%	55.56%	22.22%	50.00%	50.00%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	2	8	1	2	6	1	2	3	1	2	0	0	28
PEAK HR FACTOR :		0.550			0.750			0.375			0.250		0.853

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

2 Axle Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	0	4	0	0	1	1	0	1	0	0	0	0	7
4:15 PM	0	4	0	0	3	2	0	0	0	0	1	0	10
4:30 PM	0	2	0	0	1	0	4	1	0	0	0	0	8
4:45 PM	0	1	0	0	1	1	0	0	1	0	0	0	4
5:00 PM	0	1	1	0	1	0	0	1	0	1	1	0	6
5:15 PM	0	1	0	0	0	1	0	1	0	0	0	0	3
5:30 PM	0	1	0	0	1	0	0	0	0	1	0	0	3
5:45 PM	0	1	0	0	2	0	0	0	1	0	1	0	5
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	15	1	0	10	5	4	4	2	2	3	0	46
APPROACH %'s :	0.00%	93.75%	6.25%	0.00%	66.67%	33.33%	40.00%	40.00%	20.00%	40.00%	60.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	4	1	0	4	1	0	2	1	2	2	0	17
PEAK HR FACTOR :		0.625			0.625			0.750			0.500		0.965

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

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

3 Axle Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
8:30 AM	1	0	1	0	0	0	0	0	1	0	0	0	3
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	0	1	0	0	3	3	1	2	0	0	0	11
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	0.00%	100.00%	50.00%	16.67%	33.33%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	2	1	1	1	0	0	0	5
PEAK HR FACTOR :		0.000			0.500			0.750			0.000		0.853

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003 | Day: Tuesday

3 Axle Trucks

City: San Bernardino | Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	2	0	1	2	0					
4:00 PM	0	0	0	0	0	1	1	0	0	0	0	0	2				
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0				
4:30 PM	0	0	0	0	0	1	1	1	0	0	0	0	3				
4:45 PM	0	0	0	0	1	1	2	0	0	0	3	0	7				
5:00 PM	0	0	0	0	0	1	1	1	0	0	0	0	3				
5:15 PM	0	0	0	0	1	0	0	1	1	0	0	0	3				
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0				
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	0	2	4	6	3	1	0	3	0	19	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	33.33%	66.67%	60.00%	30.00%	10.00%	0.00%	100.00%	0.00%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	0	0	0	0	1	1	2	2	1	0	0	0	7				
PEAK HR FACTOR :		0.000			0.500			0.625			0.000		0.965				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

AM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
7:00 AM	0	0	0	0	0	1	4	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	4	5	0	0	0	0	0	9
7:30 AM	0	0	0	0	0	2	3	0	0	0	1	0	6
7:45 AM	1	0	0	0	1	0	3	1	0	0	0	0	6
8:00 AM	0	0	0	0	0	1	2	2	0	0	0	0	5
8:15 AM	1	0	0	0	0	2	3	2	0	0	0	0	8
8:30 AM	1	0	0	0	0	2	5	0	1	0	1	0	10
8:45 AM	1	0	0	0	0	0	4	0	0	0	1	0	6
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	4	0	0	0	1	12	29	5	1	0	3	0	55
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	7.69%	92.31%	82.86%	14.29%	2.86%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	1	0	0	0	1	7	13	3	0	0	1	0	26
PEAK HR FACTOR :	0.250			0.500			0.800			0.250			0.853

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-6081-003

Day: Tuesday

4 Axle+ Trucks

City: San Bernardino

Date: 5/9/2017

PM

NS/EW Streets:	Mt Vernon Ave			Mt Vernon Ave			Rialto Ave			Rialto Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
4:00 PM	0	0	0	0	0	3	1	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	4	0	0	1	0	0	0	5
4:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	2	1	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	2
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	14	3	0	1	0	1	0	20
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	6.67%	93.33%	75.00%	0.00%	25.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	0	1	5	2	0	0	0	0	0	8
PEAK HR FACTOR :		0.000			0.750			0.500			0.000		0.965

UTURNS

NB	SB	EB	WB
0	0	0	0

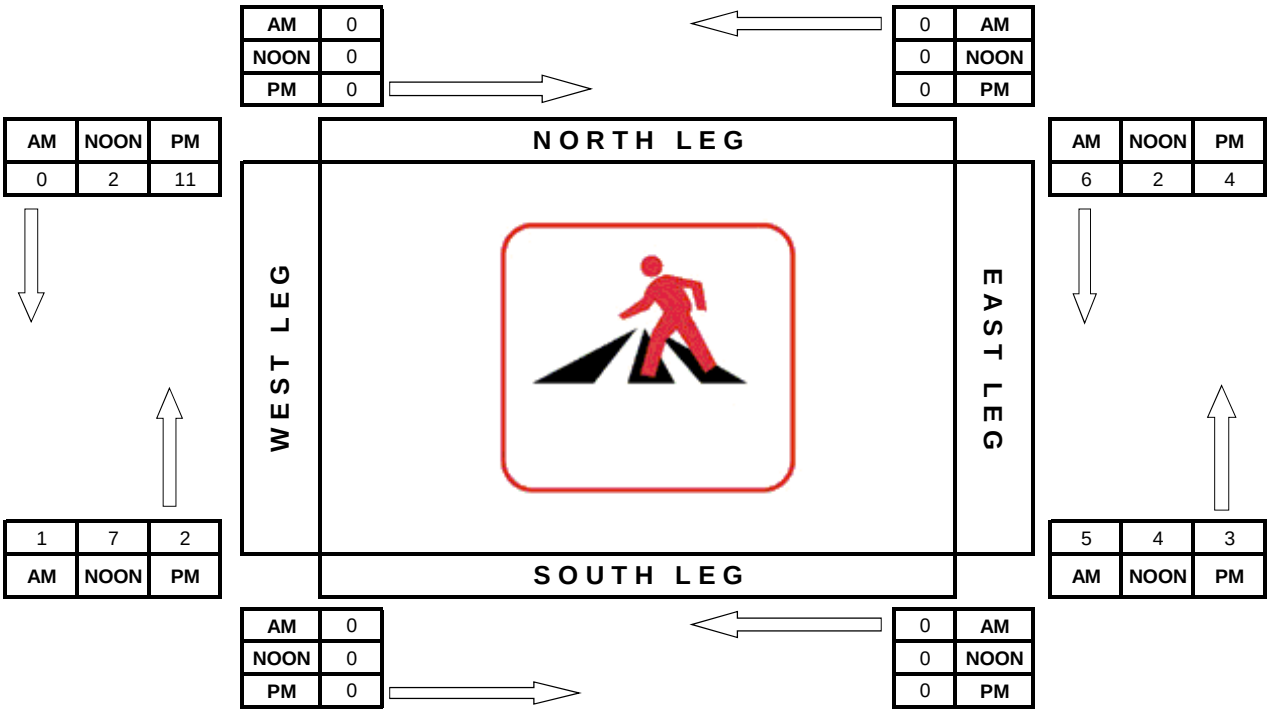
CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count Peak Hour

	Start:	End:
AM	0:00	11:00
NOON	11:00	15:00
PM	15:00	0:00

PROJECT#: 17-6083-001
N/S Street: Mt Vernon Ave Bridge
E/W Street: Bet. Kingman St & 2nd St
DATE: 5/9/2017 DAY: Tuesday
CITY: San Bernardino



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count Peak Hour

	Start:	End:
AM	0:00	11:00
NOON	11:00	15:00
PM	15:00	0:00

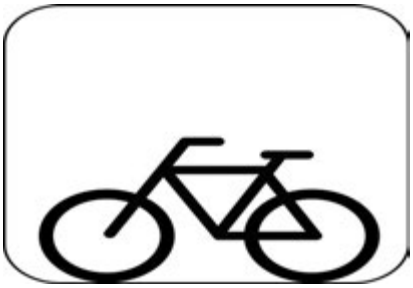
PROJECT#: 17-6083-001
N/S Street: Mt Vernon Ave Bridge
E/W Street: Bet. Kingman St & 2nd St
DATE: 5/9/2017
DAY: Tuesday
CITY: San Bernardino

AM	0	4	0
NOON	0	7	0
PM	0	3	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	2	0
NOON	0	3	0
PM	0	3	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 17-6083-001
N/S Street: Mt Vernon Ave Bridge
E/W Street: Bet. Kingman St & 2nd St
DATE: 5/9/2017 DAY: Tuesday
CITY: San Bernardino

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
12:00 AM	0	0	0	0	0	0	0	1
12:15 AM	0	0	0	0	2	0	1	0
12:30 AM	0	0	0	0	0	1	0	0
12:45 AM	0	0	0	0	1	0	0	0
1:00 AM	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	1	0
2:00 AM	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	1	0	0
3:15 AM	0	0	0	0	1	0	0	0
3:30 AM	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	1
4:45 AM	0	0	0	0	1	1	0	0
5:00 AM	0	0	0	0	0	1	0	1
5:15 AM	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0
5:45 AM	0	0	0	0	1	0	0	0
6:00 AM	0	0	0	0	0	0	1	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	4	1
6:45 AM	0	0	0	0	1	0	1	1
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	1	2	1	0
8:00 AM	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	1	0
9:30 AM	0	0	0	0	0	0	0	2
9:45 AM	0	0	0	0	3	0	0	0
10:00 AM	0	0	0	0	1	3	0	0
10:15 AM	0	0	0	0	0	3	0	0
10:30 AM	0	0	0	0	1	0	1	0
10:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	13	17	12	10

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
12:00 AM	0	1	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	1	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	1	0	0	0	0	0	0	0
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	1	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 AM	0	2	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	1	0	0	0	0	0	0	0
7:00 AM	0	1	0	0	2	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	2	0	0	0	0	0	0	0
9:00 AM	0	2	0	0	2	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	1	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	1	0	0	0	0	0	0	0
10:15 AM	0	1	0	0	2	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	0	12	0	0	14	0	0	0	0	0	0	0

N O O N

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:00 AM	0	0	0	0	1	0	0	2
11:15 AM	0	0	0	0	2	1	2	1
11:30 AM	0	0	0	0	1	1	0	1
11:45 AM	0	0	0	0	1	0	2	0
12:00 PM	0	0	0	0	0	0	3	0
12:15 PM	0	0	0	0	2	0	1	1
12:30 PM	0	0	0	0	0	2	0	0
12:45 PM	0	0	0	0	2	1	0	1
1:00 PM	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	1	1
1:30 PM	0	0	0	0	0	0	3	0
1:45 PM	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	1	0	1
2:15 PM	0	0	0	0	0	1	0	2
2:30 PM	0	0	0	0	0	0	0	2
2:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	9	7	12	14

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
11:00 AM	0	1	0	0	1	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	2	0	0	3	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	2	0	0	0	0	0	0	0
2:00 PM	0	2	0	0	1	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	3	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	1	0	0	3	0	0	0	0	0	0	0
TOTALS	0	8	0	0	14	0	0	0	0	0	0	0

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	4	1	3
3:15 PM	0	0	0	0	1	0	0	6
3:30 PM	0	0	0	0	2	0	0	0
3:45 PM	0	0	0	0	0	0	1	2
4:00 PM	0	0	0	0	1	0	0	0
4:15 PM	0	0	0	0	0	1	3	0
4:30 PM	0	0	0	0	2	2	2	1
4:45 PM	0	0	0	0	3	1	2	0
5:00 PM	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	2	0	1	1
5:30 PM	0	0	0	0	1	0	1	1
5:45 PM	0	0	0	0	0	1	1	1
6:00 PM	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	1	1	2	0
6:30 PM	0	0	0	0	1	0	0	0
6:45 PM	0	0	0	0	0	0	1	0
7:00 PM	0	0	0	0	0	1	0	0
7:15 PM	0	0	0	0	1	0	0	0
7:30 PM	0	0	0	0	0	2	1	0
7:45 PM	0	0	0	0	0	0	0	2
8:00 PM	0	0	0	0	1	0	1	1
8:15 PM	0	0	0	0	2	0	0	2
8:30 PM	0	0	0	0	0	0	2	0
8:45 PM	0	0	0	0	0	0	2	0
9:00 PM	0	0	0	0	0	0	0	1
9:15 PM	0	0	0	0	1	0	0	0
9:30 PM	0	0	0	0	1	0	0	0
9:45 PM	0	0	0	0	0	1	0	0
10:00 PM	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	1	0
10:45 PM	0	0	0	0	0	0	1	0
11:00 PM	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	1	0
11:30 PM	0	0	0	0	2	0	0	0
11:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	22	14	24	23

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	2	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	2	0	0	0	0	0	0	0
6:15 PM	0	2	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	1	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	2	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	0	0	0	2	0	0	0	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	1	0	0	0	0	0	0	0
10:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	1	0	0	1	0	0	0	0	0	0	0
10:45 PM	0	1	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	2	0	0	0	0	0	0	0
11:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	10	0	0	14	0	0	0	0	0	0	0

PEAK HOURS

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
9:45 AM	0	0	0	0	5	6	1	0	AM
11:15 AM	0	0	0	0	4	2	7	2	NOON
3:00 PM	0	0	0	0	3	4	2	11	PM

PEAK HOURS

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
8:45 AM	0	2	0	0	4	0	0	0	0	0	0	0
2:00 PM	0	3	0	0	7	0	0	0	0	0	0	0
10:30 PM	0	3	0	0	3	0	0	0	0	0	0	0

Prepared by National Data & Surveying Services

CLASSIFICATION

Mt Vernon Ave Bet. Kingman St & 2nd St

Day: Tuesday
Date: 5/9/2017

City: San Bernardino
Project #: CA17_6082_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	69	12	0	2	0	0	0	0	0	0	0	0	83
01:00	0	33	6	0	2	0	0	0	0	0	0	0	0	41
02:00	0	40	8	0	3	0	0	0	0	0	0	0	0	51
03:00	0	50	8	0	3	0	0	0	0	0	0	0	0	61
04:00	0	145	23	0	11	0	0	0	0	0	0	0	0	179
05:00	0	223	29	1	21	1	0	0	0	0	0	0	0	275
06:00	0	261	58	2	23	0	0	0	0	0	0	0	0	344
07:00	0	678	122	4	99	1	0	0	0	0	0	0	0	904
08:00	1	531	100	5	60	4	0	0	0	0	0	0	0	701
09:00	0	667	115	2	70	2	0	0	0	0	0	0	0	856
10:00	1	667	127	2	73	4	0	0	0	0	0	0	0	874
11:00	2	776	155	1	80	4	0	0	0	0	0	0	0	1018
12:00 PM	2	857	164	3	79	5	0	0	0	0	0	0	0	1110
13:00	0	814	149	2	72	4	0	0	0	0	0	0	0	1041
14:00	1	870	171	2	79	5	0	0	0	0	0	0	0	1128
15:00	2	924	155	3	82	5	0	0	0	0	0	0	0	1171
16:00	3	866	160	3	69	3	0	0	0	0	0	0	0	1104
17:00	1	1080	179	2	82	3	0	0	0	0	0	0	0	1347
18:00	1	826	163	3	65	2	0	0	0	0	0	0	0	1060
19:00	1	635	125	0	42	1	0	0	0	0	0	0	0	804
20:00	0	518	91	0	31	0	0	0	0	0	0	0	0	640
21:00	0	328	41	0	24	0	0	0	0	0	0	0	0	393
22:00	0	194	34	0	12	0	0	0	0	0	0	0	0	240
23:00	0	130	19	0	8	0	0	0	0	0	0	0	0	157
Totals	15	12182	2214	35	1092	44								15582
% of Totals	0%	78%	14%	0%	7%	0%								100%

AM Volumes	4	4140	763	17	447	16	0	0	0	0	0	0	0	5387
% AM	0%	27%	5%	0%	3%	0%								35%
AM Peak Hour	11:00	11:00	11:00	08:00	07:00	08:00								11:00
Volume	2	776	155	5	99	4								1018
PM Volumes	11	8042	1451	18	645	28	0	0	0	0	0	0	0	10195
% PM	0%	52%	9%	0%	4%	0%								65%
PM Peak Hour	16:00	17:00	17:00	12:00	15:00	12:00								17:00
Volume	3	1080	179	3	82	5								1347

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	1605	⟷	10%	2151	⟷	14%	2451	⟷	16%	9375	⟷	60%

Classification Definitions

1 Motorcycles	4 Buses	7 > =4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

DAILY TOTALS	NB	SB	EB	WB	To
	7,711	7,871	0	0	15,5

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOT
00:00	15		8		0	0	23		12:00	114		149		0	0	263
00:15	12		6		0	0	18		12:15	125		125		0	0	250
00:30	17		8		0	0	25		12:30	120		181		0	0	301
00:45	9	53	8	30	0	0	17	83	12:45	125	484	171	626	0	0	296
01:00	6		4		0	0	10		13:00	119		156		0	0	275
01:15	3		2		0	0	5		13:15	112		138		0	0	250
01:30	8		9		0	0	17		13:30	138		132		0	0	270
01:45	8	25	1	16	0	0	9	41	13:45	123	492	123	549	0	0	246
02:00	9		2		0	0	11		14:00	155		105		0	0	260
02:15	6		5		0	0	11		14:15	163		107		0	0	270
02:30	6		5		0	0	11		14:30	158		132		0	0	290
02:45	7	28	11	23	0	0	18	51	14:45	143	619	165	509	0	0	308
03:00	8		8		0	0	16		15:00	134		134		0	0	268
03:15	6		8		0	0	14		15:15	182		115		0	0	297
03:30	4		8		0	0	12		15:30	149		158		0	0	307
03:45	8	26	11	35	0	0	19	61	15:45	147	612	152	559	0	0	299
04:00	16		14		0	0	30		16:00	164		141		0	0	305
04:15	15		20		0	0	35		16:15	136		113		0	0	249
04:30	20		36		0	0	56		16:30	137		125		0	0	262
04:45	24	75	34	104	0	0	58	179	16:45	167	604	121	500	0	0	288
05:00	28		30		0	0	58		17:00	178		152		0	0	330
05:15	33		44		0	0	77		17:15	188		120		0	0	308
05:30	16		44		0	0	60		17:30	185		163		0	0	348
05:45	25	102	55	173	0	0	80	275	17:45	192	743	169	604	0	0	361
06:00	16		42		0	0	58		18:00	171		123		0	0	294
06:15	29		54		0	0	83		18:15	135		140		0	0	275
06:30	27		68		0	0	95		18:30	113		113		0	0	226
06:45	42	114	66	230	0	0	108	344	18:45	145	564	120	496	0	0	265
07:00	108		70		0	0	178		19:00	120		103		0	0	223
07:15	104		153		0	0	257		19:15	106		118		0	0	224
07:30	77		139		0	0	216		19:30	105		85		0	0	190
07:45	110	399	143	505	0	0	253	904	19:45	93	424	74	380	0	0	167
08:00	80		92		0	0	172		20:00	104		63		0	0	167
08:15	85		84		0	0	169		20:15	106		88		0	0	194
08:30	79		118		0	0	197		20:30	88		55		0	0	143
08:45	75	319	88	382	0	0	163	701	20:45	76	374	60	266	0	0	136
09:00	98		129		0	0	227		21:00	63		54		0	0	117
09:15	101		124		0	0	225		21:15	55		60		0	0	115
09:30	72		129		0	0	201		21:30	51		40		0	0	91
09:45	100	371	103	485	0	0	203	856	21:45	35	204	35	189	0	0	70
10:00	95		103		0	0	198		22:00	50		32		0	0	82
10:15	87		133		0	0	220		22:15	46		21		0	0	67
10:30	96		127		0	0	223		22:30	28		20		0	0	48
10:45	99	377	134	497	0	0	233	874	22:45	20	144	23	96	0	0	43
11:00	113		120		0	0	233		23:00	30		18		0	0	48
11:15	121		142		0	0	263		23:15	20		18		0	0	38
11:30	117		139		0	0	256		23:30	21		13		0	0	34
11:45	123	474	143	544	0	0	266	1018	23:45	13	84	24	73	0	0	37
TOTALS		2363		3024				5387	TOTALS		5348		4847			
SPLIT %		43.9%		56.1%				34.6%	SPLIT %		52.5%		47.5%			

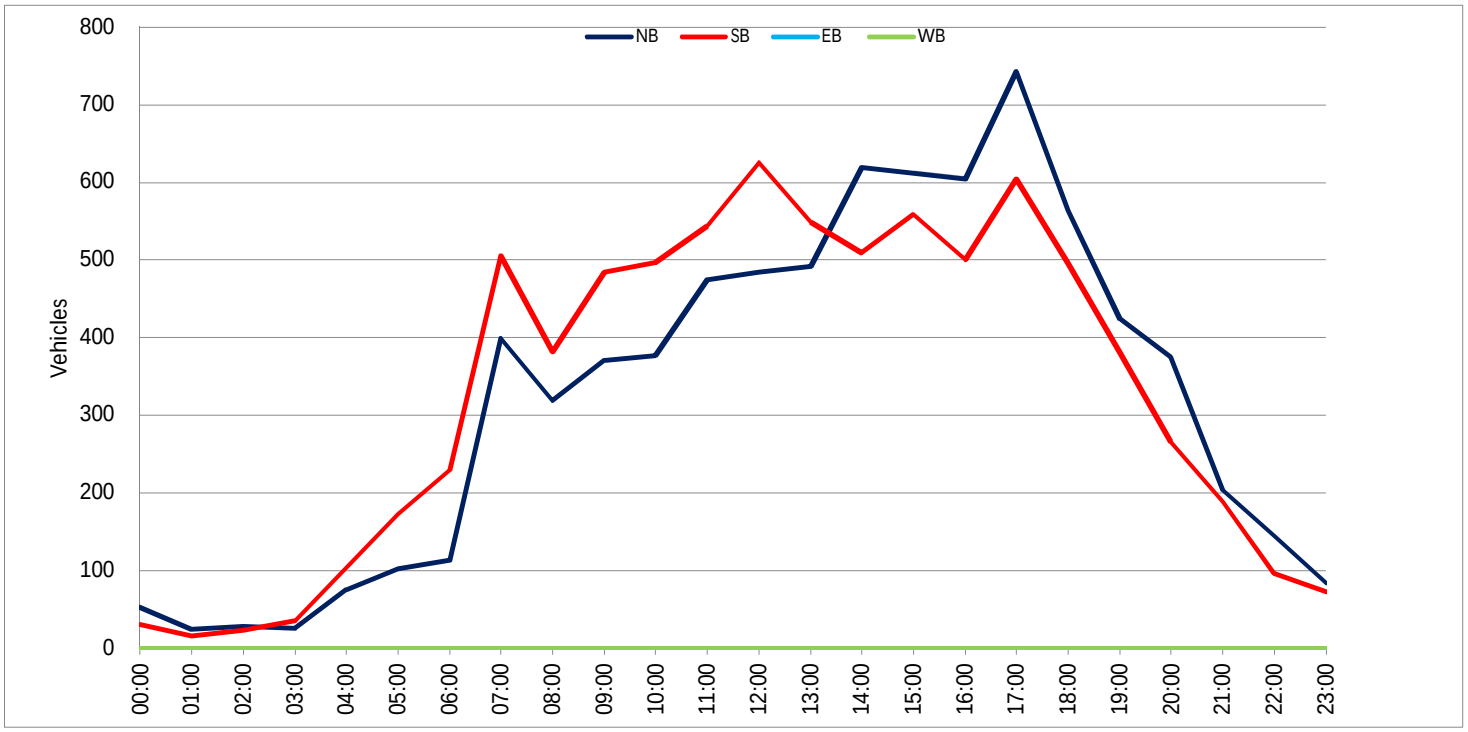
DAILY TOTALS	NB	SB	EB	WB	To
	7,711	7,871	0	0	15,5

AM Peak Hour	11:45	11:45			11:45		PM Peak Hour	17:00	12:30			
AM Pk Volume	482	598			1080		PM Pk Volume	743	646			
Pk Hr Factor	0.964	0.826			0.897		Pk Hr Factor	0.967	0.892			
7 - 9 Volume	718	887	0	0	1605		4 - 6 Volume	1347	1104	0	0	
7 - 9 Peak Hour	07:00	07:15			07:00		4 - 6 Peak Hour	17:00	17:00			
7 - 9 Pk Volume	399	527	0	0	904		4 - 6 Pk Volume	743	604	0	0	
Pk Hr Factor	0.907	0.861	0.000	0.000	0.879		Pk Hr Factor	0.967	0.893	0.000	0.000	

Prepared by NDS/ATD

Project #: CA17_6082_001 City: San Bernardino

Location: Mt Vernon Ave Bet. Kingman St & 2nd St Date: 5/9/2017



Appendix C: Level of Service Worksheets

Existing (2017) Conditions

AM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	516	101	44	439	60	65	287	42	125	357	46
Future Volume (veh/h)	50	516	101	44	439	60	65	287	42	125	357	46
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1589	1682	1800	1589	1682	1800	1589	1682	1800	1589	1682	1800
Adj Flow Rate, veh/h	52	538	105	46	457	62	68	299	44	130	372	48
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	23	1020	198	18	1071	145	252	750	109	283	764	98
Arrive On Green	0.02	0.38	0.38	0.01	0.38	0.38	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1513	2670	519	1513	2831	382	867	2800	408	930	2851	365
Grp Volume(v), veh/h	52	321	322	46	257	262	68	169	174	130	207	213
Grp Sat Flow(s),veh/h/ln	1513	1598	1591	1513	1598	1615	867	1598	1610	930	1598	1618
Q Serve(g_s), s	1.0	9.7	9.7	0.7	7.4	7.5	4.5	5.4	5.5	8.3	6.8	6.9
Cycle Q Clear(g_c), s	1.0	9.7	9.7	0.7	7.4	7.5	11.3	5.4	5.5	13.8	6.8	6.9
Prop In Lane	1.00		0.33	1.00		0.24	1.00		0.25	1.00		0.23
Lane Grp Cap(c), veh/h	23	611	608	18	605	611	252	428	431	283	428	433
V/C Ratio(X)	2.22	0.53	0.53	2.56	0.42	0.43	0.27	0.40	0.40	0.46	0.48	0.49
Avail Cap(c_a), veh/h	171	611	608	171	605	611	348	605	609	386	605	612
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	30.6	14.8	14.9	30.7	14.3	14.3	23.9	18.6	18.7	24.3	19.1	19.2
Incr Delay (d2), s/veh	578.0	3.2	3.3	734.0	2.2	2.2	0.2	0.2	0.2	0.4	0.3	0.3
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	4.2	4.7	4.8	4.0	3.6	3.6	1.1	2.4	2.4	2.2	3.0	3.1
LnGrp Delay(d),s/veh	608.6	18.1	18.1	764.7	16.5	16.5	24.1	18.8	18.9	24.7	19.4	19.5
LnGrp LOS	F	B	B	F	B	B	C	B	B	C	B	B
Approach Vol, veh/h		695			565			411			550	
Approach Delay, s/veh		62.3			77.4			19.7			20.7	
Approach LOS		E			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	31.2		24.1	7.0	31.0		24.1
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	25.5		25.5	9.0	25.5		25.5
Max Q Clear Time (g_c+I1), s	2.7	11.7		15.8	3.0	9.5		13.3
Green Ext Time (p_c), s	0.0	4.3		2.9	0.0	4.6		3.2

Intersection Summary		
HCM 2010 Ctrl Delay	48.0	
HCM 2010 LOS	D	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	10	5	120	4	79	6	314	96	94	404	11
Future Volume (veh/h)	4	10	5	120	4	79	6	314	96	94	404	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1731	1800	1635	1731	1800	1700	1731	1800	1700	1731	1800
Adj Flow Rate, veh/h	5	11	6	140	0	0	7	357	0	107	459	12
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	81	65	27	405	104	0	23	1229	0	129	587	16
Arrive On Green	0.06	0.06	0.06	0.06	0.00	0.00	0.37	0.37	0.00	0.21	0.21	0.21
Sat Flow, veh/h	106	1077	443	2576	1731	0	62	3396	0	604	2740	75
Grp Volume(v), veh/h	22	0	0	140	0	0	195	169	0	301	0	277
Grp Sat Flow(s),veh/h/ln	1626	0	0	1288	1731	0	1728	1644	0	1701	0	1718
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.0	4.7	4.3	0.0	10.0	0.0	8.9
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.0	0.0	0.0	4.7	4.3	0.0	10.0	0.0	8.9
Prop In Lane	0.23		0.27	1.00		0.00	0.04		0.00	0.35		0.04
Lane Grp Cap(c), veh/h	173	0	0	405	104	0	641	610	0	364	0	368
V/C Ratio(X)	0.13	0.00	0.00	0.35	0.00	0.00	0.30	0.28	0.00	0.83	0.00	0.75
Avail Cap(c_a), veh/h	633	0	0	1162	613	0	641	610	0	603	0	609
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	0.0	27.5	0.0	0.0	13.2	13.1	0.0	22.2	0.0	21.8
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	0.0	0.0	1.2	1.1	0.0	4.8	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.2	0.0	0.0	2.4	2.1	0.0	5.2	0.0	4.5
LnGrp Delay(d),s/veh	26.8	0.0	0.0	28.0	0.0	0.0	14.4	14.2	0.0	27.1	0.0	24.9
LnGrp LOS	C			C			B	B		C		C
Approach Vol, veh/h		22			140			364			578	
Approach Delay, s/veh		26.8			28.0			14.3			26.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		29.0		10.6		19.7		10.6
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		24.0		23.0		23.0		23.0
Max Q Clear Time (g_c+I1), s		6.7		2.8		12.0		5.0
Green Ext Time (p_c), s		1.9		0.6		2.7		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	304	47	65	119	33	48	283	38	29	413	100
Future Volume (veh/h)	82	304	47	65	119	33	48	283	38	29	413	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	98	362	56	77	142	39	57	337	45	35	492	119
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	316	704	108	215	633	169	447	1669	221	569	1504	362
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1110	2859	439	894	2569	685	748	2920	387	924	2631	633
Grp Volume(v), veh/h	98	207	211	77	89	92	57	189	193	35	306	305
Grp Sat Flow(s),veh/h/ln	1110	1644	1653	894	1644	1610	748	1644	1663	924	1644	1619
Q Serve(g_s), s	6.0	8.3	8.5	6.3	3.3	3.5	3.4	4.3	4.3	1.5	7.6	7.6
Cycle Q Clear(g_c), s	9.5	8.3	8.5	14.8	3.3	3.5	11.0	4.3	4.3	5.8	7.6	7.6
Prop In Lane	1.00		0.27	1.00		0.43	1.00		0.23	1.00		0.39
Lane Grp Cap(c), veh/h	316	405	407	215	405	397	447	940	950	569	940	926
V/C Ratio(X)	0.31	0.51	0.52	0.36	0.22	0.23	0.13	0.20	0.20	0.06	0.33	0.33
Avail Cap(c_a), veh/h	505	684	687	367	684	669	447	940	950	569	940	926
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	27.0	25.0	25.1	31.4	23.1	23.2	11.6	8.0	8.0	9.4	8.7	8.7
Incr Delay (d2), s/veh	0.6	1.0	1.0	1.0	0.3	0.3	0.6	0.5	0.5	0.2	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.9	4.0	1.6	1.5	1.6	0.8	2.1	2.1	0.4	3.6	3.6
LnGrp Delay(d),s/veh	27.5	26.0	26.1	32.4	23.4	23.5	12.2	8.5	8.5	9.6	9.6	9.6
LnGrp LOS	C	C	C	C	C	C	B	A	A	A	A	A
Approach Vol, veh/h		516			258			439			646	
Approach Delay, s/veh		26.3			26.1			8.9			9.6	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		26.0		51.0		26.0
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		46.0		34.0		46.0		34.0
Max Q Clear Time (g_c+I1), s		13.0		11.5		9.6		16.8
Green Ext Time (p_c), s		8.1		4.6		8.2		4.2

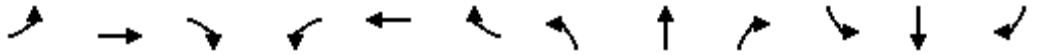
Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	506	102	74	526	110	136	514	80	119	402	84
Future Volume (veh/h)	88	506	102	74	526	110	136	514	80	119	402	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	91	522	105	76	542	113	140	530	82	123	414	87
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	48	890	178	41	873	181	289	981	151	248	930	194
Arrive On Green	0.03	0.33	0.33	0.03	0.32	0.32	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1557	2731	547	1557	2712	563	828	2857	440	747	2710	565
Grp Volume(v), veh/h	91	313	314	76	328	327	140	304	308	123	250	251
Grp Sat Flow(s),veh/h/ln	1557	1644	1634	1557	1644	1631	828	1644	1653	747	1644	1631
Q Serve(g_s), s	2.1	11.0	11.1	1.8	11.7	11.7	10.9	10.3	10.4	11.0	8.1	8.3
Cycle Q Clear(g_c), s	2.1	11.0	11.1	1.8	11.7	11.7	19.2	10.3	10.4	21.4	8.1	8.3
Prop In Lane	1.00		0.33	1.00		0.35	1.00		0.27	1.00		0.35
Lane Grp Cap(c), veh/h	48	536	533	41	529	525	289	564	567	248	564	560
V/C Ratio(X)	1.90	0.58	0.59	1.84	0.62	0.62	0.48	0.54	0.54	0.50	0.44	0.45
Avail Cap(c_a), veh/h	158	536	533	135	529	525	311	607	611	268	607	603
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	33.5	19.4	19.4	33.6	19.8	19.9	25.0	18.3	18.3	26.9	17.6	17.6
Incr Delay (d2), s/veh	428.9	4.6	4.7	403.9	5.4	5.5	0.5	0.3	0.3	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	5.6	5.7	5.4	6.1	6.1	2.5	4.7	4.8	2.3	3.7	3.7
LnGrp Delay(d),s/veh	462.3	24.0	24.1	437.5	25.2	25.4	25.5	18.6	18.6	27.5	17.8	17.8
LnGrp LOS	F	C	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		718			731			752			624	
Approach Delay, s/veh		79.6			68.1			19.9			19.7	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	30.0		31.2	8.1	29.7		31.2
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	8.0	24.5		27.5	9.0	23.5		27.5
Max Q Clear Time (g_c+I1), s	3.8	13.1		23.4	4.1	13.7		21.2
Green Ext Time (p_c), s	0.0	4.4		2.3	0.1	4.0		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

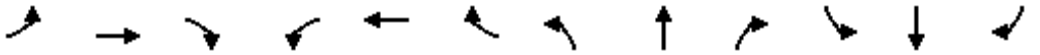


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	6	20	171	2	194	13	528	161	127	443	15
Future Volume (veh/h)	11	6	20	171	2	194	13	528	161	127	443	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1782	1800	1683	1782	1800	1700	1782	1800	1700	1782	1800
Adj Flow Rate, veh/h	12	6	21	181	0	0	14	556	0	134	466	16
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	90	39	64	437	133	0	31	1282	0	157	580	21
Arrive On Green	0.07	0.07	0.07	0.07	0.00	0.00	0.38	0.38	0.00	0.22	0.22	0.22
Sat Flow, veh/h	210	519	851	2628	1782	0	81	3479	0	729	2687	96
Grp Volume(v), veh/h	39	0	0	181	0	0	305	265	0	321	0	295
Grp Sat Flow(s),veh/h/ln	1580	0	0	1314	1782	0	1778	1693	0	1746	0	1765
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	0.0	8.2	7.3	0.0	11.2	0.0	10.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	4.0	0.0	0.0	8.2	7.3	0.0	11.2	0.0	10.0
Prop In Lane	0.31		0.54	1.00		0.00	0.05		0.00	0.42		0.05
Lane Grp Cap(c), veh/h	192	0	0	437	133	0	673	640	0	377	0	381
V/C Ratio(X)	0.20	0.00	0.00	0.41	0.00	0.00	0.45	0.41	0.00	0.85	0.00	0.77
Avail Cap(c_a), veh/h	558	0	0	1068	562	0	673	640	0	550	0	556
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	0.0	28.9	0.0	0.0	14.8	14.5	0.0	23.9	0.0	23.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.6	0.0	0.0	2.2	2.0	0.0	8.4	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.6	0.0	0.0	4.4	3.7	0.0	6.2	0.0	5.3
LnGrp Delay(d),s/veh	28.3	0.0	0.0	29.5	0.0	0.0	17.0	16.5	0.0	32.3	0.0	27.5
LnGrp LOS	C			C			B	B		C		C
Approach Vol, veh/h		39			181			570			616	
Approach Delay, s/veh		28.3			29.5			16.8			30.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.0		11.7		20.7		11.7
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		26.0		22.0		22.0		22.0
Max Q Clear Time (g_c+I1), s		10.2		3.4		13.2		6.0
Green Ext Time (p_c), s		3.1		0.8		2.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	264	75	85	272	64	67	563	66	34	475	126
Future Volume (veh/h)	87	264	75	85	272	64	67	563	66	34	475	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1683	1782	1800	1683	1782	1800	1683	1782	1800	1683	1782	1800
Adj Flow Rate, veh/h	91	275	78	89	283	67	70	586	69	35	495	131
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	240	628	175	238	654	152	459	1770	208	447	1539	405
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	979	2618	729	977	2728	635	759	3053	359	739	2654	698
Grp Volume(v), veh/h	91	176	177	89	174	176	70	324	331	35	315	311
Grp Sat Flow(s),veh/h/ln	979	1693	1654	977	1693	1670	759	1693	1719	739	1693	1659
Q Serve(g_s), s	6.8	6.8	7.1	6.6	6.8	7.0	4.1	7.7	7.8	2.0	7.4	7.5
Cycle Q Clear(g_c), s	13.7	6.8	7.1	13.7	6.8	7.0	11.6	7.7	7.8	9.8	7.4	7.5
Prop In Lane	1.00		0.44	1.00		0.38	1.00		0.21	1.00		0.42
Lane Grp Cap(c), veh/h	240	406	396	238	406	400	459	982	997	447	982	962
V/C Ratio(X)	0.38	0.43	0.45	0.37	0.43	0.44	0.15	0.33	0.33	0.08	0.32	0.32
Avail Cap(c_a), veh/h	396	676	661	394	676	667	459	982	997	447	982	962
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	30.9	25.0	25.1	30.9	25.0	25.1	11.4	8.5	8.5	11.0	8.4	8.4
Incr Delay (d2), s/veh	1.0	0.7	0.8	1.0	0.7	0.8	0.7	0.9	0.9	0.3	0.9	0.9
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	1.9	3.3	3.3	1.8	3.2	3.3	0.9	3.9	3.9	0.5	3.6	3.7
LnGrp Delay(d),s/veh	31.9	25.8	25.9	31.9	25.7	25.8	12.1	9.4	9.4	11.4	9.3	9.3
LnGrp LOS	C	C	C	C	C	C	B	A	A	B	A	A
Approach Vol, veh/h		444			439			725			661	
Approach Delay, s/veh		27.1			27.0			9.6			9.4	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		52.0		25.6		52.0		25.6
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		47.0		33.0		47.0		33.0
Max Q Clear Time (g_c+I1), s		13.6		15.7		11.8		15.7
Green Ext Time (p_c), s		11.2		4.9		11.4		4.9

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Opening Year (2022)

Without Project Conditions

AM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	504	101	46	454	63	66	294	42	126	368	48
Future Volume (veh/h)	50	504	101	46	454	63	66	294	42	126	368	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1589	1682	1800	1589	1682	1800	1589	1682	1800	1589	1682	1800
Adj Flow Rate, veh/h	52	525	105	48	473	66	69	306	44	131	383	50
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	23	997	199	20	1051	146	252	767	109	285	777	101
Arrive On Green	0.02	0.38	0.38	0.01	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1513	2658	529	1513	2820	392	857	2810	400	924	2846	369
Grp Volume(v), veh/h	52	315	315	48	267	272	69	173	177	131	214	219
Grp Sat Flow(s),veh/h/ln	1513	1598	1589	1513	1598	1613	857	1598	1612	924	1598	1617
Q Serve(g_s), s	1.0	9.5	9.6	0.8	7.8	7.9	4.6	5.5	5.6	8.4	7.0	7.1
Cycle Q Clear(g_c), s	1.0	9.5	9.6	0.8	7.8	7.9	11.6	5.5	5.6	13.9	7.0	7.1
Prop In Lane	1.00		0.33	1.00		0.24	1.00		0.25	1.00		0.23
Lane Grp Cap(c), veh/h	23	600	596	20	596	601	252	436	440	285	436	441
V/C Ratio(X)	2.23	0.53	0.53	2.42	0.45	0.45	0.27	0.40	0.40	0.46	0.49	0.50
Avail Cap(c_a), veh/h	171	600	596	171	596	601	349	616	622	390	616	624
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	30.5	15.1	15.1	30.6	14.6	14.7	23.8	18.4	18.4	24.1	18.9	18.9
Incr Delay (d2), s/veh	580.0	3.3	3.3	672.0	2.4	2.4	0.2	0.2	0.2	0.4	0.3	0.3
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	4.2	4.7	4.8	4.0	3.8	3.9	1.1	2.4	2.5	2.1	3.1	3.2
LnGrp Delay(d),s/veh	610.5	18.3	18.4	702.6	17.1	17.1	24.1	18.6	18.6	24.5	19.2	19.3
LnGrp LOS	F	B	B	F	B	B	C	B	B	C	B	B
Approach Vol, veh/h		682			587			419			564	
Approach Delay, s/veh		63.5			73.1			19.5			20.5	
Approach LOS		E			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	30.7		24.4	7.0	30.6		24.4
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	25.1		25.9	9.0	25.1		25.9
Max Q Clear Time (g_c+I1), s	2.8	11.6		15.9	3.0	9.9		13.6
Green Ext Time (p_c), s	0.0	4.3		3.0	0.0	4.5		3.3

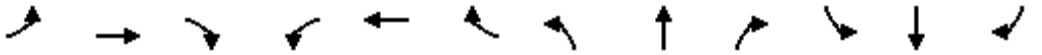
Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	10	5	113	4	82	6	339	89	102	467	12
Future Volume (veh/h)	4	10	5	113	4	82	6	339	89	102	467	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1731	1800	1635	1731	1800	1700	1731	1800	1700	1731	1800
Adj Flow Rate, veh/h	5	11	6	132	0	0	7	385	0	116	531	14
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	81	61	25	397	98	0	20	1125	0	142	687	19
Arrive On Green	0.06	0.06	0.06	0.06	0.00	0.00	0.34	0.34	0.00	0.25	0.25	0.25
Sat Flow, veh/h	102	1081	444	2576	1731	0	58	3401	0	573	2771	76
Grp Volume(v), veh/h	22	0	0	132	0	0	210	182	0	345	0	316
Grp Sat Flow(s),veh/h/ln	1627	0	0	1288	1731	0	1728	1644	0	1702	0	1717
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	5.4	4.8	0.0	11.3	0.0	10.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	2.8	0.0	0.0	5.4	4.8	0.0	11.3	0.0	10.0
Prop In Lane	0.23		0.27	1.00		0.00	0.03		0.00	0.34		0.04
Lane Grp Cap(c), veh/h	167	0	0	397	98	0	586	558	0	422	0	426
V/C Ratio(X)	0.13	0.00	0.00	0.33	0.00	0.00	0.36	0.33	0.00	0.82	0.00	0.74
Avail Cap(c_a), veh/h	610	0	0	1125	587	0	586	558	0	693	0	699
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	0.0	27.5	0.0	0.0	14.6	14.5	0.0	20.9	0.0	20.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	1.7	1.6	0.0	3.9	0.0	2.6
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	0.4	0.0	0.0	1.1	0.0	0.0	2.8	2.4	0.0	5.7	0.0	5.0
LnGrp Delay(d),s/veh	26.9	0.0	0.0	28.0	0.0	0.0	16.4	16.0	0.0	24.8	0.0	23.0
LnGrp LOS	C			C			B	B		C		C
Approach Vol, veh/h		22			132			392			661	
Approach Delay, s/veh		26.9			28.0			16.2			24.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		10.3		21.6		10.3
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		22.0		22.0		26.0		22.0
Max Q Clear Time (g_c+I1), s		7.4		2.8		13.3		4.8
Green Ext Time (p_c), s		1.9		0.5		3.4		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	318	41	70	126	43	44	295	46	49	444	105
Future Volume (veh/h)	77	318	41	70	126	43	44	295	46	49	444	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	92	379	49	83	150	51	52	351	55	58	529	125
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	316	749	96	220	622	204	425	1630	253	554	1510	355
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1090	2932	377	885	2435	799	718	2854	443	903	2643	622
Grp Volume(v), veh/h	92	211	217	83	100	101	52	201	205	58	328	326
Grp Sat Flow(s),veh/h/ln	1090	1644	1664	885	1644	1590	718	1644	1653	903	1644	1621
Q Serve(g_s), s	5.7	8.6	8.7	6.9	3.7	4.0	3.3	4.6	4.7	2.6	8.3	8.4
Cycle Q Clear(g_c), s	9.7	8.6	8.7	15.6	3.7	4.0	11.7	4.6	4.7	7.3	8.3	8.4
Prop In Lane	1.00		0.23	1.00		0.50	1.00		0.27	1.00		0.38
Lane Grp Cap(c), veh/h	316	420	425	220	420	406	425	939	944	554	939	926
V/C Ratio(X)	0.29	0.50	0.51	0.38	0.24	0.25	0.12	0.21	0.22	0.10	0.35	0.35
Avail Cap(c_a), veh/h	485	675	684	357	675	653	425	939	944	554	939	926
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	26.9	24.8	24.8	31.5	23.0	23.1	12.1	8.2	8.2	10.0	8.9	9.0
Incr Delay (d2), s/veh	0.5	0.9	0.9	1.1	0.3	0.3	0.6	0.5	0.5	0.4	1.0	1.1
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	1.8	4.0	4.1	1.7	1.7	1.8	0.7	2.3	2.3	0.7	4.0	4.0
LnGrp Delay(d),s/veh	27.4	25.7	25.8	32.6	23.3	23.4	12.7	8.7	8.7	10.4	10.0	10.0
LnGrp LOS	C	C	C	C	C	C	B	A	A	B	A	B
Approach Vol, veh/h		520			284			458			712	
Approach Delay, s/veh		26.0			26.0			9.1			10.0	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		26.9		51.0		26.9
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		46.5		34.0		46.5		34.0
Max Q Clear Time (g_c+I1), s		13.7		11.7		10.4		17.6
Green Ext Time (p_c), s		8.9		4.8		9.1		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	515	107	80	535	114	139	537	85	116	400	80
Future Volume (veh/h)	89	515	107	80	535	114	139	537	85	116	400	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	92	531	110	82	552	118	143	554	88	120	412	82
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	48	858	177	44	846	180	299	994	157	244	957	189
Arrive On Green	0.03	0.32	0.32	0.03	0.31	0.31	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1557	2716	560	1557	2699	575	833	2845	451	726	2739	541
Grp Volume(v), veh/h	92	321	320	82	336	334	143	319	323	120	246	248
Grp Sat Flow(s),veh/h/ln	1557	1644	1632	1557	1644	1629	833	1644	1651	726	1644	1635
Q Serve(g_s), s	2.1	11.4	11.5	2.0	12.1	12.2	10.9	10.8	10.8	11.0	7.9	8.0
Cycle Q Clear(g_c), s	2.1	11.4	11.5	2.0	12.1	12.2	18.9	10.8	10.8	21.8	7.9	8.0
Prop In Lane	1.00		0.34	1.00		0.35	1.00		0.27	1.00		0.33
Lane Grp Cap(c), veh/h	48	520	516	44	515	511	299	574	577	244	574	571
V/C Ratio(X)	1.90	0.62	0.62	1.85	0.65	0.65	0.48	0.56	0.56	0.49	0.43	0.43
Avail Cap(c_a), veh/h	159	520	516	159	515	511	318	611	614	260	611	608
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	33.2	19.9	20.0	33.3	20.3	20.3	24.4	18.0	18.0	26.9	17.1	17.1
Incr Delay (d2), s/veh	430.1	5.4	5.5	403.3	6.3	6.4	0.4	0.5	0.5	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.9	6.0	5.8	6.4	6.4	2.5	5.0	5.0	2.2	3.6	3.6
LnGrp Delay(d),s/veh	463.3	25.3	25.5	436.6	26.6	26.8	24.8	18.5	18.5	27.4	17.3	17.3
LnGrp LOS	F	C	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		733			752			785			614	
Approach Delay, s/veh		80.4			71.4			19.7			19.3	
Approach LOS		F			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	29.2		31.5	8.1	29.0		31.5
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	23.5		27.5	9.0	23.5		27.5
Max Q Clear Time (g_c+I1), s	4.0	13.5		23.8	4.1	14.2		20.9
Green Ext Time (p_c), s	0.1	4.2		2.2	0.1	4.0		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	48.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	6	19	160	2	204	13	617	153	129	483	16
Future Volume (veh/h)	12	6	19	160	2	204	13	617	153	129	483	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1782	1800	1683	1782	1800	1700	1782	1800	1700	1782	1800
Adj Flow Rate, veh/h	13	6	20	169	0	0	14	649	0	136	508	17
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	91	37	56	421	124	0	26	1273	0	158	624	22
Arrive On Green	0.07	0.07	0.07	0.07	0.00	0.00	0.37	0.37	0.00	0.23	0.23	0.23
Sat Flow, veh/h	236	534	810	2631	1782	0	70	3491	0	690	2728	95
Grp Volume(v), veh/h	39	0	0	169	0	0	355	308	0	345	0	316
Grp Sat Flow(s),veh/h/ln	1580	0	0	1315	1782	0	1779	1693	0	1748	0	1765
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.0	10.0	8.9	0.0	12.1	0.0	10.8
Cycle Q Clear(g_c), s	1.5	0.0	0.0	3.8	0.0	0.0	10.0	8.9	0.0	12.1	0.0	10.8
Prop In Lane	0.33		0.51	1.00		0.00	0.04		0.00	0.39		0.05
Lane Grp Cap(c), veh/h	185	0	0	421	124	0	666	634	0	399	0	404
V/C Ratio(X)	0.21	0.00	0.00	0.40	0.00	0.00	0.53	0.49	0.00	0.86	0.00	0.78
Avail Cap(c_a), veh/h	553	0	0	1058	556	0	666	634	0	545	0	551
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	0.0	29.4	0.0	0.0	15.7	15.3	0.0	23.8	0.0	23.2
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.6	0.0	0.0	3.0	2.6	0.0	10.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.5	0.0	0.0	5.4	4.6	0.0	7.0	0.0	5.8
LnGrp Delay(d),s/veh	29.0	0.0	0.0	30.0	0.0	0.0	18.7	18.0	0.0	34.0	0.0	28.4
LnGrp LOS	C			C			B	B		C		C
Approach Vol, veh/h		39			169			663			661	
Approach Delay, s/veh		29.0			30.0			18.4			31.3	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.0		11.5		21.7		11.5
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		26.0		22.0		22.0		22.0
Max Q Clear Time (g_c+I1), s		12.0		3.5		14.1		5.8
Green Ext Time (p_c), s		3.5		0.7		2.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	280	69	94	288	92	61	611	73	45	493	126
Future Volume (veh/h)	91	280	69	94	288	92	61	611	73	45	493	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1683	1782	1800	1683	1782	1800	1683	1782	1800	1683	1782	1800
Adj Flow Rate, veh/h	95	292	72	98	300	96	64	636	76	47	514	131
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	243	710	172	257	666	209	436	1724	206	408	1515	384
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	939	2703	656	967	2538	797	746	3047	364	701	2677	679
Grp Volume(v), veh/h	95	181	183	98	198	198	64	353	359	47	324	321
Grp Sat Flow(s),veh/h/ln	939	1693	1666	967	1693	1642	746	1693	1718	701	1693	1662
Q Serve(g_s), s	7.4	6.9	7.2	7.3	7.7	7.9	4.0	9.0	9.0	3.1	8.1	8.2
Cycle Q Clear(g_c), s	15.4	6.9	7.2	14.5	7.7	7.9	12.1	9.0	9.0	12.1	8.1	8.2
Prop In Lane	1.00		0.39	1.00		0.49	1.00		0.21	1.00		0.41
Lane Grp Cap(c), veh/h	243	444	437	257	444	431	436	958	972	408	958	941
V/C Ratio(X)	0.39	0.41	0.42	0.38	0.45	0.46	0.15	0.37	0.37	0.12	0.34	0.34
Avail Cap(c_a), veh/h	379	689	678	397	689	668	436	958	972	408	958	941
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	30.8	23.9	24.0	30.0	24.2	24.3	12.4	9.4	9.4	12.7	9.2	9.2
Incr Delay (d2), s/veh	1.0	0.6	0.6	0.9	0.7	0.8	0.7	1.1	1.1	0.6	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.3	3.4	2.0	3.7	3.7	0.9	4.4	4.5	0.7	4.0	4.0
LnGrp Delay(d),s/veh	31.8	24.5	24.7	31.0	24.9	25.1	13.2	10.5	10.5	13.3	10.1	10.2
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h		459			494			776			692	
Approach Delay, s/veh		26.1			26.2			10.7			10.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		27.6		51.0		27.6
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		46.5		34.0		46.5		34.0
Max Q Clear Time (g_c+I1), s		14.1		17.4		14.1		16.5
Green Ext Time (p_c), s		12.0		5.3		12.0		5.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Opening Year (2022) With Project Conditions

AM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	504	101	46	454	63	66	294	42	126	368	48
Future Volume (veh/h)	50	504	101	46	454	63	66	294	42	126	368	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1589	1682	1800	1589	1682	1800	1589	1682	1800	1589	1682	1800
Adj Flow Rate, veh/h	52	525	105	48	473	66	69	306	44	131	383	50
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	23	997	199	20	1051	146	252	767	109	285	777	101
Arrive On Green	0.02	0.38	0.38	0.01	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1513	2658	529	1513	2820	392	857	2810	400	924	2846	369
Grp Volume(v), veh/h	52	315	315	48	267	272	69	173	177	131	214	219
Grp Sat Flow(s),veh/h/ln	1513	1598	1589	1513	1598	1613	857	1598	1612	924	1598	1617
Q Serve(g_s), s	1.0	9.5	9.6	0.8	7.8	7.9	4.6	5.5	5.6	8.4	7.0	7.1
Cycle Q Clear(g_c), s	1.0	9.5	9.6	0.8	7.8	7.9	11.6	5.5	5.6	13.9	7.0	7.1
Prop In Lane	1.00		0.33	1.00		0.24	1.00		0.25	1.00		0.23
Lane Grp Cap(c), veh/h	23	600	596	20	596	601	252	436	440	285	436	441
V/C Ratio(X)	2.23	0.53	0.53	2.42	0.45	0.45	0.27	0.40	0.40	0.46	0.49	0.50
Avail Cap(c_a), veh/h	171	600	596	171	596	601	349	616	622	390	616	624
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	30.5	15.1	15.1	30.6	14.6	14.7	23.8	18.4	18.4	24.1	18.9	18.9
Incr Delay (d2), s/veh	580.0	3.3	3.3	672.0	2.4	2.4	0.2	0.2	0.2	0.4	0.3	0.3
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	4.2	4.7	4.8	4.0	3.8	3.9	1.1	2.4	2.5	2.1	3.1	3.2
LnGrp Delay(d),s/veh	610.5	18.3	18.4	702.6	17.1	17.1	24.1	18.6	18.6	24.5	19.2	19.3
LnGrp LOS	F	B	B	F	B	B	C	B	B	C	B	B
Approach Vol, veh/h		682			587			419			564	
Approach Delay, s/veh		63.5			73.1			19.5			20.5	
Approach LOS		E			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	30.7		24.4	7.0	30.6		24.4
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	25.1		25.9	9.0	25.1		25.9
Max Q Clear Time (g_c+I1), s	2.8	11.6		15.9	3.0	9.9		13.6
Green Ext Time (p_c), s	0.0	4.3		3.0	0.0	4.5		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	10	5	113	4	82	6	339	89	102	467	12
Future Volume (veh/h)	4	10	5	113	4	82	6	339	89	102	467	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1731	1800	1635	1731	1731	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	5	11	6	132	0	93	7	385	0	116	531	14
Adj No. of Lanes	0	1	0	2	0	1	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	12	27	14	227	0	107	3	1177	0	127	1573	41
Arrive On Green	0.03	0.03	0.03	0.07	0.00	0.07	0.00	0.36	0.00	0.08	0.48	0.48
Sat Flow, veh/h	371	817	446	3114	0	1471	1557	3375	0	1557	3274	86
Grp Volume(v), veh/h	22	0	0	132	0	93	7	385	0	116	266	279
Grp Sat Flow(s),veh/h/ln	1634	0	0	1557	0	1471	1557	1644	0	1557	1644	1716
Q Serve(g_s), s	0.8	0.0	0.0	2.5	0.0	3.8	0.1	5.2	0.0	4.5	6.2	6.2
Cycle Q Clear(g_c), s	0.8	0.0	0.0	2.5	0.0	3.8	0.1	5.2	0.0	4.5	6.2	6.2
Prop In Lane	0.23		0.27	1.00		1.00	1.00		0.00	1.00		0.05
Lane Grp Cap(c), veh/h	53	0	0	227	0	107	3	1177	0	127	790	824
V/C Ratio(X)	0.41	0.00	0.00	0.58	0.00	0.87	2.76	0.33	0.00	0.92	0.34	0.34
Avail Cap(c_a), veh/h	531	0	0	1013	0	479	76	1177	0	506	1070	1116
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	27.6	0.0	28.2	30.7	14.4	0.0	28.0	9.9	9.9
Incr Delay (d2), s/veh	5.1	0.0	0.0	2.3	0.0	18.0	987.6	0.7	0.0	21.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	441.5	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.2	0.0	2.1	1.2	2.5	0.0	2.7	2.8	3.0
LnGrp Delay(d),s/veh	34.2	0.0	0.0	29.9	0.0	46.2	1459.9	15.1	0.0	49.5	10.1	10.1
LnGrp LOS	C			C		D	F	B		D	B	B
Approach Vol, veh/h		22			225			392			661	
Approach Delay, s/veh		34.2			36.7			40.9			17.0	
Approach LOS		C			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	29.0		9.0	4.5	36.5		11.5
Change Period (Y+Rc), s	5.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	22.0	24.0		22.0	5.0	42.0		22.0
Max Q Clear Time (g_c+I1), s	6.5	7.2		2.8	2.1	8.2		5.8
Green Ext Time (p_c), s	0.2	5.5		0.0	0.0	6.9		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	318	41	70	126	43	44	295	46	49	444	105
Future Volume (veh/h)	77	318	41	70	126	43	44	295	46	49	444	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	92	379	49	83	150	51	52	351	55	58	529	125
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	319	755	97	223	627	206	423	1617	251	550	1498	352
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1090	2932	377	885	2435	799	718	2854	443	903	2643	622
Grp Volume(v), veh/h	92	211	217	83	100	101	52	201	205	58	328	326
Grp Sat Flow(s),veh/h/ln	1090	1644	1664	885	1644	1590	718	1644	1653	903	1644	1621
Q Serve(g_s), s	5.6	8.4	8.5	6.8	3.7	3.9	3.2	4.6	4.7	2.6	8.3	8.4
Cycle Q Clear(g_c), s	9.5	8.4	8.5	15.3	3.7	3.9	11.6	4.6	4.7	7.3	8.3	8.4
Prop In Lane	1.00		0.23	1.00		0.50	1.00		0.27	1.00		0.38
Lane Grp Cap(c), veh/h	319	423	428	223	423	409	423	932	936	550	932	919
V/C Ratio(X)	0.29	0.50	0.51	0.37	0.24	0.25	0.12	0.22	0.22	0.11	0.35	0.35
Avail Cap(c_a), veh/h	507	707	715	376	707	683	423	932	936	550	932	919
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	26.4	24.3	24.3	30.9	22.5	22.6	12.2	8.2	8.2	10.0	9.0	9.0
Incr Delay (d2), s/veh	0.5	0.9	0.9	1.0	0.3	0.3	0.6	0.5	0.5	0.4	1.0	1.1
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	3.9	4.0	1.7	1.7	1.7	0.7	2.2	2.2	0.7	4.0	4.0
LnGrp Delay(d),s/veh	26.9	25.2	25.3	31.9	22.8	22.9	12.8	8.7	8.8	10.4	10.1	10.1
LnGrp LOS	C	C	C	C	C	C	B	A	A	B	B	B
Approach Vol, veh/h		520			284			458			712	
Approach Delay, s/veh		25.5			25.5			9.2			10.1	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		50.0		26.8		50.0		26.8
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		45.5		35.0		45.5		35.0
Max Q Clear Time (g_c+I1), s		13.6		11.5		10.4		17.3
Green Ext Time (p_c), s		8.8		4.9		9.0		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B

PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	515	107	80	535	114	139	537	85	116	400	80
Future Volume (veh/h)	89	515	107	80	535	114	139	537	85	116	400	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1635	1731	1800	1635	1731	1800	1635	1731	1800	1635	1731	1800
Adj Flow Rate, veh/h	92	531	110	82	552	118	143	554	88	120	412	82
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	48	858	177	44	846	180	299	994	157	244	957	189
Arrive On Green	0.03	0.32	0.32	0.03	0.31	0.31	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1557	2716	560	1557	2699	575	833	2845	451	726	2739	541
Grp Volume(v), veh/h	92	321	320	82	336	334	143	319	323	120	246	248
Grp Sat Flow(s),veh/h/ln	1557	1644	1632	1557	1644	1629	833	1644	1651	726	1644	1635
Q Serve(g_s), s	2.1	11.4	11.5	2.0	12.1	12.2	10.9	10.8	10.8	11.0	7.9	8.0
Cycle Q Clear(g_c), s	2.1	11.4	11.5	2.0	12.1	12.2	18.9	10.8	10.8	21.8	7.9	8.0
Prop In Lane	1.00		0.34	1.00		0.35	1.00		0.27	1.00		0.33
Lane Grp Cap(c), veh/h	48	520	516	44	515	511	299	574	577	244	574	571
V/C Ratio(X)	1.90	0.62	0.62	1.85	0.65	0.65	0.48	0.56	0.56	0.49	0.43	0.43
Avail Cap(c_a), veh/h	159	520	516	159	515	511	318	611	614	260	611	608
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	33.2	19.9	20.0	33.3	20.3	20.3	24.4	18.0	18.0	26.9	17.1	17.1
Incr Delay (d2), s/veh	430.1	5.4	5.5	403.3	6.3	6.4	0.4	0.5	0.5	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.9	6.0	5.8	6.4	6.4	2.5	5.0	5.0	2.2	3.6	3.6
LnGrp Delay(d),s/veh	463.3	25.3	25.5	436.6	26.6	26.8	24.8	18.5	18.5	27.4	17.3	17.3
LnGrp LOS	F	C	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		733			752			785			614	
Approach Delay, s/veh		80.4			71.4			19.7			19.3	
Approach LOS		F			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	29.2		31.5	8.1	29.0		31.5
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	23.5		27.5	9.0	23.5		27.5
Max Q Clear Time (g_c+I1), s	4.0	13.5		23.8	4.1	14.2		20.9
Green Ext Time (p_c), s	0.1	4.2		2.2	0.1	4.0		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	48.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	6	19	160	2	204	13	617	153	129	483	16
Future Volume (veh/h)	12	6	19	160	2	204	13	617	153	129	483	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1782	1800	1683	1782	1782	1683	1782	1800	1683	1782	1800
Adj Flow Rate, veh/h	13	6	20	169	0	215	14	649	0	136	508	17
Adj No. of Lanes	0	1	0	2	0	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	16	7	24	495	0	234	2	1085	0	142	1467	49
Arrive On Green	0.03	0.03	0.03	0.15	0.00	0.15	0.00	0.32	0.00	0.09	0.44	0.44
Sat Flow, veh/h	537	248	825	3206	0	1515	1603	3475	0	1603	3344	112
Grp Volume(v), veh/h	39	0	0	169	0	215	14	649	0	136	257	268
Grp Sat Flow(s),veh/h/ln	1610	0	0	1603	0	1515	1603	1693	0	1603	1693	1762
Q Serve(g_s), s	1.7	0.0	0.0	3.2	0.0	9.6	0.1	11.1	0.0	5.8	6.9	6.9
Cycle Q Clear(g_c), s	1.7	0.0	0.0	3.2	0.0	9.6	0.1	11.1	0.0	5.8	6.9	6.9
Prop In Lane	0.33		0.51	1.00		1.00	1.00		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	47	0	0	495	0	234	2	1085	0	142	743	773
V/C Ratio(X)	0.83	0.00	0.00	0.34	0.00	0.92	6.00	0.60	0.00	0.96	0.35	0.35
Avail Cap(c_a), veh/h	469	0	0	934	0	441	70	1085	0	467	986	1026
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	0.0	25.9	0.0	28.6	34.3	19.6	0.0	31.2	12.7	12.8
Incr Delay (d2), s/veh	29.6	0.0	0.0	0.4	0.0	13.7	2434.0	2.4	0.0	26.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.5	0.0	4.9	2.6	5.5	0.0	3.6	3.3	3.4
LnGrp Delay(d),s/veh	62.7	0.0	0.0	26.3	0.0	42.4	2468.6	22.1	0.0	57.4	13.0	13.0
LnGrp LOS	E			C		D	F	C		E	B	B
Approach Vol, veh/h		39			384			663			661	
Approach Delay, s/veh		62.7			35.3			73.7			22.2	
Approach LOS		E			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	29.0		9.0	4.9	37.1		17.6
Change Period (Y+Rc), s	5.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	22.0	24.0		22.0	5.0	42.0		22.0
Max Q Clear Time (g_c+I1), s	7.8	13.1		3.7	2.1	8.9		11.6
Green Ext Time (p_c), s	0.3	5.5		0.1	0.0	9.4		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	280	69	94	288	92	61	611	73	45	493	126
Future Volume (veh/h)	91	280	69	94	288	92	61	611	73	45	493	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1683	1782	1800	1683	1782	1800	1683	1782	1800	1683	1782	1800
Adj Flow Rate, veh/h	95	292	72	98	300	96	64	636	76	47	514	131
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	243	710	172	257	666	209	436	1724	206	408	1515	384
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	939	2703	656	967	2538	797	746	3047	364	701	2677	679
Grp Volume(v), veh/h	95	181	183	98	198	198	64	353	359	47	324	321
Grp Sat Flow(s),veh/h/ln	939	1693	1666	967	1693	1642	746	1693	1718	701	1693	1662
Q Serve(g_s), s	7.4	6.9	7.2	7.3	7.7	7.9	4.0	9.0	9.0	3.1	8.1	8.2
Cycle Q Clear(g_c), s	15.4	6.9	7.2	14.5	7.7	7.9	12.1	9.0	9.0	12.1	8.1	8.2
Prop In Lane	1.00		0.39	1.00		0.49	1.00		0.21	1.00		0.41
Lane Grp Cap(c), veh/h	243	444	437	257	444	431	436	958	972	408	958	941
V/C Ratio(X)	0.39	0.41	0.42	0.38	0.45	0.46	0.15	0.37	0.37	0.12	0.34	0.34
Avail Cap(c_a), veh/h	379	689	678	397	689	668	436	958	972	408	958	941
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	30.8	23.9	24.0	30.0	24.2	24.3	12.4	9.4	9.4	12.7	9.2	9.2
Incr Delay (d2), s/veh	1.0	0.6	0.6	0.9	0.7	0.8	0.7	1.1	1.1	0.6	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.3	3.4	2.0	3.7	3.7	0.9	4.4	4.5	0.7	4.0	4.0
LnGrp Delay(d),s/veh	31.8	24.5	24.7	31.0	24.9	25.1	13.2	10.5	10.5	13.3	10.1	10.2
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h		459			494			776			692	
Approach Delay, s/veh		26.1			26.2			10.7			10.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		27.6		51.0		27.6
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		46.5		34.0		46.5		34.0
Max Q Clear Time (g_c+I1), s		14.1		17.4		14.1		16.5
Green Ext Time (p_c), s		12.0		5.3		12.0		5.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Design Year (2040) Without Project Conditions

AM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	459	100	51	508	72	70	318	41	129	409	53
Future Volume (veh/h)	51	459	100	51	508	72	70	318	41	129	409	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	54	483	105	54	535	76	74	335	43	136	431	56
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	1086	235	28	1167	165	250	864	110	292	862	111
Arrive On Green	0.02	0.37	0.37	0.02	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1681	2896	626	1681	3114	441	858	3159	402	948	3153	407
Grp Volume(v), veh/h	54	294	294	54	303	308	74	186	192	136	241	246
Grp Sat Flow(s),veh/h/ln	1681	1770	1752	1681	1770	1785	858	1770	1792	948	1770	1791
Q Serve(g_s), s	1.0	7.8	7.9	1.0	8.1	8.2	5.0	5.4	5.5	8.5	7.2	7.3
Cycle Q Clear(g_c), s	1.0	7.8	7.9	1.0	8.1	8.2	12.2	5.4	5.5	14.0	7.2	7.3
Prop In Lane	1.00		0.36	1.00		0.25	1.00		0.22	1.00		0.23
Lane Grp Cap(c), veh/h	28	663	657	28	663	669	250	484	490	292	484	490
V/C Ratio(X)	1.92	0.44	0.45	1.92	0.46	0.46	0.30	0.39	0.39	0.47	0.50	0.50
Avail Cap(c_a), veh/h	188	663	657	188	663	669	337	663	672	388	663	671
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	30.8	14.7	14.7	30.8	14.8	14.8	24.3	18.5	18.5	24.2	19.2	19.2
Incr Delay (d2), s/veh	442.3	2.1	2.2	442.3	2.3	2.3	0.2	0.2	0.2	0.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.2	4.2	3.9	4.4	4.4	1.2	2.6	2.7	2.3	3.5	3.6
LnGrp Delay(d),s/veh	473.2	16.8	16.9	473.2	17.0	17.1	24.6	18.7	18.7	24.7	19.4	19.5
LnGrp LOS	F	B	B	F	B	B	C	B	B	C	B	B
Approach Vol, veh/h		642			665			452			623	
Approach Delay, s/veh		55.3			54.1			19.7			20.6	
Approach LOS		E			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	31.0		24.6	7.0	31.0		24.6
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	25.5		25.5	9.0	25.5		25.5
Max Q Clear Time (g_c+I1), s	3.0	9.9		16.0	3.0	10.2		14.2
Green Ext Time (p_c), s	0.0	4.6		3.1	0.0	4.6		3.4

Intersection Summary		
HCM 2010 Ctrl Delay	39.1	
HCM 2010 LOS	D	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	8	5	86	2	93	4	428	63	130	696	15
Future Volume (veh/h)	6	8	5	86	2	93	4	428	63	130	696	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1863	1900	1765	1863	1900	1800	1863	1900	1800	1863	1900
Adj Flow Rate, veh/h	6	8	5	92	0	0	4	451	0	137	733	16
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	41	17	339	69	0	10	1166	0	163	918	21
Arrive On Green	0.04	0.04	0.04	0.04	0.00	0.00	0.32	0.32	0.00	0.30	0.30	0.30
Sat Flow, veh/h	179	1093	454	2644	1863	0	31	3693	0	544	3072	70
Grp Volume(v), veh/h	19	0	0	92	0	0	244	211	0	462	0	424
Grp Sat Flow(s),veh/h/ln	1726	0	0	1322	1863	0	1861	1770	0	1836	0	1850
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	6.3	5.7	0.0	14.6	0.0	12.9
Cycle Q Clear(g_c), s	0.6	0.0	0.0	2.0	0.0	0.0	6.3	5.7	0.0	14.6	0.0	12.9
Prop In Lane	0.32		0.26	1.00		0.00	0.02		0.00	0.30		0.04
Lane Grp Cap(c), veh/h	141	0	0	339	69	0	603	573	0	548	0	553
V/C Ratio(X)	0.13	0.00	0.00	0.27	0.00	0.00	0.40	0.37	0.00	0.84	0.00	0.77
Avail Cap(c_a), veh/h	607	0	0	1097	604	0	603	573	0	714	0	719
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	0.0	29.5	0.0	0.0	16.2	16.0	0.0	20.3	0.0	19.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	2.0	1.8	0.0	7.2	0.0	3.7
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	0.3	0.0	0.0	0.8	0.0	0.0	3.5	3.0	0.0	8.4	0.0	7.0
LnGrp Delay(d),s/veh	29.4	0.0	0.0	29.9	0.0	0.0	18.2	17.8	0.0	27.4	0.0	23.4
LnGrp LOS	C			C			B	B		C		C
Approach Vol, veh/h		19			92			455			886	
Approach Delay, s/veh		29.4			29.9			18.1			25.5	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		27.0		9.3		25.4		9.3
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		22.0		22.0		26.0		22.0
Max Q Clear Time (g_c+I1), s		8.3		2.6		16.6		4.0
Green Ext Time (p_c), s		2.2		0.3		3.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	368	19	87	149	80	30	336	77	120	554	125
Future Volume (veh/h)	58	368	19	87	149	80	30	336	77	120	554	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	61	387	20	92	157	84	32	354	81	126	583	132
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	840	43	230	557	284	422	1670	378	562	1670	377
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1075	3425	176	923	2272	1157	694	2869	649	900	2870	648
Grp Volume(v), veh/h	61	199	208	92	121	120	32	217	218	126	359	356
Grp Sat Flow(s),veh/h/ln	1075	1770	1832	923	1770	1659	694	1770	1748	900	1770	1748
Q Serve(g_s), s	3.8	7.5	7.5	7.4	4.3	4.6	2.0	4.6	4.7	6.1	8.3	8.4
Cycle Q Clear(g_c), s	8.4	7.5	7.5	14.9	4.3	4.6	10.3	4.6	4.7	10.7	8.3	8.4
Prop In Lane	1.00		0.10	1.00		0.70	1.00		0.37	1.00		0.37
Lane Grp Cap(c), veh/h	292	434	449	230	434	407	422	1030	1017	562	1030	1018
V/C Ratio(X)	0.21	0.46	0.46	0.40	0.28	0.30	0.08	0.21	0.21	0.22	0.35	0.35
Avail Cap(c_a), veh/h	455	702	726	369	702	658	422	1030	1017	562	1030	1018
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	27.4	25.1	25.1	31.5	23.9	24.0	11.3	7.8	7.8	10.4	8.6	8.6
Incr Delay (d2), s/veh	0.4	0.8	0.7	1.1	0.3	0.4	0.3	0.5	0.5	0.9	0.9	0.9
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	3.7	3.9	1.9	2.2	2.2	0.4	2.4	2.4	1.6	4.3	4.2
LnGrp Delay(d),s/veh	27.8	25.8	25.8	32.6	24.2	24.4	11.6	8.2	8.3	11.3	9.5	9.5
LnGrp LOS	C	C	C	C	C	C	B	A	A	B	A	A
Approach Vol, veh/h		468			333			467			841	
Approach Delay, s/veh		26.1			26.6			8.5			9.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		52.0		26.2		52.0		26.2
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		47.5		33.0		47.5		33.0
Max Q Clear Time (g_c+I1), s		12.3		10.4		12.7		16.9
Green Ext Time (p_c), s		10.4		4.8		10.3		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	546	124	103	568	130	150	619	101	103	394	64
Future Volume (veh/h)	91	546	124	103	568	130	150	619	101	103	394	64
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	96	575	131	108	598	137	158	652	106	108	415	67
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	885	201	57	891	204	322	1084	176	223	1086	174
Arrive On Green	0.03	0.31	0.31	0.03	0.31	0.31	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1681	2866	651	1681	2863	654	862	3050	495	667	3056	490
Grp Volume(v), veh/h	96	354	352	108	369	366	158	378	380	108	239	243
Grp Sat Flow(s),veh/h/ln	1681	1770	1748	1681	1770	1747	862	1770	1775	667	1770	1776
Q Serve(g_s), s	2.2	12.0	12.1	2.4	12.6	12.7	11.7	12.2	12.2	11.0	7.0	7.1
Cycle Q Clear(g_c), s	2.2	12.0	12.1	2.4	12.6	12.7	18.8	12.2	12.2	23.3	7.0	7.1
Prop In Lane	1.00		0.37	1.00		0.37	1.00		0.28	1.00		0.28
Lane Grp Cap(c), veh/h	54	547	540	57	551	544	322	629	631	223	629	631
V/C Ratio(X)	1.79	0.65	0.65	1.88	0.67	0.67	0.49	0.60	0.60	0.48	0.38	0.38
Avail Cap(c_a), veh/h	169	547	540	169	551	544	331	648	650	231	648	651
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	33.7	20.8	20.8	33.6	20.9	20.9	23.8	18.4	18.4	27.9	16.7	16.8
Incr Delay (d2), s/veh	379.5	5.9	6.0	422.8	6.4	6.5	0.4	1.0	1.0	0.6	0.1	0.1
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	6.7	6.8	6.8	7.8	7.1	7.1	2.8	6.1	6.1	2.1	3.4	3.5
LnGrp Delay(d),s/veh	413.2	26.6	26.8	456.4	27.2	27.4	24.2	19.4	19.4	28.6	16.9	16.9
LnGrp LOS	F	C	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		802			843			916			590	
Approach Delay, s/veh		73.0			82.3			20.2			19.0	
Approach LOS		E			F			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	29.0		32.2	8.2	29.2		32.2
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	23.5		27.5	9.0	23.5		27.5
Max Q Clear Time (g_c+I1), s	4.4	14.1		25.3	4.2	14.7		20.8
Green Ext Time (p_c), s	0.1	4.4		1.5	0.1	4.2		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	17	120	1	238	11	939	125	136	626	18
Future Volume (veh/h)	16	4	17	120	1	238	11	939	125	136	626	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1863	1900	1765	1863	1900	1800	1863	1900	1800	1863	1900
Adj Flow Rate, veh/h	17	4	18	127	0	0	12	988	0	143	659	19
Adj No. of Lanes	0	1	0	2	1	0	0	2	0	0	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	26	38	369	94	0	15	1317	0	160	778	23
Arrive On Green	0.05	0.05	0.05	0.05	0.00	0.00	0.37	0.37	0.00	0.26	0.26	0.26
Sat Flow, veh/h	360	510	746	2622	1863	0	42	3682	0	612	2978	89
Grp Volume(v), veh/h	39	0	0	127	0	0	536	464	0	428	0	393
Grp Sat Flow(s),veh/h/ln	1616	0	0	1311	1863	0	1861	1770	0	1832	0	1847
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	16.7	14.7	0.0	14.7	0.0	13.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.7	0.0	0.0	16.7	14.7	0.0	14.7	0.0	13.0
Prop In Lane	0.44		0.46	1.00		0.00	0.02		0.00	0.33		0.05
Lane Grp Cap(c), veh/h	160	0	0	369	94	0	683	650	0	479	0	483
V/C Ratio(X)	0.24	0.00	0.00	0.34	0.00	0.00	0.78	0.71	0.00	0.89	0.00	0.81
Avail Cap(c_a), veh/h	550	0	0	1039	570	0	683	650	0	561	0	565
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	30.7	0.0	0.0	18.4	17.7	0.0	23.3	0.0	22.7
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	8.8	6.6	0.0	15.2	0.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.2	0.0	0.0	10.2	8.3	0.0	9.4	0.0	7.7
LnGrp Delay(d),s/veh	30.9	0.0	0.0	31.2	0.0	0.0	27.2	24.3	0.0	38.5	0.0	30.4
LnGrp LOS	C			C			C	C		D		C
Approach Vol, veh/h		39			127			1000			821	
Approach Delay, s/veh		30.9			31.2			25.9			34.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.0		10.3		24.1		10.3
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		26.0		22.0		22.0		22.0
Max Q Clear Time (g_c+I1), s		18.7		3.4		16.7		4.7
Green Ext Time (p_c), s		3.6		0.6		2.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	336	46	128	346	192	40	785	96	83	558	125
Future Volume (veh/h)	106	336	46	128	346	192	40	785	96	83	558	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	112	354	48	135	364	202	42	826	101	87	587	132
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	1017	137	304	717	392	357	1646	201	283	1490	334
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	797	3136	422	927	2212	1208	692	3176	388	569	2874	645
Grp Volume(v), veh/h	112	199	203	135	290	276	42	460	467	87	361	358
Grp Sat Flow(s),veh/h/ln	797	1770	1788	927	1770	1650	692	1770	1794	569	1770	1749
Q Serve(g_s), s	11.4	7.3	7.4	11.2	11.4	11.7	3.4	14.5	14.5	10.1	10.6	10.6
Cycle Q Clear(g_c), s	23.0	7.3	7.4	18.6	11.4	11.7	14.0	14.5	14.5	24.6	10.6	10.6
Prop In Lane	1.00		0.24	1.00		0.73	1.00		0.22	1.00		0.37
Lane Grp Cap(c), veh/h	234	574	580	304	574	535	357	917	930	283	917	907
V/C Ratio(X)	0.48	0.35	0.35	0.44	0.51	0.52	0.12	0.50	0.50	0.31	0.39	0.40
Avail Cap(c_a), veh/h	273	660	667	349	660	615	357	917	930	283	917	907
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	32.9	22.1	22.1	29.2	23.4	23.5	16.8	13.5	13.5	21.5	12.5	12.5
Incr Delay (d2), s/veh	1.5	0.4	0.4	1.0	0.7	0.8	0.7	2.0	1.9	2.8	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.6	3.7	2.9	5.7	5.4	0.7	7.5	7.6	1.8	5.4	5.4
LnGrp Delay(d),s/veh	34.4	22.4	22.5	30.2	24.1	24.3	17.4	15.4	15.4	24.3	13.8	13.8
LnGrp LOS	C	C	C	C	C	C	B	B	B	C	B	B
Approach Vol, veh/h		514			701			969			806	
Approach Delay, s/veh		25.1			25.4			15.5			14.9	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		34.8		51.0		34.8
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		46.5		34.0		46.5		34.0
Max Q Clear Time (g_c+I1), s		16.5		25.0		26.6		20.6
Green Ext Time (p_c), s		15.3		4.8		12.1		6.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Design Year (2040) With Project Conditions

AM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	459	100	51	508	72	70	318	41	129	409	53
Future Volume (veh/h)	51	459	100	51	508	72	70	318	41	129	409	53
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	54	483	105	54	535	76	74	335	43	136	431	56
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	1086	235	28	1167	165	250	864	110	292	862	111
Arrive On Green	0.02	0.37	0.37	0.02	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1681	2896	626	1681	3114	441	858	3159	402	948	3153	407
Grp Volume(v), veh/h	54	294	294	54	303	308	74	186	192	136	241	246
Grp Sat Flow(s),veh/h/ln	1681	1770	1752	1681	1770	1785	858	1770	1792	948	1770	1791
Q Serve(g_s), s	1.0	7.8	7.9	1.0	8.1	8.2	5.0	5.4	5.5	8.5	7.2	7.3
Cycle Q Clear(g_c), s	1.0	7.8	7.9	1.0	8.1	8.2	12.2	5.4	5.5	14.0	7.2	7.3
Prop In Lane	1.00		0.36	1.00		0.25	1.00		0.22	1.00		0.23
Lane Grp Cap(c), veh/h	28	663	657	28	663	669	250	484	490	292	484	490
V/C Ratio(X)	1.92	0.44	0.45	1.92	0.46	0.46	0.30	0.39	0.39	0.47	0.50	0.50
Avail Cap(c_a), veh/h	188	663	657	188	663	669	337	663	672	388	663	671
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	30.8	14.7	14.7	30.8	14.8	14.8	24.3	18.5	18.5	24.2	19.2	19.2
Incr Delay (d2), s/veh	442.3	2.1	2.2	442.3	2.3	2.3	0.2	0.2	0.2	0.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	4.2	4.2	3.9	4.4	4.4	1.2	2.6	2.7	2.3	3.5	3.6
LnGrp Delay(d),s/veh	473.2	16.8	16.9	473.2	17.0	17.1	24.6	18.7	18.7	24.7	19.4	19.5
LnGrp LOS	F	B	B	F	B	B	C	B	B	C	B	B
Approach Vol, veh/h		642			665			452			623	
Approach Delay, s/veh		55.3			54.1			19.7			20.6	
Approach LOS		E			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	31.0		24.6	7.0	31.0		24.6
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	25.5		25.5	9.0	25.5		25.5
Max Q Clear Time (g_c+I1), s	3.0	9.9		16.0	3.0	10.2		14.2
Green Ext Time (p_c), s	0.0	4.6		3.1	0.0	4.6		3.4

Intersection Summary		
HCM 2010 Ctrl Delay		39.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	8	5	86	2	93	4	428	63	130	696	15
Future Volume (veh/h)	6	8	5	86	2	93	4	428	63	130	696	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1863	1900	1765	1863	1863	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	6	8	5	92	0	98	4	451	0	137	733	16
Adj No. of Lanes	0	1	0	2	0	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	24	15	234	0	110	3	1264	0	144	1726	38
Arrive On Green	0.03	0.03	0.03	0.07	0.00	0.07	0.00	0.36	0.00	0.09	0.49	0.49
Sat Flow, veh/h	554	738	461	3361	0	1583	1681	3632	0	1681	3541	77
Grp Volume(v), veh/h	19	0	0	92	0	98	4	451	0	137	366	383
Grp Sat Flow(s),veh/h/ln	1754	0	0	1681	0	1583	1681	1770	0	1681	1770	1849
Q Serve(g_s), s	0.7	0.0	0.0	1.6	0.0	3.8	0.1	5.8	0.0	5.0	8.2	8.2
Cycle Q Clear(g_c), s	0.7	0.0	0.0	1.6	0.0	3.8	0.1	5.8	0.0	5.0	8.2	8.2
Prop In Lane	0.32		0.26	1.00		1.00	1.00		0.00	1.00		0.04
Lane Grp Cap(c), veh/h	57	0	0	234	0	110	3	1264	0	144	863	901
V/C Ratio(X)	0.33	0.00	0.00	0.39	0.00	0.89	1.47	0.36	0.00	0.95	0.42	0.42
Avail Cap(c_a), veh/h	570	0	0	1092	0	514	82	1264	0	546	1149	1201
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	0.0	27.4	0.0	28.4	30.8	14.6	0.0	28.0	10.2	10.2
Incr Delay (d2), s/veh	3.4	0.0	0.0	1.1	0.0	19.9	428.7	0.8	0.0	24.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	74.7	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.8	0.0	2.3	0.6	3.0	0.0	3.3	4.0	4.2
LnGrp Delay(d),s/veh	32.5	0.0	0.0	28.5	0.0	48.3	534.2	15.4	0.0	52.6	10.5	10.5
LnGrp LOS	C			C		D	F	B		D	B	B
Approach Vol, veh/h		19			190			455			886	
Approach Delay, s/veh		32.5			38.7			19.9			17.0	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	29.0		9.0	4.3	37.0		11.3
Change Period (Y+Rc), s	5.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	22.0	24.0		22.0	5.0	42.0		22.0
Max Q Clear Time (g_c+I1), s	7.0	7.8		2.7	2.1	10.2		5.8
Green Ext Time (p_c), s	0.3	7.1		0.0	0.0	9.4		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	368	19	87	149	80	30	336	77	120	554	125
Future Volume (veh/h)	58	368	19	87	149	80	30	336	77	120	554	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	61	387	20	92	157	84	32	354	81	126	583	132
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	840	43	230	557	284	422	1670	378	562	1670	377
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	1075	3425	176	923	2272	1157	694	2869	649	900	2870	648
Grp Volume(v), veh/h	61	199	208	92	121	120	32	217	218	126	359	356
Grp Sat Flow(s),veh/h/ln	1075	1770	1832	923	1770	1659	694	1770	1748	900	1770	1748
Q Serve(g_s), s	3.8	7.5	7.5	7.4	4.3	4.6	2.0	4.6	4.7	6.1	8.3	8.4
Cycle Q Clear(g_c), s	8.4	7.5	7.5	14.9	4.3	4.6	10.3	4.6	4.7	10.7	8.3	8.4
Prop In Lane	1.00		0.10	1.00		0.70	1.00		0.37	1.00		0.37
Lane Grp Cap(c), veh/h	292	434	449	230	434	407	422	1030	1017	562	1030	1018
V/C Ratio(X)	0.21	0.46	0.46	0.40	0.28	0.30	0.08	0.21	0.21	0.22	0.35	0.35
Avail Cap(c_a), veh/h	455	702	726	369	702	658	422	1030	1017	562	1030	1018
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	27.4	25.1	25.1	31.5	23.9	24.0	11.3	7.8	7.8	10.4	8.6	8.6
Incr Delay (d2), s/veh	0.4	0.8	0.7	1.1	0.3	0.4	0.3	0.5	0.5	0.9	0.9	0.9
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	3.7	3.9	1.9	2.2	2.2	0.4	2.4	2.4	1.6	4.3	4.2
LnGrp Delay(d),s/veh	27.8	25.8	25.8	32.6	24.2	24.4	11.6	8.2	8.3	11.3	9.5	9.5
LnGrp LOS	C	C	C	C	C	C	B	A	A	B	A	A
Approach Vol, veh/h		468			333			467			841	
Approach Delay, s/veh		26.1			26.6			8.5			9.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		52.0		26.2		52.0		26.2
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		47.5		33.0		47.5		33.0
Max Q Clear Time (g_c+I1), s		12.3		10.4		12.7		16.9
Green Ext Time (p_c), s		10.4		4.8		10.3		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.8
HCM 2010 LOS	B

PM PEAK HOUR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	546	124	103	568	130	150	619	101	103	394	64
Future Volume (veh/h)	91	546	124	103	568	130	150	619	101	103	394	64
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	96	575	131	108	598	137	158	652	106	108	415	67
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	885	201	57	891	204	322	1084	176	223	1086	174
Arrive On Green	0.03	0.31	0.31	0.03	0.31	0.31	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1681	2866	651	1681	2863	654	862	3050	495	667	3056	490
Grp Volume(v), veh/h	96	354	352	108	369	366	158	378	380	108	239	243
Grp Sat Flow(s),veh/h/ln	1681	1770	1748	1681	1770	1747	862	1770	1775	667	1770	1776
Q Serve(g_s), s	2.2	12.0	12.1	2.4	12.6	12.7	11.7	12.2	12.2	11.0	7.0	7.1
Cycle Q Clear(g_c), s	2.2	12.0	12.1	2.4	12.6	12.7	18.8	12.2	12.2	23.3	7.0	7.1
Prop In Lane	1.00		0.37	1.00		0.37	1.00		0.28	1.00		0.28
Lane Grp Cap(c), veh/h	54	547	540	57	551	544	322	629	631	223	629	631
V/C Ratio(X)	1.79	0.65	0.65	1.88	0.67	0.67	0.49	0.60	0.60	0.48	0.38	0.38
Avail Cap(c_a), veh/h	169	547	540	169	551	544	331	648	650	231	648	651
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	33.7	20.8	20.8	33.6	20.9	20.9	23.8	18.4	18.4	27.9	16.7	16.8
Incr Delay (d2), s/veh	379.5	5.9	6.0	422.8	6.4	6.5	0.4	1.0	1.0	0.6	0.1	0.1
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	6.7	6.8	6.8	7.8	7.1	7.1	2.8	6.1	6.1	2.1	3.4	3.5
LnGrp Delay(d),s/veh	413.2	26.6	26.8	456.4	27.2	27.4	24.2	19.4	19.4	28.6	16.9	16.9
LnGrp LOS	F	C	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		802			843			916			590	
Approach Delay, s/veh		73.0			82.3			20.2			19.0	
Approach LOS		E			F			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	29.0		32.2	8.2	29.2		32.2
Change Period (Y+Rc), s	4.0	5.5		5.5	4.0	5.5		5.5
Max Green Setting (Gmax), s	9.0	23.5		27.5	9.0	23.5		27.5
Max Q Clear Time (g_c+I1), s	4.4	14.1		25.3	4.2	14.7		20.8
Green Ext Time (p_c), s	0.1	4.4		1.5	0.1	4.2		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	17	120	1	238	11	939	125	136	626	18
Future Volume (veh/h)	16	4	17	120	1	238	11	939	125	136	626	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1863	1900	1765	1863	1863	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	17	4	18	127	0	251	12	988	0	143	659	19
Adj No. of Lanes	0	1	0	2	0	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	4	19	559	0	263	2	1361	0	148	1747	50
Arrive On Green	0.02	0.02	0.02	0.17	0.00	0.17	0.00	0.38	0.00	0.09	0.50	0.50
Sat Flow, veh/h	736	173	779	3361	0	1583	1681	3632	0	1681	3513	101
Grp Volume(v), veh/h	39	0	0	127	0	251	12	988	0	143	332	346
Grp Sat Flow(s),veh/h/ln	1688	0	0	1681	0	1583	1681	1770	0	1681	1770	1845
Q Serve(g_s), s	1.9	0.0	0.0	2.7	0.0	13.1	0.1	19.8	0.0	7.1	9.7	9.7
Cycle Q Clear(g_c), s	1.9	0.0	0.0	2.7	0.0	13.1	0.1	19.8	0.0	7.1	9.7	9.7
Prop In Lane	0.44		0.46	1.00		1.00	1.00		0.00	1.00		0.05
Lane Grp Cap(c), veh/h	41	0	0	559	0	263	2	1361	0	148	880	917
V/C Ratio(X)	0.95	0.00	0.00	0.23	0.00	0.95	5.94	0.73	0.00	0.96	0.38	0.38
Avail Cap(c_a), veh/h	406	0	0	808	0	381	61	1361	0	404	1063	1109
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	0.0	30.0	0.0	34.4	41.6	21.9	0.0	37.8	12.9	13.0
Incr Delay (d2), s/veh	52.3	0.0	0.0	0.2	0.0	27.8	2435.0	3.4	0.0	26.8	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.3	0.0	7.7	2.3	10.3	0.0	4.4	4.8	5.0
LnGrp Delay(d),s/veh	92.8	0.0	0.0	30.3	0.0	62.2	2482.8	25.3	0.0	64.6	13.2	13.2
LnGrp LOS	F			C		E	F	C		E	B	B
Approach Vol, veh/h		39			378			1000			821	
Approach Delay, s/veh		92.8			51.5			54.8			22.2	
Approach LOS		F			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	39.0		9.0	5.0	48.4		20.8
Change Period (Y+Rc), s	5.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	22.0	34.0		22.0	5.0	52.0		22.0
Max Q Clear Time (g_c+I1), s	9.1	21.8		3.9	2.1	11.7		15.1
Green Ext Time (p_c), s	0.3	8.2		0.1	0.0	16.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	336	46	128	346	192	40	785	96	83	558	125
Future Volume (veh/h)	106	336	46	128	346	192	40	785	96	83	558	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1765	1863	1900	1765	1863	1900	1765	1863	1900	1765	1863	1900
Adj Flow Rate, veh/h	112	354	48	135	364	202	42	826	101	87	587	132
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	1017	137	304	717	392	357	1646	201	283	1490	334
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	797	3136	422	927	2212	1208	692	3176	388	569	2874	645
Grp Volume(v), veh/h	112	199	203	135	290	276	42	460	467	87	361	358
Grp Sat Flow(s),veh/h/ln	797	1770	1788	927	1770	1650	692	1770	1794	569	1770	1749
Q Serve(g_s), s	11.4	7.3	7.4	11.2	11.4	11.7	3.4	14.5	14.5	10.1	10.6	10.6
Cycle Q Clear(g_c), s	23.0	7.3	7.4	18.6	11.4	11.7	14.0	14.5	14.5	24.6	10.6	10.6
Prop In Lane	1.00		0.24	1.00		0.73	1.00		0.22	1.00		0.37
Lane Grp Cap(c), veh/h	234	574	580	304	574	535	357	917	930	283	917	907
V/C Ratio(X)	0.48	0.35	0.35	0.44	0.51	0.52	0.12	0.50	0.50	0.31	0.39	0.40
Avail Cap(c_a), veh/h	273	660	667	349	660	615	357	917	930	283	917	907
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	32.9	22.1	22.1	29.2	23.4	23.5	16.8	13.5	13.5	21.5	12.5	12.5
Incr Delay (d2), s/veh	1.5	0.4	0.4	1.0	0.7	0.8	0.7	2.0	1.9	2.8	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.6	3.7	2.9	5.7	5.4	0.7	7.5	7.6	1.8	5.4	5.4
LnGrp Delay(d),s/veh	34.4	22.4	22.5	30.2	24.1	24.3	17.4	15.4	15.4	24.3	13.8	13.8
LnGrp LOS	C	C	C	C	C	C	B	B	B	C	B	B
Approach Vol, veh/h		514			701			969			806	
Approach Delay, s/veh		25.1			25.4			15.5			14.9	
Approach LOS		C			C			B			B	

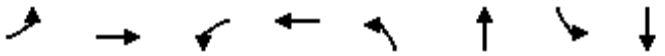
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		34.8		51.0		34.8
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		46.5		34.0		46.5		34.0
Max Q Clear Time (g_c+I1), s		16.5		25.0		26.6		20.6
Green Ext Time (p_c), s		15.3		4.8		12.1		6.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Appendix D: Queuing Analysis Worksheets

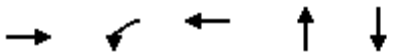
Existing (2017) Conditions

AM PEAK HOUR



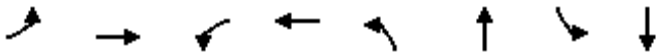
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	643	46	520	68	343	130	420
v/c Ratio	0.38	0.48	0.35	0.39	0.41	0.52	0.73	0.64
Control Delay	37.4	16.2	36.7	15.5	29.0	22.4	46.7	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	16.2	36.7	15.5	29.0	22.4	46.7	25.1
Queue Length 50th (ft)	19	87	17	69	23	57	47	74
Queue Length 95th (ft)	56	182	51	144	56	93	101	115
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	188	1328	188	1324	335	1323	362	1324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.48	0.24	0.39	0.20	0.26	0.36	0.32

Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	120	111	473	579
v/c Ratio	0.09	0.69	0.39	0.46	0.78
Control Delay	22.3	49.1	13.7	20.6	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	49.1	13.7	20.6	34.1
Queue Length 50th (ft)	6	52	8	76	122
Queue Length 95th (ft)	24	108	50	141	191
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	471	350	480	1038	989
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.23	0.46	0.59

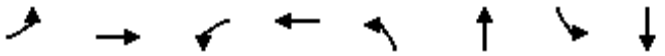
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	418	77	181	57	382	35	611
v/c Ratio	0.40	0.54	0.42	0.23	0.14	0.20	0.07	0.33
Control Delay	30.2	27.0	32.8	19.2	8.5	7.5	7.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	27.0	32.8	19.2	8.5	7.5	7.6	8.2
Queue Length 50th (ft)	39	86	31	28	11	38	7	65
Queue Length 95th (ft)	77	119	66	49	26	54	17	85
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	439	1369	328	1362	398	1879	496	1867
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.31	0.23	0.13	0.14	0.20	0.07	0.33

Intersection Summary

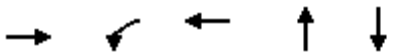
PM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	91	627	76	655	140	612	123	501
v/c Ratio	0.61	0.53	0.58	0.57	0.75	0.72	0.85	0.59
Control Delay	50.7	19.7	50.9	20.9	47.1	26.0	69.9	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	19.7	50.9	20.9	47.1	26.0	69.9	22.1
Queue Length 50th (ft)	36	102	30	111	52	114	48	86
Queue Length 95th (ft)	#106	178	#95	192	#114	164	#127	128
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	175	1184	150	1152	299	1340	231	1338
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.53	0.51	0.57	0.47	0.46	0.53	0.37

Intersection Summary

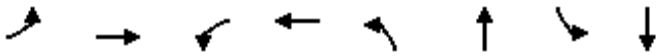
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	39	162	224	739	616
v/c Ratio	0.14	0.78	0.53	0.68	0.83
Control Delay	17.3	55.3	10.8	26.4	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	55.3	10.8	26.4	39.8
Queue Length 50th (ft)	7	78	8	153	145
Queue Length 95th (ft)	32	150	69	246	#226
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	397	313	530	1079	894
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.52	0.42	0.68	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



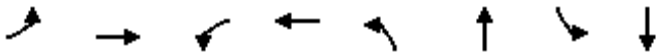
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	91	353	89	350	70	655	35	626
v/c Ratio	0.42	0.44	0.42	0.44	0.17	0.34	0.09	0.32
Control Delay	32.2	23.9	32.0	24.5	8.9	8.7	8.0	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	23.9	32.0	24.5	8.9	8.7	8.0	8.1
Queue Length 50th (ft)	37	66	36	67	14	74	7	66
Queue Length 95th (ft)	82	104	80	106	35	108	20	98
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	366	1341	364	1341	404	1951	389	1935
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.26	0.24	0.26	0.17	0.34	0.09	0.32

Intersection Summary

Opening Year (2022)

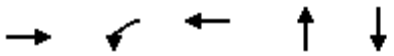
Without Project Conditions

AM PEAK HOUR



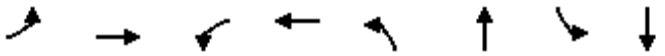
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	630	48	539	69	350	131	433
v/c Ratio	0.38	0.48	0.36	0.41	0.42	0.52	0.73	0.65
Control Delay	37.3	16.4	36.8	15.9	28.9	22.2	46.2	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	16.4	36.8	15.9	28.9	22.2	46.2	25.0
Queue Length 50th (ft)	19	86	17	72	23	58	47	75
Queue Length 95th (ft)	56	178	53	151	57	95	102	118
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	188	1309	188	1309	339	1352	367	1354
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.48	0.26	0.41	0.20	0.26	0.36	0.32

Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	115	111	493	661
v/c Ratio	0.09	0.68	0.39	0.52	0.80
Control Delay	22.6	48.9	13.4	23.3	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	48.9	13.4	23.3	32.6
Queue Length 50th (ft)	6	50	7	86	137
Queue Length 95th (ft)	25	107	49	157	212
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	452	336	468	952	1137
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.24	0.52	0.58

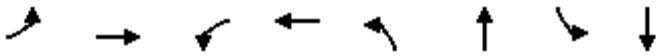
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	428	83	201	52	406	58	654
v/c Ratio	0.38	0.55	0.46	0.25	0.14	0.21	0.12	0.35
Control Delay	29.6	27.3	34.2	18.3	8.5	7.4	8.0	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	27.3	34.2	18.3	8.5	7.4	8.0	8.3
Queue Length 50th (ft)	37	89	34	30	10	40	11	70
Queue Length 95th (ft)	73	123	70	51	25	57	26	94
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	429	1367	320	1358	376	1893	490	1883
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.31	0.26	0.15	0.14	0.21	0.12	0.35

Intersection Summary

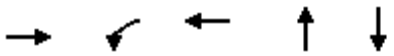
PM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	641	82	670	143	642	120	494
v/c Ratio	0.62	0.56	0.57	0.59	0.73	0.74	0.86	0.57
Control Delay	51.6	21.2	48.3	21.7	43.8	26.1	72.5	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	21.2	48.3	21.7	43.8	26.1	72.5	21.5
Queue Length 50th (ft)	37	110	33	116	53	121	47	85
Queue Length 95th (ft)	#107	187	#93	197	115	173	#130	127
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	174	1135	174	1131	305	1337	216	1336
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.56	0.47	0.59	0.47	0.48	0.56	0.37

Intersection Summary

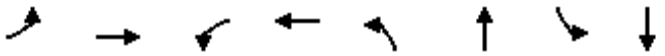
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	39	151	234	824	661
v/c Ratio	0.15	0.76	0.56	0.77	0.85
Control Delay	18.0	54.3	11.0	29.9	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	54.3	11.0	29.9	40.7
Queue Length 50th (ft)	8	74	8	184	156
Queue Length 95th (ft)	33	141	69	#314	#265
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	387	311	536	1072	890
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.49	0.44	0.77	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

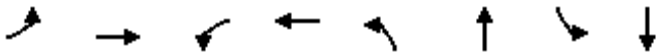


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	364	98	396	64	712	47	645
v/c Ratio	0.47	0.44	0.45	0.48	0.16	0.37	0.13	0.33
Control Delay	33.4	23.9	32.4	23.6	9.0	9.0	8.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	23.9	32.4	23.6	9.0	9.0	8.7	8.2
Queue Length 50th (ft)	39	68	40	73	13	81	9	67
Queue Length 95th (ft)	85	107	85	113	34	124	26	105
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	353	1396	376	1397	390	1947	357	1932
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.26	0.26	0.28	0.16	0.37	0.13	0.33

Intersection Summary

Opening Year (2022) With Project Conditions

AM PEAK HOUR

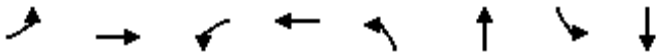


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	630	48	539	69	350	131	433
v/c Ratio	0.38	0.48	0.36	0.41	0.42	0.52	0.73	0.65
Control Delay	37.3	16.4	36.8	15.9	28.9	22.2	46.2	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	16.4	36.8	15.9	28.9	22.2	46.2	25.0
Queue Length 50th (ft)	19	86	17	72	23	58	47	75
Queue Length 95th (ft)	56	178	53	151	57	95	102	118
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	188	1309	188	1309	339	1352	367	1354
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.48	0.26	0.41	0.20	0.26	0.36	0.32

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	67	66	93	7	486	116	545
v/c Ratio	0.20	0.47	0.43	0.37	0.03	0.45	0.59	0.32
Control Delay	31.8	41.9	39.8	8.8	20.2	20.4	42.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	41.9	39.8	8.8	20.2	20.4	42.4	9.9
Queue Length 50th (ft)	7	29	28	0	2	81	48	61
Queue Length 95th (ft)	29	70	69	26	12	144	100	102
Internal Link Dist (ft)	494		3448			587		1966
Turn Bay Length (ft)		150			150		150	
Base Capacity (vph)	504	447	477	529	244	1081	470	2435
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.15	0.14	0.18	0.03	0.45	0.25	0.22

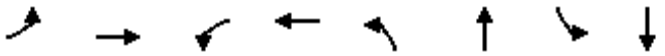
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	428	83	201	52	406	58	654
v/c Ratio	0.49	0.71	0.61	0.33	0.13	0.20	0.11	0.33
Control Delay	34.9	32.4	45.9	19.3	7.4	6.0	7.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	32.4	45.9	19.3	7.4	6.0	7.0	6.8
Queue Length 50th (ft)	36	87	33	29	8	32	9	56
Queue Length 95th (ft)	72	121	70	51	25	57	26	93
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	484	1540	352	1524	411	2021	523	2009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.28	0.24	0.13	0.13	0.20	0.11	0.33

Intersection Summary

PM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	641	82	670	143	642	120	494
v/c Ratio	0.62	0.56	0.57	0.59	0.73	0.74	0.86	0.57
Control Delay	51.6	21.2	48.3	21.7	43.8	26.1	72.5	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	21.2	48.3	21.7	43.8	26.1	72.5	21.5
Queue Length 50th (ft)	37	110	33	116	53	121	47	85
Queue Length 95th (ft)	#107	187	#93	197	115	173	#130	127
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	174	1135	174	1131	305	1337	216	1336
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.56	0.47	0.59	0.47	0.48	0.56	0.37

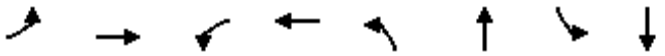
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	86	84	215	14	810	136	525
v/c Ratio	0.32	0.52	0.48	0.60	0.06	0.79	0.65	0.29
Control Delay	29.5	43.1	40.7	12.8	22.7	31.2	45.5	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	43.1	40.7	12.8	22.7	31.2	45.5	10.2
Queue Length 50th (ft)	8	38	37	0	4	164	58	60
Queue Length 95th (ft)	39	90	88	60	21	#333	122	110
Internal Link Dist (ft)	494		3448			587		1966
Turn Bay Length (ft)		150			150		150	
Base Capacity (vph)	468	422	448	576	235	1022	444	2297
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.20	0.19	0.37	0.06	0.79	0.31	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

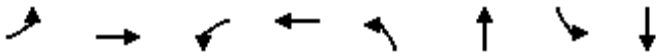


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	364	98	396	64	712	47	645
v/c Ratio	0.66	0.60	0.63	0.65	0.15	0.34	0.12	0.31
Control Delay	48.7	28.1	44.7	28.2	7.7	7.0	7.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	28.1	44.7	28.2	7.7	7.0	7.4	6.5
Queue Length 50th (ft)	39	68	40	73	9	61	7	50
Queue Length 95th (ft)	85	107	85	113	34	124	26	105
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	377	1517	410	1516	433	2118	404	2100
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.24	0.24	0.26	0.15	0.34	0.12	0.31

Intersection Summary

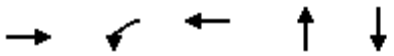
Design Year (2040) Without Project Conditions

AM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	588	54	611	74	378	136	487
v/c Ratio	0.36	0.40	0.36	0.42	0.45	0.52	0.71	0.66
Control Delay	35.9	14.9	35.9	15.4	30.2	22.3	43.1	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	14.9	35.9	15.4	30.2	22.3	43.1	25.3
Queue Length 50th (ft)	20	78	20	84	25	64	49	86
Queue Length 95th (ft)	57	155	57	165	61	102	104	132
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	208	1459	208	1463	336	1464	389	1465
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.40	0.26	0.42	0.22	0.26	0.35	0.33

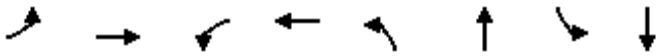
Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	82	109	521	886
v/c Ratio	0.11	0.59	0.43	0.52	0.82
Control Delay	25.3	47.8	14.2	24.1	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	47.8	14.2	24.1	30.6
Queue Length 50th (ft)	6	37	5	101	186
Queue Length 95th (ft)	24	82	48	161	#286
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	444	352	489	993	1187
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.23	0.22	0.52	0.75

Intersection Summary

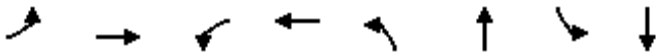
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	407	92	241	32	435	126	715
v/c Ratio	0.24	0.49	0.46	0.28	0.08	0.21	0.24	0.35
Control Delay	27.0	27.4	33.8	16.5	7.7	7.0	9.2	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	27.4	33.8	16.5	7.7	7.0	9.2	8.2
Queue Length 50th (ft)	24	87	38	32	6	41	26	77
Queue Length 95th (ft)	56	130	83	61	18	64	56	112
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	426	1415	344	1397	378	2046	519	2046
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.29	0.27	0.17	0.08	0.21	0.24	0.35

Intersection Summary

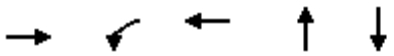
PM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	706	108	735	158	758	108	482
v/c Ratio	0.61	0.59	0.66	0.61	0.69	0.77	0.92	0.49
Control Delay	50.3	21.9	53.7	22.2	38.3	26.9	90.9	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	21.9	53.7	22.2	38.3	26.9	90.9	20.4
Queue Length 50th (ft)	40	128	45	135	59	147	44	83
Queue Length 95th (ft)	#107	204	#123	214	122	205	#129	123
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	185	1191	185	1198	331	1409	171	1409
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.59	0.58	0.61	0.48	0.54	0.63	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

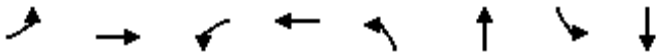


Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	39	113	265	1132	821
v/c Ratio	0.30	0.66	0.63	1.01	0.88
Control Delay	24.5	49.4	12.1	58.4	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	49.4	12.1	58.4	40.8
Queue Length 50th (ft)	9	53	6	~276	192
Queue Length 95th (ft)	35	107	71	#480	#342
Internal Link Dist (ft)	494		3448	587	1966
Turn Bay Length (ft)					
Base Capacity (vph)	234	325	579	1117	929
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.35	0.46	1.01	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

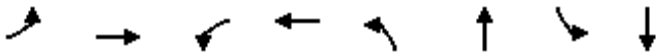


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	112	402	135	566	42	927	87	719
v/c Ratio	0.70	0.43	0.58	0.58	0.12	0.47	0.33	0.37
Control Delay	50.5	24.3	36.3	22.0	10.5	11.5	15.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	24.3	36.3	22.0	10.5	11.5	15.1	10.0
Queue Length 50th (ft)	50	82	58	98	8	114	19	78
Queue Length 95th (ft)	109	120	113	146	31	222	68	158
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	245	1423	356	1431	354	1977	264	1961
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.28	0.38	0.40	0.12	0.47	0.33	0.37

Intersection Summary

Design Year (2040) With Project Conditions

AM PEAK HOUR

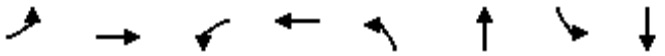


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	588	54	611	74	378	136	487
v/c Ratio	0.36	0.40	0.36	0.42	0.45	0.52	0.71	0.66
Control Delay	35.9	14.9	35.9	15.4	30.2	22.3	43.1	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	14.9	35.9	15.4	30.2	22.3	43.1	25.3
Queue Length 50th (ft)	20	78	20	84	25	64	49	86
Queue Length 95th (ft)	57	155	57	165	61	102	104	132
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	208	1459	208	1463	336	1464	389	1465
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.40	0.26	0.42	0.22	0.26	0.35	0.33

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	46	47	98	4	517	137	749
v/c Ratio	0.17	0.36	0.35	0.42	0.02	0.46	0.63	0.38
Control Delay	31.3	39.3	38.4	10.8	19.2	20.7	42.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	39.3	38.4	10.8	19.2	20.7	42.1	9.6
Queue Length 50th (ft)	6	20	20	0	1	86	55	84
Queue Length 95th (ft)	26	54	55	32	8	153	113	135
Internal Link Dist (ft)	494		3448			587		1966
Turn Bay Length (ft)		150			150		150	
Base Capacity (vph)	518	464	492	545	207	1122	489	2522
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.10	0.10	0.18	0.02	0.46	0.28	0.30

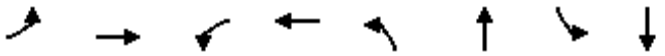
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	407	92	241	32	435	126	715
v/c Ratio	0.24	0.49	0.46	0.28	0.08	0.21	0.24	0.35
Control Delay	27.0	27.4	33.8	16.5	7.7	7.0	9.2	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	27.4	33.8	16.5	7.7	7.0	9.2	8.2
Queue Length 50th (ft)	24	87	38	32	6	41	26	77
Queue Length 95th (ft)	56	130	83	61	18	64	56	112
Internal Link Dist (ft)		2895		3539		1179		587
Turn Bay Length (ft)	80		90		85		80	
Base Capacity (vph)	426	1415	344	1397	378	2046	519	2046
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.29	0.27	0.17	0.08	0.21	0.24	0.35

Intersection Summary

PM PEAK HOUR



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	706	108	735	158	758	108	482
v/c Ratio	0.61	0.59	0.66	0.61	0.69	0.77	0.92	0.49
Control Delay	50.3	21.9	53.7	22.2	38.3	26.9	90.9	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	21.9	53.7	22.2	38.3	26.9	90.9	20.4
Queue Length 50th (ft)	40	128	45	135	59	147	44	83
Queue Length 95th (ft)	#107	204	#123	214	122	205	#129	123
Internal Link Dist (ft)		2664		3483		1966		1023
Turn Bay Length (ft)	150		95		100		80	
Base Capacity (vph)	185	1191	185	1198	331	1409	171	1409
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.59	0.58	0.61	0.48	0.54	0.63	0.34

Intersection Summary

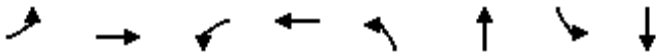
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	63	64	251	12	1120	143	678
v/c Ratio	0.31	0.42	0.40	0.67	0.06	1.03	0.65	0.35
Control Delay	29.4	40.0	38.9	14.1	21.9	61.9	44.1	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	40.0	38.9	14.1	21.9	61.9	44.1	10.3
Queue Length 50th (ft)	9	27	28	0	4	~255	59	77
Queue Length 95th (ft)	40	70	70	64	18	#508	125	139
Internal Link Dist (ft)	494		3448			587		1966
Turn Bay Length (ft)		150			150		150	
Base Capacity (vph)	497	451	477	628	216	1090	474	2446
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.14	0.13	0.40	0.06	1.03	0.30	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



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Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.28	0.38	0.40	0.12	0.47	0.33	0.37

Intersection Summary