TRAFFIC IMPACT ANALYSIS REPORT
PULELEHUA DEVELOPMENT

Lahaina, Maui, Hawaii

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FINAL DRAFT

August 13, 2019

Prepared for:

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Prepared by
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Civil Engineers • Surveyors
Honolulu • Wailuku • Hilo, Hawai‘i

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TABLE OF CONTENTS

Page

1. INTRODUCTION 1-4
   - 1.1 Location 1
   - 1.2 Project Description 1
2. METHODOLOGY 5
   - 2.1 Study Methodology 5
   - 2.2 Intersection Analysis 5
3. EXISTING CONDITIONS 6-14
   - 3.1 Roadway System 6
   - 3.2 Existing Traffic Volumes 7
   - 3.3 Existing Traffic Conditions Observations and Analysis 8
     - 3.3.1 Regional Analysis 8
     - 3.3.2 Existing Intersection Analysis 8
4. BASE YEAR TRAFFIC CONDITIONS 15-50
   - 4.1 Defacto Growth Rate 15
   - 4.2 Traffic Forecasts for Known Developments 15
     - 4.2.1 Background Projects 15
     - 4.2.2 Trip Generation 17
   - 4.3 Planned Roadway Improvements 21
   - 4.4 Base Year 2022 Analysis 21
     - 4.4.1 Base Year 2022 Intersection Analysis 21
     - 4.4.2 Base Year 2022 With Mitigation Intersection Analysis 22
   - 4.5 Base Year 2025 Analysis 30
     - 4.5.1 Base Year 2025 Intersection Analysis 30

TABLE OF CONTENTS
Cont'd

Page

4.6 Base Year 2030 Analysis 37
4.6.1 Base Year 2030 Intersection Analysis 37
4.7 Base Year 2035 Analysis 44
4.7.1 Base Year 2035 Intersection Analysis 44
5. FUTURE YEAR SCENARIOS 51-100
5.1 Background 51
5.1.1 Travel Demand Estimations 52
5.1.2 Trip Generation 52
5.1.3 Trip Distribution and Assignment 53
5.2 Future Year 2022 Scenario 1 Analysis 55
5.2.1 Future Year 2022 Scenario 1 Intersection Analysis 55
5.3 Future Year 2025 Scenario 2 Analysis 67
5.3.1 Future Year 2025 Scenario 2 Intersection Analysis 67
5.4 Future Year 2030 Scenario 3 Analysis 78
5.4.1 Future Year 2030 Scenario 3 Intersection Analysis 78
5.5 Future Year 2035 Scenario 4 Analysis 90
5.5.1 Future Year 2035 Scenario 4 Intersection Analysis 90
6. CONCLUSIONS 101-107
6.1 Existing Conditions 102
6.2 Base Year 2022 102
6.3 Base Year 2022 With Mitigation 103
6.4 Base Year 2025 103
6.5 Base Year 2030 103

TABLE OF CONTENTS
Cont'd

Page

6.6 Base Year 2035 104

6.7 Future Year 2022 Scenario 1 104

6.8 Future Year 2025 Scenario 2 105

6.9 Future Year 2030 Scenario 3 105

6.10 Future Year 2035 Scenario 4 106

7. RECOMMENDATIONS 108-110

7.1 Planned Roadway Improvements 108

7.2 Base Year 2022 Mitigation 108

7.3 Future Year 2022 Scenario 1 Mitigation 108

7.4 Future Year 2025 Scenario 2 Mitigation 109

7.5 Future Year 2030 Scenario 3 Mitigation 109

7.6 Future Year 2035 Scenario 4 Mitigation 110

8. REFERENCES 111

TABLE OF CONTENTS
Cont'd

Page

TABLES

3.1 EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY 13

4.1 BACKGROUND PROJECTS TRIP GENERATION RATES 19

4.2 BACKGROUND PROJCETS TRIP GENERATION 20

4.3 EXISTING CONDITIONS, BASE YEAR 2022 AND BASE YEAR 2022 WITH MITIGATION LEVEL OF SERVICE SUMMARY 27

4.4 BASE YEAR 2022 WITH MITIGATION AND BASE YEAR 2025 LEVEL OF SERVICE SUMMARY 33

4.5 BASE YEAR 2025 AND BASE YEAR 2030 LEVEL OF SERVICE SUMMARY 40

4.6 BASE YEAR 2030 AND BASE YEAR 2035 LEVEL OF SERVICE SUMMARY 47

5.1 TRIP GENERATION RATES 53

5.2 PROJECT-GENERATED TRIPS 54

5.3 FUTURE YEAR 2022 (SCENARIO 1) LEFT-TURN STORAGE LANE LENGTH CALCULATIONS 62

5.4 BASE YEAR 2022 WITH MITIGATION AND FUTURE YEAR 2022 SCENARIO 1 LEVEL OF SERVICE SUMMARY 63

5.5 FUTURE YEAR 2025 (SCENARIO 2) LEFT-TURN STORAGE LANE LENGTH CALCULATIONS 74

5.6 BASE YEAR 2025, FUTURE YEAR 2022 SCENARIO 1 AND FUTURE YEAR 2025 SCENARIO 2 LEVEL OF SERVICE SUMMARY 75

5.7 FUTURE YEAR 2030 (SCENARIO 3) LEFT-TURN STORAGE LANE LENGTH CALCULATIONS 86

5.8 BASE YEAR 2030, FUTURE YEAR 2025 SCENARIO 2 AND FUTURE YEAR 2030 SCENARIO 3 LEVEL OF SERVICE SUMMARY 87

5.9 FUTURE YEAR 2035 (SCENARIO 4) LEFT-TURN STORAGE LANE LENGTH CALCULATIONS 97

TABLE OF CONTENTS
Cont'd

Page

5.10 BASE YEAR 2035, FUTURE YEAR 2030 SCENARIO 3 AND FUTURE YEAR 2035 SCENARIO 4 LEVEL OF SERVICE SUMMARY 98

FIGURES

1.1 LOCATION MAP 3

1.2 SITE PLAN 4

3.1 EXISTING LANE CONFIGURATION, VOLUMES AND LOS 11

4.1 BACKGROUND PROJECTS 18

4.2 BASE YEAR 2022 LANE CONFIGURATION, VOLUMES AND LOS 23

4.3 BASE YEAR 2022 WITH MITIGATION LANE CONFIGURATION, VOLUMES AND LOS 25

4.4 BASE YEAR 2025 LANE CONFIGURATION, VOLUMES AND LOS 31

4.5 BASE YEAR 2030 LANE CONFIGURATION, VOLUMES AND LOS 38

4.6 BASE YEAR 2035 LANE CONFIGURATION, VOLUMES AND LOS 45

5.1 YEAR 2022 SCENARIO 1 PROJECT-GENERATED TRAFFIC 57

5.2 FUTURE YEAR 2022 SCENARIO 1 LANE CONFIGURATION, VOLUMES AND LOS 59

5.3 FUTURE YEAR 2022 AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS 60

5.4 YEAR 2025 SCENARIO 2 PROJECT-GENERATED TRAFFIC 69

5.5 FUTURE YEAR 2025 SCENARIO 2 LANE CONFIGURATION, VOLUMES AND LOS 71

5.6 FUTURE YEAR 2025 SCENARIO 2 AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS 73

5.7 YEAR 2030 SCENARIO 3 PROJECT-GENERATED TRAFFIC 81

5.8 FUTURE YEAR 2030 SCENARIO 3 LANE CONFIGURATION, VOLUMES AND LOS 83

5.9 FUTURE YEAR 2030 SCENARIO 3 AKAHELE STREET LANE

TABLE OF CONTENTS
Cont'd

Page

CONFIGURATION, VOLUMES AND LOS 85

5.10 YEAR 2035 SCENARIO 4 PROJECT-GENERATED TRAFFIC 92

5.11 FUTURE YEAR 2035 SCENARIO 4 LANE CONFIGURATION, VOLUMES AND LOS 94

5.12 FUTURE YEAR 2035 SCENARIO 4 AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS 96

TABLE OF CONTENTS
Cont'd

APPENDICES

A. TRAFFIC COUNT DATA

B. LEVEL OF SERVICE CRITERIA

C. LEVEL OF SERVICE CALCULATIONS

D. ROADWAY IMPROVEMENTS PLAN

E. TRAFFIC SIGNAL WARRANT

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

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TRAFFIC IMPACT ANALYSIS REPORT

PULELEHUA DEVELOPMENT

Lahaina, Maui, Hawaii

1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Pulelehua Development (hereinafter referred to as the "Project").

1.1 Location

The Project is located upon approximately 310 acres of undeveloped land in Lahaina on the island of Maui. The Project will be bounded by Honoapiilani Highway to the west and the Kapalua Airport to the east. See Figure 1.1 for the Project location.

1.2 Project Description

A Traffic Impact Analysis Report (TIAR) was completed for the Project in October 2008 and updated in May 2009. Since 2009, the Project's site plan has undergone some modifications and currently proposes to develop approximately 310 acres of land to provide 100 single-family (SF) residential units (with an additional 100 ohana units on each lot), 800 multi-family (MF) residential units, an elementary school, a 10-acre park and three (3) retail centers, totaling 70,000 square feet. In addition, a new roadway will be constructed just east and parallel to Honoapiilani Highway that will provide vehicular, bike and pedestrian access to link the Project's development north and south of Mahinahina Gulch. The Project will be constructed in seven (7) phases, but for purposes of this TIAR, will be analyzed as four (4) scenarios.

Figure 1.2 shows the Project site plan.

<u>Scenario 1</u> – Develop Phase 1 with a build-out of 2022 that includes the following:

- 240 MF residential units north of Akahele Street, with direct access provided by a new Project roadway, Road A, intersecting Akahele Street, and a new right-in, right-out (RIRO) access via Honoapiilani Highway.

<u>Scenario 2</u> - Develop Phases 2A and 2B with a build-out of 2025 that include the following:

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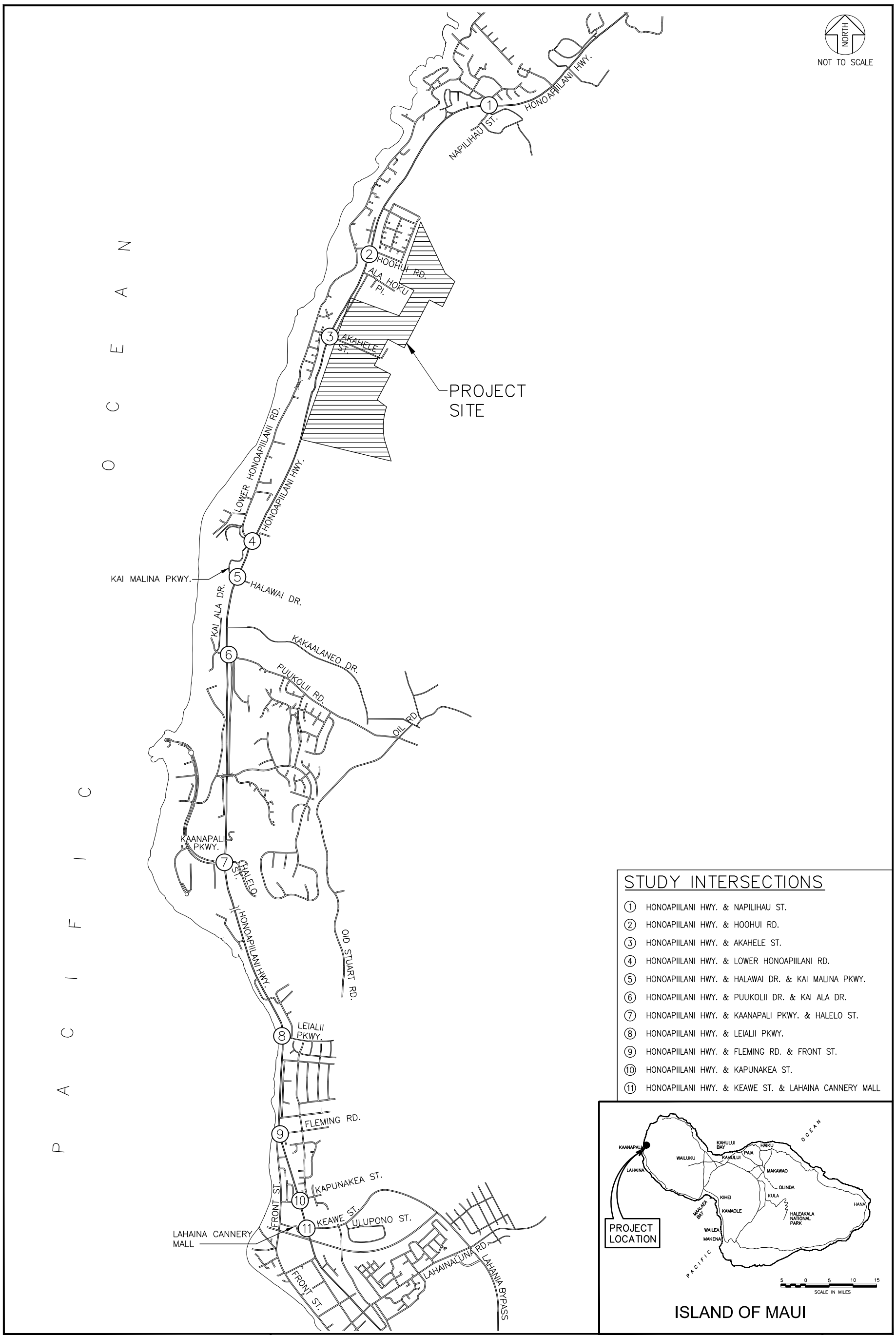
- 100 MF residential units (Phase 2A) south of Akahele Street with direct access provided by a new Project roadway, Road C, intersecting Akahele Street to the east of Road A.
- 250 MF residential units (Phase 2B) south of Akahele Street with direct access provided by Road A and Road C. 70 of the units will be located in live/work buildings.

Scenario 3 – Develop Phases 3-5 with a build-out of 2030 that include the following:

- 210 MF residential units (Phase 3) south of Mahinahina Gulch, with access provided by a new Project roadway, Road J, intersecting Honoapiilani Highway south of Mahinahina Gulch.
- 10-acre park (Phase 3) with two (2) practice fields south of Mahinahina Gulch, with access provided by Road J.
- North Central Neighborhood Retail (Phase 4) consisting of approximately 6,000 square feet of commercial space located north of Akahele Street near the Kapalua Airport, with access provided by Road C.
- South Core Retail (Phase 4) consisting of approximately 55,000 square feet of commercial space located on the southeast corner of the Honoapiilani Highway/Akahele Street intersection, with access provided by Road A.
- South Central Neighborhood Retail (Phase 4) consisting of approximately 9,000 square feet of commercial space located on the northeast corner of the proposed Honoapiilani Highway/Road J intersection, with access provided by Road J.
- 86 SF (Phase 5) residential lots north of Akahele Street, with access provided by Road C. An additional ohana unit may be constructed on each lot for a total of 172 SF residential units.
- 14 SF residential lots (Phase 5) south of Mahinahina Gulch, with access provided by Road J. An additional ohana unit may be constructed on each lot for a total of 28 SF residential units.

Scenario 4 – A future elementary school, to be planned/developed by the Department of Education (DOE). Since the development of the school is not in the direct controller of the Pulelehua development, the timeframe for this school has yet to be determined. For purposes of this TIAR, a forecast build-out of 2035 was assumed.

- 750-student elementary school, with access provided by Road A.



PULELEHUA

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LOCATION MAP

FIGURE 1.1

NORTH

NOT TO SCALE

LEGEND

- COMMERCIAL BUILDING
- LIVE/WORK BUILDING
- WORKFORCE BUILDING
- MARKET RATE BUILDING
- SINGLE FAMILY
- ESTATE EDGE SINGLE FAMILY
- RECREATIONAL OPEN SPACE/DETENTION
- POCKET PARK
- MONUMENT SIGN
- BUS STOP – NORTH BOUND
- BUS STOP – SOUTH BOUND

NOTE: SITE PLAN OBTAINED FROM KIMLEY–HORN

PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII SITE PLAN	FIGURE 1.2

2. METHODOLOGY

2.1 Study Methodology

This study will address the following:

- Assess existing traffic operating conditions at key intersections during the weekday morning (AM) and afternoon (PM) and Saturday midday (WE) peak hours of traffic within the study area.
- Traffic projections for Base Year 2022, 2025, 2030 and 2035 (without the Project) including traffic generated by other known developments in the vicinity of the Project in addition to an ambient growth rate. These other known developments are projects that are currently under construction or known new/future developments that are anticipated to affect traffic demand and operations within the study area.
- Trip generation and traffic assignment characteristics for the proposed Project.
- Traffic projections for Future Year 2022, 2025, 2030 and 2035, which includes Base Year traffic volumes in addition to traffic volumes generated by the four (4) Project scenarios.
- Recommendations for Base Year and Future Year roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by known developments in the region or the Project.

2.2 Intersection Analysis

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual (HCM), 6th Edition, dated 2016, includes methods for calculating volume to capacity ratios, delays, and corresponding Levels of Service that were utilized in this study. LOS definitions for signalized and unsignalized intersections are provided in Appendix B.

Analyses for the study intersections were performed using the traffic analysis software Synchro, which is able to prepare reports based on the methodologies described in the HCM. These reports contain control delay results as based on intersection lane geometry, signal timing, and hourly traffic volumes. Based on the vehicular delay at each intersection, a LOS is assigned to each approach and intersection movement as a qualitative measure of performance. These results, as confirmed or refined by field observations, constitute the technical analysis that will form the basis of the recommendations outlined in this report.

3. EXISTING CONDITIONS

3.1 Roadway System

The following are brief descriptions of the existing roadways in the vicinity of the Project:

Honoapiilani Highway – is a State highway that provides regional connection for the majority of West Maui. Honoapiilani Highway begins in Wailuku where it transitions from South High Street and continues southward toward Maalaea. The highway borders the coastline as it curves back around West Maui and northward again toward Kapalua, where it transitions into Kahekili Highway near Honokohau Bay. In the vicinity of the Project, Honoapiilani Highway is generally a two-way, two-lane undivided road with a posted speed limit of 45 miles per hour (mph) in the vicinity of the Project.

Napilihau Street – is a roadway that provides access to businesses and residential areas. The roadway begins to the northwest at its intersection with Lower Honoapiilani Road and travels southeast to Honoapiilani Highway before terminating to the southwest at Maui Preparatory Academy. In the vicinity of the Project, Napilihau Street is generally a two-way, one-lane undivided road with a posted speed limit of 20 mph.

Hoohui Road – is a roadway that provides access to businesses and residential areas. The roadway begins to the west at its intersection with Lower Honoapiilani Road and terminates to the east at its intersection with Kahana Ridge Drive. West of its intersection with Honoapiilani Highway, Hoohui Road is a two-way, one-lane undivided road with a speed limit of 20 mph. East of its intersection with Honoapiilani Highway, Hoohui Road is a two-way, two-lane undivided road with a posted speed limit of 25 mph.

Akahele Street – is a roadway that provides access to residential areas and the Kapalua Airport. The roadway begins to the west at its intersection with Lower Honoapiilani Road and terminates to the east at the Kapalua Airport. In the vicinity of the Project, Akahele Street is a two-way, one-lane undivided road with a posted speed limit of 30 mph.

Lower Honoapiilani Road – is a County collector that provides access to hotels, businesses and residential areas. The roadway begins at its intersection with Honoapiilani Highway and runs north parallel to the highway and the coast before terminating at its intersection with Office Road near the Kapalua Golf Course. In the vicinity of the Project, Lower Honoapiilani Road is generally a two-way, one-lane undivided road with a posted speed limit of 20 mph.

Halawai Drive/Kai Malina Parkway – is a roadway that provides access to various businesses and hotels. Halawai Drive is a roadway east of Honoapiilani Highway and Kai Malina Parkway is a roadway west of the highway, servicing Honua Kai Resort and Spa.

Puukolii Road – is a roadway that provides access to residential areas. The roadway begins to the west at its intersection with Honoapiilani Highway and terminates to the southeast at its intersection with Oil Road. In the vicinity of the Project, Puukolii Road is a two-way, one-lane undivided road with a posted speed limit of 30 mph.

Kai Ala Drive – is a County roadway that begins to the east at its intersection with Hononapiilani Highway and travels west to provide access to Kahekili Beach Park and several hotels. In the vicinity of the Project, Kai Ala Drive is a two-way, one-lane divided road.

Kaanapali Parkway – is a roadway that provides access to various hotels and businesses. The roadway begins to the east at its intersection with Honoapiilani Highway and travels northwest before terminating near the Royal Kaanapali Golf Course. In the vicinity of the Project, Kaanapali Parkway is a two-way, two-lane divided road.

Halelo Street – is a roadway that provides access to residential areas. The roadway begins to the west at its intersection with Honoapiilani Highway and travels southeast before terminating. In the vicinity of the Project, Halelo Street is a two-way, one-lane undivided road.

Leialii Parkway – is a collector road that provides access to residential areas, civic center and the post office. The roadway begins to the west at its intersection with Honoapiilani Highway and terminates to the east. In the vicinity of the Project, Leialii Parkway is a two-way, one-lane undivided road with a posted speed limit of 25 mph.

Fleming Road – is a roadway that provides access to residential areas. The roadway begins to the west at its intersection with Honoapiilani Highway and terminates to the east. In the vicinity of the Project, Fleming Road is a two-way, one-lane undivided road with a posted speed limit of 20 mph.

Front Street – is a County collector road that provides access to businesses and residential areas. The roadway begins to the south at its intersection with Honoapiilani Highway just north of Hokiokio Place. The road then travels north parallel to the coast and the highway before reconnecting with Honoapiilani Highway at Fleming Road. In the vicinity of the Project, Front Street is a two-way, one-lane undivided road with a posted speed limit of 20 mph.

Kapunakea Road – is a roadway that provides access to businesses and residential areas. The roadway begins to the west at its intersection with Front Street and terminates to the east past its intersection with Honoapiilani Highway. West of its intersection with Honoapiilani Highway, Kapunakea Road is a two-way, two-lane undivided roadway. East of its intersection with Honoapiilani Highway, Kapunakea Road is a two-way, one-lane undivided roadway.

Keawe Street – is a County collector road that provides access to businesses and residential areas. The roadway begins to the west at its intersection with Honoapiilani Highway and terminates to the east at its intersection with Lahaina Bypass Road. In the vicinity of the Project, Keawe Street is a two-way, two-lane divided roadway.

3.2 Existing Traffic Volumes

The AM peak hour turning movement data utilized in this report were collected on December 1, 2016 and December 7, 2016. The PM peak hour turning movement data were collected on November 30, 2016 and December 6, 2016. The WE hourly turning movement data were collected on December 10, 2016. Based on the proximity to the proposed Project site, the following intersections were studied in the existing conditions scenario.

- [1] Honoapiilani Highway/Napilihau Street (signalized)
- [2] Honoapiilani Highway/Hoohui Road (signalized)
- [3] Honoapiilani Highway/Akahele Street (signalized)
- [4] Honoapiilani Highway/Lower Honoapiilani Road (signalized)
- [5] Honoapiilani Highway/Halawai Drive/Kai Malina Parkway (signalized)

- [6] Honoapiilani Highway/Puukolii Road/Kai Ala Drive (signalized)
- [7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street (signalized)
- [8] Honoapiilani Highway/Leialii Parkway (signalized)
- [9] Honoapiilani Highway/Fleming Road/Front Street (signalized)
- [10] Honoapiilani Highway/Kapunakea Road (signalized)
- [11] Honoapiilani Highway/Keawe Street/Lahaina Cannery Mall (signalized)

As a result of the completion of the Lahaina Bypass Road (LBR) Phase 1-B2 in 2018, changes were made to the lane configuration and traffic patterns at the Honoapiilani Highway/Keawe Street/Lahaina Cannery Mall intersection after traffic count data was collected. Updated traffic count data collected on May 22, 2018 for the AM and PM peak hours and on May 26, 2018 for the WE peak hour was utilized to reflect the completion of the LBR Phase 1-B2 for the existing conditions scenario.

Based on the count data, it was determined that the weekday AM peak hour of traffic occurs between 7:15 AM and 8:15 AM, the weekday PM peak hour of traffic occurs between 3:45 PM and 4:45 PM, and the Saturday WE peak hour of traffic occurs between 11:30 AM and 12:30 PM. The turning movement count data is included in Appendix A.

3.3 Existing Traffic Conditions Observations and Analysis

3.3.1 Regional Analysis

Honoapiilani Highway generally operates as a two (2) lane highway from Napilihau Street to Lower Honoapiilani Road and continues south as a four (4) lane highway from Lower Honoapiilani Road to beyond Keawe Street. As discussed in Section 3.3.2 below, various intersections along the highway operate with either fixed coordinated signal timing plans or uncoordinated plans with lengthy through volume green times. As a result, numerous mainline left-turn movements and minor street approaches at various study intersections operate at LOS E/F conditions due to lengthy delays from the signal timing plans that favor the through movements along Honoapiilani Highway. All vehicular movements at each study intersection operate adequately with under-capacity conditions. Signal coordination is currently provided along Honoapiilani Highway between Leialii Parkway to Keawe Street.

3.3.2 Existing Intersection Analysis

The observations and analysis described below are based on prevailing observations during the time at which the data was collected. Hereinafter, observations that are expressed as ongoing and current shall represent the conditions that prevailed at the time at which the data was collected. All movements at the study intersection generally operated adequately at LOS D or better and under-capacity conditions.

<u>[1] Honoapiilani Highway/Napilihau Street</u>

This intersection operated at overall LOS B during all peak hours of traffic. However, the southbound left-turn movement experienced LOS E/F during all peak hours due to low left-turn turning volumes (≤ 10 vehicles) and long cycle length.

[2] Honoapiilani Highway/Hoohui Road

This intersection operated at overall LOS B during all peak hours of traffic with all movements operating at LOS B or better.

[3] Honoapiilani Highway/Akahele Street

This intersection operated at overall LOS B during all peak hours of traffic. However, various left-turn movements operated at LOS E/F during all peak hours of traffic due to low left-turn turning volumes (≤ 10 vehicles) and long cycle length.

[4] Honoapiilani Highway/Lower Honoapiilani Road

This intersection operated at overall LOS B during all peak hours of traffic. However, the southbound left-turn movement experienced LOS E during the PM peak hour due to a low left-turn turning volume (1 vehicle) and long cycle length. Observations indicate the northbound left-turn movement would occasionally queue beyond its storage length. However, due to a long northbound left-turn signal phase, most vehicles would clear within a single signal cycle.

[5] Honoapiilani Highway/Kai Malina Parkway/Halawai Drive

This intersection operated at overall LOS A during all peak hours of traffic. However, the southbound left-turn movement experienced LOS E during the PM peak hour due to a low left-turn turning volume (8 vehicles) and long cycle length.

[6] Honoapiilani Highway/Puukolii Road/Kai Ala Drive

This intersection operated at overall LOS B during all peak hours of traffic. However, various major street left-turn movements and minor street approaches operated at LOS E/F during the AM and PM peak hours due to fixed signal cycle lengths from the weekday signal coordination.

[7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street

This intersection operated at overall LOS D or better during all peak hours of traffic. All mainline through movements operated at LOS D or better at under-capacity conditions. Numerous major street left-turn movements and minor street approaches operate at LOS E/F conditions during the PM peak hour due to lengthy delays as a result of the through movement green time that can provide over 200 seconds per cycle. However, observations indicated that the through signal phase would often gap out prior to reaching its maximum through movement timing.

[8-10] Honoapiilani Highway from Leialii Parkway to Kapunakea Street

All intersections along this stretch are coordinated during all peak hours of traffic and operated at overall LOS B or better. Various major street left-turn movements and minor street approaches operated at LOS E/F during all peak hours due to fixed signal cycle lengths from the signal coordination timing plans.

[11] Honoapiilani Highway/Keawe Street/Lahaina Cannery Mall

This intersection is also coordinated with the above three (3) intersections and operated at overall LOS D or better during all peak hours of traffic. However, the northbound left-turn

movement experienced LOS F during the AM peak hour due to low left-turn turning volumes (22 vehicles) and long cycle length. Various minor and turning movements were observed to operate adequately at LOS E during all peak hours. This intersection currently serves as the northern terminus connection to Honoapiilani Highway to/from the Lahaina Bypass Road and therefore experiences heavy through and turning volumes.

Figure 3.1 illustrates the existing lane configurations, volumes and LOS. See Table 3.1 for a summary of the existing conditions analysis.

LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

X/X/X

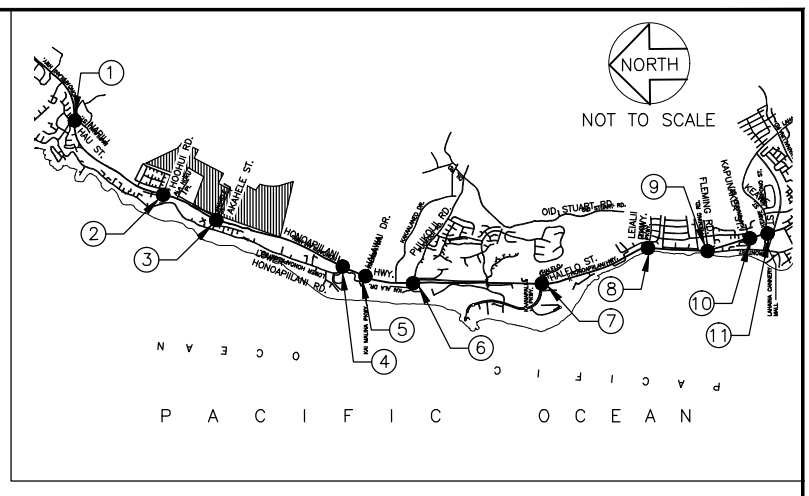
NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

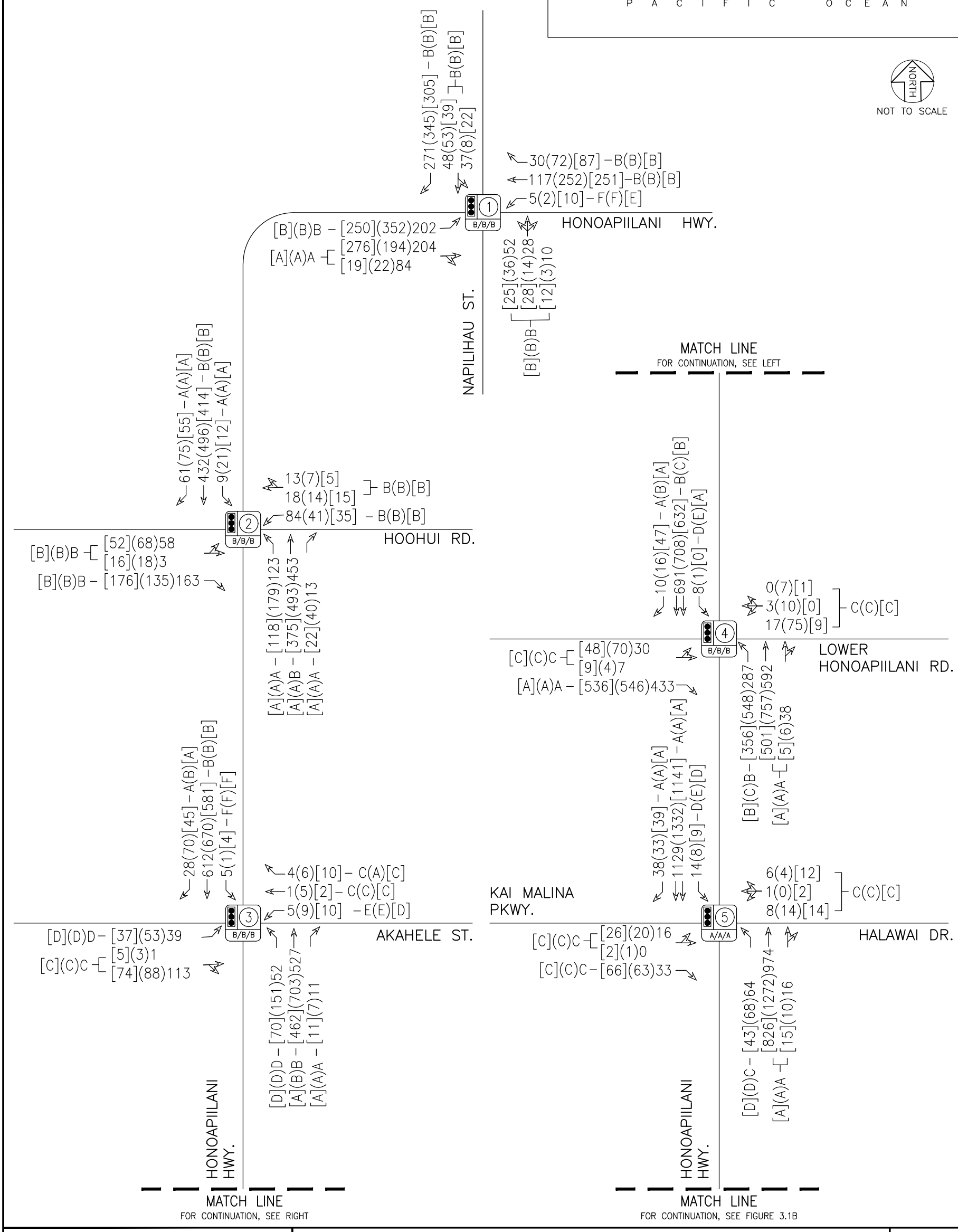
DATE OF COUNTS:
November 30, 2016
December 1, 2016
December 6, 2016
December 7, 2016
December 10, 2016
January 21, 2017

AM PEAK HOUR:
7:15 AM – 8:15 AM

PM PEAK HOUR:
3:45 PM – 4:45 PM

WE PEAK HOUR:
11:30 WE – 12:30 WE





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EXISTING LANE CONFIGURATION, VOLUMES AND LOS

FIGURE
3.1A

LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

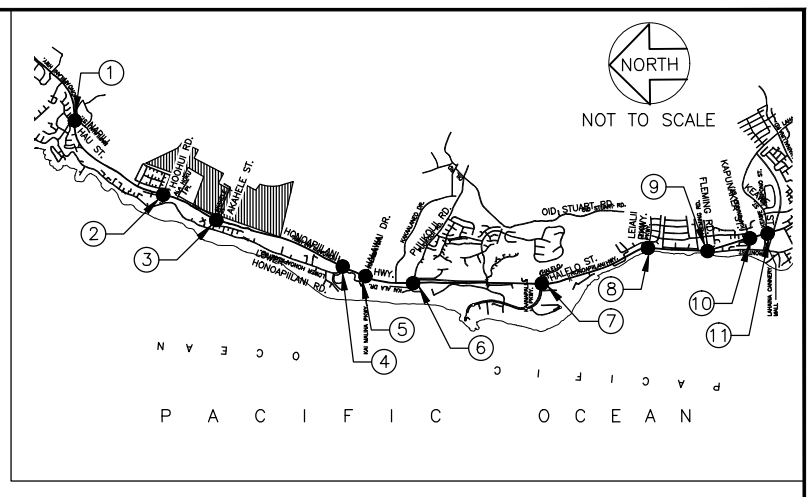
NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

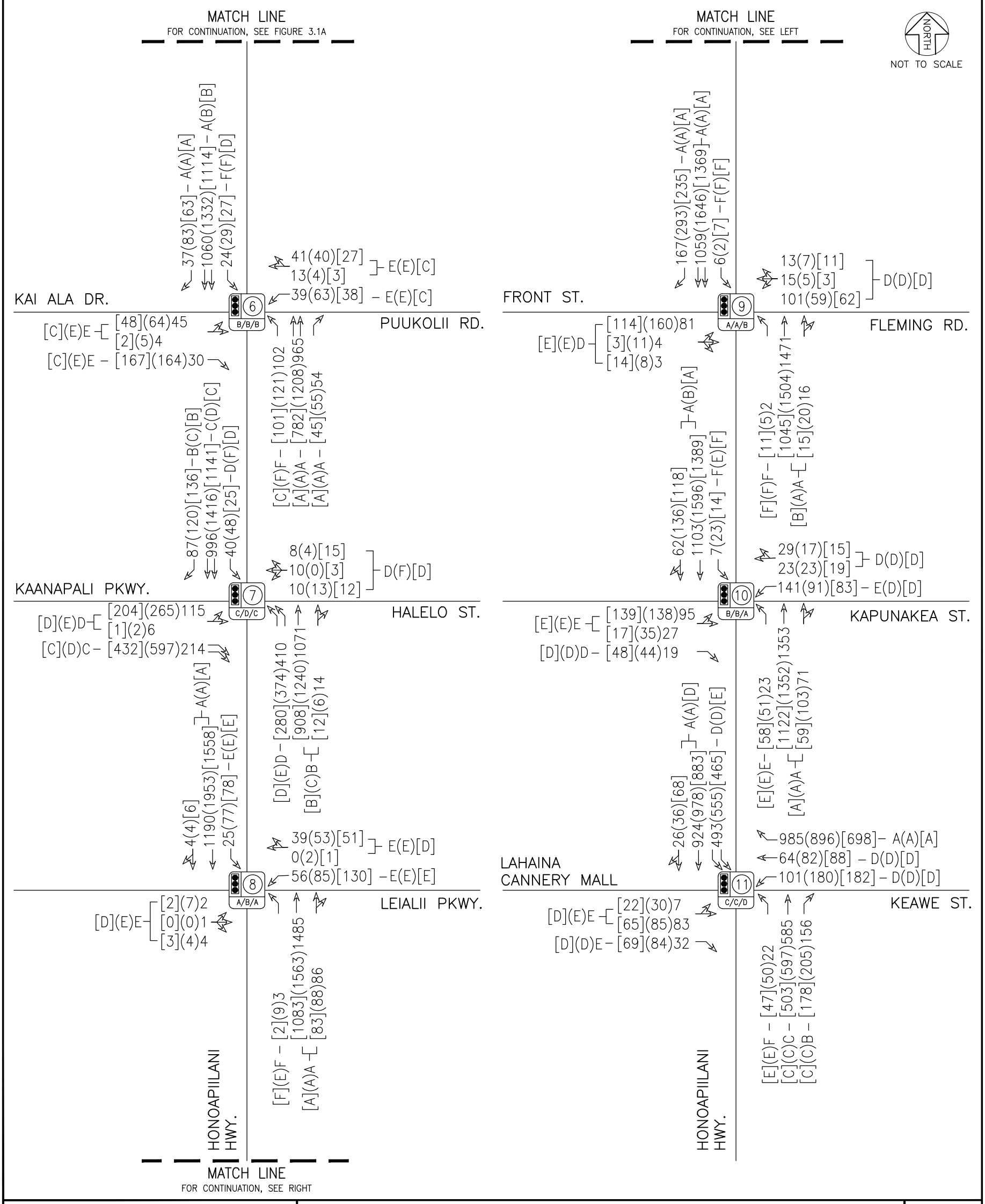
DATE OF COUNTS:
November 30, 2016
December 1, 2016
December 6, 2016
December 7, 2016
December 10, 2016
January 21, 2017

AM PEAK HOUR:
7:15 AM – 8:15 AM

PM PEAK HOUR:
3:45 PM – 4:45 PM

WE PEAK HOUR:
11:30 WE – 12:30 WE





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EXISTING LANE CONFIGURATION, VOLUMES AND LOS

FIGURE
3.1B

Table 3.1: Existing Conditions Level of Service Summary

Intersection	Existing Conditions								
	AM			PM			WE		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street									
NB LT	18.5	0.74	B	18.2	0.80	B	18.3	0.75	B
NB TH/RT	8.1	0.39	A	6.0	0.24	A	7.4	0.37	A
EB LT/TH	14.9	0.23	B	18.3	0.20	B	16.2	0.19	B
EB RT	14.5	0.16	B	18.0	0.13	B	16.0	0.15	B
WB LT/TH/RT	15.4	0.28	B	18.5	0.19	B	16.2	0.19	B
SB LT	96.2	0.69	F	94.1	0.50	F	66.5	0.72	E
SB TH	11.5	0.26	B	16.6	0.57	B	14.2	0.53	B
SB RT	10.3	0.02	B	12.5	0.05	B	10.9	0.07	B
Overall	13.5	-	B	15.2	-	B	13.9	-	B
2: Honoapiilani Highway & Hoohui Road									
NB LT	8.8	0.30	A	8.0	0.40	A	8.0	0.28	A
NB TH	10.4	0.61	B	8.6	0.59	A	8.8	0.52	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	15.4	0.16	B	17.8	0.28	B	14.5	0.19	B
EB RT	14.6	0.07	B	16.5	0.06	B	14.0	0.09	B
WB LT	17.5	0.25	B	19.4	0.17	B	15.6	0.11	B
WB TH/RT	14.5	0.06	B	16.6	0.07	B	13.9	0.06	B
SB LT	9.6	0.03	A	7.8	0.05	A	8.0	0.03	A
SB TH	14.1	0.72	B	12.3	0.73	B	11.9	0.69	B
SB RT	9.6	0.05	A	7.9	0.05	A	8.2	0.04	A
Overall	12.4	-	B	10.9	-	B	10.6	-	B
3: Honoapiilani Highway & Akahele Street									
NB LT	41.9	0.79	D	36.4	0.78	D	35.3	0.77	D
NB TH	10.8	0.64	B	11.6	0.71	B	9.9	0.56	A
NB RT	7.0	0.01	A	6.4	0.01	A	6.9	0.01	A
EB LT	36.7	0.67	D	49.0	0.78	D	35.7	0.66	D
EB TH/RT	20.3	0.07	C	26.9	0.05	C	20.3	0.05	C
WB LT	63.8	0.52	E	59.0	0.56	E	45.8	0.55	D
WB TH	21.3	0.01	C	28.8	0.03	C	21.1	0.01	C
WB RT	21.3	0.01	C	28.8	0.01	C	21.1	0.01	C
SB LT	105.2	0.70	F	113.6	0.40	F	116.6	0.69	F
SB TH	14.2	0.80	B	19.4	0.85	B	14.3	0.79	B
SB RT	8.1	0.02	A	10.6	0.05	B	8.4	0.03	A
Overall	15.1	-	B	18.7	-	B	15.0	-	B
4: Honoapiilani Highway & Lower Honoapiilani Road									
NB LT	19.3	0.80	B	24.4	0.91	C	18.5	0.83	B
NB TH/RT	4.8	0.31	A	4.4	0.32	A	2.6	0.21	A
EB LT/TH	21.1	0.15	C	32.1	0.31	C	22.3	0.24	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	20.7	0.07	C	32.9	0.39	C	21.2	0.04	C
SB LT	48.1	0.72	D	73.5	0.41	E	0.0	0.00	A
SB TH	11.7	0.53	B	21.6	0.64	C	12.9	0.53	B
SB RT	8.7	0.00	A	16.0	0.01	B	9.9	0.03	A
Overall	10.9	-	B	17.1	-	B	11.2	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive									
NB LT	29.6	0.79	C	38.3	0.78	D	36.2	0.82	D
NB TH/RT	4.3	0.44	A	6.5	0.56	A	4.9	0.39	A
EB LT/TH	23.4	0.08	C	28.3	0.08	C	22.7	0.11	C
EB RT	23.6	0.02	C	28.3	0.01	C	22.7	0.01	C
WB LT/TH/RT	23.9	0.06	C	28.7	0.06	C	22.7	0.07	C
SB LT	43.2	0.75	D	62.1	0.74	E	50.1	0.73	D
SB TH	5.4	0.54	A	8.4	0.64	A	6.3	0.56	A
SB RT	3.4	0.03	A	4.7	0.02	A	3.9	0.03	A
Overall	6.0	-	A	8.7	-	A	6.9	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road									
NB LT	84.3	0.84	F	85.8	0.86	F	33.7	0.77	C
NB TH	5.0	0.37	A	7.6	0.48	A	8.0	0.41	A
NB RT	3.4	0.04	A	4.7	0.04	A	6.0	0.03	A
EB LT/TH	69.2	0.33	E	68.3	0.34	E	24.4	0.15	C
EB RT	64.6	0.01	E	64.2	0.02	E	24.0	0.07	C
WB LT	75.0	0.38	E	77.8	0.49	E	26.6	0.14	C
WB TH/RT	65.4	0.10	E	64.2	0.02	E	23.7	0.02	C
SB LT	82.5	0.67	F	90.7	0.77	F	35.2	0.52	D
SB TH	8.2	0.44	A	13.2	0.58	B	12.0	0.64	B
SB RT	5.3	0.02	A	7.6	0.06	A	7.6	0.04	A
Overall	13.6	-	B	17.2	-	B	12.4	-	B

Table 3.1: Existing Conditions Level of Service Summary Cont'd

Intersection	Existing Conditions								
	AM			PM			WE		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street									
NB LT	35.6	0.72	D	74.9	0.82	E	42.0	0.67	D
NB TH/RT	16.0	0.62	B	21.9	0.61	C	15.4	0.51	B
EB LT/TH	37.8	0.57	D	70.4	0.82	E	39.3	0.69	D
EB RT	23.0	0.10	C	46.9	0.49	D	26.8	0.30	C
WB LT/TH/RT	38.8	0.16	D	81.3	0.18	F	46.3	0.22	D
SB LT	40.0	0.31	D	83.9	0.57	F	44.2	0.22	D
SB TH	22.6	0.72	C	37.1	0.83	D	22.0	0.73	C
SB RT	15.6	0.07	B	21.6	0.11	C	14.9	0.14	B
Overall	22.9	-	C	39.6	-	D	23.5	-	C
8: Honoapiilani Highway & Leialii Parkway									
NB LT	81.0	0.43	F	71.0	0.48	E	83.2	0.42	F
NB TH/RT	7.1	0.59	A	9.1	0.64	A	1.9	0.48	A
EB LT/TH/RT	58.7	0.02	E	57.2	0.05	E	50.4	0.01	D
WB LT	62.2	0.35	E	62.8	0.53	E	58.4	0.62	E
WB TH/RT	58.9	0.01	E	57.1	0.04	E	50.7	0.03	D
SB LT	67.8	0.42	E	66.4	0.76	E	69.4	0.76	E
SB TH/RT	4.3	0.43	A	8.6	0.72	A	7.6	0.60	A
Overall	7.7	-	A	11.5	-	B	9.4	-	A
9: Honoapiilani Highway & Front Street/Flemming Road									
NB LT	121.8	0.70	F	101.1	0.74	F	94.7	0.83	F
NB TH/RT	6.1	0.56	A	1.4	0.60	A	12.9	0.40	B
EB LT/TH/RT	52.3	0.43	D	59.0	0.70	E	58.8	0.62	E
WB LT/TH/RT	54.4	0.60	D	51.5	0.25	D	54.5	0.33	D
SB LT	93.2	0.76	F	118.5	0.70	F	92.6	0.78	F
SB TH	4.3	0.41	A	8.7	0.66	A	5.6	0.53	A
SB RT	3.0	0.10	A	4.9	0.20	A	3.5	0.15	A
Overall	9.1	-	A	8.9	-	A	12.5	-	B
10: Honoapiilani Highway & Kapunakea Street									
NB LT	68.9	0.80	E	62.6	0.78	E	66.4	0.79	E
NB TH/RT	0.2	0.60	A	0.2	0.64	A	0.7	0.51	A
EB LT/TH	51.1	0.41	D	51.3	0.55	D	49.0	0.51	D
EB RT	44.9	0.01	D	41.8	0.02	D	41.2	0.02	D
WB LT	77.5	0.76	E	67.2	0.60	E	60.3	0.51	E
WB TH/RT	45.7	0.08	D	42.3	0.07	D	41.7	0.06	D
SB LT	104.0	0.78	F	77.1	0.80	E	90.3	0.85	F
SB TH/RT	11.2	0.50	B	20.1	0.79	C	6.7	0.69	A
Overall	11.7	-	B	16.1	-	B	9.9	-	A
11: Honoapiilani Highway & Keawe Street									
NB LT	81.8	0.80	F	70.0	0.77	E	67.5	0.77	E
NB TH	24.8	0.63	C	33.5	0.73	C	29.5	0.63	C
NB RT	16.0	0.12	B	21.2	0.19	C	20.8	0.16	C
EB LT/TH	61.4	0.46	E	56.2	0.49	E	51.6	0.35	D
EB RT	56.8	0.02	E	51.5	0.06	D	48.5	0.02	D
WB LT	50.7	0.44	D	51.4	0.67	D	41.9	0.54	D
WB TH	46.4	0.18	D	40.1	0.19	D	36.0	0.19	D
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	52.1	0.91	D	49.2	0.92	D	61.5	0.86	E
SB TH/RT	0.8	0.41	A	0.9	0.49	A	35.6	0.48	D
Overall	24.2	-	C	27.1	-	C	40.3	-	D

4. BASE YEAR TRAFFIC CONDITIONS

The Base Years 2022, 2025, 2030 and 2035 were selected to reflect the completion years of Scenarios 1, 2, 3 and 4 of the Project, respectively. The Base Year scenarios represent the traffic conditions within the study area without the Project. Base Year traffic projections were formulated by applying a defacto growth rate to the existing 2016 traffic count volumes and adding trips generated by known future developments in the vicinity of the Project.

4.1 Defacto Growth Rate

Projections for Base Year traffic were based upon a correlation between the existing traffic counts collected by ATA, HDOT's Maui Regional Travel Demand Model (MRTDM) growth for forecast years between 2007 and 2035, and nearby developments in the immediate vicinity of the Project. Many of the known background developments that were added separately to the study network are included in the MRTDM. Therefore, an overall annual growth rate of 0.5% was applied along Honoapiilani Highway for Base Years 2022, 2025, 2030 and 2035.

4.2 Traffic Forecasts for Known Developments

4.2.1 Background Projects

By Base Years 2022, 2025, 2030 and 2035, numerous developments are anticipated to be completed within the Project study area. Many of the following known developments were determined to be accounted for in the MRTDM. The known developments that are projected to be complete by Base Years 2022, 2025, 2030 and 2035 and generate traffic within the Project study area are illustrated in Figure 4.1 and listed below based on the best information available. Although some of the below background developments have been completed at the time of this report, they are included in projections as they had not been constructed when traffic count data was collected.

1. Residences of Pailolo Place – This project is located in Kapalua mauka of Lower Honoapiilani Road. The project proposes to develop a 42-unit multi-family condo across from the Napili Kai Beach Resort. Completion and occupancy of the project is assumed to occur by 2022.
2. Mahana Estates – This project is located in Kapalua mauka of Honoapiilani Highway within the larger Kapalua Mauka Residential development. The project proposes to develop 51 single-family luxury homes. Completion and occupancy of the project is assumed to occur by 2022.
3. Wailele Ridge – Previously known as West Maui Village, this project is located south of Honoapiilani Highway just east of Maui Preparatory Academy. The project proposes to develop 158 single-family units in 25 buildings. Construction of the project is ongoing with completion expected by 2022.
4. Honua Kai – This project is located west of Honoapiilani Highway in the Kaanapali region. The project's remaining component includes 72 luxury townhouses and is expected to be completed in 2020.
5. Westin Nanea Ocean Villas – This project is located west of Honoapiilani Highway at the Honoapiilani Highway/Halawai Drive/Kai Malina Parkway intersection. The project is a resort that provides 390 guest rooms. The project was completed in 2017, but since counts were done prior to its completion, this project was included.

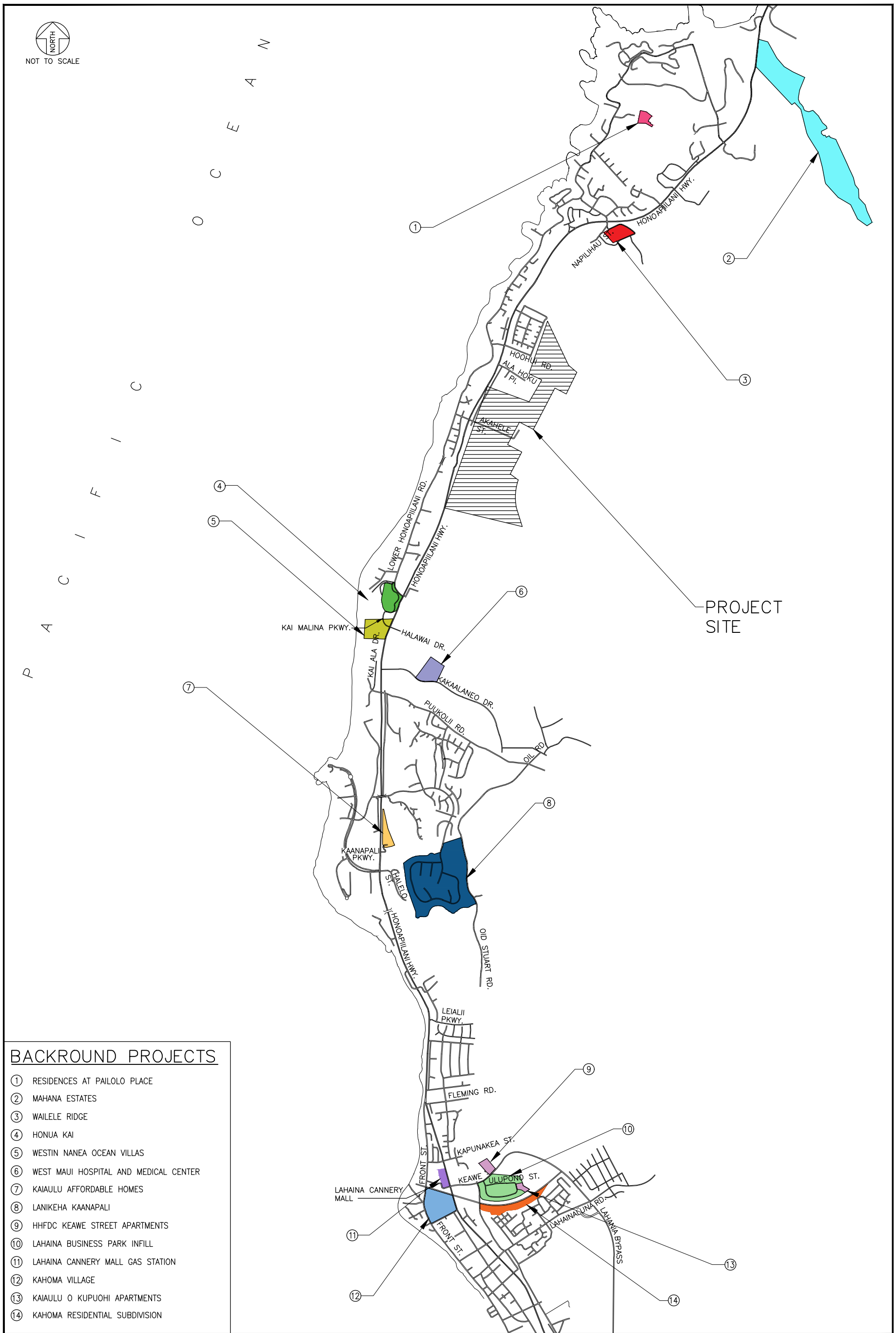
6. West Maui Hospital and Medical Center – This project is located east of Honoapiilani Highway in the Kaanapali region. The project proposes to develop a critical access hospital, a skilled nursing facility, an assisted living facility, medical office buildings and a rehabilitation facility. At the time of this report, the project is currently on hold. However, it was conservatively assumed that all components of the project would be completed by 2022 for the purposes of this report.
7. Kaiaulu Affordable Homes – This project is located east of Honoapiilani Highway in the Kaanapali region. The project is currently constructing 33 affordable single-family homes with Honoapiilani Highway access provided via Kekaa Drive and Kualapa Loop. A portion of homes have been completed with the remaining anticipated to be completed in 2019.
8. Lanikeha Kaanapali – This project is located east of Honoapiiliani Highway and across from Kaanapali Parkway. The project consists of 132 lots in a gated community, with Honoapiilani Highway access provided via Kekaa Drive and Kualapa Loop. At the time of this report, several lots were completed or under construction with additional lots still available for purchase. Completion and occupancy of the project is conservatively assumed to occur by 2022.
9. HHFDC Keawe Street Apartments – This project is located across from Lahaina Business Park on the north side of Keawe Street within the larger Villages of Leialii development. The project proposes to develop 200 affordable rental apartment units through the Hawaiian Housing Finance and Development Corporation (HHFDC). The project is going through the entitlements process and expected to be completed by the end of 2021.
10. Lahaina Business Park Infill – Lahaina Business Park is approximately 68% occupied with several lots currently undeveloped. Full occupancy of the business park is conservatively assumed to occur by 2022.
11. Lahaina Cannery Mall Gas Station – This project is an expansion of the existing Lahaina Cannery Mall located at the northwest corner of Honoapiilani Highway and Keawe Street. The expansion is proposed between the existing access across from Keawe Street and the Kahoma Stream Flood Control Channel. The project proposes to develop an 18-pump gas station with a convenience market. Completion of the project is expected to be completed by 2020.
12. Kahoma Village – This project is located south of the Lahaina Cannery Mall on 22 acres of land. The project proposes to develop 101 single-family homes and 102 multi-family homes. Construction of the project began in late 2016 with a portion completed and occupied in 2018. Full build out of the project is expected by 2022.
13. Kaiaulu o Kupuohi Apartments – This project is located in the Lahaina Business Park south of Keawe Street. The project is going through the entitlements process and proposes to develop 89 rental apartment units. Completion and occupancy of the project is assumed to occur by 2022.
14. Kahoma Residential Subdivision – This project is located east of the proposed Kahoma Village and south of the Kahoma Stream Flood Control Channel. The project will develop 68 single-family lots and a neighborhood park. Many of the lots are currently under construction or have been completed. For purposes if this study, all 68 SF lots are included.

It is our understanding that the Department of Hawaiian Homelands (DHHL) owns approximately 850 acres of land on either side of the Honokowai Gulch just south of the Project. The land will ultimately support a master-planned DHHL community. Because anticipated land use breakdown and timeline for completion of the development have not yet been determined, the project was not included in this TIAR.

4.2.2 Trip Generation

The Institute of Transportation Engineers (ITE) publishes a book based on empirical data compiled from a body of more than 4,250 trip generation studies submitted by public agencies, developers, consulting firms, and associations. This publication, titled Trip Generation Manual, 10th Edition, provides trip rates and/or formulae based on graphs that correlate vehicular trips with independent variables. The independent variables can range from Dwelling Units (DU) for single-family attached homes to Gross Floor Area (GFA) for commercial or office development. These trip rates/formulae and their associated directional distributions were used to estimate the increase in the number of vehicular trips generated by the proposed Project. The rates selected were based on the land use description.

See Tables 4.1 and 4.2 for Trip Generation formulae and projections for the background developments.



BACKROUND PROJECTS

1. RESIDENCES AT PAILOLO PLACE
2. MAHANA ESTATES
3. WAILELE RIDGE
4. HONUA KAI
5. WESTIN NANEA OCEAN VILLAS
6. WEST MAUI HOSPITAL AND MEDICAL CENTER
7. KAIAULU AFFORDABLE HOMES
8. LANIKEHA KAANAPALI
9. HHFDC KEAWE STREET APARTMENTS
10. LAHAINA BUSINESS PARK INFILL
11. LAHAINA CANNERY MALL GAS STATION
12. KAHOMA VILLAGE
13. KAIAULU O KUPUOHI APARTMENTS
14. KAHOMA RESIDENTIAL SUBDIVISION

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BACKGROUND PROJECTS

FIGURE
4.1

Table 4.1: Background Projects Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour		WE Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter	Trip Rate	% Enter
General Light Industrial (110)	1000 SF GFA	[a]	88%	[b]	13%	0.41	47%
Single-Family Detached Housing (210)	Dwelling Units (DU)	[c]	25%	[d]	63%	[e]	54%
Multifamily Housing (Low-Rise) (220)	Occupied Dwelling Units (DU)	[f]	20%	[g]	63%	[h]	54%
Recreational Homes (260)	Dwelling Units (DU)	0.22	67%	0.28	41%	0.38	48%
Assisted Living (254)	Beds	0.18	68%	0.29	50%	0.36	51%
Resort Hotel (330)	Rooms	[i]	72%	[j]	43%	[j]	43%
Hospital (610)	Beds	[k]	72%	1.89	28%	1.97	47%
Nursing Home (620)	Beds	0.17	72%	0.22	33%	0.36	50%
Medical-Dental Office Building (720)	1000 SF GFA	[l]	78%	[m]	28%	[n]	57%
Gasoline/Service Station with Convenience Market (945)	Vehicle Fueling Positions	12.47	51%	13.99	51%	19.28	50%

[a] LN(T)=0.74LN(X)+0.39
[b] LN(T)=0.69LN(X)+0.43
[c] T=0.71(X)+4.80
[d] LN(T)=0.96LN(X)+0.20
[e] T=0.84(X)+17.99
[f] LN(T)=0.92*LN(X)-0.51
[g] LN(T)=0.98*LN(X)-0.52
[h] T=0.48(X)+15.60
[i] T=0.38(X)-28.58
[j] T=0.52(X)-55.42
[k] T=1.77(X)+36.61
[l] LN(T)=0.89LN(X)+1.31
[m] T=3.39(X)+2.02
[n] T=4.94(X)-50.78
[o] T=19.00(X)-96.53

Table 4.2: Background Projects Trip Generation

Land Use	Independent Variable	AM Peak Hour			PM Peak Hour			WE Peak Hour		
		Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Residences of Pailolo Place	42 MF DU	4	15	19	15	9	24	19	17	36
Mahana Estates	51 SF DU	8	4	12	6	9	15	10	10	20
Wailele Ridge	158 SF DU	13	51	64	54	31	85	50	42	92
Honua Kai Townhouses	72 DU	6	25	31	25	15	40	28	23	51
Westin Nanea Ocean Villas	390 Room Hotel	86	34	120	64	84	148	64	84	148
West Maui Hospital and Medical Center	25 Bed Hospital	184	62	246	86	201	287	188	155	341
	40 Bed Skilled Nursing Facility									
	40 Bed Assisted Living Facility									
	40 Bed Rehabilitation Facility									
	60,000 Sq. Ft. Medical Office Bldg.									
Kaiaulu Affordable Homes	33 SF DU	7	21	28	25	22	39	25	21	46
Lanikeha Kaanapali	132 SF DU	25	74	99	84	49	133	70	59	129
HHFDC Keawe Street Apartments	200 MF DU	16	63	79	67	40	107	60	52	112
Lahaina Business Park Infill	~200,000 Sq. Ft. Light Industrial	67	9	76	8	50	58	39	45	84
Lahaina Cannery Mall Gas Station [1]	18 Fueling Positions	44	42	85	57	54	111	77	77	153
Kahoma Village	203 SF/MF DU	28	92	120	100	59	159	91	77	168
Kaiaulu o Kupuohi Apartments	89 MF DU	8	30	38	31	18	49	32	27	59
Kahoma Residential Subdivision	68 SF DU	13	40	53	45	26	71	41	35	76
Total Background External Trips		**509**	**562**	**1070**	**667**	**667**	**1326**	**794**	**724**	**1515**

Notes
- SF DU = Single-Family Dwelling Unit
- MF DU = Multi-Family Dwelling Unit
- Forecast trips derived from available TIAR's for each Project, ITE Trip Generation and/or updated to reflect current status.
- Table 4.2 shows total external trips generated by known developments in the vicinity of the Project.

1. Includes pass-by trip reductions based on the project TIAR.

4.3 Planned Roadway Improvements

The following roadway improvements are anticipated to be constructed to support various developments and overall growth of the Lahaina region.

Lahaina Bypass Road

The Lahaina Bypass Road (LBR) is a major bypass road that is expected to be completed in 4 phases to address regional traffic congestion near the historic town of Lahaina. The first two phases (1A and 1B-1) were completed in 2013 and constructed the bypass from Keawe Street to Hokiokio Place. Phase 1B-2 was completed in 2018 and extends the LBR from Hokiokio Place to its southern terminus with Honoapiilani Highway. Future Phases 1C and 1D will extend the bypass highway further north and result in the bypass highway stretching from Olowalu to just south of the existing Kapalua Airport. Allocation of State funds for construction of Phase 1C to extend the LBR to Kaanapali is currently under discussion. However, as funding has not been secured, future phases of the LBR were not included in this report.

Honoapiilani Highway/Napilihau Street

An exclusive right-turn lane on the northbound Honoapiilani Highway approach and an exclusive left-turn lane and shared through/right-turn lane on the westbound Napilihau Street approach is anticipated to be constructed as part of Wailele Ridge roadway improvements. These changes are expected to mitigate potential traffic problems from the proposed development. Completion of the roadway improvements is expected to occur by 2022 with completion of the development.

4.4 Base Year 2022 Analysis

It is anticipated that by Base Year 2022, traffic will have increased over existing conditions due to the development in the Lahaina and Kaanapali regions. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

4.4.1 Base Year 2022 Intersection Analysis

By Base Year 2022 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to increase overall by approximately 15-30% on various parts of the corridor during the AM, PM and WE peak hours of traffic. All study intersections are forecast to operate similar to existing conditions. Overall intersection delays generally increased by only 1-5 seconds at most study intersections. The majority of intersection movements currently operating at LOS E/F conditions will continue to operate similarly in Base Year 2022. The following intersections are expected to worsen compared to existing conditions:

[7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street

During the PM peak hour, the eastbound shared left-turn/through movement is expected to operate at LOS F and overcapacity. Mitigation is proposed in Section 4.4.2.

[10] Honoapiilani Highway/Kapunakea Street

During the PM peak hour, the westbound left-turn is anticipated to operate at LOS F and overcapacity. Mitigation is proposed in Section 4.4.2.

Figure 4.2 illustrates the Base Year 2022 forecast traffic volumes and LOS for the study intersection movements. Table 4.3 summarizes the Base Year 2022 LOS at the study intersections compared to existing conditions. LOS worksheets are provided in Appendix C.

4.4.2 Base Year 2022 With Mitigation Intersection Analysis

There are currently no plans to implement the following improvements, but they could be considered to mitigate forecast over-capacity conditions.

[7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street

- Modify the eastbound approach to incorporate a dedicated left-turn lane, a shared left-turn/through lane and two (2) dedicated right-turn lanes.

With the recommended mitigation, the intersection is anticipated to improve and operate adequately at overall LOS D or better during all peak hours of traffic. Similar to existing conditions, numerous minor street approaches and major street left-turn movements will continue operating at LOS E/F during the PM peak hour due to the long through movement green time and cycle length.

[10] Honoapiilani Highway/Kapunakea Street

- Restripe the eastbound approach to provide an exclusive left-turn lane and a shared through/right-turn lane.

Restriping the eastbound approach will provide lane configuration consistent with the westbound approach. With the restriping, the intersection is anticipated to operate with all movements under capacity during all peak hours of traffic. As in existing conditions, various left-turn movements are expected to operate at LOS E/F due to the long coordinated cycle length at this intersection.

Figure 4.3 illustrates the Base Year 2022 with mitigation forecast traffic volumes and LOS for the study intersection movements. Table 4.3 summarizes the Base Year 2022 with mitigation LOS at the study intersections compared to Base Year 2022 without mitigation. LOS worksheets are provided in Appendix C.

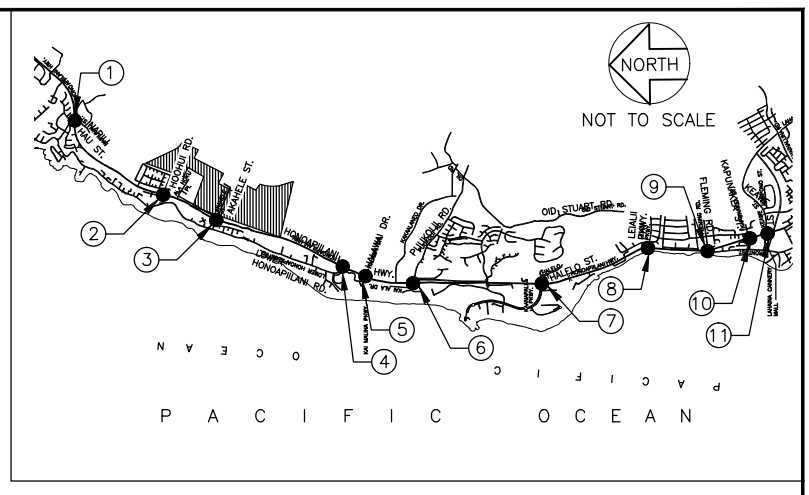
LEGEND

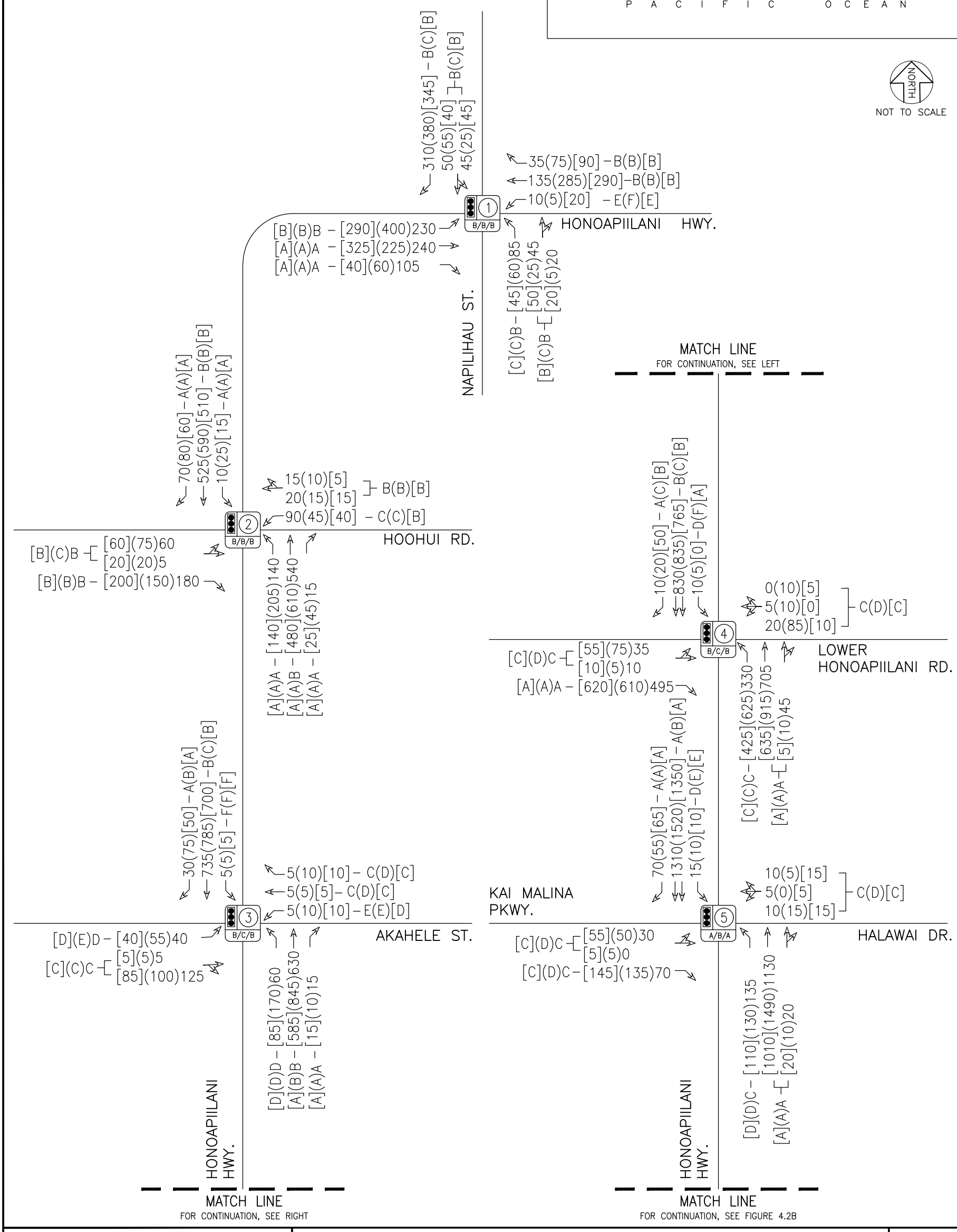
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2022 LANE CONFIGURATION, VOLUMES AND LOS	4.2A

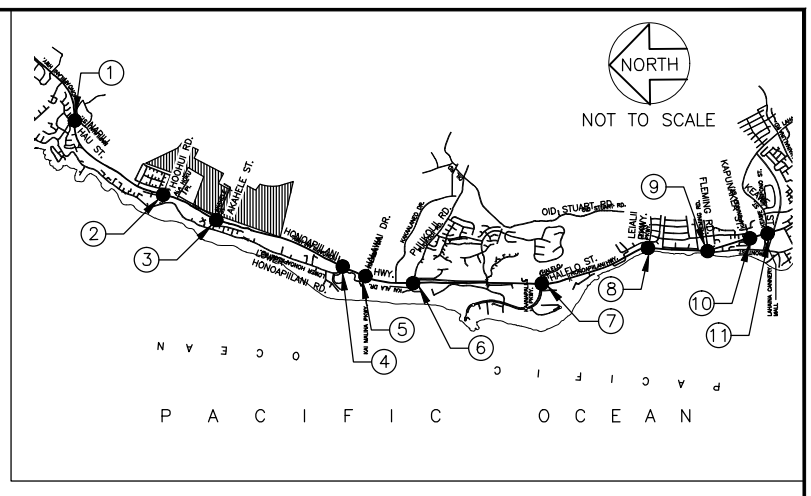
LEGEND

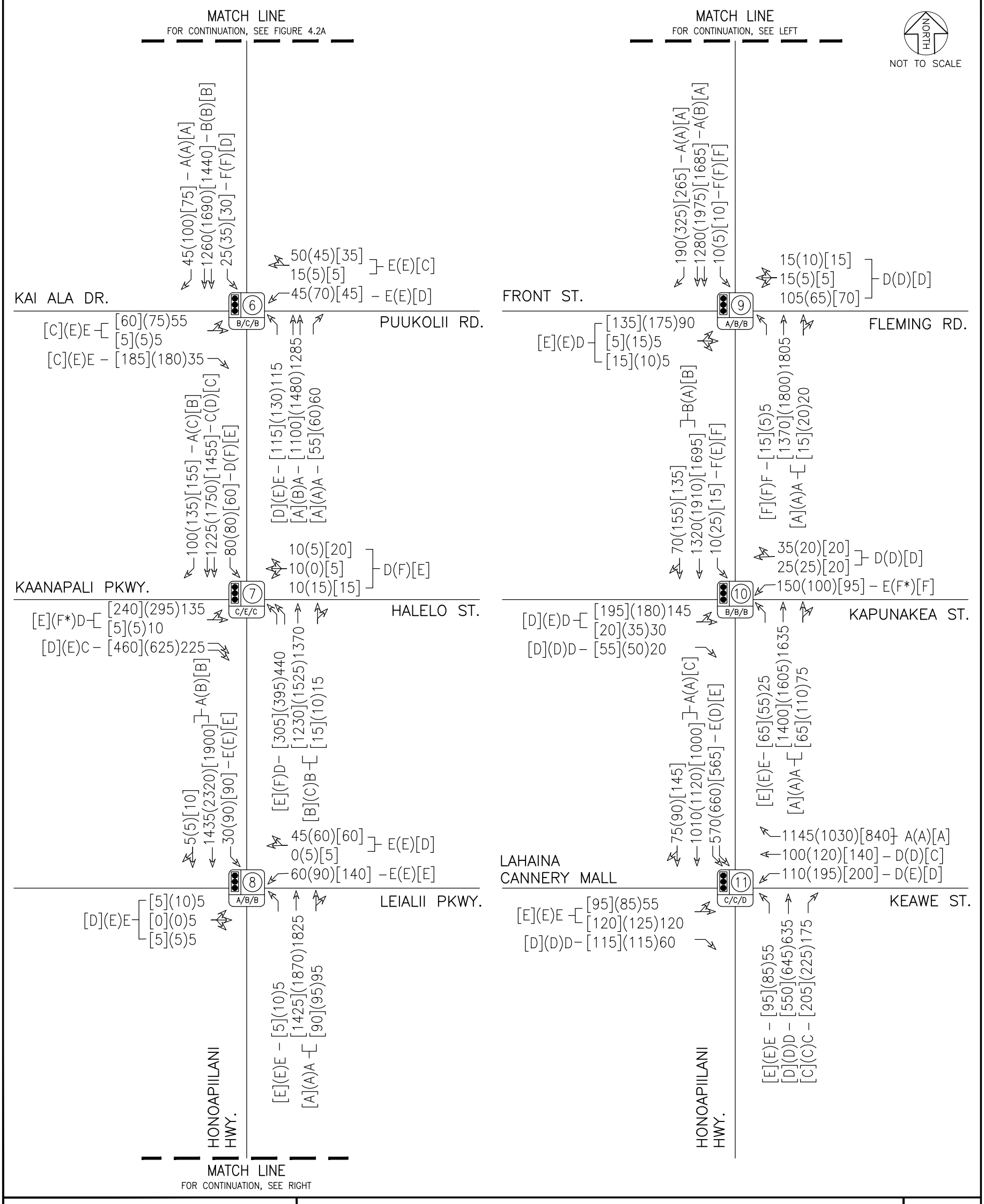
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2022 LANE CONFIGURATION, VOLUMES AND LOS	4.2B

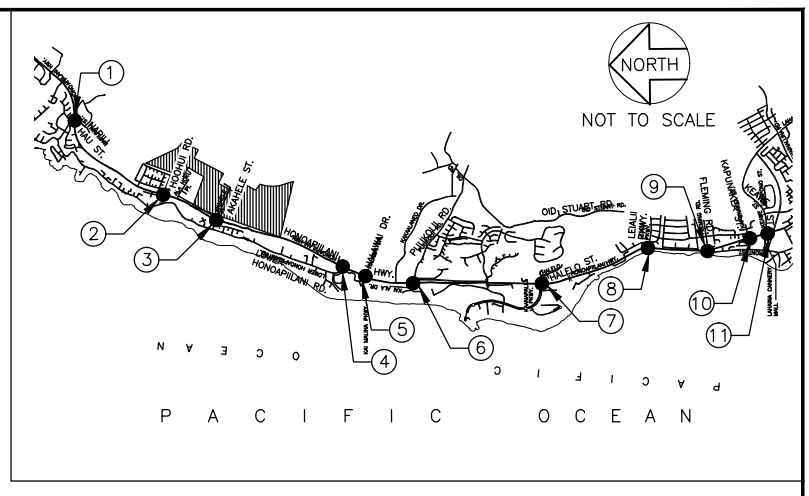
LEGEND

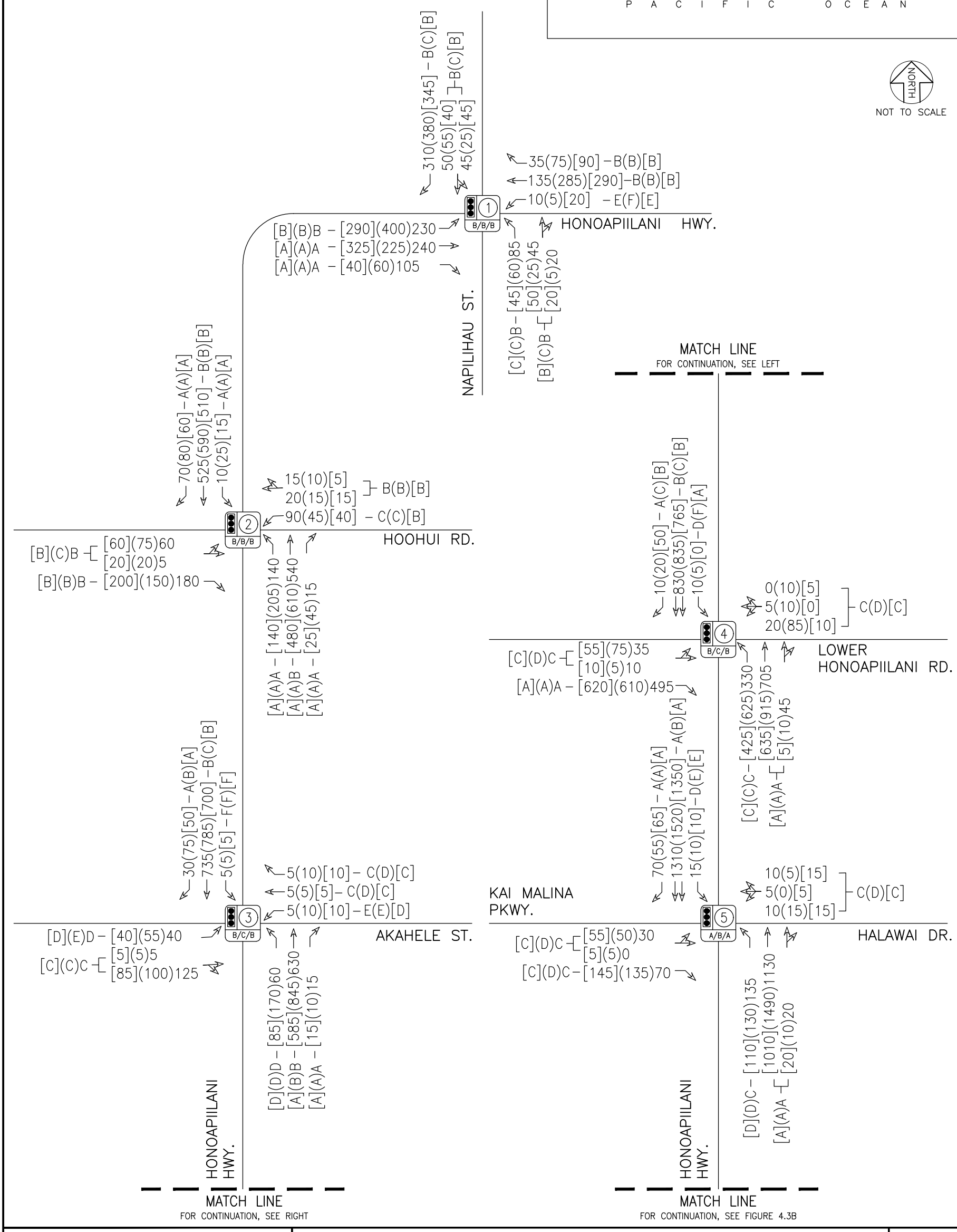
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2022 WITH MITIGATION LANE CONFIGURATION, VOLUMES AND LOS	4.3A

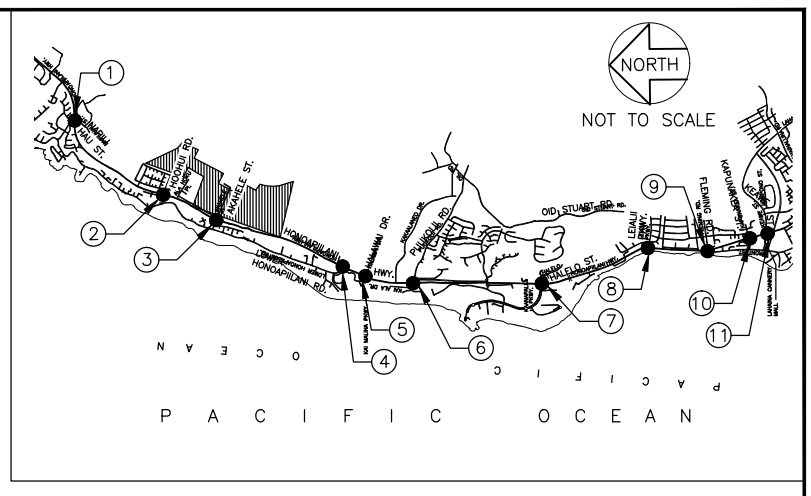
LEGEND

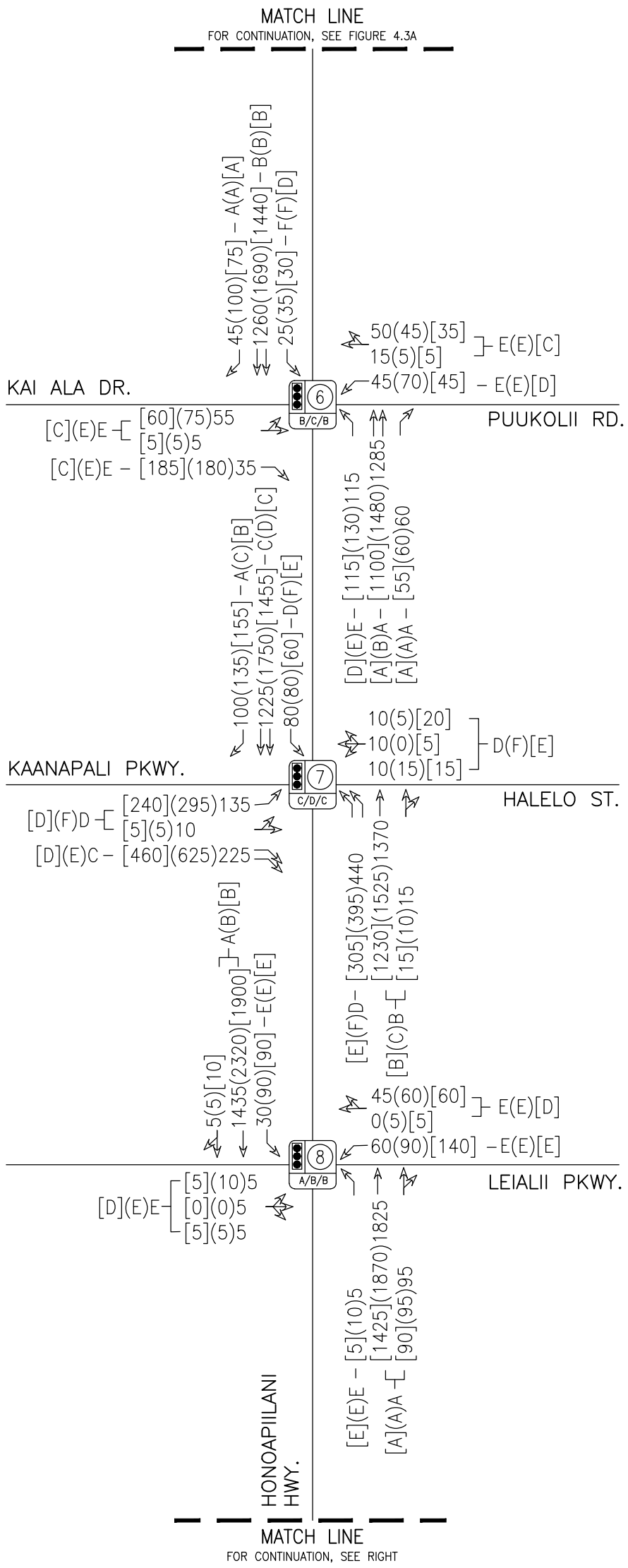
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

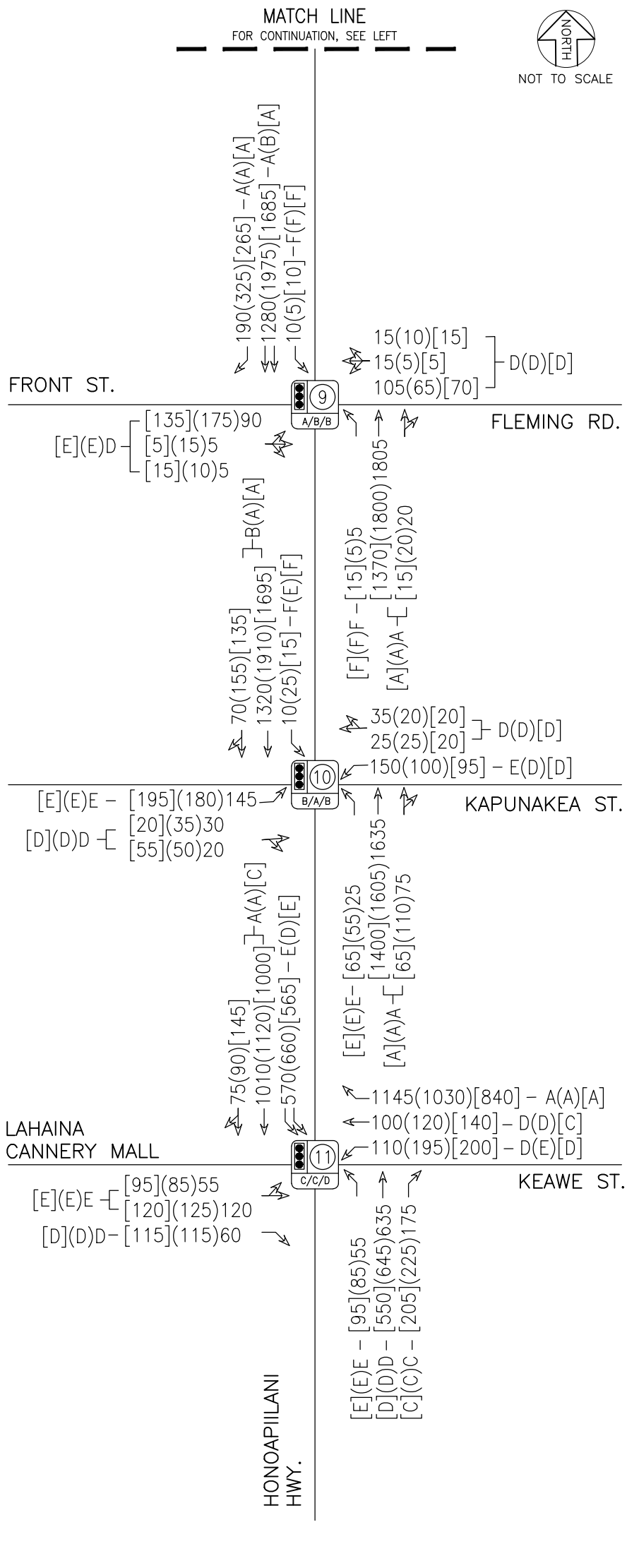
X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.







PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS,SURVEYORS • HONOLULU,HAWAII	FIGURE
	BASE YEAR 2022 WITH MITIGATION LANE CONFIGURATION, VOLUMES AND LOS	**4.3B**

Table 4.3: Existing Conditions, Base Year 2022 and Base Year 2022 with Mitigation Level of Service Summary

	Existing Conditions									Base Year 2022									Base Year 2022 with Mitigation								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																											
NB LT	18.5	0.74	B	18.2	0.80	B	18.3	0.75	B	18.6	0.75	B	20.0	0.83	B	19.7	0.78	B									
NB TH	-	-	-	-	-	-	-	-	-	7.9	0.32	A	5.8	0.23	A	7.4	0.38	A									
NB TH/RT	8.1	0.39	A	6.0	0.24	A	7.4	0.37	A	-	-	-	-	-	-	-	-	-									
NB RT	-	-	-	-	-	-	-	-	-	6.7	0.08	A	5.0	0.05	A	5.7	0.03	A									
EB LT/TH	14.9	0.23	B	18.3	0.20	B	16.2	0.19	B	15.3	0.26	B	21.2	0.29	C	18.6	0.29	B									
EB RT	14.5	0.16	B	18.0	0.13	B	16.0	0.15	B	14.9	0.18	B	20.1	0.13	C	17.9	0.18	B									
WB LT	-	-	-	-	-	-	-	-	-	17.6	0.29	B	23.7	0.29	C	20.4	0.19	C									
WB TH/RT	-	-	-	-	-	-	-	-	-	14.9	0.20	B	20.1	0.13	C	18.4	0.28	B									
WB LT/TH/RT	15.4	0.28	B	18.5	0.19	B	16.2	0.19	B	-	-	-	-	-	-	-	-	-									
SB LT	96.2	0.69	F	94.1	0.50	F	66.5	0.72	E	66.2	0.72	E	103.7	0.70	F	56.3	0.77	E									
SB TH	11.5	0.26	B	16.6	0.57	B	14.2	0.53	B	12.8	0.31	B	18.4	0.61	B	15.6	0.58	B									
SB RT	10.3	0.02	B	12.5	0.05	B	10.9	0.07	B	11.2	0.02	B	13.5	0.05	B	11.6	0.06	B									
Overall	13.5	-	B	15.2	-	B	13.9	-	B	14.1	-	B	16.8	-	B	15.4	-	B									
2: Honoapiilani Highway & Hoohui Road																											
NB LT	8.8	0.30	A	8.0	0.40	A	8.0	0.28	A	9.9	0.37	A	9.6	0.50	A	8.5	0.35	A									
NB TH	10.4	0.61	B	8.6	0.59	A	8.8	0.52	A	11.0	0.66	B	9.4	0.67	A	9.0	0.59	A									
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A									
EB LT/TH	15.4	0.16	B	17.8	0.28	B	14.5	0.19	B	17.5	0.17	B	20.5	0.32	C	16.9	0.24	B									
EB RT	14.6	0.07	B	16.5	0.06	B	14.0	0.09	B	16.5	0.07	B	18.9	0.06	B	16.1	0.09	B									
WB LT	17.5	0.25	B	19.4	0.17	B	15.6	0.11	B	20.2	0.28	C	22.6	0.21	C	18.4	0.14	B									
WB TH/RT	14.5	0.06	B	16.6	0.07	B	13.9	0.06	B	16.5	0.07	B	18.9	0.07	B	16.0	0.06	B									
SB LT	9.6	0.03	A	7.8	0.05	A	8.0	0.03	A	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A									
SB TH	14.1	0.72	B	12.3	0.73	B	11.9	0.69	B	15.2	0.78	B	13.4	0.78	B	12.6	0.74	B									
SB RT	9.6	0.05	A	7.9	0.05	A	8.2	0.04	A	9.5	0.05	A	8.0	0.07	A	8.0	0.04	A									
Overall	12.4	-	B	10.9	-	B	10.6	-	B	13.4	-	B	12.0	-	B	11.3	-	B									
3: Honoapiilani Highway & Akahele Street																											
NB LT	41.9	0.79	D	36.4	0.78	D	35.3	0.77	D	43.2	0.77	D	43.7	0.81	D	37.4	0.75	D									
NB TH	10.8	0.64	B	11.6	0.71	B	9.9	0.56	A	10.7	0.66	B	13.4	0.77	B	10.0	0.62	A									
NB RT	7.0	0.01	A	6.4	0.01	A	6.9	0.01	A	6.4	0.01	A	5.7	0.01	A	6.2	0.01	A									
EB LT	36.7	0.67	D	49.0	0.78	D	35.7	0.66	D	44.9	0.72	D	55.3	0.77	E	44.1	0.71	D									
EB TH/RT	20.3	0.07	C	26.9	0.05	C	20.3	0.05	C	24.7	0.08	C	34.1	0.05	C	24.8	0.06	C									
WB LT	63.8	0.52	E	59.0	0.56	E	45.8	0.55	D	69.9	0.53	E	66.9	0.57	E	52.4	0.55	D									
WB TH	21.3	0.01	C	28.8	0.03	C	21.1	0.01	C	26.0	0.03	C	36.5	0.03	D	25.9	0.03	C									
WB RT	21.3	0.01	C	28.8	0.01	C	21.1	0.01	C	25.9	0.01	C	36.4	0.01	D	25.8	0.01	C									
SB LT	105.2	0.70	F	113.6	0.40	F	116.6	0.69	F	112.1	0.70	F	127.2	0.71	F	111.4	0.70	F									
SB TH	14.2	0.80	B	19.4	0.85	B	14.3	0.79	B	15.3	0.84	B	23.9	0.89	C	15.8	0.83	B									
SB RT	8.1	0.02	A	10.6	0.05	B	8.4	0.03	A	7.7	0.02	A	10.5	0.05	B	8.3	0.03	A									
Overall	15.1	-	B	18.7	-	B	15.0	-	B	15.7	-	B	22.1	-	C	16.0	-	B									
4: Honoapiilani Highway & Lower Honoapiilani Road																											
NB LT	19.3	0.80	B	24.4	0.91	C	18.5	0.83	B	23.1	0.84	C	34.2	0.94	C	22.3	0.87	C									
NB TH/RT	4.8	0.31	A	4.4	0.32	A	2.6	0.21	A	4.6	0.34	A	4.4	0.36	A	2.4	0.25	A									
EB LT/TH	21.1	0.15	C	32.1	0.31	C	22.3	0.24	C	26.1	0.20	C	44.8	0.39	D	28.6	0.32	C									
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A									
WB LT/TH/RT	20.7	0.07	C	32.9	0.39	C	21.2	0.04	C	25.5	0.11	C	45.8	0.49	D	26.8	0.05	C									
SB LT	48.1	0.72	D	73.5	0.41	E	0.0	0.00	A	51.8	0.74	D	90.9	0.72	F	0.0	0.00	A									
SB TH	11.7	0.53	B	21.6	0.64	C	12.9	0.53	B	13.4	0.58	B	29.6	0.72	C	15.4	0.59	B									
SB RT	8.7	0.00	A	16.0	0.01	B	9.9	0.03	A	9.5	0.00	A	20.9	0.01	C	11.3	0.03	B									
Overall	10.9	-	B	17.1	-	B	11.2	-	B	12.3	-	B	22.9	-	C	13.1	-	B									

Same as Base Year 2022

Same as Base Year 2022

Same as Base Year 2022

Same as Base Year 2022

Table 4.3: Existing Conditions, Base Year 2022 and Base Year 2022 with Mitigation Level of Service Summary Cont'd

	Existing Conditions									Base Year 2022									Base Year 2022 with Mitigation								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																											
NB LT	29.6	0.79	C	38.3	0.78	D	36.2	0.82	D	32.8	0.79	C	44.6	0.81	D	36.9	0.78	D									
NB TH/RT	4.3	0.44	A	6.5	0.56	A	4.9	0.39	A	4.1	0.46	A	7.3	0.61	A	4.9	0.43	A									
EB LT/TH	23.4	0.08	C	28.3	0.08	C	22.7	0.11	C	31.5	0.17	C	37.5	0.22	D	32.0	0.26	C									
EB RT	23.6	0.02	C	28.3	0.01	C	22.7	0.01	C	31.3	0.01	C	36.7	0.03	D	31.2	0.04	C				**Same as Base Year 2022**					
WB LT/TH/RT	23.9	0.06	C	28.7	0.06	C	22.7	0.07	C	31.9	0.11	C	38.6	0.08	D	31.3	0.11	C									
SB LT	43.2	0.75	D	62.1	0.74	E	50.1	0.73	D	54.6	0.78	D	73.4	0.77	E	61.8	0.75	E									
SB TH	5.4	0.54	A	8.4	0.64	A	6.3	0.56	A	7.8	0.62	A	12.5	0.73	B	9.1	0.65	A									
SB RT	3.4	0.03	A	4.7	0.02	A	3.9	0.03	A	4.5	0.05	A	6.3	0.04	A	5.1	0.04	A									
Overall	6.0	-	A	8.7	-	A	6.9	-	A	8.1	-	A	12.1	-	B	9.5	-	A									
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																											
NB LT	84.3	0.84	F	85.8	0.86	F	33.7	0.77	C	75.0	0.85	E	78.0	0.87	E	41.0	0.78	D									
NB TH	5.0	0.37	A	7.6	0.48	A	8.0	0.41	A	6.6	0.50	A	10.1	0.60	B	8.3	0.52	A									
NB RT	3.4	0.04	A	4.7	0.04	A	6.0	0.03	A	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A									
EB LT/TH	69.2	0.33	E	68.3	0.34	E	24.4	0.15	C	68.0	0.37	E	67.2	0.37	E	32.7	0.23	C									
EB RT	64.6	0.01	E	64.2	0.02	E	24.0	0.07	C	62.8	0.01	E	63.8	0.14	E	31.4	0.05	C				**Same as Base Year 2022**					
WB LT	75.0	0.38	E	77.8	0.49	E	26.6	0.14	C	74.9	0.42	E	78.4	0.54	E	36.2	0.22	D									
WB TH/RT	65.4	0.10	E	64.2	0.02	E	23.7	0.02	C	63.5	0.09	E	62.6	0.03	E	31.3	0.03	C									
SB LT	82.5	0.67	F	90.7	0.77	F	35.2	0.52	D	82.8	0.68	F	89.0	0.77	F	43.9	0.58	D									
SB TH	8.2	0.44	A	13.2	0.58	B	12.0	0.64	B	10.7	0.54	B	18.9	0.75	B	14.2	0.75	B									
SB RT	5.3	0.02	A	7.6	0.06	A	7.6	0.04	A	6.2	0.03	A	8.7	0.08	A	7.4	0.05	A									
Overall	13.6	-	B	17.2	-	B	12.4	-	B	14.4	-	B	20.3	-	C	14.0	-	B									
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																											
NB LT	35.6	0.72	D	74.9	0.82	E	42.0	0.67	D	48.1	0.78	D	96.9	0.86	F	67.2	0.77	E	42.5	0.76	D	96.9	0.86	F	55.2	0.74	E
NB TH/RT	16.0	0.62	B	21.9	0.61	C	15.4	0.51	B	19.3	0.71	B	23.5	0.68	C	19.5	0.61	B	16.3	0.70	B	23.5	0.68	C	14.5	0.59	B
EB LT/TH	37.8	0.57	D	70.4	0.82	E	39.3	0.69	D	51.1	0.68	D	226.0	1.22	F*	70.6	0.82	E	46.5	0.47	D	92.0	0.61	F	53.8	0.58	D
EB RT	23.0	0.10	C	46.9	0.49	D	26.8	0.30	C	30.3	0.08	C	70.6	0.60	E	42.8	0.35	D	29.6	0.07	C	68.2	0.53	E	40.3	0.37	D
WB LT/TH/RT	38.8	0.16	D	81.3	0.18	F	46.3	0.22	D	53.1	0.20	D	106.4	0.24	F	74.3	0.38	E	47.0	0.18	D	106.4	0.24	F	61.1	0.34	E
SB LT	40.0	0.31	D	83.9	0.57	F	44.2	0.22	D	54.8	0.60	D	124.4	0.74	F	73.1	0.59	E	48.6	0.58	D	124.4	0.74	F	60.2	0.55	E
SB TH	22.6	0.72	C	37.1	0.83	D	22.0	0.73	C	26.6	0.77	C	45.1	0.90	D	29.8	0.81	C	22.6	0.75	C	45.1	0.90	D	22.5	0.78	C
SB RT	15.6	0.07	B	21.6	0.11	C	14.9	0.14	B	9.8	0.08	A	20.1	0.12	C	17.4	0.15	B	10.0	0.09	A	20.1	0.12	C	13.1	0.14	B
Overall	22.9	-	C	39.6	-	D	23.5	-	C	28.0	-	C	57.6	-	E	33.6	-	C	24.2	-	C	48.6	-	D	26.4	-	C
8: Honoapiilani Highway & Leialii Parkway																											
NB LT	81.0	0.43	F	71.0	0.48	E	83.2	0.42	F	75.2	0.44	E	69.4	0.49	E	72.0	0.44	E									
NB TH/RT	7.1	0.59	A	9.1	0.64	A	1.9	0.48	A	9.2	0.72	A	2.5	0.78	A	3.3	0.64	A									
EB LT/TH/RT	58.7	0.02	E	57.2	0.05	E	50.4	0.01	D	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D									
WB LT	62.2	0.35	E	62.8	0.53	E	58.4	0.62	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E				**Same as Base Year 2022**					
WB TH/RT	58.9	0.01	E	57.1	0.04	E	50.7	0.03	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D									
SB LT	67.8	0.42	E	66.4	0.76	E	69.4	0.76	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E									
SB TH/RT	4.3	0.43	A	8.6	0.72	A	7.6	0.60	A	5.4	0.52	A	14.6	0.85	B	11.3	0.74	B									
Overall	7.7	-	A	11.5	-	B	9.4	-	A	9.4	-	A	11.5	-	B	11.6	-	B									
9: Honoapiilani Highway & Front Street/Flemming Road																											
NB LT	121.8	0.70	F	101.1	0.74	F	94.7	0.83	F	86.5	0.73	F	93.9	0.74	F	85.9	0.84	F									
NB TH/RT	6.1	0.56	A	1.4	0.60	A	12.9	0.40	B	7.9	0.69	A	2.0	0.73	A	7.0	0.54	A									
EB LT/TH/RT	52.3	0.43	D	59.0	0.70	E	58.8	0.62	E	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E									
WB LT/TH/RT	54.4	0.60	D	51.5	0.25	D	54.5	0.33	D	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D				**Same as Base Year 2022**					
SB LT	93.2	0.76	F	118.5	0.70	F	92.6	0.78	F	87.2	0.80	F	85.0	0.74	F	86.0	0.82	F									
SB TH	4.3	0.41	A	8.7	0.66	A	5.6	0.53	A	5.0	0.50	A	12.2	0.81	B	8.1	0.67	A									
SB RT	3.0	0.10	A	4.9	0.20	A	3.5	0.15	A	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A									
Overall	9.1	-	A	8.9	-	A	12.5	-	B	10.0	-	A	10.5	-	B	11.2	-	B									

Table 4.3: Existing Conditions, Base Year 2022 and Base Year 2022 with Mitigation Level of Service Summary Cont'd

	Existing Conditions									Base Year 2022									Base Year 2022 with Mitigation								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
10: Honoapiilani Highway & Kapunakea Street																											
NB LT	68.9	0.80	E	62.6	0.78	E	66.4	0.79	E	68.5	0.79	E	62.7	0.79	E	62.5	0.79	E	68.5	0.79	E	62.7	0.79	E	62.5	0.79	E
NB TH/RT	0.2	0.60	A	0.2	0.64	A	0.7	0.51	A	0.5	0.78	A	0.4	0.75	A	3.2	0.65	A	0.3	0.69	A	0.3	0.72	A	1.5	0.62	A
EB LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.9	0.60	E	59.5	0.70	E	57.7	0.71	E
EB LT/TH	51.1	0.41	D	51.3	0.55	D	49.0	0.51	D	47.1	0.48	D	60.0	0.72	E	53.0	0.66	D	-	-	-	-	-	-	-	-	-
EB TH/RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49.5	0.11	D	46.6	0.15	D	43.9	0.09	D
EB RT	44.9	0.01	D	41.8	0.02	D	41.2	0.02	D	38.7	0.01	D	42.8	0.04	D	39.7	0.05	D	-	-	-	-	-	-	-	-	-
WB LT	77.5	0.76	E	67.2	0.60	E	60.3	0.51	E	71.6	0.73	E	181.1	1.09	F*	88.5	0.79	F	59.7	0.63	E	53.0	0.41	D	48.8	0.35	D
WB TH/RT	45.7	0.08	D	42.3	0.07	D	41.7	0.06	D	39.4	0.07	D	43.2	0.08	D	39.9	0.06	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D
SB LT	104.0	0.78	F	77.1	0.80	E	90.3	0.85	F	100.7	0.83	F	71.6	0.80	E	84.2	0.84	F	100.7	0.83	F	71.6	0.80	E	84.2	0.84	F
SB TH/RT	11.2	0.50	B	20.1	0.79	C	6.7	0.69	A	18.2	0.65	B	7.4	0.93	A	12.6	0.86	B	10.5	0.57	B	5.1	0.90	A	7.8	0.81	A
Overall	11.7	-	B	16.1	-	B	9.9	-	A	14.1	-	B	13.3	-	B	15.0	-	B	11.0	-	B	8.8	-	A	10.9	-	B
11: Honoapiilani Highway & Keawe Street																											
NB LT	81.8	0.80	F	70.0	0.77	E	67.5	0.77	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E									
NB TH	24.8	0.63	C	33.5	0.73	C	29.5	0.63	C	35.8	0.78	D	55.0	0.92	D	43.4	0.82	D									
NB RT	16.0	0.12	B	21.2	0.19	C	20.8	0.16	C	21.2	0.16	C	27.4	0.25	C	27.0	0.22	C									
EB LT/TH	61.4	0.46	E	56.2	0.49	E	51.6	0.35	D	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E									
EB RT	56.8	0.02	E	51.5	0.06	D	48.5	0.02	D	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D									
WB LT	50.7	0.44	D	51.4	0.67	D	41.9	0.54	D	47.4	0.53	D	70.9	0.87	E	51.5	0.78	D									
WB TH	46.4	0.18	D	40.1	0.19	D	36.0	0.19	D	42.3	0.23	D	37.0	0.24	D	33.4	0.26	C									
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A									
SB LT	52.1	0.91	D	49.2	0.92	D	61.5	0.86	E	58.5	0.94	E	45.2	0.95	D	57.5	0.88	E									
SB TH/RT	0.8	0.41	A	0.9	0.49	A	35.6	0.48	D	1.3	0.52	A	0.8	0.65	A	34.4	0.66	C									
Overall	24.2	-	C	27.1	-	C	40.3	-	D	29.8	-	C	32.9	-	C	43.9	-	D									

Same as Base Year 2022

* Denotes overcapacity condition, v/c ≥ 1.

4.5 Base Year 2025 Analysis

It is anticipated that by Base Year 2025, traffic will have increased over Base Year 2022 conditions due to the continued development of the Lahaina and Kaanapali regions. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

4.5.1 Base Year 2025 Intersection Analysis

By Base Year 2025 without the Project, traffic at the study intersections along Honoapiilani Highway is anticipated to remain similar to Base Year 2022 conditions with a projected increase of approximately 1% for most parts along the corridor during the AM, PM and WE peak hours of traffic. Overall intersection delays are expected to increase by only 1-5 seconds at the study intersections from Base Year 2022 conditions. Intersection movements are expected to continue operating with LOS similar to Base Year 2022 in Base Year 2025.

Figure 4.4 illustrates the Base Year 2025 forecast traffic volumes and LOS for the study intersection movements. Table 4.4 summarizes the Base Year 2025 LOS at the study intersections compared to Base Year 2022 conditions. LOS worksheets are provided in Appendix C.

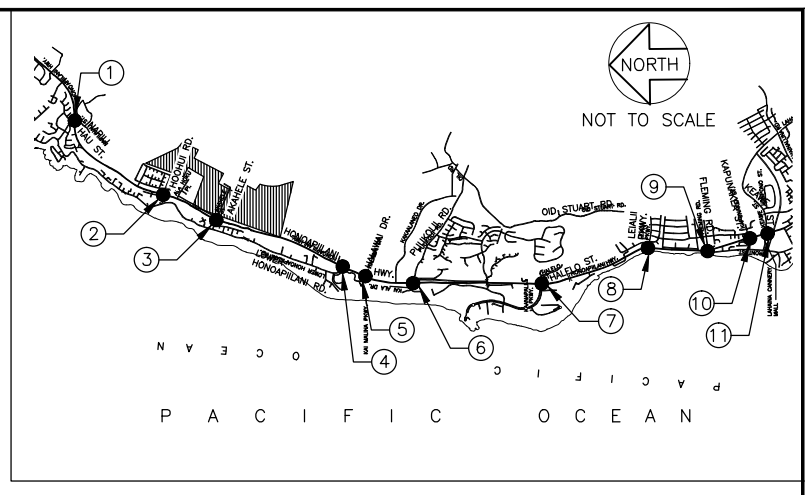
LEGEND

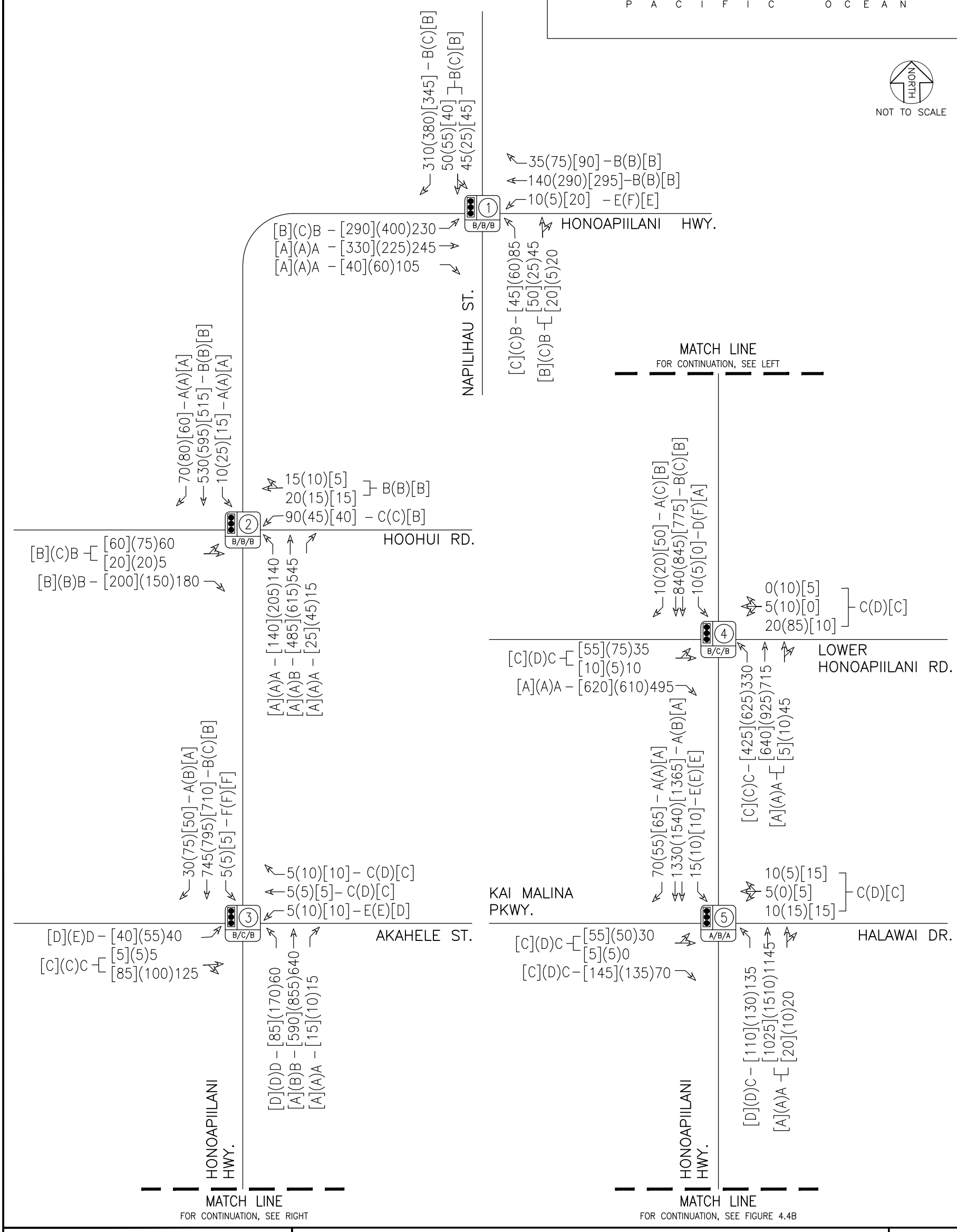
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2025 LANE CONFIGURATION, VOLUMES AND LOS	4.4A

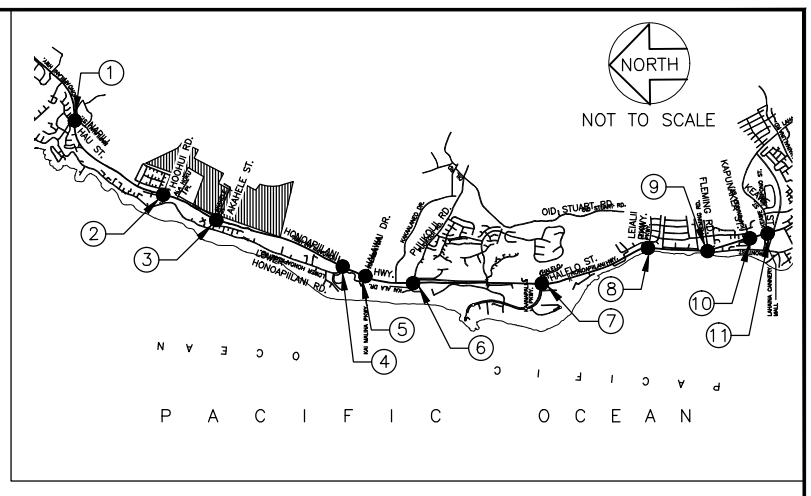
LEGEND

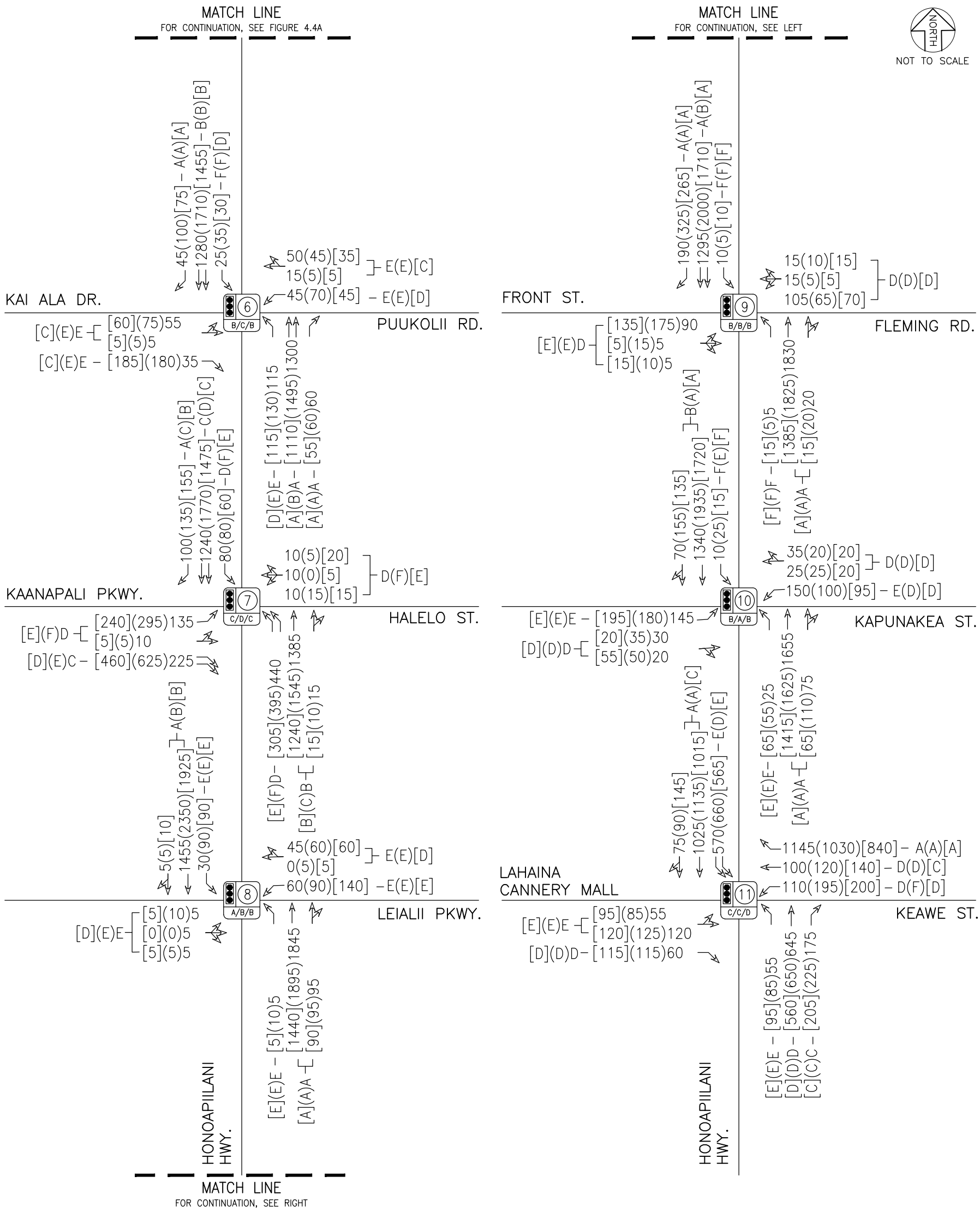
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





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BASE YEAR 2025 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 4.4B

Table 4.4: Base Year 2022 with Mitigation and Base Year 2025 Level of Service Summary

	Base Year 2022 with Mitigation									Base Year 2025								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																		
NB LT	18.6	0.75	B	20.0	0.83	B	19.7	0.78	B	18.6	0.75	B	20.1	0.83	C	19.9	0.78	B
NB TH	7.9	0.32	A	5.8	0.23	A	7.4	0.38	A	8.0	0.33	A	5.7	0.23	A	7.4	0.38	A
NB RT	6.7	0.08	A	5.0	0.05	A	5.7	0.03	A	6.7	0.08	A	4.9	0.05	A	5.7	0.03	A
EB LT/TH	15.3	0.26	B	21.2	0.29	C	18.6	0.29	B	15.3	0.26	B	21.3	0.30	C	18.8	0.29	B
EB RT	14.9	0.18	B	20.1	0.13	C	17.9	0.18	B	14.9	0.18	B	20.3	0.13	C	18.1	0.18	B
WB LT	17.6	0.29	B	23.7	0.29	C	20.4	0.19	C	17.6	0.29	B	23.9	0.29	C	20.6	0.19	C
WB TH/RT	14.9	0.20	B	20.1	0.13	C	18.4	0.28	B	14.9	0.20	B	20.2	0.13	C	18.6	0.28	B
SB LT	66.2	0.72	E	103.7	0.70	F	56.3	0.77	E	66.2	0.72	E	103.9	0.70	F	56.6	0.77	E
SB TH	12.8	0.31	B	18.4	0.61	B	15.6	0.58	B	12.9	0.32	B	18.4	0.61	B	15.7	0.58	B
SB RT	11.2	0.02	B	13.5	0.05	B	11.6	0.06	B	11.2	0.02	B	13.4	0.05	B	11.6	0.06	B
Overall	14.1	-	B	16.8	-	B	15.4	-	B	14.1	-	B	16.9	-	B	15.5	-	B
2: Honoapiilani Highway & Hoohui Road																		
NB LT	9.9	0.37	A	9.6	0.50	A	8.5	0.35	A	9.9	0.37	A	9.7	0.50	A	8.5	0.35	A
NB TH	11.0	0.66	B	9.4	0.67	A	9.0	0.59	A	11.0	0.66	B	9.4	0.68	A	9.0	0.59	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	17.5	0.17	B	20.5	0.32	C	16.9	0.24	B	17.6	0.17	B	20.6	0.32	C	17.1	0.24	B
EB RT	16.5	0.07	B	18.9	0.06	B	16.1	0.09	B	16.6	0.07	B	19.0	0.06	B	16.2	0.09	B
WB LT	20.2	0.28	C	22.6	0.21	C	18.4	0.14	B	20.3	0.28	C	22.8	0.21	C	18.5	0.15	B
WB TH/RT	16.5	0.07	B	18.9	0.07	B	16.0	0.06	B	16.6	0.07	B	19.0	0.07	B	16.1	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A
SB TH	15.2	0.78	B	13.4	0.78	B	12.6	0.74	B	15.2	0.78	B	13.5	0.78	B	12.6	0.74	B
SB RT	9.5	0.05	A	8.0	0.07	A	8.0	0.04	A	9.5	0.05	A	8.0	0.07	A	7.9	0.04	A
Overall	13.4	-	B	12.0	-	B	11.3	-	B	13.4	-	B	12.0	-	B	11.3	-	B
3: Honoapiilani Highway & Akahele Street																		
NB LT	43.2	0.77	D	43.7	0.81	D	37.4	0.75	D	43.5	0.77	D	44.4	0.82	D	37.8	0.75	D
NB TH	10.7	0.66	B	13.4	0.77	B	10.0	0.62	A	10.7	0.67	B	13.6	0.77	B	9.9	0.61	A
NB RT	6.4	0.01	A	5.7	0.01	A	6.2	0.01	A	6.3	0.01	A	5.7	0.01	A	6.2	0.01	A
EB LT	44.9	0.72	D	55.3	0.77	E	44.1	0.71	D	45.5	0.72	D	55.9	0.77	E	44.8	0.72	D
EB TH/RT	24.7	0.08	C	34.1	0.05	C	24.8	0.06	C	25.0	0.07	C	34.7	0.05	C	25.2	0.06	C
WB LT	69.9	0.53	E	66.9	0.57	E	52.4	0.55	D	70.4	0.53	E	67.7	0.58	E	52.9	0.56	D
WB TH	26.0	0.03	C	36.5	0.03	D	25.9	0.03	C	26.4	0.03	C	37.1	0.03	D	26.3	0.03	C
WB RT	25.9	0.01	C	36.4	0.01	D	25.8	0.01	C	26.3	0.01	C	37.0	0.01	D	26.2	0.01	C
SB LT	112.1	0.70	F	127.2	0.71	F	111.4	0.70	F	112.6	0.70	F	128.0	0.72	F	112.0	0.70	F
SB TH	15.3	0.84	B	23.9	0.89	C	15.8	0.83	B	15.4	0.84	B	24.4	0.89	C	15.8	0.84	B
SB RT	7.7	0.02	A	10.5	0.05	B	8.3	0.03	A	7.6	0.02	A	10.5	0.05	B	8.2	0.04	A
Overall	15.7	-	B	22.1	-	C	16.0	-	B	15.7	-	B	22.5	-	C	16.0	-	B

Table 4.4: Base Year 2022 with Mitigation and Base Year 2025 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Base Year 2025								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
4: Honoapiilani Highway & Lower Honoapiilani Road																		
NB LT	23.1	0.84	C	34.2	0.94	C	22.3	0.87	C	23.4	0.84	C	35.0	0.94	C	22.5	0.88	C
NB TH/RT	4.6	0.34	A	4.4	0.36	A	2.4	0.25	A	4.6	0.34	A	4.4	0.37	A	2.4	0.25	A
EB LT/TH	26.1	0.20	C	44.8	0.39	D	28.6	0.32	C	26.4	0.20	C	45.3	0.39	D	28.9	0.32	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	25.5	0.11	C	45.8	0.49	D	26.8	0.05	C	25.8	0.11	C	46.4	0.50	D	27.0	0.05	C
SB LT	51.8	0.74	D	90.9	0.72	F	0.0	0.00	A	52.2	0.74	D	91.6	0.72	F	0.0	0.00	A
SB TH	13.4	0.58	B	29.6	0.72	C	15.4	0.59	B	13.4	0.59	B	29.8	0.72	C	15.5	0.59	B
SB RT	9.5	0.00	A	20.9	0.01	C	11.3	0.03	B	9.4	0.00	A	21.0	0.01	C	11.3	0.03	B
Overall	12.3	-	B	22.9	-	C	13.1	-	B	12.4	-	B	23.2	-	C	13.1	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																		
NB LT	32.8	0.79	C	44.6	0.81	D	36.9	0.78	D	33.4	0.79	C	45.2	0.81	D	37.3	0.78	D
NB TH/RT	4.1	0.46	A	7.3	0.61	A	4.9	0.43	A	4.1	0.47	A	7.3	0.62	A	4.9	0.43	A
EB LT/TH	31.5	0.17	C	37.5	0.22	D	32.0	0.26	C	32.1	0.17	C	38.1	0.23	D	32.4	0.26	C
EB RT	31.3	0.01	C	36.7	0.03	D	31.2	0.04	C	31.9	0.01	C	37.2	0.03	D	31.7	0.04	C
WB LT/TH/RT	31.9	0.11	C	38.6	0.08	D	31.3	0.11	C	32.5	0.11	C	39.2	0.08	D	31.8	0.11	C
SB LT	54.6	0.78	D	73.4	0.77	E	61.8	0.75	E	55.4	0.78	E	74.2	0.78	E	62.4	0.75	E
SB TH	7.8	0.62	A	12.5	0.73	B	9.1	0.65	A	7.8	0.63	A	12.7	0.74	B	9.1	0.65	A
SB RT	4.5	0.05	A	6.3	0.04	A	5.1	0.04	A	4.4	0.05	A	6.3	0.04	A	5.1	0.04	A
Overall	8.1	-	A	12.1	-	B	9.5	-	A	8.1	-	A	12.2	-	B	9.5	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																		
NB LT	75.0	0.85	E	78.0	0.87	E	41.0	0.78	D	75.2	0.85	E	77.9	0.87	E	41.2	0.79	D
NB TH	6.6	0.50	A	10.1	0.60	B	8.3	0.52	A	6.7	0.51	A	10.1	0.61	B	8.3	0.52	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	32.7	0.23	C	68.0	0.37	E	67.2	0.37	E	33.0	0.23	C
EB RT	62.8	0.01	E	63.8	0.14	E	31.4	0.05	C	62.8	0.01	E	63.8	0.14	E	31.7	0.05	C
WB LT	74.9	0.42	E	78.4	0.54	E	36.2	0.22	D	74.9	0.42	E	78.4	0.54	E	36.5	0.22	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	31.3	0.03	C	63.5	0.09	E	62.6	0.03	E	31.5	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	43.9	0.58	D	82.8	0.68	F	89.0	0.77	F	44.2	0.58	D
SB TH	10.7	0.54	B	18.9	0.75	B	14.2	0.75	B	10.8	0.54	B	19.2	0.76	B	14.3	0.75	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.4	0.05	A	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A
Overall	14.4	-	B	20.3	-	C	14.0	-	B	14.4	-	B	20.4	-	C	14.0	-	B

Table 4.4: Base Year 2022 with Mitigation and Base Year 2025 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Base Year 2025								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																		
NB LT	42.5	0.76	D	96.9	0.86	F	55.2	0.74	E	43.3	0.77	D	98.1	0.86	F	56.6	0.74	E
NB TH/RT	16.3	0.70	B	23.5	0.68	C	14.5	0.59	B	16.3	0.70	B	23.6	0.68	C	14.5	0.59	B
EB LT/TH	46.5	0.47	D	92.0	0.61	F	53.8	0.58	D	47.3	0.47	D	93.6	0.62	F	55.1	0.58	E
EB RT	29.6	0.07	C	68.2	0.53	E	40.3	0.37	D	30.2	0.08	C	69.4	0.53	E	41.4	0.37	D
WB LT/TH/RT	47.0	0.18	D	106.4	0.24	F	61.1	0.34	E	47.8	0.18	D	107.6	0.24	F	62.6	0.34	E
SB LT	48.6	0.58	D	124.4	0.74	F	60.2	0.55	E	49.4	0.58	D	126.7	0.75	F	61.7	0.55	E
SB TH	22.6	0.75	C	45.1	0.90	D	22.5	0.78	C	22.8	0.76	C	45.9	0.90	D	22.7	0.78	C
SB RT	10.0	0.09	A	20.1	0.12	C	13.1	0.14	B	9.9	0.09	A	20.0	0.11	C	13.1	0.14	B
Overall	24.2	-	C	48.6	-	D	26.4	-	C	24.4	-	C	49.2	-	D	26.8	-	C
8: Honoapiilani Highway & Leialii Parkway																		
NB LT	75.2	0.44	E	69.4	0.49	E	72.0	0.44	E	75.1	0.44	E	69.3	0.49	E	72.0	0.44	E
NB TH/RT	9.2	0.72	A	2.5	0.78	A	3.3	0.64	A	9.4	0.73	A	2.6	0.79	A	3.3	0.64	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E
SB TH/RT	5.4	0.52	A	14.6	0.85	B	11.3	0.74	B	5.5	0.53	A	15.3	0.87	B	11.7	0.75	B
Overall	9.4	-	A	11.5	-	B	11.6	-	B	9.5	-	A	11.9	-	B	11.7	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																		
NB LT	86.5	0.73	F	93.9	0.74	F	85.9	0.84	F	88.9	0.73	F	93.9	0.74	F	85.6	0.84	F
NB TH/RT	7.9	0.69	A	2.0	0.73	A	7.0	0.54	A	8.2	0.70	A	2.1	0.74	A	7.0	0.54	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D
SB LT	87.2	0.80	F	85.0	0.74	F	86.0	0.82	F	87.2	0.80	F	83.6	0.74	F	85.3	0.82	F
SB TH	5.0	0.50	A	12.2	0.81	B	8.1	0.67	A	5.1	0.50	A	12.4	0.82	B	8.2	0.68	A
SB RT	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A
Overall	10.0	-	A	10.5	-	B	11.2	-	B	10.1	-	B	10.6	-	B	11.2	-	B
10: Honoapiilani Highway & Kapunakea Street																		
NB LT	68.5	0.79	E	62.7	0.79	E	62.5	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E
NB TH/RT	0.3	0.69	A	0.3	0.72	A	1.5	0.62	A	0.3	0.70	A	0.3	0.73	A	1.5	0.62	A
EB LT	58.9	0.60	E	59.5	0.70	E	57.7	0.71	E	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E
EB TH/RT	49.5	0.11	D	46.6	0.15	D	43.9	0.09	D	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D
WB LT	59.7	0.63	E	53.0	0.41	D	48.8	0.35	D	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D
SB LT	100.7	0.83	F	71.6	0.80	E	84.2	0.84	F	100.7	0.83	F	71.3	0.80	E	83.9	0.84	F
SB TH/RT	10.5	0.57	B	5.1	0.90	A	7.8	0.81	A	10.7	0.58	B	5.3	0.90	A	8.2	0.82	A
Overall	11.0	-	B	8.8	-	A	10.9	-	B	11.0	-	B	8.9	-	A	11.0	-	B

Table 4.4: Base Year 2022 with Mitigation and Base Year 2025 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Base Year 2025								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																		
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E
NB TH	35.8	0.78	D	55.0	0.92	D	43.4	0.82	D	36.4	0.79	D	52.9	0.91	D	44.4	0.83	D
NB RT	21.2	0.16	C	27.4	0.25	C	27.0	0.22	C	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D
WB LT	47.4	0.53	D	70.9	0.87	E	51.5	0.78	D	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D
WB TH	42.3	0.23	D	37.0	0.24	D	33.4	0.26	C	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	58.5	0.94	E	45.2	0.95	D	57.5	0.88	E	59.1	0.94	E	45.5	0.95	D	57.6	0.88	E
SB TH/RT	1.3	0.52	A	0.8	0.65	A	34.4	0.66	C	1.4	0.53	A	0.8	0.65	A	34.7	0.67	C
Overall	29.8	-	C	32.9	-	C	43.9	-	D	30.0	-	C	33.3	-	C	44.2	-	D

4.6 Base Year 2030 Analysis

It is anticipated that by Base Year 2030, traffic will have increased over Base Year 2025 conditions due to the continued development of the Lahaina and Kaanapali regions. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

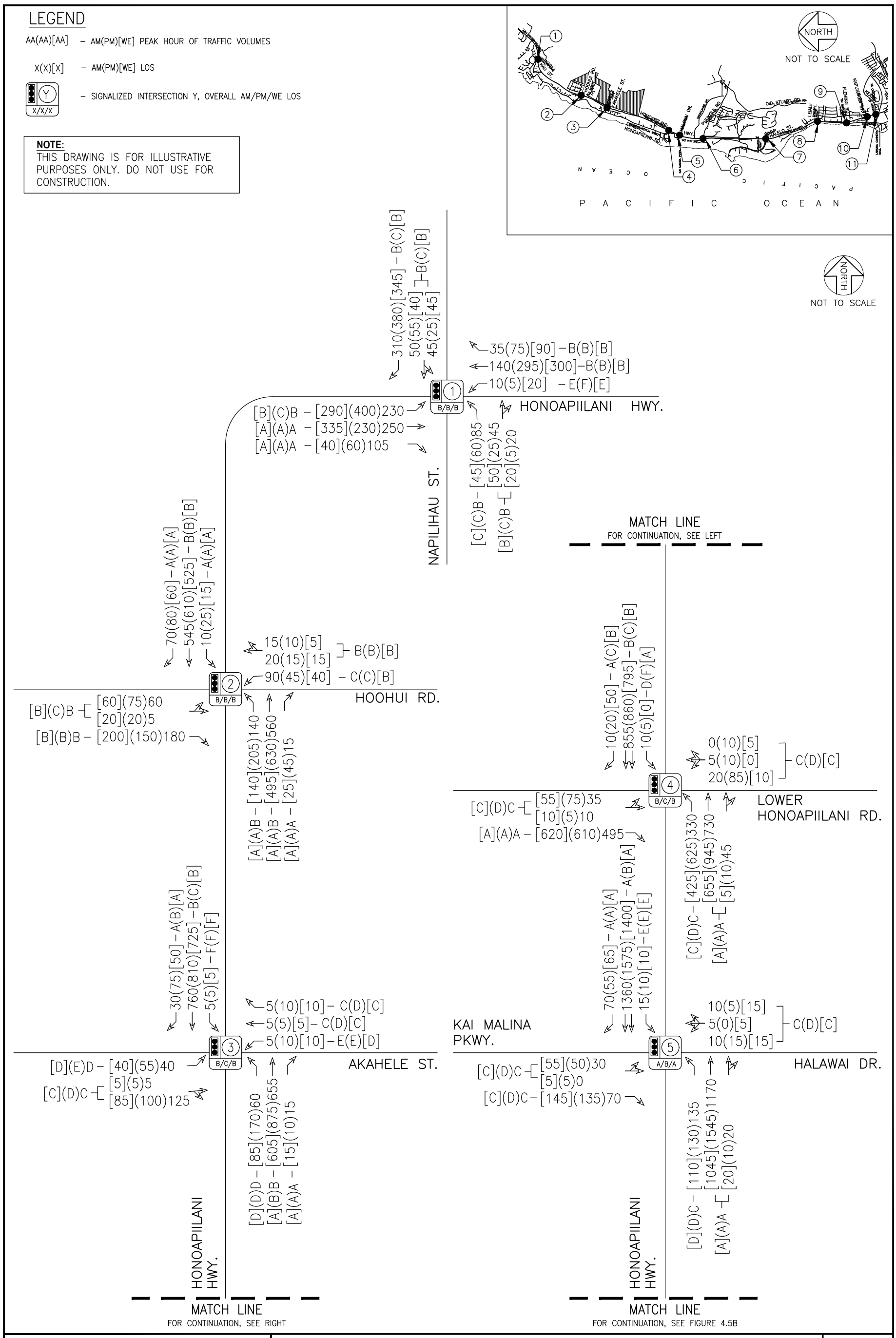
4.6.1 Base Year 2030 Intersection Analysis

By Base Year 2030 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to generally increase by an additional 2% for most parts along the corridor during the AM, PM and WE peak hours of traffic over Base Year 2025 conditions. The majority of study intersections are forecast to operate similar to Base Year 2025 conditions. Overall intersection delays generally increased by only 1-5 seconds at most study intersections from Base Year 2025 conditions. The following intersection is expected to worsen compared to Base Year 2025 conditions:

[11] Honoapiilani Highway/Keawe Street

During the PM peak hour of traffic, the northbound through movement along Honoapiilani Highway is anticipated to operate at LOS E conditions due to continued growth in the region adding to traffic along the highway. As noted in Section 4.3, the LBR Phase 1B-2, which extended the LBR to its southern terminus in Olowalu, was completed in 2018. Because all vehicles exit the LBR prior to or at Keawe Street, the Honoapiilani Highway/Keawe Street intersection experiences high volumes heading further north to Kaanapali and beyond. Phase 1C and Phase 1D of the LBR to extend the bypass to Kaanapali and just south of the Kapalua Airport, respectively, have been identified but are not currently planned. However, allocation of State funds for construction of Phase 1C to extend the LBR to Kaanapali is currently under discussion. Because funding has not been secured for construction of Phase 1C, the roadway improvement was not assumed to be completed by Base Year 2030. However, upon completion, it is likely that the Honoapiilani Highway/Keawe Street intersection will experience significant reductions in traffic which will likely alleviate the majority of forecast deficient LOS and capacity conditions.

Figure 4.5 illustrates the Base Year 2030 forecast traffic volumes and LOS for the study intersection movements. Table 4.5 summarizes the Base Year 2030 LOS at the study intersections compared to Base Year 2025 conditions. LOS worksheets are provided in Appendix C.



PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2030 LANE CONFIGURATION, VOLUMES AND LOS	4.5A

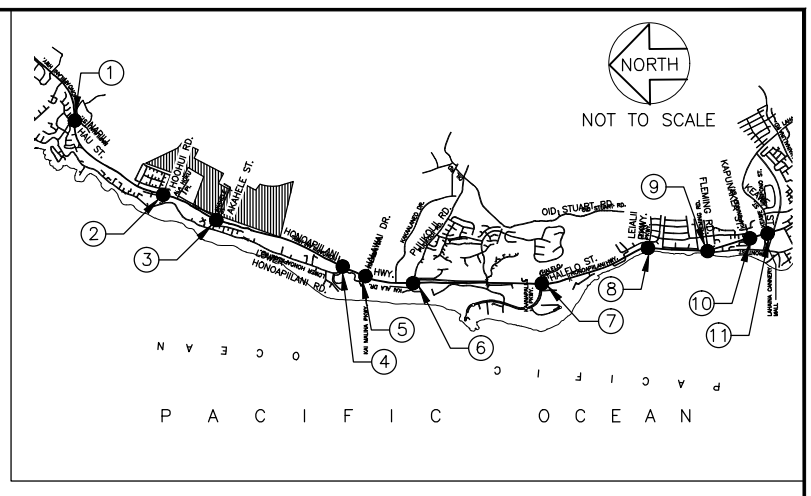
LEGEND

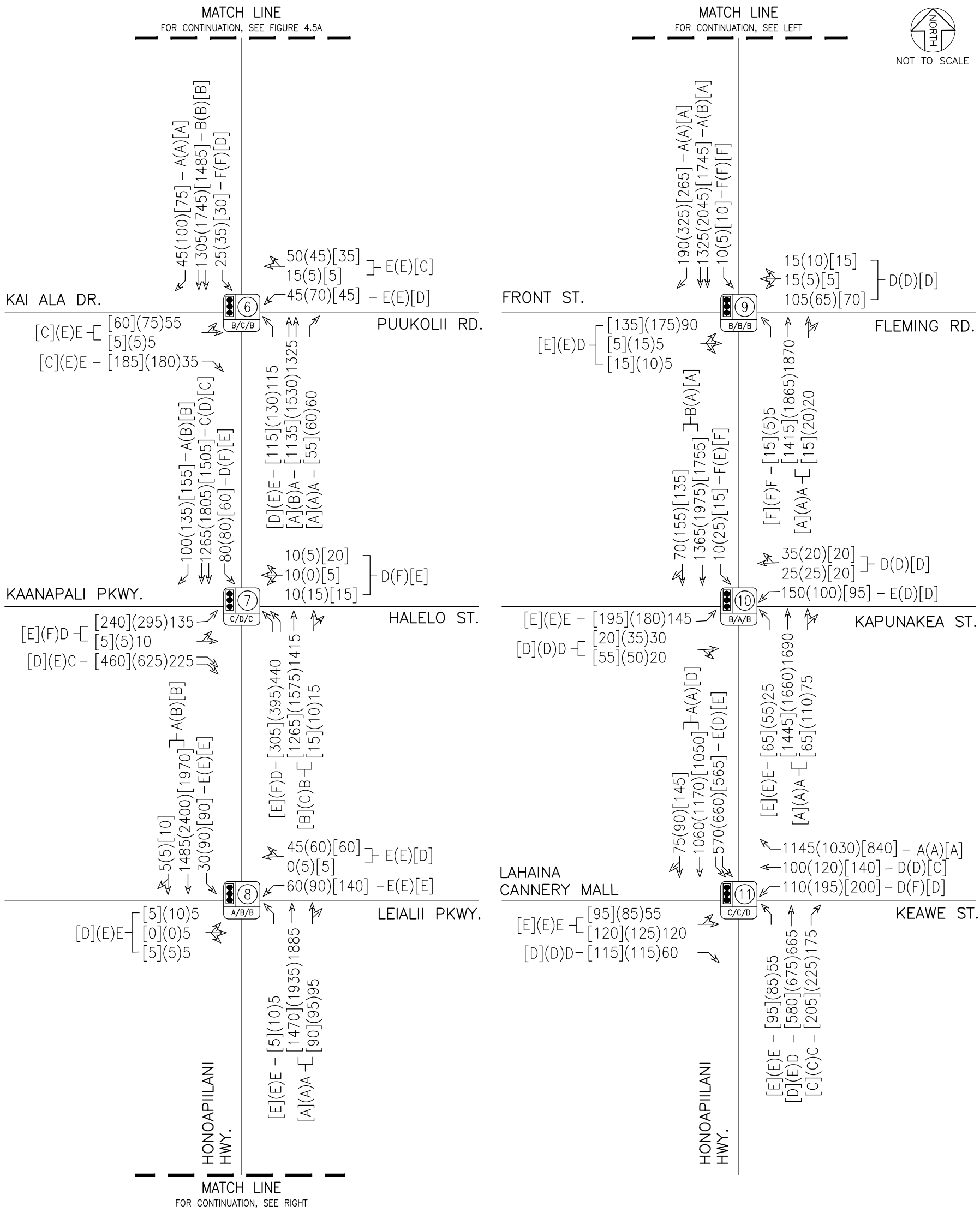
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.





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	BASE YEAR 2030 LANE CONFIGURATION, VOLUMES AND LOS	4.5B

Table 4.5: Base Year 2025 and Base Year 2030 Level of Service Summary

	Base Year 2025									Base Year 2030								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																		
NB LT	18.6	0.75	B	20.1	0.83	C	19.9	0.78	B	18.6	0.75	B	20.3	0.84	C	20.0	0.78	B
NB TH	8.0	0.33	A	5.7	0.23	A	7.4	0.38	A	8.0	0.34	A	5.7	0.24	A	7.4	0.38	A
NB RT	6.7	0.08	A	4.9	0.05	A	5.7	0.03	A	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A
EB LT/TH	15.3	0.26	B	21.3	0.30	C	18.8	0.29	B	15.3	0.26	B	21.6	0.30	C	19.0	0.29	B
EB RT	14.9	0.18	B	20.3	0.13	C	18.1	0.18	B	14.9	0.18	B	20.5	0.13	C	18.2	0.17	B
WB LT	17.6	0.29	B	23.9	0.29	C	20.6	0.19	C	17.6	0.29	B	24.1	0.29	C	20.8	0.20	C
WB TH/RT	14.9	0.20	B	20.2	0.13	C	18.6	0.28	B	14.9	0.20	B	20.4	0.13	C	18.7	0.28	B
SB LT	66.2	0.72	E	103.9	0.70	F	56.6	0.77	E	66.2	0.72	E	104.1	0.70	F	56.8	0.77	E
SB TH	12.9	0.32	B	18.4	0.61	B	15.7	0.58	B	12.9	0.32	B	18.4	0.62	B	15.7	0.59	B
SB RT	11.2	0.02	B	13.4	0.05	B	11.6	0.06	B	11.2	0.02	B	13.4	0.05	B	11.5	0.06	B
Overall	14.1	-	B	16.9	-	B	15.5	-	B	14.1	-	B	17.0	-	B	15.5	-	B
2: Honoapiilani Highway & Hoohui Road																		
NB LT	9.9	0.37	A	9.7	0.50	A	8.5	0.35	A	10.1	0.38	B	9.9	0.51	A	8.5	0.35	A
NB TH	11.0	0.66	B	9.4	0.68	A	9.0	0.59	A	11.1	0.67	B	9.5	0.69	A	9.0	0.60	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	17.6	0.17	B	20.6	0.32	C	17.1	0.24	B	18.0	0.18	B	21.0	0.32	C	17.3	0.24	B
EB RT	16.6	0.07	B	19.0	0.06	B	16.2	0.09	B	16.9	0.06	B	19.4	0.06	B	16.4	0.09	B
WB LT	20.3	0.28	C	22.8	0.21	C	18.5	0.15	B	20.7	0.29	C	23.2	0.21	C	18.8	0.15	B
WB TH/RT	16.6	0.07	B	19.0	0.07	B	16.1	0.06	B	16.9	0.07	B	19.4	0.07	B	16.3	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A
SB TH	15.2	0.78	B	13.5	0.78	B	12.6	0.74	B	15.3	0.78	B	13.6	0.79	B	12.6	0.75	B
SB RT	9.5	0.05	A	8.0	0.07	A	7.9	0.04	A	9.4	0.05	A	7.9	0.06	A	7.9	0.04	A
Overall	13.4	-	B	12.0	-	B	11.3	-	B	13.5	-	B	12.1	-	B	11.3	-	B
3: Honoapiilani Highway & Akahele Street																		
NB LT	43.5	0.77	D	44.4	0.82	D	37.8	0.75	D	44.1	0.77	D	45.4	0.82	D	38.3	0.76	D
NB TH	10.7	0.67	B	13.6	0.77	B	9.9	0.61	A	10.7	0.67	B	14.1	0.78	B	9.9	0.62	A
NB RT	6.3	0.01	A	5.7	0.01	A	6.2	0.01	A	6.2	0.01	A	5.6	0.01	A	6.1	0.01	A
EB LT	45.5	0.72	D	55.9	0.77	E	44.8	0.72	D	46.6	0.73	D	56.8	0.77	E	45.7	0.72	D
EB TH/RT	25.0	0.07	C	34.7	0.05	C	25.2	0.06	C	25.6	0.07	C	35.5	0.05	D	25.8	0.05	C
WB LT	70.4	0.53	E	67.7	0.58	E	52.9	0.56	D	71.1	0.53	E	68.9	0.58	E	53.6	0.56	D
WB TH	26.4	0.03	C	37.1	0.03	D	26.3	0.03	C	27.0	0.03	C	38.1	0.03	D	26.9	0.03	C
WB RT	26.3	0.01	C	37.0	0.01	D	26.2	0.01	C	26.9	0.01	C	38.0	0.01	D	26.8	0.01	C
SB LT	112.6	0.70	F	128.0	0.72	F	112.0	0.70	F	113.4	0.70	F	129.3	0.72	F	112.8	0.70	F
SB TH	15.4	0.84	B	24.4	0.89	C	15.8	0.84	B	15.5	0.85	B	25.2	0.89	C	15.9	0.84	B
SB RT	7.6	0.02	A	10.5	0.05	B	8.2	0.04	A	7.5	0.02	A	10.4	0.05	B	8.1	0.04	A
Overall	15.7	-	B	22.5	-	C	16.0	-	B	15.8	-	B	23.1	-	C	16.0	-	B

Table 4.5: Base Year 2025 and Base Year 2030 Level of Service Summary Cont'd

	Base Year 2025									Base Year 2030								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
4: Honoapiilani Highway & Lower Honoapiilani Road																		
NB LT	23.4	0.84	C	35.0	0.94	C	22.5	0.88	C	23.8	0.85	C	36.3	0.94	D	23.0	0.88	C
NB TH/RT	4.6	0.34	A	4.4	0.37	A	2.4	0.25	A	4.6	0.35	A	4.4	0.37	A	2.4	0.26	A
EB LT/TH	26.4	0.20	C	45.3	0.39	D	28.9	0.32	C	26.8	0.20	C	46.4	0.40	D	29.6	0.32	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	25.8	0.11	C	46.4	0.50	D	27.0	0.05	C	26.2	0.11	C	47.4	0.50	D	27.7	0.05	C
SB LT	52.2	0.74	D	91.6	0.72	F	0.0	0.00	A	52.7	0.74	D	92.9	0.72	F	0.0	0.00	A
SB TH	13.4	0.59	B	29.8	0.72	C	15.5	0.59	B	13.5	0.59	B	30.3	0.72	C	15.6	0.60	B
SB RT	9.4	0.00	A	21.0	0.01	C	11.3	0.03	B	9.4	0.00	A	21.2	0.01	C	11.3	0.03	B
Overall	12.4	-	B	23.2	-	C	13.1	-	B	12.4	-	B	23.6	-	C	13.3	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																		
NB LT	33.4	0.79	C	45.2	0.81	D	37.3	0.78	D	34.2	0.79	C	46.2	0.82	D	38.3	0.79	D
NB TH/RT	4.1	0.47	A	7.3	0.62	A	4.9	0.43	A	4.1	0.47	A	7.5	0.63	A	4.9	0.44	A
EB LT/TH	32.1	0.17	C	38.1	0.23	D	32.4	0.26	C	33.0	0.17	C	38.9	0.23	D	33.5	0.27	C
EB RT	31.9	0.01	C	37.2	0.03	D	31.7	0.04	C	32.7	0.01	C	38.1	0.03	D	32.6	0.04	C
WB LT/TH/RT	32.5	0.11	C	39.2	0.08	D	31.8	0.11	C	33.3	0.11	C	40.1	0.08	D	32.8	0.11	C
SB LT	55.4	0.78	E	74.2	0.78	E	62.4	0.75	E	56.6	0.79	E	75.5	0.78	E	63.8	0.76	E
SB TH	7.8	0.63	A	12.7	0.74	B	9.1	0.65	A	7.9	0.63	A	13.1	0.75	B	9.2	0.66	A
SB RT	4.4	0.05	A	6.3	0.04	A	5.1	0.04	A	4.4	0.05	A	6.2	0.04	A	5.0	0.04	A
Overall	8.1	-	A	12.2	-	B	9.5	-	A	8.2	-	A	12.5	-	B	9.6	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																		
NB LT	75.2	0.85	E	77.9	0.87	E	41.2	0.79	D	75.2	0.85	E	77.8	0.87	E	41.8	0.79	D
NB TH	6.7	0.51	A	10.1	0.61	B	8.3	0.52	A	6.7	0.52	A	10.4	0.62	B	8.3	0.53	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A	3.9	0.04	A	5.3	0.04	A	5.3	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	33.0	0.23	C	68.0	0.37	E	67.2	0.37	E	33.6	0.24	C
EB RT	62.8	0.01	E	63.8	0.14	E	31.7	0.05	C	62.8	0.01	E	63.8	0.14	E	32.2	0.05	C
WB LT	74.9	0.42	E	78.4	0.54	E	36.5	0.22	D	74.9	0.42	E	78.4	0.54	E	37.1	0.23	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	31.5	0.03	C	63.5	0.09	E	62.6	0.03	E	32.0	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	44.2	0.58	D	82.8	0.68	F	89.0	0.77	F	44.8	0.59	D
SB TH	10.8	0.54	B	19.2	0.76	B	14.3	0.75	B	11.0	0.55	B	19.8	0.78	B	14.6	0.76	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A
Overall	14.4	-	B	20.4	-	C	14.0	-	B	14.4	-	B	20.7	-	C	14.2	-	B

Table 4.5: Base Year 2025 and Base Year 2030 Level of Service Summary Cont'd

	Base Year 2025									Base Year 2030								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																		
NB LT	43.3	0.77	D	98.1	0.86	F	56.6	0.74	E	44.5	0.77	D	100.0	0.87	F	58.5	0.75	E
NB TH/RT	16.3	0.70	B	23.6	0.68	C	14.5	0.59	B	16.4	0.71	B	23.8	0.69	C	14.5	0.59	B
EB LT/TH	47.3	0.47	D	93.6	0.62	F	55.1	0.58	E	48.6	0.48	D	96.0	0.63	F	57.1	0.59	E
EB RT	30.2	0.08	C	69.4	0.53	E	41.4	0.37	D	31.1	0.08	C	71.3	0.54	E	42.9	0.37	D
WB LT/TH/RT	47.8	0.18	D	107.6	0.24	F	62.6	0.34	E	49.1	0.18	D	109.7	0.24	F	64.7	0.35	E
SB LT	49.4	0.58	D	126.7	0.75	F	61.7	0.55	E	50.8	0.59	D	131.3	0.76	F	63.7	0.56	E
SB TH	22.8	0.76	C	45.9	0.90	D	22.7	0.78	C	23.0	0.76	C	47.5	0.92	D	23.0	0.79	C
SB RT	9.9	0.09	A	20.0	0.11	C	13.1	0.14	B	9.9	0.09	A	19.9	0.12	B	13.0	0.14	B
Overall	24.4	-	C	49.2	-	D	26.8	-	C	24.7	-	C	50.3	-	D	27.2	-	C
8: Honoapiilani Highway & Leialii Parkway																		
NB LT	75.1	0.44	E	69.3	0.49	E	72.0	0.44	E	74.9	0.44	E	69.1	0.49	E	71.9	0.44	E
NB TH/RT	9.4	0.73	A	2.6	0.79	A	3.3	0.64	A	9.6	0.75	A	2.7	0.80	A	3.4	0.66	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E
SB TH/RT	5.5	0.53	A	15.3	0.87	B	11.7	0.75	B	5.6	0.54	A	16.8	0.88	B	12.3	0.76	B
Overall	9.5	-	A	11.9	-	B	11.7	-	B	9.6	-	A	12.7	-	B	12.0	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																		
NB LT	88.9	0.73	F	93.9	0.74	F	85.6	0.84	F	88.1	0.73	F	93.1	0.74	F	85.1	0.84	F
NB TH/RT	8.2	0.70	A	2.1	0.74	A	7.0	0.54	A	8.5	0.72	A	2.2	0.76	A	7.1	0.55	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D
SB LT	87.2	0.80	F	83.6	0.74	F	85.3	0.82	F	87.0	0.80	F	81.7	0.74	F	84.7	0.82	F
SB TH	5.1	0.50	A	12.4	0.82	B	8.2	0.68	A	5.2	0.52	A	12.8	0.84	B	8.4	0.70	A
SB RT	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A	3.2	0.12	A	5.5	0.24	A	4.3	0.18	A
Overall	10.1	-	B	10.6	-	B	11.2	-	B	10.2	-	B	10.8	-	B	11.3	-	B
10: Honoapiilani Highway & Kapunakea Street																		
NB LT	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E
NB TH/RT	0.3	0.70	A	0.3	0.73	A	1.5	0.62	A	0.3	0.71	A	0.4	0.74	A	1.5	0.64	A
EB LT	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E
EB TH/RT	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D
WB LT	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D
SB LT	100.7	0.83	F	71.3	0.80	E	83.9	0.84	F	100.4	0.83	F	70.8	0.80	E	83.4	0.84	F
SB TH/RT	10.7	0.58	B	5.3	0.90	A	8.2	0.82	A	10.8	0.59	B	5.8	0.92	A	8.6	0.84	A
Overall	11.0	-	B	8.9	-	A	11.0	-	B	10.9	-	B	9.1	-	A	11.2	-	B

Table 4.5: Base Year 2025 and Base Year 2030 Level of Service Summary Cont'd

	Base Year 2025									Base Year 2030								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																		
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E
NB TH	36.4	0.79	D	52.9	0.91	D	44.4	0.83	D	37.8	0.81	D	58.6	0.95	E	46.7	0.86	D
NB RT	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D
WB LT	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D
WB TH	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	59.1	0.94	E	45.5	0.95	D	57.6	0.88	E	59.0	0.94	E	44.4	0.95	D	57.4	0.88	E
SB TH/RT	1.4	0.53	A	0.8	0.65	A	34.7	0.67	C	1.4	0.55	A	0.8	0.67	A	35.2	0.69	D
Overall	30.0	-	C	33.3	-	C	44.2	-	D	30.0	-	C	34.0	-	C	44.7	-	D

4.7 Base Year 2035 Analysis

It is anticipated that by Base Year 2035, traffic will have increased over Base Year 2030 conditions due to the continued development of the Lahaina and Kaanapali regions. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

4.7.1 Base Year 2035 Intersection Analysis

By Base Year 2035 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to generally increase by an additional 2% along the corridor during the AM, PM and WE peak hours of traffic over Base Year 2030 conditions. The majority of study intersections are forecast to operate similar to Base Year 2030. Overall intersection delays are anticipated to increase by only 1-5 seconds at the study intersections from Base Year 2030 conditions. Intersection movements are expected to continue operating with LOS similar to Base Year 2030 in Base Year 2035.

As noted in Section 4.6.1, the northbound approach of Honoapiilani Highway is forecast to operate at LOS E conditions at the Honoapiilani Highway/Keawe Street intersection during the PM peak hour of traffic. No mitigation is proposed at this intersection; however, it should be noted that the intersection is anticipated to experience significant reductions in traffic upon completion of the LBR Phase 1C which will extend the bypass road to Kaanapali. At the time of this report, allocation of State funds for construction of Phase 1C is currently under discussion.

Figure 4.6 illustrates the Base Year 2035 forecast traffic volumes and LOS for the study intersection movements. Table 4.6 summarizes the Base Year 2035 LOS at the study intersections compared to Base Year 2030 conditions. LOS worksheets are provided in Appendix C. Full Base Year 2022, 2025, 2030 and 2035 roadway improvements are listed in Appendix D.

LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
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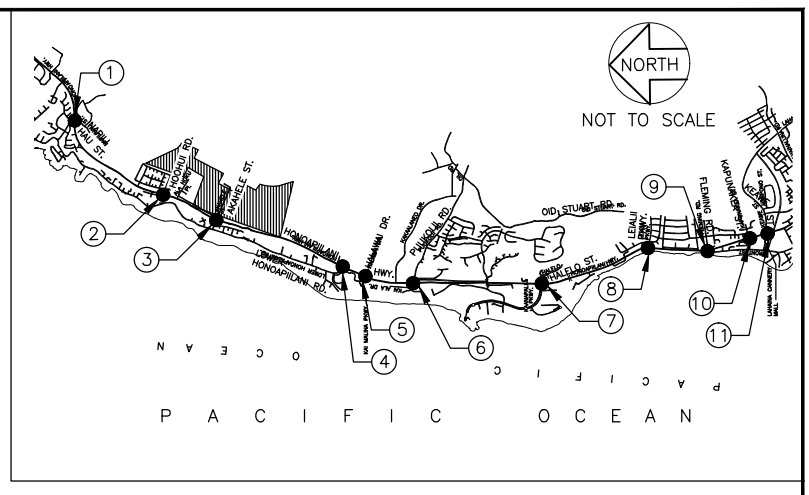

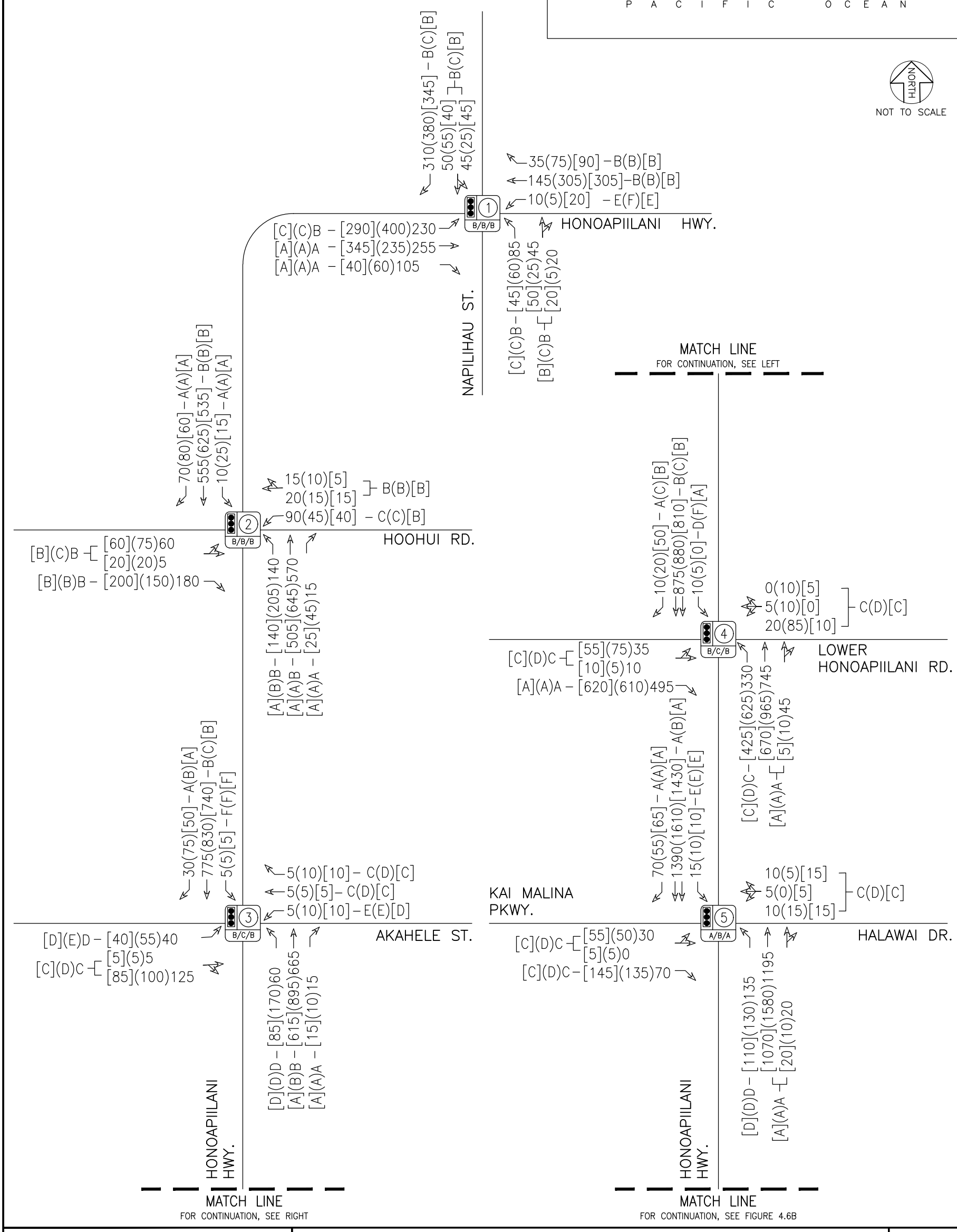

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BASE YEAR 2035 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 4.6A

LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

NOTE:
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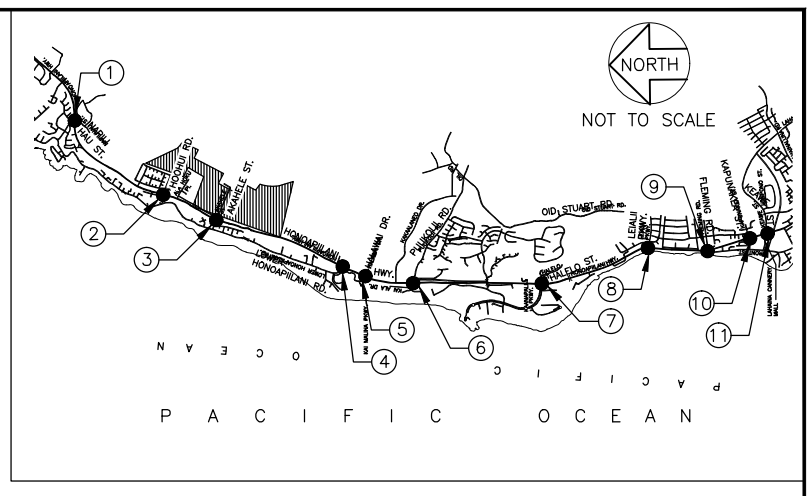

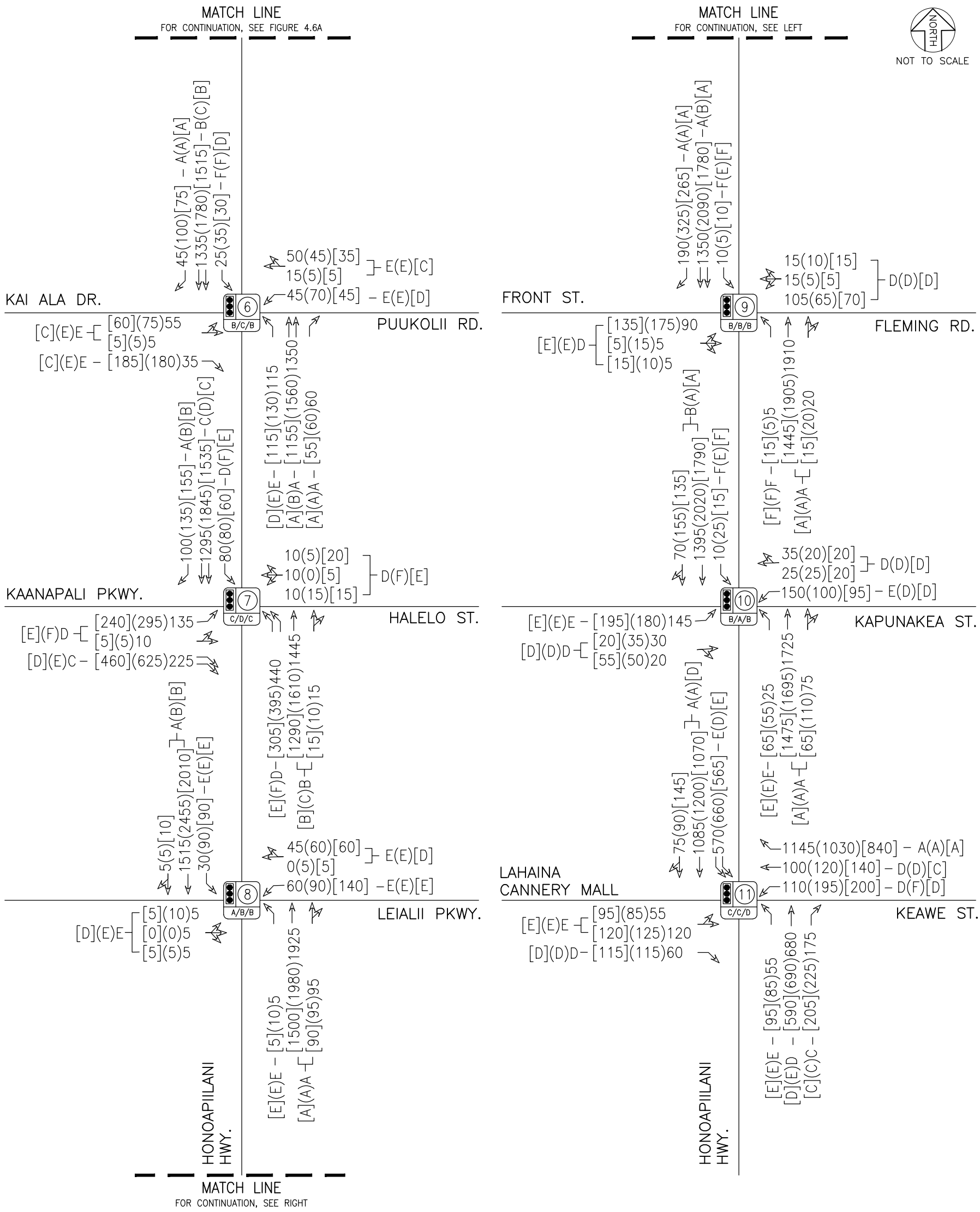

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	BASE YEAR 2035 LANE CONFIGURATION, VOLUMES AND LOS	4.6B

Table 4.6: Base Year 2030 and Base Year 2035 Level of Service Summary

	Base Year 2030									Base Year 2035								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																		
NB LT	18.6	0.75	B	20.3	0.84	C	20.0	0.78	B	18.6	0.75	B	20.6	0.84	C	20.2	0.79	C
NB TH	8.0	0.34	A	5.7	0.24	A	7.4	0.38	A	8.1	0.34	A	5.7	0.24	A	7.4	0.39	A
NB RT	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A
EB LT/TH	15.3	0.26	B	21.6	0.30	C	19.0	0.29	B	15.3	0.26	B	22.0	0.30	C	19.1	0.30	B
EB RT	14.9	0.18	B	20.5	0.13	C	18.2	0.17	B	14.8	0.17	B	20.8	0.14	C	18.4	0.17	B
WB LT	17.6	0.29	B	24.1	0.29	C	20.8	0.20	C	17.6	0.29	B	24.6	0.30	C	21.0	0.20	C
WB TH/RT	14.9	0.20	B	20.4	0.13	C	18.7	0.28	B	14.9	0.20	B	20.8	0.14	C	18.9	0.28	B
SB LT	66.2	0.72	E	104.1	0.70	F	56.8	0.77	E	66.2	0.72	E	104.6	0.70	F	57.1	0.77	E
SB TH	12.9	0.32	B	18.4	0.62	B	15.7	0.59	B	13.0	0.33	B	18.5	0.62	B	15.7	0.59	B
SB RT	11.2	0.02	B	13.4	0.05	B	11.5	0.06	B	11.2	0.02	B	13.4	0.05	B	11.5	0.06	B
Overall	14.1	-	B	17.0	-	B	15.5	-	B	14.0	-	B	17.1	-	B	15.5	-	B
2: Honoapiilani Highway & Hoohui Road																		
NB LT	10.1	0.38	B	9.9	0.51	A	8.5	0.35	A	10.2	0.38	B	10.2	0.52	B	8.6	0.35	A
NB TH	11.1	0.67	B	9.5	0.69	A	9.0	0.60	A	11.1	0.68	B	9.6	0.69	A	9.1	0.61	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	18.0	0.18	B	21.0	0.32	C	17.3	0.24	B	18.2	0.18	B	21.4	0.32	C	17.5	0.24	B
EB RT	16.9	0.06	B	19.4	0.06	B	16.4	0.09	B	17.2	0.06	B	19.7	0.06	B	16.6	0.08	B
WB LT	20.7	0.29	C	23.2	0.21	C	18.8	0.15	B	21.0	0.29	C	23.6	0.21	C	19.0	0.15	B
WB TH/RT	16.9	0.07	B	19.4	0.07	B	16.3	0.06	B	17.2	0.07	B	19.7	0.07	B	16.5	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	9.8	0.03	A	8.2	0.07	A	7.9	0.04	A
SB TH	15.3	0.78	B	13.6	0.79	B	12.6	0.75	B	15.4	0.79	B	13.7	0.80	B	12.7	0.75	B
SB RT	9.4	0.05	A	7.9	0.06	A	7.9	0.04	A	9.4	0.05	A	7.9	0.07	A	7.8	0.04	A
Overall	13.5	-	B	12.1	-	B	11.3	-	B	13.6	-	B	12.3	-	B	11.3	-	B
3: Honoapiilani Highway & Akahele Street																		
NB LT	44.1	0.77	D	45.4	0.82	D	38.3	0.76	D	44.6	0.77	D	46.7	0.82	D	39.0	0.76	D
NB TH	10.7	0.67	B	14.1	0.78	B	9.9	0.62	A	10.6	0.68	B	14.5	0.79	B	9.9	0.62	A
NB RT	6.2	0.01	A	5.6	0.01	A	6.1	0.01	A	6.1	0.01	A	5.5	0.01	A	6.0	0.01	A
EB LT	46.6	0.73	D	56.8	0.77	E	45.7	0.72	D	47.6	0.73	D	58.0	0.77	E	46.8	0.73	D
EB TH/RT	25.6	0.07	C	35.5	0.05	D	25.8	0.05	C	26.2	0.07	C	36.8	0.05	D	26.4	0.06	C
WB LT	71.1	0.53	E	68.9	0.58	E	53.6	0.56	D	71.8	0.53	E	70.5	0.58	E	54.4	0.56	D
WB TH	27.0	0.03	C	38.1	0.03	D	26.9	0.03	C	27.6	0.03	C	39.4	0.03	D	27.6	0.03	C
WB RT	26.9	0.01	C	38.0	0.01	D	26.8	0.01	C	27.5	0.01	C	39.3	0.01	D	27.4	0.01	C
SB LT	113.4	0.70	F	129.3	0.72	F	112.8	0.70	F	114.2	0.71	F	131.0	0.72	F	113.6	0.70	F
SB TH	15.5	0.85	B	25.2	0.89	C	15.9	0.84	B	15.5	0.85	B	26.5	0.90	C	16.0	0.85	B
SB RT	7.5	0.02	A	10.4	0.05	B	8.1	0.04	A	7.4	0.02	A	10.3	0.05	B	8.1	0.04	A
Overall	15.8	-	B	23.1	-	C	16.0	-	B	15.8	-	B	23.9	-	C	16.1	-	B

Table 4.6: Base Year 2030 and Base Year 2035 Level of Service Summary Cont'd

	Base Year 2030									Base Year 2035								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
4: Honoapiilani Highway & Lower Honoapiilani Road																		
NB LT	23.8	0.85	C	36.3	0.94	D	23.0	0.88	C	24.3	0.85	C	38.0	0.95	D	23.5	0.88	C
NB TH/RT	4.6	0.35	A	4.4	0.37	A	2.4	0.26	A	4.6	0.35	A	4.4	0.38	A	2.4	0.26	A
EB LT/TH	26.8	0.20	C	46.4	0.40	D	29.6	0.32	C	27.4	0.21	C	47.7	0.40	D	30.1	0.33	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	26.2	0.11	C	47.4	0.50	D	27.7	0.05	C	26.8	0.11	C	48.8	0.51	D	28.1	0.05	C
SB LT	52.7	0.74	D	92.9	0.72	F	0.0	0.00	A	53.5	0.74	D	94.5	0.72	F	0.0	0.00	A
SB TH	13.5	0.59	B	30.3	0.72	C	15.6	0.60	B	13.6	0.60	B	30.9	0.73	C	15.7	0.60	B
SB RT	9.4	0.00	A	21.2	0.01	C	11.3	0.03	B	9.4	0.00	A	21.4	0.01	C	11.3	0.03	B
Overall	12.4	-	B	23.6	-	C	13.3	-	B	12.5	-	B	24.2	-	C	13.4	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																		
NB LT	34.2	0.79	C	46.2	0.82	D	38.3	0.79	D	35.1	0.80	D	47.1	0.82	D	39.1	0.79	D
NB TH/RT	4.1	0.47	A	7.5	0.63	A	4.9	0.44	A	4.1	0.48	A	7.7	0.64	A	4.8	0.45	A
EB LT/TH	33.0	0.17	C	38.9	0.23	D	33.5	0.27	C	33.9	0.18	C	39.8	0.23	D	34.3	0.27	C
EB RT	32.7	0.01	C	38.1	0.03	D	32.6	0.04	C	33.6	0.01	C	38.9	0.03	D	33.4	0.04	C
WB LT/TH/RT	33.3	0.11	C	40.1	0.08	D	32.8	0.11	C	34.2	0.11	C	41.0	0.09	D	33.7	0.12	C
SB LT	56.6	0.79	E	75.5	0.78	E	63.8	0.76	E	57.9	0.79	E	76.8	0.78	E	64.9	0.76	E
SB TH	7.9	0.63	A	13.1	0.75	B	9.2	0.66	A	7.9	0.64	A	13.4	0.76	B	9.3	0.67	A
SB RT	4.4	0.05	A	6.2	0.04	A	5.0	0.04	A	4.4	0.05	A	6.2	0.04	A	5.0	0.04	A
Overall	8.2	-	A	12.5	-	B	9.6	-	A	8.2	-	A	12.7	-	B	9.6	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																		
NB LT	75.2	0.85	E	77.8	0.87	E	41.8	0.79	D	75.1	0.85	E	77.7	0.87	E	42.2	0.79	D
NB TH	6.7	0.52	A	10.4	0.62	B	8.3	0.53	A	6.8	0.53	A	10.6	0.64	B	8.3	0.54	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.3	0.04	A	3.9	0.04	A	5.3	0.04	A	5.3	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	33.6	0.24	C	68.0	0.37	E	67.2	0.37	E	34.1	0.24	C
EB RT	62.8	0.01	E	63.8	0.14	E	32.2	0.05	C	62.8	0.01	E	63.8	0.14	E	32.7	0.05	C
WB LT	74.9	0.42	E	78.4	0.54	E	37.1	0.23	D	74.9	0.42	E	78.4	0.54	E	37.7	0.23	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	32.0	0.03	C	63.5	0.09	E	62.6	0.03	E	32.5	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	44.8	0.59	D	82.8	0.68	F	89.0	0.77	F	45.3	0.59	D
SB TH	11.0	0.55	B	19.8	0.78	B	14.6	0.76	B	11.2	0.57	B	20.5	0.79	C	14.9	0.77	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A	6.2	0.03	A	8.7	0.08	A	7.2	0.05	A
Overall	14.4	-	B	20.7	-	C	14.2	-	B	14.4	-	B	21.0	-	C	14.3	-	B

Table 4.6: Base Year 2030 and Base Year 2035 Level of Service Summary Cont'd

	Base Year 2030									Base Year 2035								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																		
NB LT	44.5	0.77	D	100.0	0.87	F	58.5	0.75	E	46.0	0.78	D	102.1	0.87	F	60.6	0.75	E
NB TH/RT	16.4	0.71	B	23.8	0.69	C	14.5	0.59	B	16.5	0.71	B	24.0	0.70	C	14.6	0.60	B
EB LT/TH	48.6	0.48	D	96.0	0.63	F	57.1	0.59	E	50.4	0.48	D	98.4	0.64	F	59.2	0.60	E
EB RT	31.1	0.08	C	71.3	0.54	E	42.9	0.37	D	32.3	0.08	C	73.1	0.54	E	44.6	0.38	D
WB LT/TH/RT	49.1	0.18	D	109.7	0.24	F	64.7	0.35	E	50.8	0.18	D	111.6	0.24	F	67.0	0.36	E
SB LT	50.8	0.59	D	131.3	0.76	F	63.7	0.56	E	52.5	0.59	D	135.9	0.78	F	66.0	0.57	E
SB TH	23.0	0.76	C	47.5	0.92	D	23.0	0.79	C	23.2	0.77	C	49.7	0.93	D	23.3	0.79	C
SB RT	9.9	0.09	A	19.9	0.12	B	13.0	0.14	B	9.9	0.09	A	19.8	0.11	B	13.0	0.14	B
Overall	24.7	-	C	50.3	-	D	27.2	-	C	25.1	-	C	51.6	-	D	27.7	-	C
8: Honoapiilani Highway & Leialii Parkway																		
NB LT	74.9	0.44	E	69.1	0.49	E	71.9	0.44	E	74.7	0.44	E	68.9	0.49	E	71.7	0.44	E
NB TH/RT	9.6	0.75	A	2.7	0.80	A	3.4	0.66	A	9.9	0.76	A	2.8	0.82	A	3.5	0.67	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E
SB TH/RT	5.6	0.54	A	16.8	0.88	B	12.3	0.76	B	5.7	0.55	A	18.7	0.90	B	12.9	0.78	B
Overall	9.6	-	A	12.7	-	B	12.0	-	B	9.8	-	A	13.7	-	B	12.3	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																		
NB LT	88.1	0.73	F	93.1	0.74	F	85.1	0.84	F	87.3	0.73	F	92.2	0.74	F	84.9	0.84	F
NB TH/RT	8.5	0.72	A	2.2	0.76	A	7.1	0.55	A	8.8	0.73	A	2.3	0.77	A	7.3	0.57	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D
SB LT	87.0	0.80	F	81.7	0.74	F	84.7	0.82	F	86.7	0.80	F	79.7	0.74	E	83.7	0.82	F
SB TH	5.2	0.52	A	12.8	0.84	B	8.4	0.70	A	5.2	0.52	A	13.3	0.86	B	8.6	0.71	A
SB RT	3.2	0.12	A	5.5	0.24	A	4.3	0.18	A	3.2	0.12	A	5.5	0.24	A	4.3	0.18	A
Overall	10.2	-	B	10.8	-	B	11.3	-	B	10.3	-	B	11.0	-	B	11.3	-	B
10: Honoapiilani Highway & Kapunakea Street																		
NB LT	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E
NB TH/RT	0.3	0.71	A	0.4	0.74	A	1.5	0.64	A	0.3	0.73	A	0.4	0.76	A	1.5	0.65	A
EB LT	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E
EB TH/RT	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D
WB LT	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D
SB LT	100.4	0.83	F	70.8	0.80	E	83.4	0.84	F	100.1	0.83	F	70.3	0.80	E	82.9	0.84	F
SB TH/RT	10.8	0.59	B	5.8	0.92	A	8.6	0.84	A	11.0	0.60	B	6.8	0.94	A	9.1	0.85	A
Overall	10.9	-	B	9.1	-	A	11.2	-	B	10.9	-	B	9.7	-	A	11.4	-	B

Table 4.6: Base Year 2030 and Base Year 2035 Level of Service Summary Cont'd

	Base Year 2030									Base Year 2035								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																		
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E
NB TH	37.8	0.81	D	58.6	0.95	E	46.7	0.86	D	39.0	0.83	D	62.7	0.97	E	48.1	0.88	D
NB RT	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D
WB LT	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D
WB TH	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	59.0	0.94	E	44.4	0.95	D	57.4	0.88	E	58.8	0.94	E	43.4	0.95	D	57.2	0.88	E
SB TH/RT	1.4	0.55	A	0.8	0.67	A	35.2	0.69	D	1.5	0.56	A	0.7	0.68	A	35.4	0.70	D
Overall	30.0	-	C	34.0	-	C	44.7	-	D	30.0	-	C	34.4	-	C	44.9	-	D

5. FUTURE YEAR SCENARIOS

5.1 Background

The Project is located upon approximately 310 acres of undeveloped land in Lahaina, bounded by Honoapiilani Highway to the west and the Kapalua Airport to the east. The Project proposes to provide 100 single-family (SF) residential units with an additional 100 ohana units on each lot, 800 multi-family (MF) residential units, an elementary school, 10-acre park and three (3) retail centers, totaling 70,000 square feet. In addition, a new roadway will be constructed just east and parallel to Honoapiilani Highway that will provide vehicular, bike and pedestrian access to link the Project's development north and south of Mahinahina Gulch. The Project will be constructed in seven (7) phases, but for purposes of this TIAR, analyzed as four (4) scenarios.

Scenario 1 – Develop Phase 1 with a build-out of 2022 that includes the following:

- 240 MF residential units north of Akahele Street, with direct access provided by a new Project roadway, Road A, intersecting Akahele Street, and a new right-in, right-out (RIRO) access via Honoapiilani Highway.

Scenario 2 - Develop Phases 2A and 2B with a build-out of 2025 that include the following:

- 100 MF residential units (Phase 2A) south of Akahele Street with direct access provided by a new Project roadway, Road C, intersecting Akahele Street to the east of Road A.
- 250 MF residential units (Phase 2B) south of Akahele Street with direct access provided by Road A and Road C. 70 of the units will be located in live/work buildings.

Scenario 3 – Develop Phases 3-5 with a build-out of 2030 that include the following:

- 210 MF residential units (Phase 3) south of Mahinahina Gulch, with access provided by a new Project roadway, Road J, intersecting Honoapiilani Highway south of Mahinahina Gulch.
- 10-acre park (Phase 3) with two (2) practice fields south of Mahinahina Gulch, with access provided by Road J.
- North Central Neighborhood Retail (Phase 4) consisting of approximately 6,000 square feet of commercial space located north of Akahele Street near the Kapalua Airport, with access provided by Road C.
- South Core Retail (Phase 4) consisting of approximately 55,000 square feet of commercial space located on the southeast corner of the Honoapiilani Highway/Akahele Street intersection, with access provided by Road A.
- South Central Neighborhood Retail (Phase 4) consisting of approximately 9,000 square feet of commercial space located on the northeast corner of the proposed Honoapiilani Highway/Road J intersection, with access provided by Road J.
- 86 SF (Phase 5) residential lots north of Akahele Street, with access provided by Road C. An additional ohana unit may be constructed on each lot for a total of 172 SF residential units.
- 14 SF residential lots (Phase 5) south of Mahinahina Gulch, with access provided by Road J. An additional ohana unit may be constructed on each lot for a total of 28 SF residential units.

Scenario 4 – A future elementary school, to be planned/developed by the Department of Education (DOE). Since the development of the school is not in the direct controller of the Pulelehua development, the timeframe for this school has yet to be determined. For purposes of this TIAR, a forecast build-out of 2035 was assumed.

- 750-student elementary school, with access provided by Road A.

5.1.1 Travel Demand Estimations

The State of Hawaii Department of Transportation (HDOT) and Maui County provide various Transportation Demand Management (TDM) programs that promote the use of transit, walking, biking and alternative modes of transportation to reduce the use of single-occupant vehicles on roadways. These TDM measures have only been identified and conservatively assumed to yield no vehicular reductions for Project generated traffic.

Maui County currently provides a bus system that offers several routes that connect the major areas in Maui. The Lahaina Islander Route #20 provides regional connectivity between Lahaina and Kahului. The Lahaina Villager Route #23, Kaanapali Islander Route #25 and West Maui Islander Route #28 provide transportation within the towns of Lahaina, Kaanapali and Napili.

HDOT currently provides the Bike Plan Hawaii Master Plan, which identifies existing and proposed bicycle routes that could potentially be implemented in the future. In the vicinity of the Project, a signed shared roadway is currently provided along the 24.4 mile route along Honoapiilani Highway between Waiale Road in Wailuku and Fleming Beach Park in Kapalua. A signed shared roadway is also proposed along the 5.2 mile stretch of Lower Honoapiilani Highway from Lower Aloe Drive to Honoapiilani Highway.

5.1.2 Trip Generation

The Institute of Transportation Engineers (ITE) publishes a book based on empirical data compiled from a body of more than 4,250 trip generation studies submitted by public agencies, developers, consulting firms, and associations. This publication, titled Trip Generation Manual, 10th Edition, provides trip rates and/or formulae based on graphs that correlate vehicular trips with independent variables. The independent variables can range from Dwelling Units (DU) for single-family detached homes to Gross Floor Area (GFA) for commercial or office development. These trip rates/formulae and their associated directional distributions were used to estimate the increase in the number of vehicular trips generated by the proposed Project. The rates selected were based on the land use description.

The Project's mixture of residential and retail land uses interact to create vehicle trips that can be considered internal to the development. Calculation of internal trip capture rates was done using the ITE Trip Generation Handbook, 3rd Edition for retail and residential land uses and generally resulted in an approximate 16% internal capture reduction for the PM peak hour. A minimal 1% internal capture reduction was applied to AM peak hour and no reduction for WE peak hour. Pass-by trip reductions were also applied and based upon information within the ITE Trip Generation Handbook. As a conservative measure, a pass-by rate of 20% was applied to the retail component for the PM and WE peak hours of traffic. No pass-by reductions were applied to the AM peak hour. See Tables 5.1 and 5.2 for Trip Generation formulae and projections for the Project.

5.1.3 Trip Distribution and Assignment

Trips generated by the Project were assigned throughout the study area generally based upon existing travel patterns. The traffic generated by the Project was added to the forecast Base Year 2022, 2025, 2030 and 2035 traffic volumes within the vicinity of the Project to constitute the traffic volumes for Future Year traffic conditions. Figures 5.1, 5.3, 5.6 and 5.8 illustrate the Project-generated trip distribution for Future Year 2022, 2025, 2030 and 2035, respectively.

Table 5.1: Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour		WE Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter	Trip Rate	% Enter
Single-Family Detached Housing (210)	Dwelling Units (DU)	[a]	26%	[b]	64%	[c]	54%
Low-Rise Multifamily Housing (220)	Occupied Dwelling Units (DU)	[d]	21%	[e]	65%	[f]	54%
Mid-Rise Residential with 1st-Floor Commercial (231)	Occupied Dwelling Units (DU)	0.45	23%	0.37	71%	-	-
Shopping Center (820)	1,000 SQ FT	[g]	62%	[h]	48%	[i]	52%
Elementary School (520)	Students	0.67	54%	0.17	48%	0.00	0%
Soccer Complex (488)	Fields	0.99	61%	16.43	66%	[j]	48%

[a] T=0.71(X)+4.80

[b] LN(T)=0.96*LN(X)+0.20

[c] T=0.84(X)+17.99

[d] LN(T)=0.92*LN(X)-0.51

[e] LN(T)=0.98*LN(X)-0.52

[f] T=0.48(X)+15.60

[g] T=0.50(X)+151.78

[h] LN(T)=0.74*LN(X)+2.89

[i] LN(T)=0.79*LN(X)+2.79

[j] LN(T)=0.96*LN(X)+3.72

Table 5.2: Project-Generated Trips

	Land Use (ITE Code)	Variable	AM Peak Hour			PM Peak Hour			WE Peak Hour		
			Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Scenario 1 (2022)	Low-Rise Multifamily (220)	240 DU	17	68	85	79	46	125	65	55	120
	Subtotal		17	68	85	79	46	125	65	55	120
	Internal Capture (Residential)[1]		(1)	(7)	(8)	(16)	(6)	(22)	0	0	0
	Total NEW External Project Year 2022 Scenario 1 Trips		**16**	**61**	**77**	**63**	**40**	**103**	**65**	**55**	**120**
Scenario 2 (2025)	Low-Rise Multifamily (220)	280 DU	20	79	99	92	54	146	94	80	175
	Mid-Rise Residential with 1st-Floor Commercial (231)	70 DU[2]	7	24	32	18	8	26	0	0	0
	Subtotal		27	103	131	110	62	174	94	80	175
	Internal Capture (Residential)[1]		(3)	(10)	(13)	(21)	(9)	(30)	0	0	0
	Total NEW External Project Year 2025 Scenario 2 Trips		**24**	**93**	**118**	**89**	**53**	**144**	**94**	**80**	**175**
Scenario 3 (2030)	Single-Family Detached Housing (210)	200 DU	37	110	147	125	73	198	100	86	186
	Low-Rise Multifamily (220)	210 DU	15	60	74	69	40	109	57	48	105
	Shopping Center (820)	70,000 SQ FT	116	71	187	200	217	417	243	224	467
	Soccer Complex (488)	2 Fields	1	1	2	13	19	33	39	42	80
	Subtotal		169	242	410	407	349	757	439	400	838
	Internal Capture (Residential)[1]		(3)	(12)	(16)	(26)	(10)	(36)	0	0	0
	Internal Capture (Retail)[1]		(3)	(2)	(5)	(20)	(56)	(76)	0	0	0
	Pass-by (Retail)		0	0	0	(40)	(40)	(80)	(45)	(45)	(90)
	Total NEW External Project Year 2030 Scenario 3 Trips		**164**	**228**	**390**	**321**	**245**	**568**	**394**	**355**	**748**
Scenario 4 (2035)	Elementary School (520)	750 Students	271	231	503	61	66	128	0	0	0
	Subtotal		271	231	503	61	66	128	0	0	0
	Internal Capture (School)[1]		(27)	(5)	(32)	(6)	(7)	(13)	0	0	0
	Total NEW External Project Year 2035 Scenario 4 Trips		**244**	**226**	**471**	**55**	**59**	**115**	**0**	**0**	**0**
Total NEW External Project Scenario 1 to 4 Trips			**448**	**608**	**1056**	**528**	**397**	**928**	**553**	**490**	**1043**

Notes:
1. Internal capture trip volumes assume full build out of the Project. Trips are assumed to be external until future land uses are constructed.
2. Trip generation for live/work units determined using ITE Code 231 Mid-Rise Residential with 1st-Floor Commercial for AM and PM peak hours. Due to lack of WE peak hour data, ITE Code 220 Low-Rise Multifamily used to generate trips for live/work units for WE peak hour.

5.2 Future Year 2022 Scenario 1 Analysis

By completion of Scenario 1 in Future Year 2022, the Project is projected to generate a total of 77(103)[120] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. All generated traffic will access the site via Honoapiilani Highway at its intersections with Akahele Street and a new right-in, right-out (RIRO) access north of Akahele Street. Due to the relatively minimal traffic increases due to Scenario 1, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by less than 5%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by less than 10% from Base Year 2022 without the Project scenario, during the AM, PM and WE peak hours of traffic.

5.2.1 Future Year 2022 Scenario 1 Intersection Analysis

All study intersections are forecast to operate similar to Base Year 2022. The majority of intersection movements forecast to operate at LOS E/F for Base Year 2022 conditions will continue to operate similarly with Future Year 2022 Scenario 1 of the Project. The majority of high volume through movements only experienced delay increases ranging from 1-5 seconds. The main Project access intersections are discussed below.

[3] Honoapiilani Highway/Akahele Street

Since this intersection is the main access from Honoapiilani Highway into the Project's Scenario 1 site, turning movements into and out of Akahele Street will increase. As a result, the intersection will worsen from Base Year 2022, but will continue to operate adequately at overall LOS B(C)[B] for the Future Year 2022 Scenario 1. Various left-turn movements will continue to operate at LOS E/F conditions during all peak hours, mainly due to those left-turn volumes remaining relatively low. It is recommended that the existing signal timing be optimized to accommodate turning movement increases.

Based on A Policy on Geometric Design of Highways and Streets, by the American Association of State Highway and Transportation Officials, dated 2011 (hereinafter referred to as the "AASHTO Green Book"), left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection were determined. See Table 5.3 for the recommended storage lane lengths. Based on the AASHTO Green Book, all anticipated left-turn storage at the intersection is currently accommodated, and no extensions will be required upon completion of Scenario 1.

[12] Honoapiilani Highway/Project RIRO

The new RIRO access along Honoapiilani Highway, north of Akahele Street, was analyzed as a stop-controlled intersection with stop control on the westbound right-turn movement out of the Project. The westbound right-turn movement is expected to operate adequately with LOS C or better during all peak hours. It is recommended that a northbound right-turn deceleration lane be provided for entry into the Project at the RIRO. Based on the AASHTO Green Book, the following is recommended:

- Northbound right-turn lane → Provide at least 100 feet of storage space. Additional taper length and/or deceleration length to be provided based upon design and constraints related to access location to nearby Honoapiilani Highway/Akahele Street

intersection. Based on AASHTO Green Book, 425 feet accommodates full deceleration length with a design speed of 50 mph.

[14] Akahele Street/Road A

Akahele Street currently services very low existing traffic, with through volumes under 25 vehicles in each direction for all peak hours of traffic, resulting in lengthy gaps along Akahele Street. With the proposed Scenario 1, the northern approach of Road A will be constructed along Akahele Street to provide a new T-intersection. Forecast volumes at the Akahele Street/Road A intersection are anticipated to reach a maximum of 150 vehicles for all peak hours. The intersection is expected to operate adequately with minimal vehicular delays.

Figure 5.1 illustrates the Project-generated trips for Future Year 2022 Scenario 1. Figure 5.2 illustrates the Future Year 2022 Scenario 1 forecast traffic volumes and LOS for the study intersection movements. Figure 5.3 illustrates the Future Year 2022 Scenario 1 forecast traffic volumes, LOS and intersection laneage along Akahele Street. Table 5.4 summarizes the Future Year 2022 Scenario 1 LOS at the study intersections compared to Base Year 2022 with mitigation conditions. LOS worksheets are provided in Appendix C.

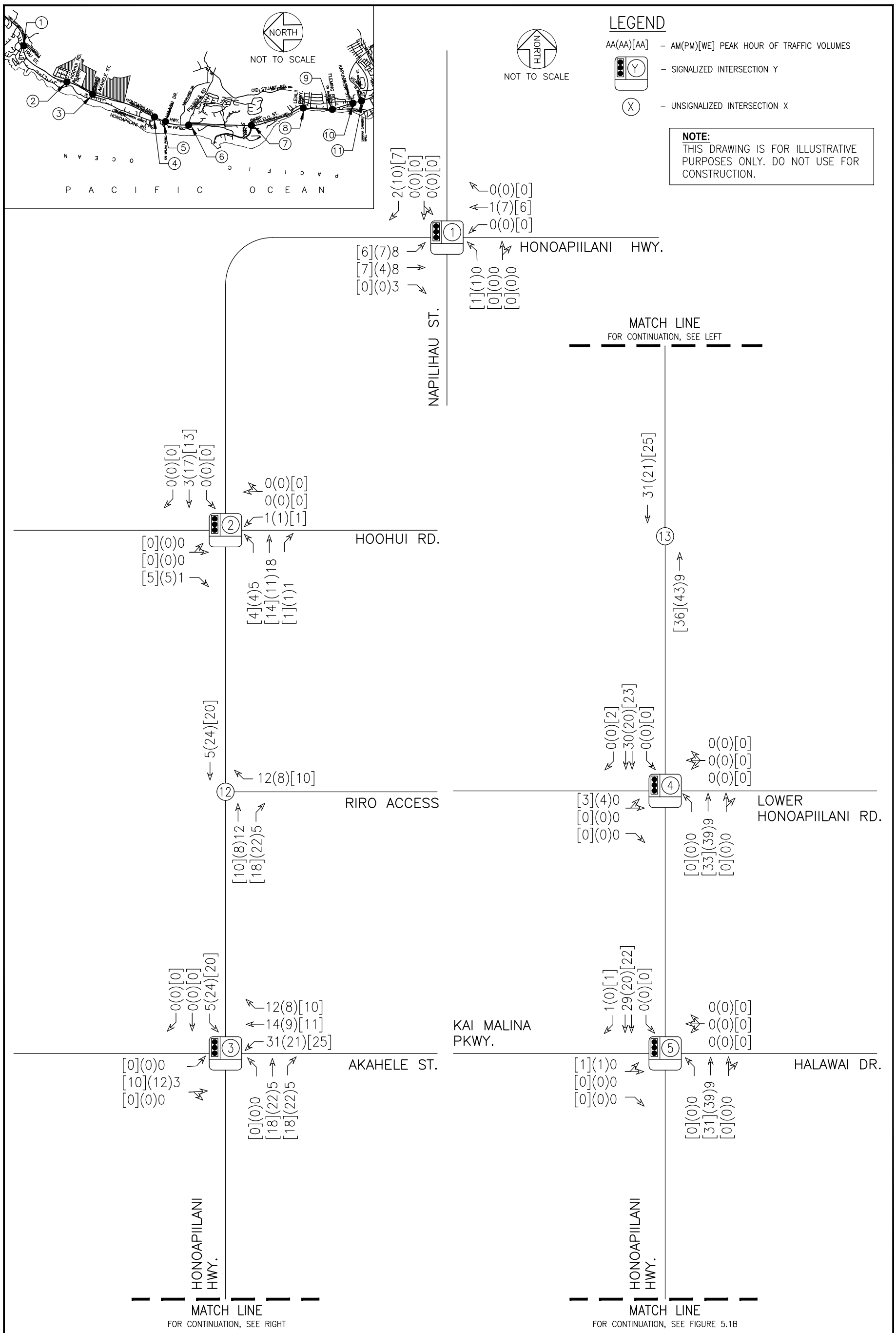

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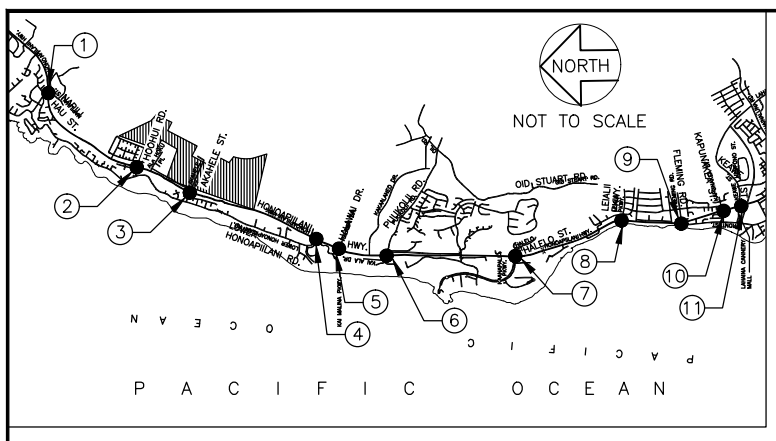
FIGURE 5.1A

YEAR 2022 SCENARIO 1 PROJECT-GENERATED TRAFFIC



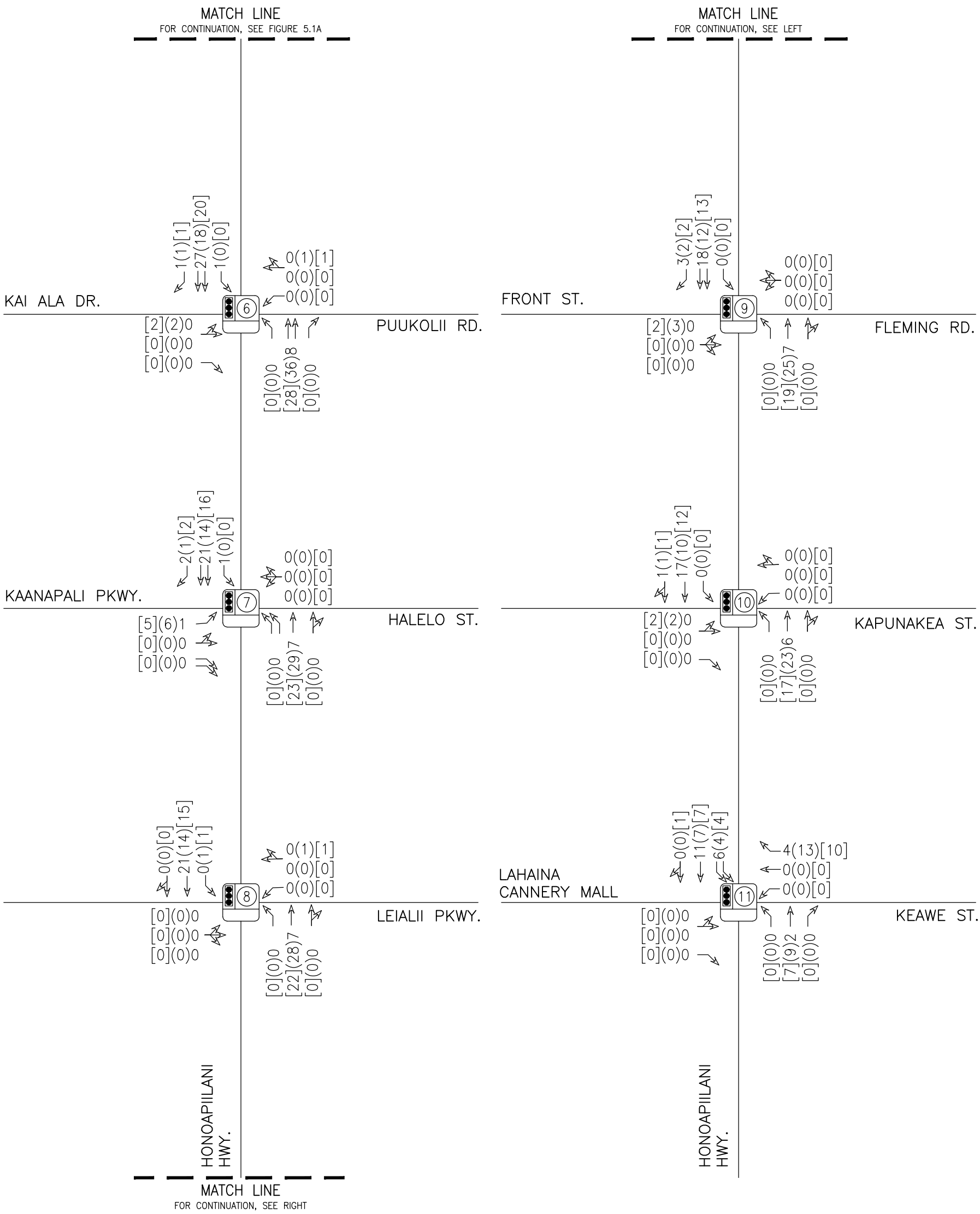
LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

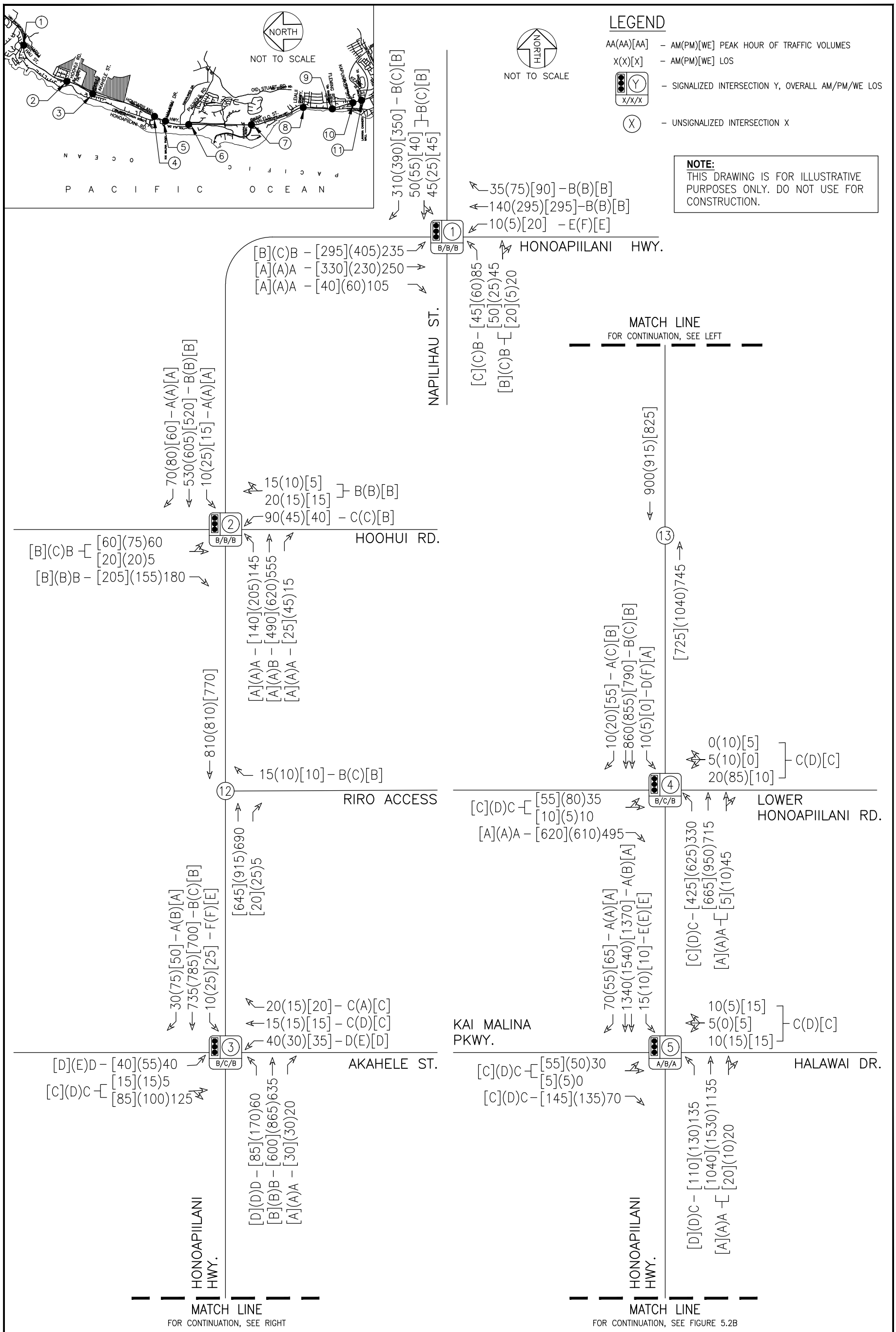
Y – SIGNALIZED INTERSECTION Y

X – UNSIGNALIZED INTERSECTION X

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.



PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS,SURVEYORS • HONOLULU,HAWAII	FIGURE
	YEAR 2022 SCENARIO 1 PROJECT-GENERATED TRAFFIC	5.1B



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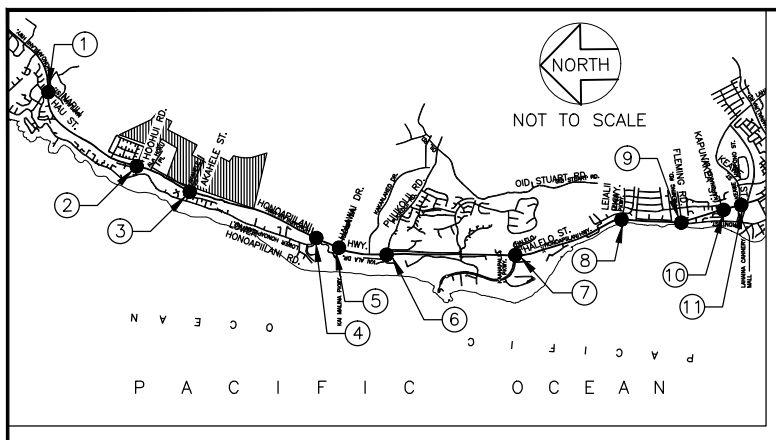
FUTURE YEAR 2022 SCENARIO 1 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 5.2A



LEGEND

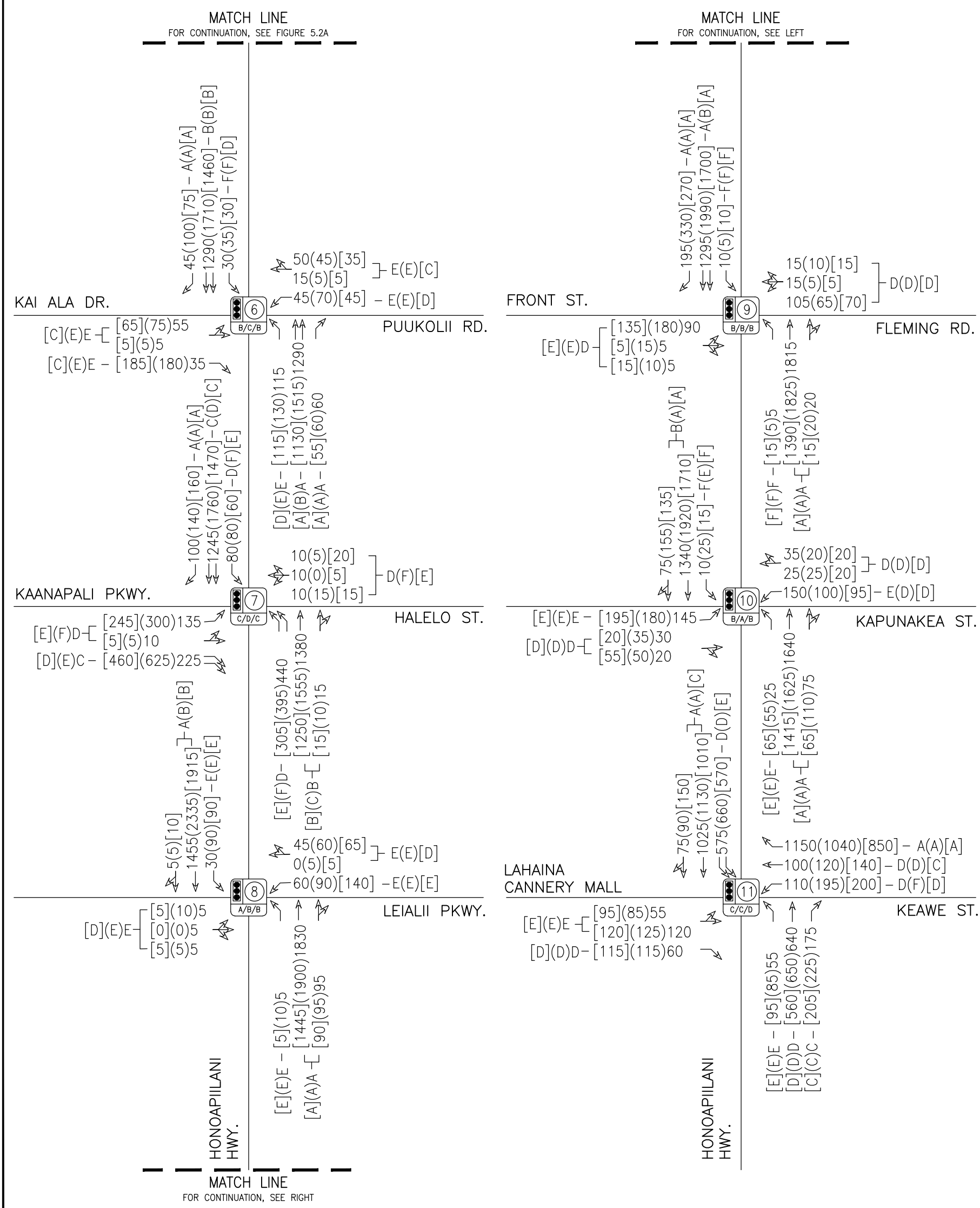
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

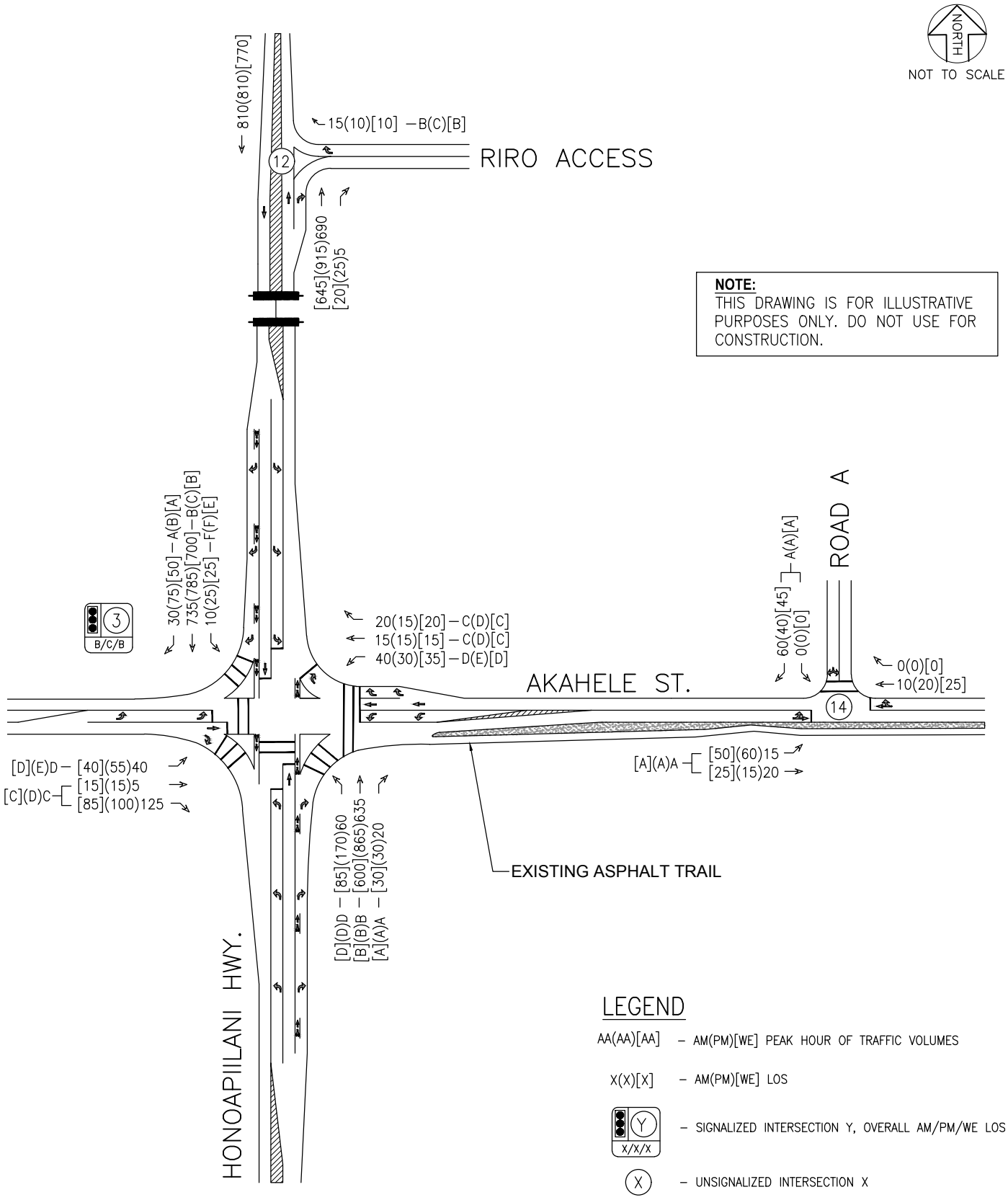
Y – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

X – UNSIGNALIZED INTERSECTION X

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.



PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2022 SCENARIO 1 LANE CONFIGURATION, VOLUMES AND LOS	5.2B



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FUTURE YEAR 2022 AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 5.3

Table 5.3: Future Year 2022 (Scenario 1)
Left-Turn Storage Lane Length Calculations

Honoapiilani Highway & Akahele Street Intersection								
			AASHTO					Recommended storage length [3]
Movement	Peak Hour	Design Volume per lane (veh)	Cycle Length (sec) [1]	Cycles per Hour	Average Veh. per Cycle	Minimum Storage Length (1.5 factor) [2]		
						Veh	Ft	
Northbound Left-turn lane [4]	AM	60	100	36	2	3	75	Storage accommodated. Max queue could encroach into taper.
	PM	170	100	36	5	8	**200**	
	WE	85	100	36	3	4	100	
Southbound Left-turn lane	AM	10	100	36	1	1	60	Storage accommodated
	PM	25	100	36	1	2	60	
	WE	25	100	36	1	2	**60**	
Eastbound Left-turn lane	AM	40	100	36	2	2	60	Storage accommodated
	PM	55	100	36	2	3	**75**	
	WE	40	100	36	2	2	60	
Westbound Left-turn lane	AM	40	100	36	2	2	60	Storage accommodated
	PM	30	100	36	1	2	60	
	WE	35	100	36	1	2	**60**	

Notes:

1. Cycle Length based on existing observation. Majority of cycles < 100 seconds.
2. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.
4. Observations: Existing NBLT majority average 1-3 car queue (75 ft storage) with a few occassional maximum 7 car queue (175 ft storage)

Table 5.4: Base Year 2022 with Mitigation and Future Year 2022 Scenario 1 Level of Service Summary

	Base Year 2022 with Mitigation									Future Year 2022 Scenario 1								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																		
NB LT	18.6	0.75	B	20.0	0.83	B	19.7	0.78	B	18.5	0.75	B	20.3	0.84	C	19.9	0.79	B
NB TH	7.9	0.32	A	5.8	0.23	A	7.4	0.38	A	8.0	0.34	A	5.7	0.24	A	7.4	0.38	A
NB RT	6.7	0.08	A	5.0	0.05	A	5.7	0.03	A	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A
EB LT/TH	15.3	0.26	B	21.2	0.29	C	18.6	0.29	B	15.4	0.26	B	21.7	0.30	C	19.0	0.29	B
EB RT	14.9	0.18	B	20.1	0.13	C	17.9	0.18	B	14.9	0.17	B	20.6	0.14	C	18.2	0.17	B
WB LT	17.6	0.29	B	23.7	0.29	C	20.4	0.19	C	17.7	0.29	B	24.3	0.29	C	20.8	0.20	C
WB TH/RT	14.9	0.20	B	20.1	0.13	C	18.4	0.28	B	15.0	0.20	B	20.6	0.13	C	18.7	0.28	B
SB LT	66.2	0.72	E	103.7	0.70	F	56.3	0.77	E	66.3	0.72	E	104.3	0.70	F	56.8	0.77	E
SB TH	12.8	0.31	B	18.4	0.61	B	15.6	0.58	B	13.0	0.32	B	18.6	0.62	B	15.8	0.58	B
SB RT	11.2	0.02	B	13.5	0.05	B	11.6	0.06	B	11.3	0.02	B	13.5	0.05	B	11.7	0.06	B
Overall	14.1	-	B	16.8	-	B	15.4	-	B	14.1	-	B	17.1	-	B	15.5	-	B
2: Honoapiilani Highway & Hoohui Road																		
NB LT	9.9	0.37	A	9.6	0.50	A	8.5	0.35	A	10.0	0.39	A	9.9	0.51	A	8.5	0.35	A
NB TH	11.0	0.66	B	9.4	0.67	A	9.0	0.59	A	11.1	0.67	B	9.4	0.68	A	9.1	0.60	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	17.5	0.17	B	20.5	0.32	C	16.9	0.24	B	17.7	0.17	B	20.9	0.32	C	17.2	0.24	B
EB RT	16.5	0.07	B	18.9	0.06	B	16.1	0.09	B	16.7	0.07	B	19.3	0.07	B	16.3	0.09	B
WB LT	20.2	0.28	C	22.6	0.21	C	18.4	0.14	B	20.4	0.29	C	23.1	0.21	C	18.7	0.15	B
WB TH/RT	16.5	0.07	B	18.9	0.07	B	16.0	0.06	B	16.7	0.07	B	19.3	0.07	B	16.2	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A
SB TH	15.2	0.78	B	13.4	0.78	B	12.6	0.74	B	15.3	0.78	B	13.5	0.79	B	12.6	0.75	B
SB RT	9.5	0.05	A	8.0	0.07	A	8.0	0.04	A	9.6	0.05	A	7.9	0.07	A	7.9	0.04	A
Overall	13.4	-	B	12.0	-	B	11.3	-	B	13.5	-	B	12.1	-	B	11.3	-	B
3: Honoapiilani Highway & Akahele Street																		
NB LT	43.2	0.77	D	43.7	0.81	D	37.4	0.75	D	45.2	0.77	D	45.9	0.82	D	39.7	0.76	D
NB TH	10.7	0.66	B	13.4	0.77	B	10.0	0.62	A	12.1	0.68	B	16.8	0.81	B	12.0	0.66	B
NB RT	6.4	0.01	A	5.7	0.01	A	6.2	0.01	A	7.2	0.02	A	6.7	0.02	A	7.4	0.02	A
EB LT	44.9	0.72	D	55.3	0.77	E	44.1	0.71	D	48.7	0.74	D	57.3	0.77	E	48.1	0.73	D
EB TH/RT	24.7	0.08	C	34.1	0.05	C	24.8	0.06	C	26.3	0.05	C	35.8	0.08	D	26.3	0.09	C
WB LT	69.9	0.53	E	66.9	0.57	E	52.4	0.55	D	48.7	0.74	D	65.5	0.74	E	47.4	0.70	D
WB TH	26.0	0.03	C	36.5	0.03	D	25.9	0.03	C	26.4	0.07	C	37.4	0.09	D	26.3	0.07	C
WB RT	25.9	0.01	C	36.4	0.01	D	25.8	0.01	C	26.1	0.01	C	36.9	0.01	D	26.0	0.01	C
SB LT	112.1	0.70	F	127.2	0.71	F	111.4	0.70	F	86.3	0.75	F	81.0	0.82	F	74.1	0.84	E
SB TH	15.3	0.84	B	23.9	0.89	C	15.8	0.83	B	16.9	0.85	B	26.1	0.89	C	17.4	0.85	B
SB RT	7.7	0.02	A	10.5	0.05	B	8.3	0.03	A	8.5	0.02	A	11.2	0.05	B	9.2	0.04	A
Overall	15.7	-	B	22.1	-	C	16.0	-	B	18.1	-	B	25.6	-	C	18.8	-	B

Table 5.4: Base Year 2022 with Mitigation and Future Year 2022 Scenario 1 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Future Year 2022 Scenario 1								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
4: Honoapiilani Highway & Lower Honoapiilani Road																		
NB LT	23.1	0.84	C	34.2	0.94	C	22.3	0.87	C	23.9	0.85	C	35.7	0.94	D	23.0	0.88	C
NB TH/RT	4.6	0.34	A	4.4	0.36	A	2.4	0.25	A	4.6	0.34	A	4.5	0.38	A	2.4	0.26	A
EB LT/TH	26.1	0.20	C	44.8	0.39	D	28.6	0.32	C	27.0	0.20	C	46.2	0.42	D	29.4	0.32	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	25.5	0.11	C	45.8	0.49	D	26.8	0.05	C	26.4	0.11	C	47.0	0.50	D	27.6	0.05	C
SB LT	51.8	0.74	D	90.9	0.72	F	0.0	0.00	A	52.9	0.74	D	92.3	0.72	F	0.0	0.00	A
SB TH	13.4	0.58	B	29.6	0.72	C	15.4	0.59	B	13.5	0.59	B	30.0	0.72	C	15.6	0.60	B
SB RT	9.5	0.00	A	20.9	0.01	C	11.3	0.03	B	9.4	0.00	A	21.1	0.01	C	11.3	0.03	B
Overall	12.3	-	B	22.9	-	C	13.1	-	B	12.5	-	B	23.3	-	C	13.2	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																		
NB LT	32.8	0.79	C	44.6	0.81	D	36.9	0.78	D	33.7	0.79	C	45.2	0.81	D	37.4	0.78	D
NB TH/RT	4.1	0.46	A	7.3	0.61	A	4.9	0.43	A	4.0	0.46	A	7.4	0.63	A	4.9	0.44	A
EB LT/TH	31.5	0.17	C	37.5	0.22	D	32.0	0.26	C	32.4	0.17	C	38.1	0.23	D	32.6	0.26	C
EB RT	31.3	0.01	C	36.7	0.03	D	31.2	0.04	C	32.2	0.01	C	37.2	0.03	D	31.8	0.04	C
WB LT/TH/RT	31.9	0.11	C	38.6	0.08	D	31.3	0.11	C	32.8	0.11	C	39.2	0.08	D	31.9	0.11	C
SB LT	54.6	0.78	D	73.4	0.77	E	61.8	0.75	E	55.8	0.78	E	74.2	0.78	E	62.6	0.76	E
SB TH	7.8	0.62	A	12.5	0.73	B	9.1	0.65	A	7.8	0.63	A	12.7	0.74	B	9.1	0.65	A
SB RT	4.5	0.05	A	6.3	0.04	A	5.1	0.04	A	4.4	0.05	A	6.3	0.04	A	5.1	0.04	A
Overall	8.1	-	A	12.1	-	B	9.5	-	A	8.1	-	A	12.2	-	B	9.5	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																		
NB LT	75.0	0.85	E	78.0	0.87	E	41.0	0.78	D	75.3	0.85	E	77.9	0.87	E	41.4	0.79	D
NB TH	6.6	0.50	A	10.1	0.60	B	8.3	0.52	A	6.8	0.51	A	10.3	0.62	B	8.4	0.53	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A	4.0	0.04	A	5.3	0.04	A	5.4	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	32.7	0.23	C	68.0	0.37	E	67.2	0.37	E	33.3	0.25	C
EB RT	62.8	0.01	E	63.8	0.14	E	31.4	0.05	C	62.8	0.01	E	63.8	0.14	E	31.8	0.05	C
WB LT	74.9	0.42	E	78.4	0.54	E	36.2	0.22	D	74.9	0.42	E	78.4	0.54	E	37.0	0.23	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	31.3	0.03	C	63.5	0.09	E	62.6	0.03	E	31.6	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	43.9	0.58	D	84.7	0.76	F	89.0	0.77	F	44.4	0.58	D
SB TH	10.7	0.54	B	18.9	0.75	B	14.2	0.75	B	10.9	0.55	B	19.2	0.76	B	14.4	0.75	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.4	0.05	A	6.2	0.03	A	8.7	0.08	A	7.4	0.05	A
Overall	14.4	-	B	20.3	-	C	14.0	-	B	14.6	-	B	20.4	-	C	14.1	-	B

Table 5.4: Base Year 2022 with Mitigation and Future Year 2022 Scenario 1 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Future Year 2022 Scenario 1								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																		
NB LT	42.5	0.76	D	96.9	0.86	F	55.2	0.74	E	43.5	0.77	D	97.6	0.86	F	56.2	0.74	E
NB TH/RT	16.3	0.70	B	23.5	0.68	C	14.5	0.59	B	16.2	0.69	B	23.8	0.69	C	14.5	0.59	B
EB LT/TH	46.5	0.47	D	92.0	0.61	F	53.8	0.58	D	47.6	0.47	D	93.3	0.62	F	55.1	0.60	E
EB RT	29.6	0.07	C	68.2	0.53	E	40.3	0.37	D	30.4	0.08	C	68.8	0.52	E	41.2	0.37	D
WB LT/TH/RT	47.0	0.18	D	106.4	0.24	F	61.1	0.34	E	48.0	0.18	D	107.2	0.24	F	62.2	0.34	E
SB LT	48.6	0.58	D	124.4	0.74	F	60.2	0.55	E	49.6	0.58	D	125.7	0.75	F	61.3	0.55	E
SB TH	22.6	0.75	C	45.1	0.90	D	22.5	0.78	C	22.8	0.76	C	45.4	0.90	D	22.5	0.78	C
SB RT	10.0	0.09	A	20.1	0.12	C	13.1	0.14	B	9.9	0.09	A	8.4	0.11	A	6.8	0.13	A
Overall	24.2	-	C	48.6	-	D	26.4	-	C	24.4	-	C	48.5	-	D	26.3	-	C
8: Honoapiilani Highway & Leialii Parkway																		
NB LT	75.2	0.44	E	69.4	0.49	E	72.0	0.44	E	75.2	0.44	E	69.2	0.49	E	72.0	0.44	E
NB TH/RT	9.2	0.72	A	2.5	0.78	A	3.3	0.64	A	9.3	0.73	A	2.6	0.79	A	3.3	0.65	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.7	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E
SB TH/RT	5.4	0.52	A	14.6	0.85	B	11.3	0.74	B	5.5	0.53	A	14.9	0.86	B	11.5	0.74	B
Overall	9.4	-	A	11.5	-	B	11.6	-	B	9.4	-	A	11.7	-	B	11.7	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																		
NB LT	86.5	0.73	F	93.9	0.74	F	85.9	0.84	F	88.9	0.73	F	93.9	0.74	F	85.6	0.84	F
NB TH/RT	7.9	0.69	A	2.0	0.73	A	7.0	0.54	A	8.1	0.70	A	2.1	0.74	A	7.0	0.54	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.7	0.73	E	57.8	0.66	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	49.5	0.25	D	52.6	0.34	D
SB LT	87.2	0.80	F	85.0	0.74	F	86.0	0.82	F	87.2	0.80	F	84.1	0.74	F	85.6	0.82	F
SB TH	5.0	0.50	A	12.2	0.81	B	8.1	0.67	A	5.1	0.50	A	12.7	0.82	B	8.2	0.68	A
SB RT	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A	3.2	0.12	A	5.8	0.24	A	4.3	0.18	A
Overall	10.0	-	A	10.5	-	B	11.2	-	B	10.1	-	B	10.8	-	B	11.2	-	B
10: Honoapiilani Highway & Kapunakea Street																		
NB LT	68.5	0.79	E	62.7	0.79	E	62.5	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E
NB TH/RT	0.3	0.69	A	0.3	0.72	A	1.5	0.62	A	0.3	0.69	A	0.3	0.73	A	1.5	0.62	A
EB LT	58.9	0.60	E	59.5	0.70	E	57.7	0.71	E	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E
EB TH/RT	49.5	0.11	D	46.6	0.15	D	43.9	0.09	D	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D
WB LT	59.7	0.63	E	53.0	0.41	D	48.8	0.35	D	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D
SB LT	100.7	0.83	F	71.6	0.80	E	84.2	0.84	F	100.7	0.83	F	71.4	0.80	E	83.9	0.84	F
SB TH/RT	10.5	0.57	B	5.1	0.90	A	7.8	0.81	A	10.7	0.58	B	5.0	0.90	A	8.0	0.82	A
Overall	11.0	-	B	8.8	-	A	10.9	-	B	11.0	-	B	8.7	-	A	10.9	-	B

Table 5.4: Base Year 2022 with Mitigation and Future Year 2022 Scenario 1 Level of Service Summary Cont'd

	Base Year 2022 with Mitigation									Future Year 2022 Scenario 1								
	AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																		
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E
NB TH	35.8	0.78	D	55.0	0.92	D	43.4	0.82	D	37.1	0.79	D	52.8	0.91	D	44.8	0.84	D
NB RT	21.2	0.16	C	27.4	0.25	C	27.0	0.22	C	21.6	0.16	C	26.8	0.25	C	27.2	0.22	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	63.3	0.76	E	61.0	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.07	D	44.6	0.06	D
WB LT	47.4	0.53	D	70.9	0.87	E	51.5	0.78	D	47.4	0.53	D	84.5	0.92	F	51.5	0.78	D
WB TH	42.3	0.23	D	37.0	0.24	D	33.4	0.26	C	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	58.5	0.94	E	45.2	0.95	D	57.5	0.88	E	51.6	0.92	D	46.0	0.95	D	57.6	0.88	E
SB TH/RT	1.3	0.52	A	0.8	0.65	A	34.4	0.66	C	1.4	0.53	A	0.9	0.65	A	34.7	0.67	C
Overall	29.8	-	C	32.9	-	C	43.9	-	D	28.6	-	C	33.5	-	C	44.3	-	D
12: RIRO Access & Honoapiilani Highway																		
WB RT										14.1	0.04	B	17.6	0.04	C	13.4	0.03	B
Overall										0.1	-	-	0.1	-	-	0.1	-	-
14: Road A & Akahele Street																		
EB LT/TH										7.3	0.01	A	7.4	0.04	A	7.3	0.03	A
SB LT/RT										8.6	0.06	A	8.6	0.04	A	8.6	0.05	A
Overall										5.9	-	-	5.8	-	-	5.2	-	-

5.3 Future Year 2025 Scenario 2 Analysis

By completion of Scenario 2 in Future Year 2025, the Project is projected to generate a total of 118(144)[175] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. Traffic will access the site via Honoapiilani Highway at its intersections with Akahele Street and the Project's RIRO driveway.

By Future Year 2025 with the cumulative increases of Project Scenarios 1 and 2, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 5-10%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 10-20% from Base Year 2025 without the Project scenario, during the AM, PM and WE peak hours of traffic.

5.3.1 Future Year 2025 Scenario 2 Intersection Analysis

All study intersections are forecast to operate similar to Future Year 2022 Scenario 1 with the majority of intersection movements forecast to experience delay increases ranging from 1-5 seconds. Movements operating at LOS E/F for Future Year 2022 Scenario 1 conditions will continue to operate similarly under Future Year 2025 Scenario 2. The main Project access intersections are discussed further below.

<u>[3] Honoapiilani Highway/Akahele Street</u>

Since this intersection is the primary access from Honoapiilani Highway into the Project's Scenario 2 site, turning movements into and out of Akahele Street will increase. As a result, the intersection will worsen, but operate adequately from an overall LOS B(C)[B] during the Future Year 2022 Scenario 1 condition to an overall LOS C(C)[C] during the Future Year 2025 Scenario 2 condition. Various left-turn movements will operate at LOS E/F conditions during all peak hours due to the long cycle length and generally low turning movement volumes at the intersection. However, all movements will continue to operate under capacity. It is recommended that the existing signal timing be optimized to accommodate turning movement increases.

Based on the AASHTO Green Book, left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection were determined. See Table 5.5 for the recommended storage lane lengths. Based on the AASHTO Green Book, all anticipated left-turn storage at the intersection is currently accommodated, and no extensions will be required upon completion of Scenario 2.

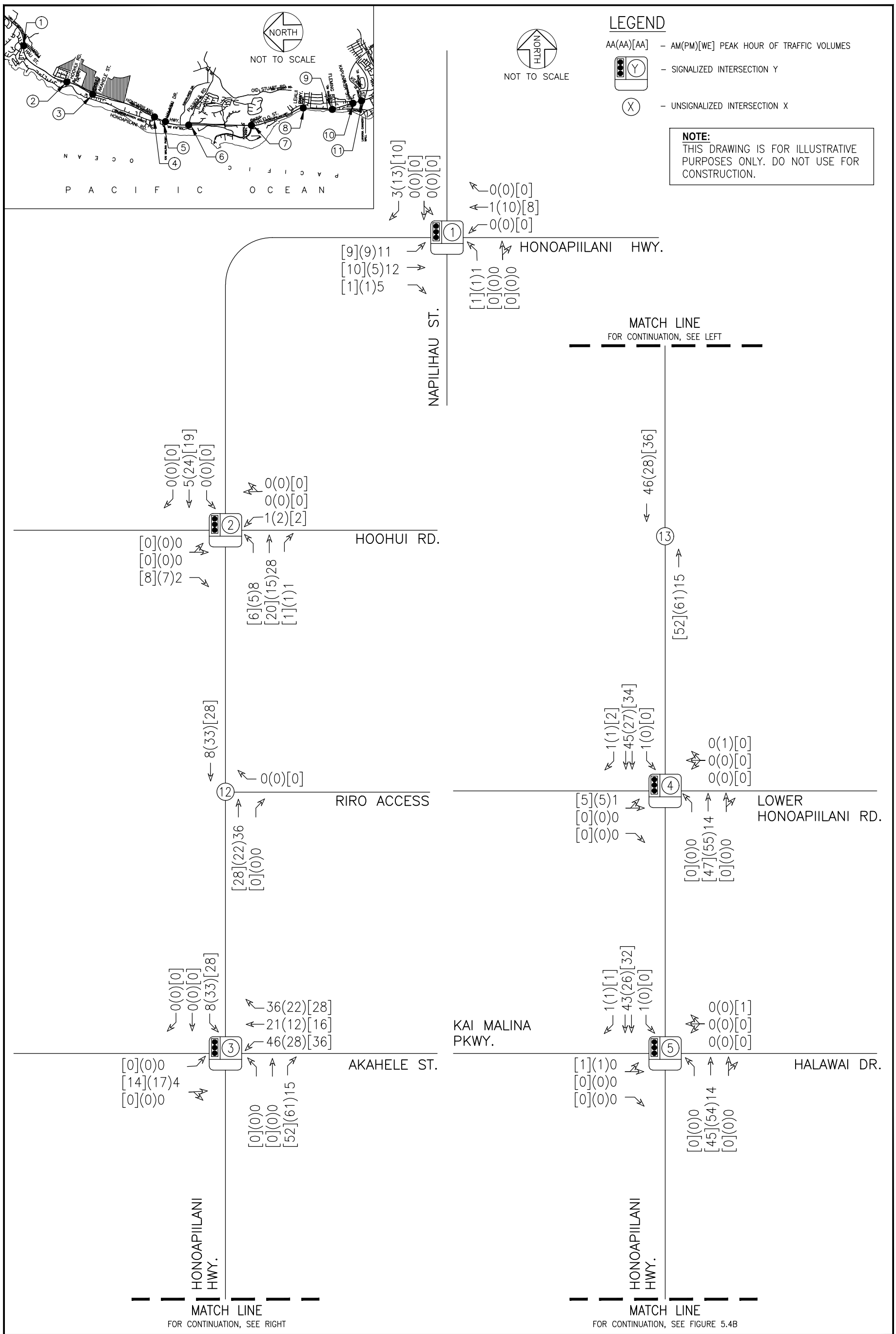
<u>[14] Akahele Street/Road A</u>

Continuation of Road A to extend south of Akahele Street is proposed with Scenario 2 of the Project. As in Future Year 2022 Scenario 1, lengthy gaps in through traffic are expected along Akahele Street to help prevent long queues for opposing left-turn movements turning from Akahele Street. However, as traffic begins to increase along Akahele Street as a result of the Project, exclusive left-turn storage lanes should be considered to remove left-turns from the through lanes on Akahele Street. Based on AASHTO guidance, a minimum of 50 feet storage for the eastbound left-turn and 50 feet storage for the westbound left-turn lanes should be provided, exclusive of taper and deceleration length.

[15] Akahele Street/Road C

Road C is proposed with the completion of Scenario 2 of the Project. Upon completion of Scenario 2, forecast volumes at the Akahele Street/Road C intersection are anticipated to reach a maximum of 185 vehicles for all peak hours with under 25 through vehicles along Akahele Street in each direction. However, exclusive left-turn storage lanes should be considered to remove left-turns from the through lanes on Akahele Street. Based on AASHTO guidance, a minimum of 50 feet storage for the eastbound left-turn and 50 feet storage for the westbound left-turn lanes should be provided, exclusive of taper and deceleration length.

Figure 5.4 illustrates the Project-generated trips for Future Year 2025 Scenario 2. Figure 5.5 illustrates the Future Year 2025 Scenario 2 forecast traffic volumes and LOS for the study intersection movements. Figure 5.6 illustrates the Future Year 2025 Scenario 2 forecast traffic volumes, LOS and intersection laneage at the two Project accesses along Akahele Street and at the Project RIRO access along Honoapiilani Highway. Table 5.6 summarizes the Future Year 2025 Scenario 2 LOS at the study intersections compared to Base Year 2025 and Future Year 2022 Scenario 1 conditions. LOS worksheets are provided in Appendix C.



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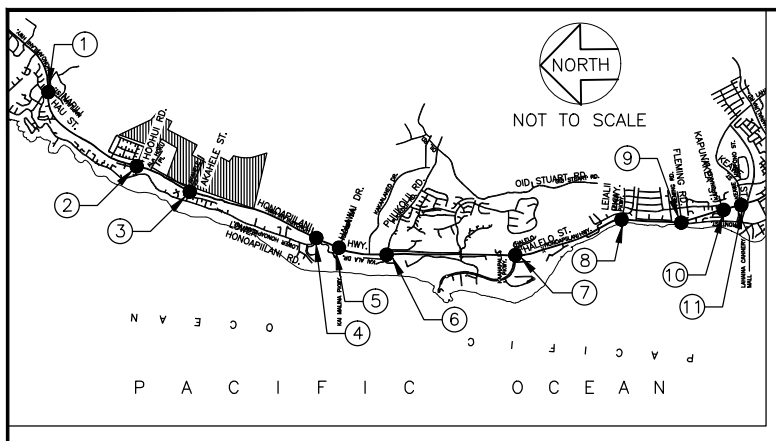
YEAR 2025 SCENARIO 2 PROJECT-GENERATED TRAFFIC

FIGURE 5.4A



LEGEND

NORTH
NOT TO SCALE

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

(Y) – SIGNALIZED INTERSECTION Y

(X) – UNSIGNALIZED INTERSECTION X

NOTE:
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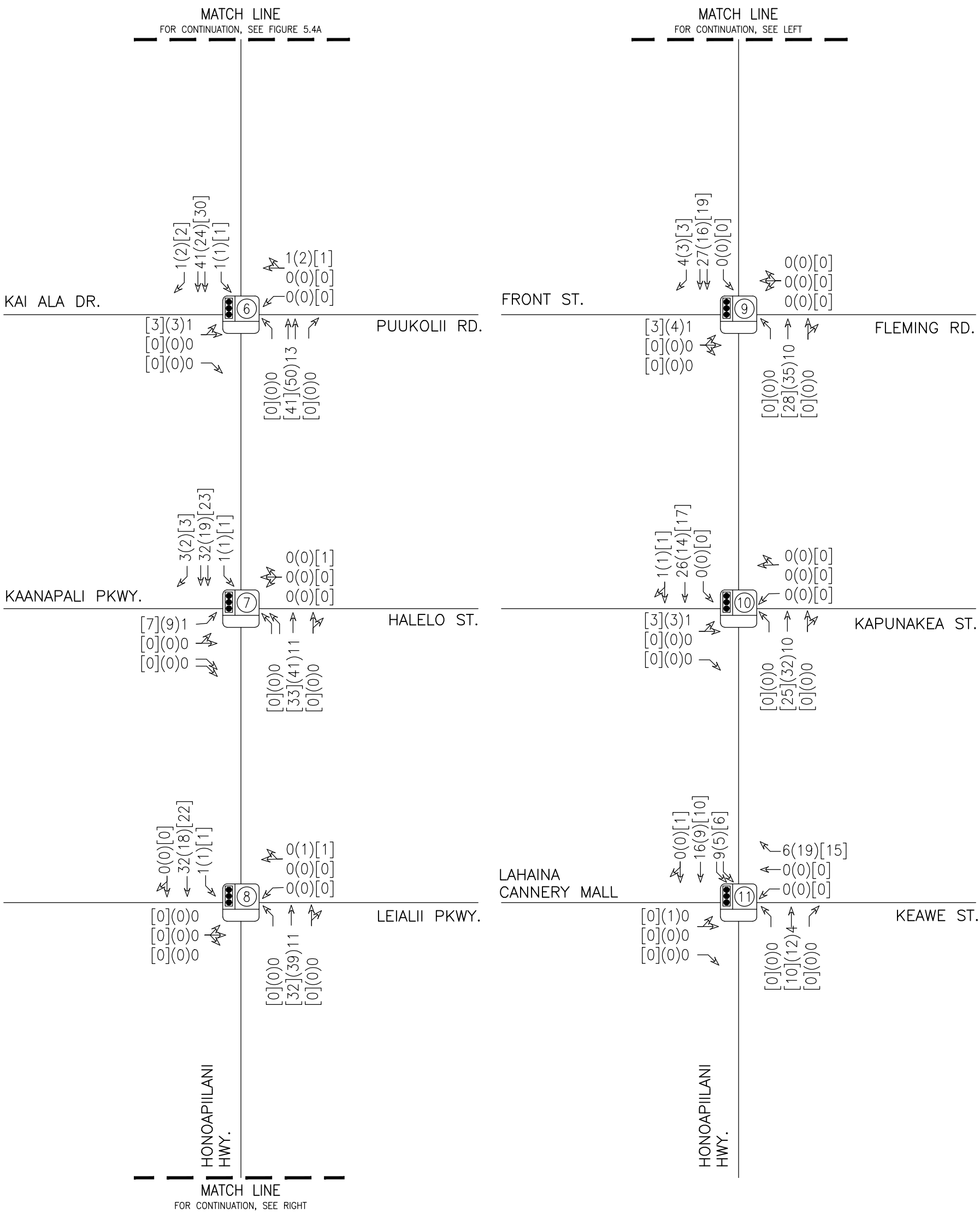
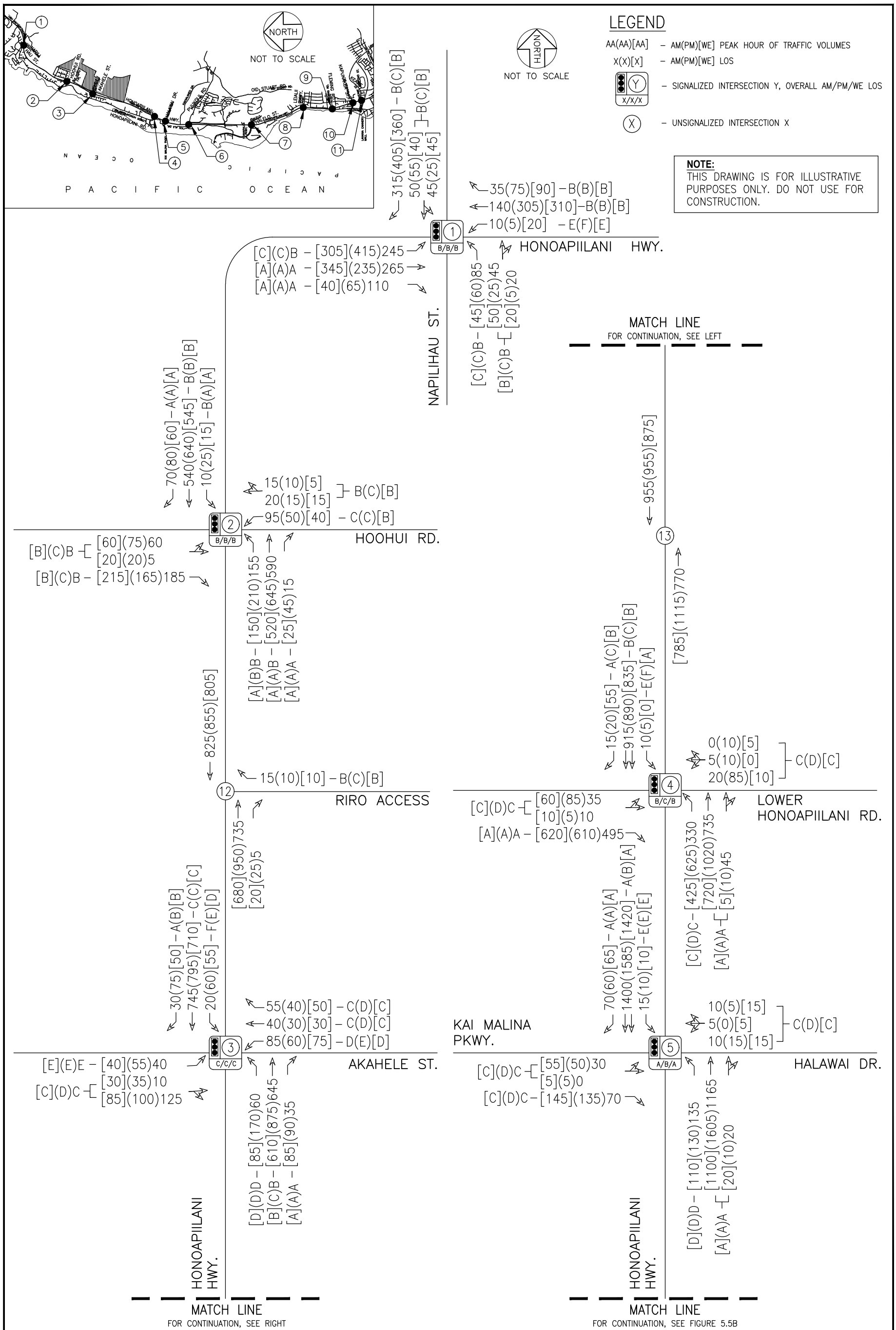


PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	YEAR 2025 SCENARIO 2 PROJECT-GENERATED TRAFFIC	5.4B



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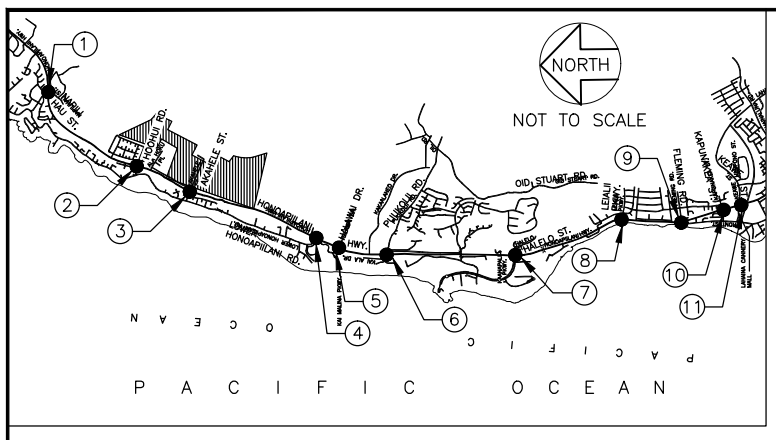
FUTURE YEAR 2025 SCENARIO 2 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 5.5A



LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y / X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

X – UNSIGNALIZED INTERSECTION X

NOTE:
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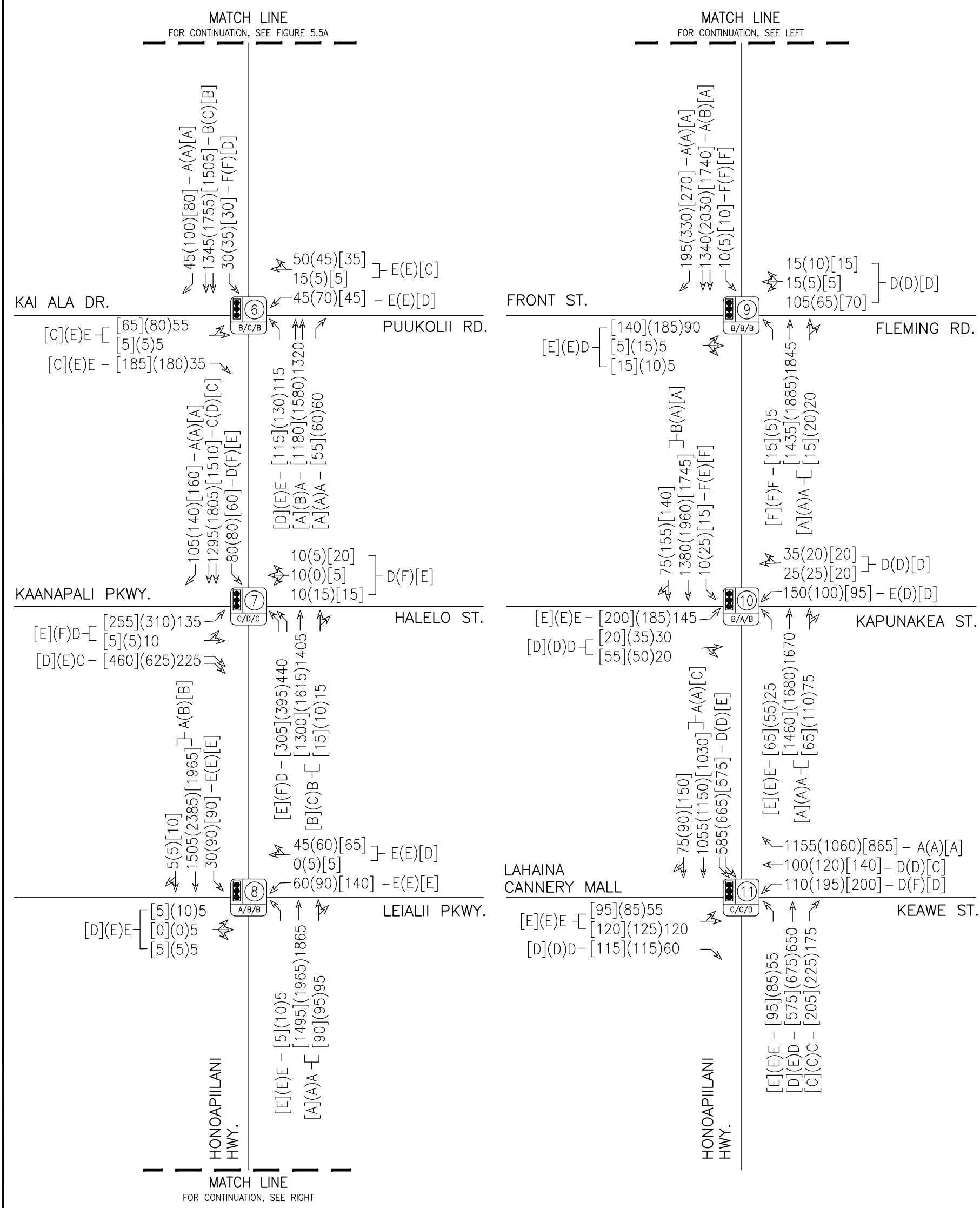

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FUTURE YEAR 2025 SCENARIO 2 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE
5.5B

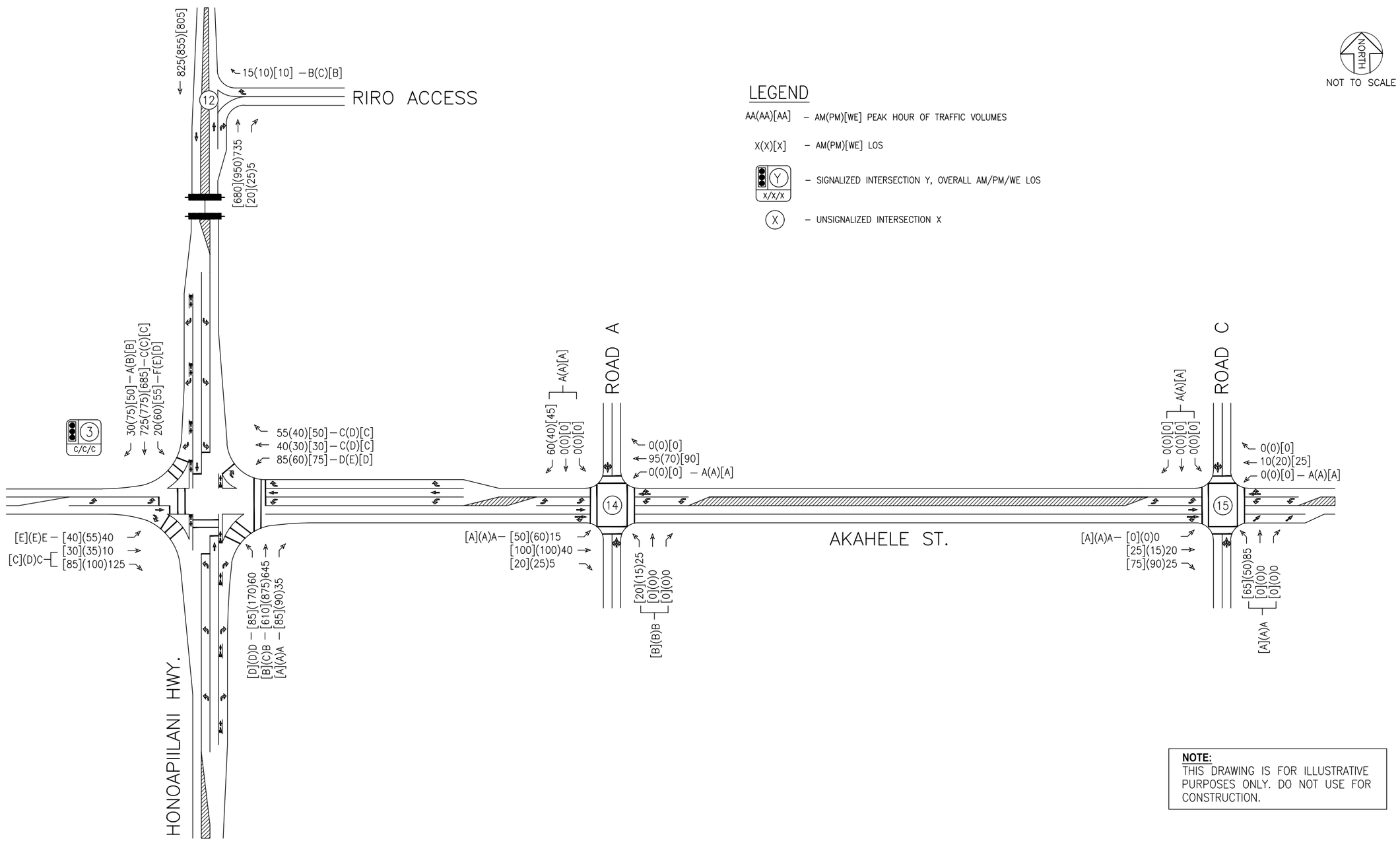

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FIGURE 5.6

FUTURE YEAR 2025 SCENARIO 2
AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS

Table 5.5: Future Year 2025 (Scenario 2)
Left-Turn Storage Lane Length Calculations

Honoapiilani Highway & Akahele Street Intersection								
			AASHTO					Recommended storage length [3]
Movement	Peak Hour	Design Volume per lane (veh)	Cycle Length (sec) [1]	Cycles per Hour	Average Veh. per Cycle	Minimum Storage Length (1.5 factor) [2]		
						Veh	Ft	
Northbound Left-turn lane	AM	60	75	48	2	2	60	Storage accommodated. Max queue could encroach into taper.
	PM	170	100	36	5	8	**200**	
	WE	85	75	48	2	3	75	
Southbound Left-turn lane	AM	20	75	48	1	1	60	Storage accommodated
	PM	60	100	36	2	3	**75**	
	WE	55	75	48	2	2	60	
Eastbound Left-turn lane	AM	40	75	48	1	2	60	Storage accommodated
	PM	55	100	36	2	3	**75**	
	WE	40	75	48	1	2	60	
Westbound Left-turn lane	AM	85	75	48	2	3	75	Storage accommodated
	PM	60	100	36	2	3	75	
	WE	75	75	48	2	3	**75**	

Notes:

1. Cycle length based on Highway Capacity Manual (HCM), 6th Edition equilibrium cycle length.
2. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.

Table 5.6: Base Year 2025, Future Year 2022 Scenario 1 and Future Year 2025 Scenario 2 Level of Service Summary

	Base Year 2025									Future Year 2022 Scenario 1									Future Year 2025 Scenario 2								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																											
NB LT	18.6	0.75	B	20.1	0.83	C	19.9	0.78	B	18.5	0.75	B	20.3	0.84	C	19.9	0.79	B	18.5	0.75	B	20.8	0.84	C	20.4	0.79	C
NB TH	8.0	0.33	A	5.7	0.23	A	7.4	0.38	A	8.0	0.34	A	5.7	0.24	A	7.4	0.38	A	8.1	0.35	A	5.6	0.24	A	7.3	0.38	A
NB RT	6.7	0.08	A	4.9	0.05	A	5.7	0.03	A	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A	6.7	0.08	A	4.8	0.05	A	5.5	0.03	A
EB LT/TH	15.3	0.26	B	21.3	0.30	C	18.8	0.29	B	15.4	0.26	B	21.7	0.30	C	19.0	0.29	B	15.5	0.26	B	22.4	0.31	C	19.8	0.31	B
EB RT	14.9	0.18	B	20.3	0.13	C	18.1	0.18	B	14.9	0.17	B	20.6	0.14	C	18.2	0.17	B	15.1	0.18	B	21.4	0.16	C	18.9	0.17	B
WB LT	17.6	0.29	B	23.9	0.29	C	20.6	0.19	C	17.7	0.29	B	24.3	0.29	C	20.8	0.20	C	17.9	0.29	B	25.2	0.31	C	21.7	0.20	C
WB TH/RT	14.9	0.20	B	20.2	0.13	C	18.6	0.28	B	15.0	0.20	B	20.6	0.13	C	18.7	0.28	B	15.2	0.20	B	21.2	0.14	C	19.5	0.29	B
SB LT	66.2	0.72	E	103.9	0.70	F	56.6	0.77	E	66.3	0.72	E	104.3	0.70	F	56.8	0.77	E	66.6	0.72	E	105.2	0.70	F	58.1	0.77	E
SB TH	12.9	0.32	B	18.4	0.61	B	15.7	0.58	B	13.0	0.32	B	18.6	0.62	B	15.8	0.58	B	13.3	0.33	B	18.9	0.63	B	16.1	0.60	B
SB RT	11.2	0.02	B	13.4	0.05	B	11.6	0.06	B	11.3	0.02	B	13.5	0.05	B	11.7	0.06	B	11.5	0.02	B	13.7	0.05	B	11.8	0.06	B
Overall	14.1	-	B	16.9	-	B	15.5	-	B	14.1	-	B	17.1	-	B	15.5	-	B	14.1	-	B	17.4	-	B	15.8	-	B
2: Honoapiilani Highway & Hoohui Road																											
NB LT	9.9	0.37	A	9.7	0.50	A	8.5	0.35	A	10.0	0.39	A	9.9	0.51	A	8.5	0.35	A	10.3	0.42	B	10.8	0.54	B	8.7	0.38	A
NB TH	11.0	0.66	B	9.4	0.68	A	9.0	0.59	A	11.1	0.67	B	9.4	0.68	A	9.1	0.60	A	11.6	0.71	B	9.6	0.69	A	9.1	0.61	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	17.6	0.17	B	20.6	0.32	C	17.1	0.24	B	17.7	0.17	B	20.9	0.32	C	17.2	0.24	B	18.1	0.17	B	21.8	0.32	C	17.9	0.24	B
EB RT	16.6	0.07	B	19.0	0.06	B	16.2	0.09	B	16.7	0.07	B	19.3	0.07	B	16.3	0.09	B	17.0	0.07	B	20.2	0.07	C	17.0	0.09	B
WB LT	20.3	0.28	C	22.8	0.21	C	18.5	0.15	B	20.4	0.29	C	23.1	0.21	C	18.7	0.15	B	20.9	0.30	C	24.3	0.23	C	19.5	0.15	B
WB TH/RT	16.6	0.07	B	19.0	0.07	B	16.1	0.06	B	16.7	0.07	B	19.3	0.07	B	16.2	0.06	B	17.0	0.06	B	20.2	0.07	C	16.9	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	10.2	0.03	B	8.3	0.07	A	8.0	0.04	A
SB TH	15.2	0.78	B	13.5	0.78	B	12.6	0.74	B	15.3	0.78	B	13.5	0.79	B	12.6	0.75	B	15.6	0.79	B	14.0	0.81	B	12.8	0.76	B
SB RT	9.5	0.05	A	8.0	0.07	A	7.9	0.04	A	9.6	0.05	A	7.9	0.07	A	7.9	0.04	A	9.7	0.05	A	7.9	0.06	A	7.9	0.04	A
Overall	13.4	-	B	12.0	-	B	11.3	-	B	13.5	-	B	12.1	-	B	11.3	-	B	13.8	-	B	12.6	-	B	11.4	-	B
3: Honoapiilani Highway & Akahele Street																											
NB LT	43.5	0.77	D	44.4	0.82	D	37.8	0.75	D	45.2	0.77	D	45.9	0.82	D	39.7	0.76	D	49.5	0.76	D	50.2	0.83	D	43.8	0.76	D
NB TH	10.7	0.67	B	13.6	0.77	B	9.9	0.61	A	12.1	0.68	B	16.8	0.81	B	12.0	0.66	B	14.5	0.71	B	23.5	0.87	C	15.4	0.71	B
NB RT	6.3	0.01	A	5.7	0.01	A	6.2	0.01	A	7.2	0.02	A	6.7	0.02	A	7.4	0.02	A	8.6	0.03	A	8.8	0.07	A	9.7	0.06	A
EB LT	45.5	0.72	D	55.9	0.77	E	44.8	0.72	D	48.7	0.74	D	57.3	0.77	E	48.1	0.73	D	57.0	0.77	E	61.1	0.77	E	55.5	0.77	E
EB TH/RT	25.0	0.07	C	34.7	0.05	C	25.2	0.06	C	26.3	0.05	C	35.8	0.08	D	26.3	0.09	C	29.8	0.07	C	41.4	0.35	D	30.1	0.23	C
WB LT	70.4	0.53	E	67.7	0.58	E	52.9	0.56	D	48.7	0.74	D	65.5	0.74	E	47.4	0.70	D	44.8	0.76	D	59.9	0.77	E	45.4	0.76	D
WB TH	26.4	0.03	C	37.1	0.03	D	26.3	0.03	C	26.4	0.07	C	37.4	0.09	D	26.3	0.07	C	27.8	0.14	C	39.3	0.15	D	27.5	0.11	C
WB RT	26.3	0.01	C	37.0	0.01	D	26.2	0.01	C	26.1	0.01	C	36.9	0.01	D	26.0	0.01	C	27.1	0.02	C	38.4	0.01	D	26.9	0.01	C
SB LT	112.6	0.70	F	128.0	0.72	F	112.0	0.70	F	86.3	0.75	F	81.0	0.82	F	74.1	0.84	E	86.1	0.84	F	59.7	0.76	E	50.2	0.77	D
SB TH	15.4	0.84	B	24.4	0.89	C	15.8	0.84	B	16.9	0.85	B	26.1	0.89	C	17.4	0.85	B	20.1	0.87	C	30.4	0.91	C	20.1	0.86	C
SB RT	7.6	0.02	A	10.5	0.05	B	8.2	0.04	A	8.5	0.02	A	11.2	0.05	B	9.2	0.04	A	9.8	0.02	A	12.3	0.05	B	10.5	0.03	B
Overall	15.7	-	B	22.5	-	C	16.0	-	B	18.1	-	B	25.6	-	C	18.8	-	B	21.9	-	C	31.2	-	C	22.5	-	C
4: Honoapiilani Highway & Lower Honoapiilani Road																											
NB LT	23.4	0.84	C	35.0	0.94	C	22.5	0.88	C	23.9	0.85	C	35.7	0.94	D	23.0	0.88	C	25.4	0.85	C	38.5	0.95	D	24.5	0.88	C
NB TH/RT	4.6	0.34	A	4.4	0.37	A	2.4	0.25	A	4.6	0.34	A	4.5	0.38	A	2.4	0.26	A	4.4	0.34	A	4.5	0.40	A	2.5	0.28	A
EB LT/TH	26.4	0.20	C	45.3	0.39	D	28.9	0.32	C	27.0	0.20	C	46.2	0.42	D	29.4	0.32	C	28.7	0.21	C	48.8	0.46	D	31.2	0.35	C
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	25.8	0.11	C	46.4	0.50	D	27.0	0.05	C	26.4	0.11	C	47.0	0.50	D	27.6	0.05	C	28.1	0.11	C	49.3	0.51	D	29.0	0.05	C
SB LT	52.2	0.74	D	91.6	0.72	F	0.0	0.00	A	52.9	0.74	D	92.3	0.72	F	0.0	0.00	A	55.2	0.74	E	94.9	0.73	F	0.0	0.00	A
SB TH	13.4	0.59	B	29.8	0.72	C	15.5	0.59	B	13.5	0.59	B	30.0	0.72	C	15.6	0.60	B	13.8	0.61	B	30.9	0.73	C	16.2	0.61	B
SB RT	9.4	0.00	A	21.0	0.01	C	11.3	0.03	B	9.4	0.00	A	21.1	0.01	C	11.3	0.03	B	9.4	0.01	A	21.4	0.01	C	11.6	0.03	B
Overall	12.4	-	B	23.2	-	C	13.1	-	B	12.5	-	B	23.3	-	C	13.2	-	B	12.8	-	B	24.1	-	C	13.6	-	B

Table 5.6: Base Year 2025, Future Year 2022 Scenario 1 and Future Year 2025 Scenario 2 Level of Service Summary Cont'd

	Base Year 2025									Future Year 2022 Scenario 1									Future Year 2025 Scenario 2								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																											
NB LT	33.4	0.79	C	45.2	0.81	D	37.3	0.78	D	33.7	0.79	C	45.2	0.81	D	37.4	0.78	D	35.4	0.80	D	46.5	0.82	D	38.9	0.79	D
NB TH/RT	4.1	0.47	A	7.3	0.62	A	4.9	0.43	A	4.0	0.46	A	7.4	0.63	A	4.9	0.44	A	4.0	0.47	A	7.9	0.66	A	5.0	0.46	A
EB LT/TH	32.1	0.17	C	38.1	0.23	D	32.4	0.26	C	32.4	0.17	C	38.1	0.23	D	32.6	0.26	C	34.1	0.18	C	39.2	0.23	D	34.0	0.27	C
EB RT	31.9	0.01	C	37.2	0.03	D	31.7	0.04	C	32.2	0.01	C	37.2	0.03	D	31.8	0.04	C	33.9	0.01	C	38.3	0.03	D	33.1	0.04	C
WB LT/TH/RT	32.5	0.11	C	39.2	0.08	D	31.8	0.11	C	32.8	0.11	C	39.2	0.08	D	31.9	0.11	C	34.5	0.11	C	40.4	0.08	D	33.4	0.11	C
SB LT	55.4	0.78	E	74.2	0.78	E	62.4	0.75	E	55.8	0.78	E	74.2	0.78	E	62.6	0.76	E	58.3	0.79	E	76.0	0.78	E	64.5	0.76	E
SB TH	7.8	0.63	A	12.7	0.74	B	9.1	0.65	A	7.8	0.63	A	12.7	0.74	B	9.1	0.65	A	8.0	0.65	A	13.2	0.75	B	9.3	0.67	A
SB RT	4.4	0.05	A	6.3	0.04	A	5.1	0.04	A	4.4	0.05	A	6.3	0.04	A	5.1	0.04	A	4.4	0.05	A	6.3	0.04	A	5.0	0.04	A
Overall	8.1	-	A	12.2	-	B	9.5	-	A	8.1	-	A	12.2	-	B	9.5	-	A	8.2	-	A	12.6	-	B	9.6	-	A
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																											
NB LT	75.2	0.85	E	77.9	0.87	E	41.2	0.79	D	75.3	0.85	E	77.9	0.87	E	41.4	0.79	D	75.2	0.85	E	77.6	0.87	E	42.1	0.79	D
NB TH	6.7	0.51	A	10.1	0.61	B	8.3	0.52	A	6.8	0.51	A	10.3	0.62	B	8.4	0.53	A	6.9	0.52	A	11.0	0.65	B	8.5	0.55	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.4	0.04	A	4.0	0.04	A	5.3	0.04	A	5.4	0.04	A	4.0	0.04	A	5.5	0.04	A	5.3	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	33.0	0.23	C	68.0	0.37	E	67.2	0.37	E	33.3	0.25	C	68.0	0.37	E	67.1	0.39	E	34.1	0.26	C
EB RT	62.8	0.01	E	63.8	0.14	E	31.7	0.05	C	62.8	0.01	E	63.8	0.14	E	31.8	0.05	C	62.8	0.01	E	63.8	0.18	E	32.6	0.05	C
WB LT	74.9	0.42	E	78.4	0.54	E	36.5	0.22	D	74.9	0.42	E	78.4	0.54	E	37.0	0.23	D	74.9	0.42	E	78.6	0.54	E	37.9	0.23	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	31.5	0.03	C	63.5	0.09	E	62.6	0.03	E	31.6	0.03	C	63.5	0.09	E	62.1	0.02	E	32.4	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	44.2	0.58	D	84.7	0.76	F	89.0	0.77	F	44.4	0.58	D	84.7	0.76	F	89.0	0.77	F	45.2	0.59	D
SB TH	10.8	0.54	B	19.2	0.76	B	14.3	0.75	B	10.9	0.55	B	19.2	0.76	B	14.4	0.75	B	11.2	0.57	B	20.4	0.79	C	14.8	0.77	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A	6.2	0.03	A	8.7	0.08	A	7.4	0.05	A	6.2	0.03	A	8.9	0.08	A	7.3	0.05	A
Overall	14.4	-	B	20.4	-	C	14.0	-	B	14.6	-	B	20.4	-	C	14.1	-	B	14.7	-	B	21.2	-	C	14.4	-	B
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																											
NB LT	43.3	0.77	D	98.1	0.86	F	56.6	0.74	E	43.5	0.77	D	97.6	0.86	F	56.2	0.74	E	46.1	0.78	D	100.1	0.87	F	58.9	0.75	E
NB TH/RT	16.3	0.70	B	23.6	0.68	C	14.5	0.59	B	16.2	0.69	B	23.8	0.69	C	14.5	0.59	B	16.1	0.69	B	24.4	0.71	C	14.6	0.60	B
EB LT/TH	47.3	0.47	D	93.6	0.62	F	55.1	0.58	E	47.6	0.47	D	93.3	0.62	F	55.1	0.60	E	50.4	0.48	D	97.3	0.66	F	58.0	0.64	E
EB RT	30.2	0.08	C	69.4	0.53	E	41.4	0.37	D	30.4	0.08	C	68.8	0.52	E	41.2	0.37	D	32.3	0.08	C	71.2	0.53	E	43.3	0.37	D
WB LT/TH/RT	47.8	0.18	D	107.6	0.24	F	62.6	0.34	E	48.0	0.18	D	107.2	0.24	F	62.2	0.34	E	50.8	0.18	D	109.8	0.24	F	65.2	0.35	E
SB LT	49.4	0.58	D	126.7	0.75	F	61.7	0.55	E	49.6	0.58	D	125.7	0.75	F	61.3	0.55	E	52.6	0.59	D	131.5	0.76	F	64.2	0.56	E
SB TH	22.8	0.76	C	45.9	0.90	D	22.7	0.78	C	22.8	0.76	C	45.4	0.90	D	22.5	0.78	C	23.2	0.77	C	47.5	0.92	D	22.9	0.79	C
SB RT	9.9	0.09	A	20.0	0.11	C	13.1	0.14	B	9.9	0.09	A	8.4	0.11	A	6.8	0.13	A	9.9	0.09	A	8.4	0.11	A	6.8	0.13	A
Overall	24.4	-	C	49.2	-	D	26.8	-	C	24.4	-	C	48.5	-	D	26.3	-	C	25.0	-	C	50.0	-	D	27.0	-	C
8: Honoapiilani Highway & Leialii Parkway																											
NB LT	75.1	0.44	E	69.3	0.49	E	72.0	0.44	E	75.2	0.44	E	69.2	0.49	E	72.0	0.44	E	75.0	0.44	E	68.9	0.49	E	71.8	0.44	E
NB TH/RT	9.4	0.73	A	2.6	0.79	A	3.3	0.64	A	9.3	0.73	A	2.6	0.79	A	3.3	0.65	A	9.5	0.74	A	2.7	0.81	A	3.5	0.67	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.7	0.03	D	58.6	0.06	E	57.1	0.07	E	49.7	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E
SB TH/RT	5.5	0.53	A	15.3	0.87	B	11.7	0.75	B	5.5	0.53	A	14.9	0.86	B	11.5	0.74	B	5.7	0.55	A	16.3	0.88	B	12.2	0.76	B
Overall	9.5	-	A	11.9	-	B	11.7	-	B	9.4	-	A	11.7	-	B	11.7	-	B	9.6	-	A	12.4	-	B	12.0	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																											
NB LT	88.9	0.73	F	93.9	0.74	F	85.6	0.84	F	88.9	0.73	F	93.9	0.74	F	85.6	0.84	F	88.5	0.73	F	92.2	0.74	F	84.9	0.84	F
NB TH/RT	8.2	0.70	A	2.1	0.74	A	7.0	0.54	A	8.1	0.70	A	2.1	0.74	A	7.0	0.54	A	8.3	0.71	A	2.3	0.77	A	7.4	0.56	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.7	0.73	E	57.8	0.66	E	52.7	0.48	D	59.8	0.73	E	57.6	0.67	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	49.5	0.25	D	52.6	0.34	D	54.3	0.61	D	49.1	0.25	D	52.2	0.33	D
SB LT	87.2	0.80	F	83.6	0.74	F	85.3	0.82	F	87.2	0.80	F	84.1	0.74	F	85.6	0.82	F	86.7	0.80	F	82.6	0.74	F	84.7	0.82	F
SB TH	5.1	0.50	A	12.4	0.82	B	8.2	0.68	A	5.1	0.50	A	12.7	0.82	B	8.2	0.68	A	5.2	0.52	A	13.5	0.84	B	8.6	0.70	A
SB RT	3.2	0.12	A	5.6	0.24	A	4.3	0.18	A	3.2	0.12	A	5.8	0.24	A	4.3	0.18	A	3.2	0.12	A	5.9	0.24	A	4.4	0.18	A
Overall	10.1	-	B	10.6	-	B	11.2	-	B	10.1	-	B	10.8	-	B	11.2	-	B	10.2	-	B	11.2	-	B	11.5	-	B

Table 5.6: Base Year 2025, Future Year 2022 Scenario 1 and Future Year 2025 Scenario 2 Level of Service Summary Cont'd

	Base Year 2025									Future Year 2022 Scenario 1									Future Year 2025 Scenario 2								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
10: Honoapiilani Highway & Kapunakea Street																											
NB LT	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E
NB TH/RT	0.3	0.70	A	0.3	0.73	A	1.5	0.62	A	0.3	0.69	A	0.3	0.73	A	1.5	0.62	A	0.3	0.70	A	0.4	0.75	A	1.6	0.64	A
EB LT	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	58.9	0.60	E	59.5	0.71	E	57.8	0.72	E
EB TH/RT	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	46.4	0.15	D	43.5	0.09	D
WB LT	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	52.7	0.41	D	48.4	0.35	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	45.7	0.09	D	43.3	0.07	D
SB LT	100.7	0.83	F	71.3	0.80	E	83.9	0.84	F	100.7	0.83	F	71.4	0.80	E	83.9	0.84	F	100.1	0.83	F	70.8	0.80	E	83.4	0.84	F
SB TH/RT	10.7	0.58	B	5.3	0.90	A	8.2	0.82	A	10.7	0.58	B	5.0	0.90	A	8.0	0.82	A	11.0	0.60	B	5.7	0.92	A	8.9	0.84	A
Overall	11.0	-	B	8.9	-	A	11.0	-	B	11.0	-	B	8.7	-	A	10.9	-	B	11.1	-	B	9.1	-	A	11.4	-	B
11: Honoapiilani Highway & Keawe Street																											
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E
NB TH	36.4	0.79	D	52.9	0.91	D	44.4	0.83	D	37.1	0.79	D	52.8	0.91	D	44.8	0.84	D	38.3	0.81	D	59.6	0.95	E	47.0	0.86	D
NB RT	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C	21.6	0.16	C	26.8	0.25	C	27.2	0.22	C	21.8	0.16	C	27.0	0.25	C	27.3	0.22	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	63.3	0.76	E	61.0	0.76	E	64.1	0.70	E	64.8	0.76	E	61.0	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.07	D	44.6	0.06	D	51.6	0.03	D	47.3	0.07	D	44.6	0.06	D
WB LT	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D	47.4	0.53	D	84.5	0.92	F	51.5	0.78	D	47.4	0.53	D	85.5	0.92	F	51.5	0.78	D
WB TH	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	37.9	0.25	D	33.4	0.26	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	59.1	0.94	E	45.5	0.95	D	57.6	0.88	E	51.6	0.92	D	46.0	0.95	D	57.6	0.88	E	51.5	0.93	D	43.6	0.95	D	57.4	0.89	E
SB TH/RT	1.4	0.53	A	0.8	0.65	A	34.7	0.67	C	1.4	0.53	A	0.9	0.65	A	34.7	0.67	C	1.4	0.55	A	0.7	0.66	A	34.9	0.69	C
Overall	30.0	-	C	33.3	-	C	44.2	-	D	28.6	-	C	33.5	-	C	44.3	-	D	28.8	-	C	34.4	-	C	44.7	-	D
12: RIRO Access & Honoapiilani Highway																											
WB RT										14.1	0.04	B	17.6	0.04	C	13.4	0.03	B	14.7	0.04	B	18.3	0.04	C	13.9	0.03	B
Overall										0.1	-	-	0.1	-	-	0.1	-	-	0.1	-	-	0.1	-	-	0.1	-	-
14: Road A & Akahele Street																											
NB LT/TH/RT										-	-	-	-	-	-	-	-	-	10.5	0.04	B	11.6	0.03	B	11.7	0.04	B
EB LT										-	-	-	-	-	-	-	-	-	7.4	0.01	A	7.5	0.04	A	7.5	0.04	A
EB LT/TH										7.3	0.01	A	7.4	0.04	A	7.3	0.03	A	-	-	-	-	-	-	-	-	-
WB LT										-	-	-	-	-	-	-	-	-	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT										-	-	-	-	-	-	-	-	-	9.1	0.07	A	8.8	0.04	A	9.0	0.05	A
SB LT/RT										8.6	0.06	A	8.6	0.04	A	8.6	0.05	A	-	-	-	-	-	-	-	-	-
Overall										5.9	-	-	5.8	-	-	5.2	-	-	3.8	-	-	3.1	-	-	3.1	-	-
15: Road C & Akahele Street																											
NB LT/TH/RT																			9.2	0.10	A	9.3	0.06	A	9.4	0.08	A
EB LT																			0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT																			0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT																			0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Overall																			5.6	-	-	2.7	-	-	3.2	-	-

5.4 Future Year 2030 Scenario 3 Analysis

By completion of Scenario 3 in Future Year 2030, the Project is projected to generate an additional 390(568)[748] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. Traffic generated by Project Scenario 3 will access the site via Akahele Street, the RIRO access and a new Road J which is proposed to connect to Honoapiilani Highway and service the areas south of Mahinahina Gulch. In addition, the proposed vehicular, bike and pedestrian access across Mahinahina Gulch was assumed to be constructed with Scenario 3 to provide access between the residential and retail areas north and south of the gulch.

By Future Year 2030 with the cumulative increases of Project Scenarios 1, 2 and 3, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 5-25%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 15-55% from Base Year 2030 without the Project scenario, during the AM, PM and WE peak hours of traffic.

5.4.1 Future Year 2030 Scenario 3 Intersection Analysis

With the additional trips generated by background developments and Scenario 3 of the Project, traffic volumes are expected to increase along Honoapiilani Highway, causing longer delays at the study intersections compared to Future Year 2025 with Scenario 2. All intersection movements forecast to operate at LOS E/F for Future Year 2025 Scenario 2 conditions will continue to operate at LOS E/F conditions during Future Year 2030 Scenario 3. The following intersections are expected to increased delays:

<u>[3] Honoapiilani Highway/Akahele Street</u>

Due to the continued development of areas north of Mahinahina Gulch, turning movements into and out of Akahele Street will increase. As a result, the intersection will worsen, but continue to operate adequately at an overall LOS C(D)[C] during Future Year 2030 Scenario 3. The majority of left-turn movements will operate at LOS E/F conditions during all peak hours, due to the long cycle length and increased turning movements at the intersection. In addition, the eastbound through/right-turn movement is expected to operate at LOS E during the PM peak hour. However, all movements will continue to operate under capacity.

Based on the AASHTO Green Book, left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection were determined. See Table 5.7 for the recommended storage lane lengths. Based on the AASHTO Green Book, the following is recommended. Note, additional taper length and/or deceleration length to be provided/verified upon design:

- Northbound left-turn lane → Lengthen left-turn lane to provide at least 250 feet of storage space.
- Westbound left-turn lane → Lengthen left-turn lane to provide at least 200 feet of storage space.

<u>[7] Honoapiilani Highway/Kaanapali Parkway</u>

By Future Year 2030 with Scenario 3 of the Project, the majority of left-turn and minor street movements are anticipated to operate at LOS E/F during all peak hours of traffic. During the PM

peak hour, the intersection is anticipated to operate at overall LOS E. Although longer delays are expected, all movements will continue to operate under capacity.

[11] Honoapiilani Highway/Keawe Street

Due to the continued development of the Project and background projects in the region, Honoapiilani Highway is expected to serve increasing volumes of traffic. By Future Year 2030, the northbound through movement is expected to operate at LOS F and overcapacity conditions during the PM peak hour of traffic. As noted previously, the LBR Phase 1C is anticipated to improve operations at several study intersections but was not included due to ongoing discussions regarding allocation of State funds for the roadway improvement project.

[13] Honoapiilani Highway/Road J

The proposed Honoapiilani Highway/Road J intersection was analyzed as an unsignalized intersection, which includes exclusive westbound left-turn and right-turn lanes, an exclusive southbound left-turn lane and an exclusive northbound right-turn lane. A southbound median refuge lane along Honoapiilani Highway may be constructed to facilitate westbound vehicles making the left-turn movement from Road J onto Honoapiilani Highway. Based on the Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, dated 2009, Four-Hour Vehicular Volume traffic signal warrant, a traffic signal is not forecast to be warranted based on weekday forecast volumes. However, the intersection should be monitored to determine if or when a traffic signal is warranted. Signal warrant figures are shown in Appendix D. Based on the AASHTO Green Book, the following is recommended:

- Northbound Approach → Provide one (1) through lane and a new right-turn deceleration lane with at least 100 feet of storage space. Additional taper length and/or deceleration length to be provided based upon design. AASHTO Green Book recommends 425 feet to accommodate full deceleration length with a design speed of 50 mph.
- Southbound Approach → Provide one (1) through lane and a new left-turn storage lane with at least 100 feet of storage space. Additional taper length and/or deceleration length to be provided based upon design. AASHTO Green Book recommends 425 feet to accommodate full deceleration length with a design speed of 50 mph.
    - A median refuge lane may be constructed to facilitate westbound left-turn traffic exiting Road J going onto Honoapiilani Highway.
- Westbound Approach → Provide a new left-turn storage lane and a new 100 feet right-turn storage lane.

Based on the above configuration, the westbound left-turn out of the Project is expected to operate at LOS E/F during all peak hours of traffic. However, gaps in through traffic along Honoapiilani Highway will help facilitate westbound left-turn movements due to traffic being controlled by the upstream signal at Akahele Street to the north and downstream signal at Lower Honoapiilani Road to the south. Additionally, a median refuge lane may be constructed to provide two-stage movement for left-turn vehicles to cross one direction at a time.

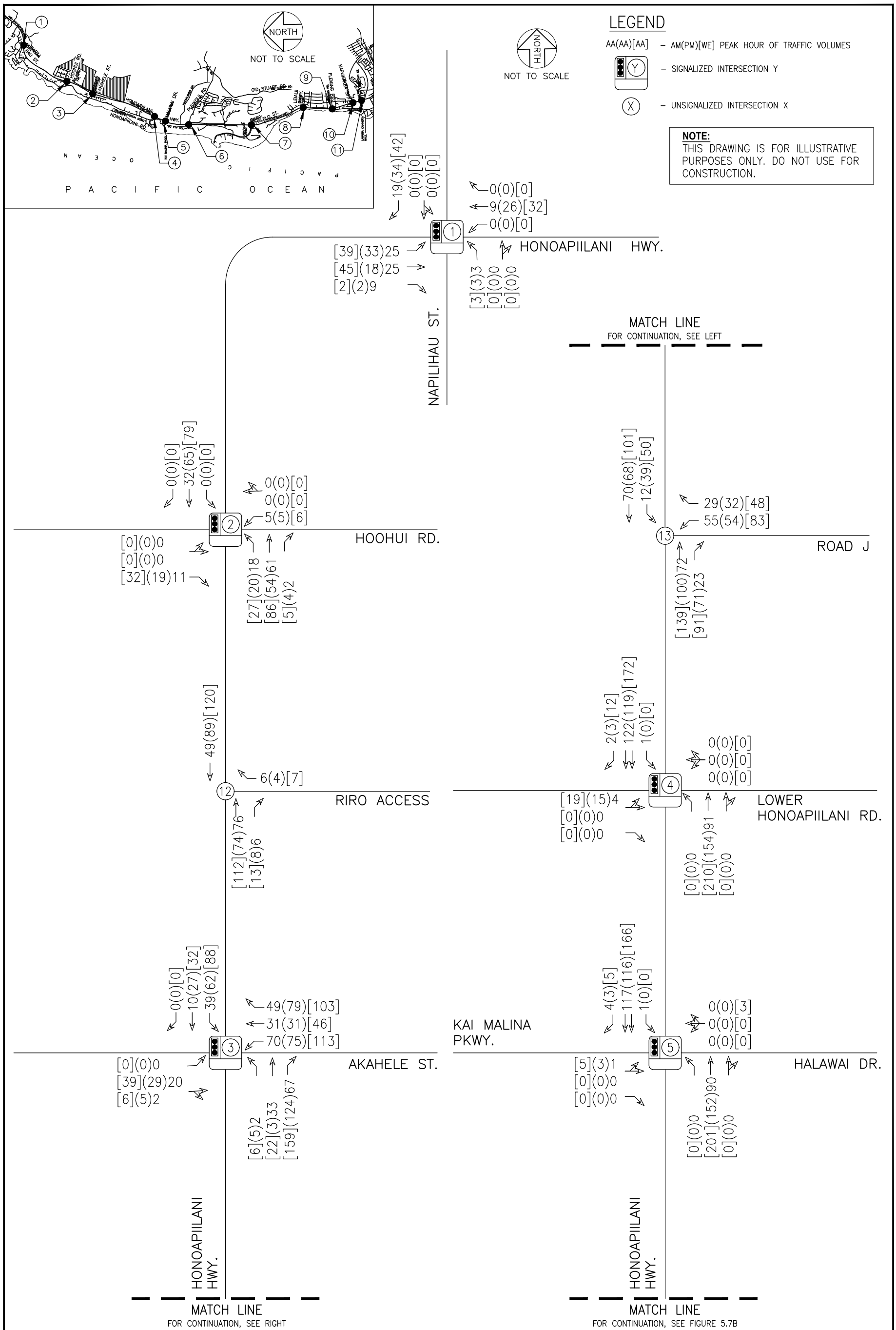
It should be noted that Maui Land and Pineapple Company (ML&P) owns land mauka of the Project and the Kapalua Airport. Although ML&P does not have current plans to develop this land, the Project developer is agreeable to allowing traffic access the ML&P parcel via the proposed Road J. The Project proposes to provide a 100-foot right-of-way (ROW) along Road J

as a provision to accommodate any future traffic demands along the roadway as a result of potential development by ML&P.

[14-15] Akahele Street intersection with Road A and Road C

With the proposed left-turn storage lanes at the Road A and Road C intersections, both intersections are expected to continue operating adequately at LOS D or better. As in Future Year 2025 Scenario 2, lengthy gaps in through traffic are expected along Akahele Street to help prevent long queues for opposing left-turn movements turning from Akahele Street. Similar to Scenario 2, based on AASHTO guidance, a minimum of 50' storage for the eastbound left-turn and 50' storage for the westbound left-turn lanes should be provided, exclusive of taper and deceleration length

Figure 5.7 illustrates the Project-generated trips for Future Year 2030 Scenario 3. Figure 5.8 illustrates the Future Year 2030 Scenario 3 forecast traffic volumes and LOS for the study intersection movements. Figure 5.9 illustrates the Future Year 2030 Scenario 3 forecast traffic volumes, LOS and intersection laneage at the two Project accesses along Akahele Street and at the Project RIRO access along Honoapiilani Highway. Table 5.8 summarizes the Future Year 2030 Scenario 3 LOS at the study intersections compared to Base Year 2030 and Future Year 2025 Scenario 2. LOS worksheets are provided in Appendix C.



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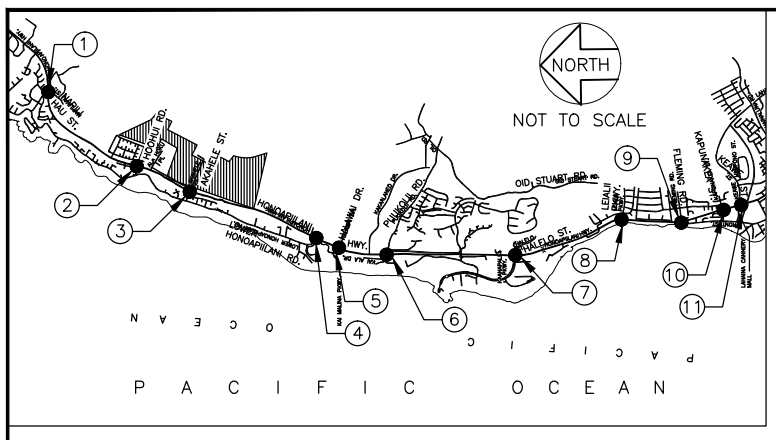
YEAR 2030 SCENARIO 3 PROJECT-GENERATED TRAFFIC

FIGURE 5.7A



NORTH
NOT TO SCALE

LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

Y – SIGNALIZED INTERSECTION Y

X – UNSIGNALIZED INTERSECTION X

NOTE:
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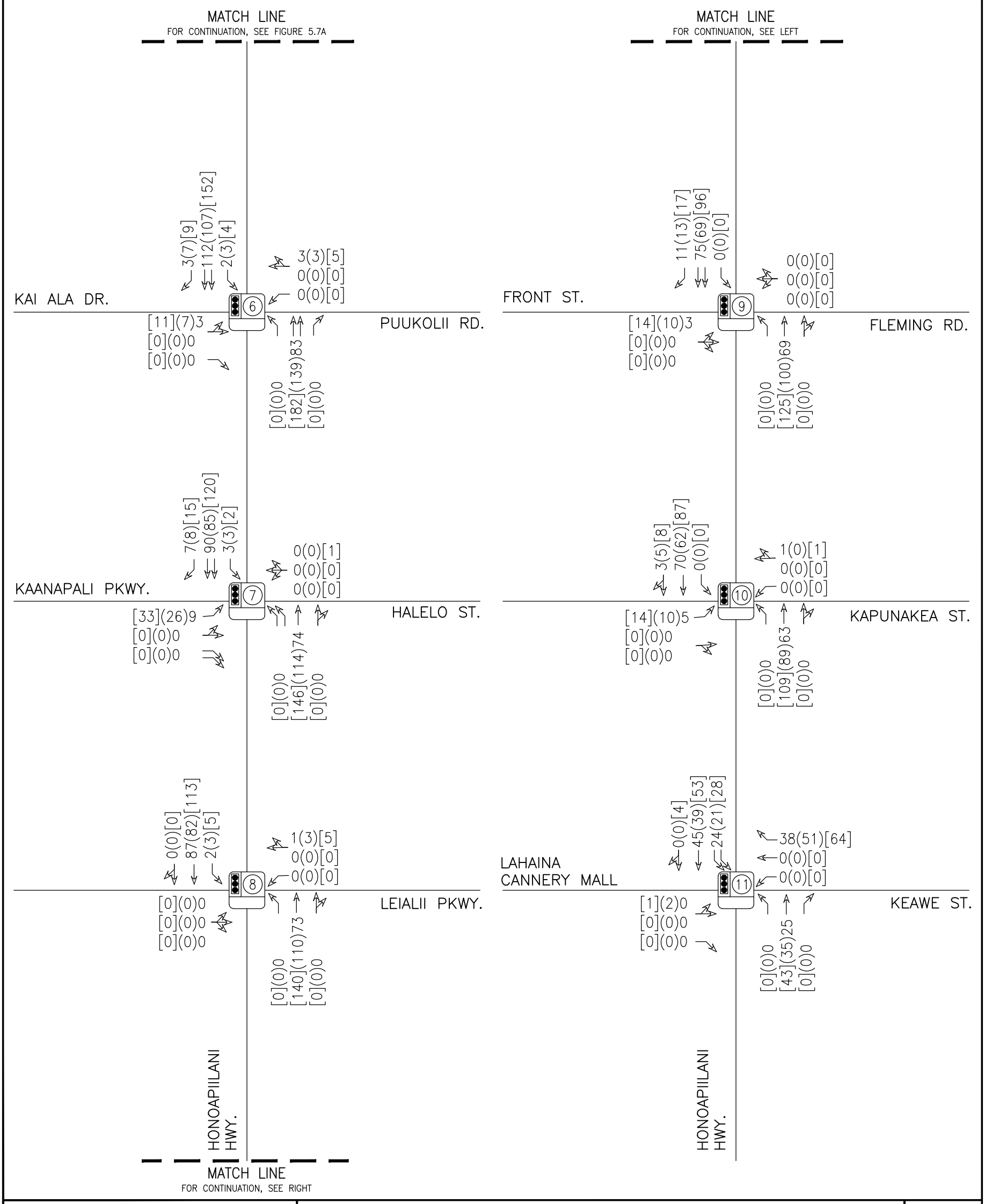
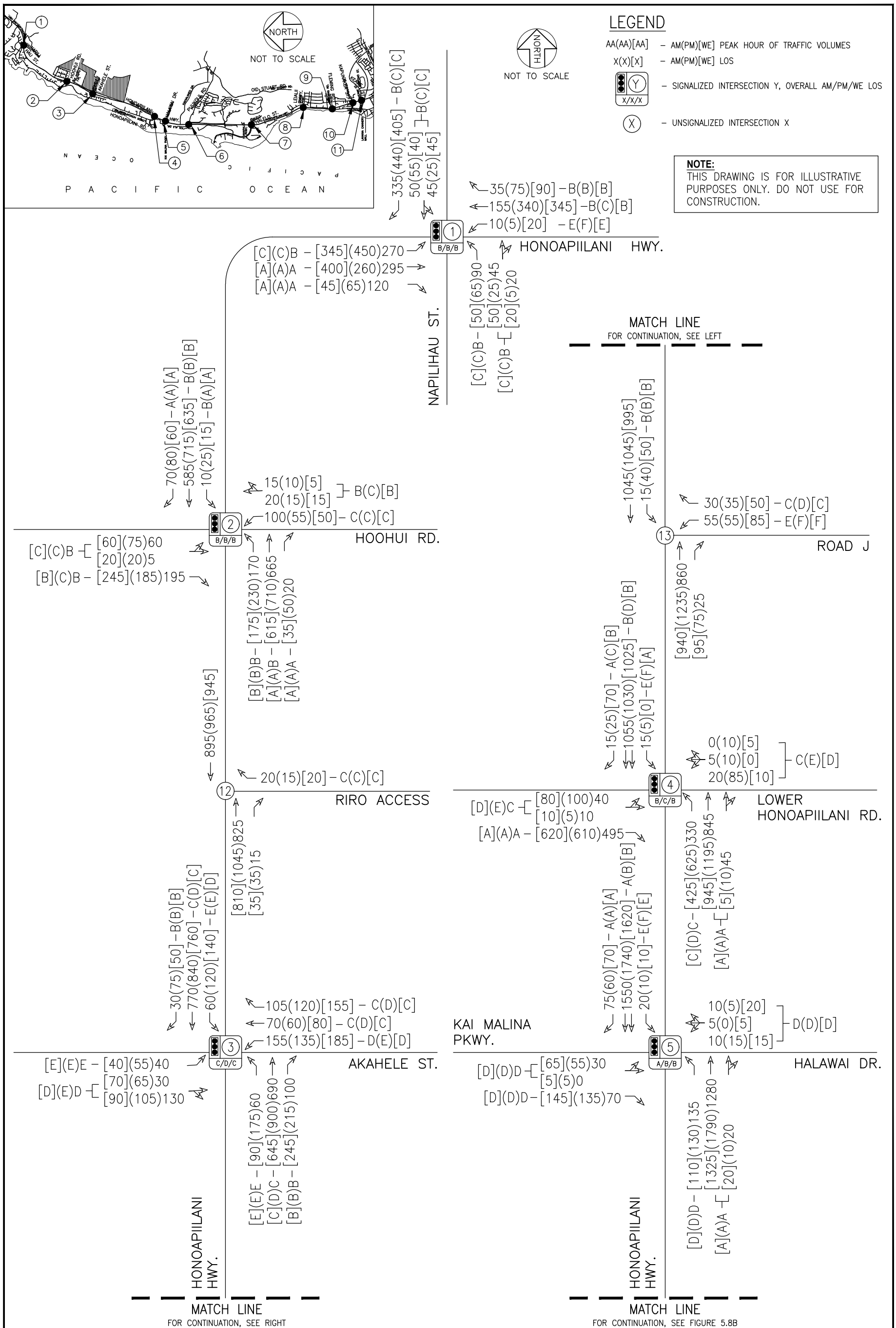


PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS,SURVEYORS • HONOLULU,HAWAII	FIGURE
	YEAR 2030 SCENARIO 3 PROJECT-GENERATED TRAFFIC	5.7B



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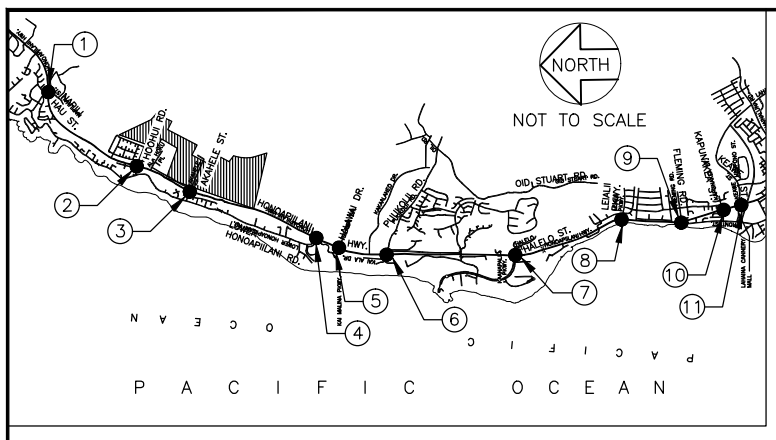
FUTURE YEAR 2030 SCENARIO 3 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 5.8A



LEGEND

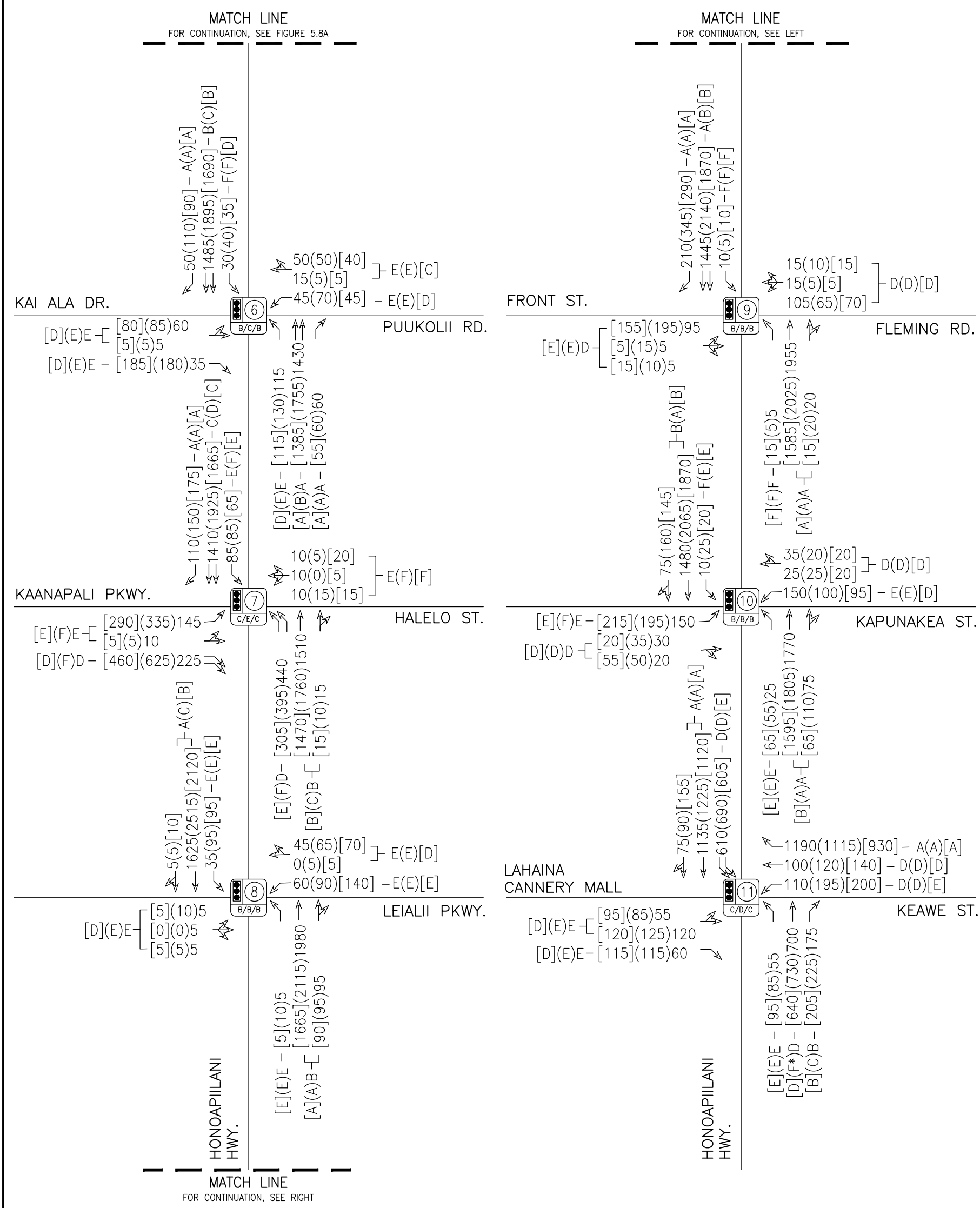
AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

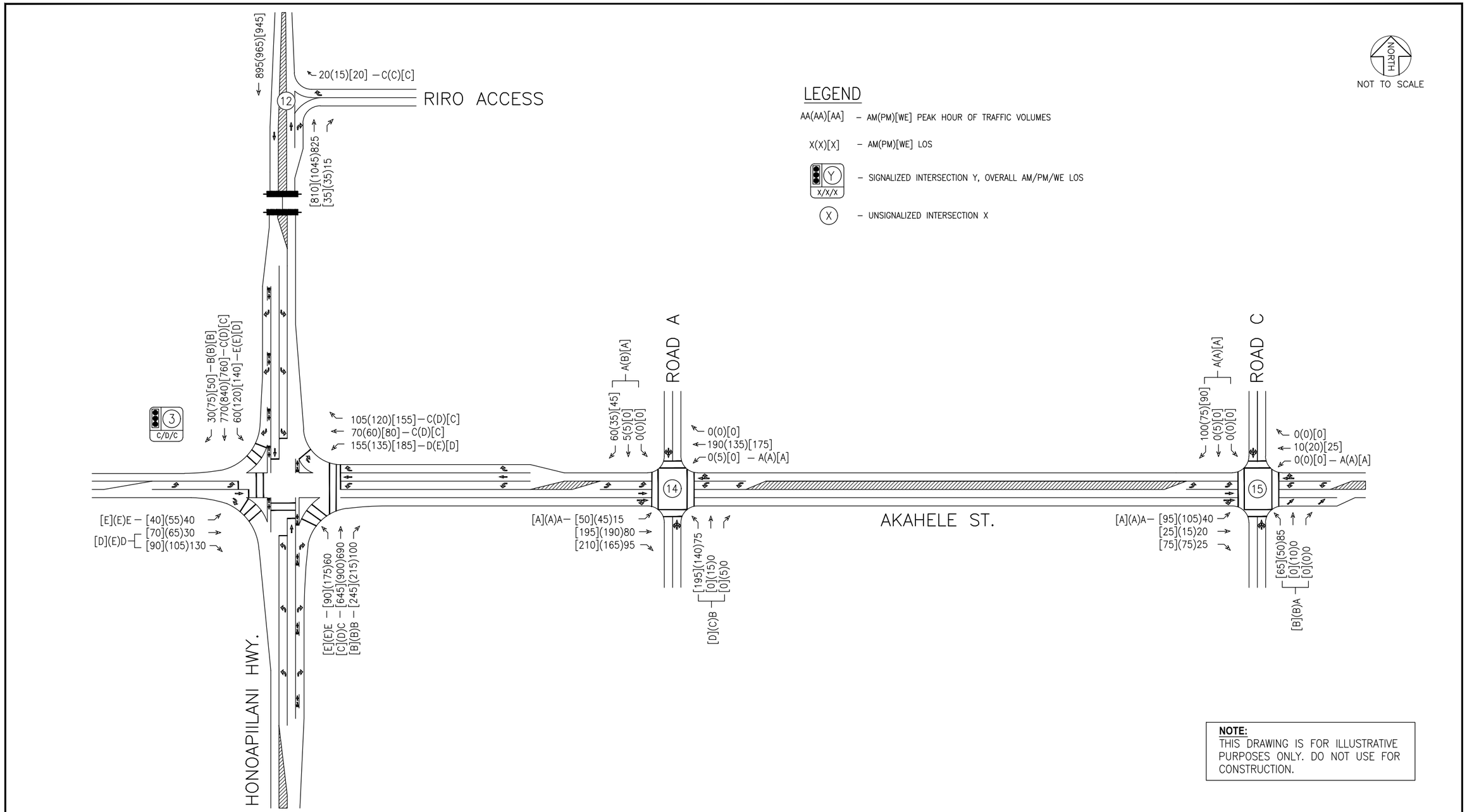
Y / X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

X – UNSIGNALIZED INTERSECTION X

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.



PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2030 SCENARIO 3 LANE CONFIGURATION, VOLUMES AND LOS	**5.8B**



NOTE:
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FIGURE 5.9

FUTURE YEAR 2030 SCENARIO 3
AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS

Table 5.7: Future Year 2030 (Scenario 3)
Left-Turn Storage Lane Length Calculations

Honoapiilani Highway & Akahele Street Intersection								
			AASHTO					Recommended storage length [3]
Movement	Peak Hour	Design Volume per lane (veh)	Cycle Length (sec) [1]	Cycles per Hour	Average Veh. per Cycle	Minimum Storage Length (1.5 factor) [2]		
						Veh	Ft	
Northbound Left-turn lane	AM	60	90	40	2	3	75	250 ft
	PM	175	135	27	7	10	**250**	
	WE	90	100	36	3	4	100	
Southbound Left-turn lane	AM	60	90	40	2	3	75	Storage accommodated. Max queue could encroach into taper.
	PM	120	135	27	5	7	**175**	
	WE	140	100	36	4	6	150	
Eastbound Left-turn lane	AM	40	90	40	1	2	60	Storage accommodated
	PM	55	135	27	3	4	**100**	
	WE	40	100	36	2	2	60	
Westbound Left-turn lane	AM	155	90	40	4	6	150	200 ft
	PM	135	135	27	5	8	**200**	
	WE	185	100	36	6	8	200	

Notes:

1. Cycle length based on Highway Capacity Manual (HCM), 6th Edition equilibrium cycle length.
2. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.

Table 5.8: Base Year 2030, Future Year 2025 Scenario 2 and Future Year 2030 Scenario 3 Level of Service Summary

	Base Year 2030									Future Year 2025 Scenario 2									Future Year 2030 Scenario 3								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																											
NB LT	18.6	0.75	B	20.3	0.84	C	20.0	0.78	B	18.5	0.75	B	20.8	0.84	C	20.4	0.79	C	18.6	0.77	B	24.1	0.87	C	22.2	0.82	C
NB TH	8.0	0.34	A	5.7	0.24	A	7.4	0.38	A	8.1	0.35	A	5.6	0.24	A	7.3	0.38	A	8.3	0.38	A	5.5	0.25	A	7.3	0.42	A
NB RT	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A	6.7	0.08	A	4.8	0.05	A	5.5	0.03	A	6.8	0.09	A	4.6	0.05	A	5.3	0.03	A
EB LT/TH	15.3	0.26	B	21.6	0.30	C	19.0	0.29	B	15.5	0.26	B	22.4	0.31	C	19.8	0.31	B	15.9	0.26	B	24.9	0.31	C	21.9	0.31	C
EB RT	14.9	0.18	B	20.5	0.13	C	18.2	0.17	B	15.1	0.18	B	21.4	0.16	C	18.9	0.17	B	15.4	0.18	B	23.9	0.17	C	21.1	0.18	C
WB LT	17.6	0.29	B	24.1	0.29	C	20.8	0.20	C	17.9	0.29	B	25.2	0.31	C	21.7	0.20	C	18.4	0.31	B	28.1	0.34	C	24.2	0.24	C
WB TH/RT	14.9	0.20	B	20.4	0.13	C	18.7	0.28	B	15.2	0.20	B	21.2	0.14	C	19.5	0.29	B	15.5	0.20	B	23.6	0.13	C	21.6	0.29	C
SB LT	66.2	0.72	E	104.1	0.70	F	56.8	0.77	E	66.6	0.72	E	105.2	0.70	F	58.1	0.77	E	67.6	0.72	E	109.3	0.70	F	62.8	0.79	E
SB TH	12.9	0.32	B	18.4	0.62	B	15.7	0.59	B	13.3	0.33	B	18.9	0.63	B	16.1	0.60	B	14.3	0.37	B	20.9	0.67	C	17.7	0.63	B
SB RT	11.2	0.02	B	13.4	0.05	B	11.5	0.06	B	11.5	0.02	B	13.7	0.05	B	11.8	0.06	B	12.2	0.02	B	14.7	0.05	B	12.6	0.06	B
Overall	14.1	-	B	17.0	-	B	15.5	-	B	14.1	-	B	17.4	-	B	15.8	-	B	14.4	-	B	19.4	-	B	16.9	-	B
2: Honoapiilani Highway & Hoohui Road																											
NB LT	10.1	0.38	B	9.9	0.51	A	8.5	0.35	A	10.3	0.42	B	10.8	0.54	B	8.7	0.38	A	11.5	0.48	B	13.4	0.64	B	10.3	0.47	B
NB TH	11.1	0.67	B	9.5	0.69	A	9.0	0.60	A	11.6	0.71	B	9.6	0.69	A	9.1	0.61	A	12.5	0.76	B	9.9	0.71	A	9.5	0.67	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	18.0	0.18	B	21.0	0.32	C	17.3	0.24	B	18.1	0.17	B	21.8	0.32	C	17.9	0.24	B	19.4	0.18	B	24.5	0.33	C	20.6	0.26	C
EB RT	16.9	0.06	B	19.4	0.06	B	16.4	0.09	B	17.0	0.07	B	20.2	0.07	C	17.0	0.09	B	18.3	0.07	B	22.7	0.06	C	19.5	0.09	B
WB LT	20.7	0.29	C	23.2	0.21	C	18.8	0.15	B	20.9	0.30	C	24.3	0.23	C	19.5	0.15	B	22.6	0.33	C	27.5	0.27	C	22.7	0.20	C
WB TH/RT	16.9	0.07	B	19.4	0.07	B	16.3	0.06	B	17.0	0.06	B	20.2	0.07	C	16.9	0.06	B	18.3	0.06	B	22.6	0.07	C	19.4	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	8.0	0.04	A	10.2	0.03	B	8.3	0.07	A	8.0	0.04	A	10.8	0.04	B	8.7	0.08	A	8.3	0.04	A
SB TH	15.3	0.78	B	13.6	0.79	B	12.6	0.75	B	15.6	0.79	B	14.0	0.81	B	12.8	0.76	B	16.4	0.81	B	15.1	0.84	B	14.0	0.80	B
SB RT	9.4	0.05	A	7.9	0.06	A	7.9	0.04	A	9.7	0.05	A	7.9	0.06	A	7.9	0.04	A	9.7	0.05	A	7.9	0.06	A	7.8	0.04	A
Overall	13.5	-	B	12.1	-	B	11.3	-	B	13.8	-	B	12.6	-	B	11.4	-	B	14.7	-	B	13.7	-	B	12.4	-	B
3: Honoapiilani Highway & Akahele Street																											
NB LT	44.1	0.77	D	45.4	0.82	D	38.3	0.76	D	49.5	0.76	D	50.2	0.83	D	43.8	0.76	D	56.2	0.76	E	68.8	0.87	E	55.3	0.77	E
NB TH	10.7	0.67	B	14.1	0.78	B	9.9	0.62	A	14.5	0.71	B	23.5	0.87	C	15.4	0.71	B	21.5	0.80	C	41.8	0.94	D	27.0	0.83	C
NB RT	6.2	0.01	A	5.6	0.01	A	6.1	0.01	A	8.6	0.03	A	8.8	0.07	A	9.7	0.06	A	12.0	0.08	B	15.3	0.21	B	17.0	0.25	B
EB LT	46.6	0.73	D	56.8	0.77	E	45.7	0.72	D	57.0	0.77	E	61.1	0.77	E	55.5	0.77	E	65.0	0.78	E	79.0	0.77	E	68.5	0.78	E
EB TH/RT	25.6	0.07	C	35.5	0.05	D	25.8	0.05	C	29.8	0.07	C	41.4	0.35	D	30.1	0.23	C	37.7	0.30	D	69.1	0.79	E	49.5	0.76	D
WB LT	71.1	0.53	E	68.9	0.58	E	53.6	0.56	D	44.8	0.76	D	59.9	0.77	E	45.4	0.76	D	47.3	0.82	D	75.5	0.85	E	54.0	0.85	D
WB TH	27.0	0.03	C	38.1	0.03	D	26.9	0.03	C	27.8	0.14	C	39.3	0.15	D	27.5	0.11	C	30.6	0.20	C	49.4	0.21	D	33.0	0.22	C
WB RT	26.9	0.01	C	38.0	0.01	D	26.8	0.01	C	27.1	0.02	C	38.4	0.01	D	26.9	0.01	C	29.4	0.04	C	47.8	0.05	D	31.8	0.07	C
SB LT	113.4	0.70	F	129.3	0.72	F	112.8	0.70	F	86.1	0.84	F	59.7	0.76	E	50.2	0.77	D	56.2	0.76	E	71.8	0.83	E	51.9	0.81	D
SB TH	15.5	0.85	B	25.2	0.89	C	15.9	0.84	B	20.1	0.87	C	30.4	0.91	C	20.1	0.86	C	26.8	0.89	C	44.2	0.94	D	31.3	0.90	C
SB RT	7.5	0.02	A	10.4	0.05	B	8.1	0.04	A	9.8	0.02	A	12.3	0.05	B	10.5	0.03	B	11.6	0.02	B	16.0	0.05	B	13.3	0.03	B
Overall	15.8	-	B	23.1	-	C	16.0	-	B	21.9	-	C	31.2	-	C	22.5	-	C	29.0	-	C	47.7	-	D	34.6	-	C
4: Honoapiilani Highway & Lower Honoapiilani Road																											
NB LT	23.8	0.85	C	36.3	0.94	D	23.0	0.88	C	25.4	0.85	C	38.5	0.95	D	24.5	0.88	C	29.7	0.87	C	52.4	0.96	D	32.6	0.91	C
NB TH/RT	4.6	0.35	A	4.4	0.37	A	2.4	0.26	A	4.4	0.34	A	4.5	0.40	A	2.5	0.28	A	4.3	0.37	A	4.9	0.45	A	3.0	0.36	A
EB LT/TH	26.8	0.20	C	46.4	0.40	D	29.6	0.32	C	28.7	0.21	C	48.8	0.46	D	31.2	0.35	C	33.7	0.26	C	60.5	0.57	E	40.1	0.45	D
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	26.2	0.11	C	47.4	0.50	D	27.7	0.05	C	28.1	0.11	C	49.3	0.51	D	29.0	0.05	C	32.7	0.13	C	59.3	0.52	E	36.5	0.05	D
SB LT	52.7	0.74	D	92.9	0.72	F	0.0	0.00	A	55.2	0.74	E	94.9	0.73	F	0.0	0.00	A	58.5	0.79	E	108.4	0.74	F	0.0	0.00	A
SB TH	13.5	0.59	B	30.3	0.72	C	15.6	0.60	B	13.8	0.61	B	30.9	0.73	C	16.2	0.61	B	14.6	0.65	B	37.2	0.79	D	19.7	0.68	B
SB RT	9.4	0.00	A	21.2	0.01	C	11.3	0.03	B	9.4	0.01	A	21.4	0.01	C	11.6	0.03	B	9.3	0.01	A	23.8	0.01	C	13.1	0.05	B
Overall	12.4	-	B	23.6	-	C	13.3	-	B	12.8	-	B	24.1	-	C	13.6	-	B	13.7	-	B	29.2	-	C	16.3	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																											
NB LT	34.2	0.79	C	46.2	0.82	D	38.3	0.79	D	35.4	0.80	D	46.5	0.82	D	38.9	0.79	D	39.5	0.81	D	50.3	0.83	D	45.1	0.80	D
NB TH/RT	4.1	0.47	A	7.5	0.63	A	4.9	0.44	A	4.0	0.47	A	7.9	0.66	A	5.0	0.46	A	4.0	0.50	A	9.4	0.72	A	5.6	0.54	A
EB LT/TH	33.0	0.17	C	38.9	0.23	D	33.5	0.27	C	34.1	0.18	C	39.2	0.23	D	34.0	0.27	C	38.4	0.19	D	42.7	0.26	D	39.7	0.32	D
EB RT	32.7	0.01	C	38.1	0.03	D	32.6	0.04	C	33.9	0.01	C	38.3	0.03	D	33.1	0.04	C	38.1	0.02	D	41.5	0.03	D	38.3	0.04	D
WB LT/TH/RT	33.3	0.11	C	40.1	0.08	D	32.8	0.11	C	34.5	0.11	C	40.4	0.08	D	33.4	0.11	C	38.7	0.13	D	44.1	0.09	D	39.1	0.13	D
SB LT	56.6	0.79	E	75.5	0.78	E	63.8	0.76	E	58.3	0.79	E	76.0	0.78	E	64.5	0.76	E	64.3	0.85	E	81.2	0.79	F	72.9	0.77	E
SB TH	7.9	0.63	A	13.1	0.75	B	9.2	0.66	A	8.0	0.65	A	13.2	0.75	B	9.3	0.67	A	8.5	0.69	A	15.4	0.81	B	11.0	0.74	B
SB RT	4.4	0.05	A	6.2	0.04	A	5.0	0.04	A	4.4	0.05	A	6.3	0.04	A	5.0	0.04	A	4.2	0.05	A	6.3	0.04	A	5.1	0.05	A
Overall	8.2	-	A	12.5	-	B	9.6	-	A	8.2	-	A	12.6	-	B	9.6	-	A	8.7	-	A	14.4	-	B	10.8	-	B

Table 5.8: Base Year 2030, Future Year 2025 Scenario 2 and Future Year 2030 Scenario 3 Level of Service Summary Cont'd

	Base Year 2030									Future Year 2025 Scenario 2									Future Year 2030 Scenario 3								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																											
NB LT	75.2	0.85	E	77.8	0.87	E	41.8	0.79	D	75.2	0.85	E	77.6	0.87	E	42.1	0.79	D	75.0	0.85	E	77.1	0.87	E	44.7	0.79	D
NB TH	6.7	0.52	A	10.4	0.62	B	8.3	0.53	A	6.9	0.52	A	11.0	0.65	B	8.5	0.55	A	7.5	0.56	A	13.0	0.73	B	9.4	0.63	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.3	0.04	A	4.0	0.04	A	5.5	0.04	A	5.3	0.04	A	4.1	0.04	A	5.8	0.04	A	5.2	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	33.6	0.24	C	68.0	0.37	E	67.1	0.39	E	34.1	0.26	C	67.8	0.38	E	67.0	0.40	E	37.5	0.33	D
EB RT	62.8	0.01	E	63.8	0.14	E	32.2	0.05	C	62.8	0.01	E	63.8	0.18	E	32.6	0.05	C	62.3	0.01	E	63.7	0.21	E	35.0	0.06	D
WB LT	74.9	0.42	E	78.4	0.54	E	37.1	0.23	D	74.9	0.42	E	78.6	0.54	E	37.9	0.23	D	74.9	0.42	E	79.1	0.55	E	42.0	0.27	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	32.0	0.03	C	63.5	0.09	E	62.1	0.02	E	32.4	0.03	C	63.1	0.09	E	61.6	0.03	E	34.9	0.03	C
SB LT	82.8	0.68	F	89.0	0.77	F	44.8	0.59	D	84.7	0.76	F	89.0	0.77	F	45.2	0.59	D	84.7	0.76	F	87.7	0.78	F	48.2	0.63	D
SB TH	11.0	0.55	B	19.8	0.78	B	14.6	0.76	B	11.2	0.57	B	20.4	0.79	C	14.8	0.77	B	12.6	0.63	B	24.1	0.85	C	17.4	0.84	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.3	0.05	A	6.2	0.03	A	8.9	0.08	A	7.3	0.05	A	6.4	0.04	A	9.2	0.09	A	7.2	0.06	A
Overall	14.4	-	B	20.7	-	C	14.2	-	B	14.7	-	B	21.2	-	C	14.4	-	B	15.3	-	B	23.5	-	C	16.1	-	B
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																											
NB LT	44.5	0.77	D	100.0	0.87	F	58.5	0.75	E	46.1	0.78	D	100.1	0.87	F	58.9	0.75	E	53.3	0.80	D	113.0	0.88	F	73.2	0.79	E
NB TH/RT	16.4	0.71	B	23.8	0.69	C	14.5	0.59	B	16.1	0.69	B	24.4	0.71	C	14.6	0.60	B	16.9	0.71	B	26.9	0.75	C	16.7	0.65	B
EB LT/TH	48.6	0.48	D	96.0	0.63	F	57.1	0.59	E	50.4	0.48	D	97.3	0.66	F	58.0	0.64	E	58.2	0.53	E	114.1	0.76	F	71.6	0.71	E
EB RT	31.1	0.08	C	71.3	0.54	E	42.9	0.37	D	32.3	0.08	C	71.2	0.53	E	43.3	0.37	D	37.6	0.08	D	83.6	0.63	F	53.4	0.37	D
WB LT/TH/RT	49.1	0.18	D	109.7	0.24	F	64.7	0.35	E	50.8	0.18	D	109.8	0.24	F	65.2	0.35	E	58.8	0.20	E	122.6	0.28	F	81.0	0.41	F
SB LT	50.8	0.59	D	131.3	0.76	F	63.7	0.56	E	52.6	0.59	D	131.5	0.76	F	64.2	0.56	E	60.6	0.64	E	122.6	0.77	F	79.4	0.63	E
SB TH	23.0	0.76	C	47.5	0.92	D	23.0	0.79	C	23.2	0.77	C	47.5	0.92	D	22.9	0.79	C	24.8	0.79	C	52.2	0.94	D	26.7	0.82	C
SB RT	9.9	0.09	A	19.9	0.12	B	13.0	0.14	B	9.9	0.09	A	8.4	0.11	A	6.8	0.13	A	9.8	0.09	A	8.4	0.12	A	6.6	0.14	A
Overall	24.7	-	C	50.3	-	D	27.2	-	C	25.0	-	C	50.0	-	D	27.0	-	C	27.1	-	C	55.5	-	E	31.7	-	C
8: Honoapiilani Highway & Leialii Parkway																											
NB LT	74.9	0.44	E	69.1	0.49	E	71.9	0.44	E	75.0	0.44	E	68.9	0.49	E	71.8	0.44	E	74.4	0.44	E	73.5	0.50	E	71.0	0.44	E
NB TH/RT	9.6	0.75	A	2.7	0.80	A	3.4	0.66	A	9.5	0.74	A	2.7	0.81	A	3.5	0.67	A	10.4	0.78	B	3.3	0.87	A	4.3	0.74	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	57.1	0.07	E	49.7	0.03	D	58.6	0.06	E	61.5	0.07	E	49.6	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	67.4	0.56	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	61.1	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	69.8	0.60	E	76.7	0.81	E	78.3	0.80	E
SB TH/RT	5.6	0.54	A	16.8	0.88	B	12.3	0.76	B	5.7	0.55	A	16.3	0.88	B	12.2	0.76	B	6.3	0.59	A	20.3	0.92	C	14.8	0.82	B
Overall	9.6	-	A	12.7	-	B	12.0	-	B	9.6	-	A	12.4	-	B	12.0	-	B	10.3	-	B	14.9	-	B	13.4	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																											
NB LT	88.1	0.73	F	93.1	0.74	F	85.1	0.84	F	88.5	0.73	F	92.2	0.74	F	84.9	0.84	F	86.1	0.73	F	96.1	0.74	F	82.0	0.84	F
NB TH/RT	8.5	0.72	A	2.2	0.76	A	7.1	0.55	A	8.3	0.71	A	2.3	0.77	A	7.4	0.56	A	9.0	0.75	A	3.0	0.83	A	8.8	0.63	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	52.7	0.48	D	59.8	0.73	E	57.6	0.67	E	53.1	0.50	D	66.1	0.76	E	57.7	0.69	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.3	0.61	D	49.1	0.25	D	52.2	0.33	D	54.4	0.61	D	51.9	0.24	D	50.7	0.31	D
SB LT	87.0	0.80	F	81.7	0.74	F	84.7	0.82	F	86.7	0.80	F	82.6	0.74	F	84.7	0.82	F	85.6	0.80	F	84.0	0.74	F	81.4	0.82	F
SB TH	5.2	0.52	A	12.8	0.84	B	8.4	0.70	A	5.2	0.52	A	13.5	0.84	B	8.6	0.70	A	5.5	0.56	A	15.8	0.89	B	10.3	0.76	B
SB RT	3.2	0.12	A	5.5	0.24	A	4.3	0.18	A	3.2	0.12	A	5.9	0.24	A	4.4	0.18	A	3.2	0.14	A	6.4	0.26	A	4.9	0.20	A
Overall	10.2	-	B	10.8	-	B	11.3	-	B	10.2	-	B	11.2	-	B	11.5	-	B	10.5	-	B	12.7	-	B	12.7	-	B
10: Honoapiilani Highway & Kapunakea Street																											
NB LT	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	71.9	0.81	E	63.3	0.79	E
NB TH/RT	0.3	0.71	A	0.4	0.74	A	1.5	0.64	A	0.3	0.70	A	0.4	0.75	A	1.6	0.64	A	0.4	0.74	A	0.4	0.77	A	12.6	0.72	B
EB LT	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	58.9	0.60	E	59.5	0.71	E	57.8	0.72	E	59.3	0.62	E	88.5	0.86	F	58.4	0.73	E
EB TH/RT	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	46.4	0.15	D	43.5	0.09	D	49.5	0.11	D	53.3	0.19	D	42.3	0.08	D
WB LT	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	52.7	0.41	D	48.4	0.35	D	59.7	0.63	E	61.2	0.49	E	47.0	0.33	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	45.7	0.09	D	43.3	0.07	D	49.4	0.10	D	52.3	0.10	D	42.1	0.06	D
SB LT	100.4	0.83	F	70.8	0.80	E	83.4	0.84	F	100.1	0.83	F	70.8	0.80	E	83.4	0.84	F	99.2	0.83	F	74.4	0.79	E	74.2	0.81	E
SB TH/RT	10.8	0.59	B	5.8	0.92	A	8.6	0.84	A	11.0	0.60	B	5.7	0.92	A	8.9	0.84	A	11.7	0.64	B	4.8	0.92	A	13.2	0.91	B
Overall	10.9	-	B	9.1	-	A	11.2	-	B	11.1	-	B	9.1	-	A	11.4	-	B	11.2	-	B	10.1	-	B	18.1	-	B

Table 5.8: Base Year 2030, Future Year 2025 Scenario 2 and Future Year 2030 Scenario 3 Level of Service Summary Cont'd

	Base Year 2030									Future Year 2025 Scenario 2									Future Year 2030 Scenario 3								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																											
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	92.7	0.82	F	63.0	0.81	E
NB TH	37.8	0.81	D	58.6	0.95	E	46.7	0.86	D	38.3	0.81	D	59.6	0.95	E	47.0	0.86	D	44.9	0.88	D	84.3	1.04	F*	52.5	0.92	D
NB RT	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C	21.8	0.16	C	27.0	0.25	C	27.3	0.22	C	22.4	0.16	C	29.4	0.27	C	26.6	0.26	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	64.8	0.76	E	61.0	0.76	E	64.1	0.70	E	71.4	0.78	E	60.9	0.76	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	47.3	0.07	D	44.6	0.06	D	51.6	0.03	D	51.4	0.09	D	45.6	0.17	D
WB LT	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D	47.4	0.53	D	85.5	0.92	F	51.5	0.78	D	47.4	0.53	D	81.0	0.90	F	66.5	0.86	E
WB TH	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	37.9	0.25	D	33.4	0.26	C	42.3	0.23	D	40.3	0.25	D	34.9	0.27	C
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	59.0	0.94	E	44.4	0.95	D	57.4	0.88	E	51.5	0.93	D	43.6	0.95	D	57.4	0.89	E	51.1	0.93	D	45.8	0.96	D	57.6	0.93	E
SB TH/RT	1.4	0.55	A	0.8	0.67	A	35.2	0.69	D	1.4	0.55	A	0.7	0.66	A	34.9	0.69	C	1.6	0.58	A	0.8	0.69	A	24.1	0.72	C
Overall	30.0	-	C	34.0	-	C	44.7	-	D	28.8	-	C	34.4	-	C	44.7	-	D	29.9	-	C	40.7	-	D	42.4	-	D
12: RIRO Access & Honoapiilani Highway																											
WB RT										14.7	0.04	B	18.3	0.04	C	13.9	0.03	B	16.3	0.06	C	20.7	0.07	C	16.1	0.06	C
Overall										0.1	-	-	0.1	-	-	0.1	-	-	0.2	-	-	0.2	-	-	0.2	-	-
13: Honoapiilani Highway & Road J																											
WB LT																			37.0	0.35	E	65.2	0.52	F	67.4	0.65	F
WB RT																			17.4	0.10	C	29.3	0.21	D	20.5	0.19	C
SB LT																			10.2	0.02	B	13.3	0.09	B	11.4	0.09	B
Overall																			1.3	-	-	2.1	-	-	3.3	-	-
14: Road A & Akahele Street																											
NB LT/TH/RT										10.5	0.04	B	11.6	0.03	B	11.7	0.04	B	13.8	0.17	B	21.3	0.44	C	32.2	0.63	D
EB LT										7.4	0.01	A	7.5	0.04	A	7.5	0.04	A	7.7	0.01	A	7.6	0.03	A	7.7	0.04	A
WB LT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	8.1	0.01	A	0.0	0.00	A
SB LT/TH/RT										9.1	0.07	A	8.8	0.04	A	9.0	0.05	A	9.7	0.08	A	10.0	0.06	B	9.5	0.06	A
Overall										3.8	-	-	3.1	-	-	3.1	-	-	3.4	-	-	5.7	-	-	8.1	-	-
15: Road C & Akahele Street																											
NB LT/TH/RT										9.2	0.10	A	9.3	0.06	A	9.4	0.08	A	11.2	0.14	B	12.9	0.13	B	13.2	0.14	B
EB LT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	7.3	0.03	A	7.4	0.07	A	7.4	0.07	A
WB LT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	8.7	0.10	A	9.0	0.09	A	8.8	0.09	A
Overall										5.6	-	-	2.7	-	-	3.2	-	-	7.5	-	-	6.4	-	-	6.3	-	-
16: Road G & Road J																											
NB LT/TH/RT																			9.5	0.01	A	10.2	0.03	B	10.9	0.08	B
EB LT/TH/RT																			7.4	0.01	A	7.4	0.02	A	7.4	0.03	A
WB LT/TH/RT																			0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT																			8.7	0.01	A	9.2	0.05	A	8.7	0.03	A
Overall																			1.9	-	-	3.3	-	-	3.5	-	-
17: Road F & Road J																											
NB LT/RT																			9.0	0.04	A	9.2	0.03	A	9.2	0.04	A
WB LT/TH																			0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Overall																			3.3	-	-	1.6	-	-	2.0	-	-

* Denotes overcapacity condition, v/c ≥ 1.

5.5 Future Year 2035 Scenario 4 Analysis

As discussed previously, a future elementary school will be planned/developed by the Department of Education (DOE) on the Project site. Since the development of the school is not in the direct controller of the Pulelehua development, the timeframe for this school has yet to be determined. For the purposes of this TIAR, a forecast build-out of 2035 with inclusion of the elementary school as part of the Project was assumed as Scenario 4 for the TIAR.

By completion of Scenario 4 in Future Year 2035, the Project is projected to generate an additional 471(115)[0] new external trips during the AM(PM)[WE] peak hours of traffic. Elementary school students in Lahaina are currently serviced primarily by Princess Nahienaena Elementary School and King Kamehameha III Elementary School, located further south of Keawe Street. It's anticipated that upon opening of the new Elementary School in the Project site, many students will transfer to this site from the Kaanapali, Honokowai, Kahana, Napili and Kapalua regions. Trips generated by the new elementary school were rerouted from existing traffic along Honoapiilani Highway to the new site. As a result, the majority of traffic increases were turning movement traffic turning into and out of Akahele Street on the east leg of its intersection with Honoapiilani Highway. Traffic reductions to various through movements along the highway were a result of the reroute.

5.5.1 Future Year 2035 Scenario 4 Intersection Analysis

With the additional trips generated by Scenario 4, several study intersections are forecast to operate with increased delay over Future Year 2030 Scenario 3 conditions. However, the majority of movements are expected to operate similar to Future Year 2030 Scenario 3 with all intersection movements forecast to operate at LOS E/F for Future Year 2030 Scenario 3 conditions anticipated to continue operating at LOS E/F conditions during Future Year 2035 Scenario 4.

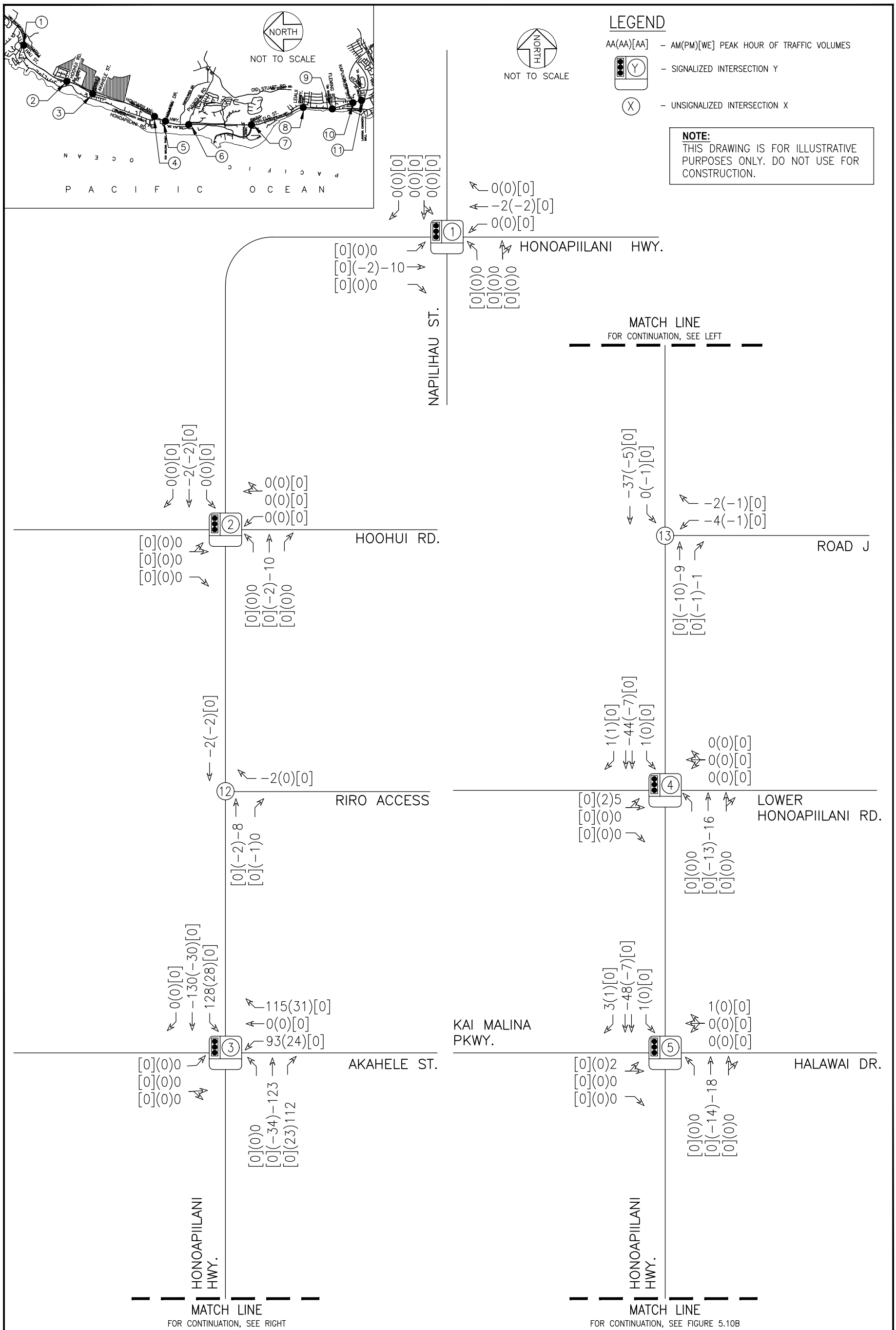
<u>[3] Honoapiilani Highway/Akahele Street</u>

As in Base Year 2035 and Future Year 2030 Scenario 3, various left-turn movements along with the eastbound through/right-turn movement are anticipated to operate at LOS E/F during various peak hours of traffic. Although delay is expected to increase at this intersection with Scenario 4 of the Project, the intersection will operate adequately with overall LOS D(D)[D] during the AM(PM)[WE] peak hours with all movements operating within capacity.

Based on the AASHTO Green Book, left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection were determined. See Table 5.9 for the recommended storage lane lengths. Based on the AASHTO Green Book, the following is recommended. Note, additional taper length and/or deceleration length to be provided/verified upon design:

- Northbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.
- Southbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.
- Westbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.

Figure 5.10 illustrates the Project-generated trips for Future Year 2035 Scenario 4. Figure 5.11 illustrates the Future Year 2035 Scenario 4 forecast traffic volumes and LOS for the study intersection movements. Figure 5.12 illustrates the Future Year 2035 Scenario 4 forecast traffic volumes, LOS and intersection laneage at the two Project accesses along Akahele Street and at the Project RIRO access along Honoapiilani Highway. Table 5.10 summarizes the Future Year 2035 Scenario 4 LOS at the study intersections compared to Base Year 2035 and Future Year 2030 Scenario 3. LOS worksheets are provided in Appendix C. Full Future Year 2022, 2025, 2030 and 2035 roadway improvements for Scenarios 1-4 are listed in Appendix D.



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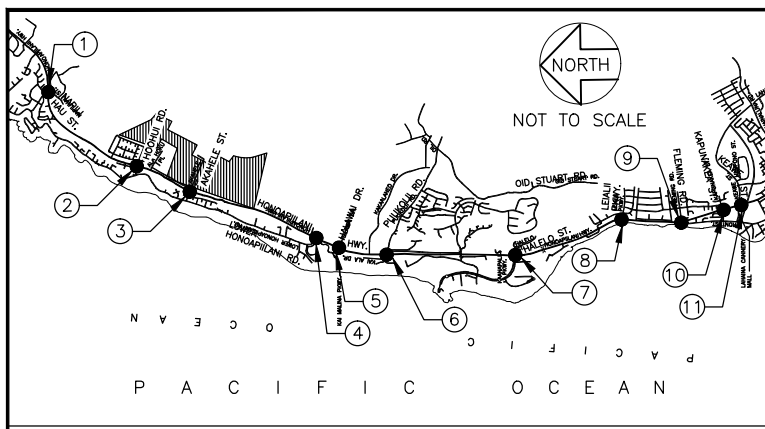
YEAR 2035 SCENARIO 4 PROJECT-GENERATED TRAFFIC

FIGURE 5.10A



LEGEND

NORTH
NOT TO SCALE

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

Y – SIGNALIZED INTERSECTION Y

X – UNSIGNALIZED INTERSECTION X

NOTE:
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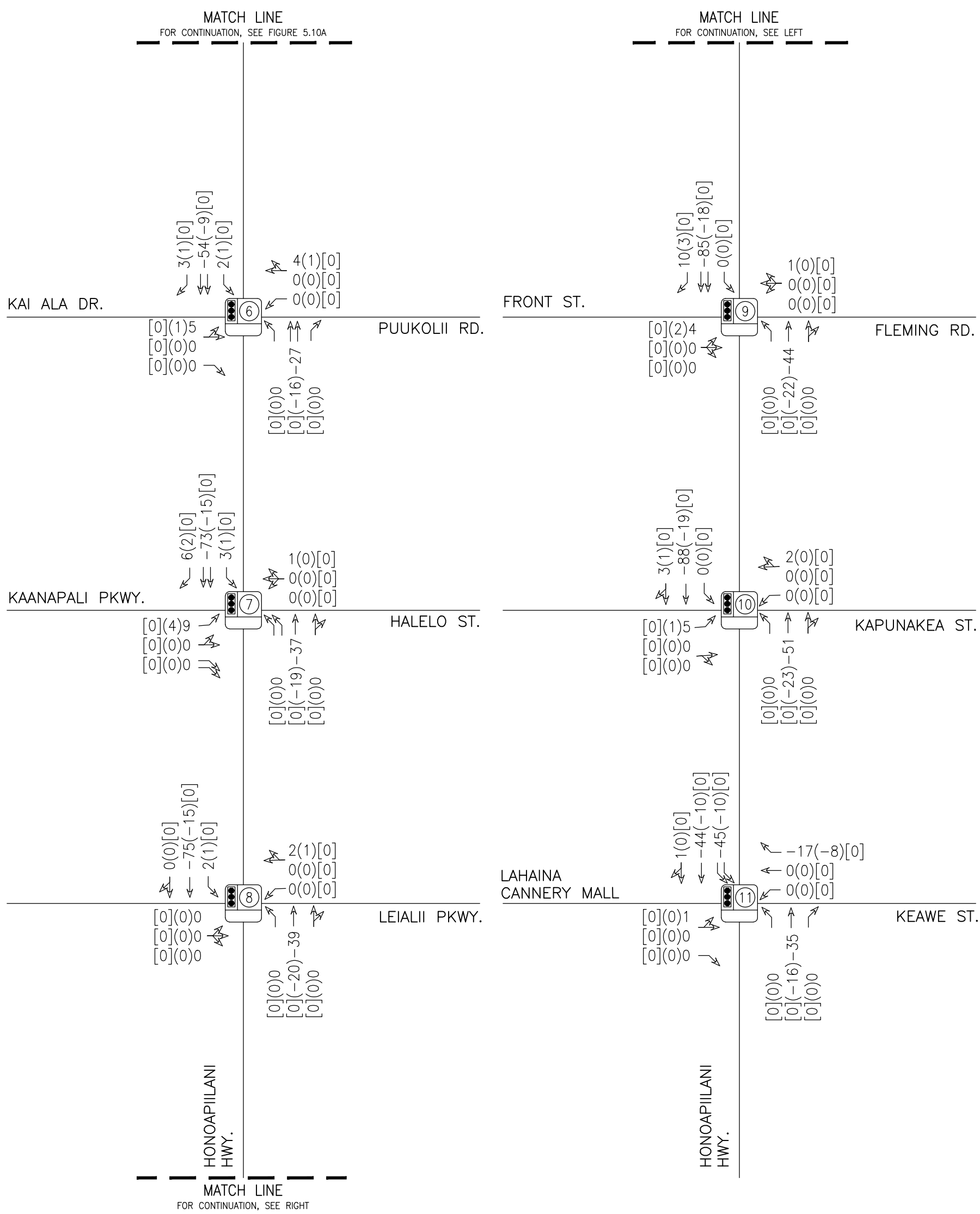
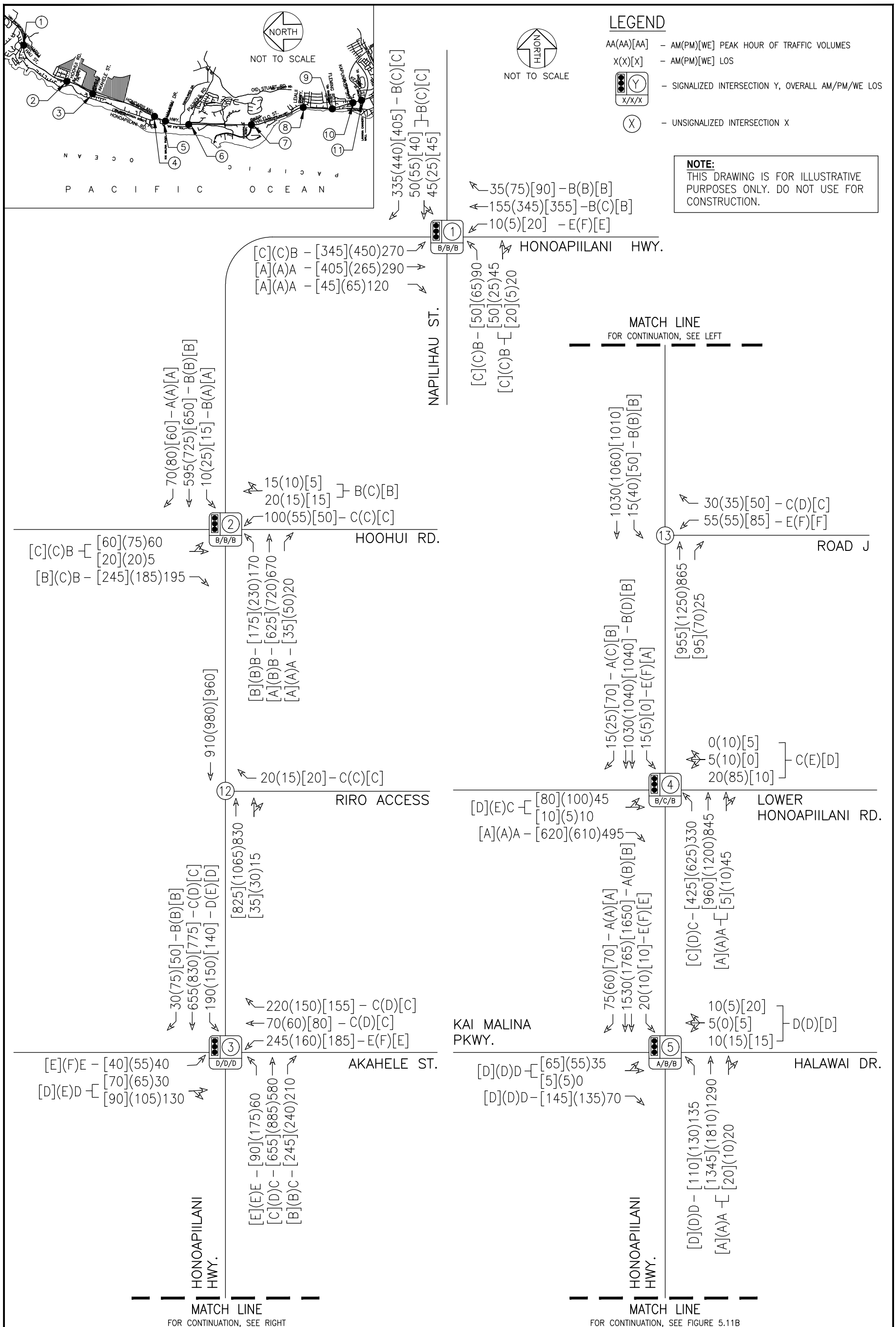


PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	YEAR 2035 SCENARIO 4 PROJECT-GENERATED TRAFFIC	5.10B



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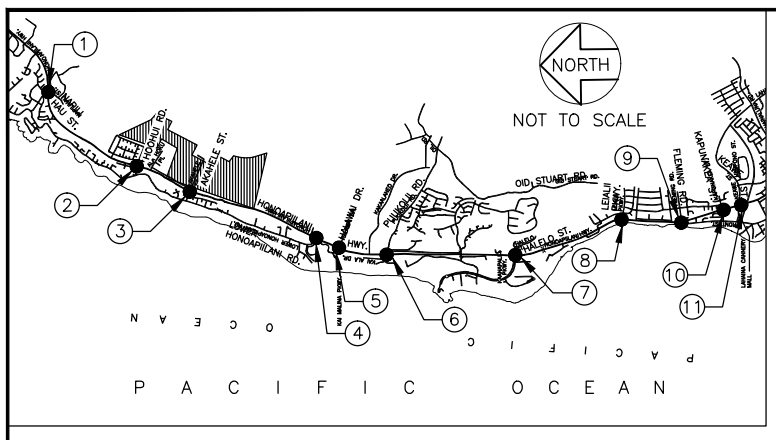
FUTURE YEAR 2035 SCENARIO 4 LANE CONFIGURATION, VOLUMES AND LOS

FIGURE 5.11A



LEGEND

AA(AA)[AA] – AM(PM)[WE] PEAK HOUR OF TRAFFIC VOLUMES

X(X)[X] – AM(PM)[WE] LOS

Y / X/X/X – SIGNALIZED INTERSECTION Y, OVERALL AM/PM/WE LOS

X – UNSIGNALIZED INTERSECTION X

NOTE:
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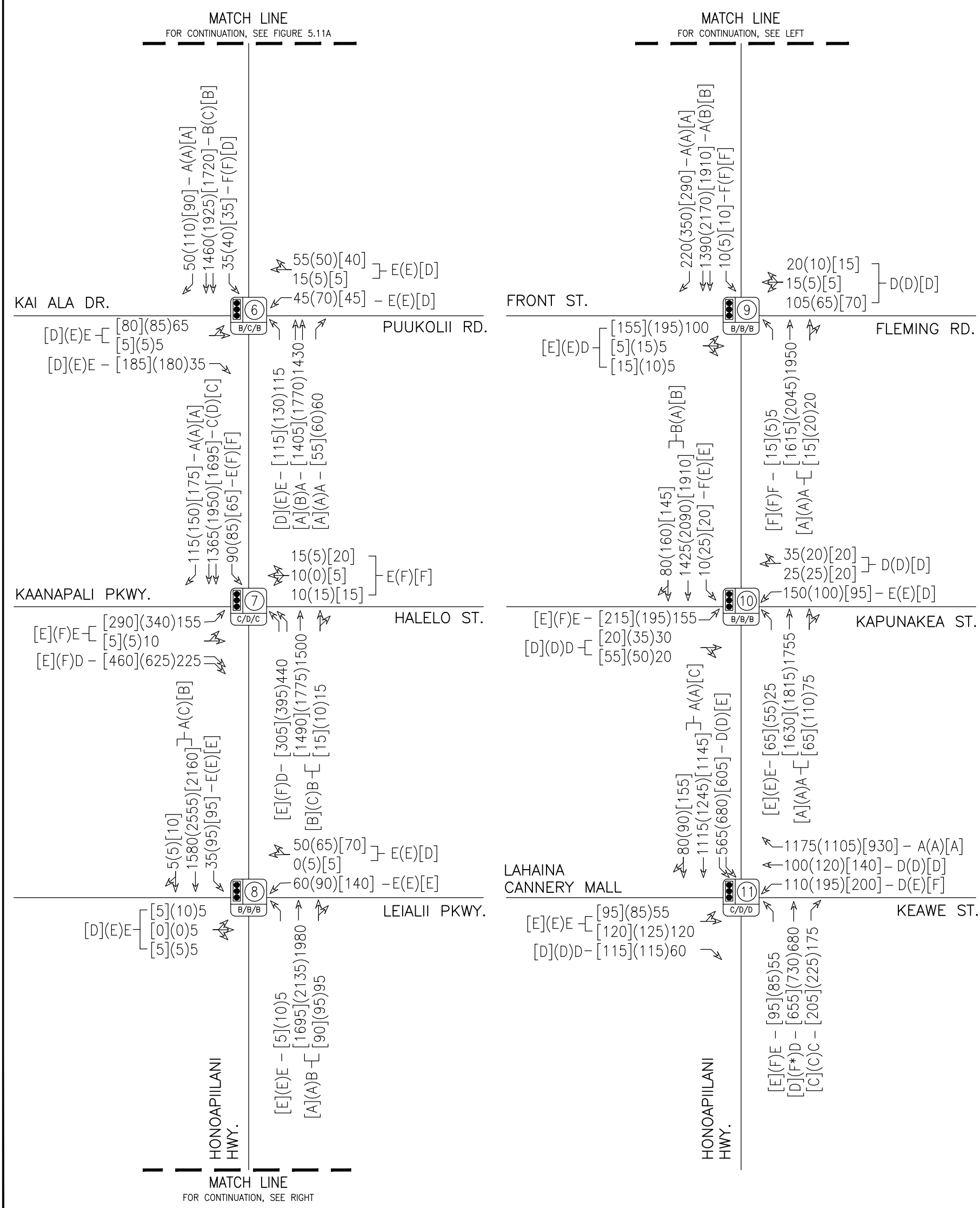

PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2035 SCENARIO 4 LANE CONFIGURATION, VOLUMES AND LOS	**5.11B**

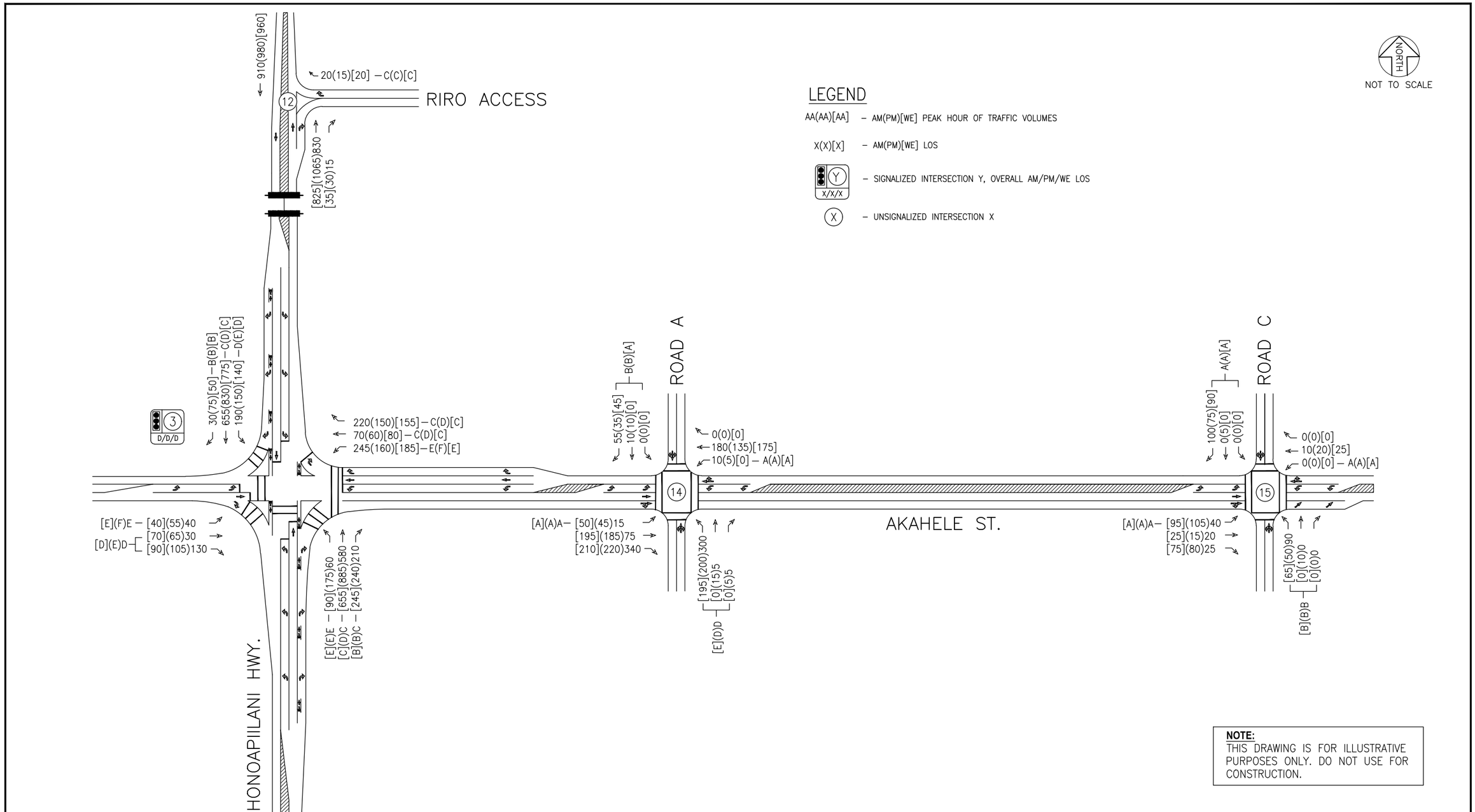

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FIGURE 5.12

FUTURE YEAR 2035 SCENARIO 4
AKAHELE STREET LANE CONFIGURATION, VOLUMES AND LOS

Table 5.9: Future Year 2035 (Scenario 4)
Left-Turn Storage Lane Length Calculations

Honoapiilani Highway & Akahele Street Intersection										
			AASHTO					SIMULATION		Recommended storage length [3]
Movement	Peak Hour	Design Volume per lane (veh)	Cycle Length (sec) [1]	Cycles per Hour	Average Veh. per Cycle	Minimum Storage Length (1.5 factor) [2]		Average Queue	95th Percentile Queue	
						Veh	Ft	Ft	Ft	
Northbound Left-turn lane	AM	60	100	36	2	3	75	49	101	275 ft
	PM	175	150	24	8	11	**275**	156	**272**	
	WE	90	105	34	3	4	100	64	125	
Southbound Left-turn lane	AM	190	100	36	6	8	200	131	230	275 ft
	PM	150	150	24	7	10	**250**	145	**276**	
	WE	140	105	34	5	7	175	84	153	
Eastbound Left-turn lane	AM	40	100	36	2	2	60	32	79	Storage accommodated
	PM	55	150	24	3	4	**100**	49	**105**	
	WE	40	105	34	2	2	60	32	66	
Westbound Left-turn lane	AM	245	100	36	7	11	**275**	160	**254**	275 ft
	PM	160	150	24	7	10	250	142	227	
	WE	185	105	34	6	9	225	129	230	

Notes:

1. Cycle length based on Highway Capacity Manual (HCM), 6th Edition equilibrium cycle length.
2. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.

Table 5.10: Base Year 2035, Future Year 2030 Scenario 3 and Future Year 2035 Scenario 4 Level of Service Summary

	Base Year 2035									Future Year 2030 Scenario 3									Future Year 2035 Scenario 4								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
1: Honoapiilani Highway & Napilihau Street																											
NB LT	18.6	0.75	B	20.6	0.84	C	20.2	0.79	C	18.6	0.77	B	24.1	0.87	C	22.2	0.82	C	18.6	0.77	B	24.5	0.87	C	22.6	0.83	C
NB TH	8.1	0.34	A	5.7	0.24	A	7.4	0.39	A	8.3	0.38	A	5.5	0.25	A	7.3	0.42	A	8.3	0.38	A	5.5	0.25	A	7.3	0.42	A
NB RT	6.7	0.08	A	4.9	0.05	A	5.6	0.03	A	6.8	0.09	A	4.6	0.05	A	5.3	0.03	A	6.8	0.09	A	4.6	0.05	A	5.3	0.03	A
EB LT/TH	15.3	0.26	B	22.0	0.30	C	19.1	0.30	B	15.9	0.26	B	24.9	0.31	C	21.9	0.31	C	15.9	0.26	B	25.1	0.31	C	22.3	0.31	C
EB RT	14.8	0.17	B	20.8	0.14	C	18.4	0.17	B	15.4	0.18	B	23.9	0.17	C	21.1	0.18	C	15.4	0.18	B	24.0	0.17	C	21.4	0.17	C
WB LT	17.6	0.29	B	24.6	0.30	C	21.0	0.20	C	18.4	0.31	B	28.1	0.34	C	24.2	0.24	C	18.4	0.31	B	28.3	0.34	C	24.7	0.24	C
WB TH/RT	14.9	0.20	B	20.8	0.14	C	18.9	0.28	B	15.5	0.20	B	23.6	0.13	C	21.6	0.29	C	15.5	0.20	B	23.8	0.13	C	22.0	0.29	C
SB LT	66.2	0.72	E	104.6	0.70	F	57.1	0.77	E	67.6	0.72	E	109.3	0.70	F	62.8	0.79	E	67.6	0.72	E	109.6	0.70	F	63.6	0.79	E
SB TH	13.0	0.33	B	18.5	0.62	B	15.7	0.59	B	14.3	0.37	B	20.9	0.67	C	17.7	0.63	B	14.3	0.37	B	21.0	0.67	C	17.9	0.64	B
SB RT	11.2	0.02	B	13.4	0.05	B	11.5	0.06	B	12.2	0.02	B	14.7	0.05	B	12.6	0.06	B	12.2	0.02	B	14.7	0.05	B	12.6	0.06	B
Overall	14.0	-	B	17.1	-	B	15.5	-	B	14.4	-	B	19.4	-	B	16.9	-	B	14.4	-	B	19.5	-	B	17.0	-	B
2: Honoapiilani Highway & Hoohui Road																											
NB LT	10.2	0.38	B	10.2	0.52	B	8.6	0.35	A	11.5	0.48	B	13.4	0.64	B	10.3	0.47	B	11.7	0.48	B	13.7	0.65	B	10.6	0.48	B
NB TH	11.1	0.68	B	9.6	0.69	A	9.1	0.61	A	12.5	0.76	B	9.9	0.71	A	9.5	0.67	A	12.5	0.76	B	10.0	0.72	B	9.5	0.67	A
NB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
EB LT/TH	18.2	0.18	B	21.4	0.32	C	17.5	0.24	B	19.4	0.18	B	24.5	0.33	C	20.6	0.26	C	19.7	0.18	B	24.9	0.34	C	21.0	0.26	C
EB RT	17.2	0.06	B	19.7	0.06	B	16.6	0.08	B	18.3	0.07	B	22.7	0.06	C	19.5	0.09	B	18.6	0.07	B	23.0	0.06	C	19.9	0.09	B
WB LT	21.0	0.29	C	23.6	0.21	C	19.0	0.15	B	22.6	0.33	C	27.5	0.27	C	22.7	0.20	C	22.9	0.33	C	27.9	0.27	C	23.2	0.21	C
WB TH/RT	17.2	0.07	B	19.7	0.07	B	16.5	0.06	B	18.3	0.06	B	22.6	0.07	C	19.4	0.06	B	18.5	0.06	B	23.0	0.07	C	19.8	0.06	B
SB LT	9.8	0.03	A	8.2	0.07	A	7.9	0.04	A	10.8	0.04	B	8.7	0.08	A	8.3	0.04	A	10.8	0.04	B	8.7	0.08	A	8.3	0.04	A
SB TH	15.4	0.79	B	13.7	0.80	B	12.7	0.75	B	16.4	0.81	B	15.1	0.84	B	14.0	0.80	B	16.5	0.81	B	15.2	0.84	B	14.1	0.81	B
SB RT	9.4	0.05	A	7.9	0.07	A	7.8	0.04	A	9.7	0.05	A	7.9	0.06	A	7.8	0.04	A	9.7	0.05	A	7.8	0.06	A	7.8	0.04	A
Overall	13.6	-	B	12.3	-	B	11.3	-	B	14.7	-	B	13.7	-	B	12.4	-	B	14.8	-	B	13.8	-	B	12.6	-	B
3: Honoapiilani Highway & Akahele Street																											
NB LT	44.6	0.77	D	46.7	0.82	D	39.0	0.76	D	56.2	0.76	E	68.8	0.87	E	55.3	0.77	E	60.0	0.76	E	76.3	0.88	E	56.6	0.78	E
NB TH	10.6	0.68	B	14.5	0.79	B	9.9	0.62	A	21.5	0.80	C	41.8	0.94	D	27.0	0.83	C	32.6	0.88	C	49.4	0.95	D	27.6	0.83	C
NB RT	6.1	0.01	A	5.5	0.01	A	6.0	0.01	A	12.0	0.08	B	15.3	0.21	B	17.0	0.25	B	20.9	0.23	C	18.2	0.24	B	17.0	0.25	B
EB LT	47.6	0.73	D	58.0	0.77	E	46.8	0.73	D	65.0	0.78	E	79.0	0.77	E	68.5	0.78	E	68.4	0.78	E	84.8	0.77	F	69.6	0.78	E
EB TH/RT	26.2	0.07	C	36.8	0.05	D	26.4	0.06	C	37.7	0.30	D	69.1	0.79	E	49.5	0.76	D	41.9	0.32	D	78.5	0.81	E	50.9	0.76	D
WB LT	71.8	0.53	E	70.5	0.58	E	54.4	0.56	D	47.3	0.82	D	75.5	0.85	E	54.0	0.85	D	60.6	0.89	E	90.2	0.88	F	56.1	0.85	E
WB TH	27.6	0.03	C	39.4	0.03	D	27.6	0.03	C	30.6	0.20	C	49.4	0.21	D	33.0	0.22	C	29.6	0.16	C	52.1	0.20	D	34.0	0.22	C
WB RT	27.5	0.01	C	39.3	0.01	D	27.4	0.01	C	29.4	0.04	C	47.8	0.05	D	31.8	0.07	C	29.1	0.10	C	50.6	0.06	D	32.7	0.07	C
SB LT	114.2	0.71	F	131.0	0.72	F	113.6	0.70	F	56.2	0.76	E	71.8	0.83	E	51.9	0.81	D	49.9	0.85	D	79.0	0.87	E	53.3	0.81	D
SB TH	15.5	0.85	B	26.5	0.90	C	16.0	0.85	B	26.8	0.89	C	44.2	0.94	D	31.3	0.90	C	25.1	0.80	C	45.6	0.92	D	32.6	0.91	C
SB RT	7.4	0.02	A	10.3	0.05	B	8.1	0.04	A	11.6	0.02	B	16.0	0.05	B	13.3	0.03	B	14.0	0.02	B	17.2	0.05	B	13.3	0.03	B
Overall	15.8	-	B	23.9	-	C	16.1	-	B	29.0	-	C	47.7	-	D	34.6	-	C	35.9	-	D	53.6	-	D	35.6	-	D
4: Honoapiilani Highway & Lower Honoapiilani Road																											
NB LT	24.3	0.85	C	38.0	0.95	D	23.5	0.88	C	29.7	0.87	C	52.4	0.96	D	32.6	0.91	C	29.1	0.87	C	49.3	0.95	D	33.1	0.91	C
NB TH/RT	4.6	0.35	A	4.4	0.38	A	2.4	0.26	A	4.3	0.37	A	4.9	0.45	A	3.0	0.36	A	4.5	0.37	A	4.9	0.46	A	3.0	0.36	A
EB LT/TH	27.4	0.21	C	47.7	0.40	D	30.1	0.33	C	33.7	0.26	C	60.5	0.57	E	40.1	0.45	D	33.0	0.28	C	59.6	0.57	E	40.7	0.45	D
EB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
WB LT/TH/RT	26.8	0.11	C	48.8	0.51	D	28.1	0.05	C	32.7	0.13	C	59.3	0.52	E	36.5	0.05	D	31.9	0.12	C	58.5	0.52	E	37.1	0.05	D
SB LT	53.5	0.74	D	94.5	0.72	F	0.0	0.00	A	58.5	0.79	E	108.4	0.74	F	0.0	0.00	A	57.5	0.79	E	107.4	0.74	F	0.0	0.00	A
SB TH	13.6	0.60	B	30.9	0.73	C	15.7	0.60	B	14.6	0.65	B	37.2	0.79	D	19.7	0.68	B	14.5	0.64	B	37.6	0.80	D	19.9	0.69	B
SB RT	9.4	0.00	A	21.4	0.01	C	11.3	0.03	B	9.3	0.01	A	23.8	0.01	C	13.1	0.05	B	9.4	0.01	A	23.6	0.01	C	13.2	0.05	B
Overall	12.5	-	B	24.2	-	C	13.4	-	B	13.7	-	B	29.2	-	C	16.3	-	B	13.6	-	B	28.7	-	C	16.4	-	B
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive																											
NB LT	35.1	0.80	D	47.1	0.82	D	39.1	0.79	D	39.5	0.81	D	50.3	0.83	D	45.1	0.80	D	39.1	0.81	D	50.8	0.83	D	45.9	0.80	D
NB TH/RT	4.1	0.48	A	7.7	0.64	A	4.8	0.45	A	4.0	0.50	A	9.4	0.72	A	5.6	0.54	A	4.2	0.51	A	9.6	0.73	A	5.6	0.54	A
EB LT/TH	33.9	0.18	C	39.8	0.23	D	34.3	0.27	C	38.4	0.19	D	42.7	0.26	D	39.7	0.32	D	38.0	0.22	D	43.1	0.26	D	40.4	0.33	D
EB RT	33.6	0.01	C	38.9	0.03	D	33.4	0.04	C	38.1	0.02	D	41.5	0.03	D	38.3	0.04	D	37.5	0.01	D	41.9	0.03	D	38.9	0.03	D
WB LT/TH/RT	34.2	0.11	C	41.0	0.09	D	33.7	0.12	C	38.7	0.13	D	44.1	0.09	D	39.1	0.13	D	38.0	0.12	D	44.6	0.09	D	39.8	0.13	D
SB LT	57.9	0.79	E	76.8	0.78	E	64.9	0.76	E	64.3	0.85	E	81.2	0.79	F	72.9	0.77	E	64.1	0.85	E	81.8	0.79	F	74.0	0.77	E
SB TH	7.9	0.64	A	13.4	0.76	B	9.3	0.67	A	8.5	0.69	A	15.4	0.81	B	11.0	0.74	B	8.5	0.69	A	15.8	0.82	B	11.3	0.75	B
SB RT	4.4	0.05	A	6.2	0.04	A	5.0	0.04	A	4.2	0.05	A	6.3	0.04	A	5.1	0.05	A	4.3	0.05	A	6.3	0.04	A	5.1	0.05	A
Overall	8.2	-	A	12.7	-	B	9.6	-	A	8.7	-	A	14.4	-	B	10.8	-	B	8.8	-	A	14.7	-	B	11.0	-	B

Table 5.10: Base Year 2035, Future Year 2030 Scenario 3 and Future Year 2035 Scenario 4 Level of Service Summary Cont'd

	Base Year 2035									Future Year 2030 Scenario 3									Future Year 2035 Scenario 4								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road																											
NB LT	75.1	0.85	E	77.7	0.87	E	42.2	0.79	D	75.0	0.85	E	77.1	0.87	E	44.7	0.79	D	75.0	0.85	E	77.1	0.87	E	45.0	0.79	D
NB TH	6.8	0.53	A	10.6	0.64	B	8.3	0.54	A	7.5	0.56	A	13.0	0.73	B	9.4	0.63	A	8.0	0.57	A	13.1	0.73	B	9.5	0.64	A
NB RT	3.9	0.04	A	5.3	0.04	A	5.3	0.04	A	4.1	0.04	A	5.8	0.04	A	5.2	0.04	A	4.3	0.04	A	5.8	0.04	A	5.2	0.04	A
EB LT/TH	68.0	0.37	E	67.2	0.37	E	34.1	0.24	C	67.8	0.38	E	67.0	0.40	E	37.5	0.33	D	67.6	0.41	E	67.0	0.40	E	37.8	0.33	D
EB RT	62.8	0.01	E	63.8	0.14	E	32.7	0.05	C	62.3	0.01	E	63.7	0.21	E	35.0	0.06	D	61.8	0.01	E	63.7	0.21	E	35.3	0.06	D
WB LT	74.9	0.42	E	78.4	0.54	E	37.7	0.23	D	74.9	0.42	E	79.1	0.55	E	42.0	0.27	D	74.9	0.42	E	79.1	0.55	E	42.4	0.28	D
WB TH/RT	63.5	0.09	E	62.6	0.03	E	32.5	0.03	C	63.1	0.09	E	61.6	0.03	E	34.9	0.03	C	62.5	0.09	E	61.6	0.03	E	35.2	0.03	D
SB LT	82.8	0.68	F	89.0	0.77	F	45.3	0.59	D	84.7	0.76	F	87.7	0.78	F	48.2	0.63	D	84.0	0.77	F	87.7	0.78	F	48.5	0.63	D
SB TH	11.2	0.57	B	20.5	0.79	C	14.9	0.77	B	12.6	0.63	B	24.1	0.85	C	17.4	0.84	B	12.7	0.63	B	25.0	0.87	C	18.1	0.85	B
SB RT	6.2	0.03	A	8.7	0.08	A	7.2	0.05	A	6.4	0.04	A	9.2	0.09	A	7.2	0.06	A	6.6	0.04	A	9.2	0.09	A	7.2	0.06	A
Overall	14.4	-	B	21.0	-	C	14.3	-	B	15.3	-	B	23.5	-	C	16.1	-	B	15.7	-	B	23.9	-	C	16.4	-	B
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street																											
NB LT	46.0	0.78	D	102.1	0.87	F	60.6	0.75	E	53.3	0.80	D	113.0	0.88	F	73.2	0.79	E	51.4	0.79	D	118.0	0.88	F	75.6	0.79	E
NB TH/RT	16.5	0.71	B	24.0	0.70	C	14.6	0.60	B	16.9	0.71	B	26.9	0.75	C	16.7	0.65	B	17.8	0.72	B	25.4	0.75	C	16.8	0.66	B
EB LT/TH	50.4	0.48	D	98.4	0.64	F	59.2	0.60	E	58.2	0.53	E	114.1	0.76	F	71.6	0.71	E	55.9	0.54	E	117.3	0.78	F	74.1	0.72	E
EB RT	32.3	0.08	C	73.1	0.54	E	44.6	0.38	D	37.6	0.08	D	83.6	0.63	F	53.4	0.37	D	35.9	0.08	D	85.4	0.64	F	55.3	0.37	E
WB LT/TH/RT	50.8	0.18	D	111.6	0.24	F	67.0	0.36	E	58.8	0.20	E	122.6	0.28	F	81.0	0.41	F	56.7	0.22	E	127.7	0.39	F	83.6	0.42	F
SB LT	52.5	0.59	D	135.9	0.78	F	66.0	0.57	E	60.6	0.64	E	122.6	0.77	F	79.4	0.63	E	58.2	0.65	E	124.2	0.78	F	82.0	0.64	F
SB TH	23.2	0.77	C	49.7	0.93	D	23.3	0.79	C	24.8	0.79	C	52.2	0.94	D	26.7	0.82	C	24.8	0.78	C	49.9	0.93	D	27.4	0.83	C
SB RT	9.9	0.09	A	19.8	0.11	B	13.0	0.14	B	9.8	0.09	A	8.4	0.12	A	6.6	0.14	A	10.0	0.10	A	7.7	0.12	A	6.5	0.14	A
Overall	25.1	-	C	51.6	-	D	27.7	-	C	27.1	-	C	55.5	-	E	31.7	-	C	27.3	-	C	54.9	-	D	32.4	-	C
8: Honoapiilani Highway & Leialii Parkway																											
NB LT	74.7	0.44	E	68.9	0.49	E	71.7	0.44	E	74.4	0.44	E	73.5	0.50	E	71.0	0.44	E	74.4	0.44	E	73.3	0.50	E	70.8	0.44	E
NB TH/RT	9.9	0.76	A	2.8	0.82	A	3.5	0.67	A	10.4	0.78	B	3.3	0.87	A	4.3	0.74	A	10.4	0.78	B	3.3	0.87	A	4.4	0.75	A
EB LT/TH/RT	58.6	0.06	E	57.1	0.07	E	49.6	0.03	D	58.6	0.06	E	61.5	0.07	E	49.6	0.03	D	58.6	0.06	E	61.5	0.07	E	49.6	0.03	D
WB LT	62.0	0.37	E	62.5	0.54	E	57.9	0.64	E	62.0	0.37	E	67.4	0.56	E	57.9	0.64	E	62.0	0.37	E	67.4	0.56	E	57.9	0.64	E
WB TH/RT	58.6	0.01	E	56.7	0.05	E	50.0	0.05	D	58.6	0.01	E	61.1	0.05	E	50.0	0.05	D	58.6	0.01	E	61.1	0.05	E	50.0	0.05	D
SB LT	68.7	0.52	E	66.0	0.79	E	76.0	0.79	E	69.8	0.60	E	76.7	0.81	E	78.3	0.80	E	69.8	0.60	E	76.7	0.81	E	78.3	0.80	E
SB TH/RT	5.7	0.55	A	18.7	0.90	B	12.9	0.78	B	6.3	0.59	A	20.3	0.92	C	14.8	0.82	B	6.0	0.58	A	22.3	0.93	C	15.7	0.84	B
Overall	9.8	-	A	13.7	-	B	12.3	-	B	10.3	-	B	14.9	-	B	13.4	-	B	10.2	-	B	15.9	-	B	13.9	-	B
9: Honoapiilani Highway & Front Street/Flemming Road																											
NB LT	87.3	0.73	F	92.2	0.74	F	84.9	0.84	F	86.1	0.73	F	96.1	0.74	F	82.0	0.84	F	86.5	0.73	F	95.8	0.74	F	81.5	0.84	F
NB TH/RT	8.8	0.73	A	2.3	0.77	A	7.3	0.57	A	9.0	0.75	A	3.0	0.83	A	8.8	0.63	A	9.0	0.75	A	3.6	0.84	A	8.9	0.64	A
EB LT/TH/RT	52.7	0.48	D	59.5	0.72	E	57.8	0.66	E	53.1	0.50	D	66.1	0.76	E	57.7	0.69	E	53.6	0.53	D	66.1	0.76	E	57.7	0.69	E
WB LT/TH/RT	54.3	0.61	D	50.1	0.26	D	52.6	0.34	D	54.4	0.61	D	51.9	0.24	D	50.7	0.31	D	54.4	0.61	D	51.9	0.24	D	50.7	0.31	D
SB LT	86.7	0.80	F	79.7	0.74	E	83.7	0.82	F	85.6	0.80	F	84.0	0.74	F	81.4	0.82	F	85.9	0.80	F	82.5	0.74	F	80.4	0.82	F
SB TH	5.2	0.52	A	13.3	0.86	B	8.6	0.71	A	5.5	0.56	A	15.8	0.89	B	10.3	0.76	B	5.3	0.54	A	16.1	0.90	B	10.6	0.78	B
SB RT	3.2	0.12	A	5.5	0.24	A	4.3	0.18	A	3.2	0.14	A	6.4	0.26	A	4.9	0.20	A	3.3	0.14	A	6.4	0.26	A	4.9	0.20	A
Overall	10.3	-	B	11.0	-	B	11.3	-	B	10.5	-	B	12.7	-	B	12.7	-	B	10.6	-	B	13.2	-	B	12.9	-	B
10: Honoapiilani Highway & Kapunakea Street																											
NB LT	68.5	0.79	E	62.7	0.79	E	62.3	0.79	E	68.5	0.79	E	71.9	0.81	E	63.3	0.79	E	68.5	0.79	E	71.9	0.81	E	62.3	0.79	E
NB TH/RT	0.3	0.73	A	0.4	0.76	A	1.5	0.65	A	0.4	0.74	A	0.4	0.77	A	12.6	0.72	B	0.3	0.74	A	0.4	0.77	A	2.6	0.73	A
EB LT	58.9	0.60	E	59.4	0.70	E	57.7	0.71	E	59.3	0.62	E	88.5	0.86	F	58.4	0.73	E	60.9	0.65	E	88.5	0.86	F	58.4	0.73	E
EB TH/RT	49.5	0.11	D	46.8	0.15	D	43.9	0.09	D	49.5	0.11	D	53.3	0.19	D	42.3	0.08	D	49.6	0.11	D	53.3	0.19	D	42.3	0.08	D
WB LT	59.7	0.63	E	53.2	0.42	D	48.8	0.35	D	59.7	0.63	E	61.2	0.49	E	47.0	0.33	D	60.7	0.64	E	61.2	0.49	E	47.0	0.33	D
WB TH/RT	49.4	0.10	D	46.1	0.09	D	43.7	0.07	D	49.4	0.10	D	52.3	0.10	D	42.1	0.06	D	49.5	0.10	D	52.3	0.10	D	42.1	0.06	D
SB LT	100.1	0.83	F	70.3	0.80	E	82.9	0.84	F	99.2	0.83	F	74.4	0.79	E	74.2	0.81	E	99.5	0.83	F	73.9	0.79	E	73.6	0.81	E
SB TH/RT	11.0	0.60	B	6.8	0.94	A	9.1	0.85	A	11.7	0.64	B	4.8	0.92	A	13.2	0.91	B	11.2	0.62	B	4.9	0.93	A	14.5	0.93	B
Overall	10.9	-	B	9.7	-	A	11.4	-	B	11.2	-	B	10.1	-	B	18.1	-	B	11.2	-	B	10.2	-	B	14.7	-	B

Table 5.10: Base Year 2035, Future Year 2030 Scenario 3 and Future Year 2035 Scenario 4 Level of Service Summary Cont'd

	Base Year 2035									Future Year 2030 Scenario 3									Future Year 2035 Scenario 4								
	AM			PM			WE			AM			PM			WE			AM			PM			WE		
Intersection	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
11: Honoapiilani Highway & Keawe Street																											
NB LT	71.3	0.78	E	66.6	0.80	E	63.0	0.81	E	71.3	0.78	E	92.7	0.82	F	63.0	0.81	E	71.3	0.78	E	92.7	0.82	F	63.0	0.81	E
NB TH	39.0	0.83	D	62.7	0.97	E	48.1	0.88	D	44.9	0.88	D	84.3	1.04	F*	52.5	0.92	D	39.9	0.84	D	91.5	1.06	F*	50.1	0.91	D
NB RT	21.2	0.16	C	26.7	0.25	C	27.0	0.22	C	22.4	0.16	C	29.4	0.27	C	26.6	0.26	C	21.3	0.14	C	30.2	0.27	C	25.5	0.25	C
EB LT/TH	64.1	0.70	E	62.7	0.76	E	61.0	0.76	E	64.1	0.70	E	71.4	0.78	E	60.9	0.76	E	64.1	0.70	E	71.4	0.78	E	63.3	0.77	E
EB RT	51.6	0.03	D	47.3	0.08	D	44.6	0.06	D	51.6	0.03	D	51.4	0.09	D	45.6	0.17	D	51.8	0.05	D	51.4	0.09	D	45.6	0.16	D
WB LT	47.4	0.53	D	84.2	0.92	F	51.5	0.78	D	47.4	0.53	D	81.0	0.90	F	66.5	0.86	E	46.9	0.52	D	62.2	0.81	E	81.3	0.92	F
WB TH	42.3	0.23	D	37.8	0.25	D	33.4	0.26	C	42.3	0.23	D	40.3	0.25	D	34.9	0.27	C	42.0	0.23	D	38.8	0.23	D	35.8	0.28	D
WB RT	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT	58.8	0.94	E	43.4	0.95	D	57.2	0.88	E	51.1	0.93	D	45.8	0.96	D	57.6	0.93	E	51.2	0.92	D	48.3	0.97	D	59.3	0.95	E
SB TH/RT	1.5	0.56	A	0.7	0.68	A	35.4	0.70	D	1.6	0.58	A	0.8	0.69	A	24.1	0.72	C	1.6	0.58	A	0.9	0.72	A	23.3	0.72	C
Overall	30.0	-	C	34.4	-	C	44.9	-	D	29.9	-	C	40.7	-	D	42.4	-	D	28.5	-	C	41.4	-	D	42.9	-	D
12: RIRO Access & Honoapiilani Highway																											
WB RT										16.3	0.06	C	20.7	0.07	C	16.1	0.06	C	16.5	0.07	C	21.2	0.07	C	16.3	0.06	C
Overall										0.2	-	-	0.2	-	-	0.2	-	-	0.2	-	-	0.2	-	-	0.2	-	-
13: Honoapiilani Highway & Road J																											
WB LT										37.0	0.35	E	65.2	0.52	F	67.4	0.65	F	36.4	0.35	E	67.1	0.52	F	71.4	0.67	F
WB RT										17.4	0.10	C	29.3	0.21	D	20.5	0.19	C	17.5	0.10	C	29.9	0.21	D	20.9	0.19	C
SB LT										10.2	0.02	B	13.3	0.09	B	11.4	0.09	B	10.2	0.02	B	13.4	0.09	B	11.5	0.09	B
Overall										1.3	-	-	2.1	-	-	3.3	-	-	1.3	-	-	2.1	-	-	3.4	-	-
14: Road A & Akahele Street																											
NB LT/TH/RT										13.8	0.17	B	21.3	0.44	C	32.2	0.63	D	46.5	0.84	E	31.0	0.65	D	32.2	0.63	D
EB LT										7.7	0.01	A	7.6	0.03	A	7.7	0.04	A	7.6	0.01	A	7.6	0.03	A	7.7	0.04	A
WB LT										0.0	0.00	A	8.1	0.01	A	0.0	0.00	A	8.3	0.01	A	8.2	0.01	A	0.0	0.00	A
SB LT/TH/RT										9.7	0.08	A	10.0	0.06	B	9.5	0.06	A	10.8	0.10	B	10.8	0.07	B	9.5	0.06	A
Overall										3.4	-	-	5.7	-	-	8.1	-	-	15.4	-	-	9.0	-	-	8.1	-	-
15: Road C & Akahele Street																											
NB LT/TH/RT										11.2	0.14	B	12.9	0.13	B	13.2	0.14	B	11.3	0.15	B	13.0	0.13	B	13.2	0.14	B
EB LT										7.3	0.03	A	7.4	0.07	A	7.4	0.07	A	7.3	0.03	A	7.4	0.07	A	7.4	0.07	A
WB LT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT										8.7	0.10	A	9.0	0.09	A	8.8	0.09	A	8.7	0.10	A	9.0	0.09	A	8.8	0.09	A
Overall										7.5	-	-	6.4	-	-	6.3	-	-	7.6	-	-	6.3	-	-	6.3	-	-
16: Road G & Road J																											
NB LT/TH/RT										9.5	0.01	A	10.2	0.03	B	10.9	0.08	B	9.5	0.01	A	10.2	0.03	B	10.9	0.08	B
EB LT/TH/RT										7.4	0.01	A	7.4	0.02	A	7.4	0.03	A	7.4	0.01	A	7.4	0.02	A	7.4	0.03	A
WB LT/TH/RT										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
SB LT/TH/RT										8.7	0.01	A	9.2	0.05	A	8.7	0.03	A	9.0	0.02	A	9.2	0.05	A	8.7	0.03	A
Overall										1.9	-	-	3.3	-	-	3.5	-	-	2.1	-	-	3.3	-	-	3.5	-	-
17: Road F & Road J																											
NB LT/RT										9.0	0.04	A	9.2	0.03	A	9.2	0.04	A	9.0	0.05	A	9.2	0.03	A	9.2	0.04	A
WB LT/TH										0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A
Overall										3.3	-	-	1.6	-	-	2.0	-	-	3.3	-	-	1.5	-	-	2.0	-	-

* Denotes overcapacity condition, v/c ≥ 1.

6. CONCLUSIONS

The Project is located upon approximately 310 acres of undeveloped land in Lahaina, bounded by Honoapiilani Highway to the west and the Kapalua Airport to the east. The Project proposes to provide 100 single-family (SF) residential units (with an additional 100 ohana units on each lot), 800 multi-family (MF) residential units, an elementary school, a 10-acre park and three (3) retail centers, totaling 70,000 square feet. In addition, a new roadway will be constructed just east and parallel to Honoapiilani Highway that will provide vehicular, bike and pedestrian access to link the Project's development north and south of Mahinahina Gulch. The Project will be constructed in seven (7) phases, but for purposes of this TIAR, will be analyzed as four (4) scenarios.

Scenario 1 – Develop Phase 1 with a build-out of 2022 that includes the following:

- 240 MF residential units north of Akahele Street, with direct access provided by a new Project roadway, Road A, intersecting Akahele Street, and a new right-in, right-out (RIRO) access via Honoapiilani Highway.

Scenario 2 - Develop Phases 2A and 2B with a build-out of 2025 that include the following:

- 100 MF residential units (Phase 2A) south of Akahele Street with direct access provided by a new Project roadway, Road C, intersecting Akahele Street to the east of Road A.
- 250 MF residential units (Phase 2B) south of Akahele Street with direct access provided by Road A and Road C. 70 of the units will be located in live/work buildings.

Scenario 3 – Develop Phases 3-5 with a build-out of 2030 that include the following:

- 210 MF residential units (Phase 3) south of Mahinahina Gulch, with access provided by a new Project roadway, Road J, intersecting Honoapiilani Highway south of Mahinahina Gulch.
- 10-acre park (Phase 3) with two (2) practice fields south of Mahinahina Gulch, with access provided by Road J.
- North Central Neighborhood Retail (Phase 4) consisting of approximately 6,000 square feet of commercial space located north of Akahele Street near the Kapalua Airport, with access provided by Road C.
- South Core Retail (Phase 4) consisting of approximately 55,000 square feet of commercial space located on the southeast corner of the Honoapiilani Highway/Akahele Street intersection, with access provided by Road A.
- South Central Neighborhood Retail (Phase 4) consisting of approximately 9,000 square feet of commercial space located on the northeast corner of the proposed Honoapiilani Highway/Road J intersection, with access provided by Road J.
- 86 SF (Phase 5) residential lots north of Akahele Street, with access provided by Road C. An additional ohana unit may be constructed on each lot for a total of 172 SF residential units.
- 14 SF residential lots (Phase 5) south of Mahinahina Gulch, with access provided by Road J. An additional ohana unit may be constructed on each lot for a total of 28 SF residential units.

Scenario 4 – A future elementary school, to be planned/developed by the Department of Education (DOE). Since the development of the school is not in the direct controller of the Pulelehua development, the timeframe for this school has yet to be determined. For purposes of this TIAR, a forecast build-out of 2035 was assumed.

- 750-student elementary school, with access provided by Road A.

6.1 Existing Conditions

In the vicinity of the Project, Honoapiilani Highway services the area as the main thoroughfare that connects the West Maui region. Honoapiilani Highway generally operates as a two (2) lane highway from Napilihau Street to Lower Honoapiilani Road and continues south as a four (4) lane highway from Lower Honoapiilani Road to beyond Keawe Street. In the vicinity of the Project, the intersections along the highway operate with either fixed coordinated signal timing plans or uncoordinated plans with lengthy through volume green times. As a result, numerous mainline left-turn movements and minor street approaches at various study intersections operate at LOS E/F conditions due to lengthy delays from the signal timing plans that favor the through movements along Honoapiilani Highway. Numerous movements also operate with low left-turning volumes (< 25 vehicles), which contribute to the LOS E/F conditions.

However, with the exception of the southbound left-turn movement at the Honoapiilani Highway/Keawe Street intersection, all vehicular movements at each study intersection operate adequately with under-capacity conditions during all peak hours of traffic.

Although the Lahaina Bypass Road (LBR) Phase 1B-2 along with improvements at the Honoapiilani Highway/Keawe Street intersection were completed in 2018, traffic count data was collected prior to completion, and the improvements were not included in the existing conditions scenario.

6.2 Base Year 2022

It is anticipated that by Base Year 2022, traffic will have increased over existing conditions due to various anticipated new developments in the Lahaina region and a 0.5% ambient growth rate, adjusted and applied from HDOT's MRTDM. By Base Year 2022 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to increase overall by approximately 15-30% on various parts of the corridor during the AM, PM and WE peak hours of traffic.

By Base Year 2022, it is assumed that various planned roadway improvements will be implemented even without the Project and include the LBR Phase 1B-2, improvements at the Honoapiilani Highway/Keawe Street/Lahaina Cannery Mall intersection to support the LBR extension, and various widening/restriping improvements at the Honoapiilani Highway/Napilihau Street intersection.

With the anticipated growth in traffic and planned roadway improvements, all study intersections are forecast to operate similar to existing conditions. Overall intersection delays generally increased by only 1-5 seconds at most study intersections. The majority of intersection movements currently operating at LOS E/F conditions will continue to operate similarly in Base Year 2022 and at under-capacity conditions, with the exception of the eastbound shared left-turn/through movement at Honoapiilani Highway/Kaanapali Parkway and the westbound left-

turn at Honoapiilani Highway/Kapunakea Street during the PM peak hour of traffic, which are forecast to operate at LOS F and overcapacity conditions.

6.3 Base Year 2022 With Mitigation

There are currently no plans to implement the following improvements, but they could be considered to mitigate forecast over-capacity conditions.

[7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street

- Modify the eastbound approach to incorporate a dedicated left-turn lane, a shared left-turn/through lane and two (2) dedicated right-turn lanes.

With the recommended mitigation, the intersection is anticipated to improve and operate adequately at overall LOS D or better during all peak hours of traffic. Similar to existing conditions, numerous minor street approaches and major street left-turn movements will continue operating at LOS E/F due to the long through movement green time and cycle length.

[10] Honoapiilani Highway/Kapunakea Street

- Restripe the eastbound approach to provide an exclusive left-turn lane and a shared through/right-turn lane.

Restriping the eastbound approach will provide lane configuration consistent with the westbound approach. With the restriping, the intersection is anticipated to operate with all movements under capacity during all peak hours of traffic. As in existing conditions, various left-turn movements are expected to operate at LOS E/F due to the long coordinated cycle length.

6.4 Base Year 2025

By Base Year 2025 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to increase by approximately 1% for the majority of sections along the corridor over Base Year 2022 during all peak hours of traffic due to a 0.5% ambient growth rate adjusted and applied from HDOT's MRTDM. Intersection movements are expected to continue operating similar to Base Year 2022 with overall intersection delays expected to increase by 1-5 seconds.

6.5 Base Year 2030

By Base Year 2030 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to increase by approximately 2% for the majority of sections along the corridor over Base Year 2025 during all peak hours of traffic due to a 0.5% ambient growth rate adjusted and applied from HDOT's MRTDM. Intersection movements are expected to continue operating similar to Base Year 2022 with overall intersection delays expected to increase by 1-5 seconds.

The Honoapiilani Highway/Keawe Street intersection is expected to experience LOS E conditions along the northbound major through movement due to the projected increase in traffic during the PM peak hour of traffic. It should be noted that the LBR Phase 1C and Phase 1D extending the bypass to Kaanapali and Kapalua, respectively, are expected to help alleviate congestion along Honoapiilani Highway. However, as funding for construction of Phase 1C is

currently under discussion, extension of the LBR was not assumed to be completed by Base Year 2030.

6.6 Base Year 2035

By Base Year 2035 without the Project, traffic at the study intersections along Honoapiilani Highway is estimated to increase by approximately 2% along the corridor over Base Year 2030 during all peak hours of traffic due to a 0.5% ambient growth rate adjusted and applied from HDOT's MRTDM. Intersection movements are expected to continue operating similar to Base Year 2030 with overall intersection delays expected to increase by 1-5 seconds.

As noted for Base Year 2030, the Honoapiilani Highway/Keawe Street intersection is anticipated to operate at LOS E conditions for the northbound approach of the highway during the PM peak hour of traffic. Although no mitigation is proposed at this time, the LBR Phase 1C extension to Kaanapali is expected to alleviate long delays at the Keawe Street intersection once constructed.

6.7 Future Year 2022 Scenario 1

By completion of Scenario 1 in Future Year 2022, the Project is projected to generate a total of 77(103)[120] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. All generated traffic will access the site via Honoapiilani Highway at Akahele Street and a new right-in, right-out (RIRO) access.

Due to the relatively minimal traffic increases due to Scenario 1, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by less than 5%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by less than 10% from Base Year 2022 without the Project scenario, during the AM, PM and WE peak hours of traffic.

All study intersections are forecast to operate similar to Base Year 2022 because of the minimal traffic generated by Scenario 1. Based on the AASHTO Green Book, all existing left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection are adequate for the additional traffic generated by Scenario 1.

The new RIRO access along Honoapiilani Highway was analyzed as a stop-controlled intersection with stop control on the westbound right-turn movement out of the Project. The westbound right-turn movement is expected to operate adequately with LOS C or better during all peak hours. It is recommended that a northbound right-turn deceleration lane be provided for entry into the Project at the RIRO.

A new Road A is proposed to intersect Akahele Street to provide internal Project access. The approach of Road A north of Akahele Street is proposed for construction with Scenario 1. Due to the low through volumes currently using Akahele Street, lengthy gaps in traffic are currently available. Because volumes at the new intersection are anticipated to be low with a maximum of 150 vehicles in a given peak hour, the intersection is expected to operate adequately.

6.8 Future Year 2025 Scenario 2

By completion of Scenario 2 in Future Year 2025, the Project is projected to generate a total of 118(144)[175] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. Traffic will access the site via Honoapiilani Highway at its intersections with Akahele Street and the RIRO access.

By Future Year 2025 with the cumulative increases of Project Scenarios 1 and 2, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 5-10%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 10-20% from Base Year 2025 without the Project scenario, during the AM, PM and WE peak hours of traffic.

All study intersections are forecast to operate similar to Future Year 2022 Scenario 1 with the exception of the Honoapiilani Highway/Akahele Street intersection. Since this intersection is the primary access from Honoapiilani Highway into the Project's Scenario 2 site, turning movements into and out of Akahele Street will increase. As a result, the intersection will worsen, but operate adequately from an overall LOS B(C)[B] during the Future Year 2022 Scenario 1 condition to an overall LOS C(C)[C] for the Future Year 2025 Scenario 2. Various left-turn movements will operate at LOS E/F conditions during all peak hours due to the long cycle length and generally low turning movement volumes at the intersection. However, all movements will continue to operate under capacity. Based on the AASHTO Green Book, all existing left-turn storage lane lengths at the Honoapiilani Highway/Akahele Street intersection are adequate for the additional traffic generated by Scenario 2.

The southern approach of Road A at Akahele Street is proposed for construction with Scenario 2. Although lengthy gaps in through traffic are expected along Akahele Street to help prevent long queues for opposing left-turn movements, exclusive left-turn storage lanes should be considered along Akahele Street as traffic begins to increase as a result of the Project.

Road C is proposed to cross Akahele Street east of Road A. With Scenario 2 of the Project, a maximum of 185 vehicles are forecast to traverse the intersection in a given peak hour with under 25 through vehicles along Akahele Street in each direction. Although volumes are anticipated to be low, exclusive left-turn storage lanes should be considered to remove left-turns from the through lanes on Akahele Street.

6.9 Future Year 2030 Scenario 3

By completion of Scenario 3 in Future Year 2030, the Project is projected to generate an additional 390(568)[748] new external trips during the AM(PM)[WE] peak hours of traffic. Trips generated by the Project are expected to result in growth along major roadways in the study area. Traffic generated by Project Scenario 3 will access the site via Honoapiilani Highway at Akahele Street, the RIRO access and the proposed Road J south of Mahinahina Gulch.

By Future Year 2030 with cumulative increases of Project Scenarios 1, 2 and 3, regional traffic at the study intersections (those not providing direct access to the Project) along Honoapiilani Highway is estimated to increase overall by approximately 5-25%, while local traffic at the study intersections (those providing direct access to the Project) along Honoapiilani Highway is

estimated to increase overall by approximately 15-55% from Base Year 2030 without the Project scenario, during the AM, PM and WE peak hours of traffic.

The Honoapiilani Highway/Akahele Street intersection is expected to experience increases in delay as the Project is further developed. The majority of left-turn and minor street movements are anticipated to operate at LOS E/F with the projected growth. However, all movements will continue to operate under capacity, and the intersection is expected to operate adequately at overall LOS C(D)[C]. Based on the AASHTO Green Book, various storage lengths are recommended at the intersection as shown in Table 5.7. The Road A and Road C intersections with Akahele Street will continue to operate adequately at LOS D or better.

The new Honoapiilani Highway/Road J intersection was analyzed as an unsignalized intersection, which includes an exclusive westbound left-turn and westbound right-turn lane, an exclusive southbound left-turn lane and an exclusive northbound right-turn lane. A southbound median refuge lane along Honoapiilani Highway may be constructed to facilitate westbound vehicles making the left-turn movement from the Full Access onto Honoapiilani Highway. With the proposed configuration, the westbound left-turn out of the Project is expected to operate under capacity at LOS E/F during all peak hours of traffic. Although lengthy delays are anticipated, based on the MUTCD Four-Hour Vehicular Volume traffic signal warrant, a traffic signal is not forecast to be warranted based on weekday forecast volumes. However, the intersection should be monitored to determine if or when a traffic signal is warranted.

6.10 Future Year 2035 Scenario 4

A future elementary school will be planned/developed by the Department of Education (DOE) on the Project site. Since the development of the school is not in the direct controller of the Pulelehua development, the timeframe for this school has yet to be determined. For the purposes of this TIAR, a forecast build-out of 2035 with inclusion of the elementary school as part of the Project was assumed as Scenario 4.

By completion of Scenario 4 in Future Year 2035, the Project is projected to generate an additional 471(115)[0] new external trips during the AM(PM)[WE] peak hours of traffic. Elementary school students in Lahaina are currently serviced primarily by Princess Nahienaena Elementary School and King Kamehameha III Elementary School, further south of Keawe Street. It's anticipated that upon opening of the new Elementary School in the Project site, many students will transfer to this site from the Kaanapali, Honokowai, Kahana, Napili and Kapalua regions. Trips generated by the new elementary school were rerouted from existing traffic along Honoapiilani Highway to the new site. As a result, the majority of traffic increases were turning movement traffic turning into and out of Akahele Street on the east leg of its intersection with Honoapiilani Highway. Traffic reductions to various through movements along the highway were a result of the reroute.

With the additional trips generated by Scenario 4 and background traffic growth, several study intersections are forecast to operate with increased delay from Future Year 2030 with Scenarios 1, 2 and 3. All intersection movements forecast to operate at LOS E/F for Future Year 2030 Scenario 3 conditions will continue to operate at LOS E/F conditions during Future Year 2035 Scenario 4. Based on the AASHTO Green Book, various storage lengths are recommended at the Honoapiilani Highway/Akahele Street intersection as shown in Table 5.9.

As noted previously, some deficiencies in capacity and delay are forecast along northbound Honoapiilani Highway in the vicinity of the current northern terminus of the LBR at Keawe

Street. Upon completion of the LBR Phase 1C, which will extend the bypass road to Kaanapali, the majority of capacity and delay issues are anticipated to be resolved as a portion of vehicles will continue further north on the LBR rather than exiting to Honoapiilani Highway at Keawe Street. Because allocation of State funds for Phase 1C of the LBR is currently under discussion, the bypass extension was not assumed to be completed by Future Year 2035.

7. RECOMMENDATIONS

Full Base Year and Future Year 2022, 2025, 2030 and 2035 roadway improvements are listed in Appendix D and discussed in more detail below.

7.1 Planned Roadway Improvements

The following roadway improvements are anticipated to be completed by other entities by Year 2022.

Honoapiilani Highway/Napilihau Street

- An exclusive right-turn lane on the northbound Honoapiilani Highway approach and exclusive left-turn lane and shared through/right-turn lane on the westbound Napilihau Street approach will be constructed as part of Wailele Ridge roadway improvements.

7.2 Base Year 2022 Mitigation

There are currently no plans to implement the following improvements, but they could be considered by other entities to mitigate forecast over-capacity conditions.

[7] Honoapiilani Highway/Kaanapali Parkway/Halelo Street

- Modify the eastbound approach to incorporate a dedicated left-turn lane, a shared left-turn/through lane and two (2) dedicated right-turn lanes.

[10] Honoapiilani Highway/Kapunakea Street

- Restripe the eastbound approach to provide an exclusive left-turn lane and a shared through/right-turn lane.

7.3 Future Year 2022 Scenario 1 Mitigation

The following mitigations are proposed for Future Year 2022 Scenario 1.

[3] Honoapiilani Highway/Akahele Street

- Optimize existing signal timing to accommodate turning movement increases

[12] Honoapiilani Highway/Project RIRO

- Provide a new RIRO access for direct entry/exit to the Project via Honoapiilani Highway. Storage lane lengths shown below are exclusive of deceleration/taper length and will need to be verified upon design. Based on the AASHTO Green Book, 425 feet accommodates full deceleration length with a design speed of 50 mph.
    - Northbound right-turn lane → Provide at least 100 feet of storage space.

7.4 Future Year 2025 Scenario 2 Mitigation

[3] Honoapiilani Highway/Akahele Street

- Optimize existing signal timing to accommodate turning movement increases

[14-15] Akahele Street/Road A and Road C

- Consider providing exclusive left-turn storage lanes on Akahele Street to remove left-turns from the through lanes along Akahele Street. A minimum 50 feet of storage for the eastbound left-turn and 50 feet of storage for the westbound left-turn lanes should be provided, exclusive of taper and deceleration length

7.5 Future Year 2030 Scenario 3 Mitigation

[3] Honoapiilani Highway/Akahele Street

- Optimize existing signal timing to accommodate turning movement increases
- Lengthen existing left-turn storage lane lengths to provide the following storage space. Note, storage lane lengths shown below are exclusive of taper length or deceleration length and will need to be verified upon design:
  - Northbound left-turn lane → Lengthen left-turn lane to provide at least 250 feet of storage space.
  - Westbound left-turn lane → Lengthen left-turn lane to provide at least 200 feet of storage space.

[13] Honoapiilani Highway/Road J

- Provide a new unsignalized stop-controlled intersection south of the existing Honoapiilani Highway/Akahele Street intersection, with the westbound approach as the stopped approach. Monitor the intersection to determine if or when a signal will be warranted based on actual traffic volumes:
  - Northbound Approach → Provide one (1) through lane and a new right-turn deceleration lane with at least 100 feet of storage space. Additional taper and/or deceleration length to be provided based upon design.
  - Southbound Approach → Provide one (1) through lane and a new right-turn deceleration lane with at least 100 feet of storage space. Additional taper and/or deceleration length to be provided based upon design.
    - AASHTO Green Book recommends 425 feet for full deceleration length with a design speed of 50 mph for both northbound and southbound approaches.
    - A median refuge lane may be constructed to facilitate westbound left-turn traffic exiting Road J going onto Honoapiilani Highway.
  - Westbound Approach → Provide a new left-turn storage lane and a new 100 feet right-turn storage lane.

7.6 Future Year 2035 Scenario 4 Mitigation

[3] Honoapiilani Highway/Akahele Street

- Optimize existing signal timing to accommodate turning movement increases
- Lengthen existing left-turn storage lane lengths to provide the following storage space. Note, storage lane lengths shown below are exclusive of taper length or deceleration length and will need to be verified upon design:
  - Northbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.
  - Southbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.
  - Westbound left-turn lane → Lengthen left-turn lane to provide at least 275 feet of storage space.

[13] Honoapiilani Highway/Road J

- Monitor the intersection to determine if or when a signal will be warranted based on actual traffic volumes.

8. REFERENCES

1. American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, 2011.
2. Federal Highway Administration, Manual on Uniform Traffic Control Devices, 2009.
3. Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017.
4. Transportation Research Board, Highway Capacity Manual, 6th Edition, 2016.

A P P E N D I C E S

APPENDIX A

TRAFFIC COUNT DATA

AUSTIN TSUTSUMI & ASSOCIATES

501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 12/1/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				NAPILIHAU ST Westbound				HONOAPIILANI HWY Northbound				NAPILIHAU ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	0	16	6	0	1	0	0	0	19	24	2	0	10	0	30	0	108
06:30 AM	0	24	5	2	1	1	0	0	28	23	4	0	12	2	71	0	173
06:45 AM	0	28	4	0	5	2	2	0	41	49	4	0	8	4	67	0	214
Total	0	68	15	2	7	3	2	0	88	96	10	0	30	6	168	0	495
07:00 AM	1	19	2	1	7	2	1	0	43	32	5	0	7	0	82	0	202
07:15 AM	0	37	6	0	3	3	0	0	61	50	8	0	16	5	87	0	276
07:30 AM	0	12	2	1	1	2	1	0	18	31	6	0	7	6	47	0	134
07:45 AM	2	27	6	1	20	14	4	0	60	61	46	0	11	20	76	0	348
Total	3	95	16	3	31	21	6	0	182	174	65	0	41	31	292	0	960
08:00 AM	3	41	16	1	28	9	5	0	63	62	24	0	14	6	61	0	333
Grand Total	6	204	47	6	66	33	13	0	333	332	99	0	85	43	521	0	1788
Apprch %	2.3	77.6	17.9	2.3	58.9	29.5	11.6	0	43.6	43.5	13	0	13.1	6.6	80.3	0	
Total %	0.3	11.4	2.6	0.3	3.7	1.8	0.7	0	18.6	18.6	5.5	0	4.8	2.4	29.1	0	

AUSTIN TSUTSUMI & ASSOCIATES

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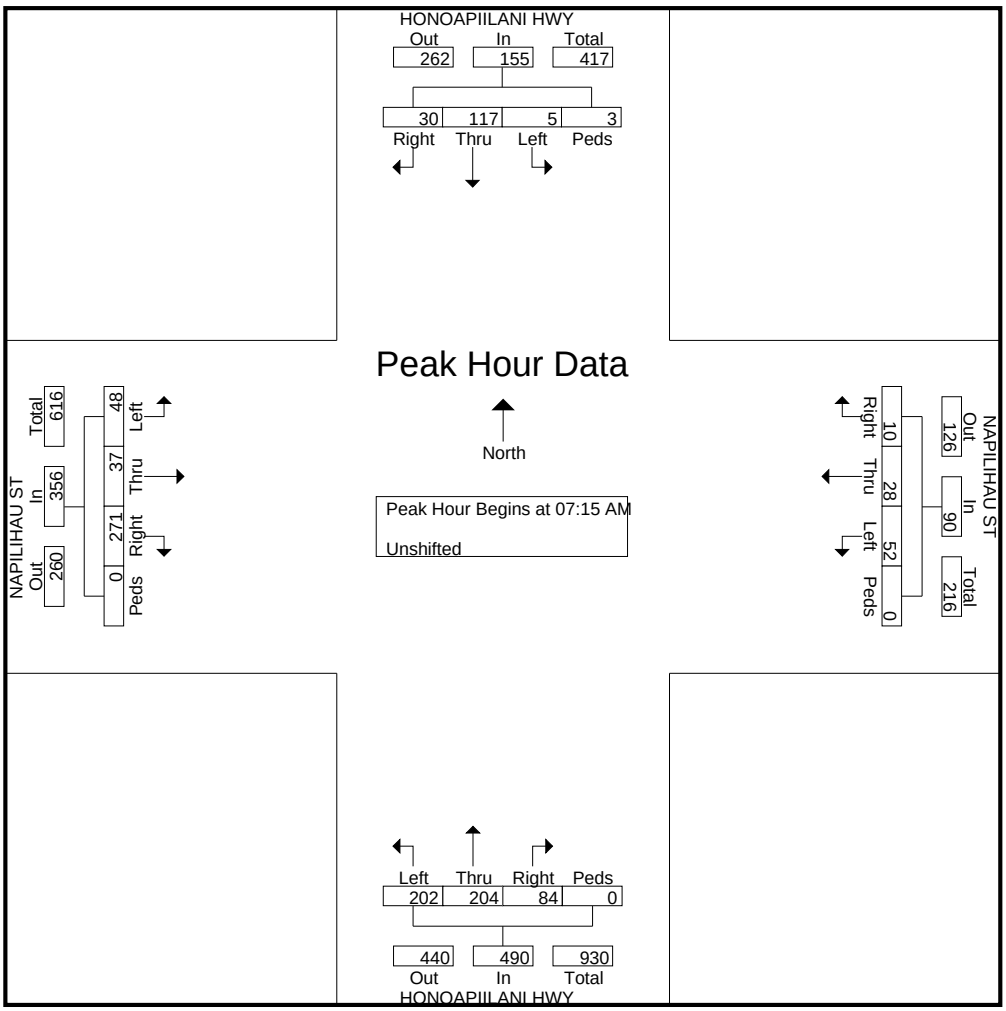
File Name : AM_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 12/1/2016
Page No : 2

	HONOAPIILANI HWY Southbound					NAPILIHAU ST Westbound					HONOAPIILANI HWY Northbound					NAPILIHAU ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	37	6	0	43	3	3	0	0	6	61	50	8	0	119	**16**	5	**87**	0	**108**	276
07:30 AM	0	12	2	**1**	15	1	2	1	0	4	18	31	6	0	55	7	6	47	0	60	134
07:45 AM	2	27	6	1	36	20	**14**	4	0	38	60	61	**46**	0	**167**	11	**20**	76	0	107	**348**
08:00 AM	**3**	**41**	**16**	1	**61**	**28**	9	**5**	0	**42**	**63**	**62**	24	0	149	14	6	61	0	81	333
Total Volume	5	117	30	3	155	52	28	10	0	90	202	204	84	0	490	48	37	271	0	356	1091
% App. Total	3.2	75.5	19.4	1.9		57.8	31.1	11.1	0		41.2	41.6	17.1	0		13.5	10.4	76.1	0		
PHF	.417	.713	.469	.750	.635	.464	.500	.500	.000	.536	.802	.823	.457	.000	.734	.750	.463	.779	.000	.824	.784



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501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 12/1/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HOOHUI RD Westbound				HONOAPIILANI HWY Northbound				HOOHUI RD Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	0	43	8	1	5	0	0	1	6	43	1	0	8	0	23	0	139
06:30 AM	0	80	8	0	12	3	3	0	7	47	1	0	8	2	32	0	203
06:45 AM	0	96	10	1	12	2	5	0	14	74	3	0	10	0	35	0	262
Total	0	219	26	2	29	5	8	1	27	164	5	0	26	2	90	0	604
07:00 AM	1	107	10	1	22	5	2	0	15	62	5	0	10	0	48	0	288
07:15 AM	1	113	19	2	36	6	2	1	23	89	1	1	11	0	36	0	341
07:30 AM	1	89	19	5	18	3	4	3	24	110	3	0	15	1	54	0	349
07:45 AM	6	111	10	2	16	6	3	2	37	117	5	0	19	2	41	0	377
Total	9	420	58	10	92	20	11	6	99	378	14	1	55	3	179	0	1355
08:00 AM	1	119	13	1	14	3	4	0	39	137	4	0	13	0	32	0	380
Grand Total	10	758	97	13	135	28	23	7	165	679	23	1	94	5	301	0	2339
Apprch %	1.1	86.3	11	1.5	69.9	14.5	11.9	3.6	19	78.2	2.6	0.1	23.5	1.2	75.2	0	
Total %	0.4	32.4	4.1	0.6	5.8	1.2	1	0.3	7.1	29	1	0	4	0.2	12.9	0	

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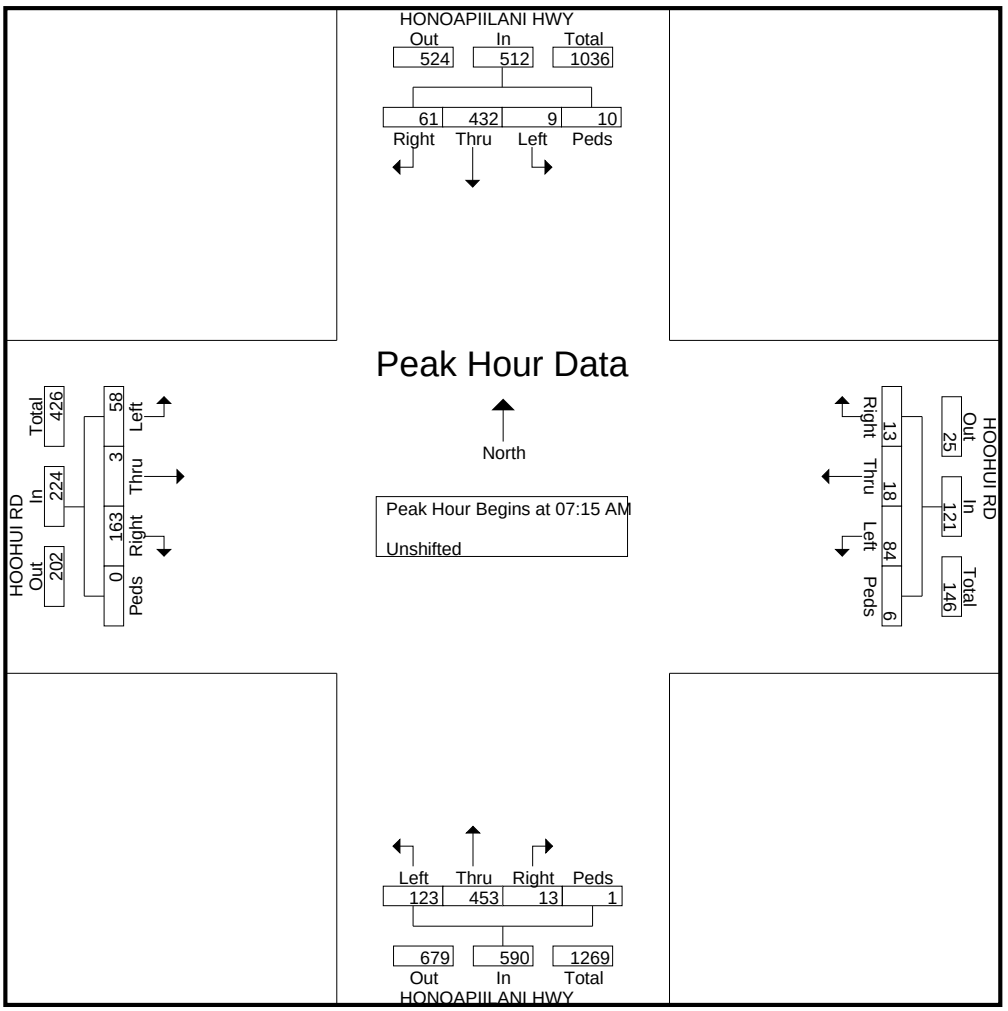
File Name : AM_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 12/1/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HOOHUI RD Westbound					HONOAPIILANI HWY Northbound					HOOHUI RD Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	113	**19**	2	**135**	**36**	**6**	2	1	**45**	23	89	1	**1**	114	11	0	36	0	47	341
07:30 AM	1	89	19	**5**	114	18	3	**4**	**3**	28	24	110	3	0	137	15	1	**54**	0	**70**	349
07:45 AM	**6**	111	10	2	129	16	6	3	2	27	37	117	**5**	0	159	**19**	**2**	41	0	62	377
08:00 AM	1	**119**	13	1	134	14	3	4	0	21	**39**	**137**	4	0	**180**	13	0	32	0	45	**380**
Total Volume	9	432	61	10	512	84	18	13	6	121	123	453	13	1	590	58	3	163	0	224	1447
% App. Total	1.8	84.4	11.9	2		69.4	14.9	10.7	5		20.8	76.8	2.2	0.2		25.9	1.3	72.8	0		
PHF	.375	.908	.803	.500	.948	.583	.750	.813	.500	.672	.788	.827	.650	.250	.819	.763	.375	.755	.000	.800	.952



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501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
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File Name : AM_Honoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted - Bank 1

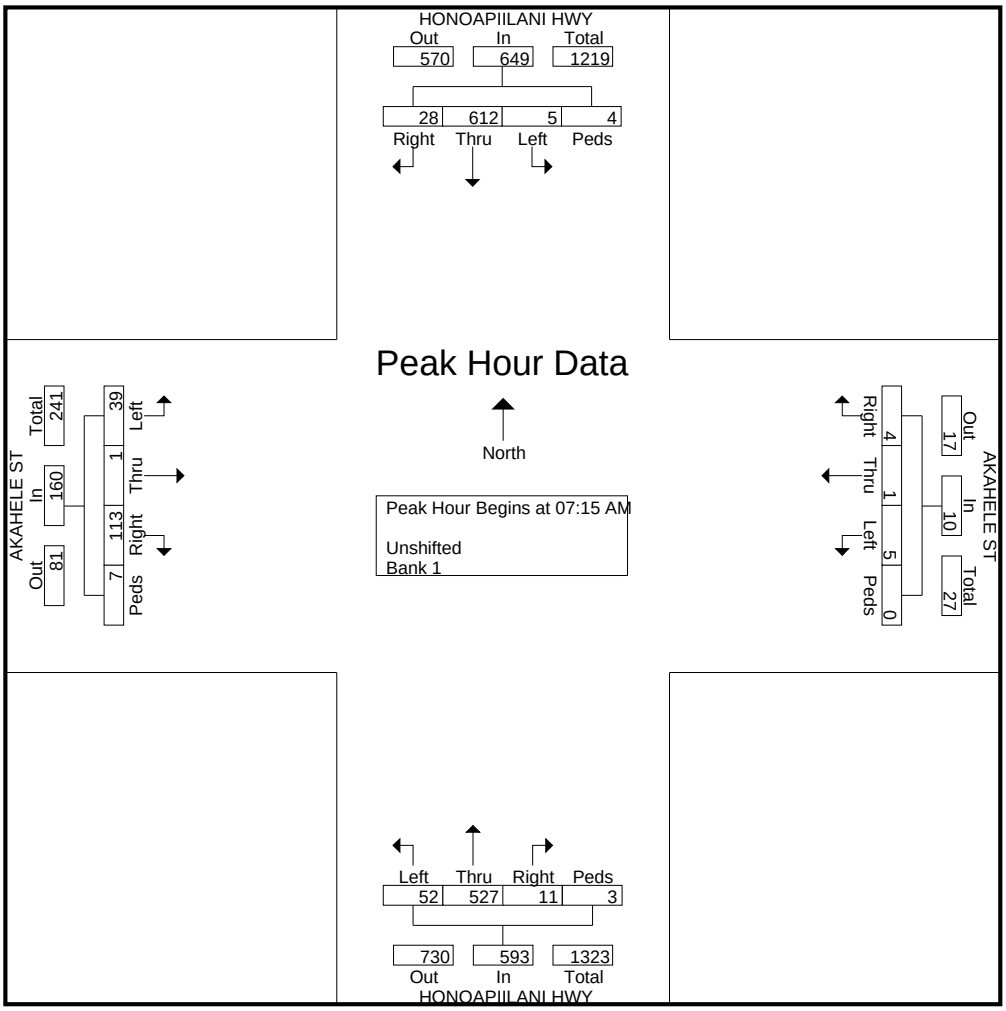
	HONOAPIILANI HWY Southbound				AKAHELE ST Westbound				HONOAPIILANI HWY Northbound				AKAHELE ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:15 AM	1	70	4	0	1	0	0	0	3	54	1	1	10	0	8	1	154
06:30 AM	3	102	3	0	1	0	1	0	5	72	2	0	13	1	17	0	220
06:45 AM	1	163	11	0	1	1	0	0	6	87	1	0	13	2	18	2	306
Total	5	335	18	0	3	1	1	0	14	213	4	1	36	3	43	3	680
07:00 AM	3	166	9	0	1	1	1	0	5	80	4	1	13	0	37	0	321
07:15 AM	1	185	4	2	2	0	2	0	10	104	3	0	5	0	46	3	367
07:30 AM	3	162	7	0	1	0	1	0	12	113	1	1	10	0	30	1	342
07:45 AM	0	136	10	2	1	1	1	0	19	134	4	2	12	1	23	1	347
Total	7	649	30	4	5	2	5	0	46	431	12	4	40	1	136	5	1377
08:00 AM	1	129	7	0	1	0	0	0	11	176	3	0	12	0	14	2	356
08:15 AM	1	114	6	0	2	2	0	0	10	121	3	1	8	1	19	3	291
Grand Total	14	1227	61	4	11	5	6	0	81	941	22	6	96	5	212	13	2704
Apprch %	1.1	94	4.7	0.3	50	22.7	27.3	0	7.7	89.6	2.1	0.6	29.4	1.5	65	4	
Total %	0.5	45.4	2.3	0.1	0.4	0.2	0.2	0	3	34.8	0.8	0.2	3.6	0.2	7.8	0.5	
Unshifted	14	1227	61	4	11	5	6	0	81	941	22	6	96	5	212	13	2704
% Unshifted	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AUSTIN TSUTSUMI & ASSOCIATES

501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Honoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					AKAHELE ST Westbound					HONOAPIILANI HWY Northbound					AKAHELE ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	**185**	4	**2**	**192**	**2**	0	**2**	0	**4**	10	104	3	0	117	5	0	**46**	**3**	**54**	**367**
07:30 AM	**3**	162	7	0	172	1	0	1	0	2	12	113	1	1	127	10	0	30	1	41	342
07:45 AM	0	136	**10**	2	148	1	**1**	1	0	3	**19**	134	**4**	**2**	159	**12**	**1**	23	1	37	347
08:00 AM	1	129	7	0	137	1	0	0	0	1	11	**176**	3	0	**190**	12	0	14	2	28	356
Total Volume	5	612	28	4	649	5	1	4	0	10	52	527	11	3	593	39	1	113	7	160	1412
% App. Total	0.8	94.3	4.3	0.6		50	10	40	0		8.8	88.9	1.9	0.5		24.4	0.6	70.6	4.4		
PHF	.417	.827	.700	.500	.845	.625	.250	.500	.000	.625	.684	.749	.688	.375	.780	.813	.250	.614	.583	.741	.962



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File Name : AM_Honoapiilani Hwy - Lower Honoapiilani Rd
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				LOWER HONOAPIILANI R Westbound				HONOAPIILANI HWY Northbound				LOWER HONOAPIILANI R Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:30 AM	6	97	3	0	14	0	0	0	46	85	33	0	6	0	57	0	347
06:45 AM	2	150	0	0	5	0	3	0	41	77	29	0	10	3	96	0	416
Total	8	247	3	0	19	0	3	0	87	162	62	0	16	3	153	0	763
07:00 AM	0	177	0	0	4	0	0	0	64	92	18	0	13	4	89	0	461
07:15 AM	3	199	0	0	1	0	0	0	59	105	12	0	8	2	116	0	505
07:30 AM	3	178	10	1	6	0	0	0	90	135	14	0	6	2	112	0	557
07:45 AM	1	145	0	1	2	1	0	0	73	181	5	0	11	2	94	0	516
Total	7	699	10	2	13	1	0	0	286	513	49	0	38	10	411	0	2039
08:00 AM	1	169	0	0	8	2	0	0	65	171	7	0	5	1	111	0	540
08:15 AM	1	117	0	0	4	2	2	0	81	123	7	0	10	0	105	0	452
Grand Total	17	1232	13	2	44	5	5	0	519	969	125	0	69	14	780	0	3794
Apprch %	1.3	97.5	1	0.2	81.5	9.3	9.3	0	32.2	60.1	7.7	0	8	1.6	90.4	0	
Total %	0.4	32.5	0.3	0.1	1.2	0.1	0.1	0	13.7	25.5	3.3	0	1.8	0.4	20.6	0	

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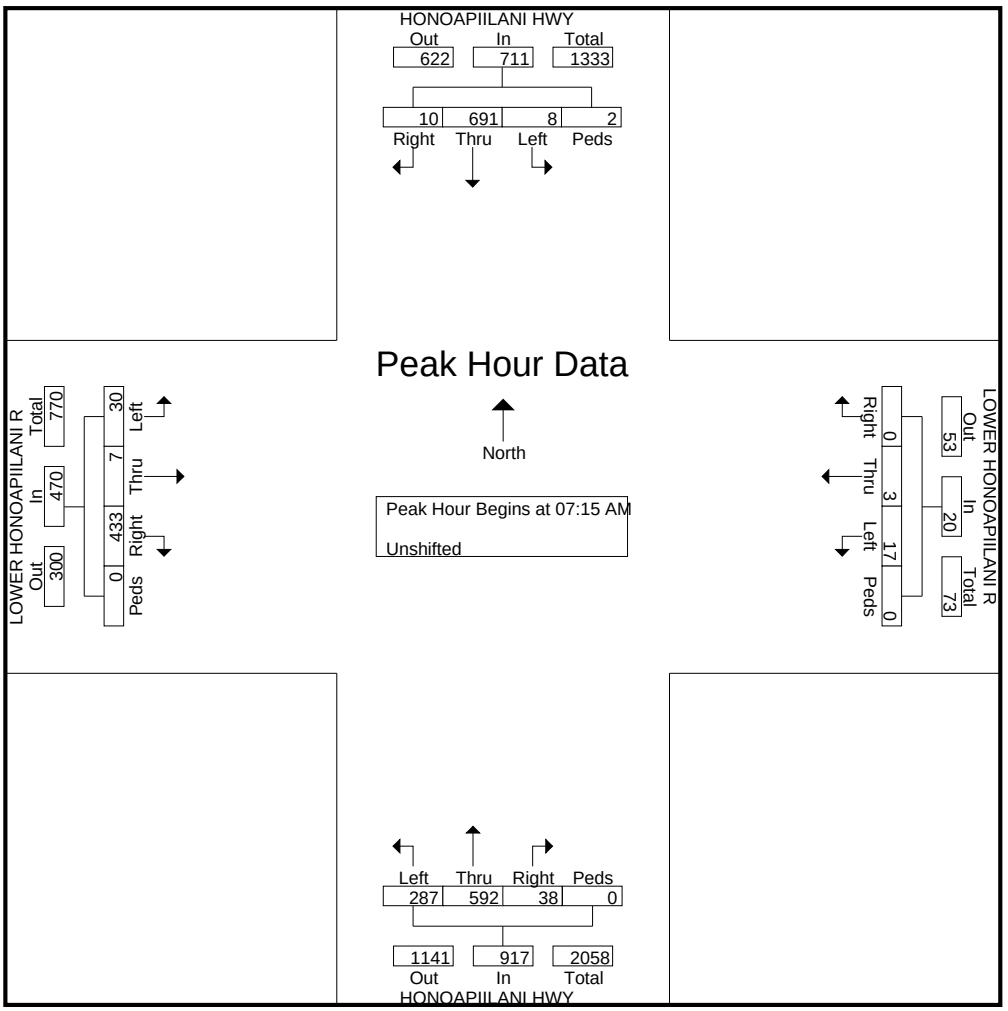
File Name : AM_Honoapiilani Hwy - Lower Honoapiilani Rd
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					LOWER HONOAPIILANI R Westbound					HONOAPIILANI HWY Northbound					LOWER HONOAPIILANI R Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**3**	**199**	0	0	**202**	1	0	0	0	1	59	105	12	0	176	8	**2**	**116**	0	**126**	505
07:30 AM	3	178	**10**	**1**	192	6	0	0	0	6	**90**	135	**14**	0	239	6	2	112	0	120	**557**
07:45 AM	1	145	0	1	147	2	1	0	0	3	73	**181**	5	0	**259**	**11**	2	94	0	107	516
08:00 AM	1	169	0	0	170	**8**	**2**	0	0	**10**	65	171	7	0	243	5	1	111	0	117	540
Total Volume	8	691	10	2	711	17	3	0	0	20	287	592	38	0	917	30	7	433	0	470	2118
% App. Total	1.1	97.2	1.4	0.3		85	15	0	0		31.3	64.6	4.1	0		6.4	1.5	92.1	0		
PHF	.667	.868	.250	.500	.880	.531	.375	.000	.000	.500	.797	.818	.679	.000	.885	.682	.875	.933	.000	.933	.951



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501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HALAWAI DR Westbound				HONOAPIILANI HWY Northbound				HALAWAI DR Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	0	130	11	0	0	0	0	0	14	123	3	1	12	0	2	0	296
06:30 AM	1	151	15	0	1	0	0	0	13	159	4	0	13	0	7	0	364
06:45 AM	1	243	12	0	0	0	1	0	16	138	3	0	9	0	6	0	429
Total	2	524	38	0	1	0	1	0	43	420	10	1	34	0	15	0	1089
07:00 AM	0	261	5	0	2	1	3	0	20	163	4	0	2	0	4	0	465
07:15 AM	1	330	11	0	2	1	1	0	16	190	2	0	6	0	6	0	566
07:30 AM	3	298	13	0	2	0	0	0	13	223	3	0	2	0	14	0	571
07:45 AM	4	248	4	0	4	0	3	0	19	289	6	0	5	0	6	0	588
Total	8	1137	33	0	10	2	7	0	68	865	15	0	15	0	30	0	2190
08:00 AM	6	253	10	0	0	0	2	0	16	272	5	0	3	0	7	0	574
Grand Total	16	1914	81	0	11	2	10	0	127	1557	30	1	52	0	52	0	3853
Apprch %	0.8	95.2	4	0	47.8	8.7	43.5	0	7.4	90.8	1.7	0.1	50	0	50	0	
Total %	0.4	49.7	2.1	0	0.3	0.1	0.3	0	3.3	40.4	0.8	0	1.3	0	1.3	0	

AUSTIN TSUTSUMI & ASSOCIATES

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Honolulu, HI 96817-5031
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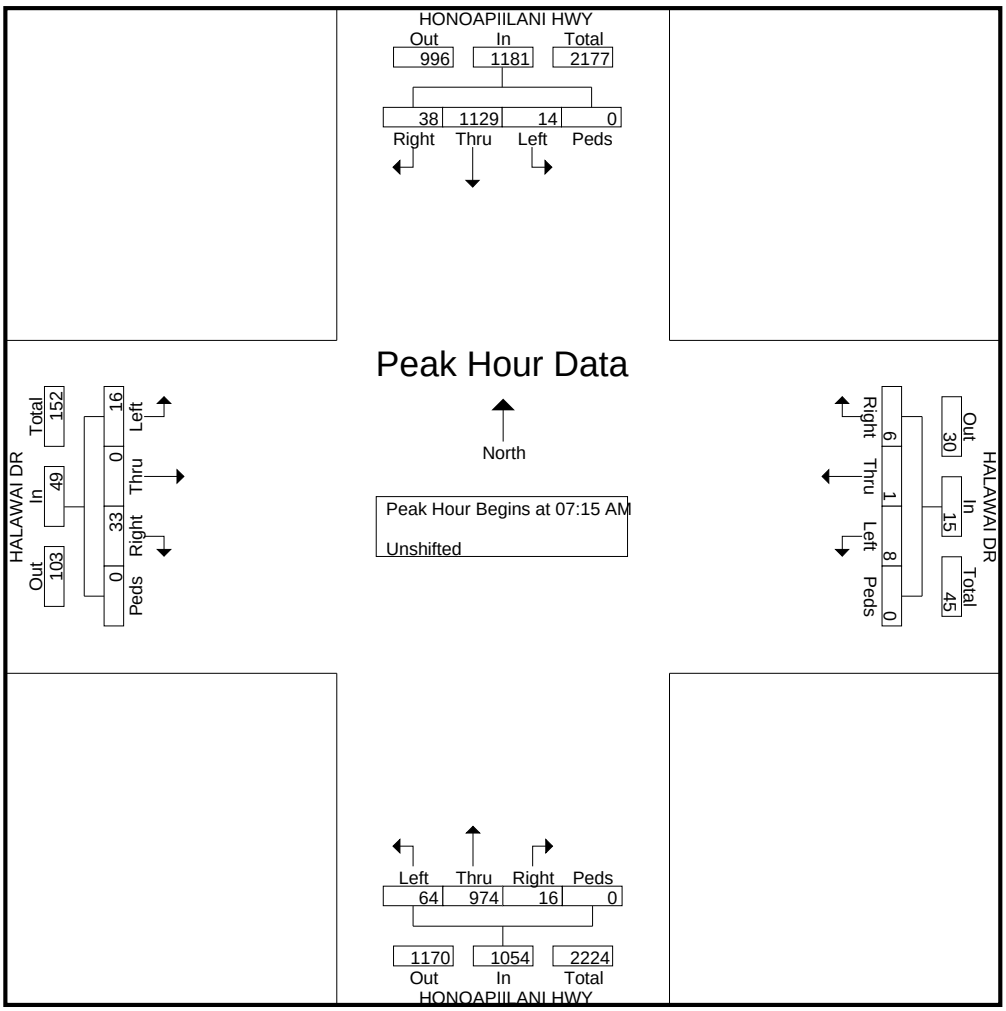
File Name : AM_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HALAWAI DR Westbound					HONOAPIILANI HWY Northbound					HALAWAI DR Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	**330**	11	0	**342**	2	**1**	1	0	4	16	190	2	0	208	**6**	0	6	0	12	566
07:30 AM	3	298	**13**	0	314	2	0	0	0	2	13	223	3	0	239	2	0	**14**	0	**16**	571
07:45 AM	4	248	4	0	256	**4**	0	**3**	0	**7**	**19**	**289**	**6**	0	**314**	5	0	6	0	11	**588**
08:00 AM	**6**	253	10	0	269	0	0	2	0	2	16	272	5	0	293	3	0	7	0	10	574
Total Volume	14	1129	38	0	1181	8	1	6	0	15	64	974	16	0	1054	16	0	33	0	49	2299
% App. Total	1.2	95.6	3.2	0		53.3	6.7	40	0		6.1	92.4	1.5	0		32.7	0	67.3	0		
PHF	.583	.855	.731	.000	.863	.500	.250	.500	.000	.536	.842	.843	.667	.000	.839	.667	.000	.589	.000	.766	.977



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501 Sumner Street, Suite 521
Honolulu, HI 96817-5031
Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : AM_Honoapiilani Hwy - Puukolii Rd
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				PUUKOLII RD Westbound				HONOAPIILANI HWY Northbound				PUUKOLII RD Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	1	118	5	2	1	0	3	0	12	140	3	0	3	0	12	0	300
06:30 AM	1	142	9	1	5	1	7	0	13	154	3	0	6	0	13	0	355
06:45 AM	1	228	12	3	6	0	4	0	19	140	8	0	4	0	8	0	433
Total	3	488	26	6	12	1	14	0	44	434	14	0	13	0	33	0	1088
07:00 AM	2	254	5	0	2	0	3	0	5	119	3	0	8	0	1	0	402
07:15 AM	6	305	6	0	10	0	3	0	22	209	12	0	6	0	7	0	586
07:30 AM	1	293	12	0	9	6	8	0	31	235	10	0	12	1	6	0	624
07:45 AM	7	239	12	1	12	5	21	0	19	258	17	0	16	1	7	0	615
Total	16	1091	35	1	33	11	35	0	77	821	42	0	42	2	21	0	2227
08:00 AM	10	223	7	0	8	2	9	0	30	263	15	0	11	2	10	0	590
Grand Total	29	1802	68	7	53	14	58	0	151	1518	71	0	66	4	64	0	3905
Apprch %	1.5	94.5	3.6	0.4	42.4	11.2	46.4	0	8.7	87.2	4.1	0	49.3	3	47.8	0	
Total %	0.7	46.1	1.7	0.2	1.4	0.4	1.5	0	3.9	38.9	1.8	0	1.7	0.1	1.6	0	

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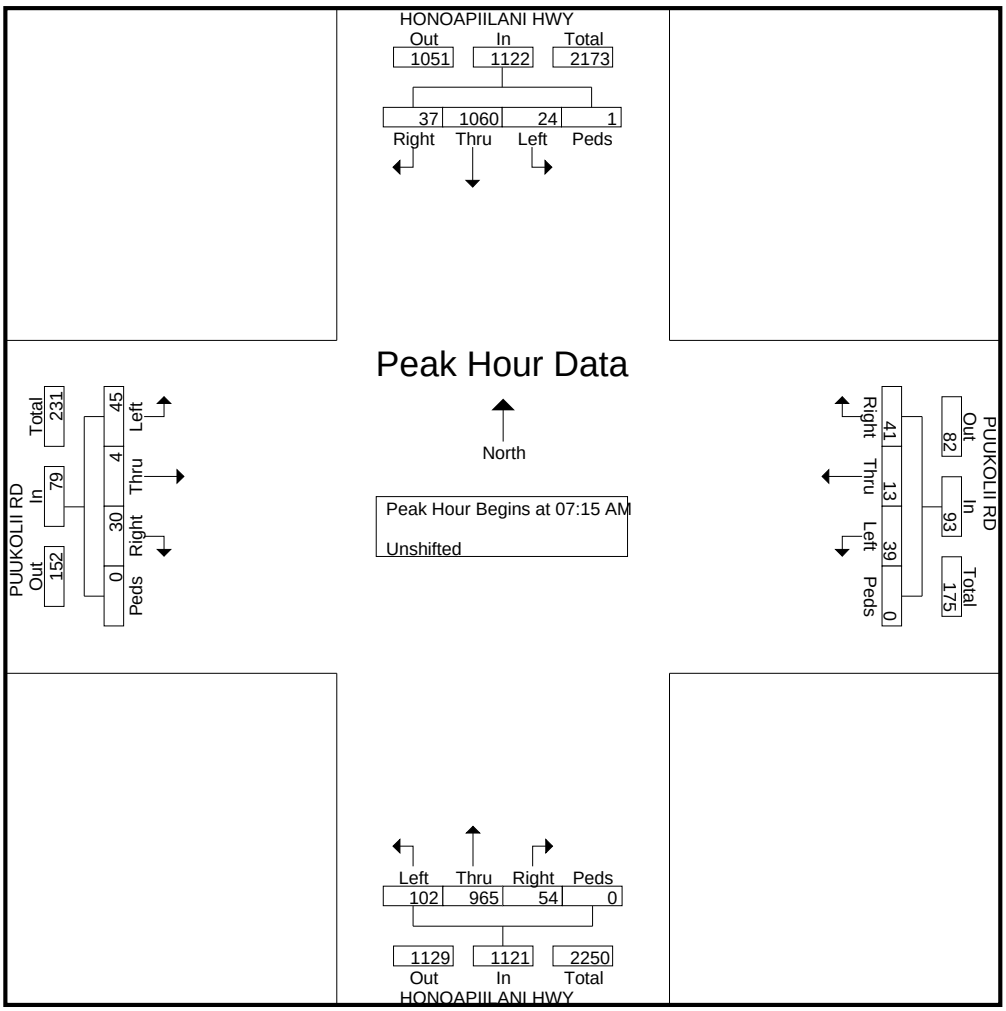
File Name : AM_Honoapiilani Hwy - Puukolii Rd
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					PUUKOLII RD Westbound					HONOAPIILANI HWY Northbound					PUUKOLII RD Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	6	**305**	6	0	**317**	10	0	3	0	13	22	209	12	0	243	6	0	7	0	13	586
07:30 AM	1	293	**12**	0	306	9	**6**	8	0	23	**31**	235	10	0	276	12	1	6	0	19	**624**
07:45 AM	7	239	12	**1**	259	**12**	5	**21**	0	**38**	19	258	**17**	0	294	**16**	1	7	0	**24**	615
08:00 AM	**10**	223	7	0	240	8	2	9	0	19	30	**263**	15	0	**308**	11	**2**	**10**	0	23	590
Total Volume	24	1060	37	1	1122	39	13	41	0	93	102	965	54	0	1121	45	4	30	0	79	2415
% App. Total	2.1	94.5	3.3	0.1		41.9	14	44.1	0		9.1	86.1	4.8	0		57	5.1	38	0		
PHF	.600	.869	.771	.250	.885	.813	.542	.488	.000	.612	.823	.917	.794	.000	.910	.703	.500	.750	.000	.823	.968



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File Name : AM_Honoapiilani Hwy - Kaanapali Pkwy
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				KAANAPALI PKWY Westbound				HONOAPIILANI HWY Northbound				KAANAPALI PKWY Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	5	114	9	0	0	1	0	0	50	142	4	0	13	0	22	0	360
06:30 AM	3	134	13	0	3	0	2	0	77	180	2	0	11	0	41	0	466
06:45 AM	9	183	26	2	4	8	1	0	81	186	2	0	17	1	42	0	562
Total	17	431	48	2	7	9	3	0	208	508	8	0	41	1	105	0	1388
07:00 AM	8	251	11	0	2	3	1	0	79	163	0	0	20	2	52	1	593
07:15 AM	17	264	20	0	2	3	1	0	93	218	3	0	18	1	51	0	691
07:30 AM	4	290	30	2	2	3	3	0	113	264	2	0	34	0	54	2	803
07:45 AM	9	232	21	1	3	2	3	0	120	319	5	0	28	0	49	2	794
Total	38	1037	82	3	9	11	8	0	405	964	10	0	100	3	206	5	2881
08:00 AM	10	210	16	2	3	2	1	0	84	270	4	0	35	5	60	2	704
Grand Total	65	1678	146	7	19	22	12	0	697	1742	22	0	176	9	371	7	4973
Apprch %	3.4	88.5	7.7	0.4	35.8	41.5	22.6	0	28.3	70.8	0.9	0	31.3	1.6	65.9	1.2	
Total %	1.3	33.7	2.9	0.1	0.4	0.4	0.2	0	14	35	0.4	0	3.5	0.2	7.5	0.1	

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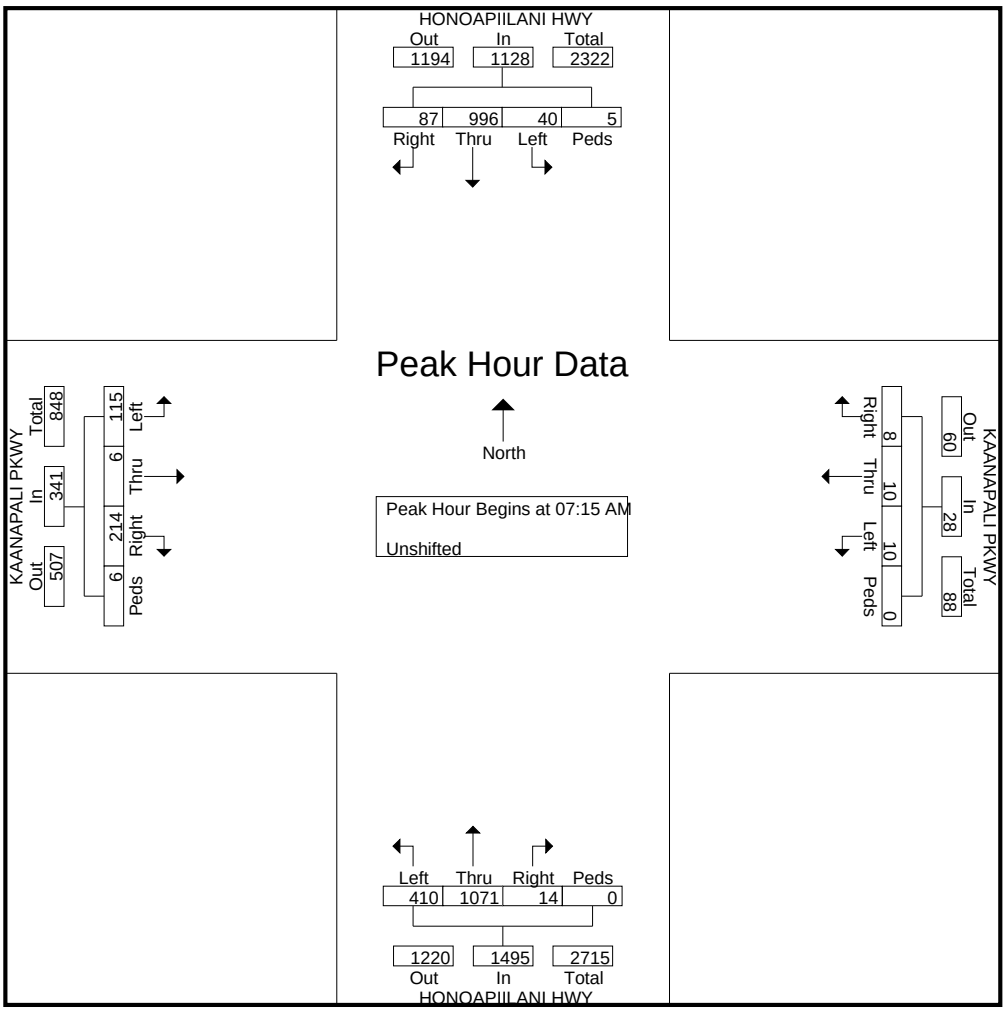
File Name : AM_Honoapiilani Hwy - Kaanapali Pkwy
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					KAANAPALI PKWY Westbound					HONOAPIILANI HWY Northbound					KAANAPALI PKWY Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**17**	264	20	0	301	2	**3**	1	0	6	93	218	3	0	314	18	1	51	0	70	691
07:30 AM	4	**290**	**30**	**2**	**326**	2	3	**3**	0	**8**	113	264	2	0	379	34	0	54	**2**	90	**803**
07:45 AM	9	232	21	1	263	**3**	2	3	0	8	**120**	**319**	**5**	0	**444**	28	0	49	2	79	794
08:00 AM	10	210	16	2	238	3	2	1	0	6	84	270	4	0	358	**35**	**5**	**60**	2	**102**	704
Total Volume	40	996	87	5	1128	10	10	8	0	28	410	1071	14	0	1495	115	6	214	6	341	2992
% App. Total	3.5	88.3	7.7	0.4		35.7	35.7	28.6	0		27.4	71.6	0.9	0		33.7	1.8	62.8	1.8		
PHF	.588	.859	.725	.625	.865	.833	.833	.667	.000	.875	.854	.839	.700	.000	.842	.821	.300	.892	.750	.836	.932



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File Name : AM_Honoapiilani Hwy - Leialii Pkwy
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				LEIALII PKWY Westbound				HONOAPIILANI HWY Northbound				LEIALII PKWY Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	3	134	0	2	10	0	1	0	0	217	3	0	0	0	0	0	370
06:30 AM	2	173	1	2	9	0	9	1	0	254	7	0	0	0	0	0	458
06:45 AM	3	201	0	1	11	1	11	0	2	245	11	0	0	0	2	0	488
Total	8	508	1	5	30	1	21	1	2	716	21	0	0	0	2	0	1316
07:00 AM	6	320	0	0	16	0	5	2	1	264	14	0	0	0	0	2	630
07:15 AM	5	325	1	0	16	0	7	1	0	333	15	0	1	0	0	0	704
07:30 AM	4	342	1	1	9	0	9	1	0	442	22	0	0	0	2	2	835
07:45 AM	7	272	2	4	16	0	8	2	2	375	23	0	1	1	1	3	717
Total	22	1259	4	5	57	0	29	6	3	1414	74	0	2	1	3	7	2886
08:00 AM	9	251	0	2	15	0	15	0	1	335	26	0	0	0	1	1	656
08:15 AM	6	284	0	1	15	0	12	5	0	312	21	0	0	0	0	1	657
Grand Total	45	2302	5	13	117	1	77	12	6	2777	142	0	2	1	6	9	5515
Apprch %	1.9	97.3	0.2	0.5	56.5	0.5	37.2	5.8	0.2	94.9	4.9	0	11.1	5.6	33.3	50	
Total %	0.8	41.7	0.1	0.2	2.1	0	1.4	0.2	0.1	50.4	2.6	0	0	0	0.1	0.2	

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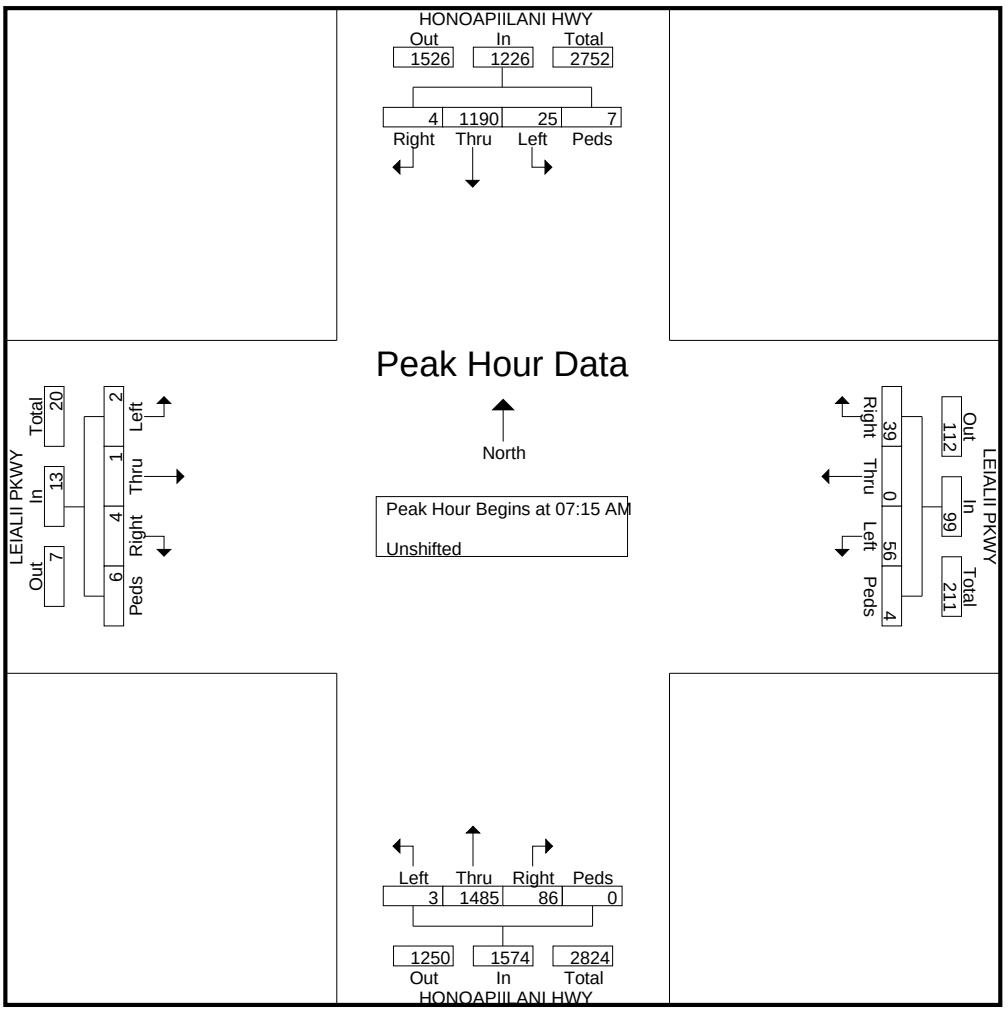
File Name : AM_Honoapiilani Hwy - Leialii Pkwy
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					LEIALII PKWY Westbound					HONOAPIILANI HWY Northbound					LEIALII PKWY Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	325	1	0	331	**16**	0	7	1	24	0	333	15	0	348	**1**	0	0	0	1	704
07:30 AM	4	**342**	1	1	**348**	9	0	9	1	19	0	**442**	22	0	**464**	0	0	**2**	2	4	**835**
07:45 AM	7	272	**2**	**4**	285	16	0	8	**2**	26	**2**	375	23	0	400	1	**1**	1	**3**	**6**	717
08:00 AM	**9**	251	0	2	262	15	0	**15**	0	**30**	1	335	**26**	0	362	0	0	1	1	2	656
Total Volume	25	1190	4	7	1226	56	0	39	4	99	3	1485	86	0	1574	2	1	4	6	13	2912
% App. Total	2	97.1	0.3	0.6		56.6	0	39.4	4		0.2	94.3	5.5	0		15.4	7.7	30.8	46.2		
PHF	.694	.870	.500	.438	.881	.875	.000	.650	.500	.825	.375	.840	.827	.000	.848	.500	.250	.500	.500	.542	.872



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File Name : AM_Honoapiilani Hwy - Front St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				FLEMING RD Westbound				HONOAPIILANI HWY Northbound				FRONT ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
06:15 AM	0	126	9	0	12	1	2	0	0	208	0	0	2	0	0	3	363
06:30 AM	0	155	12	0	13	2	0	0	1	213	3	0	7	1	0	0	407
06:45 AM	0	183	13	0	15	1	1	0	0	234	1	0	6	0	1	0	455
Total	0	464	34	0	40	4	3	0	1	655	4	0	15	1	1	3	1225
07:00 AM	0	240	31	0	44	4	3	0	0	238	3	0	5	0	0	0	568
07:15 AM	1	280	53	0	29	7	2	0	0	327	2	0	18	0	1	1	721
07:30 AM	1	298	58	0	35	2	7	0	1	422	3	0	20	1	1	0	849
07:45 AM	0	249	32	0	16	1	2	0	0	389	8	0	24	1	0	0	722
Total	2	1067	174	0	124	14	14	0	1	1376	16	0	67	2	2	1	2860
08:00 AM	4	232	24	0	21	5	2	0	1	333	3	0	19	2	1	1	648
Grand Total	6	1763	232	0	185	23	19	0	3	2364	23	0	101	5	4	5	4733
Apprch %	0.3	88.1	11.6	0	81.5	10.1	8.4	0	0.1	98.9	1	0	87.8	4.3	3.5	4.3	
Total %	0.1	37.2	4.9	0	3.9	0.5	0.4	0	0.1	49.9	0.5	0	2.1	0.1	0.1	0.1	

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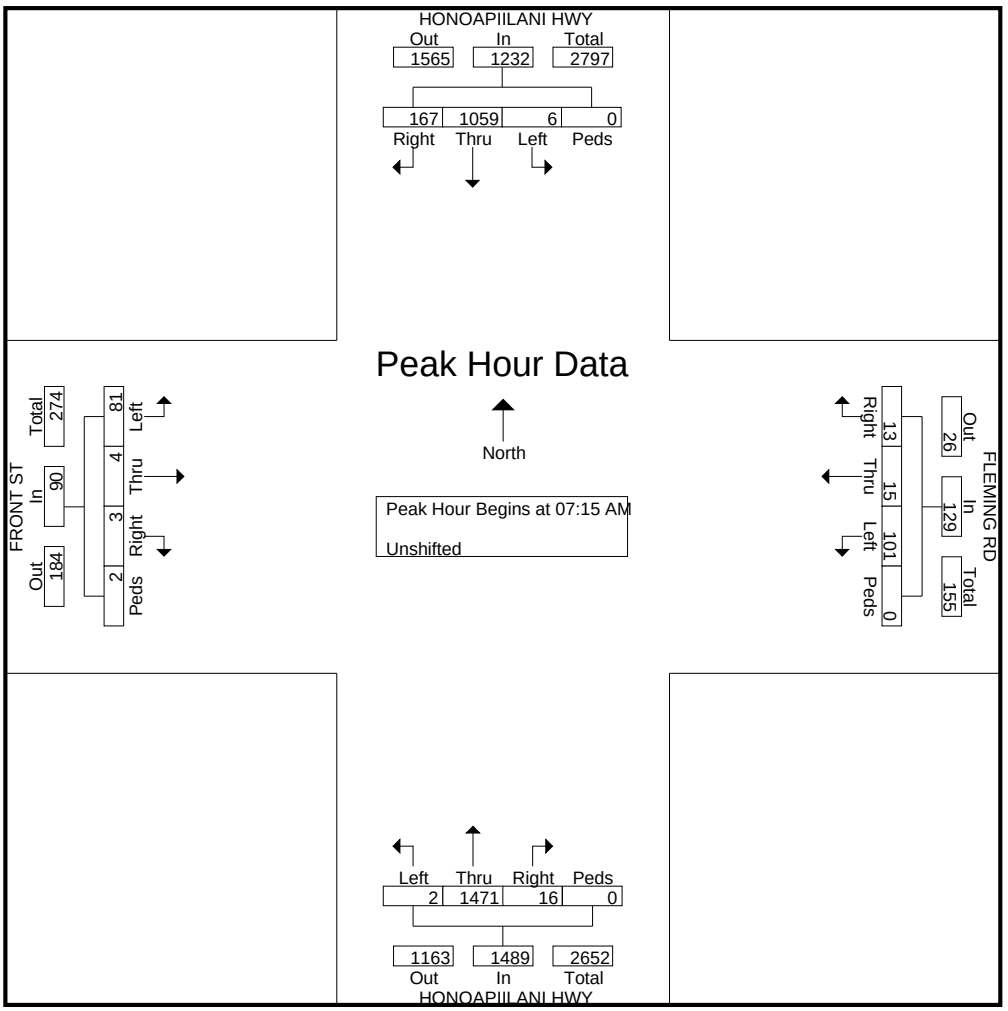
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	HONOAPIILANI HWY Southbound					FLEMING RD Westbound					HONOAPIILANI HWY Northbound					FRONT ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 06:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	280	53	0	334	29	**7**	2	0	38	0	327	2	0	329	18	0	**1**	**1**	20	721
07:30 AM	1	**298**	**58**	0	**357**	**35**	2	**7**	0	**44**	**1**	**422**	3	0	**426**	20	1	1	0	22	**849**
07:45 AM	0	249	32	0	281	16	1	2	0	19	0	389	**8**	0	397	**24**	1	0	0	**25**	722
08:00 AM	**4**	232	24	0	260	21	5	2	0	28	1	333	3	0	337	19	**2**	1	1	23	648
Total Volume	6	1059	167	0	1232	101	15	13	0	129	2	1471	16	0	1489	81	4	3	2	90	2940
% App. Total	0.5	86	13.6	0		78.3	11.6	10.1	0		0.1	98.8	1.1	0		90	4.4	3.3	2.2		
PHF	.375	.888	.720	.000	.863	.721	.536	.464	.000	.733	.500	.871	.500	.000	.874	.844	.500	.750	.500	.900	.866



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File Name : AM_Honoapiilani Hwy-Kapunakea St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	KAPUNAKEA ST Eastbound				KAPUNAKEA ST Westbound				HONOAPIILANI HWY Northbound				HONOAPIILANI HWY Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:15 AM	8	1	2	0	14	1	7	0	1	199	7	0	0	132	6	1	379
06:30 AM	14	1	4	0	16	3	4	0	3	243	11	0	0	172	9	2	482
06:45 AM	14	1	5	0	24	5	5	0	6	214	6	0	0	199	14	1	494
Total	36	3	11	0	54	9	16	0	10	656	24	0	0	503	29	4	1355
07:00 AM	17	3	9	0	28	7	5	1	5	245	4	0	4	304	13	4	649
07:15 AM	28	6	4	0	51	10	7	0	7	296	16	0	3	290	16	3	737
07:30 AM	21	7	6	0	33	5	14	0	3	386	15	0	2	336	17	4	849
07:45 AM	24	9	6	0	30	5	5	0	5	375	26	0	0	240	16	2	743
Total	90	25	25	0	142	27	31	1	20	1302	61	0	9	1170	62	13	2978
08:00 AM	22	5	3	0	27	3	3	1	8	296	14	0	2	237	13	0	634
Grand Total	148	33	39	0	223	39	50	2	38	2254	99	0	11	1910	104	17	4967
Apprch %	67.3	15	17.7	0	71	12.4	15.9	0.6	1.6	94.3	4.1	0	0.5	93.5	5.1	0.8	
Total %	3	0.7	0.8	0	4.5	0.8	1	0	0.8	45.4	2	0	0.2	38.5	2.1	0.3	

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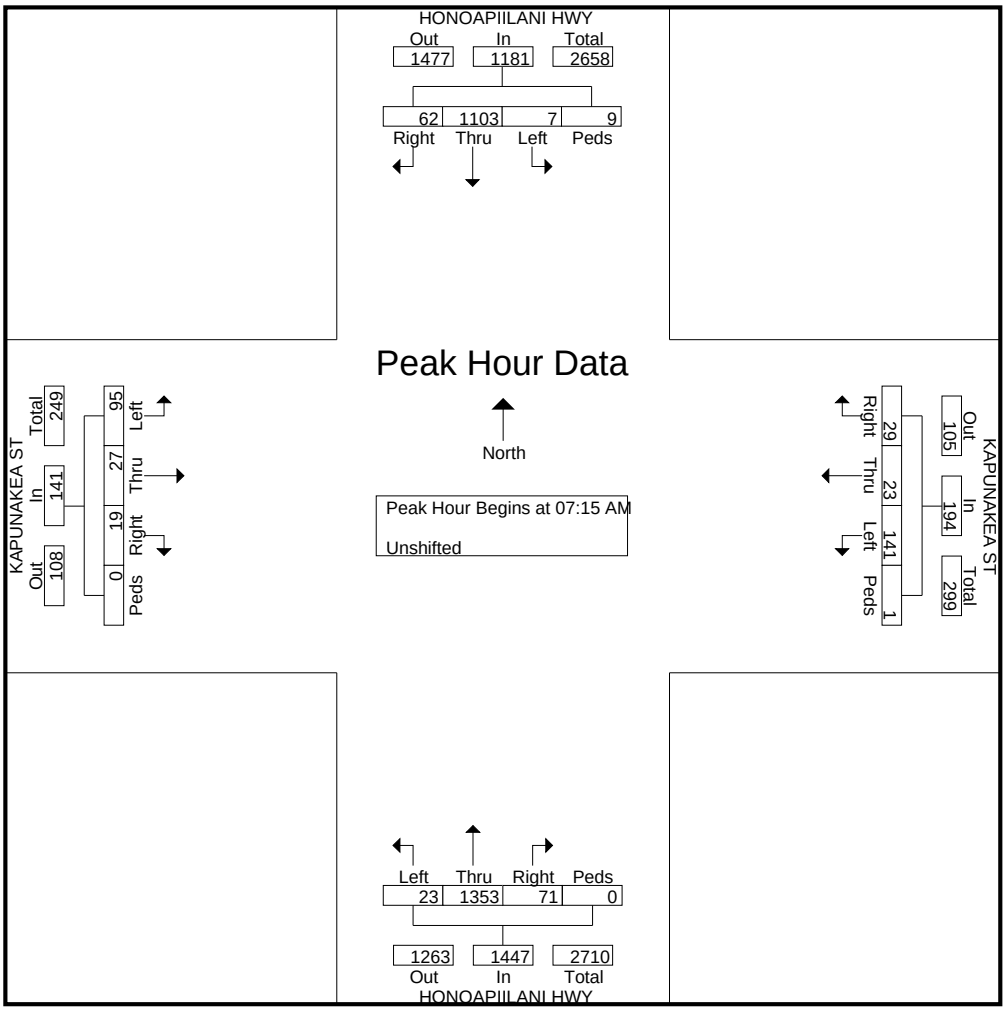
File Name : AM_Honoapiilani Hwy-Kapunakea St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	KAPUNAKEA ST Eastbound					KAPUNAKEA ST Westbound					HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**28**	6	4	0	38	**51**	**10**	7	0	**68**	7	296	16	0	319	**3**	290	16	3	312	737
07:30 AM	21	7	**6**	0	34	33	5	**14**	0	52	3	**386**	15	0	404	2	**336**	**17**	**4**	**359**	**849**
07:45 AM	24	**9**	6	0	**39**	30	5	5	0	40	5	375	**26**	0	**406**	0	240	16	2	258	743
08:00 AM	22	5	3	0	30	27	3	3	**1**	34	**8**	296	14	0	318	2	237	13	0	252	634
Total Volume	95	27	19	0	141	141	23	29	1	194	23	1353	71	0	1447	7	1103	62	9	1181	2963
% App. Total	67.4	19.1	13.5	0		72.7	11.9	14.9	0.5		1.6	93.5	4.9	0		0.6	93.4	5.2	0.8		
PHF	.848	.750	.792	.000	.904	.691	.575	.518	.250	.713	.719	.876	.683	.000	.891	.583	.821	.912	.563	.822	.872



AUSTIN TSUTSUMI & ASSOCIATES

501 Sumner Street, Suite 521
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File Name : AM_Honoapiilani Hwy-Keawe St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 1

Groups Printed- Unshifted

	KEAWE ST Eastbound				KEAWE ST Westbound				HONOAPIILANI HWY Northbound				HONOAPIILANI HWY Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:15 AM	0	2	1	0	17	2	47	1	6	149	19	0	24	115	1	2	386
06:30 AM	2	2	9	2	7	5	56	1	2	192	24	0	33	146	3	0	484
06:45 AM	2	10	6	0	13	5	53	0	5	169	25	0	52	170	3	0	513
Total	4	14	16	2	37	12	156	2	13	510	68	0	109	431	7	2	1383
07:00 AM	1	12	6	2	20	6	68	2	6	191	36	2	84	247	3	4	690
07:15 AM	4	43	9	0	27	11	114	0	5	190	36	3	88	229	9	0	768
07:30 AM	3	21	9	0	28	12	110	3	13	288	46	2	74	301	3	3	916
07:45 AM	5	17	14	2	32	23	130	0	6	255	53	2	58	210	3	3	813
Total	13	93	38	4	107	52	422	5	30	924	171	9	304	987	18	10	3187
08:00 AM	1	15	13	2	28	14	76	1	12	235	29	2	55	200	2	0	685
Grand Total	18	122	67	8	172	78	654	8	55	1669	268	11	468	1618	27	12	5255
Apprch %	8.4	56.7	31.2	3.7	18.9	8.6	71.7	0.9	2.7	83.3	13.4	0.5	22	76.1	1.3	0.6	
Total %	0.3	2.3	1.3	0.2	3.3	1.5	12.4	0.2	1	31.8	5.1	0.2	8.9	30.8	0.5	0.2	

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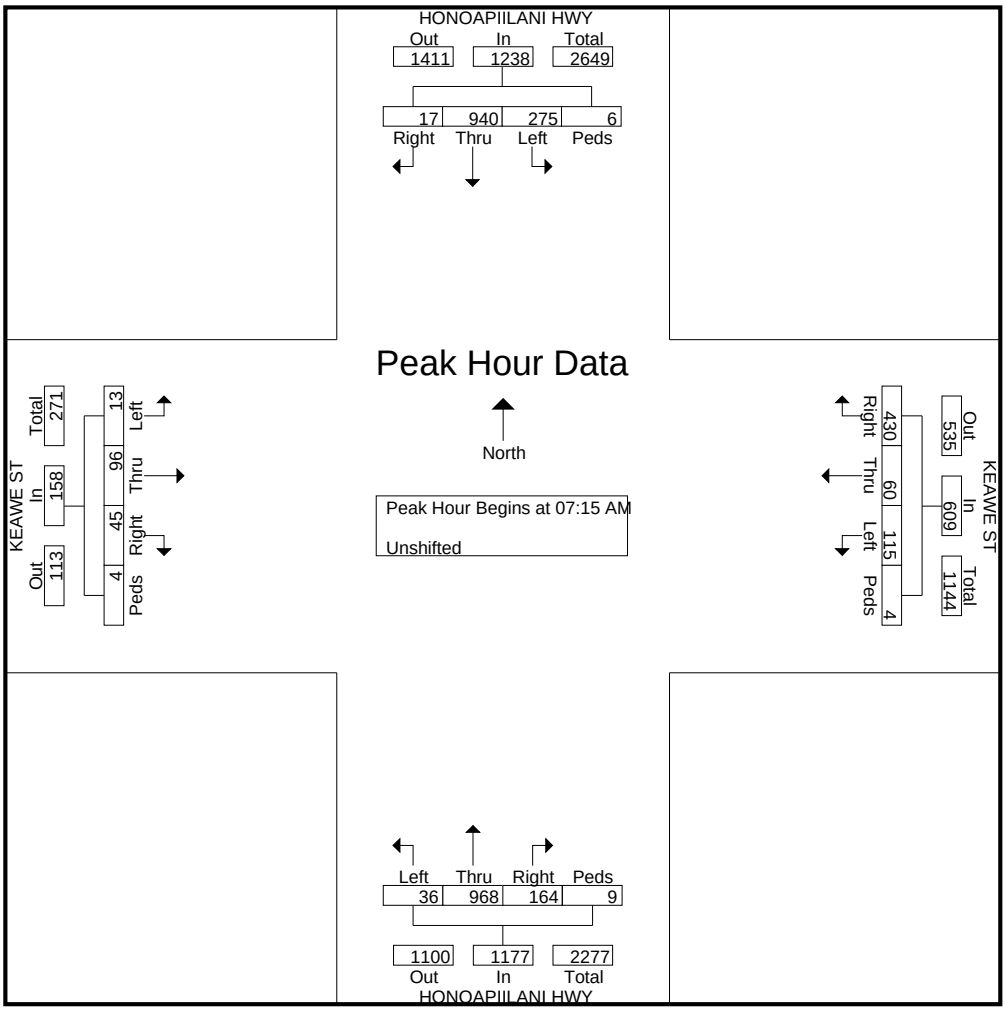
File Name : AM_Honoapiilani Hwy-Keawe St
Site Code : 00000000
Start Date : 12/7/2016
Page No : 2

	KEAWE ST Eastbound					KEAWE ST Westbound					HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	4	**43**	9	0	**56**	27	11	114	0	152	5	190	36	**3**	234	**88**	229	**9**	0	326	768
07:30 AM	3	21	9	0	33	28	12	110	**3**	153	**13**	**288**	46	2	**349**	74	**301**	3	**3**	**381**	**916**
07:45 AM	**5**	17	**14**	**2**	38	**32**	**23**	**130**	0	**185**	6	255	**53**	2	316	58	210	3	3	274	813
08:00 AM	1	15	13	2	31	28	14	76	1	119	12	235	29	2	278	55	200	2	0	257	685
Total Volume	13	96	45	4	158	115	60	430	4	609	36	968	164	9	1177	275	940	17	6	1238	3182
% App. Total	8.2	60.8	28.5	2.5		18.9	9.9	70.6	0.7		3.1	82.2	13.9	0.8		22.2	75.9	1.4	0.5		
PHF	.650	.558	.804	.500	.705	.898	.652	.827	.333	.823	.692	.840	.774	.750	.843	.781	.781	.472	.500	.812	.868



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File Name : PM_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 11/30/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				NAPILIHAU ST Westbound				HONOAPIILANI HWY Northbound				NAPILIHAU ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	0	72	8	0	9	1	0	0	65	60	6	0	11	2	78	1	313
03:15 PM	1	59	14	0	8	1	0	0	75	43	3	0	6	0	54	0	264
03:30 PM	2	59	10	1	6	2	0	0	74	62	3	0	20	4	71	0	314
03:45 PM	0	56	15	0	10	5	2	0	69	48	6	0	16	3	85	0	315
Total	3	246	47	1	33	9	2	0	283	213	18	0	53	9	288	1	1206
04:00 PM	0	75	38	0	11	4	0	0	83	52	4	0	9	1	96	0	373
04:15 PM	2	68	6	0	7	3	0	0	102	58	9	0	13	2	81	0	351
04:30 PM	0	53	13	0	8	2	1	0	98	36	3	0	15	2	83	0	314
04:45 PM	5	48	24	0	10	5	4	0	108	53	5	0	18	2	83	1	366
Total	7	244	81	0	36	14	5	0	391	199	21	0	55	7	343	1	1404
Grand Total	10	490	128	1	69	23	7	0	674	412	39	0	108	16	631	2	2610
Apprch %	1.6	77.9	20.3	0.2	69.7	23.2	7.1	0	59.9	36.6	3.5	0	14.3	2.1	83.4	0.3	
Total %	0.4	18.8	4.9	0	2.6	0.9	0.3	0	25.8	15.8	1.5	0	4.1	0.6	24.2	0.1	

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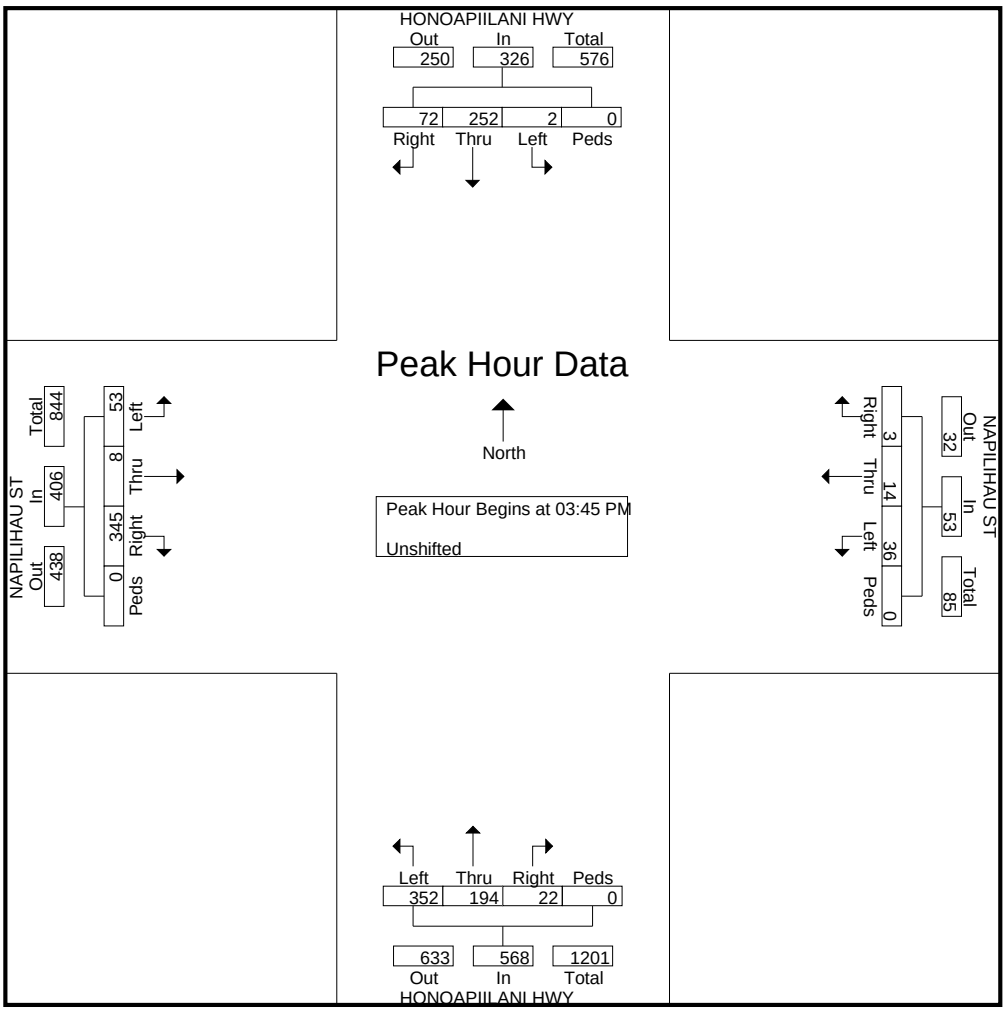
File Name : PM_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 11/30/2016
Page No : 2

	HONOAPIILANI HWY Southbound					NAPILIHAU ST Westbound					HONOAPIILANI HWY Northbound					NAPILIHAU ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	56	15	0	71	10	**5**	**2**	0	**17**	69	48	6	0	123	**16**	**3**	85	0	104	315
04:00 PM	0	**75**	**38**	0	**113**	**11**	4	0	0	15	83	52	4	0	139	9	1	**96**	0	**106**	**373**
04:15 PM	**2**	68	6	0	76	7	3	0	0	10	**102**	**58**	**9**	0	**169**	13	2	81	0	96	351
04:30 PM	0	53	13	0	66	8	2	1	0	11	98	36	3	0	137	15	2	83	0	100	314
Total Volume	2	252	72	0	326	36	14	3	0	53	352	194	22	0	568	53	8	345	0	406	1353
% App. Total	0.6	77.3	22.1	0		67.9	26.4	5.7	0		62	34.2	3.9	0		13.1	2	85	0		
PHF	.250	.840	.474	.000	.721	.818	.700	.375	.000	.779	.863	.836	.611	.000	.840	.828	.667	.898	.000	.958	.907



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File Name : PM_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 11/30/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HOOHUI RD Westbound				HONOAPIILANI HWY Northbound				HOOHUI RD Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	3	94	15	0	9	3	1	0	32	86	7	0	7	2	26	0	285
03:15 PM	4	111	13	1	6	3	1	0	35	109	12	0	13	6	41	1	356
03:30 PM	2	125	18	1	9	2	2	1	41	122	15	0	16	5	38	0	397
03:45 PM	4	120	22	0	12	7	4	0	52	131	7	0	17	4	31	0	411
Total	13	450	68	2	36	15	8	1	160	448	41	0	53	17	136	1	1449
04:00 PM	6	143	20	0	5	1	0	0	46	112	10	0	14	4	37	0	398
04:15 PM	7	103	14	0	10	1	2	0	41	133	11	0	24	7	27	0	380
04:30 PM	4	130	19	0	14	5	1	4	40	117	12	0	13	3	40	0	402
04:45 PM	8	109	16	1	4	4	3	0	58	125	6	0	18	5	36	0	393
Total	25	485	69	1	33	11	6	4	185	487	39	0	69	19	140	0	1573
Grand Total	38	935	137	3	69	26	14	5	345	935	80	0	122	36	276	1	3022
Apprch %	3.4	84	12.3	0.3	60.5	22.8	12.3	4.4	25.4	68.8	5.9	0	28	8.3	63.4	0.2	
Total %	1.3	30.9	4.5	0.1	2.3	0.9	0.5	0.2	11.4	30.9	2.6	0	4	1.2	9.1	0	

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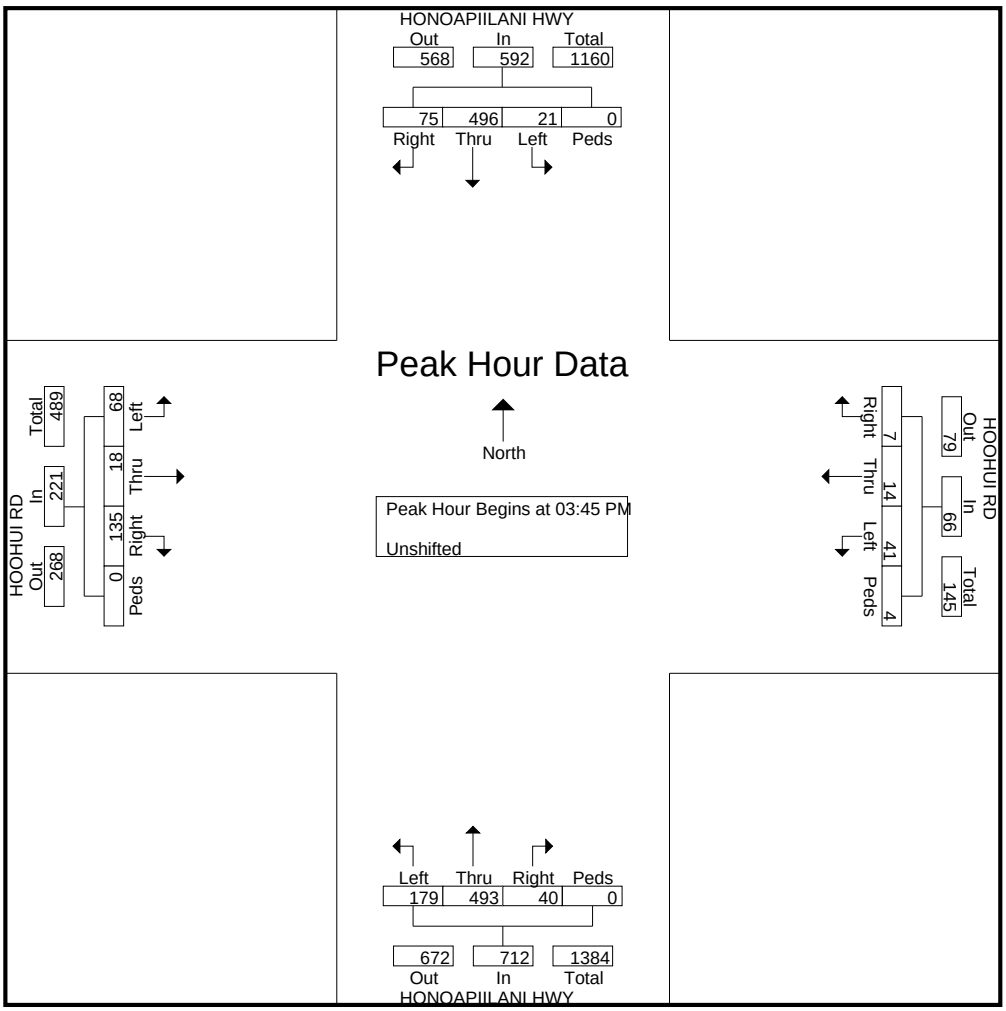
File Name : PM_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 11/30/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HOOHUI RD Westbound					HONOAPIILANI HWY Northbound					HOOHUI RD Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	4	120	**22**	0	146	12	**7**	**4**	0	23	**52**	131	7	0	**190**	17	4	31	0	52	**411**
04:00 PM	6	**143**	20	0	**169**	5	1	0	0	6	46	112	10	0	168	14	4	37	0	55	398
04:15 PM	**7**	103	14	0	124	10	1	2	0	13	41	**133**	11	0	185	**24**	**7**	27	0	**58**	380
04:30 PM	4	130	19	0	153	**14**	5	1	**4**	**24**	40	117	**12**	0	169	13	3	**40**	0	56	402
Total Volume	21	496	75	0	592	41	14	7	4	66	179	493	40	0	712	68	18	135	0	221	1591
% App. Total	3.5	83.8	12.7	0		62.1	21.2	10.6	6.1		25.1	69.2	5.6	0		30.8	8.1	61.1	0		
PHF	.750	.867	.852	.000	.876	.732	.500	.438	.250	.688	.861	.927	.833	.000	.937	.708	.643	.844	.000	.953	.968



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File Name : PM_Honoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted - Bank 1

	HONOAPIILANI HWY Southbound				AKAHELE ST Westbound				HONOAPIILANI HWY Northbound				AKAHELE ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
03:00 PM	1	199	22	0	2	4	1	0	33	170	2	0	7	2	15	0	458
03:15 PM	0	195	19	0	2	1	1	0	35	187	2	1	9	1	19	1	473
03:30 PM	1	189	19	0	7	0	2	0	35	153	3	1	24	0	21	0	455
03:45 PM	0	151	16	0	1	3	1	0	31	159	2	5	14	0	13	1	397
Total	2	734	76	0	12	8	5	0	134	669	9	7	54	3	68	2	1783
04:00 PM	1	163	25	0	2	0	3	0	52	168	2	0	6	0	19	0	441
04:15 PM	0	144	19	0	1	1	0	0	36	185	2	0	15	2	32	1	438
04:30 PM	0	179	10	1	5	1	2	0	32	191	1	2	18	1	24	0	467
04:45 PM	1	160	10	0	0	0	0	0	34	143	3	3	10	1	28	1	394
Total	2	646	64	1	8	2	5	0	154	687	8	5	49	4	103	2	1740
Grand Total	4	1380	140	1	20	10	10	0	288	1356	17	12	103	7	171	4	3523
Apprch %	0.3	90.5	9.2	0.1	50	25	25	0	17.2	81.1	1	0.7	36.1	2.5	60	1.4	
Total %	0.1	39.2	4	0	0.6	0.3	0.3	0	8.2	38.5	0.5	0.3	2.9	0.2	4.9	0.1	
Unshifted	4	1380	140	1	20	10	10	0	288	1356	17	12	103	7	171	4	3523
% Unshifted	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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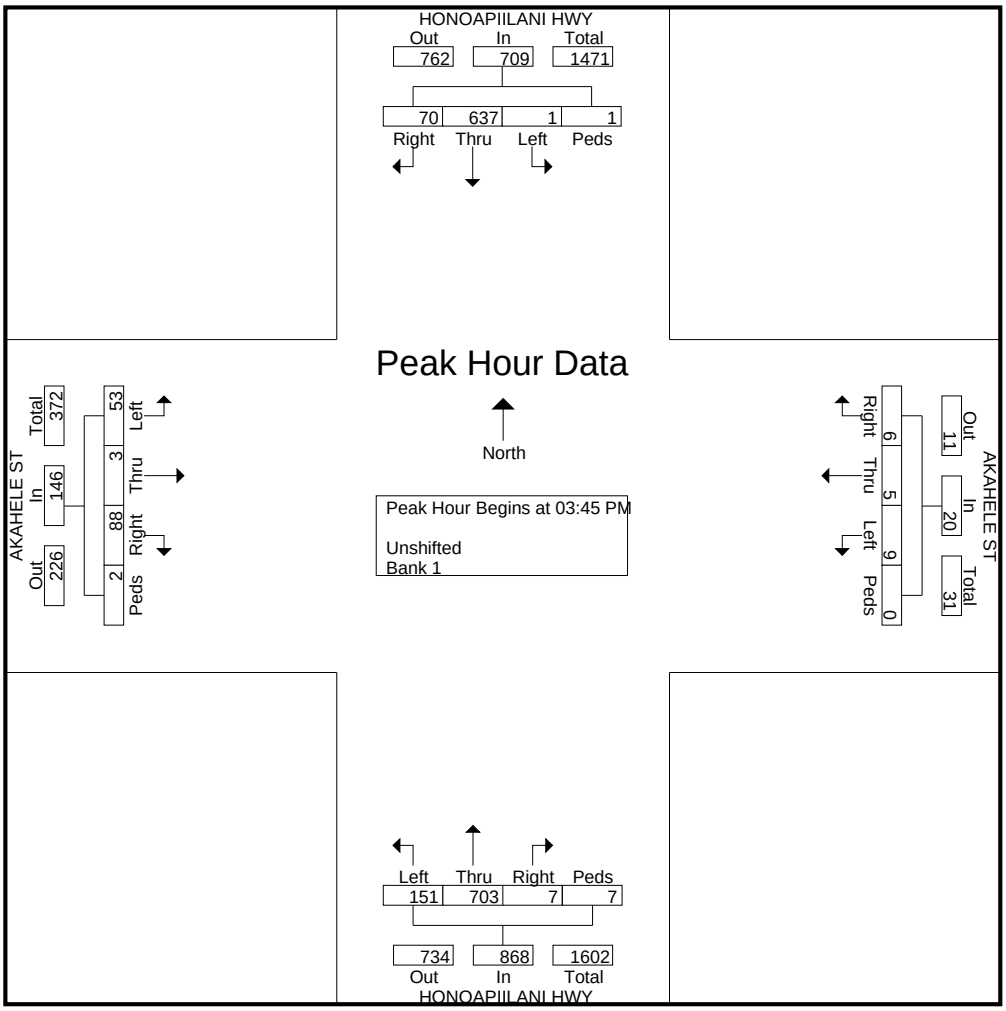
File Name : PM_Honoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					AKAHELE ST Westbound					HONOAPIILANI HWY Northbound					AKAHELE ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	151	16	0	167	1	**3**	1	0	5	31	159	**2**	**5**	197	14	0	13	**1**	28	397
04:00 PM	**1**	163	**25**	0	189	2	0	**3**	0	5	**52**	168	2	0	222	6	0	19	0	25	441
04:15 PM	0	144	19	0	163	1	1	0	0	2	36	185	2	0	223	15	**2**	**32**	1	**50**	438
04:30 PM	0	**179**	10	**1**	**190**	**5**	1	2	0	**8**	32	**191**	1	2	**226**	**18**	1	24	0	43	**467**
Total Volume	1	637	70	1	709	9	5	6	0	20	151	703	7	7	868	53	3	88	2	146	1743
% App. Total	0.1	89.8	9.9	0.1		45	25	30	0		17.4	81	0.8	0.8		36.3	2.1	60.3	1.4		
PHF	.250	.890	.700	.250	.933	.450	.417	.500	.000	.625	.726	.920	.875	.350	.960	.736	.375	.688	.500	.730	.933



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File Name : PM_Honoapiilani Hwy - Lower Honoapiilani Rd
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				LOWER HONOAPIILANI R Westbound				HONOAPIILANI HWY Northbound				LOWER HONOAPIILANI R Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	0	223	18	1	17	3	1	1	105	181	2	0	13	4	154	3	726
03:15 PM	1	62	0	0	29	1	1	0	130	187	7	0	12	1	137	0	568
03:30 PM	1	159	4	0	107	3	0	0	158	170	6	0	13	3	192	0	816
03:45 PM	0	157	0	0	36	1	2	0	166	187	0	0	5	2	88	0	644
Total	2	601	22	1	189	8	4	1	559	725	15	0	43	10	571	3	2754
04:00 PM	0	171	0	1	19	2	1	0	102	211	1	0	29	0	168	0	705
04:15 PM	1	187	0	0	12	6	1	2	152	181	3	0	14	0	127	0	686
04:30 PM	0	193	16	0	8	1	3	0	128	178	2	0	22	2	163	0	716
04:45 PM	0	122	17	0	8	2	4	0	135	172	3	0	14	0	137	3	617
Total	1	673	33	1	47	11	9	2	517	742	9	0	79	2	595	3	2724
Grand Total	3	1274	55	2	236	19	13	3	1076	1467	24	0	122	12	1166	6	5478
Apprch %	0.2	95.5	4.1	0.1	87.1	7	4.8	1.1	41.9	57.1	0.9	0	9.3	0.9	89.3	0.5	
Total %	0.1	23.3	1	0	4.3	0.3	0.2	0.1	19.6	26.8	0.4	0	2.2	0.2	21.3	0.1	

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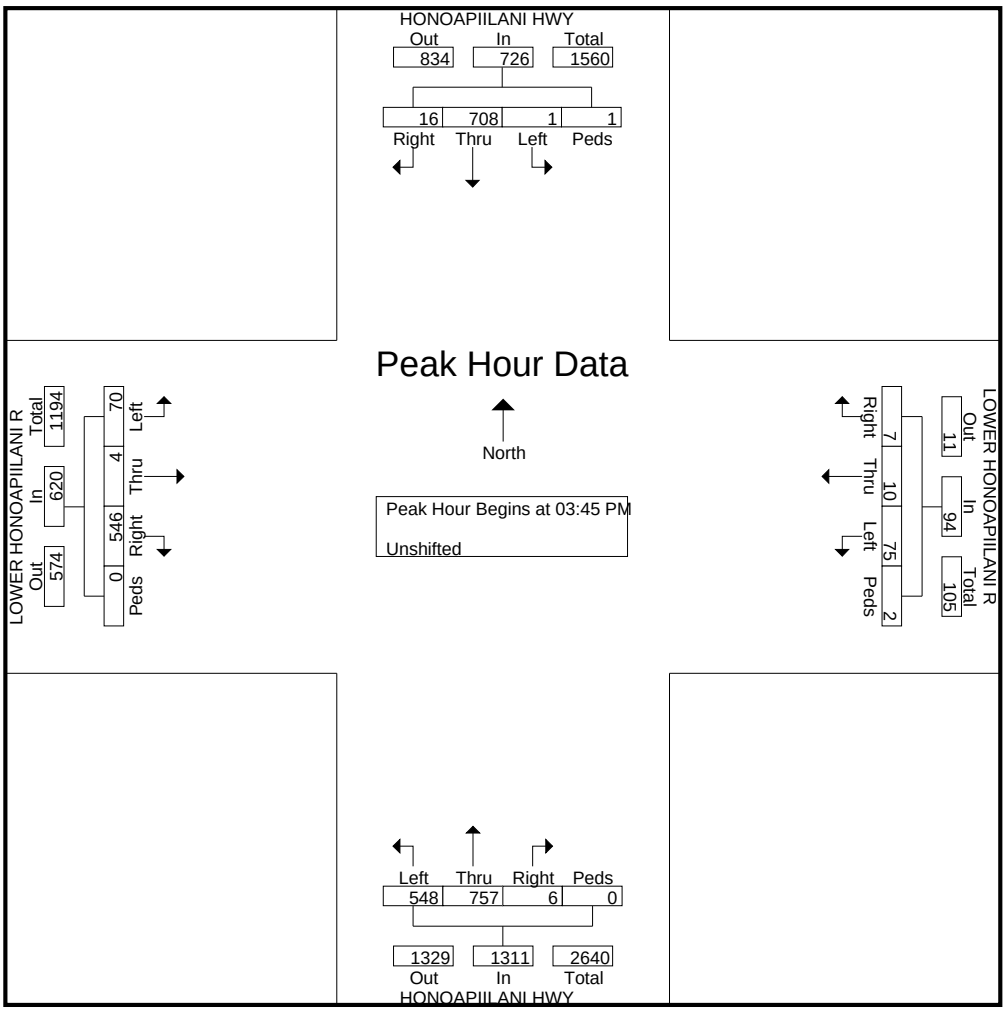
File Name : PM_Honoapiilani Hwy - Lower Honoapiilani Rd
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					LOWER HONOAPIILANI R Westbound					HONOAPIILANI HWY Northbound					LOWER HONOAPIILANI R Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	157	0	0	157	**36**	1	2	0	**39**	**166**	187	0	0	**353**	5	**2**	88	0	95	644
04:00 PM	0	171	0	**1**	172	19	2	1	0	22	102	**211**	1	0	314	**29**	0	**168**	0	**197**	705
04:15 PM	**1**	187	0	0	188	12	**6**	1	**2**	21	152	181	**3**	0	336	14	0	127	0	141	686
04:30 PM	0	**193**	**16**	0	**209**	8	1	**3**	0	12	128	178	2	0	308	22	2	163	0	187	**716**
Total Volume	1	708	16	1	726	75	10	7	2	94	548	757	6	0	1311	70	4	546	0	620	2751
% App. Total	0.1	97.5	2.2	0.1		79.8	10.6	7.4	2.1		41.8	57.7	0.5	0		11.3	0.6	88.1	0		
PHF	.250	.917	.250	.250	.868	.521	.417	.583	.250	.603	.825	.897	.500	.000	.928	.603	.500	.813	.000	.787	.961



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File Name : PM_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HALAWAI DR Westbound				HONOAPIILANI HWY Northbound				HALAWAI DR Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	3	355	20	14	2	0	1	1	26	281	2	0	6	3	13	0	727
03:15 PM	2	322	25	23	5	1	2	0	15	319	1	0	18	2	13	0	748
03:30 PM	4	401	24	10	7	1	4	2	14	285	1	0	16	1	19	0	789
03:45 PM	1	315	7	5	5	0	1	3	17	319	0	0	4	1	16	0	694
Total	10	1393	76	52	19	2	8	6	72	1204	4	0	44	7	61	0	2958
04:00 PM	5	345	8	2	4	0	1	1	15	319	4	0	7	0	11	0	722
04:15 PM	2	317	12	4	1	0	1	1	16	324	4	0	6	0	9	0	697
04:30 PM	0	355	6	4	4	0	1	2	20	310	2	0	3	0	27	0	734
04:45 PM	4	303	7	10	5	0	3	0	10	285	4	0	7	0	21	0	659
Total	11	1320	33	20	14	0	6	4	61	1238	14	0	23	0	68	0	2812
Grand Total	21	2713	109	72	33	2	14	10	133	2442	18	0	67	7	129	0	5770
Apprch %	0.7	93.1	3.7	2.5	55.9	3.4	23.7	16.9	5.1	94.2	0.7	0	33	3.4	63.5	0	
Total %	0.4	47	1.9	1.2	0.6	0	0.2	0.2	2.3	42.3	0.3	0	1.2	0.1	2.2	0	

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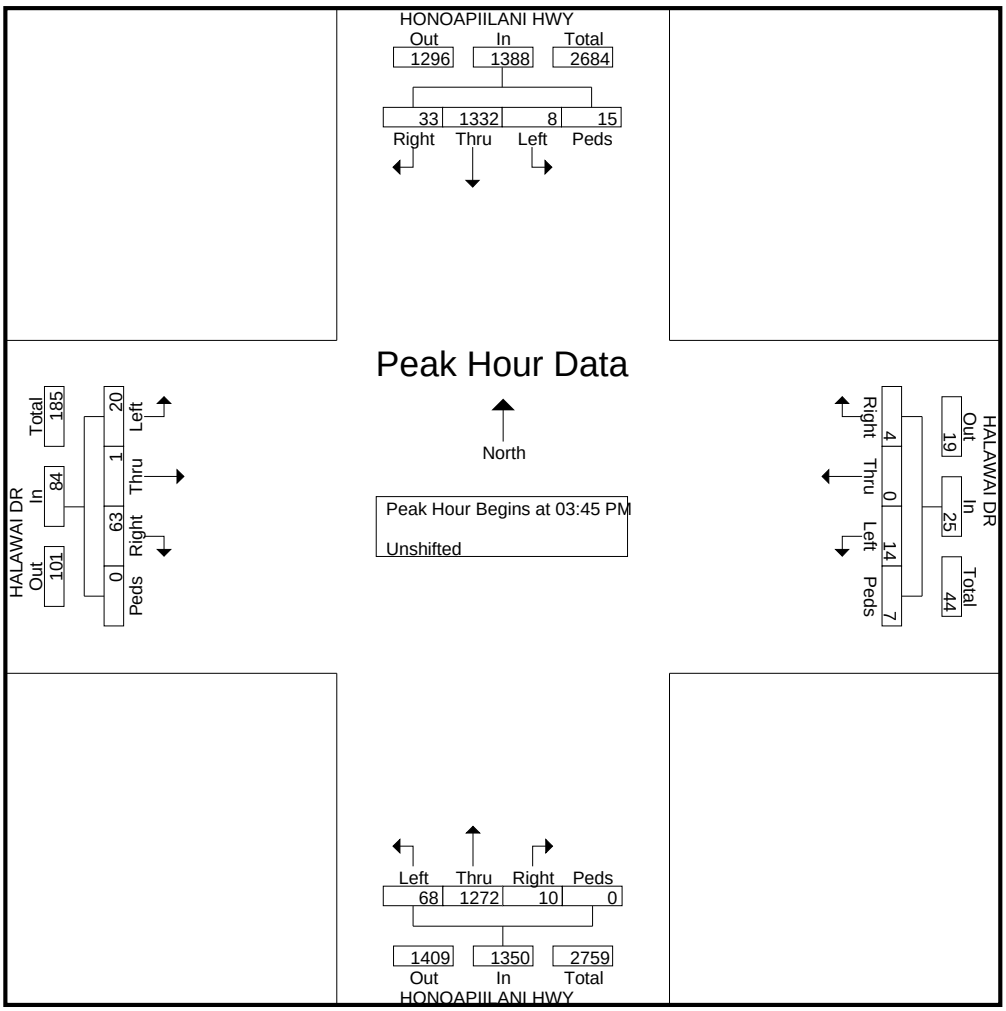
File Name : PM_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HALAWAI DR Westbound					HONOAPIILANI HWY Northbound					HALAWAI DR Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	1	315	7	**5**	328	**5**	0	**1**	**3**	**9**	17	319	0	0	336	4	**1**	16	0	21	694
04:00 PM	**5**	345	8	2	360	4	0	1	1	6	15	319	**4**	0	338	**7**	0	11	0	18	722
04:15 PM	2	317	**12**	4	335	1	0	1	1	3	16	**324**	4	0	**344**	6	0	9	0	15	697
04:30 PM	0	**355**	6	4	**365**	4	0	1	2	7	**20**	310	2	0	332	3	0	**27**	0	**30**	**734**
Total Volume	8	1332	33	15	1388	14	0	4	7	25	68	1272	10	0	1350	20	1	63	0	84	2847
% App. Total	0.6	96	2.4	1.1		56	0	16	28		5	94.2	0.7	0		23.8	1.2	75	0		
PHF	.400	.938	.688	.750	.951	.700	.000	1.00	.583	.694	.850	.981	.625	.000	.981	.714	.250	.583	.000	.700	.970



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File Name : PM_Honoapiilani Hwy - Puukolii Rd
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				PUUKOLII RD Westbound				HONOAPIILANI HWY Northbound				PUUKOLII RD Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	9	340	11	0	7	2	6	0	25	285	16	0	18	2	40	0	761
03:15 PM	13	360	12	0	8	1	8	0	22	308	17	0	12	0	22	0	783
03:30 PM	9	412	16	0	16	0	5	0	24	275	18	0	22	0	26	0	823
03:45 PM	10	332	15	1	18	1	9	0	28	298	13	0	16	1	22	0	764
Total	41	1444	54	1	49	4	28	0	99	1166	64	0	68	3	110	0	3131
04:00 PM	8	312	23	3	17	2	12	1	23	301	14	0	14	1	50	0	781
04:15 PM	9	338	12	0	16	0	11	0	36	323	16	0	15	2	46	0	824
04:30 PM	2	343	33	2	12	1	8	0	34	286	12	0	19	1	46	0	799
04:45 PM	5	296	13	0	8	1	6	1	16	255	4	0	22	2	24	0	653
Total	24	1289	81	5	53	4	37	2	109	1165	46	0	70	6	166	0	3057
Grand Total	65	2733	135	6	102	8	65	2	208	2331	110	0	138	9	276	0	6188
Apprch %	2.2	93	4.6	0.2	57.6	4.5	36.7	1.1	7.9	88	4.2	0	32.6	2.1	65.2	0	
Total %	1.1	44.2	2.2	0.1	1.6	0.1	1.1	0	3.4	37.7	1.8	0	2.2	0.1	4.5	0	

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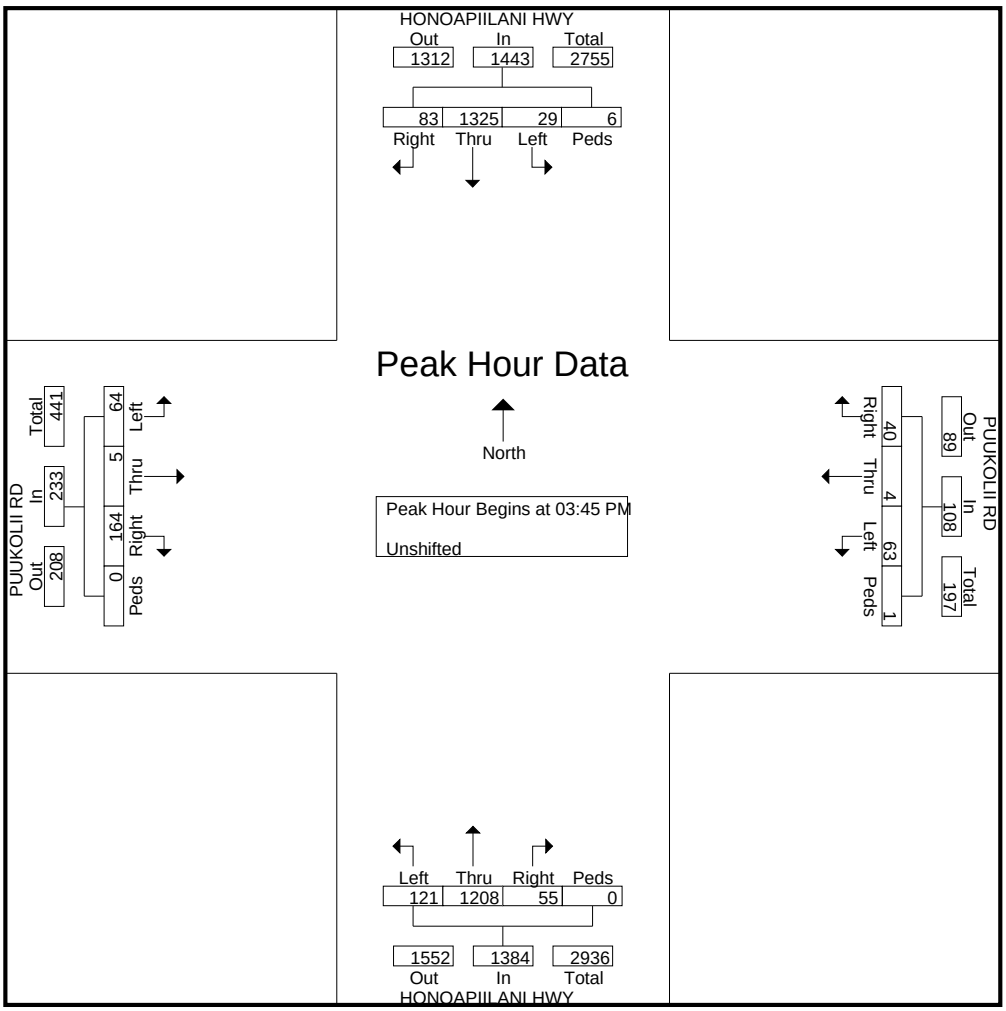
File Name : PM_Honoapiilani Hwy - Puukolii Rd
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					PUUKOLII RD Westbound					HONOAPIILANI HWY Northbound					PUUKOLII RD Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	**10**	332	15	1	358	**18**	1	9	0	28	28	298	13	0	339	16	1	22	0	39	764
04:00 PM	8	312	23	**3**	346	17	**2**	**12**	**1**	**32**	23	301	14	0	338	14	1	**50**	0	65	781
04:15 PM	9	338	12	0	359	16	0	11	0	27	**36**	**323**	**16**	0	**375**	15	**2**	46	0	63	**824**
04:30 PM	2	**343**	**33**	2	**380**	12	1	8	0	21	34	286	12	0	332	**19**	1	46	0	**66**	799
Total Volume	29	1325	83	6	1443	63	4	40	1	108	121	1208	55	0	1384	64	5	164	0	233	3168
% App. Total	2	91.8	5.8	0.4		58.3	3.7	37	0.9		8.7	87.3	4	0		27.5	2.1	70.4	0		
PHF	.725	.966	.629	.500	.949	.875	.500	.833	.250	.844	.840	.935	.859	.000	.923	.842	.625	.820	.000	.883	.961



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File Name : PM_Honoapiilani Hwy - Kaanapali Pkwy
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				KAANAPALI PKWY Westbound				HONOAPIILANI HWY Northbound				KAANAPALI PKWY Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	7	323	37	0	3	1	2	0	102	268	2	0	26	23	98	0	892
03:15 PM	6	321	15	0	4	0	2	1	137	351	2	0	68	1	121	0	1029
03:30 PM	7	363	32	0	5	2	1	0	95	264	3	0	51	0	115	0	938
03:45 PM	15	331	34	3	6	0	1	3	100	340	1	0	55	2	107	0	998
Total	35	1338	118	3	18	3	6	4	434	1223	8	0	200	26	441	0	3857
04:00 PM	15	364	32	0	1	0	1	0	101	302	2	0	71	0	185	0	1074
04:15 PM	12	345	34	1	4	0	1	1	86	316	1	0	72	0	169	0	1042
04:30 PM	6	376	20	0	2	0	1	0	87	282	2	0	67	0	136	0	979
04:45 PM	8	322	30	0	3	0	3	0	80	243	3	0	50	0	115	0	857
Total	41	1407	116	1	10	0	6	1	354	1143	8	0	260	0	605	0	3952
Grand Total	76	2745	234	4	28	3	12	5	788	2366	16	0	460	26	1046	0	7809
Apprch %	2.5	89.7	7.6	0.1	58.3	6.2	25	10.4	24.9	74.6	0.5	0	30	1.7	68.3	0	
Total %	1	35.2	3	0.1	0.4	0	0.2	0.1	10.1	30.3	0.2	0	5.9	0.3	13.4	0	

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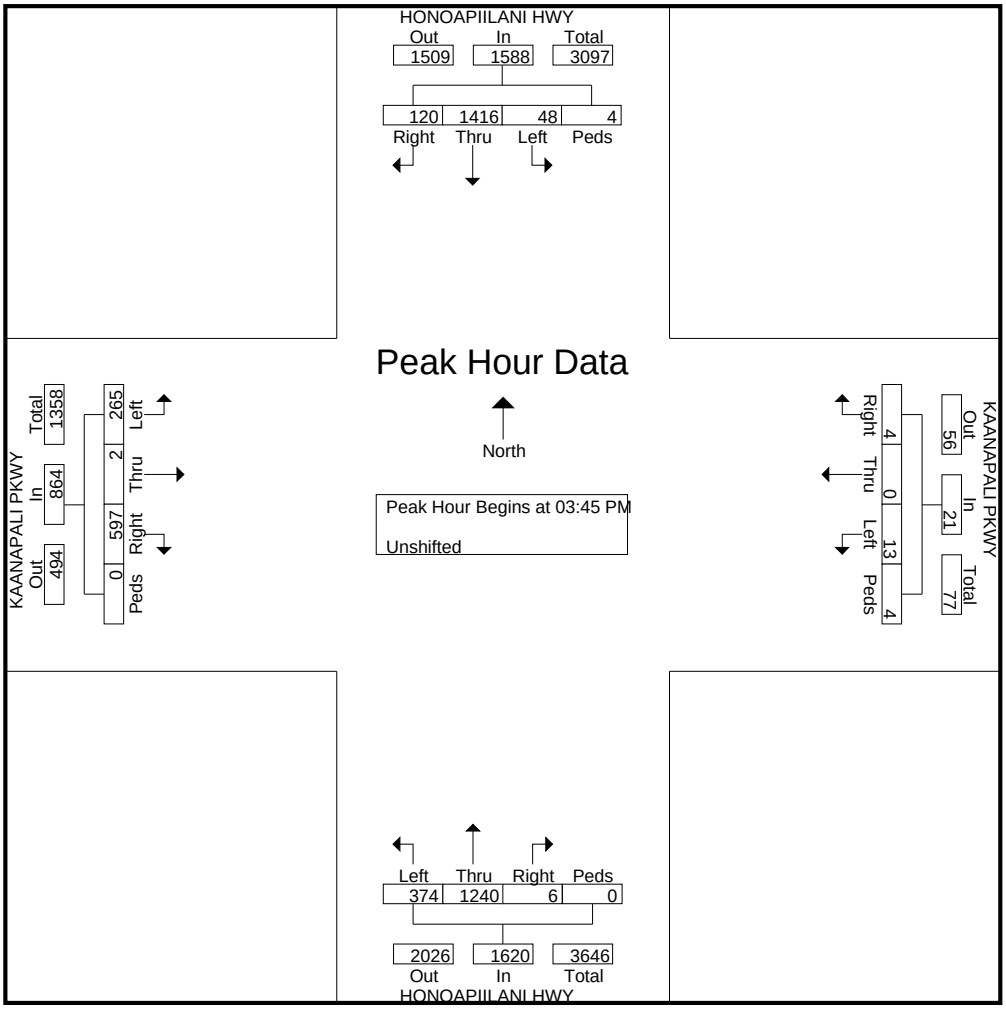
File Name : PM_Honoapiilani Hwy - Kaanapali Pkwy
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					KAANAPALI PKWY Westbound					HONOAPIILANI HWY Northbound					KAANAPALI PKWY Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	**15**	331	**34**	**3**	383	**6**	0	**1**	**3**	**10**	100	**340**	1	0	**441**	55	**2**	107	0	164	998
04:00 PM	15	364	32	0	**411**	1	0	1	0	2	**101**	302	**2**	0	405	71	0	**185**	0	**256**	**1074**
04:15 PM	12	345	34	1	392	4	0	1	1	6	86	316	1	0	403	**72**	0	169	0	241	1042
04:30 PM	6	**376**	20	0	402	2	0	1	0	3	87	282	2	0	371	67	0	136	0	203	979
Total Volume	48	1416	120	4	1588	13	0	4	4	21	374	1240	6	0	1620	265	2	597	0	864	4093
% App. Total	3	89.2	7.6	0.3		61.9	0	19	19		23.1	76.5	0.4	0		30.7	0.2	69.1	0		
PHF	.800	.941	.882	.333	.966	.542	.000	1.00	.333	.525	.926	.912	.750	.000	.918	.920	.250	.807	.000	.844	.953



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File Name : PM_Honoapiilani Hwy - Leialii Pkwy
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

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	HONOAPIILANI HWY Southbound				LEIALII PKWY Westbound				HONOAPIILANI HWY Northbound				LEIALII PKWY Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	23	429	2	1	19	0	13	1	2	401	27	0	1	0	1	0	920
03:15 PM	16	425	3	3	31	0	20	3	0	378	24	0	2	0	2	0	907
03:30 PM	22	483	0	1	29	0	13	1	0	387	23	0	0	0	0	0	959
03:45 PM	15	441	2	0	20	0	14	0	2	420	21	0	2	0	0	0	937
Total	76	1778	7	5	99	0	60	5	4	1586	95	0	5	0	3	0	3723
04:00 PM	23	490	1	0	20	0	18	0	2	414	22	0	3	0	1	0	994
04:15 PM	22	521	1	0	22	1	7	0	4	355	24	0	0	0	2	0	959
04:30 PM	17	501	0	0	23	1	14	0	1	374	21	0	2	0	1	0	955
04:45 PM	15	435	0	1	20	0	10	1	1	327	20	0	2	0	2	0	834
Total	77	1947	2	1	85	2	49	1	8	1470	87	0	7	0	6	0	3742
Grand Total	153	3725	9	6	184	2	109	6	12	3056	182	0	12	0	9	0	7465
Apprch %	3.9	95.7	0.2	0.2	61.1	0.7	36.2	2	0.4	94	5.6	0	57.1	0	42.9	0	
Total %	2	49.9	0.1	0.1	2.5	0	1.5	0.1	0.2	40.9	2.4	0	0.2	0	0.1	0	

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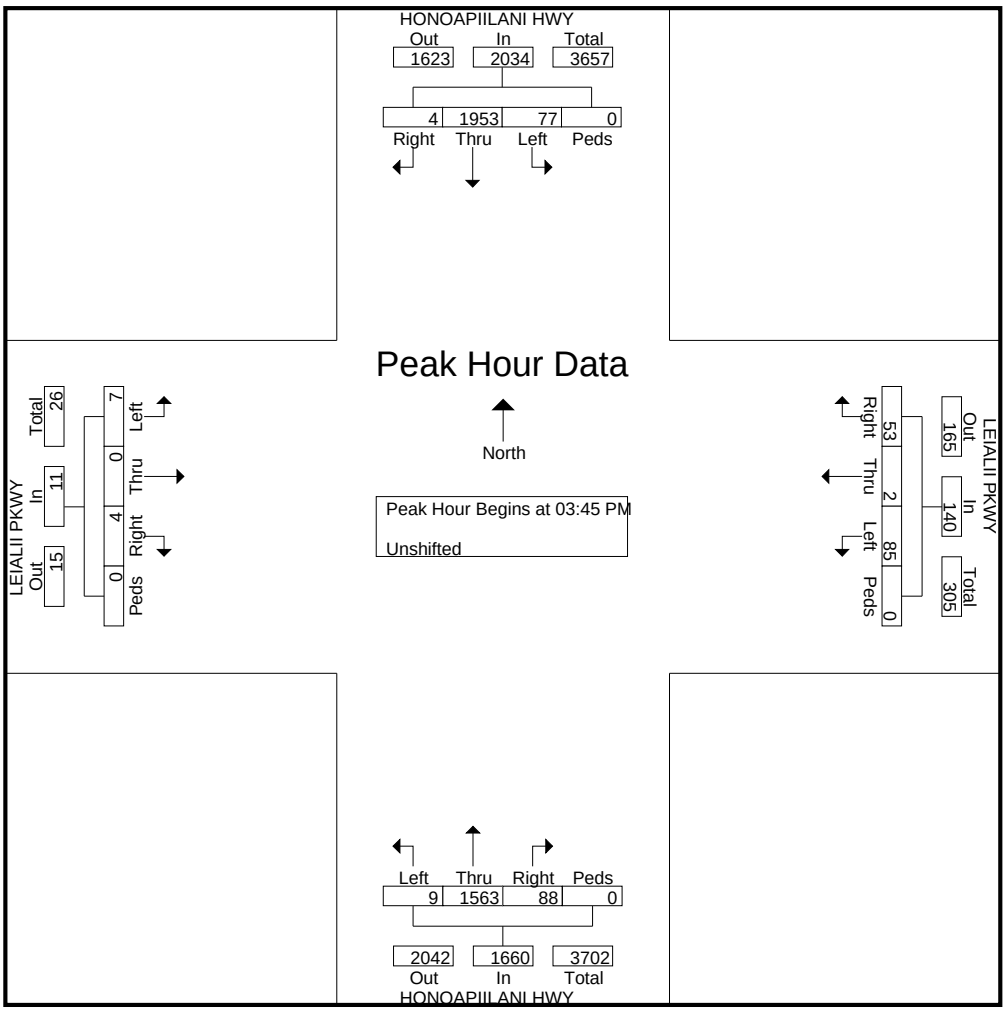
File Name : PM_Honoapiilani Hwy - Leialii Pkwy
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					LEIALII PKWY Westbound					HONOAPIILANI HWY Northbound					LEIALII PKWY Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	15	441	**2**	0	458	20	0	14	0	34	2	**420**	21	0	**443**	2	0	0	0	2	937
04:00 PM	**23**	490	1	0	514	20	0	**18**	0	**38**	2	414	22	0	438	**3**	0	1	0	**4**	**994**
04:15 PM	22	**521**	1	0	**544**	22	**1**	7	0	30	**4**	355	**24**	0	383	0	0	**2**	0	2	959
04:30 PM	17	501	0	0	518	**23**	1	14	0	38	1	374	21	0	396	2	0	1	0	3	955
Total Volume	77	1953	4	0	2034	85	2	53	0	140	9	1563	88	0	1660	7	0	4	0	11	3845
% App. Total	3.8	96	0.2	0		60.7	1.4	37.9	0		0.5	94.2	5.3	0		63.6	0	36.4	0		
PHF	.837	.937	.500	.000	.935	.924	.500	.736	.000	.921	.563	.930	.917	.000	.937	.583	.000	.500	.000	.688	.967



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File Name : PM_Honoapiilani Hwy - Front St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				FRONT ST Westbound				HONOAPIILANI HWY Northbound				FRONT ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
03:00 PM	0	340	58	0	27	2	1	0	0	381	7	0	51	1	0	0	868
03:15 PM	1	371	56	0	14	2	1	0	3	395	3	0	32	1	2	0	881
03:30 PM	2	412	51	0	18	3	1	0	1	394	2	0	47	2	1	0	934
03:45 PM	0	388	74	0	9	1	1	0	2	368	3	0	43	5	4	0	898
Total	3	1511	239	0	68	8	4	0	6	1538	15	0	173	9	7	0	3581
04:00 PM	1	391	62	0	7	1	0	0	0	428	5	0	37	1	3	0	936
04:15 PM	0	450	76	0	24	1	2	0	0	363	5	0	44	3	1	0	969
04:30 PM	1	417	81	0	19	2	4	1	3	345	7	0	36	2	0	0	918
04:45 PM	2	353	86	0	15	3	3	0	7	324	5	0	27	0	0	0	825
Total	4	1611	305	0	65	7	9	1	10	1460	22	0	144	6	4	0	3648
Grand Total	7	3122	544	0	133	15	13	1	16	2998	37	0	317	15	11	0	7229
Apprch %	0.2	85	14.8	0	82.1	9.3	8	0.6	0.5	98.3	1.2	0	92.4	4.4	3.2	0	
Total %	0.1	43.2	7.5	0	1.8	0.2	0.2	0	0.2	41.5	0.5	0	4.4	0.2	0.2	0	

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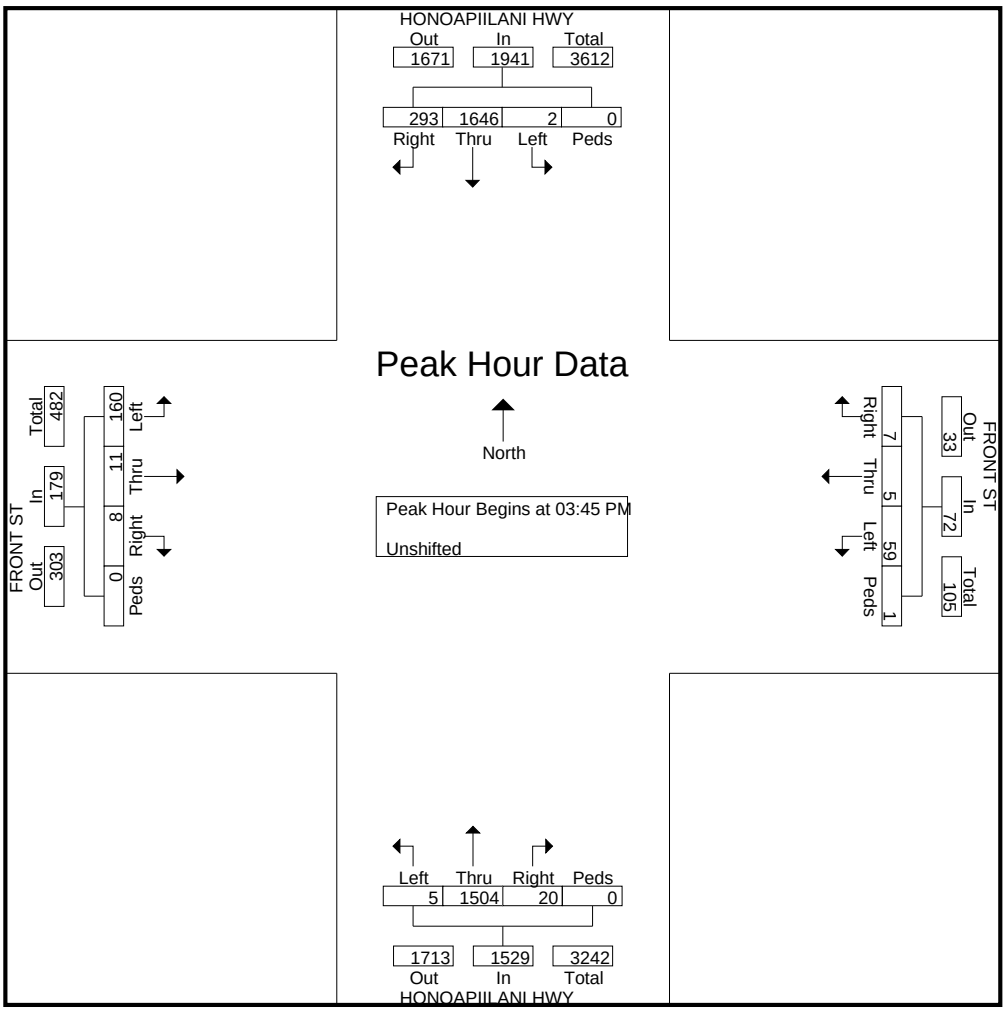
File Name : PM_Honoapiilani Hwy - Front St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	HONOAPIILANI HWY Southbound					FRONT ST Westbound					HONOAPIILANI HWY Northbound					FRONT ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	388	74	0	462	9	1	1	0	11	2	368	3	0	373	43	**5**	**4**	0	**52**	898
04:00 PM	**1**	391	62	0	454	7	1	0	0	8	0	**428**	5	0	**433**	37	1	3	0	41	936
04:15 PM	0	**450**	76	0	**526**	**24**	1	2	0	**27**	0	363	5	0	368	**44**	3	1	0	48	**969**
04:30 PM	1	417	**81**	0	499	19	**2**	**4**	**1**	26	**3**	345	**7**	0	355	36	2	0	0	38	918
Total Volume	2	1646	293	0	1941	59	5	7	1	72	5	1504	20	0	1529	160	11	8	0	179	3721
% App. Total	0.1	84.8	15.1	0		81.9	6.9	9.7	1.4		0.3	98.4	1.3	0		89.4	6.1	4.5	0		
PHF	.500	.914	.904	.000	.923	.615	.625	.438	.250	.667	.417	.879	.714	.000	.883	.909	.550	.500	.000	.861	.960



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File Name : PM_Honoapiilani Hwy-Kapunakea St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	KAPUNAKEA ST Eastbound				KAPUNAKEA ST Westbound				HONOAPIILANI HWY Northbound				HONOAPIILANI HWY Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
03:00 PM	44	7	12	0	30	6	5	0	8	351	27	0	1	358	24	5	878
03:15 PM	35	9	13	1	21	4	3	0	10	334	25	0	6	404	18	2	885
03:30 PM	37	4	15	1	32	6	2	0	12	345	28	0	3	354	36	5	880
03:45 PM	28	8	9	1	21	8	6	0	16	361	28	0	3	405	29	0	923
Total	144	28	49	3	104	24	16	0	46	1391	108	0	13	1521	107	12	3566
04:00 PM	36	12	10	0	26	3	3	1	8	357	26	0	7	357	29	3	878
04:15 PM	36	8	11	1	17	5	2	1	13	313	16	0	9	398	39	8	877
04:30 PM	38	7	14	2	27	7	6	0	14	321	33	0	4	436	39	5	953
04:45 PM	31	4	11	0	25	8	1	0	13	312	21	0	4	361	34	0	825
Total	141	31	46	3	95	23	12	2	48	1303	96	0	24	1552	141	16	3533
Grand Total	285	59	95	6	199	47	28	2	94	2694	204	0	37	3073	248	28	7099
Apprch %	64	13.3	21.3	1.3	72.1	17	10.1	0.7	3.1	90	6.8	0	1.1	90.8	7.3	0.8	
Total %	4	0.8	1.3	0.1	2.8	0.7	0.4	0	1.3	37.9	2.9	0	0.5	43.3	3.5	0.4	

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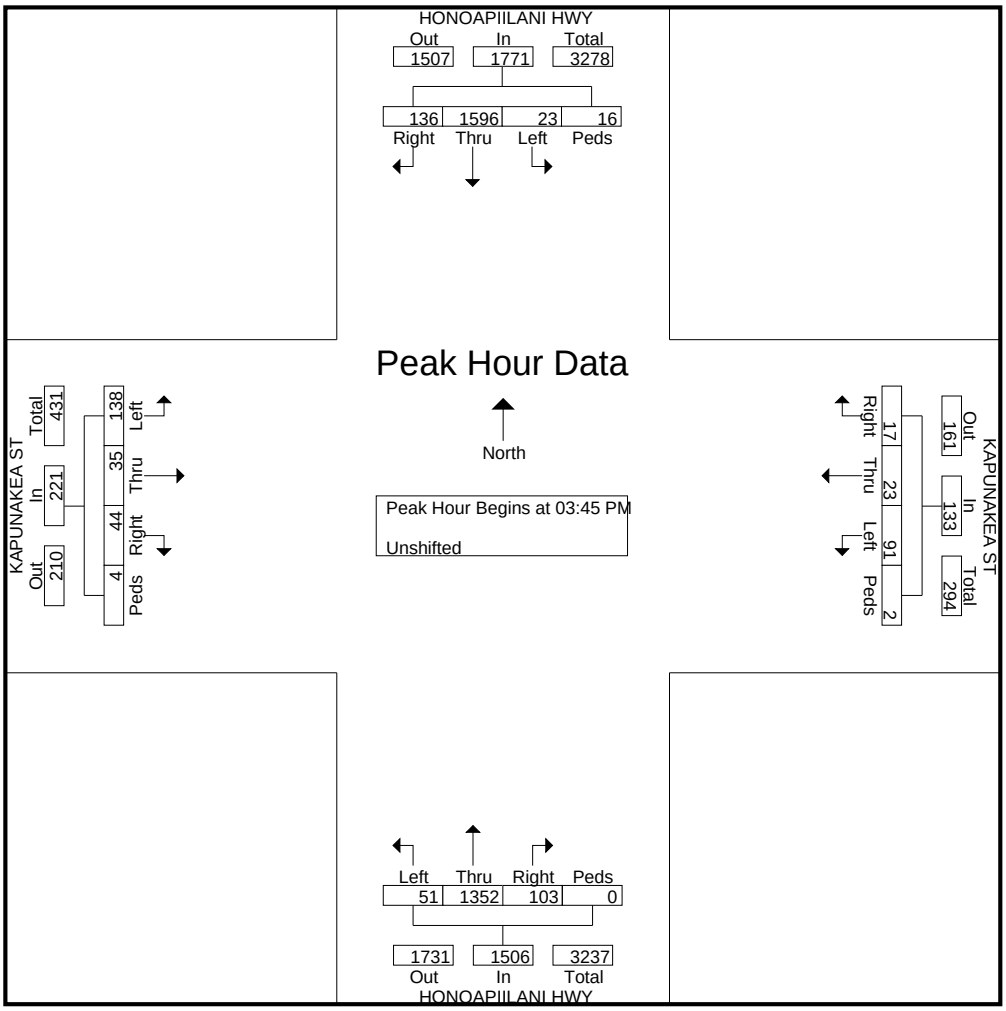
File Name : PM_Honoapiilani Hwy-Kapunakea St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	KAPUNAKEA ST Eastbound					KAPUNAKEA ST Westbound					HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	28	8	9	1	46	21	**8**	**6**	0	35	**16**	**361**	28	0	**405**	3	405	29	0	437	923
04:00 PM	36	**12**	10	0	58	26	3	3	**1**	33	8	357	26	0	391	7	357	29	3	396	878
04:15 PM	36	8	11	1	56	17	5	2	1	25	13	313	16	0	342	**9**	398	**39**	**8**	454	877
04:30 PM	**38**	7	**14**	**2**	**61**	**27**	7	6	0	**40**	14	321	**33**	0	368	4	**436**	39	5	**484**	**953**
Total Volume	138	35	44	4	221	91	23	17	2	133	51	1352	103	0	1506	23	1596	136	16	1771	3631
% App. Total	62.4	15.8	19.9	1.8		68.4	17.3	12.8	1.5		3.4	89.8	6.8	0		1.3	90.1	7.7	0.9		
PHF	.908	.729	.786	.500	.906	.843	.719	.708	.500	.831	.797	.936	.780	.000	.930	.639	.915	.872	.500	.915	.953



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File Name : PM_Honoapiilani Hwy-Keawe St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 1

Groups Printed- Unshifted

	KEAWE ST Eastbound				KEAWE ST Westbound				HONOAPIILANI HWY Northbound				HONOAPIILANI HWY Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
03:00 PM	10	26	19	1	37	22	116	2	20	251	55	5	77	279	11	1	932
03:15 PM	21	34	21	1	41	17	108	4	22	222	48	3	94	285	15	4	940
03:30 PM	19	34	26	3	39	20	112	1	23	261	58	1	88	282	16	11	994
03:45 PM	9	39	13	1	49	18	90	1	19	301	60	1	107	329	10	1	1048
Total	59	133	79	6	166	77	426	8	84	1035	221	10	366	1175	52	17	3914
04:00 PM	17	47	27	3	41	19	122	0	22	263	61	2	94	271	17	2	1008
04:15 PM	14	42	15	5	33	23	102	3	17	244	80	6	85	309	11	8	997
04:30 PM	14	32	25	1	39	25	106	2	18	240	53	3	95	329	20	7	1009
04:45 PM	6	17	11	0	22	11	55	1	16	137	43	2	61	184	11	0	577
Total	51	138	78	9	135	78	385	6	73	884	237	13	335	1093	59	17	3591
Grand Total	110	271	157	15	301	155	811	14	157	1919	458	23	701	2268	111	34	7505
Apprch %	19.9	49	28.4	2.7	23.5	12.1	63.3	1.1	6.1	75	17.9	0.9	22.5	72.8	3.6	1.1	
Total %	1.5	3.6	2.1	0.2	4	2.1	10.8	0.2	2.1	25.6	6.1	0.3	9.3	30.2	1.5	0.5	

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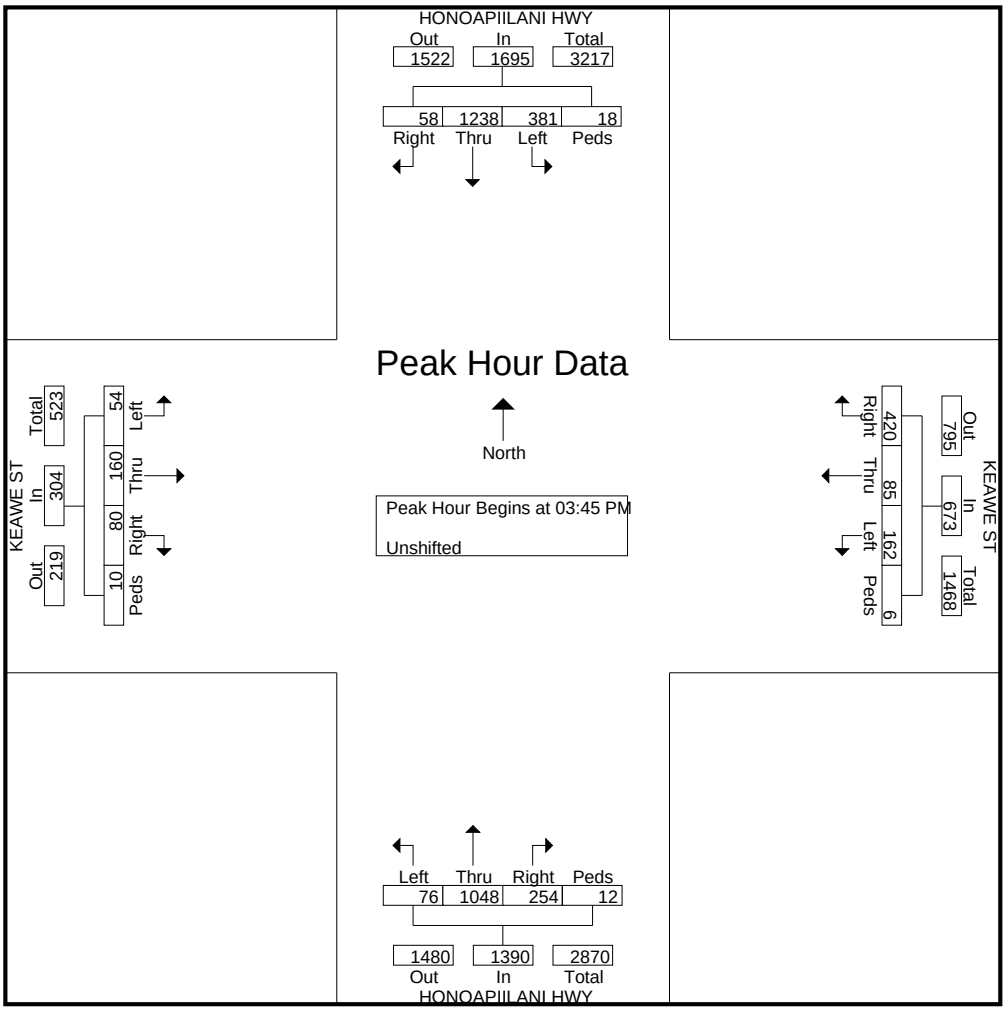
File Name : PM_Honoapiilani Hwy-Keawe St
Site Code : 00000000
Start Date : 12/6/2016
Page No : 2

	KEAWE ST Eastbound					KEAWE ST Westbound					HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	9	39	13	1	62	**49**	18	90	1	158	19	**301**	60	1	**381**	**107**	**329**	10	1	447	**1048**
04:00 PM	**17**	**47**	**27**	3	**94**	41	19	**122**	0	**182**	**22**	263	61	2	348	94	271	17	2	384	1008
04:15 PM	14	42	15	**5**	76	33	23	102	**3**	161	17	244	**80**	**6**	347	85	309	11	**8**	413	997
04:30 PM	14	32	25	1	72	39	**25**	106	2	172	18	240	53	3	314	95	329	**20**	7	**451**	1009
Total Volume	54	160	80	10	304	162	85	420	6	673	76	1048	254	12	1390	381	1238	58	18	1695	4062
% App. Total	17.8	52.6	26.3	3.3		24.1	12.6	62.4	0.9		5.5	75.4	18.3	0.9		22.5	73	3.4	1.1		
PHF	.794	.851	.741	.500	.809	.827	.850	.861	.500	.924	.864	.870	.794	.500	.912	.890	.941	.725	.563	.940	.969



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File Name : WE_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				NAPILIHAU ST Westbound				HONOAPIILANI HWY Northbound				NAPILIHAU ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	5	67	13	4	10	10	1	0	60	79	14	0	18	4	88	1	374
11:15 AM	2	47	24	1	6	5	2	0	60	75	3	0	18	4	81	2	330
11:30 AM	3	55	13	1	6	9	2	0	52	79	10	0	14	9	78	0	331
11:45 AM	4	63	22	0	6	4	5	1	69	63	3	0	11	5	87	1	344
Total	14	232	72	6	28	28	10	1	241	296	30	0	61	22	334	4	1379
12:00 PM	2	60	22	2	8	6	1	1	78	72	2	0	7	5	73	0	339
12:15 PM	1	73	30	0	5	9	4	0	51	62	4	0	7	3	67	0	316
12:30 PM	0	58	19	0	4	2	1	0	59	62	4	0	13	3	71	0	296
12:45 PM	0	71	13	0	2	4	0	0	70	71	4	0	11	3	56	0	305
Total	3	262	84	2	19	21	6	1	258	267	14	0	38	14	267	0	1256
Grand Total	17	494	156	8	47	49	16	2	499	563	44	0	99	36	601	4	2635
Apprch %	2.5	73.2	23.1	1.2	41.2	43	14	1.8	45.1	50.9	4	0	13.4	4.9	81.2	0.5	
Total %	0.6	18.7	5.9	0.3	1.8	1.9	0.6	0.1	18.9	21.4	1.7	0	3.8	1.4	22.8	0.2	

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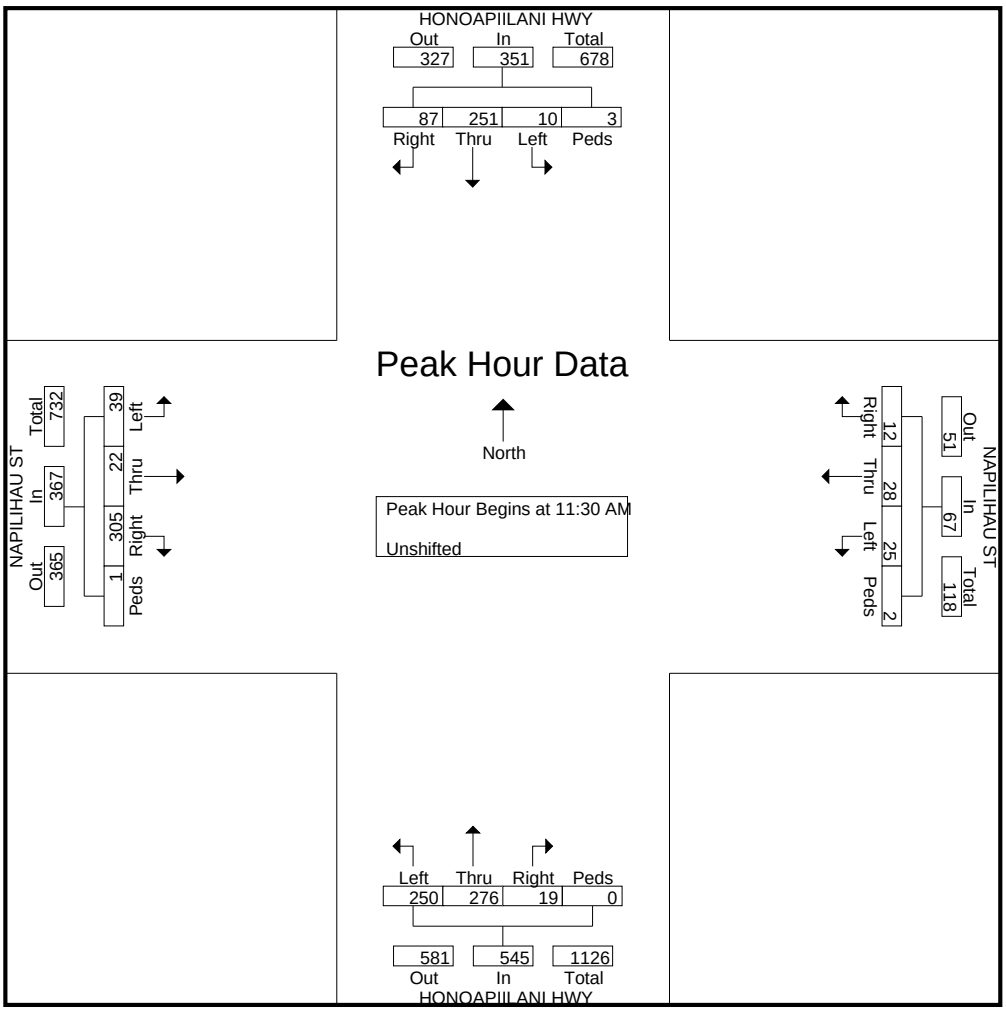
File Name : WE_Honoapiilani Hwy - Napilihau St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 2

	HONOAPIILANI HWY Southbound					NAPILIHAU ST Westbound					HONOAPIILANI HWY Northbound					NAPILIHAU ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	55	13	1	72	6	**9**	2	0	17	52	**79**	**10**	0	141	**14**	**9**	78	0	101	331
11:45 AM	**4**	63	22	0	89	6	4	**5**	**1**	16	69	63	3	0	135	11	5	**87**	**1**	**104**	**344**
12:00 PM	2	60	22	**2**	86	**8**	6	1	1	16	**78**	72	2	0	**152**	7	5	73	0	85	339
12:15 PM	1	**73**	**30**	0	**104**	5	9	4	0	**18**	51	62	4	0	117	7	3	67	0	77	316
Total Volume	10	251	87	3	351	25	28	12	2	67	250	276	19	0	545	39	22	305	1	367	1330
% App. Total	2.8	71.5	24.8	0.9		37.3	41.8	17.9	3		45.9	50.6	3.5	0		10.6	6	83.1	0.3		
PHF	.625	.860	.725	.375	.844	.781	.778	.600	.500	.931	.801	.873	.475	.000	.896	.696	.611	.876	.250	.882	.967



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File Name : WE_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HOOHUI RD Westbound				HONOAPIILANI HWY Northbound				HOOHUI RD Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	2	93	13	0	9	5	2	0	18	77	6	0	8	6	35	0	274
11:15 AM	0	101	22	3	5	2	2	2	23	83	2	0	13	2	33	0	293
11:30 AM	3	111	12	3	14	4	0	2	24	80	4	0	10	1	52	0	320
11:45 AM	2	101	15	1	7	0	2	0	25	76	6	0	14	6	38	0	293
Total	7	406	62	7	35	11	6	4	90	316	18	0	45	15	158	0	1180
12:00 PM	4	103	14	0	5	7	3	0	41	108	6	0	12	5	45	0	353
12:15 PM	3	99	14	1	9	4	0	1	28	111	6	0	16	4	41	0	337
12:30 PM	3	95	20	1	7	1	2	0	25	112	6	0	15	1	33	0	321
12:45 PM	7	95	14	0	8	1	4	1	40	120	4	0	11	1	29	0	335
Total	17	392	62	2	29	13	9	2	134	451	22	0	54	11	148	0	1346
Grand Total	24	798	124	9	64	24	15	6	224	767	40	0	99	26	306	0	2526
Apprch %	2.5	83.6	13	0.9	58.7	22	13.8	5.5	21.7	74.4	3.9	0	23	6	71	0	
Total %	1	31.6	4.9	0.4	2.5	1	0.6	0.2	8.9	30.4	1.6	0	3.9	1	12.1	0	

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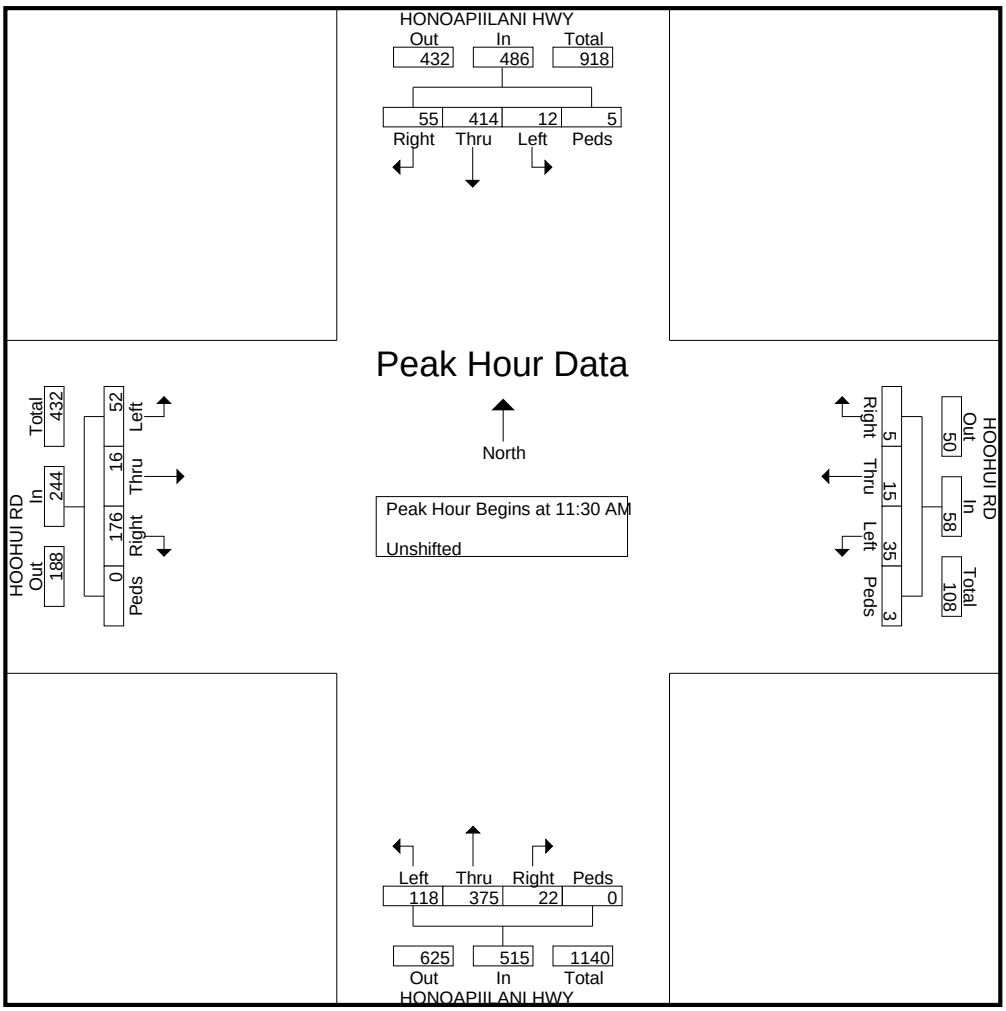
File Name : WE_Honoapiilani Hwy - Hoohui Rd
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HOOHUI RD Westbound					HONOAPIILANI HWY Northbound					HOOHUI RD Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	**111**	12	**3**	**129**	**14**	4	0	**2**	**20**	24	80	4	0	108	10	1	**52**	0	**63**	320
11:45 AM	2	101	**15**	1	119	7	0	2	0	9	25	76	**6**	0	107	14	**6**	38	0	58	293
12:00 PM	**4**	103	14	0	121	5	**7**	**3**	0	15	**41**	108	6	0	**155**	12	5	45	0	62	**353**
12:15 PM	3	99	14	1	117	9	4	0	1	14	28	**111**	6	0	145	**16**	4	41	0	61	337
Total Volume	12	414	55	5	486	35	15	5	3	58	118	375	22	0	515	52	16	176	0	244	1303
% App. Total	2.5	85.2	11.3	1		60.3	25.9	8.6	5.2		22.9	72.8	4.3	0		21.3	6.6	72.1	0		
PHF	.750	.932	.917	.417	.942	.625	.536	.417	.375	.725	.720	.845	.917	.000	.831	.813	.667	.846	.000	.968	.923



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File Name : WE_Honnoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted - Bank 1

	HONOAPIILANI HWY Southbound				AKAHELE ST Westbound				HONOAPIILANI HWY Northbound				AKAHELE ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
11:00 AM	1	118	5	0	1	2	1	0	13	83	2	0	11	3	22	0	262
11:15 AM	1	115	15	0	4	3	0	0	12	108	2	3	5	1	18	0	287
11:30 AM	2	172	12	0	3	0	3	0	20	88	1	0	8	0	25	0	334
11:45 AM	1	130	14	0	3	0	1	0	15	95	4	3	11	2	14	0	293
Total	5	535	46	0	11	5	5	0	60	374	9	6	35	6	79	0	1176
12:00 PM	1	136	11	0	0	0	5	0	21	140	4	0	10	2	16	0	346
12:15 PM	0	143	8	0	4	2	1	0	14	139	2	0	8	1	19	1	342
12:30 PM	0	124	16	0	2	1	0	0	14	136	2	0	8	0	13	0	316
12:45 PM	2	120	10	0	1	1	5	0	16	152	1	0	8	1	14	0	331
Total	3	523	45	0	7	4	11	0	65	567	9	0	34	4	62	1	1335
Grand Total	8	1058	91	0	18	9	16	0	125	941	18	6	69	10	141	1	2511
Apprch %	0.7	91.4	7.9	0	41.9	20.9	37.2	0	11.5	86.3	1.7	0.6	31.2	4.5	63.8	0.5	
Total %	0.3	42.1	3.6	0	0.7	0.4	0.6	0	5	37.5	0.7	0.2	2.7	0.4	5.6	0	
Unshifted	8	1058	91	0	18	9	16	0	125	941	18	6	69	10	141	1	2511
% Unshifted	100	100	100	0	100	100	100	0	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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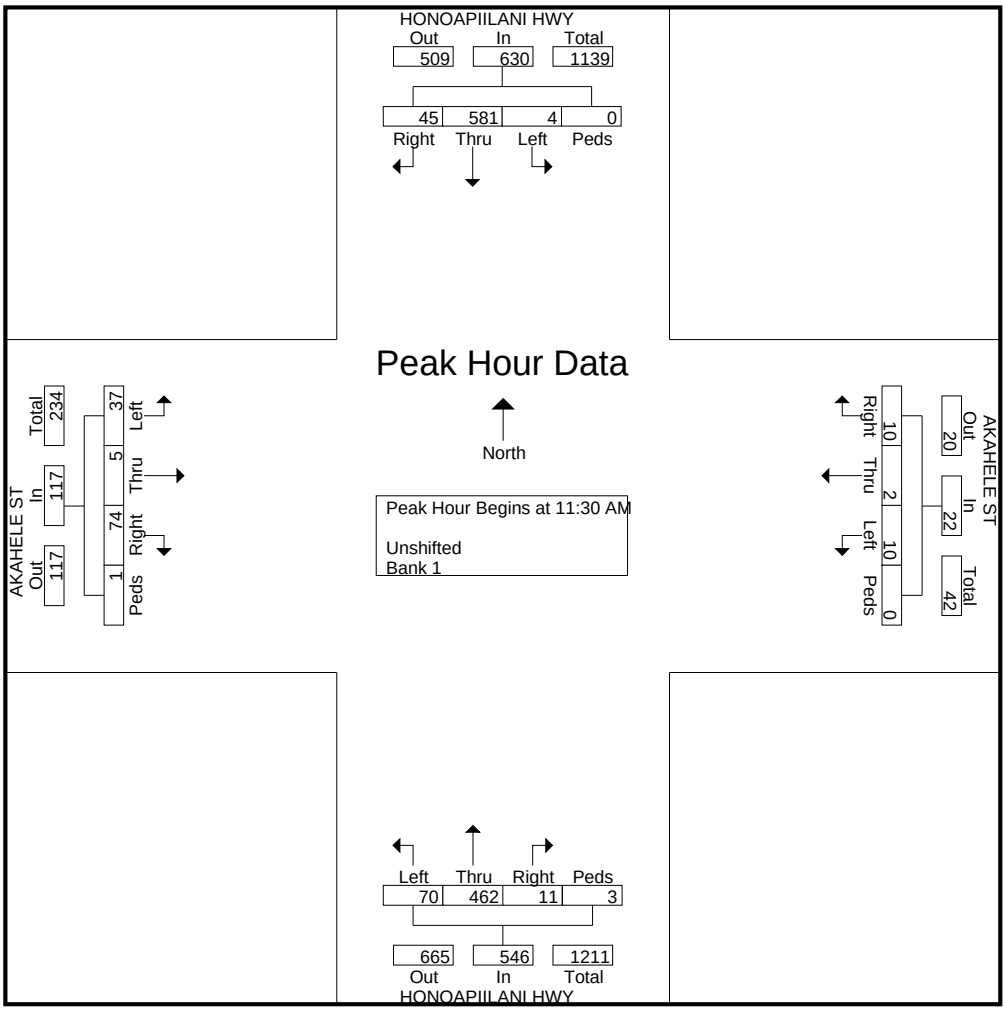
File Name : WE_Honnoapiilani Hwy - Akahele St
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	HONOAPIILANI HWY Southbound					AKAHELE ST Westbound					HONOAPIILANI HWY Northbound					AKAHELE ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	**2**	**172**	12	0	**186**	3	0	3	0	6	20	88	1	0	109	8	0	**25**	0	**33**	334
11:45 AM	1	130	**14**	0	145	3	0	1	0	4	15	95	**4**	**3**	117	**11**	**2**	14	0	27	293
12:00 PM	1	136	11	0	148	0	0	**5**	0	5	**21**	**140**	4	0	**165**	10	2	16	0	28	**346**
12:15 PM	0	143	8	0	151	**4**	**2**	1	0	**7**	14	139	2	0	155	8	1	19	**1**	29	342
Total Volume	4	581	45	0	630	10	2	10	0	22	70	462	11	3	546	37	5	74	1	117	1315
% App. Total	0.6	92.2	7.1	0		45.5	9.1	45.5	0		12.8	84.6	2	0.5		31.6	4.3	63.2	0.9		
PHF	.500	.844	.804	.000	.847	.625	.250	.500	.000	.786	.833	.825	.688	.250	.827	.841	.625	.740	.250	.886	.950



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File Name : WE_Honoapiilani Hwy - Lower Honoapiilani Rd
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				LOWER HONOAPIILANI Westbound				HONOAPIILANI HWY Northbound				LOWER HONOAPIILANI Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	0	135	20	0	0	0	0	0	71	100	0	0	11	3	157	0	497
11:15 AM	0	118	11	0	0	0	0	0	76	112	3	0	14	24	133	0	491
11:30 AM	0	164	14	1	2	0	1	0	90	89	2	0	10	0	140	0	513
11:45 AM	0	134	11	0	2	0	0	0	83	107	2	0	14	0	128	3	484
Total	0	551	56	1	4	0	1	0	320	408	7	0	49	27	558	3	1985
12:00 PM	0	186	14	0	2	0	0	0	90	155	1	0	17	2	132	0	599
12:15 PM	0	148	8	0	3	0	0	0	93	150	0	0	7	7	136	0	552
12:30 PM	1	128	15	0	0	1	1	0	78	148	2	0	7	11	98	0	490
12:45 PM	0	123	22	0	0	2	0	0	84	149	0	0	10	2	88	0	480
Total	1	585	59	0	5	3	1	0	345	602	3	0	41	22	454	0	2121
Grand Total	1	1136	115	1	9	3	2	0	665	1010	10	0	90	49	1012	3	4106
Apprch %	0.1	90.7	9.2	0.1	64.3	21.4	14.3	0	39.5	59.9	0.6	0	7.8	4.2	87.7	0.3	
Total %	0	27.7	2.8	0	0.2	0.1	0	0	16.2	24.6	0.2	0	2.2	1.2	24.6	0.1	

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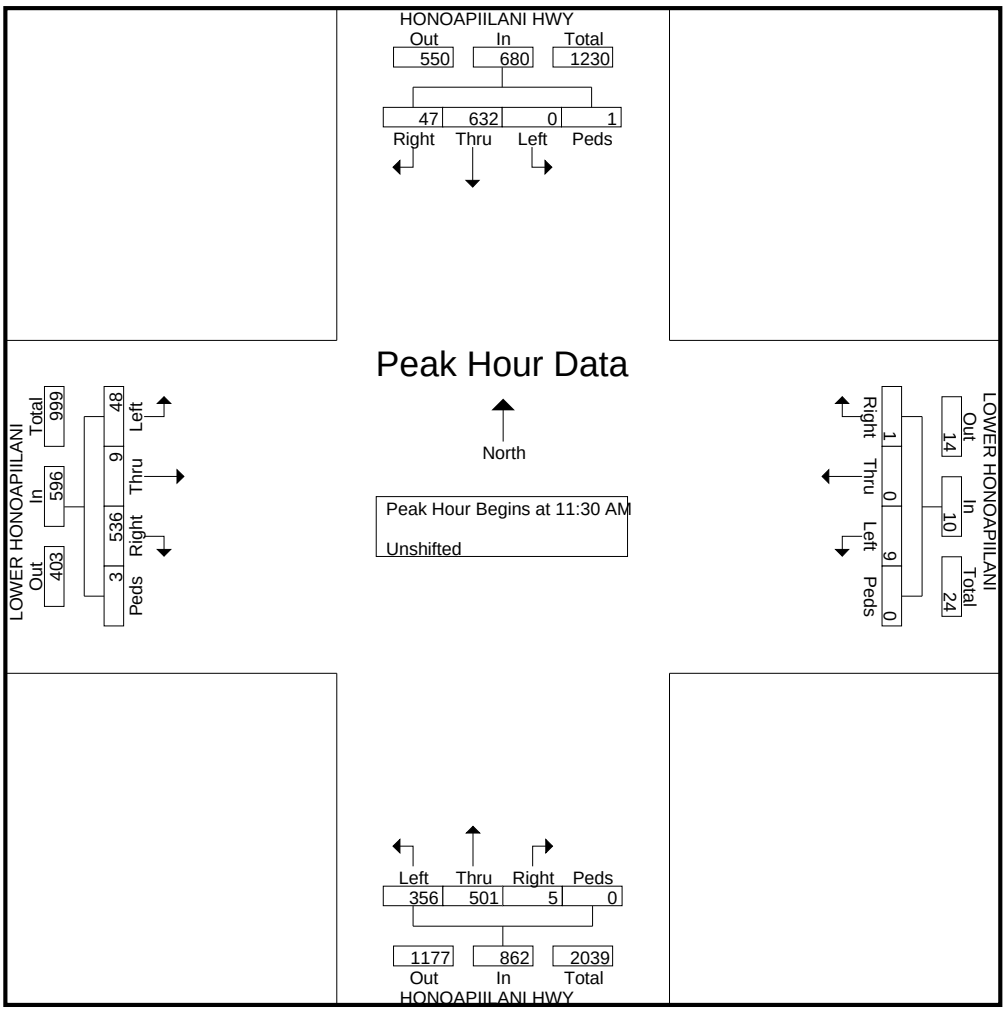
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	HONOAPIILANI HWY Southbound					LOWER HONOAPIILANI Westbound					HONOAPIILANI HWY Northbound					LOWER HONOAPIILANI Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	164	**14**	**1**	179	2	0	**1**	0	**3**	90	89	**2**	0	181	10	0	**140**	0	150	513
11:45 AM	0	134	11	0	145	2	0	0	0	2	83	107	2	0	192	14	0	128	**3**	145	484
12:00 PM	0	**186**	14	0	**200**	2	0	0	0	2	90	**155**	1	0	**246**	**17**	2	132	0	**151**	**599**
12:15 PM	0	148	8	0	156	**3**	0	0	0	3	**93**	150	0	0	243	7	**7**	136	0	150	552
Total Volume	0	632	47	1	680	9	0	1	0	10	356	501	5	0	862	48	9	536	3	596	2148
% App. Total	0	92.9	6.9	0.1		90	0	10	0		41.3	58.1	0.6	0		8.1	1.5	89.9	0.5		
PHF	.000	.849	.839	.250	.850	.750	.000	.250	.000	.833	.957	.808	.625	.000	.876	.706	.321	.957	.250	.987	.896



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File Name : WE_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HALAWAI DR Westbound				HONOAPIILANI HWY Northbound				HALAWAI DR Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	0	290	6	0	0	3	2	0	6	149	0	0	1	0	8	0	465
11:15 AM	0	288	4	0	1	0	0	0	3	188	1	0	2	0	10	0	497
11:30 AM	1	318	11	0	5	1	1	0	6	203	2	0	3	0	11	0	562
11:45 AM	4	266	8	2	3	1	5	0	17	191	6	0	7	2	13	0	525
Total	5	1162	29	2	9	5	8	0	32	731	9	0	13	2	42	0	2049
12:00 PM	2	259	8	4	4	0	2	0	11	219	5	0	7	0	21	3	545
12:15 PM	2	298	12	1	2	0	4	0	9	213	2	0	9	0	21	0	573
12:30 PM	2	236	4	0	6	0	4	0	10	226	6	0	4	2	12	2	514
Grand Total	11	1955	53	7	21	5	18	0	62	1389	22	0	33	4	96	5	3681
Apprch %	0.5	96.5	2.6	0.3	47.7	11.4	40.9	0	4.2	94.3	1.5	0	23.9	2.9	69.6	3.6	
Total %	0.3	53.1	1.4	0.2	0.6	0.1	0.5	0	1.7	37.7	0.6	0	0.9	0.1	2.6	0.1	

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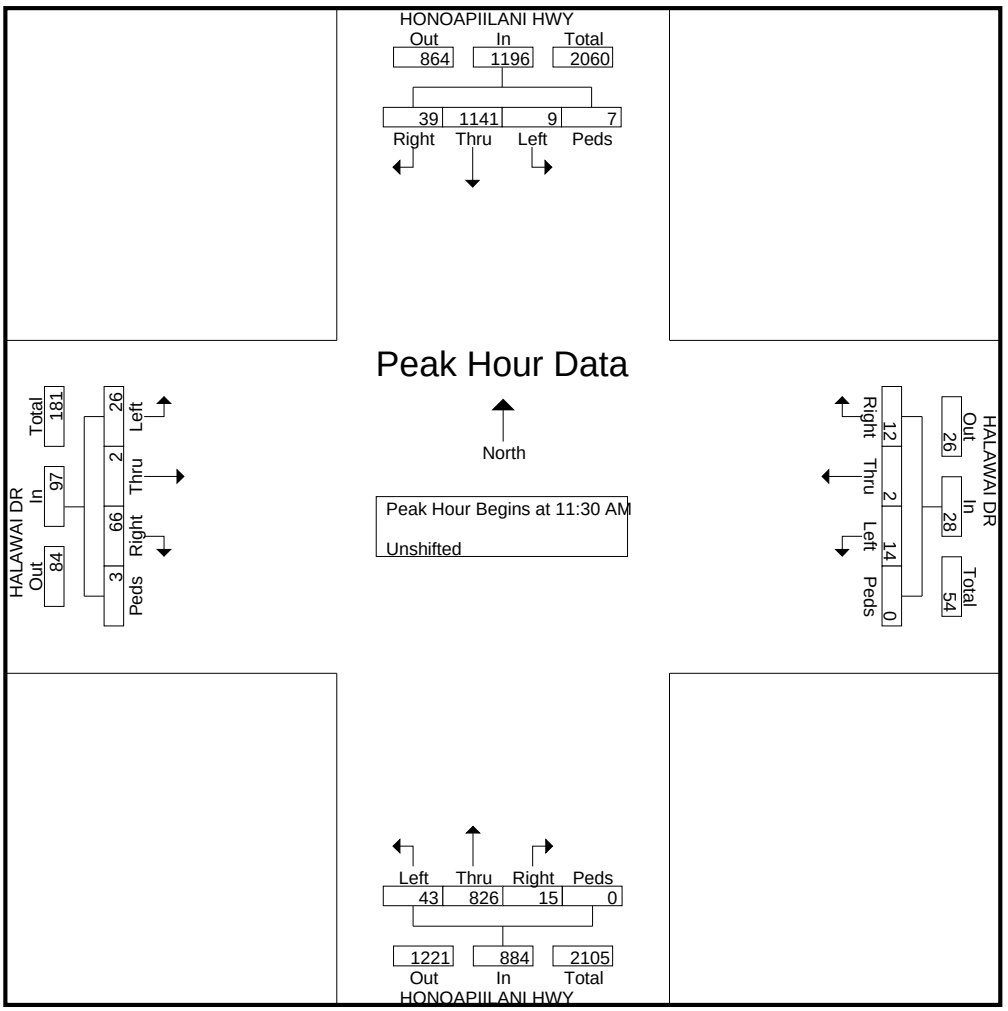
File Name : WE_Honoapiilani Hwy - Halawai Dr
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	HONOAPIILANI HWY Southbound					HALAWAI DR Westbound					HONOAPIILANI HWY Northbound					HALAWAI DR Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:00 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	1	**318**	11	0	**330**	**5**	**1**	1	0	7	6	203	2	0	211	3	0	11	0	14	562
11:45 AM	**4**	266	8	2	280	3	1	**5**	0	**9**	**17**	191	**6**	0	214	7	**2**	13	0	22	525
12:00 PM	2	259	8	**4**	273	4	0	2	0	6	11	**219**	5	0	**235**	7	0	**21**	**3**	**31**	545
12:15 PM	2	298	**12**	1	313	2	0	4	0	6	9	213	2	0	224	**9**	0	21	0	30	**573**
Total Volume	9	1141	39	7	1196	14	2	12	0	28	43	826	15	0	884	26	2	66	3	97	2205
% App. Total	0.8	95.4	3.3	0.6		50	7.1	42.9	0		4.9	93.4	1.7	0		26.8	2.1	68	3.1		
PHF	.563	.897	.813	.438	.906	.700	.500	.600	.000	.778	.632	.943	.625	.000	.940	.722	.250	.786	.250	.782	.962



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File Name : WE_Honoapiilani Hwy-Puukolii Rd
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	KAI ALA DR Eastbound				PUUKOLII RD Westbound				HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	U-Turn	Peds	Left	Thru	Right	U-Turn	Peds	Int. Total
11:00 AM	14	0	46	0	8	0	4	0	15	140	6	0	0	2	283	11	0	0	529
11:15 AM	10	1	47	0	10	0	11	0	21	165	11	2	0	6	257	14	1	0	556
11:30 AM	13	1	42	0	11	0	6	0	18	187	13	0	0	9	284	15	0	0	599
11:45 AM	13	1	38	0	14	1	10	0	28	173	9	0	0	5	272	18	0	0	582
Total	50	3	173	0	43	1	31	0	82	665	39	2	0	22	1096	58	1	0	2266
12:00 PM	7	0	42	0	10	1	4	0	25	216	9	0	0	7	262	14	0	0	597
12:15 PM	15	0	45	0	3	1	7	0	30	206	14	2	0	6	296	16	0	0	641
12:30 PM	9	0	41	0	9	0	6	0	36	230	12	0	0	6	251	11	0	0	611
12:45 PM	20	0	26	0	9	0	9	0	39	231	7	0	0	8	217	15	0	0	581
Total	51	0	154	0	31	2	26	0	130	883	42	2	0	27	1026	56	0	0	2430
Grand Total	101	3	327	0	74	3	57	0	212	1548	81	4	0	49	2122	114	1	0	4696
Apprch %	23.4	0.7	75.9	0	55.2	2.2	42.5	0	11.5	83.9	4.4	0.2	0	2.1	92.8	5	0	0	
Total %	2.2	0.1	7	0	1.6	0.1	1.2	0	4.5	33	1.7	0.1	0	1	45.2	2.4	0	0	

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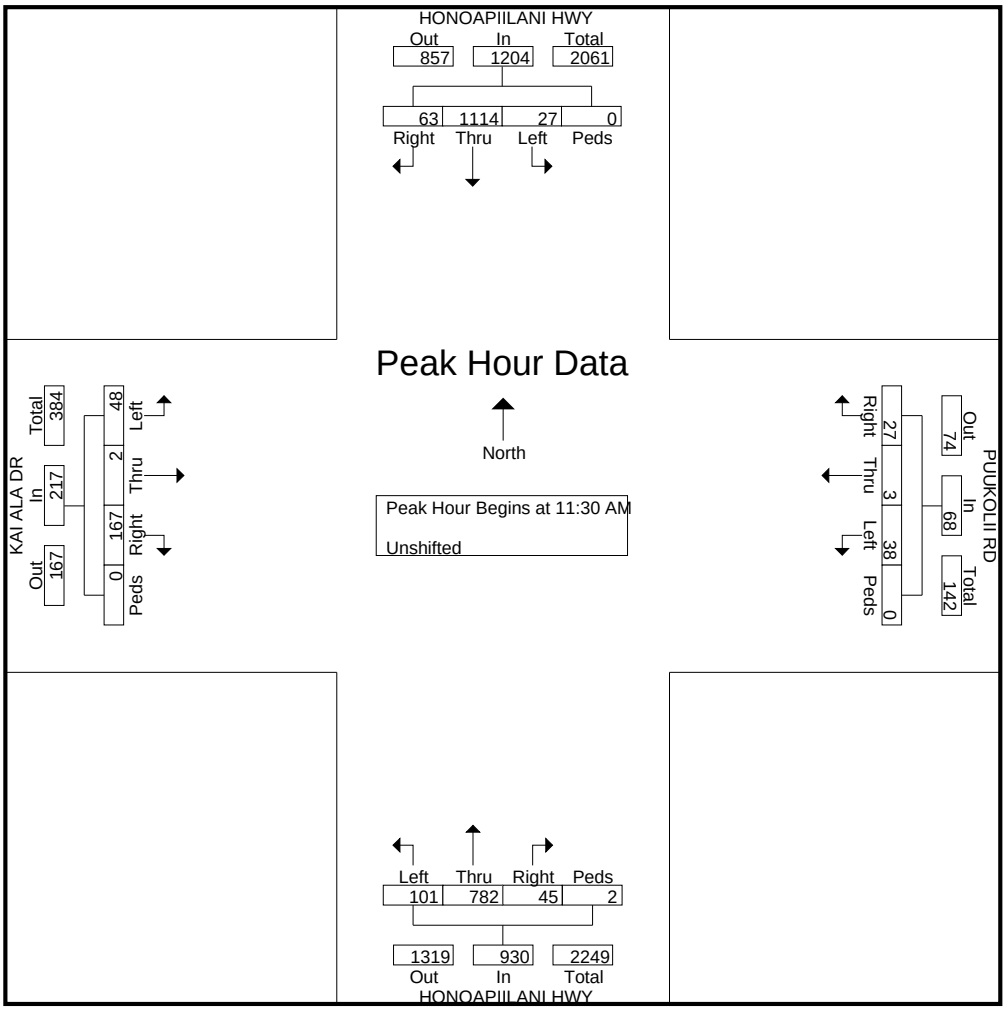
File Name : WE_Honoapiilani Hwy-Puukolii Rd
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	KAI ALA DR Eastbound					PUUKOLII RD Westbound					HONOAPIILANI HWY Northbound						HONOAPIILANI HWY Southbound						
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 11:30 AM																							
11:30 AM	13	**1**	42	0	56	11	0	6	0	17	18	187	13	0	0	218	**9**	284	15	0	0	308	599
11:45 AM	13	1	38	0	52	**14**	**1**	**10**	0	**25**	28	173	9	0	0	210	5	272	**18**	0	0	295	582
12:00 PM	7	0	42	0	49	10	1	4	0	15	25	**216**	9	0	0	250	7	262	14	0	0	283	597
12:15 PM	**15**	0	**45**	0	**60**	3	1	7	0	11	**30**	206	**14**	**2**	0	**252**	6	**296**	16	0	0	**318**	**641**
Total Volume	48	2	167	0	217	38	3	27	0	68	101	782	45	2	0	930	27	1114	63	0	0	1204	2419
% App. Total	22.1	0.9	77	0		55.9	4.4	39.7	0		10.9	84.1	4.8	0.2	0		2.2	92.5	5.2	0	0		
PHF	.800	.500	.928	.000	.904	.679	.750	.675	.000	.680	.842	.905	.804	.250	.000	.923	.750	.941	.875	.000	.000	.947	.943



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File Name : WE_Honopiilani Hwy - Kaanapali Pkwy_Halelo St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				HALELO ST Westbound				HONOAPIILANI HWY Northbound				KAANAPALI PKWY Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	10	382	55	0	0	0	1	0	70	191	7	0	58	0	101	0	875
11:15 AM	11	314	31	0	4	0	0	0	83	188	6	0	54	0	107	0	798
11:30 AM	5	342	40	0	3	1	1	0	57	247	3	0	48	0	108	1	856
11:45 AM	6	272	28	0	5	1	6	0	61	202	2	0	60	1	94	0	738
Total	32	1310	154	0	12	2	8	0	271	828	18	0	220	1	410	1	3267
12:00 PM	9	294	35	0	3	1	4	0	74	220	5	0	37	0	108	0	790
12:15 PM	5	233	33	0	1	0	4	0	88	239	2	0	59	0	122	0	786
12:30 PM	14	267	31	0	2	1	1	0	81	243	2	0	52	1	114	0	809
12:45 PM	6	211	28	0	3	3	2	0	84	289	5	0	46	0	86	0	763
Total	34	1005	127	0	9	5	11	0	327	991	14	0	194	1	430	0	3148
Grand Total	66	2315	281	0	21	7	19	0	598	1819	32	0	414	2	840	1	6415
Apprch %	2.5	87	10.6	0	44.7	14.9	40.4	0	24.4	74.3	1.3	0	32.9	0.2	66.8	0.1	
Total %	1	36.1	4.4	0	0.3	0.1	0.3	0	9.3	28.4	0.5	0	6.5	0	13.1	0	

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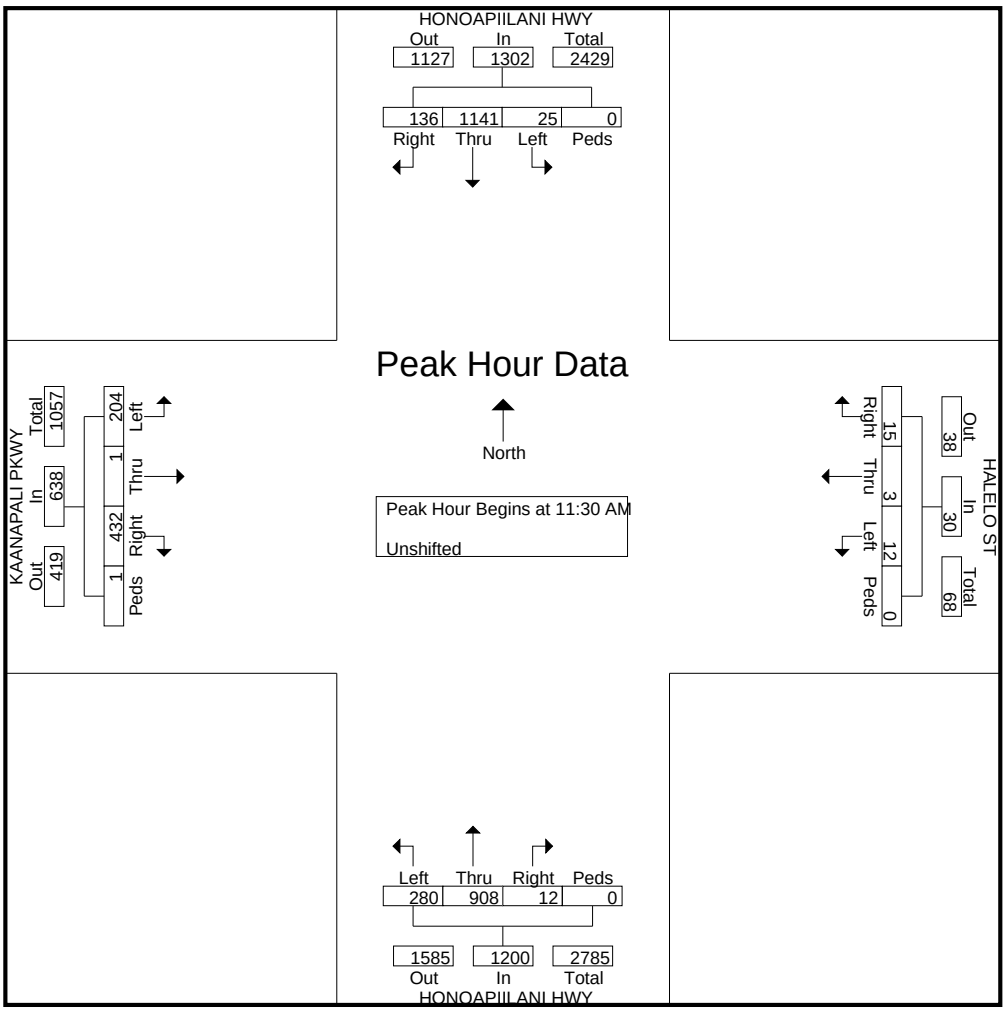
File Name : WE_Honopiilani Hwy - Kaanapali Pkwy_Halelo St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 2

	HONOAPIILANI HWY Southbound					HALELO ST Westbound					HONOAPIILANI HWY Northbound					KAANAPALI PKWY Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	5	**342**	**40**	0	**387**	3	**1**	1	0	5	57	**247**	3	0	307	48	0	108	**1**	157	**856**
11:45 AM	6	272	28	0	306	**5**	1	**6**	0	**12**	61	202	2	0	265	**60**	**1**	94	0	155	738
12:00 PM	**9**	294	35	0	338	3	1	4	0	8	74	220	**5**	0	299	37	0	108	0	145	790
12:15 PM	5	233	33	0	271	1	0	4	0	5	**88**	239	2	0	**329**	59	0	**122**	0	**181**	786
Total Volume	25	1141	136	0	1302	12	3	15	0	30	280	908	12	0	1200	204	1	432	1	638	3170
% App. Total	1.9	87.6	10.4	0		40	10	50	0		23.3	75.7	1	0		32	0.2	67.7	0.2		
PHF	.694	.834	.850	.000	.841	.600	.750	.625	.000	.625	.795	.919	.600	.000	.912	.850	.250	.885	.250	.881	.926



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File Name : WE_Honoapiilani Hwy-Leialii Pkwy
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	LEIALII PKWY Eastbound				LEIALII PKWY Westbound				HONOAPIILANI HWY Northbound				HONOAPIILANI HWY Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
11:00 AM	0	1	1	0	23	1	4	0	1	187	12	0	19	378	4	0	631
11:15 AM	1	0	2	0	18	0	12	0	0	216	13	0	18	410	0	0	690
11:30 AM	0	0	2	0	47	1	16	0	0	228	25	0	21	371	0	0	711
11:45 AM	0	0	0	0	33	0	16	0	0	286	26	0	25	392	1	0	779
Total	1	1	5	0	121	2	48	0	1	917	76	0	83	1551	5	0	2811
12:00 PM	2	0	0	0	30	0	9	0	1	291	10	0	14	398	3	0	758
12:15 PM	0	0	1	0	20	0	10	0	1	278	22	0	18	397	2	0	749
12:30 PM	0	0	1	0	19	0	15	0	0	333	17	0	12	376	0	0	773
12:45 PM	2	0	0	0	21	0	18	0	0	324	24	0	14	296	0	1	700
Total	4	0	2	0	90	0	52	0	2	1226	73	0	58	1467	5	1	2980
Grand Total	5	1	7	0	211	2	100	0	3	2143	149	0	141	3018	10	1	5791
Apprch %	38.5	7.7	53.8	0	67.4	0.6	31.9	0	0.1	93.4	6.5	0	4.4	95.2	0.3	0	
Total %	0.1	0	0.1	0	3.6	0	1.7	0	0.1	37	2.6	0	2.4	52.1	0.2	0	

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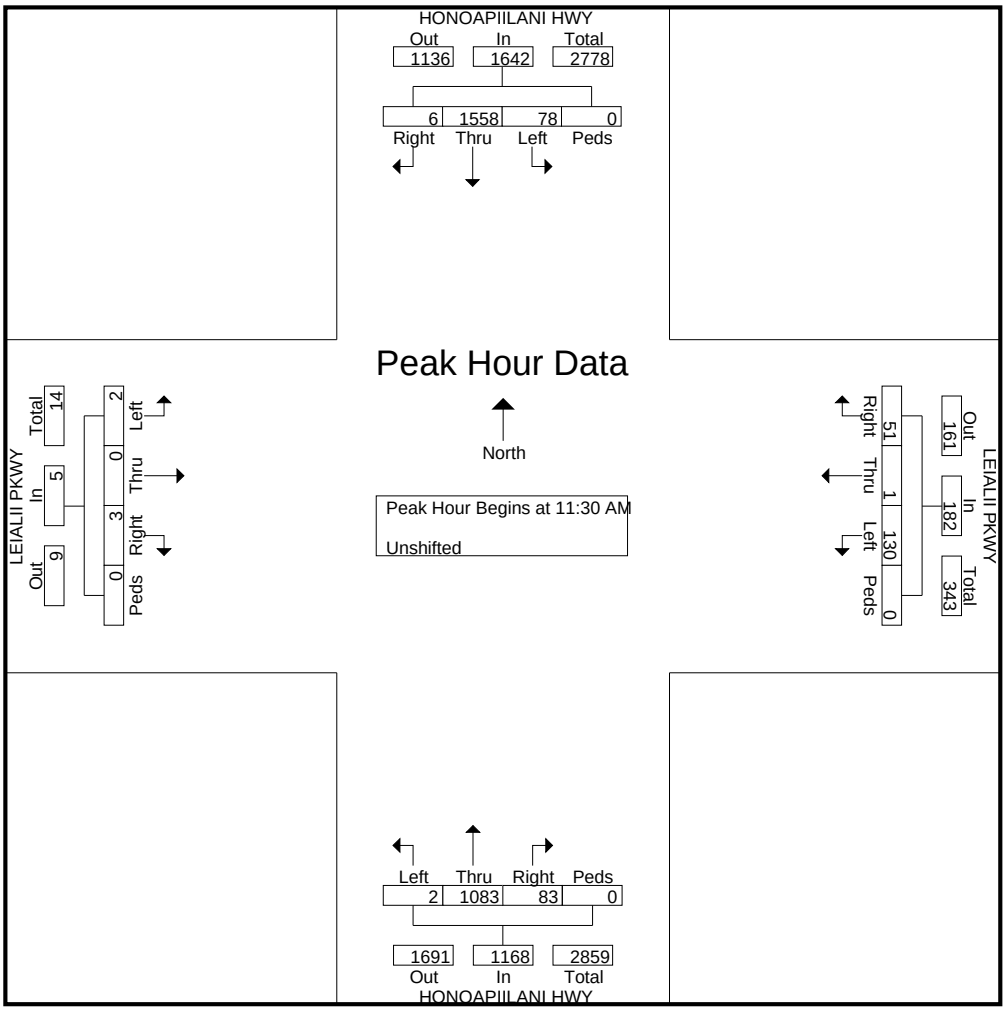
File Name : WE_Honoapiilani Hwy-Leialii Pkwy
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	LEIALII PKWY Eastbound					LEIALII PKWY Westbound					HONOAPIILANI HWY Northbound					HONOAPIILANI HWY Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	0	0	**2**	0	**2**	**47**	**1**	**16**	0	**64**	0	228	25	0	253	21	371	0	0	392	711
11:45 AM	0	0	0	0	0	33	0	16	0	49	0	286	**26**	0	**312**	**25**	392	1	0	**418**	**779**
12:00 PM	**2**	0	0	0	2	30	0	9	0	39	**1**	**291**	10	0	302	14	**398**	**3**	0	415	758
12:15 PM	0	0	1	0	1	20	0	10	0	30	1	278	22	0	301	18	397	2	0	417	749
Total Volume	2	0	3	0	5	130	1	51	0	182	2	1083	83	0	1168	78	1558	6	0	1642	2997
% App. Total	40	0	60	0		71.4	0.5	28	0		0.2	92.7	7.1	0		4.8	94.9	0.4	0		
PHF	.250	.000	.375	.000	.625	.691	.250	.797	.000	.711	.500	.930	.798	.000	.936	.780	.979	.500	.000	.982	.962



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File Name : WE_Honoapiilani Hwy - Front St
Site Code : 00000000
Start Date : 12/10/2016
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				FRONT ST Westbound				HONOAPIILANI HWY Northbound				FRONT ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	3	332	17	0	14	2	2	0	4	199	6	0	19	0	4	0	602
11:15 AM	1	349	42	0	15	0	1	0	2	242	3	0	22	0	3	0	680
11:30 AM	2	346	45	0	10	0	2	0	5	230	5	0	29	0	3	0	677
11:45 AM	1	339	52	0	17	0	4	0	3	272	4	0	24	2	3	0	721
Total	7	1366	156	0	56	2	9	0	14	943	18	0	94	2	13	0	2680
12:00 PM	2	337	67	0	19	2	2	0	1	268	4	0	27	1	4	1	735
12:15 PM	2	347	71	0	16	1	3	0	2	275	2	0	34	0	4	0	757
12:30 PM	1	338	58	0	17	4	3	0	1	325	6	0	31	4	4	0	792
12:45 PM	3	246	44	0	13	1	2	0	4	323	6	0	31	0	1	0	674
Total	8	1268	240	0	65	8	10	0	8	1191	18	0	123	5	13	1	2958
Grand Total	15	2634	396	0	121	10	19	0	22	2134	36	0	217	7	26	1	5638
Apprch %	0.5	86.5	13	0	80.7	6.7	12.7	0	1	97.4	1.6	0	86.5	2.8	10.4	0.4	
Total %	0.3	46.7	7	0	2.1	0.2	0.3	0	0.4	37.9	0.6	0	3.8	0.1	0.5	0	

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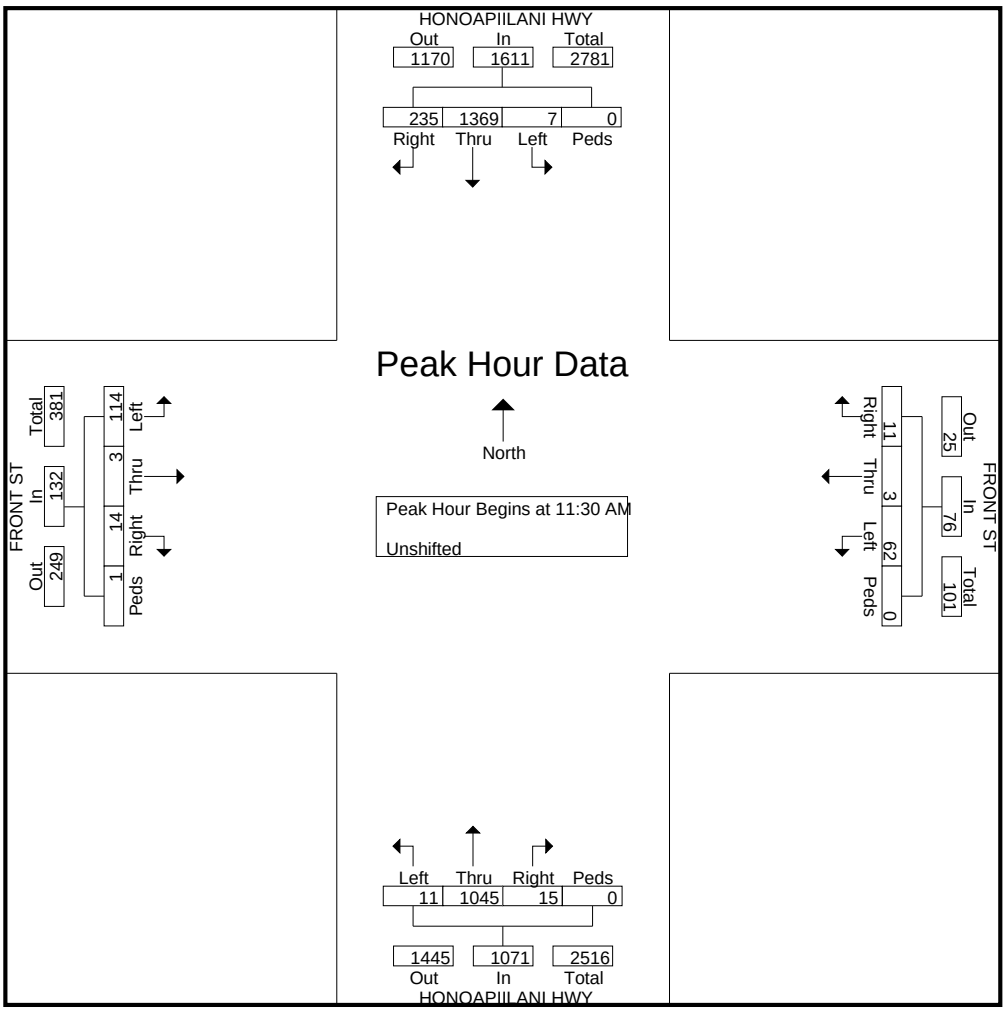
File Name : WE_Honoapiilani Hwy - Front St
Site Code : 00000000
Start Date : 12/10/2016
Page No : 2

	HONOAPIILANI HWY Southbound					FRONT ST Westbound					HONOAPIILANI HWY Northbound					FRONT ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	**2**	346	45	0	393	10	0	2	0	12	**5**	230	**5**	0	240	29	0	3	0	32	677
11:45 AM	1	339	52	0	392	17	0	**4**	0	21	3	272	4	0	**279**	24	**2**	3	0	29	721
12:00 PM	2	337	67	0	406	**19**	**2**	2	0	**23**	1	268	4	0	273	27	1	**4**	**1**	33	735
12:15 PM	2	**347**	**71**	0	**420**	16	1	3	0	20	2	**275**	2	0	279	**34**	0	4	0	**38**	**757**
Total Volume	7	1369	235	0	1611	62	3	11	0	76	11	1045	15	0	1071	114	3	14	1	132	2890
% App. Total	0.4	85	14.6	0		81.6	3.9	14.5	0		1	97.6	1.4	0		86.4	2.3	10.6	0.8		
PHF	.875	.986	.827	.000	.959	.816	.375	.688	.000	.826	.550	.950	.750	.000	.960	.838	.375	.875	.250	.868	.954



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File Name : WE_Honoapiilani Hwy - Kapunakea St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				KAPUNAKEA ST Westbound				KAPUNAKEA ST Northbound				KAPUNAKEA ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	3	347	19	0	23	6	1	1	11	256	13	0	36	7	12	0	735
11:15 AM	2	425	36	0	32	0	1	1	15	272	12	0	33	8	5	0	842
11:30 AM	4	413	35	1	18	5	4	0	14	289	12	2	32	3	14	0	846
11:45 AM	7	338	28	0	21	5	1	2	11	255	7	1	37	5	7	0	725
Total	16	1523	118	1	94	16	7	4	51	1072	44	3	138	23	38	0	3148
12:00 PM	1	304	24	1	22	5	1	6	21	265	15	0	31	4	15	2	717
12:15 PM	2	334	31	0	22	4	9	0	12	313	25	0	39	5	12	0	808
12:30 PM	4	283	19	0	21	2	4	3	16	308	26	0	46	3	12	0	747
12:45 PM	1	275	24	3	18	7	2	4	16	314	17	0	30	3	13	0	727
Total	8	1196	98	4	83	18	16	13	65	1200	83	0	146	15	52	2	2999
Grand Total	24	2719	216	5	177	34	23	17	116	2272	127	3	284	38	90	2	6147
Apprch %	0.8	91.7	7.3	0.2	70.5	13.5	9.2	6.8	4.6	90.2	5	0.1	68.6	9.2	21.7	0.5	
Total %	0.4	44.2	3.5	0.1	2.9	0.6	0.4	0.3	1.9	37	2.1	0	4.6	0.6	1.5	0	

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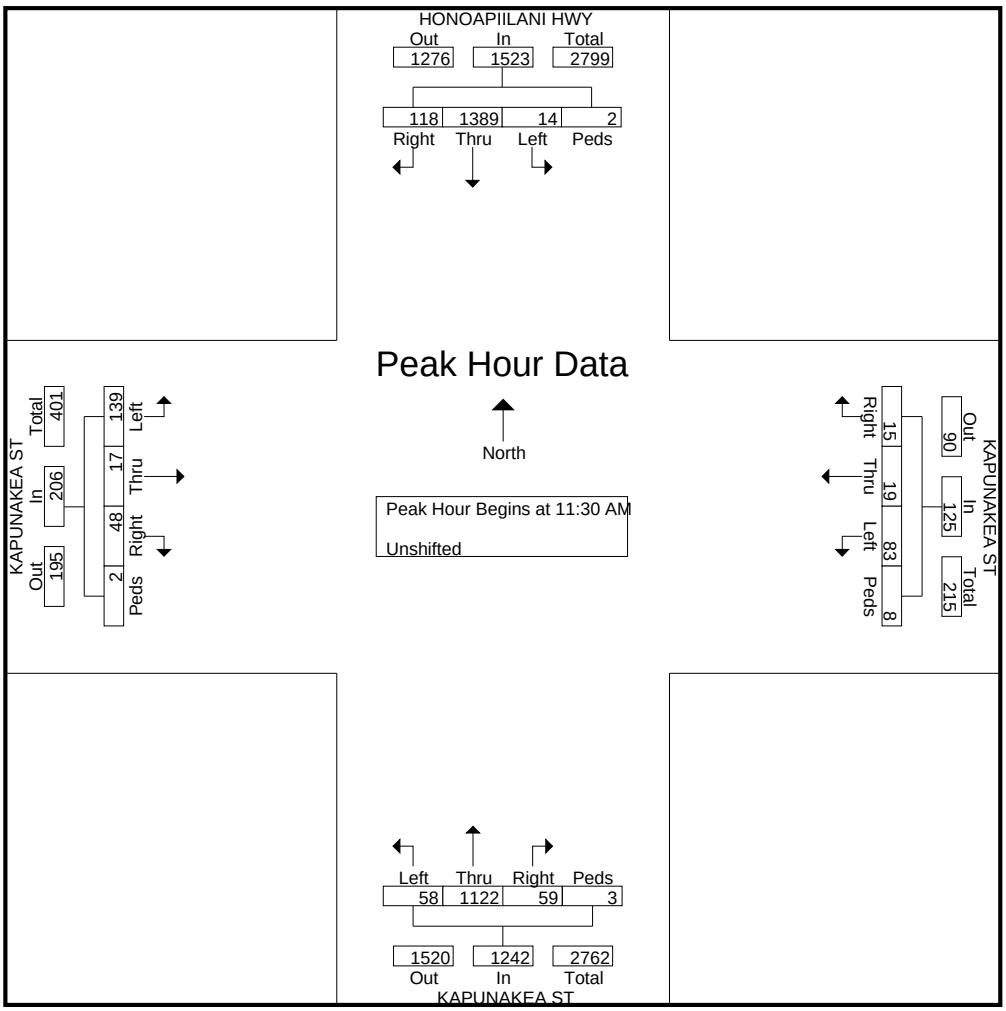
File Name : WE_Honoapiilani Hwy - Kapunakea St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 2

	HONOAPIILANI HWY Southbound					KAPUNAKEA ST Westbound					KAPUNAKEA ST Northbound					KAPUNAKEA ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	4	**413**	**35**	**1**	**453**	18	**5**	4	0	27	14	289	12	**2**	317	32	3	14	0	49	**846**
11:45 AM	**7**	338	28	0	373	21	5	1	2	29	11	255	7	1	274	37	**5**	7	0	49	725
12:00 PM	1	304	24	1	330	**22**	5	1	**6**	34	**21**	265	15	0	301	31	4	**15**	**2**	52	717
12:15 PM	2	334	31	0	367	22	4	**9**	0	**35**	12	**313**	**25**	0	**350**	**39**	5	12	0	**56**	808
Total Volume	14	1389	118	2	1523	83	19	15	8	125	58	1122	59	3	1242	139	17	48	2	206	3096
% App. Total	0.9	91.2	7.7	0.1		66.4	15.2	12	6.4		4.7	90.3	4.8	0.2		67.5	8.3	23.3	1		
PHF	.500	.841	.843	.500	.841	.943	.950	.417	.333	.893	.690	.896	.590	.375	.887	.891	.850	.800	.250	.920	.915



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File Name : WE_Honoapiilani Hwy - Keawe St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 1

Groups Printed- Unshifted

	HONOAPIILANI HWY Southbound				KEAWE ST Westbound				HONOAPIILANI HWY Northbound				KEAWE ST Eastbound				
Start Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Int. Total**
11:00 AM	76	248	25	5	44	21	93	1	12	182	50	1	8	24	27	0	817
11:15 AM	88	275	26	8	39	15	74	3	25	200	48	1	9	27	14	0	852
11:30 AM	92	270	28	3	39	16	91	5	32	186	47	2	17	31	30	0	889
11:45 AM	93	230	27	12	38	29	87	5	28	183	76	4	13	35	29	0	889
Total	349	1023	106	28	160	81	345	14	97	751	221	8	47	117	100	0	3447
12:00 PM	81	216	20	4	59	25	93	0	20	206	69	2	7	22	35	1	860
12:15 PM	80	236	14	8	55	23	110	1	28	204	64	4	14	24	30	1	896
12:30 PM	80	215	11	7	34	29	104	4	27	249	62	1	12	32	24	0	891
12:45 PM	64	203	14	3	55	25	102	0	19	212	65	1	11	18	17	2	811
Total	305	870	59	22	203	102	409	5	94	871	260	8	44	96	106	4	3458
Grand Total	654	1893	165	50	363	183	754	19	191	1622	481	16	91	213	206	4	6905
Apprch %	23.7	68.5	6	1.8	27.5	13.9	57.2	1.4	8.3	70.2	20.8	0.7	17.7	41.4	40.1	0.8	
Total %	9.5	27.4	2.4	0.7	5.3	2.7	10.9	0.3	2.8	23.5	7	0.2	1.3	3.1	3	0.1	

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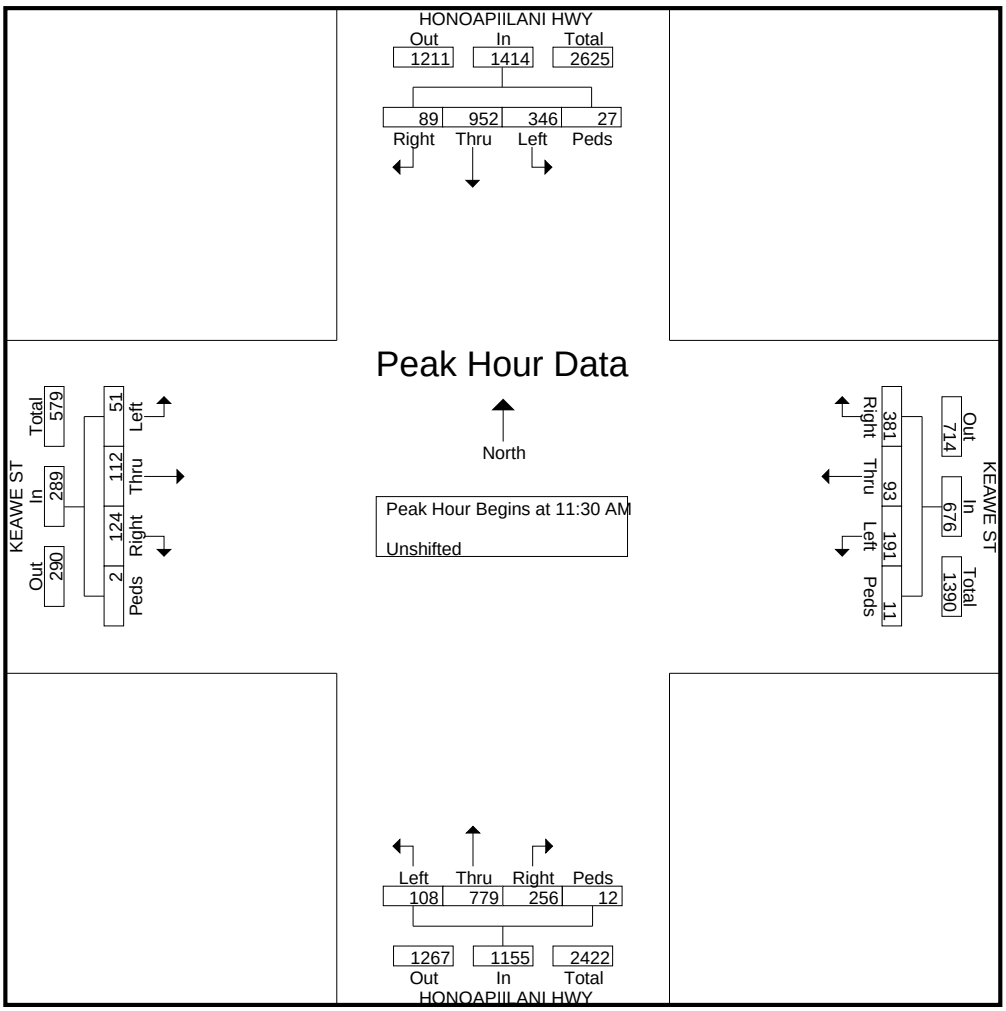
File Name : WE_Honoapiilani Hwy - Keawe St
Site Code : 00000000
Start Date : 1/21/2017
Page No : 2

	HONOAPIILANI HWY Southbound					KEAWE ST Westbound					HONOAPIILANI HWY Northbound					KEAWE ST Eastbound					
Start Time	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Left**	**Thru**	**Right**	**Peds**	**App. Total**	**Int. Total**
Peak Hour Analysis From 11:30 AM to 12:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	92	**270**	**28**	3	**393**	39	16	91	**5**	151	**32**	186	47	2	267	**17**	31	30	0	**78**	889
11:45 AM	**93**	230	27	**12**	362	38	**29**	87	5	159	28	183	**76**	**4**	291	13	**35**	29	0	77	889
12:00 PM	81	216	20	4	321	**59**	25	93	0	177	20	**206**	69	2	297	7	22	**35**	**1**	65	860
12:15 PM	80	236	14	8	338	55	23	**110**	1	**189**	28	204	64	4	**300**	14	24	30	1	69	**896**
Total Volume	346	952	89	27	1414	191	93	381	11	676	108	779	256	12	1155	51	112	124	2	289	3534
% App. Total	24.5	67.3	6.3	1.9		28.3	13.8	56.4	1.6		9.4	67.4	22.2	1		17.6	38.8	42.9	0.7		
PHF	.930	.881	.795	.563	.899	.809	.802	.866	.550	.894	.844	.945	.842	.750	.963	.750	.800	.886	.500	.926	.986



APPENDIX B

LEVEL OF SERVICE CRITERIA

APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 6th Edition)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6th Edition)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

03/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	37	271	52	28	10	202	204	84	5	117	30
Future Volume (veh/h)	48	37	271	52	28	10	202	204	84	5	117	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	40	37	57	30	8	220	222	77	5	127	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	136	226	240	87	16	298	569	197	7	495	420
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.17	0.43	0.43	0.00	0.26	0.26
Sat Flow, veh/h	750	944	1570	607	603	111	1781	1327	460	1781	1870	1585
Grp Volume(v), veh/h	92	0	37	95	0	0	220	0	299	5	127	8
Grp Sat Flow(s),veh/h/ln	1694	0	1570	1322	0	0	1781	0	1788	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.8	1.1	0.0	0.0	4.4	0.0	4.3	0.1	2.0	0.1
Cycle Q Clear(g_c), s	1.7	0.0	0.8	2.8	0.0	0.0	4.4	0.0	4.3	0.1	2.0	0.1
Prop In Lane	0.57		1.00	0.60		0.08	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	393	0	226	343	0	0	298	0	766	7	495	420
V/C Ratio(X)	0.23	0.00	0.16	0.28	0.00	0.00	0.74	0.00	0.39	0.69	0.26	0.02
Avail Cap(c_a), veh/h	1152	0	998	1066	0	0	1415	0	3740	708	3171	2687
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	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	14.2	15.0	0.0	0.0	14.9	0.0	7.4	18.8	10.9	10.3
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.4	0.0	0.0	3.5	0.0	0.7	77.4	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.3	0.7	0.0	0.0	1.7	0.0	1.2	0.2	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	14.5	15.4	0.0	0.0	18.5	0.0	8.1	96.2	11.5	10.3
LnGrp LOS	B	A	B	B	A	A	B	A	A	F	B	B
Approach Vol, veh/h		129			95			519			140	
Approach Delay, s/veh		14.8			15.4			12.5			14.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	22.2		10.4	11.3	16.0		10.4				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	6.3		3.7	6.4	4.0		4.8				
Green Ext Time (p_c), s	0.0	4.1		0.5	0.6	1.6		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	3	163	84	18	13	123	453	13	9	432	61
Future Volume (veh/h)	58	3	163	84	18	13	123	453	13	9	432	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	3	22	91	20	2	134	492	0	10	470	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	404	16	304	365	328	33	446	811		386	649	545
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.43	0.00	0.01	0.35	0.35
Sat Flow, veh/h	1245	80	1545	1356	1668	167	1781	1870	1585	1781	1870	1571
Grp Volume(v), veh/h	66	0	22	91	0	22	134	492	0	10	470	25
Grp Sat Flow(s),veh/h/ln	1325	0	1545	1356	0	1835	1781	1870	1585	1781	1870	1571
Q Serve(g_s), s	1.7	0.0	0.5	2.7	0.0	0.4	1.9	8.9	0.0	0.2	9.7	0.5
Cycle Q Clear(g_c), s	2.1	0.0	0.5	4.8	0.0	0.4	1.9	8.9	0.0	0.2	9.7	0.5
Prop In Lane	0.95		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	0	304	365	0	361	446	811		386	649	545
V/C Ratio(X)	0.16	0.00	0.07	0.25	0.00	0.06	0.30	0.61		0.03	0.72	0.05
Avail Cap(c_a), veh/h	926	0	874	865	0	1038	883	2158		976	2158	1813
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	14.5	17.2	0.0	14.4	8.4	9.6	0.0	9.5	12.6	9.6
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.0	0.1	0.4	0.7	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.8	0.0	0.2	0.6	2.7	0.0	0.1	3.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	14.6	17.5	0.0	14.5	8.8	10.4	0.0	9.6	14.1	9.6
LnGrp LOS	B	A	B	B	A	B	A	B		A	B	A
Approach Vol, veh/h		88			113			626	A		505	
Approach Delay, s/veh		15.2			16.9			10.0			13.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	25.2		13.7	9.2	21.3		13.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	10.9		4.1	3.9	11.7		6.8
Green Ext Time (p_c), s	0.0	3.4		0.4	0.2	3.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1	113	5	1	4	52	527	11	5	612	28
Future Volume (veh/h)	39	1	113	5	1	4	52	527	11	5	612	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1	13	5	1	1	57	573	7	5	665	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	14	182	10	176	148	72	901	763	7	833	700
Arrive On Green	0.04	0.12	0.12	0.01	0.09	0.09	0.04	0.48	0.48	0.00	0.45	0.45
Sat Flow, veh/h	1781	113	1474	1781	1870	1569	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	42	0	14	5	1	1	57	573	7	5	665	14
Grp Sat Flow(s),veh/h/ln	1781	0	1587	1781	1870	1569	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	1.2	0.0	0.4	0.1	0.0	0.0	1.6	11.9	0.1	0.1	15.9	0.3
Cycle Q Clear(g_c), s	1.2	0.0	0.4	0.1	0.0	0.0	1.6	11.9	0.1	0.1	15.9	0.3
Prop In Lane	1.00		0.93	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	0	197	10	176	148	72	901	763	7	833	700
V/C Ratio(X)	0.67	0.00	0.07	0.52	0.01	0.01	0.79	0.64	0.01	0.70	0.80	0.02
Avail Cap(c_a), veh/h	686	0	642	686	756	634	858	2341	1984	858	2341	1968
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	20.1	25.8	21.3	21.3	24.7	10.1	7.0	25.8	12.4	8.1
Incr Delay (d2), s/veh	11.9	0.0	0.2	38.0	0.0	0.0	17.2	0.8	0.0	79.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.1	0.2	0.0	0.0	1.0	3.8	0.0	0.2	5.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	20.3	63.8	21.3	21.3	41.9	10.8	7.0	105.2	14.2	8.1
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		56			7			637			684	
Approach Delay, s/veh		32.6			51.7			13.5			14.8	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	30.0	5.3	11.4	7.1	28.1	6.8	9.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.1	13.9	2.1	2.4	3.6	17.9	3.2	2.0
Green Ext Time (p_c), s	0.0	4.2	0.0	0.0	0.1	5.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	7	433	17	3	0	287	592	38	8	691	10
Future Volume (veh/h)	30	7	433	17	3	0	287	592	38	8	691	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	8	0	18	3	0	312	643	40	9	751	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	23		224	24	0	389	2074	129	13	1418	632
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.22	0.61	0.61	0.01	0.40	0.40
Sat Flow, veh/h	1188	326	1585	1204	340	0	1781	3398	211	1781	3554	1585
Grp Volume(v), veh/h	41	0	0	21	0	0	312	336	347	9	751	3
Grp Sat Flow(s),veh/h/ln	1514	0	1585	1544	0	0	1781	1777	1832	1781	1777	1585
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	8.0	4.4	4.4	0.2	7.8	0.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.5	0.0	0.0	8.0	4.4	4.4	0.2	7.8	0.1
Prop In Lane	0.80		1.00	0.86		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	274	0		280	0	0	389	1085	1119	13	1418	632
V/C Ratio(X)	0.15	0.00		0.07	0.00	0.00	0.80	0.31	0.31	0.72	0.53	0.00
Avail Cap(c_a), veh/h	782	0		931	0	0	2442	2731	2816	2442	5462	2436
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	0.0	0.0	20.6	0.0	0.0	17.8	4.5	4.5	23.9	11.0	8.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	1.5	0.3	0.3	24.2	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.2	0.0	0.0	2.9	1.0	1.0	0.2	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	0.0	0.0	20.7	0.0	0.0	19.3	4.8	4.8	48.1	11.7	8.7
LnGrp LOS	C	A		C	A	A	B	A	A	D	B	A
Approach Vol, veh/h		41	A		21			995			763	
Approach Delay, s/veh		21.1			20.7			9.4			12.1	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.5	25.2		8.4	4.3	35.4		8.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	10.0	9.8		2.5	2.2	6.4		3.1
Green Ext Time (p_c), s	0.7	9.5		0.0	0.0	7.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	8	1	6	64	974	16	14	1129	38
Future Volume (veh/h)	16	0	33	8	1	6	64	974	16	14	1129	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	0	1	9	1	2	70	1059	16	15	1227	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	0	54	156	3	7	88	2429	37	20	2272	1014
Arrive On Green	0.05	0.00	0.03	0.05	0.03	0.03	0.05	0.68	0.68	0.01	0.64	0.64
Sat Flow, veh/h	1530	0	1585	917	102	204	1781	3583	54	1781	3554	1585
Grp Volume(v), veh/h	17	0	1	12	0	0	70	525	550	15	1227	26
Grp Sat Flow(s),veh/h/ln	1530	0	1585	1223	0	0	1781	1777	1861	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	2.0	6.8	6.8	0.4	9.6	0.3
Cycle Q Clear(g_c), s	0.5	0.0	0.0	0.9	0.0	0.0	2.0	6.8	6.8	0.4	9.6	0.3
Prop In Lane	1.00		1.00	0.75		0.17	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	54	190	0	0	88	1204	1261	20	2272	1014
V/C Ratio(X)	0.08	0.00	0.02	0.06	0.00	0.00	0.79	0.44	0.44	0.75	0.54	0.03
Avail Cap(c_a), veh/h	820	0	721	810	0	0	740	3023	3166	388	5344	2383
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.6	23.9	0.0	0.0	23.8	3.7	3.7	24.9	5.0	3.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.0	5.9	0.5	0.5	18.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.0	0.0	0.9	1.2	1.3	0.3	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	23.6	23.9	0.0	0.0	29.6	4.3	4.2	43.2	5.4	3.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	D	A	A
Approach Vol, veh/h		18			12			1145			1268	
Approach Delay, s/veh		23.4			23.9			5.8			5.9	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	37.3		6.7	4.6	39.3		6.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	4.0	11.6		2.9	2.4	8.8		2.5
Green Ext Time (p_c), s	0.0	20.7		0.0	0.0	15.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	4	30	39	13	41	102	965	54	24	1060	37
Future Volume (veh/h)	45	4	30	39	13	41	102	965	54	24	1060	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	4	1	42	14	2	111	1049	46	26	1152	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	10	138	110	140	20	132	2822	1258	39	2635	1175
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.07	0.79	0.79	0.02	0.74	0.74
Sat Flow, veh/h	1193	120	1580	1408	1600	229	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	53	0	1	42	0	16	111	1049	46	26	1152	29
Grp Sat Flow(s),veh/h/ln	1312	0	1580	1408	0	1828	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.3	0.0	0.1	4.6	0.0	1.2	9.5	13.4	1.0	2.2	19.2	0.7
Cycle Q Clear(g_c), s	6.6	0.0	0.1	11.1	0.0	1.2	9.5	13.4	1.0	2.2	19.2	0.7
Prop In Lane	0.92		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	0	138	110	0	160	132	2822	1258	39	2635	1175
V/C Ratio(X)	0.33	0.00	0.01	0.38	0.00	0.10	0.84	0.37	0.04	0.67	0.44	0.02
Avail Cap(c_a), veh/h	255	0	245	205	0	283	184	2822	1258	184	2635	1175
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	1.00	1.00	0.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.0	0.0	64.6	72.8	0.0	65.1	70.8	4.7	3.4	75.3	7.7	5.3
Incr Delay (d2), s/veh	1.2	0.0	0.0	2.2	0.0	0.3	13.5	0.3	0.0	7.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.7	0.0	0.6	4.8	4.4	0.3	1.1	7.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	0.0	64.6	75.0	0.0	65.4	84.3	5.0	3.4	82.5	8.2	5.3
LnGrp LOS	E	A	E	E	A	E	F	A	A	F	A	A
Approach Vol, veh/h		54			58			1206			1207	
Approach Delay, s/veh		69.1			72.3			12.2			9.7	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.5	120.9		18.6	7.4	129.1		18.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	16.0	100.0		24.0	16.0	100.0		24.0
Max Q Clear Time (g_c+I1), s	11.5	21.2		13.1	4.2	15.4		8.6
Green Ext Time (p_c), s	0.1	19.3		0.1	0.0	16.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	6	214	10	10	8	410	1071	14	40	996	87
Future Volume (veh/h)	115	6	214	10	10	8	410	1071	14	40	996	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	7	84	11	11	4	446	1164	15	43	1083	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	12	827	68	68	25	619	1888	24	138	1505	669
Arrive On Green	0.13	0.13	0.12	0.09	0.09	0.06	0.18	0.53	0.50	0.08	0.42	0.42
Sat Flow, veh/h	1691	95	2731	752	752	273	3456	3593	46	1781	3554	1578
Grp Volume(v), veh/h	132	0	84	26	0	0	446	576	603	43	1083	49
Grp Sat Flow(s),veh/h/ln	1786	0	1366	1777	0	0	1728	1777	1862	1781	1777	1578
Q Serve(g_s), s	6.3	0.0	2.0	1.2	0.0	0.0	11.0	20.6	20.6	2.1	22.9	1.7
Cycle Q Clear(g_c), s	6.3	0.0	2.0	1.2	0.0	0.0	11.0	20.6	20.6	2.1	22.9	1.7
Prop In Lane	0.95		1.00	0.42		0.15	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	827	160	0	0	619	934	979	138	1505	669
V/C Ratio(X)	0.57	0.00	0.10	0.16	0.00	0.00	0.72	0.62	0.62	0.31	0.72	0.07
Avail Cap(c_a), veh/h	1104	0	2158	687	0	0	1640	4099	4295	413	7335	3258
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	23.0	38.3	0.0	0.0	35.0	15.1	15.1	39.5	21.6	15.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.5	0.0	0.0	0.6	0.9	0.9	0.5	0.9	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	2.8	0.0	0.7	0.6	0.0	0.0	4.5	7.8	8.1	0.9	9.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	23.0	38.8	0.0	0.0	35.6	16.0	16.0	40.0	22.6	15.6
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	B
Approach Vol, veh/h		216			26			1625			1175	
Approach Delay, s/veh		32.0			38.8			21.4			22.9	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.2	42.4		12.1	11.0	51.6		15.8				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	41.0	185.0		32.0	19.0	207.0		53.0				
Max Q Clear Time (g_c+I1), s	13.0	24.9		3.2	4.1	22.6		8.3				
Green Ext Time (p_c), s	1.2	11.5		0.1	0.0	11.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	4	56	0	39	3	1485	86	25	1190	4
Future Volume (veh/h)	2	1	4	56	0	39	3	1485	86	25	1190	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	1	1	61	0	1	3	1614	91	27	1293	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	46	34	172	0	134	7	2708	152	64	2993	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.00	0.79	0.78	0.04	0.82	0.82
Sat Flow, veh/h	637	535	391	1381	0	1543	1781	3420	192	1781	3634	11
Grp Volume(v), veh/h	4	0	0	61	0	1	3	834	871	27	632	665
Grp Sat Flow(s),veh/h/ln	1562	0	0	1381	0	1543	1781	1777	1835	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.5	0.0	0.1	0.2	25.8	26.4	2.1	13.6	13.6
Cycle Q Clear(g_c), s	0.3	0.0	0.0	5.8	0.0	0.1	0.2	25.8	26.4	2.1	13.6	13.6
Prop In Lane	0.50		0.25	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	174	0	0	172	0	134	7	1407	1453	64	1463	1539
V/C Ratio(X)	0.02	0.00	0.00	0.35	0.00	0.01	0.43	0.59	0.60	0.42	0.43	0.43
Avail Cap(c_a), veh/h	303	0	0	289	0	265	102	1407	1453	102	1463	1539
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	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	0.0	61.0	0.0	58.9	69.6	5.7	5.8	66.1	3.4	3.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	11.4	1.4	1.4	1.7	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	0.1	0.0	0.0	2.2	0.0	0.0	0.1	8.4	8.9	1.0	4.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	0.0	0.0	62.2	0.0	58.9	81.0	7.1	7.2	67.8	4.3	4.3
LnGrp LOS	E	A	A	E	A	E	F	A	A	E	A	A
Approach Vol, veh/h		4			62			1708			1324	
Approach Delay, s/veh		58.7			62.2			7.3			5.6	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	119.3		16.1	9.0	114.9		16.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.3	15.6		7.8	4.1	28.4		2.3
Green Ext Time (p_c), s	0.0	21.4		0.1	0.0	35.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	4	3	101	15	13	2	1471	16	6	1059	167
Future Volume (veh/h)	81	4	3	101	15	13	2	1471	16	6	1059	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	4	2	110	16	11	2	1599	17	7	1151	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	9	3	195	20	14	3	2838	30	9	2812	1253
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.79	0.78	0.01	0.79	0.79
Sat Flow, veh/h	1394	83	32	1313	191	131	1781	3602	38	1781	3554	1583
Grp Volume(v), veh/h	94	0	0	137	0	0	2	788	828	7	1151	130
Grp Sat Flow(s),veh/h/ln	1509	0	0	1635	0	0	1781	1777	1863	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0	0.1	20.3	20.4	0.5	12.0	2.2
Cycle Q Clear(g_c), s	6.9	0.0	0.0	9.4	0.0	0.0	0.1	20.3	20.4	0.5	12.0	2.2
Prop In Lane	0.94		0.02	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	220	0	0	229	0	0	3	1400	1468	9	2812	1253
V/C Ratio(X)	0.43	0.00	0.00	0.60	0.00	0.00	0.70	0.56	0.56	0.76	0.41	0.10
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1400	1468	119	2812	1253
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	0.78	0.78	0.78	0.91	0.91	0.91
Uniform Delay (d), s/veh	50.9	0.0	0.0	51.9	0.0	0.0	59.9	4.9	4.9	59.6	3.9	2.8
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.5	0.0	0.0	61.9	1.3	1.2	33.6	0.4	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	2.8	0.0	0.0	4.2	0.0	0.0	0.1	6.1	6.4	0.3	3.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	0.0	0.0	54.4	0.0	0.0	121.8	6.1	6.1	93.2	4.3	3.0
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		94			137			1618			1288	
Approach Delay, s/veh		52.3			54.4			6.3			4.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.2	99.0		16.8	4.6	98.5		16.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.1	14.0		11.4	2.5	22.4		8.9
Green Ext Time (p_c), s	0.0	26.7		0.4	0.0	33.1		0.3

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	27	19	141	23	29	23	1353	71	7	1103	62
Future Volume (veh/h)	95	27	19	141	23	29	23	1353	71	7	1103	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	29	3	153	25	4	25	1471	75	8	1199	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	66	313	202	314	50	31	2438	124	10	2388	129
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.19	0.04	1.00	1.00	0.01	0.70	0.69
Sat Flow, veh/h	1058	330	1564	1363	1570	251	1781	3441	175	1781	3428	186
Grp Volume(v), veh/h	132	0	3	153	0	29	25	757	789	8	621	643
Grp Sat Flow(s),veh/h/ln	1388	0	1564	1363	0	1821	1781	1777	1839	1781	1777	1837
Q Serve(g_s), s	10.7	0.0	0.2	15.5	0.0	1.8	2.0	0.0	0.0	0.6	22.8	22.9
Cycle Q Clear(g_c), s	12.5	0.0	0.2	28.0	0.0	1.8	2.0	0.0	0.0	0.6	22.8	22.9
Prop In Lane	0.78		1.00	1.00		0.14	1.00		0.10	1.00		0.10
Lane Grp Cap(c), veh/h	323	0	313	202	0	364	31	1259	1303	10	1238	1280
V/C Ratio(X)	0.41	0.00	0.01	0.76	0.00	0.08	0.80	0.60	0.61	0.78	0.50	0.50
Avail Cap(c_a), veh/h	323	0	313	202	0	364	140	1259	1303	140	1238	1280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.91	0.91	0.91
Uniform Delay (d), s/veh	50.3	0.0	44.9	62.4	0.0	45.6	67.3	0.0	0.0	69.5	9.9	9.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	15.1	0.0	0.1	1.6	0.2	0.2	34.5	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	4.3	0.0	0.1	6.4	0.0	0.8	0.9	0.1	0.1	0.4	8.8	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	0.0	44.9	77.5	0.0	45.7	68.9	0.2	0.2	104.0	11.2	11.2
LnGrp LOS	D	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		135			182			1571			1272	
Approach Delay, s/veh		51.0			72.4			1.3			11.8	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	101.5		32.0	4.8	103.2		32.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	88.0		27.0	11.0	88.0		27.0
Max Q Clear Time (g_c+I1), s	4.0	24.9		30.0	2.6	2.0		14.5
Green Ext Time (p_c), s	0.0	19.6		0.0	0.0	32.0		0.3

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	83	32	101	64	985	22	585	156	493	924	26
Future Volume (veh/h)	7	83	32	101	64	985	22	585	156	493	924	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	90	3	110	70	0	24	636	100	536	1004	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	35	177	155	248	379		30	1011	853	591	2455	66
Arrive On Green	0.10	0.10	0.10	0.07	0.20	0.00	0.02	0.54	0.54	0.34	1.00	1.00
Sat Flow, veh/h	75	1762	1542	1781	1870	1585	1781	1870	1579	3456	3535	95
Grp Volume(v), veh/h	98	0	3	110	70	0	24	636	100	536	505	526
Grp Sat Flow(s),veh/h/ln	1837	0	1542	1781	1870	1585	1781	1870	1579	1728	1777	1853
Q Serve(g_s), s	0.1	0.0	0.2	7.5	4.3	0.0	1.9	33.2	4.3	20.7	0.0	0.0
Cycle Q Clear(g_c), s	7.0	0.0	0.2	7.5	4.3	0.0	1.9	33.2	4.3	20.7	0.0	0.0
Prop In Lane	0.08		1.00	1.00		1.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	212	0	155	248	379		30	1011	853	591	1234	1287
V/C Ratio(X)	0.46	0.00	0.02	0.44	0.18		0.80	0.63	0.12	0.91	0.41	0.41
Avail Cap(c_a), veh/h	328	0	253	256	508		178	1011	853	839	1234	1287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.83	0.83	0.83
Uniform Delay (d), s/veh	59.8	0.0	56.8	49.4	46.2	0.0	68.6	22.4	15.8	45.0	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	1.2	0.2	0.0	13.2	2.4	0.2	7.1	0.8	0.8
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	3.4	0.0	0.1	3.5	2.1	0.0	1.0	14.9	1.6	8.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	0.0	56.8	50.7	46.4	0.0	81.8	24.8	16.0	52.1	0.8	0.8
LnGrp LOS	E	A	E	D	D		F	C	B	D	A	A
Approach Vol, veh/h		101			180	A		760			1567	
Approach Delay, s/veh		61.2			49.0			25.4			18.3	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	101.2	14.4	18.0	27.9	79.7		32.4
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	34.0	55.0		37.0
Max Q Clear Time (g_c+I1), s	3.9	2.0	9.5	9.0	22.7	35.2		6.3
Green Ext Time (p_c), s	0.0	13.9	0.0	0.2	1.2	6.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

03/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	8	345	36	14	3	352	194	22	2	252	72
Future Volume (veh/h)	53	8	345	36	14	3	352	194	22	2	252	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	9	23	39	15	1	383	211	21	2	274	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	35	179	222	64	3	478	876	87	4	480	407
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.27	0.52	0.52	0.00	0.26	0.26
Sat Flow, veh/h	1280	314	1585	736	570	24	1781	1674	167	1781	1870	1585
Grp Volume(v), veh/h	67	0	23	55	0	0	383	0	232	2	274	19
Grp Sat Flow(s),veh/h/ln	1594	0	1585	1331	0	0	1781	0	1840	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	0.6	0.5	0.0	0.0	8.9	0.0	3.0	0.0	5.6	0.4
Cycle Q Clear(g_c), s	1.5	0.0	0.6	2.1	0.0	0.0	8.9	0.0	3.0	0.0	5.6	0.4
Prop In Lane	0.87		1.00	0.71		0.02	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	332	0	179	289	0	0	478	0	963	4	480	407
V/C Ratio(X)	0.20	0.00	0.13	0.19	0.00	0.00	0.80	0.00	0.24	0.50	0.57	0.05
Avail Cap(c_a), veh/h	954	0	861	930	0	0	1210	0	3291	605	2709	2296
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	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	17.6	18.2	0.0	0.0	15.1	0.0	5.7	22.0	14.3	12.4
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.3	0.0	0.0	3.2	0.0	0.3	72.1	2.3	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	0.6	0.0	0.2	0.5	0.0	0.0	3.3	0.0	0.8	0.1	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	18.0	18.5	0.0	0.0	18.2	0.0	6.0	94.1	16.6	12.5
LnGrp LOS	B	A	B	B	A	A	B	A	A	F	B	B
Approach Vol, veh/h		90			55			615			295	
Approach Delay, s/veh		18.2			18.5			13.6			16.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	29.1		10.0	16.9	17.3		10.0				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.0	5.0		3.5	10.9	7.6		4.1				
Green Ext Time (p_c), s	0.0	3.0		0.3	1.1	3.7		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	18	135	41	14	7	179	493	40	21	496	75
Future Volume (veh/h)	68	18	135	41	14	7	179	493	40	21	496	75
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	20	12	45	15	1	195	536	0	23	539	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	285	50	193	259	212	14	482	902		438	739	623
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.48	0.00	0.02	0.40	0.40
Sat Flow, veh/h	1090	412	1585	1377	1734	116	1781	1870	1585	1781	1870	1577
Grp Volume(v), veh/h	94	0	12	45	0	16	195	536	0	23	539	32
Grp Sat Flow(s),veh/h/ln	1501	0	1585	1377	0	1850	1781	1870	1585	1781	1870	1577
Q Serve(g_s), s	2.1	0.0	0.3	1.3	0.0	0.3	2.5	8.8	0.0	0.3	10.3	0.5
Cycle Q Clear(g_c), s	2.4	0.0	0.3	3.8	0.0	0.3	2.5	8.8	0.0	0.3	10.3	0.5
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	0	193	259	0	226	482	902		438	739	623
V/C Ratio(X)	0.28	0.00	0.06	0.17	0.00	0.07	0.40	0.59		0.05	0.73	0.05
Avail Cap(c_a), veh/h	1029	0	938	906	0	1095	929	2258		1041	2258	1904
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	16.4	19.1	0.0	16.4	7.4	7.9	0.0	7.7	10.9	7.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.3	0.0	0.1	0.5	0.6	0.0	0.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.1	0.4	0.0	0.1	0.6	2.4	0.0	0.1	3.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	0.0	16.5	19.4	0.0	16.6	8.0	8.6	0.0	7.8	12.3	7.9
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		106			61			731	A		594	
Approach Delay, s/veh		17.6			18.7			8.4			11.8	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	26.4		10.2	9.4	22.7		10.2
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	10.8		4.4	4.5	12.3		5.8
Green Ext Time (p_c), s	0.0	3.8		0.5	0.4	3.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	3	88	9	5	6	151	703	7	1	670	70
Future Volume (veh/h)	53	3	88	9	5	6	151	703	7	1	670	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	3	7	10	5	2	164	764	5	1	728	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	64	148	18	184	152	210	1076	912	3	857	725
Arrive On Green	0.04	0.13	0.13	0.01	0.10	0.10	0.12	0.58	0.58	0.00	0.46	0.46
Sat Flow, veh/h	1781	489	1142	1781	1870	1546	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	58	0	10	10	5	2	164	764	5	1	728	35
Grp Sat Flow(s),veh/h/ln	1781	0	1631	1781	1870	1546	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	2.3	0.0	0.4	0.4	0.2	0.1	6.3	20.7	0.1	0.0	24.4	0.9
Cycle Q Clear(g_c), s	2.3	0.0	0.4	0.4	0.2	0.1	6.3	20.7	0.1	0.0	24.4	0.9
Prop In Lane	1.00		0.70	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	75	0	212	18	184	152	210	1076	912	3	857	725
V/C Ratio(X)	0.78	0.00	0.05	0.56	0.03	0.01	0.78	0.71	0.01	0.40	0.85	0.05
Avail Cap(c_a), veh/h	505	0	485	505	557	460	631	1723	1460	631	1723	1457
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	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	0.0	26.9	34.8	28.8	28.7	30.2	10.7	6.4	35.2	17.0	10.6
Incr Delay (d2), s/veh	15.5	0.0	0.1	24.2	0.1	0.0	6.2	0.9	0.0	78.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.1	0.3	0.1	0.0	2.9	7.0	0.0	0.1	9.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	26.9	59.0	28.8	28.8	36.4	11.6	6.4	113.6	19.4	10.6
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	B
Approach Vol, veh/h		68			17			933			764	
Approach Delay, s/veh		45.8			46.5			15.9			19.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	45.6	5.7	14.2	13.3	37.3	8.0	11.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.0	22.7	2.4	2.4	8.3	26.4	4.3	2.2
Green Ext Time (p_c), s	0.0	6.4	0.0	0.0	0.4	6.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	4	546	75	10	7	548	757	6	1	708	16
Future Volume (veh/h)	70	4	546	75	10	7	548	757	6	1	708	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	4	0	82	11	6	596	823	7	1	770	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	7		207	16	9	652	2550	22	2	1211	540
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.37	0.71	0.71	0.00	0.34	0.34
Sat Flow, veh/h	1529	81	1585	1322	177	97	1781	3611	31	1781	3554	1585
Grp Volume(v), veh/h	80	0	0	99	0	0	596	405	425	1	770	4
Grp Sat Flow(s),veh/h/ln	1610	0	1585	1596	0	0	1781	1777	1865	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	0.0	23.4	6.4	6.4	0.0	13.4	0.1
Cycle Q Clear(g_c), s	3.1	0.0	0.0	4.0	0.0	0.0	23.4	6.4	6.4	0.0	13.4	0.1
Prop In Lane	0.95		1.00	0.83		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	261	0		253	0	0	652	1255	1317	2	1211	540
V/C Ratio(X)	0.31	0.00		0.39	0.00	0.00	0.91	0.32	0.32	0.41	0.64	0.01
Avail Cap(c_a), veh/h	519	0		619	0	0	1720	1667	1750	1720	3335	1487
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	0.0	31.9	0.0	0.0	22.2	4.1	4.1	36.7	20.4	16.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.0	0.0	0.0	2.2	0.3	0.3	36.8	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	1.7	0.0	0.0	9.2	1.6	1.7	0.0	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	0.0	0.0	32.9	0.0	0.0	24.4	4.4	4.4	73.5	21.6	16.0
LnGrp LOS	C	A		C	A	A	C	A	A	E	C	B
Approach Vol, veh/h		80	A		99			1426			775	
Approach Delay, s/veh		32.1			32.9			12.8			21.6	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.9	31.1		11.5	4.1	57.9		11.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	25.4	15.4		6.0	2.0	8.4		5.1
Green Ext Time (p_c), s	1.5	9.6		0.3	0.0	9.7		0.2

Intersection Summary	
HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1	63	14	0	4	68	1272	10	8	1332	33
Future Volume (veh/h)	20	1	63	14	0	4	68	1272	10	8	1332	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	1	2	15	0	1	74	1383	11	9	1448	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	9	166	225	3	9	95	2483	20	12	2276	1015
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.05	0.69	0.69	0.01	0.64	0.64
Sat Flow, veh/h	1360	81	1520	1165	26	79	1781	3613	29	1781	3554	1585
Grp Volume(v), veh/h	23	0	2	16	0	0	74	680	714	9	1448	23
Grp Sat Flow(s),veh/h/ln	1441	0	1520	1271	0	0	1781	1777	1865	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.1	0.6	0.0	0.0	2.9	13.8	13.8	0.4	17.6	0.4
Cycle Q Clear(g_c), s	0.8	0.0	0.1	1.4	0.0	0.0	2.9	13.8	13.8	0.4	17.6	0.4
Prop In Lane	0.96		1.00	0.94		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	277	0	166	255	0	0	95	1221	1282	12	2276	1015
V/C Ratio(X)	0.08	0.00	0.01	0.06	0.00	0.00	0.78	0.56	0.56	0.74	0.64	0.02
Avail Cap(c_a), veh/h	572	0	490	548	0	0	525	2143	2250	275	3788	1690
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	28.3	28.6	0.0	0.0	33.3	5.6	5.6	35.3	7.8	4.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.9	0.8	26.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.2	0.0	0.0	1.3	3.7	3.8	0.2	5.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	28.3	28.7	0.0	0.0	38.3	6.5	6.5	62.1	8.4	4.7
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		25			16			1468			1480	
Approach Delay, s/veh		28.3			28.7			8.1			8.7	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	50.7		12.8	4.5	54.0		12.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	4.9	19.6		3.4	2.4	15.8		2.8
Green Ext Time (p_c), s	0.0	26.0		0.0	0.0	24.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	5	164	63	4	40	121	1208	55	29	1332	83
Future Volume (veh/h)	64	5	164	63	4	40	121	1208	55	29	1332	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	5	3	68	4	1	132	1313	45	32	1448	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	13	186	139	172	43	153	2724	1214	42	2502	1116
Arrive On Green	0.13	0.12	0.12	0.12	0.12	0.12	0.09	0.77	0.77	0.02	0.70	0.70
Sat Flow, veh/h	1295	105	1561	1391	1439	360	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	75	0	3	68	0	5	132	1313	45	32	1448	65
Grp Sat Flow(s),veh/h/ln	1401	0	1561	1391	0	1799	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	7.9	0.0	0.3	7.9	0.0	0.4	12.1	22.6	1.1	2.9	33.6	2.1
Cycle Q Clear(g_c), s	8.3	0.0	0.3	16.2	0.0	0.4	12.1	22.6	1.1	2.9	33.6	2.1
Prop In Lane	0.93		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	186	139	0	214	153	2724	1214	42	2502	1116
V/C Ratio(X)	0.34	0.00	0.02	0.49	0.00	0.02	0.86	0.48	0.04	0.77	0.58	0.06
Avail Cap(c_a), veh/h	255	0	227	176	0	262	227	2724	1214	108	2502	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	1.00	1.00	0.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	0.0	64.1	75.2	0.0	64.2	74.5	7.1	4.6	80.1	12.2	7.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	2.6	0.0	0.0	11.3	0.5	0.0	10.6	1.0	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	3.0	0.0	0.1	2.9	0.0	0.2	6.0	8.1	0.4	1.5	13.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	0.0	64.2	77.8	0.0	64.2	85.8	7.6	4.7	90.7	13.2	7.6
LnGrp LOS	E	A	E	E	A	E	F	A	A	F	B	A
Approach Vol, veh/h		78			73			1490			1545	
Approach Delay, s/veh		68.1			76.9			14.4			14.6	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.2	122.2		24.7	7.8	132.5		24.7
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	105.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.1	35.6		18.2	4.9	24.6		10.3
Green Ext Time (p_c), s	0.1	29.2		0.1	0.0	25.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	2	597	13	0	4	374	1240	6	48	1416	120
Future Volume (veh/h)	265	2	597	13	0	4	374	1240	6	48	1416	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	288	2	453	14	0	1	407	1348	7	52	1539	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2	929	78	0	6	494	2222	12	92	1853	826
Arrive On Green	0.20	0.20	0.19	0.05	0.00	0.03	0.14	0.61	0.60	0.05	0.52	0.52
Sat Flow, veh/h	1770	12	2761	1644	0	117	3456	3625	19	1781	3554	1585
Grp Volume(v), veh/h	290	0	453	15	0	0	407	661	694	52	1539	94
Grp Sat Flow(s),veh/h/ln	1782	0	1380	1761	0	0	1728	1777	1867	1781	1777	1585
Q Serve(g_s), s	27.6	0.0	23.1	1.4	0.0	0.0	20.2	40.5	40.5	5.0	64.6	5.3
Cycle Q Clear(g_c), s	27.6	0.0	23.1	1.4	0.0	0.0	20.2	40.5	40.5	5.0	64.6	5.3
Prop In Lane	0.99		1.00	0.93		0.07	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	352	0	929	84	0	0	494	1089	1144	92	1853	826
V/C Ratio(X)	0.82	0.00	0.49	0.18	0.00	0.00	0.82	0.61	0.61	0.57	0.83	0.11
Avail Cap(c_a), veh/h	565	0	1258	349	0	0	841	2102	2209	212	3762	1678
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.9	0.0	46.7	80.9	0.0	0.0	73.5	21.1	21.1	81.9	35.7	21.5
Incr Delay (d2), s/veh	2.4	0.0	0.1	0.4	0.0	0.0	1.3	0.8	0.7	2.0	1.4	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	12.9	0.0	8.1	0.7	0.0	0.0	9.1	16.9	17.8	2.4	28.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	0.0	46.9	81.3	0.0	0.0	74.9	21.9	21.8	83.9	37.1	21.6
LnGrp LOS	E	A	D	F	A	A	E	C	C	F	D	C
Approach Vol, veh/h		743			15			1762			1685	
Approach Delay, s/veh		56.1			81.3			34.1			37.7	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	39.3	96.1		12.4	13.1	112.2		38.9
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	41.0	185.0		32.0	19.0	207.0		53.0
Max Q Clear Time (g_c+I1), s	22.2	66.6		3.4	7.0	42.5		29.6
Green Ext Time (p_c), s	1.0	23.5		0.0	0.0	14.4		2.3

Intersection Summary	
HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	4	85	2	53	9	1563	88	77	1953	4
Future Volume (veh/h)	7	0	4	85	2	53	9	1563	88	77	1953	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	0	1	92	2	3	10	1699	94	84	2123	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	3	13	175	57	85	21	2620	144	110	2967	6
Arrive On Green	0.08	0.00	0.08	0.08	0.08	0.08	0.01	0.76	0.76	0.06	0.82	0.81
Sat Flow, veh/h	1229	36	158	1416	675	1013	1781	3425	188	1781	3639	7
Grp Volume(v), veh/h	9	0	0	92	0	5	10	876	917	84	1036	1091
Grp Sat Flow(s),veh/h/ln	1423	0	0	1416	0	1688	1781	1777	1836	1781	1777	1869
Q Serve(g_s), s	0.5	0.0	0.0	7.5	0.0	0.4	0.8	30.9	31.7	6.3	34.9	35.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	8.4	0.0	0.4	0.8	30.9	31.7	6.3	34.9	35.0
Prop In Lane	0.89		0.11	1.00		0.60	1.00		0.10	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	0	175	0	142	21	1359	1405	110	1449	1524
V/C Ratio(X)	0.05	0.00	0.00	0.53	0.00	0.04	0.48	0.64	0.65	0.76	0.72	0.72
Avail Cap(c_a), veh/h	304	0	0	307	0	300	145	1359	1405	251	1449	1524
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	0.73	0.73	0.73	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	0.0	0.0	60.3	0.0	57.0	66.3	7.4	7.5	62.3	5.5	5.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	2.4	0.0	0.1	4.7	1.7	1.7	4.0	3.1	2.9
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	0.3	0.0	0.0	3.2	0.0	0.2	0.4	10.5	11.2	3.0	10.8	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	0.0	0.0	62.8	0.0	57.1	71.0	9.1	9.2	66.4	8.6	8.4
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		9			97			1803			2211	
Approach Delay, s/veh		57.2			62.5			9.5			10.7	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	114.1		15.4	12.4	107.3		15.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	37.0		10.4	8.3	33.7		2.8
Green Ext Time (p_c), s	0.0	40.9		0.2	0.1	30.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	11	8	59	5	7	5	1504	20	2	1646	293
Future Volume (veh/h)	160	11	8	59	5	7	5	1504	20	2	1646	293
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	12	7	64	5	5	5	1635	21	2	1789	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	14	8	261	20	17	7	2732	35	3	2694	1202
Arrive On Green	0.15	0.15	0.14	0.15	0.15	0.14	0.01	1.00	1.00	0.00	0.76	0.76
Sat Flow, veh/h	1360	94	55	1413	137	112	1781	3593	46	1781	3554	1585
Grp Volume(v), veh/h	193	0	0	74	0	0	5	808	848	2	1789	242
Grp Sat Flow(s),veh/h/ln	1509	0	0	1663	0	0	1781	1777	1862	1781	1777	1585
Q Serve(g_s), s	11.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.2	33.1	5.9
Cycle Q Clear(g_c), s	16.6	0.0	0.0	5.2	0.0	0.0	0.4	0.0	0.0	0.2	33.1	5.9
Prop In Lane	0.90		0.04	0.86		0.07	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	276	0	0	298	0	0	7	1351	1416	3	2694	1202
V/C Ratio(X)	0.70	0.00	0.00	0.25	0.00	0.00	0.74	0.60	0.60	0.70	0.66	0.20
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1351	1416	106	2694	1202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.73	0.73	0.73	0.60	0.60	0.60
Uniform Delay (d), s/veh	55.6	0.0	0.0	51.1	0.0	0.0	66.9	0.0	0.0	67.4	8.0	4.7
Incr Delay (d2), s/veh	3.4	0.0	0.0	0.4	0.0	0.0	34.1	1.4	1.4	51.1	0.8	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	0.0	0.0	2.3	0.0	0.0	0.2	0.5	0.5	0.1	11.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	0.0	0.0	51.5	0.0	0.0	101.1	1.4	1.4	118.5	8.7	4.9
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		193			74			1661			2033	
Approach Delay, s/veh		59.0			51.5			1.7			8.4	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	106.3		24.1	4.2	106.6		24.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	35.1		7.2	2.2	2.0		18.6
Green Ext Time (p_c), s	0.0	41.6		0.2	0.0	50.7		0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	35	44	91	23	17	51	1352	103	23	1596	136
Future Volume (veh/h)	138	35	44	91	23	17	51	1352	103	23	1596	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	150	38	5	99	25	2	55	1470	109	25	1735	144
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	59	333	165	366	29	70	2277	168	31	2184	179
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.08	1.00	1.00	0.02	0.66	0.65
Sat Flow, veh/h	1082	274	1550	1344	1706	136	1781	3355	248	1781	3325	273
Grp Volume(v), veh/h	188	0	5	99	0	27	55	775	804	25	917	962
Grp Sat Flow(s),veh/h/ln	1357	0	1550	1344	0	1842	1781	1777	1825	1781	1777	1820
Q Serve(g_s), s	16.2	0.0	0.3	9.8	0.0	1.6	4.1	0.0	0.0	1.9	49.4	52.0
Cycle Q Clear(g_c), s	17.8	0.0	0.3	27.6	0.0	1.6	4.1	0.0	0.0	1.9	49.4	52.0
Prop In Lane	0.80		1.00	1.00		0.07	1.00		0.14	1.00		0.15
Lane Grp Cap(c), veh/h	339	0	333	165	0	396	70	1206	1239	31	1167	1196
V/C Ratio(X)	0.55	0.00	0.02	0.60	0.00	0.07	0.78	0.64	0.65	0.80	0.79	0.80
Avail Cap(c_a), veh/h	339	0	333	165	0	396	106	1206	1239	106	1167	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.67	0.67	0.67
Uniform Delay (d), s/veh	49.3	0.0	41.7	61.3	0.0	42.3	61.6	0.0	0.0	66.1	16.4	16.9
Incr Delay (d2), s/veh	2.0	0.0	0.0	6.0	0.0	0.1	1.0	0.2	0.2	11.0	3.7	4.0
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	6.1	0.0	0.1	3.7	0.0	0.7	1.8	0.1	0.1	1.0	19.7	21.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	41.8	67.2	0.0	42.3	62.6	0.2	0.2	77.1	20.1	20.9
LnGrp LOS	D	A	D	E	A	D	E	A	A	E	C	C
Approach Vol, veh/h		193			126			1634			1904	
Approach Delay, s/veh		51.0			61.9			2.3			21.2	
Approach LOS		D			E			A			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	92.7		33.0	6.4	95.6		33.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	85.0		28.0	8.0	85.0		28.0
Max Q Clear Time (g_c+I1), s	6.1	54.0		29.6	3.9	2.0		19.8
Green Ext Time (p_c), s	0.0	24.5		0.0	0.0	33.3		0.4

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	85	84	180	82	896	50	597	205	555	978	36
Future Volume (veh/h)	30	85	84	180	82	896	50	597	205	555	978	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.98		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	92	11	196	89	0	54	649	145	603	1063	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	179	199	292	466		70	884	744	654	2180	76
Arrive On Green	0.13	0.13	0.13	0.09	0.25	0.00	0.04	0.47	0.47	0.38	1.00	1.00
Sat Flow, veh/h	340	1366	1520	1781	1870	1585	1781	1870	1575	3456	3503	122
Grp Volume(v), veh/h	125	0	11	196	89	0	54	649	145	603	539	561
Grp Sat Flow(s),veh/h/ln	1706	0	1520	1781	1870	1585	1781	1870	1575	1728	1777	1848
Q Serve(g_s), s	5.1	0.0	0.9	12.0	5.1	0.0	4.1	37.8	7.2	22.5	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	0.9	12.0	5.1	0.0	4.1	37.8	7.2	22.5	0.0	0.0
Prop In Lane	0.26		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	257	0	199	292	466		70	884	744	654	1106	1150
V/C Ratio(X)	0.49	0.00	0.06	0.67	0.19		0.77	0.73	0.19	0.92	0.49	0.49
Avail Cap(c_a), veh/h	347	0	281	292	568		277	884	744	794	1106	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.56	0.56	0.56
Uniform Delay (d), s/veh	54.8	0.0	51.4	45.6	39.9	0.0	64.2	28.8	20.7	41.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.1	5.8	0.2	0.0	5.8	4.8	0.5	8.2	0.9	0.8
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	4.1	0.0	0.3	6.2	2.4	0.0	1.9	17.8	2.8	8.6	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	51.5	51.4	40.1	0.0	70.0	33.5	21.2	49.2	0.9	0.8
LnGrp LOS	E	A	D	D	D		E	C	C	D	A	A
Approach Vol, veh/h		136			285	A		848			1703	
Approach Delay, s/veh		55.8			47.9			33.8			18.0	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	88.0	16.0	21.7	29.6	67.8		37.7
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	60.0	11.0	24.0	31.0	50.0		40.0
Max Q Clear Time (g_c+I1), s	6.1	2.0	14.0	11.0	24.5	39.8		7.1
Green Ext Time (p_c), s	0.1	15.1	0.0	0.4	1.1	4.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

03/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	22	305	25	28	12	250	276	19	10	251	87
Future Volume (veh/h)	39	22	305	25	28	12	250	276	19	10	251	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	24	30	27	30	6	272	300	19	11	273	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	101	195	190	123	19	360	814	52	15	513	434
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.20	0.47	0.47	0.01	0.27	0.27
Sat Flow, veh/h	780	816	1569	495	992	156	1781	1740	110	1781	1870	1582
Grp Volume(v), veh/h	66	0	30	63	0	0	272	0	319	11	273	29
Grp Sat Flow(s),veh/h/ln	1595	0	1569	1643	0	0	1781	0	1850	1781	1870	1582
Q Serve(g_s), s	0.1	0.0	0.7	0.0	0.0	0.0	5.8	0.0	4.4	0.2	5.0	0.5
Cycle Q Clear(g_c), s	1.3	0.0	0.7	1.2	0.0	0.0	5.8	0.0	4.4	0.2	5.0	0.5
Prop In Lane	0.64		1.00	0.43		0.10	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	345	0	195	332	0	0	360	0	866	15	513	434
V/C Ratio(X)	0.19	0.00	0.15	0.19	0.00	0.00	0.75	0.00	0.37	0.72	0.53	0.07
Avail Cap(c_a), veh/h	1061	0	940	1079	0	0	1333	0	3647	667	2987	2527
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	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	15.7	15.9	0.0	0.0	15.1	0.0	6.9	19.8	12.4	10.8
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.3	0.0	0.0	3.2	0.0	0.6	46.7	1.8	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	0.5	0.0	0.2	0.5	0.0	0.0	2.2	0.0	1.2	0.3	1.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	0.0	16.0	16.2	0.0	0.0	18.3	0.0	7.4	66.5	14.2	10.9
LnGrp LOS	B	A	B	B	A	A	B	A	A	E	B	B
Approach Vol, veh/h		96			63			591			313	
Approach Delay, s/veh		16.1			16.2			12.4			15.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	24.8		10.0	13.1	17.0		10.0
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.2	6.4		3.3	7.8	7.0		3.2
Green Ext Time (p_c), s	0.0	4.3		0.4	0.8	3.8		0.3

Intersection Summary			
HCM 6th Ctrl Delay			13.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	16	176	35	15	5	118	375	22	12	414	55
Future Volume (veh/h)	52	16	176	35	15	5	118	375	22	12	414	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	17	21	38	16	1	128	408	0	13	450	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	75	239	341	267	17	458	779		454	655	553
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.42	0.00	0.01	0.35	0.35
Sat Flow, veh/h	1014	491	1560	1351	1740	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	74	0	21	38	0	17	128	408	0	13	450	22
Grp Sat Flow(s),veh/h/ln	1504	0	1560	1351	0	1849	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	1.0	0.0	0.4	1.0	0.0	0.3	1.7	6.2	0.0	0.2	7.8	0.3
Cycle Q Clear(g_c), s	1.5	0.0	0.4	2.5	0.0	0.3	1.7	6.2	0.0	0.2	7.8	0.3
Prop In Lane	0.77		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	0	239	341	0	283	458	779		454	655	553
V/C Ratio(X)	0.19	0.00	0.09	0.11	0.00	0.06	0.28	0.52		0.03	0.69	0.04
Avail Cap(c_a), veh/h	1135	0	1024	1022	0	1214	1024	2506		1138	2506	2114
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	13.8	15.4	0.0	13.8	7.7	8.3	0.0	8.0	10.6	8.1
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.1	0.0	0.1	0.3	0.5	0.0	0.0	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.1	0.3	0.0	0.1	0.4	1.7	0.0	0.1	2.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	14.0	15.6	0.0	13.9	8.0	8.8	0.0	8.0	11.9	8.2
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		95			55			536	A		485	
Approach Delay, s/veh		14.4			15.0			8.6			11.6	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	21.8		10.8	7.9	19.3		10.8
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	8.2		3.5	3.7	9.8		4.5
Green Ext Time (p_c), s	0.0	2.7		0.4	0.2	3.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	5	74	10	2	10	70	462	11	4	581	45
Future Volume (veh/h)	37	5	74	10	2	10	70	462	11	4	581	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	5	5	11	2	1	76	502	7	4	632	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	94	94	20	163	138	99	898	761	6	801	678
Arrive On Green	0.03	0.11	0.11	0.01	0.09	0.09	0.06	0.48	0.48	0.00	0.43	0.43
Sat Flow, veh/h	1781	854	854	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	40	0	10	11	2	1	76	502	7	4	632	23
Grp Sat Flow(s),veh/h/ln	1781	0	1709	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.1	0.0	0.3	0.3	0.0	0.0	2.1	9.6	0.1	0.1	14.8	0.4
Cycle Q Clear(g_c), s	1.1	0.0	0.3	0.3	0.0	0.0	2.1	9.6	0.1	0.1	14.8	0.4
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	61	0	187	20	163	138	99	898	761	6	801	678
V/C Ratio(X)	0.66	0.00	0.05	0.55	0.01	0.01	0.77	0.56	0.01	0.69	0.79	0.03
Avail Cap(c_a), veh/h	705	0	710	705	777	658	881	2404	2038	881	2404	2035
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	20.2	24.9	21.1	21.1	23.6	9.3	6.9	25.2	12.5	8.4
Incr Delay (d2), s/veh	11.6	0.0	0.1	21.0	0.0	0.0	11.7	0.5	0.0	91.4	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.2	0.0	0.0	1.1	3.0	0.0	0.2	5.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	0.0	20.3	45.8	21.1	21.1	35.3	9.9	6.9	116.6	14.3	8.4
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		50			14			585			659	
Approach Delay, s/veh		32.6			40.5			13.1			14.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	29.3	5.6	10.5	7.8	26.6	6.7	9.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.1	11.6	2.3	2.3	4.1	16.8	3.1	2.0
Green Ext Time (p_c), s	0.0	3.5	0.0	0.0	0.2	4.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	9	536	9	0	1	356	501	5	0	632	47
Future Volume (veh/h)	48	9	536	9	0	1	356	501	5	0	632	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	10	0	10	0	1	387	545	5	0	687	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	15		228	5	9	467	2565	24	4	1303	579
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.26	0.71	0.71	0.00	0.37	0.37
Sat Flow, veh/h	1250	240	1585	1367	80	145	1781	3608	33	1781	3554	1579
Grp Volume(v), veh/h	62	0	0	11	0	0	387	268	282	0	687	15
Grp Sat Flow(s),veh/h/ln	1491	0	1585	1592	0	0	1781	1777	1864	1781	1777	1579
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	10.0	2.5	2.5	0.0	7.4	0.3
Cycle Q Clear(g_c), s	1.9	0.0	0.0	0.3	0.0	0.0	10.0	2.5	2.5	0.0	7.4	0.3
Prop In Lane	0.84		1.00	0.91		0.09	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	262	0		275	0	0	467	1263	1325	4	1303	579
V/C Ratio(X)	0.24	0.00		0.04	0.00	0.00	0.83	0.21	0.21	0.00	0.53	0.03
Avail Cap(c_a), veh/h	768	0		910	0	0	2586	2507	2630	2586	5013	2227
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	21.1	0.0	0.0	17.0	2.4	2.4	0.0	12.2	9.9
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	0.0	0.0	1.5	0.2	0.2	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.1	0.0	0.0	3.6	0.3	0.3	0.0	2.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	21.2	0.0	0.0	18.5	2.6	2.6	0.0	12.9	9.9
LnGrp LOS	C	A		C	A	A	B	A	A	A	B	A
Approach Vol, veh/h		62	A		11			937			702	
Approach Delay, s/veh		22.3			21.2			9.1			12.8	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	23.9		8.1	0.0	40.8		8.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	12.0	9.4		2.3	0.0	4.5		3.9
Green Ext Time (p_c), s	0.9	8.5		0.0	0.0	5.6		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	2	66	14	2	12	43	826	15	9	1141	39
Future Volume (veh/h)	26	2	66	14	2	12	43	826	15	9	1141	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	2	1	15	2	1	47	898	15	10	1240	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	12	131	208	22	6	57	2323	39	14	2221	988
Arrive On Green	0.10	0.08	0.08	0.10	0.08	0.08	0.03	0.65	0.65	0.01	0.62	0.62
Sat Flow, veh/h	1330	143	1549	1018	260	75	1781	3577	60	1781	3554	1581
Grp Volume(v), veh/h	30	0	1	18	0	0	47	446	467	10	1240	26
Grp Sat Flow(s),veh/h/ln	1473	0	1549	1353	0	0	1781	1777	1860	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	1.4	6.4	6.4	0.3	10.9	0.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.9	0.0	0.0	1.4	6.4	6.4	0.3	10.9	0.3
Prop In Lane	0.93		1.00	0.83		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	280	0	131	261	0	0	57	1154	1208	14	2221	988
V/C Ratio(X)	0.11	0.00	0.01	0.07	0.00	0.00	0.82	0.39	0.39	0.73	0.56	0.03
Avail Cap(c_a), veh/h	760	0	657	749	0	0	690	2819	2950	361	4982	2217
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	22.7	22.6	0.0	0.0	26.1	4.4	4.4	26.8	5.9	3.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	10.1	0.5	0.4	23.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.2	0.0	0.0	0.7	1.4	1.5	0.2	2.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	22.7	22.7	0.0	0.0	36.2	4.9	4.9	50.1	6.3	3.9
LnGrp LOS	C	A	C	C	A	A	D	A	A	D	A	A
Approach Vol, veh/h		31			18			960			1276	
Approach Delay, s/veh		22.7			22.7			6.4			6.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	38.9		9.6	4.4	40.2		9.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	3.4	12.9		2.9	2.3	8.4		2.8
Green Ext Time (p_c), s	0.0	21.0		0.0	0.0	11.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	2	167	38	3	27	101	782	45	27	1114	63
Future Volume (veh/h)	48	2	167	38	3	27	101	782	45	27	1114	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	2	17	41	3	3	110	850	28	29	1211	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	10	261	288	141	141	144	2070	923	55	1894	845
Arrive On Green	0.18	0.17	0.17	0.17	0.17	0.17	0.08	0.58	0.58	0.03	0.53	0.53
Sat Flow, veh/h	1344	63	1579	1389	856	856	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	54	0	17	41	0	6	110	850	28	29	1211	34
Grp Sat Flow(s),veh/h/ln	1407	0	1579	1389	0	1713	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.1	0.0	0.6	1.8	0.0	0.2	4.1	8.9	0.5	1.1	16.4	0.7
Cycle Q Clear(g_c), s	2.3	0.0	0.6	4.1	0.0	0.2	4.1	8.9	0.5	1.1	16.4	0.7
Prop In Lane	0.96		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	0	261	288	0	283	144	2070	923	55	1894	845
V/C Ratio(X)	0.15	0.00	0.07	0.14	0.00	0.02	0.77	0.41	0.03	0.52	0.64	0.04
Avail Cap(c_a), veh/h	625	0	559	551	0	606	552	3617	1613	315	3145	1403
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	23.9	26.4	0.0	23.7	30.5	7.8	6.0	32.4	11.2	7.6
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.2	0.0	0.0	3.2	0.3	0.0	2.8	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.6	0.0	0.1	1.8	2.7	0.1	0.5	5.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	0.0	24.0	26.6	0.0	23.7	33.7	8.0	6.0	35.2	12.0	7.6
LnGrp LOS	C	A	C	C	A	C	C	A	A	D	B	A
Approach Vol, veh/h		71			47			988			1274	
Approach Delay, s/veh		24.3			26.2			10.8			12.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	42.1		16.2	6.1	45.5		16.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	6.1	18.4		6.1	3.1	10.9		4.3
Green Ext Time (p_c), s	0.2	17.8		0.1	0.0	11.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	1	432	12	3	15	280	908	12	25	1141	136
Future Volume (veh/h)	204	1	432	12	3	15	280	908	12	25	1141	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	1	255	13	3	4	304	987	13	27	1240	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	1	846	58	13	18	455	1930	25	125	1690	753
Arrive On Green	0.18	0.18	0.17	0.05	0.05	0.02	0.13	0.54	0.52	0.07	0.48	0.48
Sat Flow, veh/h	1774	8	2790	1138	263	350	3456	3591	47	1781	3554	1584
Grp Volume(v), veh/h	223	0	255	20	0	0	304	488	512	27	1240	107
Grp Sat Flow(s),veh/h/ln	1782	0	1395	1750	0	0	1728	1777	1862	1781	1777	1584
Q Serve(g_s), s	11.7	0.0	7.0	1.1	0.0	0.0	8.4	17.5	17.5	1.4	28.1	3.8
Cycle Q Clear(g_c), s	11.7	0.0	7.0	1.1	0.0	0.0	8.4	17.5	17.5	1.4	28.1	3.8
Prop In Lane	1.00		1.00	0.65		0.20	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	323	0	846	90	0	0	455	955	1001	125	1690	753
V/C Ratio(X)	0.69	0.00	0.30	0.22	0.00	0.00	0.67	0.51	0.51	0.22	0.73	0.14
Avail Cap(c_a), veh/h	998	0	1902	613	0	0	1486	3713	3890	374	6644	2962
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	0.0	26.7	45.8	0.0	0.0	41.3	14.8	14.8	43.9	21.1	14.7
Incr Delay (d2), s/veh	1.0	0.0	0.1	0.5	0.0	0.0	0.6	0.6	0.6	0.3	0.9	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	5.2	0.0	2.3	0.5	0.0	0.0	3.5	6.7	7.0	0.6	11.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	0.0	26.8	46.3	0.0	0.0	42.0	15.4	15.4	44.2	22.0	14.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	B
Approach Vol, veh/h		478			20			1304			1374	
Approach Delay, s/veh		32.6			46.3			21.6			21.9	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.2	51.6		9.1	11.0	57.8		22.1
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	41.0	185.0		32.0	19.0	207.0		53.0
Max Q Clear Time (g_c+I1), s	10.4	30.1		3.1	3.4	19.5		13.7
Green Ext Time (p_c), s	0.8	15.5		0.0	0.0	8.3		1.4

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	3	130	1	51	2	1083	83	78	1558	6
Future Volume (veh/h)	2	0	3	130	1	51	2	1083	83	78	1558	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	0	1	141	1	4	2	1177	86	85	1693	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	9	60	228	40	159	5	2430	177	111	2844	12
Arrive On Green	0.12	0.00	0.11	0.12	0.12	0.11	0.00	0.96	0.95	0.06	0.78	0.78
Sat Flow, veh/h	915	74	495	1416	327	1308	1781	3358	245	1781	3630	15
Grp Volume(v), veh/h	3	0	0	141	0	5	2	622	641	85	828	872
Grp Sat Flow(s),veh/h/ln	1484	0	0	1416	0	1635	1781	1777	1826	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	12.4	0.0	0.4	0.1	3.2	3.3	6.1	24.6	24.6
Cycle Q Clear(g_c), s	0.2	0.0	0.0	12.6	0.0	0.4	0.1	3.2	3.3	6.1	24.6	24.6
Prop In Lane	0.67		0.33	1.00		0.80	1.00		0.13	1.00		0.01
Lane Grp Cap(c), veh/h	226	0	0	228	0	199	5	1286	1321	111	1392	1463
V/C Ratio(X)	0.01	0.00	0.00	0.62	0.00	0.03	0.42	0.48	0.48	0.76	0.60	0.60
Avail Cap(c_a), veh/h	319	0	0	317	0	302	151	1286	1321	151	1392	1463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	55.7	0.0	50.7	64.7	0.7	0.8	60.0	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.7	0.0	0.1	18.5	1.2	1.2	9.4	1.9	1.8
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	0.1	0.0	0.0	4.7	0.0	0.1	0.1	1.0	1.1	3.0	8.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	0.0	58.4	0.0	50.7	83.2	1.9	1.9	69.4	7.6	7.5
LnGrp LOS	D	A	A	E	A	D	F	A	A	E	A	A
Approach Vol, veh/h		3			146			1265			1785	
Approach Delay, s/veh		50.4			58.1			2.1			10.5	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.3	105.9		19.8	12.1	98.1		19.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.1	26.6		14.6	8.1	5.3		2.2
Green Ext Time (p_c), s	0.0	31.9		0.3	0.0	20.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	3	14	62	3	11	11	1045	15	7	1369	235
Future Volume (veh/h)	114	3	14	62	3	11	11	1045	15	7	1369	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	3	12	67	3	7	12	1136	15	8	1488	182
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	4	15	208	11	17	14	2837	37	10	2799	1248
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.01	0.53	0.52	0.01	0.79	0.79
Sat Flow, veh/h	1371	33	133	1391	97	149	1781	3591	47	1781	3554	1584
Grp Volume(v), veh/h	139	0	0	77	0	0	12	562	589	8	1488	182
Grp Sat Flow(s),veh/h/ln	1537	0	0	1636	0	0	1781	1777	1862	1781	1777	1584
Q Serve(g_s), s	5.7	0.0	0.0	0.0	0.0	0.0	0.9	24.6	24.6	0.6	19.9	3.6
Cycle Q Clear(g_c), s	11.2	0.0	0.0	5.5	0.0	0.0	0.9	24.6	24.6	0.6	19.9	3.6
Prop In Lane	0.89		0.09	0.87		0.09	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	0	235	0	0	14	1404	1471	10	2799	1248
V/C Ratio(X)	0.62	0.00	0.00	0.33	0.00	0.00	0.83	0.40	0.40	0.78	0.53	0.15
Avail Cap(c_a), veh/h	350	0	0	361	0	0	110	1404	1471	110	2799	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.86	0.86	0.86	0.74	0.74	0.74
Uniform Delay (d), s/veh	56.0	0.0	0.0	53.7	0.0	0.0	64.6	12.2	12.2	64.5	5.0	3.3
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.8	0.0	0.0	30.1	0.7	0.7	28.0	0.5	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	4.7	0.0	0.0	2.4	0.0	0.0	0.5	11.0	11.5	0.3	6.1	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	0.0	0.0	54.5	0.0	0.0	94.7	12.9	12.9	92.6	5.6	3.5
LnGrp LOS	E	A	A	D	A	A	F	B	B	F	A	A
Approach Vol, veh/h		139			77			1163			1678	
Approach Delay, s/veh		58.8			54.5			13.8			5.8	
Approach LOS		E			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	106.4		18.6	4.8	106.7		18.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	2.9	21.9		7.5	2.6	26.6		13.2
Green Ext Time (p_c), s	0.0	40.9		0.2	0.0	22.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	17	48	83	19	15	58	1122	59	14	1389	118
Future Volume (veh/h)	139	17	48	83	19	15	58	1122	59	14	1389	118
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		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	18	6	90	21	2	63	1220	62	15	1510	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	30	324	176	345	33	80	2381	121	18	2186	178
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.20	0.09	1.00	1.00	0.01	0.87	0.86
Sat Flow, veh/h	1208	144	1578	1383	1681	160	1781	3440	175	1781	3326	271
Grp Volume(v), veh/h	169	0	6	90	0	23	63	630	652	15	802	832
Grp Sat Flow(s),veh/h/ln	1352	0	1578	1383	0	1841	1781	1777	1838	1781	1777	1821
Q Serve(g_s), s	14.1	0.0	0.4	8.3	0.0	1.3	4.5	0.0	0.0	1.1	18.5	19.2
Cycle Q Clear(g_c), s	15.4	0.0	0.4	23.7	0.0	1.3	4.5	0.0	0.0	1.1	18.5	19.2
Prop In Lane	0.89		1.00	1.00		0.09	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	330	0	324	176	0	378	80	1230	1272	18	1168	1197
V/C Ratio(X)	0.51	0.00	0.02	0.51	0.00	0.06	0.79	0.51	0.51	0.85	0.69	0.70
Avail Cap(c_a), veh/h	333	0	328	179	0	382	110	1230	1272	110	1168	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.47	0.47	0.47	0.81	0.81	0.81
Uniform Delay (d), s/veh	47.8	0.0	41.2	58.0	0.0	41.6	58.5	0.0	0.0	64.0	4.0	4.1
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.1	7.8	0.7	0.7	26.2	2.7	2.7
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	5.2	0.0	0.2	3.0	0.0	0.6	2.1	0.2	0.2	0.6	4.1	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	41.2	60.3	0.0	41.7	66.4	0.7	0.7	90.3	6.7	6.8
LnGrp LOS	D	A	D	E	A	D	E	A	A	F	A	A
Approach Vol, veh/h		175			113			1345			1649	
Approach Delay, s/veh		48.8			56.5			3.8			7.5	
Approach LOS		D			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	89.4		30.7	5.3	94.0		30.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	82.0		26.0	8.0	82.0		26.0
Max Q Clear Time (g_c+I1), s	6.5	21.2		25.7	3.1	2.0		17.4
Green Ext Time (p_c), s	0.0	31.5		0.0	0.0	21.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	65	69	182	88	698	47	503	178	465	883	68
Future Volume (veh/h)	22	65	69	182	88	698	47	503	178	465	883	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.94	0.96		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	71	5	198	96	0	51	547	117	505	960	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	197	206	364	517		66	862	722	588	1992	147
Arrive On Green	0.14	0.14	0.14	0.11	0.28	0.00	0.04	0.46	0.46	0.06	0.20	0.19
Sat Flow, veh/h	290	1430	1492	1781	1870	1585	1781	1870	1566	3456	3354	248
Grp Volume(v), veh/h	95	0	5	198	96	0	51	547	117	505	509	522
Grp Sat Flow(s),veh/h/ln	1720	0	1492	1781	1870	1585	1781	1870	1566	1728	1777	1825
Q Serve(g_s), s	0.6	0.0	0.4	12.0	5.1	0.0	3.7	29.0	5.7	18.8	33.0	33.0
Cycle Q Clear(g_c), s	6.1	0.0	0.4	12.0	5.1	0.0	3.7	29.0	5.7	18.8	33.0	33.0
Prop In Lane	0.25		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	272	0	206	364	517		66	862	722	588	1055	1084
V/C Ratio(X)	0.35	0.00	0.02	0.54	0.19		0.77	0.63	0.16	0.86	0.48	0.48
Avail Cap(c_a), veh/h	375	0	298	364	633		329	862	722	957	1055	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.71	0.71	0.71
Uniform Delay (d), s/veh	50.9	0.0	48.5	40.2	35.9	0.0	62.0	26.7	20.4	59.8	34.5	34.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.7	0.2	0.0	5.5	2.8	0.4	1.7	1.1	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	2.9	0.0	0.1	5.5	2.4	0.0	1.8	13.3	2.1	8.9	16.1	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	0.0	48.5	41.9	36.0	0.0	67.5	29.5	20.8	61.5	35.6	35.6
LnGrp LOS	D	A	D	D	D		E	C	C	E	D	D
Approach Vol, veh/h		100			294	A		715			1536	
Approach Delay, s/veh		51.5			40.0			30.8			44.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	81.2	18.0	21.9	26.1	63.9		39.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	5.7	35.0	14.0	8.1	20.8	31.0		7.1
Green Ext Time (p_c), s	0.1	7.5	0.0	0.3	1.3	2.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	230	240	105	10	135	35
Future Volume (veh/h)	50	45	310	85	45	20	230	240	105	10	135	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	44	92	49	9	250	261	53	11	147	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	154	245	316	240	44	334	807	684	15	472	400
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1294	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	44	92	0	58	250	261	53	11	147	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1294	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	1.0	2.7	0.0	1.1	5.3	3.7	0.8	0.2	2.5	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.0	4.8	0.0	1.1	5.3	3.7	0.8	0.2	2.5	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	316	0	284	334	807	684	15	472	400
V/C Ratio(X)	0.26	0.00	0.18	0.29	0.00	0.20	0.75	0.32	0.08	0.72	0.31	0.02
Avail Cap(c_a), veh/h	1085	0	951	897	0	1100	1348	3728	3159	674	3020	2559
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	14.5	17.1	0.0	14.6	15.2	7.4	6.6	19.6	12.0	11.1
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.4	0.5	0.1	46.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.0	1.1	0.2	0.3	0.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.9	17.6	0.0	14.9	18.6	7.9	6.7	66.2	12.8	11.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		147			150			564			167	
Approach Delay, s/veh		15.2			16.6			12.5			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	23.1		11.2	12.4	16.0		11.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	5.7		4.1	7.3	4.5		6.8				
Green Ext Time (p_c), s	0.0	3.9		0.6	0.7	1.8		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			14.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	140	540	15	10	525	70
Future Volume (veh/h)	60	5	180	90	20	15	140	540	15	10	525	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	20	98	22	2	152	587	0	11	571	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	24	308	345	335	30	408	890		353	736	619
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.39	0.39
Sat Flow, veh/h	1214	122	1545	1356	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	20	98	0	24	152	587	0	11	571	34
Grp Sat Flow(s),veh/h/ln	1336	0	1545	1356	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.5	3.3	0.0	0.5	2.3	12.1	0.0	0.2	13.5	0.7
Cycle Q Clear(g_c), s	2.5	0.0	0.5	5.9	0.0	0.5	2.3	12.1	0.0	0.2	13.5	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	403	0	308	345	0	366	408	890		353	736	619
V/C Ratio(X)	0.17	0.00	0.07	0.28	0.00	0.07	0.37	0.66		0.03	0.78	0.05
Avail Cap(c_a), veh/h	811	0	764	746	0	909	774	1886		866	1886	1587
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	16.4	19.7	0.0	16.4	9.3	10.1	0.0	9.7	13.4	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.0	0.1	0.6	0.8	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.0	0.0	0.2	0.7	3.8	0.0	0.1	4.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	0.0	16.5	20.2	0.0	16.5	9.9	11.0	0.0	9.8	15.2	9.5
LnGrp LOS	B	A	B	C	A	B	A	B		A	B	A
Approach Vol, veh/h		90			122			739	A		616	
Approach Delay, s/veh		17.3			19.4			10.7			14.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	30.1		15.1	9.6	25.9		15.1
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	14.1		4.5	4.3	15.5		7.9
Green Ext Time (p_c), s	0.0	4.2		0.4	0.3	4.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	5	5	5	60	630	15	5	735	30
Future Volume (veh/h)	40	5	125	5	5	5	60	630	15	5	735	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	10	5	5	1	65	685	9	5	799	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	66	133	9	173	144	84	1032	874	7	951	800
Arrive On Green	0.03	0.12	0.12	0.01	0.09	0.09	0.05	0.55	0.55	0.00	0.51	0.51
Sat Flow, veh/h	1781	552	1103	1781	1870	1565	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	43	0	15	5	5	1	65	685	9	5	799	18
Grp Sat Flow(s),veh/h/ln	1781	0	1655	1781	1870	1565	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.3	0.2	0.2	23.0	0.4
Cycle Q Clear(g_c), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.3	0.2	0.2	23.0	0.4
Prop In Lane	1.00		0.67	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	199	9	173	144	84	1032	874	7	951	800
V/C Ratio(X)	0.72	0.00	0.08	0.53	0.03	0.01	0.77	0.66	0.01	0.70	0.84	0.02
Avail Cap(c_a), veh/h	567	0	554	567	625	523	709	1936	1641	709	1936	1629
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	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	30.0	0.0	24.5	31.2	25.9	25.9	29.6	10.0	6.3	31.2	13.3	7.7
Incr Delay (d2), s/veh	14.8	0.0	0.2	38.8	0.1	0.0	13.6	0.7	0.0	80.8	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.2	0.1	0.0	1.2	5.3	0.0	0.2	8.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	24.7	69.9	26.0	25.9	43.2	10.7	6.4	112.1	15.3	7.7
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		58			11			759			822	
Approach Delay, s/veh		39.6			46.0			13.4			15.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	39.6	5.3	12.6	8.0	36.9	7.1	10.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	18.3	2.2	2.5	4.3	25.0	3.5	2.2
Green Ext Time (p_c), s	0.0	5.4	0.0	0.0	0.1	6.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	705	45	10	830	10
Future Volume (veh/h)	35	10	495	20	5	0	330	705	45	10	830	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	766	48	11	902	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	30		194	30	0	426	2258	141	15	1542	688
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.66	0.66	0.01	0.43	0.43
Sat Flow, veh/h	1116	421	1585	1152	421	0	1781	3396	213	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	401	413	11	902	3
Grp Sat Flow(s),veh/h/ln	1537	0	1585	1573	0	0	1781	1777	1832	1781	1777	1585
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	11.3	5.8	5.8	0.4	11.3	0.1
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.8	0.0	0.0	11.3	5.8	5.8	0.4	11.3	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	246	0		251	0	0	426	1181	1218	15	1542	688
V/C Ratio(X)	0.20	0.00		0.11	0.00	0.00	0.84	0.34	0.34	0.74	0.58	0.00
Avail Cap(c_a), veh/h	643	0		767	0	0	1995	2231	2301	1995	4462	1990
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	0.0	25.3	0.0	0.0	21.4	4.3	4.3	29.2	12.6	9.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.8	0.4	0.4	22.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	4.4	1.4	1.4	0.2	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	0.0	25.5	0.0	0.0	23.1	4.6	4.6	51.8	13.4	9.5
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1173			916	
Approach Delay, s/veh		26.1			25.5			10.3			13.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.1	31.6		9.3	4.5	45.2		9.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.3	13.3		2.8	2.4	7.8		3.6
Green Ext Time (p_c), s	0.8	12.2		0.0	0.0	9.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1130	20	15	1310	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1130	20	15	1310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1228	21	16	1424	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	0	72	118	19	3	186	2642	45	20	2297	1024
Arrive On Green	0.06	0.00	0.05	0.06	0.05	0.05	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1559	0	1585	699	425	70	1781	3575	61	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	610	639	16	1424	47
Grp Sat Flow(s),veh/h/ln	1559	0	1585	1194	0	0	1781	1777	1859	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.5	9.4	9.4	0.6	16.2	0.7
Cycle Q Clear(g_c), s	1.2	0.0	0.0	1.6	0.0	0.0	5.5	9.4	9.4	0.6	16.2	0.7
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	198	0	72	158	0	0	186	1313	1374	20	2297	1024
V/C Ratio(X)	0.17	0.00	0.01	0.11	0.00	0.00	0.79	0.46	0.46	0.78	0.62	0.05
Avail Cap(c_a), veh/h	607	0	531	603	0	0	545	2228	2331	286	3937	1756
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	31.3	31.8	0.0	0.0	30.0	3.6	3.6	33.8	7.2	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	2.8	0.5	0.5	20.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	2.4	1.9	2.0	0.4	4.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	31.3	31.9	0.0	0.0	32.8	4.1	4.1	54.6	7.8	4.5
LnGrp LOS	C	A	C	C	A	A	C	A	A	D	A	A
Approach Vol, veh/h		34			17			1396			1487	
Approach Delay, s/veh		31.5			31.9			7.1			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	49.3		8.1	4.8	55.7		8.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.5	18.2		3.6	2.6	11.4		3.2
Green Ext Time (p_c), s	0.1	26.1		0.0	0.0	19.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1285	60	25	1260	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1285	60	25	1260	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1397	49	27	1370	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2775	1238	39	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1397	49	27	1370	34
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	22.0	1.1	2.3	27.2	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	22.0	1.1	2.3	27.2	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2775	1238	39	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.50	0.04	0.68	0.54	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2775	1238	241	2560	1142
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	1.00	1.00	0.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.1	3.8	75.2	9.9	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	4.8	0.4	0.0	7.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.4	0.3	1.2	10.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.0	6.6	3.9	82.8	10.7	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1571			1431	
Approach Delay, s/veh		67.9			71.9			11.9			11.9	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.4	127.0		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	29.2		15.1	4.3	24.0		9.8
Green Ext Time (p_c), s	0.1	25.4		0.1	0.0	27.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1370	15	80	1225	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1370	15	80	1225	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	11	68	11	11	4	478	1489	16	87	1332	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	16	826	56	56	20	610	2091	22	144	1723	959
Arrive On Green	0.13	0.13	0.12	0.08	0.08	0.05	0.18	0.58	0.56	0.08	0.48	0.48
Sat Flow, veh/h	1663	124	2733	751	751	273	3456	3602	39	1781	3554	1579
Grp Volume(v), veh/h	158	0	68	26	0	0	478	734	771	87	1332	81
Grp Sat Flow(s),veh/h/ln	1787	0	1366	1775	0	0	1728	1777	1863	1781	1777	1579
Q Serve(g_s), s	10.1	0.0	2.2	1.7	0.0	0.0	15.9	35.5	35.6	5.7	37.1	2.6
Cycle Q Clear(g_c), s	10.1	0.0	2.2	1.7	0.0	0.0	15.9	35.5	35.6	5.7	37.1	2.6
Prop In Lane	0.93		1.00	0.42		0.15	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	826	133	0	0	610	1031	1082	144	1723	959
V/C Ratio(X)	0.68	0.00	0.08	0.20	0.00	0.00	0.78	0.71	0.71	0.60	0.77	0.08
Avail Cap(c_a), veh/h	506	0	1243	458	0	0	1669	2870	3010	222	4467	2179
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	0.0	30.3	52.4	0.0	0.0	47.3	18.0	18.0	53.3	25.5	9.8
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.7	0.0	0.0	0.8	1.3	1.3	1.5	1.1	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	4.7	0.0	0.7	0.8	0.0	0.0	6.8	14.0	14.7	2.6	15.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	0.0	30.3	53.1	0.0	0.0	48.1	19.3	19.3	54.8	26.6	9.8
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		226			26			1983			1500	
Approach Delay, s/veh		44.9			53.1			26.3			27.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.2	62.2		13.0	13.7	73.7		19.7
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	17.9	39.1		3.7	7.7	37.6		12.1
Green Ext Time (p_c), s	1.3	17.1		0.1	0.1	18.2		0.5

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1825	95	30	1435	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1825	95	30	1435	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	1984	101	33	1560	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2716	137	64	2974	10
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3442	174	1781	3633	12
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1016	1069	33	763	802
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1839	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	39.4	41.1	2.5	19.1	19.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	39.4	41.1	2.5	19.1	19.1
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1451	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.72	0.74	0.52	0.52	0.52
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1451	102	1455	1529
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	0.59	0.59	0.59	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.3	7.5	66.3	4.0	4.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.9	2.0	2.0	2.4	1.4	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	0.4	0.0	0.0	2.3	0.0	0.0	0.2	12.9	13.9	1.2	5.8	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	75.2	9.2	9.5	68.7	5.4	5.3
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2090			1598	
Approach Delay, s/veh		58.6			62.0			9.5			6.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	21.1		8.1	4.5	43.1		2.8
Green Ext Time (p_c), s	0.0	31.1		0.1	0.0	41.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1805	20	10	1280	190
Future Volume (veh/h)	90	5	5	105	15	15	5	1805	20	10	1280	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	1962	21	11	1391	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2819	30	14	2795	1245
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3602	38	1781	3554	1583
Grp Volume(v), veh/h	106	0	0	142	0	0	5	966	1017	11	1391	148
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	31.1	31.3	0.7	16.5	2.6
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	31.1	31.3	0.7	16.5	2.6
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1245
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.69	0.70	0.80	0.50	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1245
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	0.57	0.57	0.57	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.2	6.2	59.4	4.5	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	26.8	1.7	1.6	27.8	0.5	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	9.4	9.9	0.4	4.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	86.5	7.9	7.8	87.2	5.0	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			1988			1550	
Approach Delay, s/veh		52.7			54.3			8.1			5.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	18.5		11.7	2.7	33.3		9.9
Green Ext Time (p_c), s	0.0	32.4		0.5	0.0	31.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1635	75	10	1320	70
Future Volume (veh/h)	145	30	20	150	25	35	25	1635	75	10	1320	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	4	163	27	5	27	1777	80	11	1435	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	60	403	225	394	73	34	2251	101	13	2194	113
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.25	0.04	1.00	1.00	0.01	0.64	0.63
Sat Flow, veh/h	1122	234	1568	1361	1532	284	1781	3464	155	1781	3439	177
Grp Volume(v), veh/h	191	0	4	163	0	32	27	906	951	11	740	769
Grp Sat Flow(s),veh/h/ln	1357	0	1568	1361	0	1816	1781	1777	1842	1781	1777	1839
Q Serve(g_s), s	16.3	0.0	0.3	16.6	0.0	1.9	2.1	0.0	0.0	0.9	36.1	36.5
Cycle Q Clear(g_c), s	18.2	0.0	0.3	34.8	0.0	1.9	2.1	0.0	0.0	0.9	36.1	36.5
Prop In Lane	0.83		1.00	1.00		0.16	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	396	0	403	225	0	467	34	1154	1197	13	1134	1173
V/C Ratio(X)	0.48	0.00	0.01	0.73	0.00	0.07	0.79	0.78	0.79	0.83	0.65	0.66
Avail Cap(c_a), veh/h	396	0	403	225	0	467	140	1154	1197	140	1134	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.84	0.84	0.84
Uniform Delay (d), s/veh	46.2	0.0	38.7	60.6	0.0	39.4	67.1	0.0	0.0	69.4	15.7	15.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	11.1	0.0	0.1	1.4	0.5	0.5	31.3	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.1	6.5	0.0	0.9	1.0	0.2	0.2	0.5	14.7	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	38.7	71.6	0.0	39.4	68.5	0.5	0.5	100.7	18.2	18.2
LnGrp LOS	D	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		195			195			1884			1520	
Approach Delay, s/veh		46.9			66.4			1.5			18.8	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	93.3		40.0	5.0	95.0		40.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	38.5		36.8	2.9	2.0		20.2
Green Ext Time (p_c), s	0.0	22.6		0.0	0.0	45.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1145	55	635	175	570	1010	75
Future Volume (veh/h)	55	120	60	110	100	1145	55	635	175	570	1010	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	690	119	620	1098	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	889	751	658	2095	149
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.48	0.48	0.38	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3365	239
Grp Volume(v), veh/h	190	0	6	120	109	0	60	690	119	620	580	596
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1827
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	42.9	6.0	24.3	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	42.9	6.0	24.3	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	889	751	658	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.78	0.16	0.94	0.52	0.52
Avail Cap(c_a), veh/h	304	0	256	232	508		178	889	751	691	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.71	0.71	0.71
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	30.5	20.8	42.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	5.3	0.4	15.9	1.3	1.2
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	7.0	0.0	0.2	3.6	3.1	0.0	2.2	20.2	2.3	10.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	35.8	21.2	58.5	1.3	1.2
LnGrp LOS	E	A	D	D	D		E	D	C	E	A	A
Approach Vol, veh/h		196			229	A		869			1796	
Approach Delay, s/veh		63.7			45.0			36.2			21.0	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	30.7	70.6		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	28.0	61.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.3	44.9		8.5
Green Ext Time (p_c), s	0.0	17.6	0.0	0.3	0.4	6.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	285	75
Future Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	285	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	24	65	27	1	435	245	41	5	310	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	70	180	228	204	8	522	1047	888	7	507	429
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.56	0.56	0.00	0.27	0.27
Sat Flow, veh/h	913	614	1585	1354	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	24	65	0	28	435	245	41	5	310	20
Grp Sat Flow(s),veh/h/ln	1527	0	1585	1354	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	0.0	0.7	2.4	0.0	0.7	11.3	3.3	0.6	0.1	7.2	0.5
Cycle Q Clear(g_c), s	2.6	0.0	0.7	5.0	0.0	0.7	11.3	3.3	0.6	0.1	7.2	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	296	0	180	228	0	211	522	1047	888	7	507	429
V/C Ratio(X)	0.29	0.00	0.13	0.29	0.00	0.13	0.83	0.23	0.05	0.70	0.61	0.05
Avail Cap(c_a), veh/h	852	0	766	728	0	899	1077	2977	2523	538	2411	2044
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	19.8	23.0	0.0	19.8	16.4	5.5	4.9	24.7	15.8	13.4
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.7	0.0	0.3	3.6	0.2	0.0	79.0	2.6	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	0.9	0.0	0.2	0.7	0.0	0.3	4.3	0.9	0.1	0.2	2.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	20.1	23.7	0.0	20.1	20.0	5.8	5.0	103.7	18.4	13.5
LnGrp LOS	C	A	C	C	A	C	B	A	A	F	B	B
Approach Vol, veh/h		111			93			721			335	
Approach Delay, s/veh		20.9			22.6			14.3			19.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	33.8		10.6	19.5	19.5		10.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	5.3		4.6	13.3	9.2		7.0				
Green Ext Time (p_c), s	0.0	3.5		0.5	1.2	4.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			16.8
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Hoohui Road

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	150	45	15	10	205	610	45	25	590	80
Future Volume (veh/h)	75	20	150	45	15	10	205	610	45	25	590	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	49	16	1	223	663	0	27	641	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	55	206	238	226	14	445	983		384	820	692
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.11	0.53	0.00	0.02	0.44	0.44
Sat Flow, veh/h	1080	423	1585	1373	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	13	49	0	17	223	663	0	27	641	45
Grp Sat Flow(s),veh/h/ln	1503	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.7	0.0	0.4	1.7	0.0	0.4	3.0	12.8	0.0	0.4	14.4	0.8
Cycle Q Clear(g_c), s	3.1	0.0	0.4	4.8	0.0	0.4	3.0	12.8	0.0	0.4	14.4	0.8
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	326	0	206	238	0	241	445	983		384	820	692
V/C Ratio(X)	0.32	0.00	0.06	0.21	0.00	0.07	0.50	0.67		0.07	0.78	0.07
Avail Cap(c_a), veh/h	885	0	807	759	0	942	801	1942		895	1942	1638
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	18.7	22.2	0.0	18.8	8.7	8.6	0.0	8.1	11.8	8.0
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	0.0	0.1	0.9	0.8	0.0	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.5	0.0	0.2	0.8	3.7	0.0	0.1	4.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	0.0	18.9	22.6	0.0	18.9	9.6	9.4	0.0	8.2	13.4	8.0
LnGrp LOS	C	A	B	C	A	B	A	A		A	B	A
Approach Vol, veh/h		117			66			886	A		713	
Approach Delay, s/veh		20.3			21.7			9.4			12.9	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	31.8		11.4	10.2	27.5		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	14.8		5.1	5.0	16.4		6.8
Green Ext Time (p_c), s	0.0	5.0		0.5	0.4	4.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	100	10	5	10	170	845	10	5	785	75
Future Volume (veh/h)	55	5	100	10	5	10	170	845	10	5	785	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	11	5	1	185	918	8	5	853	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	98	98	19	156	128	227	1193	1011	7	962	813
Arrive On Green	0.04	0.12	0.12	0.01	0.08	0.08	0.13	0.64	0.64	0.00	0.51	0.51
Sat Flow, veh/h	1781	844	844	1781	1870	1537	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	10	11	5	1	185	918	8	5	853	44
Grp Sat Flow(s),veh/h/ln	1781	0	1688	1781	1870	1537	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	2.9	0.0	0.5	0.5	0.2	0.1	8.7	30.2	0.2	0.2	35.2	1.2
Cycle Q Clear(g_c), s	2.9	0.0	0.5	0.5	0.2	0.1	8.7	30.2	0.2	0.2	35.2	1.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	196	19	156	128	227	1193	1011	7	962	813
V/C Ratio(X)	0.77	0.00	0.05	0.57	0.03	0.01	0.81	0.77	0.01	0.71	0.89	0.05
Avail Cap(c_a), veh/h	412	0	410	412	454	373	515	1406	1192	515	1406	1190
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	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	40.9	0.0	33.9	42.6	36.4	36.4	36.7	11.1	5.7	43.0	18.8	10.5
Incr Delay (d2), s/veh	14.4	0.0	0.1	24.4	0.1	0.0	7.0	2.3	0.0	84.2	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.2	0.4	0.1	0.0	4.1	10.8	0.0	0.3	14.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	0.0	34.1	66.9	36.5	36.4	43.7	13.4	5.7	127.2	23.9	10.5
LnGrp LOS	E	A	C	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		70			17			1111			902	
Approach Delay, s/veh		52.3			56.2			18.4			23.8	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	60.1	5.9	15.1	16.0	49.4	8.8	12.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	32.2	2.5	2.5	10.7	37.2	4.9	2.2
Green Ext Time (p_c), s	0.0	8.4	0.0	0.0	0.4	7.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	610	85	10	10	625	915	10	5	835	20
Future Volume (veh/h)	75	5	610	85	10	10	625	915	10	5	835	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	0	92	11	9	679	995	11	5	908	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	8		185	14	12	720	2728	30	7	1270	566
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.76	0.76	0.00	0.36	0.36
Sat Flow, veh/h	1457	89	1585	1338	160	131	1781	3600	40	1781	3554	1585
Grp Volume(v), veh/h	87	0	0	112	0	0	679	491	515	5	908	6
Grp Sat Flow(s),veh/h/ln	1546	0	1585	1629	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	37.0	9.3	9.3	0.3	22.2	0.2
Cycle Q Clear(g_c), s	5.1	0.0	0.0	6.3	0.0	0.0	37.0	9.3	9.3	0.3	22.2	0.2
Prop In Lane	0.94		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0		227	0	0	720	1346	1412	7	1270	566
V/C Ratio(X)	0.39	0.00		0.49	0.00	0.00	0.94	0.36	0.36	0.72	0.72	0.01
Avail Cap(c_a), veh/h	377	0		458	0	0	1255	1346	1412	1255	2433	1085
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	0.0	44.1	0.0	0.0	28.9	4.1	4.1	50.1	28.0	20.9
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.7	0.0	0.0	5.3	0.4	0.3	40.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	2.7	0.0	0.0	16.0	2.6	2.8	0.2	9.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	0.0	45.8	0.0	0.0	34.2	4.4	4.4	90.9	29.6	20.9
LnGrp LOS	D	A		D	A	A	C	A	A	F	C	C
Approach Vol, veh/h		87	A		112			1685			919	
Approach Delay, s/veh		44.8			45.8			16.4			29.9	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	44.7	42.0		14.0	4.4	82.4		14.0
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	39.0	24.2		8.3	2.3	11.3		7.1
Green Ext Time (p_c), s	1.8	11.8		0.3	0.0	13.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1490	10	10	1520	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1490	10	10	1520	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1620	11	11	1652	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	18	173	186	2	7	173	2633	18	14	2268	1012
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.73	0.73	0.01	0.64	0.64
Sat Flow, veh/h	1359	156	1522	971	19	62	1781	3618	25	1781	3554	1585
Grp Volume(v), veh/h	59	0	6	17	0	0	141	795	836	11	1652	36
Grp Sat Flow(s),veh/h/ln	1515	0	1522	1052	0	0	1781	1777	1866	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.2	20.5	20.6	0.6	29.2	0.8
Cycle Q Clear(g_c), s	2.8	0.0	0.3	3.7	0.0	0.0	7.2	20.5	20.6	0.6	29.2	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	263	0	173	206	0	0	173	1293	1358	14	2268	1012
V/C Ratio(X)	0.22	0.00	0.03	0.08	0.00	0.00	0.81	0.61	0.62	0.77	0.73	0.04
Avail Cap(c_a), veh/h	450	0	376	389	0	0	402	1642	1725	211	2903	1295
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	36.7	38.6	0.0	0.0	41.2	6.2	6.2	46.1	11.4	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.5	1.0	1.0	27.3	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	3.3	6.0	6.3	0.4	10.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.7	38.6	0.0	0.0	44.6	7.3	7.2	73.4	12.5	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1772			1699	
Approach Delay, s/veh		37.5			38.6			10.2			12.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	64.4		15.6	4.7	72.7		15.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.2	31.2		5.7	2.6	22.6		4.8
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	31.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1480	60	35	1690	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1480	60	35	1690	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1609	49	38	1837	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1609	49	38	1837	86
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	34.0	1.3	3.5	55.2	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	34.0	1.3	3.5	55.2	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.60	0.04	0.77	0.75	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.4	5.3	79.7	16.7	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	4.0	0.7	0.0	9.3	2.2	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	12.5	0.4	1.7	22.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	78.0	10.1	5.3	89.0	18.9	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	B	A
Approach Vol, veh/h		115			82			1799			1961	
Approach Delay, s/veh		66.4			77.2			15.3			19.8	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	57.2		20.7	5.5	36.0		11.7
Green Ext Time (p_c), s	0.2	31.5		0.1	0.0	36.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	5	625	15	0	5	395	1525	10	80	1750	135
Future Volume (veh/h)	295	5	625	15	0	5	395	1525	10	80	1750	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	321	5	483	16	0	1	429	1658	11	87	1902	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	4	801	68	0	4	498	2438	16	117	2116	944
Arrive On Green	0.15	0.15	0.15	0.04	0.00	0.03	0.14	0.67	0.67	0.07	0.60	0.60
Sat Flow, veh/h	1755	27	2751	1659	0	104	3456	3619	24	1781	3554	1585
Grp Volume(v), veh/h	326	0	483	17	0	0	429	814	855	87	1902	109
Grp Sat Flow(s),veh/h/ln	1783	0	1376	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	34.0	0.0	33.0	2.1	0.0	0.0	27.6	62.7	62.8	10.9	106.0	6.8
Cycle Q Clear(g_c), s	34.0	0.0	33.0	2.1	0.0	0.0	27.6	62.7	62.8	10.9	106.0	6.8
Prop In Lane	0.98		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	266	0	801	72	0	0	498	1197	1257	117	2116	944
V/C Ratio(X)	1.22	0.00	0.60	0.24	0.00	0.00	0.86	0.68	0.68	0.74	0.90	0.12
Avail Cap(c_a), veh/h	266	0	801	240	0	0	881	1516	1592	117	2359	1052
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	96.7	0.0	69.7	105.7	0.0	0.0	95.1	22.3	22.4	104.4	40.1	20.0
Incr Delay (d2), s/veh	129.3	0.0	0.9	0.6	0.0	0.0	1.8	1.1	1.1	20.0	5.0	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	25.6	0.0	12.5	1.0	0.0	0.0	12.6	26.6	28.0	5.8	47.4	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	226.0	0.0	70.6	106.4	0.0	0.0	96.9	23.5	23.4	124.4	45.1	20.1
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	C
Approach Vol, veh/h		809			17			2098			2098	
Approach Delay, s/veh		133.2			106.4			38.5			47.1	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	36.8	139.4		13.3	18.9	157.3		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	29.6	108.0		4.1	12.9	64.8		36.0
Green Ext Time (p_c), s	1.2	25.4		0.0	0.0	23.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1870	95	90	2320	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1870	95	90	2320	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2033	101	98	2522	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2597	128	124	2949	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3447	170	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1040	1094	98	1231	1296
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1840	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	57.7	57.8
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	57.7	57.8
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1386	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.78	0.79	0.79	0.85	0.86
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1386	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	7.9	7.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.4	2.5	2.6	4.2	6.7	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	3.4	0.0	0.3	0.4	0.9	1.0	3.4	18.7	19.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	69.4	2.5	2.6	66.0	14.6	14.3
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2145			2625	
Approach Delay, s/veh		57.1			62.0			2.9			16.3	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	59.8		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	26.2		0.2	0.1	57.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	15	10	65	5	10	5	1800	20	5	1975	325
Future Volume (veh/h)	175	15	10	65	5	10	5	1800	20	5	1975	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	16	9	71	5	7	5	1957	21	5	2147	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	18	10	276	20	23	7	2677	29	7	2641	1178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1329	112	63	1381	123	139	1781	3602	39	1781	3554	1585
Grp Volume(v), veh/h	215	0	0	83	0	0	5	964	1014	5	2147	280
Grp Sat Flow(s),veh/h/ln	1504	0	0	1643	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	52.9	7.4
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	52.9	7.4
Prop In Lane	0.88		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	0	319	0	0	7	1321	1385	7	2641	1178
V/C Ratio(X)	0.72	0.00	0.00	0.26	0.00	0.00	0.74	0.73	0.73	0.74	0.81	0.24
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1321	1385	106	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.55	0.55	0.55	0.34	0.34	0.34
Uniform Delay (d), s/veh	54.7	0.0	0.0	49.6	0.0	0.0	66.9	0.0	0.0	67.2	11.2	5.4
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.4	0.0	0.0	27.0	2.0	1.9	17.8	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.0	2.5	0.0	0.0	0.2	0.7	0.7	0.2	18.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	0.0	50.1	0.0	0.0	93.9	2.0	1.9	85.0	12.2	5.6
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		215			83			1983			2432	
Approach Delay, s/veh		59.5			50.1			2.2			11.6	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	104.3		26.1	4.5	104.3		26.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	54.9		7.8	2.4	2.0		20.6
Green Ext Time (p_c), s	0.0	28.0		0.2	0.0	65.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1605	110	25	1910	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1605	110	25	1910	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	12	109	27	2	60	1745	117	27	2076	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	45	321	100	356	26	76	2315	154	34	2207	172
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.20	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1113	216	1548	1338	1717	127	1781	3382	225	1781	3339	260
Grp Volume(v), veh/h	234	0	12	109	0	29	60	909	953	27	1091	1149
Grp Sat Flow(s),veh/h/ln	1329	0	1548	1338	0	1844	1781	1777	1830	1781	1777	1823
Q Serve(g_s), s	21.5	0.0	0.8	4.8	0.0	1.7	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	23.2	0.0	0.8	28.0	0.0	1.7	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.84		1.00	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	325	0	321	100	0	382	76	1217	1253	34	1174	1204
V/C Ratio(X)	0.72	0.00	0.04	1.09	0.00	0.08	0.79	0.75	0.76	0.80	0.93	0.95
Avail Cap(c_a), veh/h	325	0	321	100	0	382	106	1217	1253	106	1174	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.45	0.45	0.45
Uniform Delay (d), s/veh	52.4	0.0	42.7	66.4	0.0	43.1	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	7.6	0.0	0.0	114.8	0.0	0.1	1.6	0.4	0.4	7.0	7.4	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	0.3	6.7	0.0	0.8	2.0	0.1	0.1	1.0	2.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	0.0	42.8	181.1	0.0	43.2	62.7	0.4	0.4	71.6	7.4	9.5
LnGrp LOS	E	A	D	F	A	D	E	A	A	E	A	A
Approach Vol, veh/h		246			138			1922			2267	
Approach Delay, s/veh		59.2			152.1			2.3			9.2	
Approach LOS		E			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	93.2		32.0	6.6	96.4		32.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	86.0		27.0	8.0	86.0		27.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		30.0	4.0	2.0		25.2
Green Ext Time (p_c), s	0.0	66.5		0.0	0.0	47.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1030	85	645	225	660	1120	90
Future Volume (veh/h)	85	125	115	195	120	1030	85	645	225	660	1120	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	20	212	130	0	92	701	162	717	1217	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	260	244	538		115	759	639	751	1868	144
Arrive On Green	0.17	0.17	0.17	0.09	0.29	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	607	944	1534	1781	1870	1585	1781	1870	1573	3456	3341	258
Grp Volume(v), veh/h	228	0	20	212	130	0	92	701	162	717	646	665
Grp Sat Flow(s),veh/h/ln	1552	0	1534	1781	1870	1585	1781	1870	1573	1728	1777	1822
Q Serve(g_s), s	18.7	0.0	1.5	12.0	7.2	0.0	6.9	48.1	9.2	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.5	12.0	7.2	0.0	6.9	48.1	9.2	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	300	0	260	244	538		115	759	639	751	993	1019
V/C Ratio(X)	0.76	0.00	0.08	0.87	0.24		0.80	0.92	0.25	0.95	0.65	0.65
Avail Cap(c_a), veh/h	347	0	307	244	596		238	759	639	768	993	1019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.24	0.24	0.24
Uniform Delay (d), s/veh	54.5	0.0	47.2	44.2	36.8	0.0	62.3	38.1	26.6	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	0.1	26.7	0.2	0.0	4.3	16.9	0.8	7.7	0.8	0.8
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	8.3	0.0	0.6	7.7	3.4	0.0	3.2	25.1	3.6	10.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	47.3	70.9	37.0	0.0	66.6	55.0	27.4	45.2	0.8	0.8
LnGrp LOS	E	A	D	E	D		E	D	C	D	A	A
Approach Vol, veh/h		248			342	A		955			2028	
Approach Delay, s/veh		61.4			58.0			51.4			16.5	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	79.5	16.0	26.9	33.3	58.8		42.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	61.0	11.0	26.0	30.0	49.0		42.0
Max Q Clear Time (g_c+I1), s	9.9	2.0	14.0	21.3	29.1	50.1		9.2
Green Ext Time (p_c), s	0.1	20.7	0.0	0.4	0.3	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	345	45	50	20	290	325	40	20	290	90
Future Volume (veh/h)	40	45	345	45	50	20	290	325	40	20	290	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	35	49	54	10	315	353	23	22	315	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	131	199	256	194	36	403	938	793	29	545	461
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.23	0.50	0.50	0.02	0.29	0.29
Sat Flow, veh/h	549	1032	1567	1303	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	35	49	0	64	315	353	23	22	315	28
Grp Sat Flow(s),veh/h/ln	1581	0	1567	1303	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.6	0.0	1.4	7.5	5.2	0.3	0.6	6.5	0.6
Cycle Q Clear(g_c), s	2.4	0.0	0.9	4.0	0.0	1.4	7.5	5.2	0.3	0.6	6.5	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318	0	199	256	0	230	403	938	793	29	545	461
V/C Ratio(X)	0.29	0.00	0.18	0.19	0.00	0.28	0.78	0.38	0.03	0.77	0.58	0.06
Avail Cap(c_a), veh/h	957	0	837	786	0	969	1189	3287	2780	594	2663	2253
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	17.5	20.1	0.0	17.8	16.4	6.9	5.7	22.0	13.6	11.5
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.6	3.4	0.5	0.0	34.3	2.1	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	0.8	0.0	0.3	0.5	0.0	0.6	2.9	1.5	0.1	0.5	2.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	17.9	20.4	0.0	18.4	19.7	7.4	5.7	56.3	15.6	11.6
LnGrp LOS	B	A	B	C	A	B	B	A	A	E	B	B
Approach Vol, veh/h		127			113			691			365	
Approach Delay, s/veh		18.4			19.3			13.0			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	28.5		10.7	15.2	19.1		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	7.2		4.4	9.5	8.5		6.0				
Green Ext Time (p_c), s	0.0	5.1		0.5	0.9	4.4		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			15.4
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	200	40	15	5	140	480	25	15	510	60
Future Volume (veh/h)	60	20	200	40	15	5	140	480	25	15	510	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	20	43	16	1	152	522	0	16	554	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	78	229	298	256	16	438	881		422	747	630
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.47	0.00	0.01	0.40	0.40
Sat Flow, veh/h	985	529	1558	1347	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	20	43	0	17	152	522	0	16	554	26
Grp Sat Flow(s),veh/h/ln	1514	0	1558	1347	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.3	2.1	8.9	0.0	0.2	11.0	0.4
Cycle Q Clear(g_c), s	2.1	0.0	0.5	3.4	0.0	0.3	2.1	8.9	0.0	0.2	11.0	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	0	229	298	0	272	438	881		422	747	630
V/C Ratio(X)	0.24	0.00	0.09	0.14	0.00	0.06	0.35	0.59		0.04	0.74	0.04
Avail Cap(c_a), veh/h	1001	0	899	877	0	1067	905	2202		1017	2202	1859
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	16.0	18.2	0.0	15.9	8.0	8.4	0.0	8.0	11.1	7.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.4	0.0	0.1	0.6	2.5	0.0	0.1	3.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	16.1	18.4	0.0	16.0	8.5	9.0	0.0	8.0	12.6	8.0
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		107			60			674	A		596	
Approach Delay, s/veh		16.8			17.7			8.9			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	26.4		11.4	8.6	23.3		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	10.9		4.1	4.1	13.0		5.4
Green Ext Time (p_c), s	0.0	3.6		0.5	0.3	4.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	85	10	5	10	85	585	15	5	700	50
Future Volume (veh/h)	40	5	85	10	5	10	85	585	15	5	700	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	6	11	5	1	92	636	9	5	761	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	84	101	20	162	137	122	1033	875	7	912	772
Arrive On Green	0.03	0.11	0.11	0.01	0.09	0.09	0.07	0.55	0.55	0.00	0.49	0.49
Sat Flow, veh/h	1781	770	924	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	11	11	5	1	92	636	9	5	761	27
Grp Sat Flow(s),veh/h/ln	1781	0	1694	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.5	0.0	0.4	0.4	0.2	0.0	3.1	14.3	0.2	0.2	21.7	0.5
Cycle Q Clear(g_c), s	1.5	0.0	0.4	0.4	0.2	0.0	3.1	14.3	0.2	0.2	21.7	0.5
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	185	20	162	137	122	1033	875	7	912	772
V/C Ratio(X)	0.71	0.00	0.06	0.55	0.03	0.01	0.75	0.62	0.01	0.70	0.83	0.03
Avail Cap(c_a), veh/h	576	0	575	576	635	538	720	1966	1667	720	1966	1665
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	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	29.6	0.0	24.7	30.4	25.9	25.8	28.3	9.4	6.2	30.8	13.7	8.3
Incr Delay (d2), s/veh	14.5	0.0	0.1	22.0	0.1	0.0	9.1	0.6	0.0	80.7	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.1	0.3	0.1	0.0	1.6	4.6	0.0	0.2	7.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	24.8	52.4	25.9	25.8	37.4	10.0	6.2	111.4	15.8	8.3
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		54			17			737			793	
Approach Delay, s/veh		40.2			43.1			13.4			16.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	39.1	5.7	11.8	9.2	35.1	7.1	10.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	16.3	2.4	2.4	5.1	23.7	3.5	2.2
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.2	6.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	635	5	0	765	50
Future Volume (veh/h)	55	10	620	10	0	5	425	635	5	0	765	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	690	5	0	832	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	14		201	4	8	528	2743	20	3	1409	626
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.30	0.76	0.76	0.00	0.40	0.40
Sat Flow, veh/h	1261	231	1585	1435	64	136	1781	3616	26	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	339	356	0	832	17
Grp Sat Flow(s),veh/h/ln	1492	0	1585	1635	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	15.1	3.5	3.5	0.0	11.3	0.4
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.4	0.0	0.0	15.1	3.5	3.5	0.0	11.3	0.4
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	225	0		240	0	0	528	1348	1415	3	1409	626
V/C Ratio(X)	0.32	0.00		0.05	0.00	0.00	0.87	0.25	0.25	0.00	0.59	0.03
Avail Cap(c_a), veh/h	614	0		732	0	0	2066	2003	2103	2066	4006	1780
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	0.0	26.7	0.0	0.0	20.4	2.2	2.2	0.0	14.6	11.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	1.8	0.2	0.2	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.2	0.0	0.0	5.8	0.5	0.5	0.0	4.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	0.0	26.8	0.0	0.0	22.3	2.4	2.4	0.0	15.4	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1157			849	
Approach Delay, s/veh		28.6			26.8			10.3			15.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.2	30.3		8.8	0.0	52.4		8.8
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.1	13.3		2.4	0.0	5.5		4.8
Green Ext Time (p_c), s	1.1	11.0		0.0	0.0	7.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1010	20	10	1350	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1010	20	10	1350	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	6	16	5	1	120	1098	21	11	1467	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	14	139	147	35	5	153	2551	49	15	2265	1008
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.72	0.72	0.01	0.64	0.64
Sat Flow, veh/h	1381	155	1548	716	394	53	1781	3567	68	1781	3554	1581
Grp Volume(v), veh/h	65	0	6	22	0	0	120	547	572	11	1467	42
Grp Sat Flow(s),veh/h/ln	1537	0	1548	1163	0	0	1781	1777	1858	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.3	0.1	0.0	0.0	4.9	9.5	9.5	0.5	19.1	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.3	2.7	0.0	0.0	4.9	9.5	9.5	0.5	19.1	0.7
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	251	0	139	203	0	0	153	1271	1329	15	2265	1008
V/C Ratio(X)	0.26	0.00	0.04	0.11	0.00	0.00	0.78	0.43	0.43	0.75	0.65	0.04
Avail Cap(c_a), veh/h	558	0	475	523	0	0	499	2039	2132	261	3604	1604
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	31.2	31.2	0.0	0.0	33.6	4.4	4.4	37.1	8.4	5.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.3	0.5	0.5	24.7	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.4	0.0	0.0	2.2	2.4	2.5	0.3	5.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	0.0	31.2	31.3	0.0	0.0	36.9	4.9	4.9	61.8	9.1	5.1
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		71			22			1239			1520	
Approach Delay, s/veh		31.9			31.3			8.0			9.3	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	52.8		11.7	4.6	58.6		11.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	6.9	21.1		4.7	2.5	11.5		4.6
Green Ext Time (p_c), s	0.1	26.7		0.0	0.0	16.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	45	5	35	115	1100	55	30	1440	75
Future Volume (veh/h)	60	5	185	45	5	35	115	1100	55	30	1440	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	12	49	5	2	125	1196	38	33	1565	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	17	226	222	182	73	159	2302	1027	57	2098	936
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.65	0.65	0.03	0.59	0.59
Sat Flow, veh/h	1298	122	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	12	49	0	7	125	1196	38	33	1565	45
Grp Sat Flow(s),veh/h/ln	1419	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	0.0	0.6	2.8	0.0	0.3	5.8	15.1	0.7	1.5	27.3	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.6	6.6	0.0	0.3	5.8	15.1	0.7	1.5	27.3	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	302	0	226	222	0	254	159	2302	1027	57	2098	936
V/C Ratio(X)	0.23	0.00	0.05	0.22	0.00	0.03	0.78	0.52	0.04	0.58	0.75	0.05
Avail Cap(c_a), veh/h	502	0	447	417	0	504	442	2896	1292	252	2518	1123
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	31.3	35.7	0.0	31.2	37.8	7.9	5.4	40.4	12.7	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.2	0.4	0.0	3.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.2	1.0	0.0	0.1	2.6	4.8	0.2	0.7	9.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	31.4	36.2	0.0	31.3	41.0	8.3	5.4	43.9	14.2	7.4
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		82			56			1359			1643	
Approach Delay, s/veh		32.5			35.5			11.2			14.6	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	56.0		17.1	6.7	60.9		17.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	7.8	29.3		8.6	3.5	17.1		5.8
Green Ext Time (p_c), s	0.2	20.7		0.1	0.0	18.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	5	460	15	5	20	305	1230	15	60	1455	155
Future Volume (veh/h)	240	5	460	15	5	20	305	1230	15	60	1455	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	5	297	16	5	7	332	1337	16	65	1582	127
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	6	838	42	13	18	430	2200	26	109	1950	869
Arrive On Green	0.18	0.18	0.18	0.04	0.04	0.02	0.12	0.61	0.60	0.06	0.55	0.55
Sat Flow, veh/h	1749	34	2790	996	311	436	3456	3596	43	1781	3554	1584
Grp Volume(v), veh/h	266	0	297	28	0	0	332	660	693	65	1582	127
Grp Sat Flow(s),veh/h/ln	1783	0	1395	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	22.3	0.0	13.0	2.4	0.0	0.0	14.5	35.8	35.8	5.5	56.4	6.1
Cycle Q Clear(g_c), s	22.3	0.0	13.0	2.4	0.0	0.0	14.5	35.8	35.8	5.5	56.4	6.1
Prop In Lane	0.98		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	838	73	0	0	430	1087	1140	109	1950	869
V/C Ratio(X)	0.82	0.00	0.35	0.38	0.00	0.00	0.77	0.61	0.61	0.59	0.81	0.15
Avail Cap(c_a), veh/h	389	0	938	347	0	0	1287	2213	2320	172	3445	1536
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	0.0	42.7	73.0	0.0	0.0	66.0	18.7	18.7	71.2	28.6	17.2
Incr Delay (d2), s/veh	9.4	0.0	0.1	1.2	0.0	0.0	1.1	0.8	0.8	1.9	1.2	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	11.1	0.0	4.6	1.1	0.0	0.0	6.5	14.6	15.3	2.6	23.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	0.0	42.8	74.3	0.0	0.0	67.2	19.5	19.5	73.1	29.8	17.4
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	B
Approach Vol, veh/h		563			28			1685			1774	
Approach Delay, s/veh		55.9			74.3			28.9			30.5	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.4	89.5		10.5	13.6	99.3		32.4
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	16.5	58.4		4.4	7.5	37.8		24.3
Green Ext Time (p_c), s	0.9	25.1		0.0	0.0	14.3		1.0

Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	60	5	1425	90	90	1900	10
Future Volume (veh/h)	5	0	5	140	5	60	5	1425	90	90	1900	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1549	95	98	2065	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2414	147	124	2801	15
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3402	208	1781	3624	19
Grp Volume(v), veh/h	6	0	0	152	0	10	5	805	839	98	1011	1065
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1833	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	8.4	8.7	7.0	39.0	39.2
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	8.4	8.7	7.0	39.0	39.2
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1261	1300	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.64	0.64	0.79	0.74	0.74
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1261	1300	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.3	59.5	7.8	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.7	2.0	2.0	16.4	3.6	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.0	2.1	3.7	13.4	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	72.0	3.3	3.3	76.0	11.3	11.2
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1649			2174	
Approach Delay, s/veh		49.6			57.4			3.5			14.2	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	41.2		15.4	9.0	10.7		2.7
Green Ext Time (p_c), s	0.0	33.7		0.3	0.0	34.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1370	15	10	1685	265
Future Volume (veh/h)	135	5	15	70	5	15	15	1370	15	10	1685	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1489	15	11	1832	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2773	28	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3604	36	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	734	770	11	1832	216
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	21.1	21.1	0.8	32.3	4.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	21.1	21.1	0.8	32.3	4.8
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.54	0.54	0.82	0.67	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.71	0.71	0.71	0.57	0.57	0.57
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	5.9	5.9	64.4	7.3	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	21.7	1.1	1.0	21.5	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	6.9	7.3	0.4	10.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	85.9	7.0	6.9	86.0	8.1	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1520			2059	
Approach Delay, s/veh		57.8			52.6			7.8			8.1	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	34.3		8.3	2.8	23.1		15.6
Green Ext Time (p_c), s	0.0	41.8		0.2	0.0	36.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1400	65	15	1695	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1400	65	15	1695	135
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		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	17	103	22	4	71	1522	69	16	1842	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	28	352	131	343	62	90	2333	105	19	2121	162
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.07	0.90	0.89	0.01	0.84	0.83
Sat Flow, veh/h	1217	126	1579	1365	1539	280	1781	3462	156	1781	3344	256
Grp Volume(v), veh/h	234	0	17	103	0	26	71	779	812	16	967	1018
Grp Sat Flow(s),veh/h/ln	1343	0	1579	1365	0	1819	1781	1777	1841	1781	1777	1824
Q Serve(g_s), s	20.3	0.0	1.1	7.2	0.0	1.5	5.1	14.2	14.5	1.2	40.1	44.3
Cycle Q Clear(g_c), s	21.8	0.0	1.1	29.0	0.0	1.5	5.1	14.2	14.5	1.2	40.1	44.3
Prop In Lane	0.91		1.00	1.00		0.15	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	352	0	352	131	0	406	90	1197	1241	19	1127	1156
V/C Ratio(X)	0.66	0.00	0.05	0.79	0.00	0.06	0.79	0.65	0.65	0.84	0.86	0.88
Avail Cap(c_a), veh/h	352	0	352	131	0	406	110	1197	1241	110	1127	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	0.65	0.65	0.65
Uniform Delay (d), s/veh	48.4	0.0	39.7	62.3	0.0	39.9	60.0	2.9	3.0	64.0	6.9	7.3
Incr Delay (d2), s/veh	4.6	0.0	0.1	26.2	0.0	0.1	2.6	0.3	0.3	20.2	5.8	6.6
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	7.7	0.0	0.4	4.4	0.0	0.7	2.3	2.6	2.7	0.6	7.3	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	0.0	39.7	88.5	0.0	39.9	62.5	3.2	3.2	84.2	12.6	13.9
LnGrp LOS	D	A	D	F	A	D	E	A	A	F	B	B
Approach Vol, veh/h		251			129			1662			2001	
Approach Delay, s/veh		52.1			78.7			5.8			13.8	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	86.4		33.0	5.4	91.6		33.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	46.3		31.0	3.2	16.5		23.8
Green Ext Time (p_c), s	0.0	27.6		0.0	0.0	30.5		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	840	95	550	205	565	1000	145
Future Volume (veh/h)	95	120	115	200	140	840	95	550	205	565	1000	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	598	135	614	1087	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	731	611	695	1633	225
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.13	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3137	432
Grp Volume(v), veh/h	233	0	16	217	152	0	103	598	135	614	615	622
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1792
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	37.2	7.5	22.7	38.1	38.3
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	37.2	7.5	22.7	38.1	38.3
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	731	611	695	925	933
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.82	0.22	0.88	0.66	0.67
Avail Cap(c_a), veh/h	339	0	303	279	633		329	731	611	957	925	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.43	0.43	0.43
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	35.4	26.4	54.8	32.7	32.8
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	7.9	0.7	2.7	1.6	1.6
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	18.2	2.9	10.4	17.6	17.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	43.4	27.0	57.5	34.4	34.5
LnGrp LOS	E	A	D	D	C		E	D	C	E	C	C
Approach Vol, veh/h		249			369	A		836			1851	
Approach Delay, s/veh		60.0			44.0			43.2			42.1	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.1	54.8		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	40.3	14.6	21.7	24.7	39.2		9.9
Green Ext Time (p_c), s	0.1	6.1	0.0	0.3	1.4	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 with Mitigation AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	230	240	105	10	135	35
Future Volume (veh/h)	50	45	310	85	45	20	230	240	105	10	135	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	44	92	49	9	250	261	53	11	147	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	154	245	316	240	44	334	807	684	15	472	400
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1294	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	44	92	0	58	250	261	53	11	147	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1294	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	1.0	2.7	0.0	1.1	5.3	3.7	0.8	0.2	2.5	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.0	4.8	0.0	1.1	5.3	3.7	0.8	0.2	2.5	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	316	0	284	334	807	684	15	472	400
V/C Ratio(X)	0.26	0.00	0.18	0.29	0.00	0.20	0.75	0.32	0.08	0.72	0.31	0.02
Avail Cap(c_a), veh/h	1085	0	951	897	0	1100	1348	3728	3159	674	3020	2559
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	14.5	17.1	0.0	14.6	15.2	7.4	6.6	19.6	12.0	11.1
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.4	0.5	0.1	46.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.0	1.1	0.2	0.3	0.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.9	17.6	0.0	14.9	18.6	7.9	6.7	66.2	12.8	11.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		147			150			564			167	
Approach Delay, s/veh		15.2			16.6			12.5			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	23.1		11.2	12.4	16.0		11.2
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.2	5.7		4.1	7.3	4.5		6.8
Green Ext Time (p_c), s	0.0	3.9		0.6	0.7	1.8		0.5

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	140	540	15	10	525	70
Future Volume (veh/h)	60	5	180	90	20	15	140	540	15	10	525	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	20	98	22	2	152	587	0	11	571	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	24	308	345	335	30	408	890		353	736	619
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.39	0.39
Sat Flow, veh/h	1214	122	1545	1356	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	20	98	0	24	152	587	0	11	571	34
Grp Sat Flow(s),veh/h/ln	1336	0	1545	1356	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.5	3.3	0.0	0.5	2.3	12.1	0.0	0.2	13.5	0.7
Cycle Q Clear(g_c), s	2.5	0.0	0.5	5.9	0.0	0.5	2.3	12.1	0.0	0.2	13.5	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	403	0	308	345	0	366	408	890		353	736	619
V/C Ratio(X)	0.17	0.00	0.07	0.28	0.00	0.07	0.37	0.66		0.03	0.78	0.05
Avail Cap(c_a), veh/h	811	0	764	746	0	909	774	1886		866	1886	1587
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	16.4	19.7	0.0	16.4	9.3	10.1	0.0	9.7	13.4	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.0	0.1	0.6	0.8	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.0	0.0	0.2	0.7	3.8	0.0	0.1	4.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	0.0	16.5	20.2	0.0	16.5	9.9	11.0	0.0	9.8	15.2	9.5
LnGrp LOS	B	A	B	C	A	B	A	B		A	B	A
Approach Vol, veh/h		90			122			739	A		616	
Approach Delay, s/veh		17.3			19.4			10.7			14.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	30.1		15.1	9.6	25.9		15.1
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	14.1		4.5	4.3	15.5		7.9
Green Ext Time (p_c), s	0.0	4.2		0.4	0.3	4.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	5	5	5	60	630	15	5	735	30
Future Volume (veh/h)	40	5	125	5	5	5	60	630	15	5	735	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	10	5	5	1	65	685	9	5	799	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	66	133	9	173	144	84	1032	874	7	951	800
Arrive On Green	0.03	0.12	0.12	0.01	0.09	0.09	0.05	0.55	0.55	0.00	0.51	0.51
Sat Flow, veh/h	1781	552	1103	1781	1870	1565	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	43	0	15	5	5	1	65	685	9	5	799	18
Grp Sat Flow(s),veh/h/ln	1781	0	1655	1781	1870	1565	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.3	0.2	0.2	23.0	0.4
Cycle Q Clear(g_c), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.3	0.2	0.2	23.0	0.4
Prop In Lane	1.00		0.67	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	199	9	173	144	84	1032	874	7	951	800
V/C Ratio(X)	0.72	0.00	0.08	0.53	0.03	0.01	0.77	0.66	0.01	0.70	0.84	0.02
Avail Cap(c_a), veh/h	567	0	554	567	625	523	709	1936	1641	709	1936	1629
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	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	30.0	0.0	24.5	31.2	25.9	25.9	29.6	10.0	6.3	31.2	13.3	7.7
Incr Delay (d2), s/veh	14.8	0.0	0.2	38.8	0.1	0.0	13.6	0.7	0.0	80.8	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.2	0.1	0.0	1.2	5.3	0.0	0.2	8.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	24.7	69.9	26.0	25.9	43.2	10.7	6.4	112.1	15.3	7.7
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		58			11			759			822	
Approach Delay, s/veh		39.6			46.0			13.4			15.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	39.6	5.3	12.6	8.0	36.9	7.1	10.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	18.3	2.2	2.5	4.3	25.0	3.5	2.2
Green Ext Time (p_c), s	0.0	5.4	0.0	0.0	0.1	6.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	705	45	10	830	10
Future Volume (veh/h)	35	10	495	20	5	0	330	705	45	10	830	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	766	48	11	902	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	30		194	30	0	426	2258	141	15	1542	688
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.66	0.66	0.01	0.43	0.43
Sat Flow, veh/h	1116	421	1585	1152	421	0	1781	3396	213	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	401	413	11	902	3
Grp Sat Flow(s),veh/h/ln	1537	0	1585	1573	0	0	1781	1777	1832	1781	1777	1585
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	11.3	5.8	5.8	0.4	11.3	0.1
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.8	0.0	0.0	11.3	5.8	5.8	0.4	11.3	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	246	0		251	0	0	426	1181	1218	15	1542	688
V/C Ratio(X)	0.20	0.00		0.11	0.00	0.00	0.84	0.34	0.34	0.74	0.58	0.00
Avail Cap(c_a), veh/h	643	0		767	0	0	1995	2231	2301	1995	4462	1990
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	0.0	25.3	0.0	0.0	21.4	4.3	4.3	29.2	12.6	9.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.8	0.4	0.4	22.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	4.4	1.4	1.4	0.2	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	0.0	25.5	0.0	0.0	23.1	4.6	4.6	51.8	13.4	9.5
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1173			916	
Approach Delay, s/veh		26.1			25.5			10.3			13.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.1	31.6		9.3	4.5	45.2		9.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.3	13.3		2.8	2.4	7.8		3.6
Green Ext Time (p_c), s	0.8	12.2		0.0	0.0	9.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1130	20	15	1310	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1130	20	15	1310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1228	21	16	1424	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	0	72	118	19	3	186	2642	45	20	2297	1024
Arrive On Green	0.06	0.00	0.05	0.06	0.05	0.05	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1559	0	1585	699	425	70	1781	3575	61	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	610	639	16	1424	47
Grp Sat Flow(s),veh/h/ln	1559	0	1585	1194	0	0	1781	1777	1859	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.5	9.4	9.4	0.6	16.2	0.7
Cycle Q Clear(g_c), s	1.2	0.0	0.0	1.6	0.0	0.0	5.5	9.4	9.4	0.6	16.2	0.7
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	198	0	72	158	0	0	186	1313	1374	20	2297	1024
V/C Ratio(X)	0.17	0.00	0.01	0.11	0.00	0.00	0.79	0.46	0.46	0.78	0.62	0.05
Avail Cap(c_a), veh/h	607	0	531	603	0	0	545	2228	2331	286	3937	1756
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	31.3	31.8	0.0	0.0	30.0	3.6	3.6	33.8	7.2	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	2.8	0.5	0.5	20.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	2.4	1.9	2.0	0.4	4.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	31.3	31.9	0.0	0.0	32.8	4.1	4.1	54.6	7.8	4.5
LnGrp LOS	C	A	C	C	A	A	C	A	A	D	A	A
Approach Vol, veh/h		34			17			1396			1487	
Approach Delay, s/veh		31.5			31.9			7.1			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	49.3		8.1	4.8	55.7		8.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.5	18.2		3.6	2.6	11.4		3.2
Green Ext Time (p_c), s	0.1	26.1		0.0	0.0	19.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1285	60	25	1260	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1285	60	25	1260	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1397	49	27	1370	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2775	1238	39	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1397	49	27	1370	34
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	22.0	1.1	2.3	27.2	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	22.0	1.1	2.3	27.2	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2775	1238	39	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.50	0.04	0.68	0.54	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2775	1238	241	2560	1142
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	1.00	1.00	0.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.1	3.8	75.2	9.9	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.2	0.5	0.0	7.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.5	0.3	1.2	10.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.3	6.6	3.9	82.8	10.7	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1571			1431	
Approach Delay, s/veh		67.9			71.9			12.0			11.9	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.4	127.0		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	29.2		15.1	4.3	24.0		9.8
Green Ext Time (p_c), s	0.1	25.4		0.1	0.0	27.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1370	15	80	1225	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1370	15	80	1225	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	62	11	11	3	478	1489	16	87	1332	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	0	833	62	62	17	626	2140	23	151	1769	919
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.59	0.58	0.08	0.50	0.50
Sat Flow, veh/h	3563	0	3076	786	786	214	3456	3602	39	1781	3554	1579
Grp Volume(v), veh/h	155	0	62	25	0	0	478	734	771	87	1332	80
Grp Sat Flow(s),veh/h/ln	1781	0	1538	1787	0	0	1728	1777	1863	1781	1777	1579
Q Serve(g_s), s	4.4	0.0	1.6	1.4	0.0	0.0	14.1	30.7	30.8	5.0	32.4	2.4
Cycle Q Clear(g_c), s	4.4	0.0	1.6	1.4	0.0	0.0	14.1	30.7	30.8	5.0	32.4	2.4
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	333	0	833	141	0	0	626	1056	1107	151	1769	919
V/C Ratio(X)	0.47	0.00	0.07	0.18	0.00	0.00	0.76	0.70	0.70	0.58	0.75	0.09
Avail Cap(c_a), veh/h	1127	0	1519	515	0	0	1865	3208	3364	249	4994	2353
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	29.6	46.4	0.0	0.0	41.8	15.1	15.1	47.3	21.7	9.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.7	1.2	1.1	1.3	0.9	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	2.0	0.0	0.6	0.7	0.0	0.0	6.0	11.6	12.2	2.3	12.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	0.0	29.6	47.0	0.0	0.0	42.5	16.3	16.2	48.6	22.6	10.0
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		217			25			1983			1499	
Approach Delay, s/veh		41.7			47.0			22.6			23.5	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.5	57.5		12.5	13.1	67.8		14.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	16.1	34.4		3.4	7.0	32.8		6.4
Green Ext Time (p_c), s	1.3	17.1		0.0	0.1	18.2		0.6

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1825	95	30	1435	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1825	95	30	1435	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	1984	101	33	1560	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2716	137	64	2974	10
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3442	174	1781	3633	12
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1016	1069	33	763	802
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1839	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	39.4	41.1	2.5	19.1	19.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	39.4	41.1	2.5	19.1	19.1
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1451	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.72	0.74	0.52	0.52	0.52
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1451	102	1455	1529
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	0.59	0.59	0.59	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.3	7.5	66.3	4.0	4.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.9	2.0	2.0	2.4	1.4	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	0.4	0.0	0.0	2.3	0.0	0.0	0.2	12.9	13.9	1.2	5.8	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	75.2	9.2	9.5	68.7	5.4	5.3
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2090			1598	
Approach Delay, s/veh		58.6			62.0			9.5			6.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	21.1		8.1	4.5	43.1		2.8
Green Ext Time (p_c), s	0.0	31.1		0.1	0.0	41.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1805	20	10	1280	190
Future Volume (veh/h)	90	5	5	105	15	15	5	1805	20	10	1280	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	1962	21	11	1391	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2819	30	14	2795	1245
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3602	38	1781	3554	1583
Grp Volume(v), veh/h	106	0	0	142	0	0	5	966	1017	11	1391	148
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	31.1	31.3	0.7	16.5	2.6
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	31.1	31.3	0.7	16.5	2.6
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1245
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.69	0.70	0.80	0.50	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1245
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	0.64	0.64	0.64	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.2	6.2	59.4	4.5	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	29.6	1.9	1.8	27.8	0.5	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	9.5	10.0	0.4	4.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	89.3	8.1	8.0	87.2	5.0	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			1988			1550	
Approach Delay, s/veh		52.7			54.3			8.3			5.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	18.5		11.7	2.7	33.3		9.9
Green Ext Time (p_c), s	0.0	32.4		0.5	0.0	31.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1635	75	10	1320	70
Future Volume (veh/h)	145	30	20	150	25	35	25	1635	75	10	1320	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1777	80	11	1435	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2558	114	13	2499	129
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3464	155	1781	3439	177
Grp Volume(v), veh/h	158	0	35	163	0	30	27	906	951	11	740	769
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1842	1781	1777	1839
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	27.3	27.6
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	27.3	27.6
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1360	13	1291	1336
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.69	0.70	0.83	0.57	0.58
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1360	140	1291	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.84	0.84	0.84
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.0	9.0
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	31.3	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	10.1	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.7	10.5	10.5
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1884			1520	
Approach Delay, s/veh		57.2			58.1			1.3			11.2	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	29.6		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	25.0		0.6	0.0	45.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1145	55	635	175	570	1010	75
Future Volume (veh/h)	55	120	60	110	100	1145	55	635	175	570	1010	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	690	119	620	1098	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	889	751	658	2095	149
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.48	0.48	0.38	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3365	239
Grp Volume(v), veh/h	190	0	6	120	109	0	60	690	119	620	580	596
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1827
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	42.9	6.0	24.3	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	42.9	6.0	24.3	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	889	751	658	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.78	0.16	0.94	0.52	0.52
Avail Cap(c_a), veh/h	304	0	256	232	508		178	889	751	691	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.76	0.76	0.76
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	30.5	20.8	42.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	5.3	0.4	16.7	1.4	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	7.0	0.0	0.2	3.6	3.1	0.0	2.2	20.2	2.3	10.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	35.8	21.2	59.3	1.4	1.3
LnGrp LOS	E	A	D	D	D		E	D	C	E	A	A
Approach Vol, veh/h		196			229	A		869			1796	
Approach Delay, s/veh		63.7			45.0			36.2			21.3	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	30.7	70.6		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	28.0	61.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.3	44.9		8.5
Green Ext Time (p_c), s	0.0	17.6	0.0	0.3	0.4	6.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 with Mitigation PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	285	75
Future Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	285	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	24	65	27	1	435	245	41	5	310	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	70	180	228	204	8	522	1047	888	7	507	429
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.56	0.56	0.00	0.27	0.27
Sat Flow, veh/h	913	614	1585	1354	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	24	65	0	28	435	245	41	5	310	20
Grp Sat Flow(s),veh/h/ln	1527	0	1585	1354	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.9	0.0	0.7	2.4	0.0	0.7	11.3	3.3	0.6	0.1	7.2	0.5
Cycle Q Clear(g_c), s	2.6	0.0	0.7	5.0	0.0	0.7	11.3	3.3	0.6	0.1	7.2	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	296	0	180	228	0	211	522	1047	888	7	507	429
V/C Ratio(X)	0.29	0.00	0.13	0.29	0.00	0.13	0.83	0.23	0.05	0.70	0.61	0.05
Avail Cap(c_a), veh/h	852	0	766	728	0	899	1077	2977	2523	538	2411	2044
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	19.8	23.0	0.0	19.8	16.4	5.5	4.9	24.7	15.8	13.4
Incr Delay (d2), s/veh	0.5	0.0	0.3	0.7	0.0	0.3	3.6	0.2	0.0	79.0	2.6	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	0.9	0.0	0.2	0.7	0.0	0.3	4.3	0.9	0.1	0.2	2.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	20.1	23.7	0.0	20.1	20.0	5.8	5.0	103.7	18.4	13.5
LnGrp LOS	C	A	C	C	A	C	B	A	A	F	B	B
Approach Vol, veh/h		111			93			721			335	
Approach Delay, s/veh		20.9			22.6			14.3			19.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	33.8		10.6	19.5	19.5		10.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	5.3		4.6	13.3	9.2		7.0				
Green Ext Time (p_c), s	0.0	3.5		0.5	1.2	4.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			16.8
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Hoohui Road

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	150	45	15	10	205	610	45	25	590	80
Future Volume (veh/h)	75	20	150	45	15	10	205	610	45	25	590	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	49	16	1	223	663	0	27	641	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	55	206	238	226	14	445	983		384	820	692
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.11	0.53	0.00	0.02	0.44	0.44
Sat Flow, veh/h	1080	423	1585	1373	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	13	49	0	17	223	663	0	27	641	45
Grp Sat Flow(s),veh/h/ln	1503	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.7	0.0	0.4	1.7	0.0	0.4	3.0	12.8	0.0	0.4	14.4	0.8
Cycle Q Clear(g_c), s	3.1	0.0	0.4	4.8	0.0	0.4	3.0	12.8	0.0	0.4	14.4	0.8
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	326	0	206	238	0	241	445	983		384	820	692
V/C Ratio(X)	0.32	0.00	0.06	0.21	0.00	0.07	0.50	0.67		0.07	0.78	0.07
Avail Cap(c_a), veh/h	885	0	807	759	0	942	801	1942		895	1942	1638
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	18.7	22.2	0.0	18.8	8.7	8.6	0.0	8.1	11.8	8.0
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	0.0	0.1	0.9	0.8	0.0	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.5	0.0	0.2	0.8	3.7	0.0	0.1	4.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	0.0	18.9	22.6	0.0	18.9	9.6	9.4	0.0	8.2	13.4	8.0
LnGrp LOS	C	A	B	C	A	B	A	A		A	B	A
Approach Vol, veh/h		117			66			886	A		713	
Approach Delay, s/veh		20.3			21.7			9.4			12.9	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	31.8		11.4	10.2	27.5		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	14.8		5.1	5.0	16.4		6.8
Green Ext Time (p_c), s	0.0	5.0		0.5	0.4	4.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	100	10	5	10	170	845	10	5	785	75
Future Volume (veh/h)	55	5	100	10	5	10	170	845	10	5	785	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	11	5	1	185	918	8	5	853	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	98	98	19	156	128	227	1193	1011	7	962	813
Arrive On Green	0.04	0.12	0.12	0.01	0.08	0.08	0.13	0.64	0.64	0.00	0.51	0.51
Sat Flow, veh/h	1781	844	844	1781	1870	1537	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	10	11	5	1	185	918	8	5	853	44
Grp Sat Flow(s),veh/h/ln	1781	0	1688	1781	1870	1537	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	2.9	0.0	0.5	0.5	0.2	0.1	8.7	30.2	0.2	0.2	35.2	1.2
Cycle Q Clear(g_c), s	2.9	0.0	0.5	0.5	0.2	0.1	8.7	30.2	0.2	0.2	35.2	1.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	196	19	156	128	227	1193	1011	7	962	813
V/C Ratio(X)	0.77	0.00	0.05	0.57	0.03	0.01	0.81	0.77	0.01	0.71	0.89	0.05
Avail Cap(c_a), veh/h	412	0	410	412	454	373	515	1406	1192	515	1406	1190
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	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	40.9	0.0	33.9	42.6	36.4	36.4	36.7	11.1	5.7	43.0	18.8	10.5
Incr Delay (d2), s/veh	14.4	0.0	0.1	24.4	0.1	0.0	7.0	2.3	0.0	84.2	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.2	0.4	0.1	0.0	4.1	10.8	0.0	0.3	14.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	0.0	34.1	66.9	36.5	36.4	43.7	13.4	5.7	127.2	23.9	10.5
LnGrp LOS	E	A	C	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		70			17			1111			902	
Approach Delay, s/veh		52.3			56.2			18.4			23.8	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	60.1	5.9	15.1	16.0	49.4	8.8	12.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	32.2	2.5	2.5	10.7	37.2	4.9	2.2
Green Ext Time (p_c), s	0.0	8.4	0.0	0.0	0.4	7.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	610	85	10	10	625	915	10	5	835	20
Future Volume (veh/h)	75	5	610	85	10	10	625	915	10	5	835	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	0	92	11	9	679	995	11	5	908	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	8		185	14	12	720	2728	30	7	1270	566
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.76	0.76	0.00	0.36	0.36
Sat Flow, veh/h	1457	89	1585	1338	160	131	1781	3600	40	1781	3554	1585
Grp Volume(v), veh/h	87	0	0	112	0	0	679	491	515	5	908	6
Grp Sat Flow(s),veh/h/ln	1546	0	1585	1629	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	37.0	9.3	9.3	0.3	22.2	0.2
Cycle Q Clear(g_c), s	5.1	0.0	0.0	6.3	0.0	0.0	37.0	9.3	9.3	0.3	22.2	0.2
Prop In Lane	0.94		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0		227	0	0	720	1346	1412	7	1270	566
V/C Ratio(X)	0.39	0.00		0.49	0.00	0.00	0.94	0.36	0.36	0.72	0.72	0.01
Avail Cap(c_a), veh/h	377	0		458	0	0	1255	1346	1412	1255	2433	1085
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	0.0	44.1	0.0	0.0	28.9	4.1	4.1	50.1	28.0	20.9
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.7	0.0	0.0	5.3	0.4	0.3	40.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	2.7	0.0	0.0	16.0	2.6	2.8	0.2	9.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	0.0	45.8	0.0	0.0	34.2	4.4	4.4	90.9	29.6	20.9
LnGrp LOS	D	A		D	A	A	C	A	A	F	C	C
Approach Vol, veh/h		87	A		112			1685			919	
Approach Delay, s/veh		44.8			45.8			16.4			29.9	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	44.7	42.0		14.0	4.4	82.4		14.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0				
Max Q Clear Time (g_c+I1), s	39.0	24.2		8.3	2.3	11.3		7.1				
Green Ext Time (p_c), s	1.8	11.8		0.3	0.0	13.0		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1490	10	10	1520	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1490	10	10	1520	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1620	11	11	1652	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	18	173	186	2	7	173	2633	18	14	2268	1012
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.73	0.73	0.01	0.64	0.64
Sat Flow, veh/h	1359	156	1522	971	19	62	1781	3618	25	1781	3554	1585
Grp Volume(v), veh/h	59	0	6	17	0	0	141	795	836	11	1652	36
Grp Sat Flow(s),veh/h/ln	1515	0	1522	1052	0	0	1781	1777	1866	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.2	20.5	20.6	0.6	29.2	0.8
Cycle Q Clear(g_c), s	2.8	0.0	0.3	3.7	0.0	0.0	7.2	20.5	20.6	0.6	29.2	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	263	0	173	206	0	0	173	1293	1358	14	2268	1012
V/C Ratio(X)	0.22	0.00	0.03	0.08	0.00	0.00	0.81	0.61	0.62	0.77	0.73	0.04
Avail Cap(c_a), veh/h	450	0	376	389	0	0	402	1642	1725	211	2903	1295
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	36.7	38.6	0.0	0.0	41.2	6.2	6.2	46.1	11.4	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.5	1.0	1.0	27.3	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	3.3	6.0	6.3	0.4	10.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.7	38.6	0.0	0.0	44.6	7.3	7.2	73.4	12.5	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1772			1699	
Approach Delay, s/veh		37.5			38.6			10.2			12.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	64.4		15.6	4.7	72.7		15.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.2	31.2		5.7	2.6	22.6		4.8
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	31.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1480	60	35	1690	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1480	60	35	1690	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1609	49	38	1837	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1609	49	38	1837	86
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	34.0	1.3	3.5	55.2	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	34.0	1.3	3.5	55.2	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.60	0.04	0.77	0.75	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.4	5.3	79.7	16.7	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	3.9	0.7	0.0	9.3	2.2	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	12.5	0.4	1.7	22.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	77.9	10.1	5.3	89.0	18.9	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	B	A
Approach Vol, veh/h		115			82			1799			1961	
Approach Delay, s/veh		66.4			77.2			15.2			19.8	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	57.2		20.7	5.5	36.0		11.7
Green Ext Time (p_c), s	0.2	31.5		0.1	0.0	36.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	5	625	15	0	5	395	1525	10	80	1750	135
Future Volume (veh/h)	295	5	625	15	0	5	395	1525	10	80	1750	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	0	482	16	0	1	429	1658	11	87	1902	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	0	910	68	0	4	498	2438	16	117	2116	944
Arrive On Green	0.15	0.00	0.15	0.04	0.00	0.03	0.14	0.67	0.67	0.07	0.60	0.60
Sat Flow, veh/h	3563	0	3126	1659	0	104	3456	3619	24	1781	3554	1585
Grp Volume(v), veh/h	325	0	482	17	0	0	429	814	855	87	1902	109
Grp Sat Flow(s),veh/h/ln	1781	0	1563	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	19.4	0.0	29.5	2.1	0.0	0.0	27.6	62.7	62.8	10.9	106.0	6.8
Cycle Q Clear(g_c), s	19.4	0.0	29.5	2.1	0.0	0.0	27.6	62.7	62.8	10.9	106.0	6.8
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	533	0	910	72	0	0	498	1197	1257	117	2116	944
V/C Ratio(X)	0.61	0.00	0.53	0.24	0.00	0.00	0.86	0.68	0.68	0.74	0.90	0.12
Avail Cap(c_a), veh/h	533	0	910	240	0	0	881	1516	1592	117	2359	1052
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	90.5	0.0	67.9	105.7	0.0	0.0	95.1	22.3	22.4	104.4	40.1	20.0
Incr Delay (d2), s/veh	1.5	0.0	0.3	0.6	0.0	0.0	1.8	1.1	1.1	20.0	5.0	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	9.2	0.0	12.1	1.0	0.0	0.0	12.6	26.6	28.0	5.8	47.4	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	0.0	68.2	106.4	0.0	0.0	96.9	23.5	23.4	124.4	45.1	20.1
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	C
Approach Vol, veh/h		807			17			2098			2098	
Approach Delay, s/veh		77.8			106.4			38.5			47.1	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	36.8	139.4		13.3	18.9	157.3		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	29.6	108.0		4.1	12.9	64.8		31.5
Green Ext Time (p_c), s	1.2	25.4		0.0	0.0	23.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1870	95	90	2320	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1870	95	90	2320	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2033	101	98	2522	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2597	128	124	2949	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3447	170	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1040	1094	98	1231	1296
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1840	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	57.7	57.8
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	57.7	57.8
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1386	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.78	0.79	0.79	0.85	0.86
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1386	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	7.9	7.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.4	2.5	2.6	4.2	6.7	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	3.4	0.0	0.3	0.4	0.9	1.0	3.4	18.7	19.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	69.4	2.5	2.6	66.0	14.6	14.3
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2145			2625	
Approach Delay, s/veh		57.1			62.0			2.9			16.3	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	59.8		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	26.2		0.2	0.1	57.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	15	10	65	5	10	5	1800	20	5	1975	325
Future Volume (veh/h)	175	15	10	65	5	10	5	1800	20	5	1975	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	16	9	71	5	7	5	1957	21	5	2147	280
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	18	10	276	20	23	7	2677	29	7	2641	1178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1329	112	63	1381	123	139	1781	3602	39	1781	3554	1585
Grp Volume(v), veh/h	215	0	0	83	0	0	5	964	1014	5	2147	280
Grp Sat Flow(s),veh/h/ln	1504	0	0	1643	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	52.9	7.4
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	52.9	7.4
Prop In Lane	0.88		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	0	319	0	0	7	1321	1385	7	2641	1178
V/C Ratio(X)	0.72	0.00	0.00	0.26	0.00	0.00	0.74	0.73	0.73	0.74	0.81	0.24
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1321	1385	106	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.56	0.56	0.56	0.34	0.34	0.34
Uniform Delay (d), s/veh	54.7	0.0	0.0	49.6	0.0	0.0	66.9	0.0	0.0	67.2	11.2	5.4
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.4	0.0	0.0	27.4	2.0	2.0	17.8	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.0	2.5	0.0	0.0	0.2	0.7	0.8	0.2	18.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	0.0	50.1	0.0	0.0	94.3	2.0	2.0	85.0	12.2	5.6
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		215			83			1983			2432	
Approach Delay, s/veh		59.5			50.1			2.2			11.6	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	104.3		26.1	4.5	104.3		26.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	54.9		7.8	2.4	2.0		20.6
Green Ext Time (p_c), s	0.0	28.0		0.2	0.0	65.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1605	110	25	1910	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1605	110	25	1910	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	11	109	27	4	60	1745	117	27	2076	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	252	73	264	289	43	76	2400	159	34	2290	178
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.17	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1345	1385	401	1325	1585	235	1781	3382	225	1781	3339	260
Grp Volume(v), veh/h	196	0	49	109	0	31	60	909	953	27	1091	1149
Grp Sat Flow(s),veh/h/ln	1345	0	1785	1325	0	1820	1781	1777	1830	1781	1777	1823
Q Serve(g_s), s	19.2	0.0	3.1	10.2	0.0	1.9	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	21.1	0.0	3.1	13.3	0.0	1.9	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.13	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	279	0	326	264	0	332	76	1261	1299	34	1219	1250
V/C Ratio(X)	0.70	0.00	0.15	0.41	0.00	0.09	0.79	0.72	0.73	0.80	0.90	0.92
Avail Cap(c_a), veh/h	343	0	410	327	0	418	106	1261	1299	106	1219	1250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.45	0.45	0.45
Uniform Delay (d), s/veh	54.7	0.0	46.4	52.0	0.0	46.0	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	0.2	1.0	0.0	0.1	1.6	0.3	0.3	7.0	5.1	6.3
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	6.9	0.0	1.4	3.5	0.0	0.9	2.0	0.1	0.1	1.0	1.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	46.6	53.0	0.0	46.1	62.7	0.3	0.3	71.6	5.1	6.3
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		245			140			1922			2267	
Approach Delay, s/veh		56.9			51.5			2.3			6.5	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.6		28.6	6.6	99.8		28.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		23.1
Green Ext Time (p_c), s	0.0	64.6		0.4	0.0	46.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1030	85	645	225	660	1120	90
Future Volume (veh/h)	85	125	115	195	120	1030	85	645	225	660	1120	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	20	212	130	0	92	701	162	717	1217	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	260	244	538		115	759	639	751	1868	144
Arrive On Green	0.17	0.17	0.17	0.09	0.29	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	607	944	1534	1781	1870	1585	1781	1870	1573	3456	3341	258
Grp Volume(v), veh/h	228	0	20	212	130	0	92	701	162	717	646	665
Grp Sat Flow(s),veh/h/ln	1552	0	1534	1781	1870	1585	1781	1870	1573	1728	1777	1822
Q Serve(g_s), s	18.7	0.0	1.5	12.0	7.2	0.0	6.9	48.1	9.2	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.5	12.0	7.2	0.0	6.9	48.1	9.2	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	300	0	260	244	538		115	759	639	751	993	1019
V/C Ratio(X)	0.76	0.00	0.08	0.87	0.24		0.80	0.92	0.25	0.95	0.65	0.65
Avail Cap(c_a), veh/h	347	0	307	244	596		238	759	639	768	993	1019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.28	0.28	0.28
Uniform Delay (d), s/veh	54.5	0.0	47.2	44.2	36.8	0.0	62.3	38.1	26.6	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	0.1	26.7	0.2	0.0	4.3	16.9	0.8	8.7	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	8.3	0.0	0.6	7.7	3.4	0.0	3.2	25.1	3.6	10.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	47.3	70.9	37.0	0.0	66.6	55.0	27.4	46.2	0.9	0.9
LnGrp LOS	E	A	D	E	D		E	D	C	D	A	A
Approach Vol, veh/h		248			342	A		955			2028	
Approach Delay, s/veh		61.4			58.0			51.4			16.9	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	79.5	16.0	26.9	33.3	58.8		42.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	61.0	11.0	26.0	30.0	49.0		42.0
Max Q Clear Time (g_c+I1), s	9.9	2.0	14.0	21.3	29.1	50.1		9.2
Green Ext Time (p_c), s	0.1	20.7	0.0	0.4	0.3	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2022 with Mitigation WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	345	45	50	20	290	325	40	20	290	90
Future Volume (veh/h)	40	45	345	45	50	20	290	325	40	20	290	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	35	49	54	10	315	353	23	22	315	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	131	199	256	194	36	403	938	793	29	545	461
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.23	0.50	0.50	0.02	0.29	0.29
Sat Flow, veh/h	549	1032	1567	1303	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	35	49	0	64	315	353	23	22	315	28
Grp Sat Flow(s),veh/h/ln	1581	0	1567	1303	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.6	0.0	1.4	7.5	5.2	0.3	0.6	6.5	0.6
Cycle Q Clear(g_c), s	2.4	0.0	0.9	4.0	0.0	1.4	7.5	5.2	0.3	0.6	6.5	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318	0	199	256	0	230	403	938	793	29	545	461
V/C Ratio(X)	0.29	0.00	0.18	0.19	0.00	0.28	0.78	0.38	0.03	0.77	0.58	0.06
Avail Cap(c_a), veh/h	957	0	837	786	0	969	1189	3287	2780	594	2663	2253
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	17.5	20.1	0.0	17.8	16.4	6.9	5.7	22.0	13.6	11.5
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.6	3.4	0.5	0.0	34.3	2.1	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	0.8	0.0	0.3	0.5	0.0	0.6	2.9	1.5	0.1	0.5	2.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	17.9	20.4	0.0	18.4	19.7	7.4	5.7	56.3	15.6	11.6
LnGrp LOS	B	A	B	C	A	B	B	A	A	E	B	B
Approach Vol, veh/h		127			113			691			365	
Approach Delay, s/veh		18.4			19.3			13.0			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	28.5		10.7	15.2	19.1		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	7.2		4.4	9.5	8.5		6.0				
Green Ext Time (p_c), s	0.0	5.1		0.5	0.9	4.4		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			15.4
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	200	40	15	5	140	480	25	15	510	60
Future Volume (veh/h)	60	20	200	40	15	5	140	480	25	15	510	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	20	43	16	1	152	522	0	16	554	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	78	229	298	256	16	438	881		422	747	630
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.47	0.00	0.01	0.40	0.40
Sat Flow, veh/h	985	529	1558	1347	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	20	43	0	17	152	522	0	16	554	26
Grp Sat Flow(s),veh/h/ln	1514	0	1558	1347	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.3	2.1	8.9	0.0	0.2	11.0	0.4
Cycle Q Clear(g_c), s	2.1	0.0	0.5	3.4	0.0	0.3	2.1	8.9	0.0	0.2	11.0	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	0	229	298	0	272	438	881		422	747	630
V/C Ratio(X)	0.24	0.00	0.09	0.14	0.00	0.06	0.35	0.59		0.04	0.74	0.04
Avail Cap(c_a), veh/h	1001	0	899	877	0	1067	905	2202		1017	2202	1859
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	16.0	18.2	0.0	15.9	8.0	8.4	0.0	8.0	11.1	7.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.4	0.0	0.1	0.6	2.5	0.0	0.1	3.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	16.1	18.4	0.0	16.0	8.5	9.0	0.0	8.0	12.6	8.0
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		107			60			674	A		596	
Approach Delay, s/veh		16.8			17.7			8.9			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	26.4		11.4	8.6	23.3		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	10.9		4.1	4.1	13.0		5.4
Green Ext Time (p_c), s	0.0	3.6		0.5	0.3	4.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	85	10	5	10	85	585	15	5	700	50
Future Volume (veh/h)	40	5	85	10	5	10	85	585	15	5	700	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	6	11	5	1	92	636	9	5	761	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	84	101	20	162	137	122	1033	875	7	912	772
Arrive On Green	0.03	0.11	0.11	0.01	0.09	0.09	0.07	0.55	0.55	0.00	0.49	0.49
Sat Flow, veh/h	1781	770	924	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	11	11	5	1	92	636	9	5	761	27
Grp Sat Flow(s),veh/h/ln	1781	0	1694	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.5	0.0	0.4	0.4	0.2	0.0	3.1	14.3	0.2	0.2	21.7	0.5
Cycle Q Clear(g_c), s	1.5	0.0	0.4	0.4	0.2	0.0	3.1	14.3	0.2	0.2	21.7	0.5
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	185	20	162	137	122	1033	875	7	912	772
V/C Ratio(X)	0.71	0.00	0.06	0.55	0.03	0.01	0.75	0.62	0.01	0.70	0.83	0.03
Avail Cap(c_a), veh/h	576	0	575	576	635	538	720	1966	1667	720	1966	1665
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	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	29.6	0.0	24.7	30.4	25.9	25.8	28.3	9.4	6.2	30.8	13.7	8.3
Incr Delay (d2), s/veh	14.5	0.0	0.1	22.0	0.1	0.0	9.1	0.6	0.0	80.7	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.1	0.3	0.1	0.0	1.6	4.6	0.0	0.2	7.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	24.8	52.4	25.9	25.8	37.4	10.0	6.2	111.4	15.8	8.3
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		54			17			737			793	
Approach Delay, s/veh		40.2			43.1			13.4			16.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	39.1	5.7	11.8	9.2	35.1	7.1	10.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	16.3	2.4	2.4	5.1	23.7	3.5	2.2
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.2	6.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	635	5	0	765	50
Future Volume (veh/h)	55	10	620	10	0	5	425	635	5	0	765	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	690	5	0	832	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	14		201	4	8	528	2743	20	3	1409	626
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.30	0.76	0.76	0.00	0.40	0.40
Sat Flow, veh/h	1261	231	1585	1435	64	136	1781	3616	26	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	339	356	0	832	17
Grp Sat Flow(s),veh/h/ln	1492	0	1585	1635	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	15.1	3.5	3.5	0.0	11.3	0.4
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.4	0.0	0.0	15.1	3.5	3.5	0.0	11.3	0.4
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	225	0		240	0	0	528	1348	1415	3	1409	626
V/C Ratio(X)	0.32	0.00		0.05	0.00	0.00	0.87	0.25	0.25	0.00	0.59	0.03
Avail Cap(c_a), veh/h	614	0		732	0	0	2066	2003	2103	2066	4006	1780
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	0.0	26.7	0.0	0.0	20.4	2.2	2.2	0.0	14.6	11.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	1.8	0.2	0.2	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.2	0.0	0.0	5.8	0.5	0.5	0.0	4.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	0.0	26.8	0.0	0.0	22.3	2.4	2.4	0.0	15.4	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1157			849	
Approach Delay, s/veh		28.6			26.8			10.3			15.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.2	30.3		8.8	0.0	52.4		8.8
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.1	13.3		2.4	0.0	5.5		4.8
Green Ext Time (p_c), s	1.1	11.0		0.0	0.0	7.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1010	20	10	1350	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1010	20	10	1350	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	6	16	5	1	120	1098	21	11	1467	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	14	139	147	35	5	153	2551	49	15	2265	1008
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.72	0.72	0.01	0.64	0.64
Sat Flow, veh/h	1381	155	1548	716	394	53	1781	3567	68	1781	3554	1581
Grp Volume(v), veh/h	65	0	6	22	0	0	120	547	572	11	1467	42
Grp Sat Flow(s),veh/h/ln	1537	0	1548	1163	0	0	1781	1777	1858	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.3	0.1	0.0	0.0	4.9	9.5	9.5	0.5	19.1	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.3	2.7	0.0	0.0	4.9	9.5	9.5	0.5	19.1	0.7
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	251	0	139	203	0	0	153	1271	1329	15	2265	1008
V/C Ratio(X)	0.26	0.00	0.04	0.11	0.00	0.00	0.78	0.43	0.43	0.75	0.65	0.04
Avail Cap(c_a), veh/h	558	0	475	523	0	0	499	2039	2132	261	3604	1604
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	31.2	31.2	0.0	0.0	33.6	4.4	4.4	37.1	8.4	5.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.3	0.5	0.5	24.7	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.4	0.0	0.0	2.2	2.4	2.5	0.3	5.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	0.0	31.2	31.3	0.0	0.0	36.9	4.9	4.9	61.8	9.1	5.1
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		71			22			1239			1520	
Approach Delay, s/veh		31.9			31.3			8.0			9.3	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	52.8		11.7	4.6	58.6		11.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	6.9	21.1		4.7	2.5	11.5		4.6
Green Ext Time (p_c), s	0.1	26.7		0.0	0.0	16.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	45	5	35	115	1100	55	30	1440	75
Future Volume (veh/h)	60	5	185	45	5	35	115	1100	55	30	1440	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	12	49	5	2	125	1196	38	33	1565	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	17	226	222	182	73	159	2302	1027	57	2098	936
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.65	0.65	0.03	0.59	0.59
Sat Flow, veh/h	1298	122	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	12	49	0	7	125	1196	38	33	1565	45
Grp Sat Flow(s),veh/h/ln	1419	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	0.0	0.6	2.8	0.0	0.3	5.8	15.1	0.7	1.5	27.3	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.6	6.6	0.0	0.3	5.8	15.1	0.7	1.5	27.3	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	302	0	226	222	0	254	159	2302	1027	57	2098	936
V/C Ratio(X)	0.23	0.00	0.05	0.22	0.00	0.03	0.78	0.52	0.04	0.58	0.75	0.05
Avail Cap(c_a), veh/h	502	0	447	417	0	504	442	2896	1292	252	2518	1123
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	31.3	35.7	0.0	31.2	37.8	7.9	5.4	40.4	12.7	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.2	0.4	0.0	3.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.2	1.0	0.0	0.1	2.6	4.8	0.2	0.7	9.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	31.4	36.2	0.0	31.3	41.0	8.3	5.4	43.9	14.2	7.4
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		82			56			1359			1643	
Approach Delay, s/veh		32.5			35.5			11.2			14.6	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	56.0		17.1	6.7	60.9		17.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	7.8	29.3		8.6	3.5	17.1		5.8
Green Ext Time (p_c), s	0.2	20.7		0.1	0.0	18.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	5	460	15	5	20	305	1230	15	60	1455	155
Future Volume (veh/h)	240	5	460	15	5	20	305	1230	15	60	1455	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	0	293	16	5	7	332	1337	16	65	1582	127
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	456	0	794	47	15	21	450	2283	27	118	2029	905
Arrive On Green	0.13	0.00	0.12	0.05	0.05	0.02	0.13	0.63	0.62	0.07	0.57	0.57
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3596	43	1781	3554	1584
Grp Volume(v), veh/h	265	0	293	28	0	0	332	660	693	65	1582	127
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	9.1	0.0	9.9	2.0	0.0	0.0	12.0	28.1	28.1	4.6	44.7	4.9
Cycle Q Clear(g_c), s	9.1	0.0	9.9	2.0	0.0	0.0	12.0	28.1	28.1	4.6	44.7	4.9
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	456	0	794	83	0	0	450	1128	1182	118	2029	905
V/C Ratio(X)	0.58	0.00	0.37	0.34	0.00	0.00	0.74	0.59	0.59	0.55	0.78	0.14
Avail Cap(c_a), veh/h	933	0	1218	416	0	0	1543	2654	2782	206	4132	1842
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	0.0	40.2	60.2	0.0	0.0	54.3	13.8	13.8	58.7	21.5	13.0
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.9	0.0	0.0	0.9	0.7	0.7	1.5	1.0	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	4.1	0.0	3.9	0.9	0.0	0.0	5.2	10.8	11.3	2.1	17.9	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	40.3	61.1	0.0	0.0	55.2	14.5	14.5	60.2	22.5	13.1
LnGrp LOS	D	A	D	E	A	A	E	B	B	E	C	B
Approach Vol, veh/h		558			28			1685			1774	
Approach Delay, s/veh		46.7			61.1			22.5			23.2	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.9	78.2		10.2	12.6	86.4		20.6
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	14.0	46.7		4.0	6.6	30.1		11.9
Green Ext Time (p_c), s	0.9	25.5		0.0	0.0	14.3		1.7

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	60	5	1425	90	90	1900	10
Future Volume (veh/h)	5	0	5	140	5	60	5	1425	90	90	1900	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1549	95	98	2065	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2414	147	124	2801	15
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3402	208	1781	3624	19
Grp Volume(v), veh/h	6	0	0	152	0	10	5	805	839	98	1011	1065
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1833	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	8.4	8.7	7.0	39.0	39.2
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	8.4	8.7	7.0	39.0	39.2
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1261	1300	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.64	0.64	0.79	0.74	0.74
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1261	1300	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.3	59.5	7.8	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.7	2.0	2.0	16.4	3.6	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.0	2.1	3.7	13.4	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	72.0	3.3	3.3	76.0	11.3	11.2
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1649			2174	
Approach Delay, s/veh		49.6			57.4			3.5			14.2	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	41.2		15.4	9.0	10.7		2.7
Green Ext Time (p_c), s	0.0	33.7		0.3	0.0	34.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1370	15	10	1685	265
Future Volume (veh/h)	135	5	15	70	5	15	15	1370	15	10	1685	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1489	15	11	1832	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2773	28	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3604	36	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	734	770	11	1832	216
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	21.1	21.1	0.8	32.3	4.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	21.1	21.1	0.8	32.3	4.8
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.54	0.54	0.82	0.67	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.70	0.70	0.70	0.57	0.57	0.57
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	5.9	5.9	64.4	7.3	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	21.4	1.1	1.0	21.5	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	6.9	7.3	0.4	10.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	85.6	6.9	6.9	86.0	8.1	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1520			2059	
Approach Delay, s/veh		57.8			52.6			7.8			8.1	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	34.3		8.3	2.8	23.1		15.6
Green Ext Time (p_c), s	0.0	41.8		0.2	0.0	36.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1400	65	15	1695	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1400	65	15	1695	135
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		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	8	103	22	2	71	1522	69	16	1842	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	244	89	293	315	29	90	2459	111	19	2243	172
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1373	1688	153	1781	3462	156	1781	3344	256
Grp Volume(v), veh/h	212	0	30	103	0	24	71	779	812	16	967	1018
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1373	0	1842	1781	1777	1841	1781	1777	1824
Q Serve(g_s), s	19.4	0.0	1.8	8.7	0.0	1.4	5.1	7.5	7.8	1.2	27.7	30.7
Cycle Q Clear(g_c), s	20.8	0.0	1.8	10.5	0.0	1.4	5.1	7.5	7.8	1.2	27.7	30.7
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	298	0	332	293	0	344	90	1262	1308	19	1192	1223
V/C Ratio(X)	0.71	0.00	0.09	0.35	0.00	0.07	0.79	0.62	0.62	0.84	0.81	0.83
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1262	1308	110	1192	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	0.65	0.65	0.65
Uniform Delay (d), s/veh	52.2	0.0	43.7	48.1	0.0	43.6	60.0	1.2	1.3	64.0	3.8	4.0
Incr Delay (d2), s/veh	5.5	0.0	0.1	0.7	0.0	0.1	2.6	0.2	0.2	20.2	4.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	0.8	3.1	0.0	0.7	2.3	1.3	1.3	0.6	4.7	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	43.9	48.8	0.0	43.7	62.5	1.5	1.5	84.2	7.8	8.5
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	A
Approach Vol, veh/h		242			127			1662			2001	
Approach Delay, s/veh		55.9			47.9			4.1			8.8	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	91.2		28.3	5.4	96.4		28.3
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	32.7		12.5	3.2	9.8		22.8
Green Ext Time (p_c), s	0.0	36.3		0.4	0.0	31.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	840	95	550	205	565	1000	145
Future Volume (veh/h)	95	120	115	200	140	840	95	550	205	565	1000	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	598	135	614	1087	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	731	611	695	1633	225
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.13	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3137	432
Grp Volume(v), veh/h	233	0	16	217	152	0	103	598	135	614	615	622
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1792
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	37.2	7.5	22.7	38.1	38.3
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	37.2	7.5	22.7	38.1	38.3
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	731	611	695	925	933
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.82	0.22	0.88	0.66	0.67
Avail Cap(c_a), veh/h	339	0	303	279	633		329	731	611	957	925	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.46	0.46	0.46
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	35.4	26.4	54.8	32.7	32.8
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	7.9	0.7	2.9	1.8	1.8
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	18.2	2.9	10.4	17.6	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	43.4	27.0	57.7	34.5	34.6
LnGrp LOS	E	A	D	D	C		E	D	C	E	C	C
Approach Vol, veh/h		249			369	A		836			1851	
Approach Delay, s/veh		60.0			44.0			43.2			42.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.1	54.8		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	40.3	14.6	21.7	24.7	39.2		9.9
Green Ext Time (p_c), s	0.1	6.1	0.0	0.3	1.4	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2025 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	230	245	105	10	140	35
Future Volume (veh/h)	50	45	310	85	45	20	230	245	105	10	140	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	44	92	49	9	250	266	54	11	152	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	154	245	316	240	44	334	807	684	15	472	400
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1294	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	44	92	0	58	250	266	54	11	152	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1294	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	1.0	2.7	0.0	1.1	5.3	3.7	0.8	0.2	2.6	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.0	4.8	0.0	1.1	5.3	3.7	0.8	0.2	2.6	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	316	0	284	334	807	684	15	472	400
V/C Ratio(X)	0.26	0.00	0.18	0.29	0.00	0.20	0.75	0.33	0.08	0.72	0.32	0.02
Avail Cap(c_a), veh/h	1085	0	951	897	0	1100	1348	3728	3159	674	3020	2559
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	14.5	17.1	0.0	14.6	15.2	7.5	6.6	19.6	12.1	11.1
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.4	0.5	0.1	46.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.0	1.1	0.2	0.3	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.9	17.6	0.0	14.9	18.6	8.0	6.7	66.2	12.9	11.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		147			150			570			172	
Approach Delay, s/veh		15.2			16.6			12.5			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	23.1		11.2	12.4	16.0		11.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	5.7		4.1	7.3	4.6		6.8				
Green Ext Time (p_c), s	0.0	3.9		0.6	0.7	1.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			14.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	140	545	15	10	530	70
Future Volume (veh/h)	60	5	180	90	20	15	140	545	15	10	530	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	20	98	22	2	152	592	0	11	576	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	24	307	344	335	30	406	894		351	741	623
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.40	0.40
Sat Flow, veh/h	1214	122	1545	1356	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	20	98	0	24	152	592	0	11	576	34
Grp Sat Flow(s),veh/h/ln	1336	0	1545	1356	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.5	3.4	0.0	0.5	2.3	12.3	0.0	0.2	13.7	0.7
Cycle Q Clear(g_c), s	2.5	0.0	0.5	5.9	0.0	0.5	2.3	12.3	0.0	0.2	13.7	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	402	0	307	344	0	366	406	894		351	741	623
V/C Ratio(X)	0.17	0.00	0.07	0.28	0.00	0.07	0.37	0.66		0.03	0.78	0.05
Avail Cap(c_a), veh/h	807	0	760	741	0	904	770	1876		861	1876	1578
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	16.5	19.8	0.0	16.5	9.4	10.1	0.0	9.7	13.4	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.0	0.1	0.6	0.8	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.0	0.0	0.2	0.7	3.9	0.0	0.1	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	16.6	20.3	0.0	16.6	9.9	11.0	0.0	9.8	15.2	9.5
LnGrp LOS	B	A	B	C	A	B	A	B		A	B	A
Approach Vol, veh/h		90			122			744	A		621	
Approach Delay, s/veh		17.4			19.6			10.8			14.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	30.3		15.1	9.6	26.1		15.1
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	14.3		4.5	4.3	15.7		7.9
Green Ext Time (p_c), s	0.0	4.3		0.4	0.3	4.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	5	5	5	60	640	15	5	745	30
Future Volume (veh/h)	40	5	125	5	5	5	60	640	15	5	745	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	9	5	5	1	65	696	9	5	810	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	71	127	9	170	142	84	1042	883	7	961	809
Arrive On Green	0.03	0.12	0.12	0.01	0.09	0.09	0.05	0.56	0.56	0.00	0.51	0.51
Sat Flow, veh/h	1781	594	1068	1781	1870	1565	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	43	0	14	5	5	1	65	696	9	5	810	18
Grp Sat Flow(s),veh/h/ln	1781	0	1662	1781	1870	1565	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.7	0.2	0.2	23.6	0.4
Cycle Q Clear(g_c), s	1.5	0.0	0.5	0.2	0.2	0.0	2.3	16.7	0.2	0.2	23.6	0.4
Prop In Lane	1.00		0.64	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	198	9	170	142	84	1042	883	7	961	809
V/C Ratio(X)	0.72	0.00	0.07	0.53	0.03	0.01	0.77	0.67	0.01	0.70	0.84	0.02
Avail Cap(c_a), veh/h	560	0	549	560	618	517	700	1912	1621	700	1912	1610
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	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	30.4	0.0	24.9	31.5	26.3	26.3	29.9	9.9	6.3	31.6	13.3	7.6
Incr Delay (d2), s/veh	15.1	0.0	0.1	38.8	0.1	0.0	13.6	0.7	0.0	80.9	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.2	0.1	0.0	1.2	5.4	0.0	0.2	8.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	0.0	25.0	70.4	26.4	26.3	43.5	10.7	6.3	112.6	15.4	7.6
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		57			11			770			833	
Approach Delay, s/veh		40.5			46.4			13.4			15.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	40.4	5.3	12.6	8.0	37.7	7.1	10.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	18.7	2.2	2.5	4.3	25.6	3.5	2.2
Green Ext Time (p_c), s	0.0	5.6	0.0	0.0	0.1	7.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	715	45	10	840	10
Future Volume (veh/h)	35	10	495	20	5	0	330	715	45	10	840	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	777	48	11	913	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	30		193	30	0	425	2270	140	15	1554	693
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.67	0.67	0.01	0.44	0.44
Sat Flow, veh/h	1116	422	1585	1153	421	0	1781	3399	210	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	406	419	11	913	3
Grp Sat Flow(s),veh/h/ln	1537	0	1585	1574	0	0	1781	1777	1833	1781	1777	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	11.4	5.9	5.9	0.4	11.6	0.1
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.8	0.0	0.0	11.4	5.9	5.9	0.4	11.6	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	244	0		250	0	0	425	1186	1223	15	1554	693
V/C Ratio(X)	0.20	0.00		0.11	0.00	0.00	0.84	0.34	0.34	0.74	0.59	0.00
Avail Cap(c_a), veh/h	636	0		759	0	0	1975	2209	2278	1975	4417	1970
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	0.0	25.6	0.0	0.0	21.6	4.3	4.3	29.5	12.7	9.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.8	0.4	0.4	22.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	4.5	1.4	1.4	0.2	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	0.0	25.8	0.0	0.0	23.4	4.6	4.6	52.2	13.4	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1184			927	
Approach Delay, s/veh		26.4			25.8			10.3			13.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.2	32.0		9.3	4.5	45.7		9.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.4	13.6		2.8	2.4	7.9		3.7
Green Ext Time (p_c), s	0.8	12.4		0.0	0.0	9.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1145	20	15	1330	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1145	20	15	1330	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1245	21	16	1446	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	0	71	116	19	3	186	2657	45	20	2311	1031
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1559	0	1585	696	429	70	1781	3576	60	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	618	648	16	1446	47
Grp Sat Flow(s),veh/h/ln	1559	0	1585	1196	0	0	1781	1777	1860	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.6	9.6	9.6	0.6	16.7	0.7
Cycle Q Clear(g_c), s	1.2	0.0	0.0	1.7	0.0	0.0	5.6	9.6	9.6	0.6	16.7	0.7
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	196	0	71	156	0	0	186	1320	1382	20	2311	1031
V/C Ratio(X)	0.17	0.00	0.01	0.11	0.00	0.00	0.79	0.47	0.47	0.78	0.63	0.05
Avail Cap(c_a), veh/h	597	0	522	593	0	0	536	2189	2291	281	3868	1725
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	31.9	32.4	0.0	0.0	30.5	3.5	3.5	34.4	7.2	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	2.9	0.6	0.5	21.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	2.4	2.0	2.1	0.4	4.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	0.0	31.9	32.5	0.0	0.0	33.4	4.1	4.1	55.4	7.8	4.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	E	A	A
Approach Vol, veh/h		34			17			1413			1509	
Approach Delay, s/veh		32.1			32.5			7.1			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	50.4		8.1	4.8	56.9		8.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.6	18.7		3.7	2.6	11.6		3.2
Green Ext Time (p_c), s	0.1	26.7		0.0	0.0	20.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1300	60	25	1280	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1300	60	25	1280	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1413	49	27	1391	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2775	1238	39	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1413	49	27	1391	34
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	22.4	1.1	2.3	27.9	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	22.4	1.1	2.3	27.9	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2775	1238	39	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.51	0.04	0.68	0.54	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2775	1238	241	2560	1142
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	1.00	1.00	0.00	1.00	0.70	0.70	0.70	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.2	3.8	75.2	10.0	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.1	0.5	0.0	7.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.6	0.3	1.2	10.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.2	6.7	3.9	82.8	10.8	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1587			1452	
Approach Delay, s/veh		67.9			71.9			12.0			12.0	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.4	127.0		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	29.9		15.1	4.3	24.4		9.8
Green Ext Time (p_c), s	0.1	26.0		0.1	0.0	27.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1385	15	80	1240	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1385	15	80	1240	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	65	11	11	3	478	1505	16	87	1348	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	0	829	61	61	17	624	2155	23	150	1783	925
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.60	0.58	0.08	0.50	0.50
Sat Flow, veh/h	3563	0	3075	786	786	214	3456	3602	38	1781	3554	1579
Grp Volume(v), veh/h	155	0	65	25	0	0	478	742	779	87	1348	80
Grp Sat Flow(s),veh/h/ln	1781	0	1538	1786	0	0	1728	1777	1863	1781	1777	1579
Q Serve(g_s), s	4.5	0.0	1.7	1.4	0.0	0.0	14.3	31.4	31.5	5.1	33.2	2.4
Cycle Q Clear(g_c), s	4.5	0.0	1.7	1.4	0.0	0.0	14.3	31.4	31.5	5.1	33.2	2.4
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	331	0	829	140	0	0	624	1063	1115	150	1783	925
V/C Ratio(X)	0.47	0.00	0.08	0.18	0.00	0.00	0.77	0.70	0.70	0.58	0.76	0.09
Avail Cap(c_a), veh/h	1111	0	1503	508	0	0	1838	3161	3315	245	4920	2319
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	30.2	47.2	0.0	0.0	42.5	15.1	15.2	48.1	21.8	9.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.8	1.2	1.1	1.3	1.0	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	2.0	0.0	0.7	0.7	0.0	0.0	6.1	11.9	12.5	2.3	13.3	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	0.0	30.2	47.8	0.0	0.0	43.3	16.3	16.3	49.4	22.8	9.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		220			25			1999			1515	
Approach Delay, s/veh		42.3			47.8			22.7			23.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.7	58.7		12.5	13.2	69.2		14.1
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	16.3	35.2		3.4	7.1	33.5		6.5
Green Ext Time (p_c), s	1.3	17.5		0.0	0.1	18.7		0.6

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1845	95	30	1455	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1845	95	30	1455	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2005	101	33	1582	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2718	136	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3444	172	1781	3634	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1026	1080	33	773	814
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1839	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	40.3	42.1	2.5	19.6	19.6
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	40.3	42.1	2.5	19.6	19.6
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1451	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.73	0.74	0.52	0.53	0.53
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1451	102	1455	1529
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	0.58	0.58	0.58	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.4	7.6	66.3	4.1	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.8	2.0	2.1	2.4	1.4	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	0.4	0.0	0.0	2.3	0.0	0.0	0.2	13.2	14.3	1.2	6.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	75.1	9.4	9.6	68.7	5.5	5.4
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2111			1620	
Approach Delay, s/veh		58.6			62.0			9.6			6.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	21.6		8.1	4.5	44.1		2.8
Green Ext Time (p_c), s	0.0	32.0		0.1	0.0	41.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1830	20	10	1295	190
Future Volume (veh/h)	90	5	5	105	15	15	5	1830	20	10	1295	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	1989	22	11	1408	149
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2818	31	14	2795	1245
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3600	40	1781	3554	1583
Grp Volume(v), veh/h	106	0	0	142	0	0	5	980	1031	11	1408	149
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	32.1	32.3	0.7	16.8	2.7
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	32.1	32.3	0.7	16.8	2.7
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1245
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.70	0.71	0.80	0.50	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1245
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	0.63	0.63	0.63	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.3	6.4	59.4	4.5	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	29.2	1.9	1.9	27.8	0.5	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	9.8	10.3	0.4	4.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	88.9	8.2	8.2	87.2	5.1	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			2016			1568	
Approach Delay, s/veh		52.7			54.3			8.4			5.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	18.8		11.7	2.7	34.3		9.9
Green Ext Time (p_c), s	0.0	32.7		0.5	0.0	30.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1655	75	10	1340	70
Future Volume (veh/h)	145	30	20	150	25	35	25	1655	75	10	1340	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1799	80	11	1457	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2560	113	13	2501	127
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3466	153	1781	3442	174
Grp Volume(v), veh/h	158	0	35	163	0	30	27	916	963	11	750	781
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1843	1781	1777	1839
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	28.0	28.3
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	28.0	28.3
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1361	13	1291	1336
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.70	0.71	0.83	0.58	0.58
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1361	140	1291	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.84	0.84	0.84
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.0	9.1
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	31.3	1.6	1.6
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	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	10.4	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.7	10.7	10.7
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1906			1542	
Approach Delay, s/veh		57.2			58.1			1.3			11.3	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	30.3		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	25.4		0.6	0.0	46.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1145	55	645	175	570	1025	75
Future Volume (veh/h)	55	120	60	110	100	1145	55	645	175	570	1025	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	701	119	620	1114	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	889	751	658	2095	149
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.48	0.48	0.38	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3365	238
Grp Volume(v), veh/h	190	0	6	120	109	0	60	701	119	620	588	605
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1827
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	44.0	6.0	24.3	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	44.0	6.0	24.3	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	889	751	658	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.79	0.16	0.94	0.53	0.53
Avail Cap(c_a), veh/h	304	0	256	232	508		178	889	751	691	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.75	0.75	0.75
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	30.8	20.8	42.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	5.6	0.4	16.5	1.4	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	7.0	0.0	0.2	3.6	3.1	0.0	2.2	20.8	2.3	10.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	36.4	21.2	59.1	1.4	1.3
LnGrp LOS	E	A	D	D	D		E	D	C	E	A	A
Approach Vol, veh/h		196			229	A		880			1813	
Approach Delay, s/veh		63.7			45.0			36.7			21.1	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	30.7	70.6		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	28.0	61.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.3	46.0		8.5
Green Ext Time (p_c), s	0.0	18.1	0.0	0.3	0.4	6.6		0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2025 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	290	75
Future Volume (veh/h)	55	25	380	60	25	5	400	225	60	5	290	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	24	65	27	1	435	245	41	5	315	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	69	179	226	203	8	522	1052	892	7	512	434
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.56	0.56	0.00	0.27	0.27
Sat Flow, veh/h	913	611	1585	1354	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	24	65	0	28	435	245	41	5	315	20
Grp Sat Flow(s),veh/h/ln	1524	0	1585	1354	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.0	0.0	0.7	2.4	0.0	0.7	11.4	3.3	0.6	0.1	7.3	0.5
Cycle Q Clear(g_c), s	2.6	0.0	0.7	5.0	0.0	0.7	11.4	3.3	0.6	0.1	7.3	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	0	179	226	0	210	522	1052	892	7	512	434
V/C Ratio(X)	0.30	0.00	0.13	0.29	0.00	0.13	0.83	0.23	0.05	0.70	0.61	0.05
Avail Cap(c_a), veh/h	847	0	761	723	0	893	1070	2958	2506	535	2396	2031
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	20.0	23.2	0.0	20.0	16.5	5.5	4.9	24.8	15.8	13.3
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.7	0.0	0.3	3.6	0.2	0.0	79.1	2.6	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	0.9	0.0	0.3	0.8	0.0	0.3	4.4	0.9	0.1	0.2	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	20.3	23.9	0.0	20.2	20.1	5.7	4.9	103.9	18.4	13.4
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	B	B
Approach Vol, veh/h		111			93			721			340	
Approach Delay, s/veh		21.1			22.8			14.4			19.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	34.1		10.6	19.6	19.7		10.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	5.3		4.6	13.4	9.3		7.0				
Green Ext Time (p_c), s	0.0	3.5		0.5	1.2	4.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			16.9
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Hoohui Road

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	150	45	15	10	205	615	45	25	595	80
Future Volume (veh/h)	75	20	150	45	15	10	205	615	45	25	595	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	49	16	1	223	668	0	27	647	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	55	206	237	226	14	442	987		383	826	696
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.11	0.53	0.00	0.02	0.44	0.44
Sat Flow, veh/h	1080	423	1585	1373	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	13	49	0	17	223	668	0	27	647	46
Grp Sat Flow(s),veh/h/ln	1503	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.7	0.0	0.4	1.7	0.0	0.4	3.0	13.0	0.0	0.4	14.6	0.8
Cycle Q Clear(g_c), s	3.1	0.0	0.4	4.8	0.0	0.4	3.0	13.0	0.0	0.4	14.6	0.8
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	206	237	0	240	442	987		383	826	696
V/C Ratio(X)	0.32	0.00	0.06	0.21	0.00	0.07	0.50	0.68		0.07	0.78	0.07
Avail Cap(c_a), veh/h	879	0	801	753	0	936	795	1929		890	1929	1627
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	18.9	22.3	0.0	18.9	8.8	8.6	0.0	8.1	11.8	7.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	0.0	0.1	0.9	0.8	0.0	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.5	0.0	0.2	0.8	3.7	0.0	0.1	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	0.0	19.0	22.8	0.0	19.0	9.7	9.4	0.0	8.2	13.5	8.0
LnGrp LOS	C	A	B	C	A	B	A	A		A	B	A
Approach Vol, veh/h		117			66			891	A		720	
Approach Delay, s/veh		20.4			21.8			9.5			12.9	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	32.1		11.4	10.2	27.8		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	15.0		5.1	5.0	16.6		6.8
Green Ext Time (p_c), s	0.0	5.1		0.5	0.4	5.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	100	10	5	10	170	855	10	5	795	75
Future Volume (veh/h)	55	5	100	10	5	10	170	855	10	5	795	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	11	5	1	185	929	8	5	864	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	97	97	19	154	126	226	1201	1018	7	971	821
Arrive On Green	0.04	0.12	0.12	0.01	0.08	0.08	0.13	0.64	0.64	0.00	0.52	0.52
Sat Flow, veh/h	1781	844	844	1781	1870	1536	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	10	11	5	1	185	929	8	5	864	44
Grp Sat Flow(s),veh/h/ln	1781	0	1687	1781	1870	1536	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	2.9	0.0	0.5	0.5	0.2	0.1	8.9	31.0	0.2	0.2	36.2	1.2
Cycle Q Clear(g_c), s	2.9	0.0	0.5	0.5	0.2	0.1	8.9	31.0	0.2	0.2	36.2	1.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	195	19	154	126	226	1201	1018	7	971	821
V/C Ratio(X)	0.77	0.00	0.05	0.58	0.03	0.01	0.82	0.77	0.01	0.72	0.89	0.05
Avail Cap(c_a), veh/h	406	0	404	406	448	368	507	1385	1174	507	1385	1172
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	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	41.5	0.0	34.5	43.2	37.1	37.0	37.3	11.2	5.6	43.7	18.9	10.4
Incr Delay (d2), s/veh	14.4	0.0	0.1	24.5	0.1	0.0	7.1	2.4	0.0	84.4	5.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.2	0.4	0.1	0.0	4.2	11.2	0.0	0.3	15.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.9	0.0	34.7	67.7	37.1	37.0	44.4	13.6	5.7	128.0	24.4	10.5
LnGrp LOS	E	A	C	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		70			17			1122			913	
Approach Delay, s/veh		52.9			56.9			18.6			24.3	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	61.3	5.9	15.1	16.2	50.5	8.9	12.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	33.0	2.5	2.5	10.9	38.2	4.9	2.2
Green Ext Time (p_c), s	0.0	8.5	0.0	0.0	0.4	7.3	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	610	85	10	10	625	925	10	5	845	20
Future Volume (veh/h)	75	5	610	85	10	10	625	925	10	5	845	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	0	92	11	9	679	1005	11	5	918	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	8		184	14	12	720	2736	30	7	1278	570
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.76	0.76	0.00	0.36	0.36
Sat Flow, veh/h	1456	89	1585	1339	160	131	1781	3601	39	1781	3554	1585
Grp Volume(v), veh/h	87	0	0	112	0	0	679	496	520	5	918	6
Grp Sat Flow(s),veh/h/ln	1544	0	1585	1630	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	37.4	9.5	9.5	0.3	22.7	0.2
Cycle Q Clear(g_c), s	5.2	0.0	0.0	6.4	0.0	0.0	37.4	9.5	9.5	0.3	22.7	0.2
Prop In Lane	0.94		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	221	0		226	0	0	720	1350	1416	7	1278	570
V/C Ratio(X)	0.39	0.00		0.50	0.00	0.00	0.94	0.37	0.37	0.72	0.72	0.01
Avail Cap(c_a), veh/h	372	0		453	0	0	1240	1350	1416	1240	2404	1072
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	0.0	44.7	0.0	0.0	29.3	4.1	4.1	50.7	28.2	21.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.7	0.0	0.0	5.7	0.4	0.3	40.9	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	2.8	0.0	0.0	16.2	2.7	2.8	0.2	9.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	0.0	0.0	46.4	0.0	0.0	35.0	4.4	4.4	91.6	29.8	21.0
LnGrp LOS	D	A		D	A	A	C	A	A	F	C	C
Approach Vol, veh/h		87	A		112			1695			929	
Approach Delay, s/veh		45.3			46.4			16.7			30.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	45.2	42.7		14.1	4.4	83.5		14.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	39.4	24.7		8.4	2.3	11.5		7.2
Green Ext Time (p_c), s	1.8	11.9		0.3	0.0	13.2		0.2

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

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1510	10	10	1540	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1510	10	10	1540	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1641	11	11	1674	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	18	173	184	2	7	173	2642	18	14	2277	1016
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.73	0.73	0.01	0.64	0.64
Sat Flow, veh/h	1360	156	1522	970	19	62	1781	3618	24	1781	3554	1585
Grp Volume(v), veh/h	59	0	6	17	0	0	141	805	847	11	1674	36
Grp Sat Flow(s),veh/h/ln	1515	0	1522	1050	0	0	1781	1777	1866	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.3	21.1	21.1	0.6	30.2	0.8
Cycle Q Clear(g_c), s	2.9	0.0	0.3	3.8	0.0	0.0	7.3	21.1	21.1	0.6	30.2	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	261	0	173	204	0	0	173	1297	1362	14	2277	1016
V/C Ratio(X)	0.23	0.00	0.03	0.08	0.00	0.00	0.81	0.62	0.62	0.78	0.74	0.04
Avail Cap(c_a), veh/h	445	0	371	383	0	0	397	1621	1702	208	2865	1278
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	37.2	39.1	0.0	0.0	41.7	6.3	6.3	46.7	11.5	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.5	1.0	1.0	27.5	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	3.3	6.2	6.5	0.4	10.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	0.0	37.2	39.2	0.0	0.0	45.2	7.3	7.3	74.2	12.7	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1793			1721	
Approach Delay, s/veh		38.0			39.2			10.3			13.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	65.4		15.7	4.8	73.8		15.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.3	32.2		5.8	2.6	23.1		4.9
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	32.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1495	60	35	1710	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1495	60	35	1710	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1625	49	38	1859	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1625	49	38	1859	86
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	34.6	1.3	3.5	56.6	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	34.6	1.3	3.5	56.6	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.61	0.04	0.77	0.76	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.4	5.3	79.7	16.9	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	3.9	0.7	0.0	9.3	2.3	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	12.7	0.4	1.7	22.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	77.9	10.1	5.3	89.0	19.2	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	B	A
Approach Vol, veh/h		115			82			1815			1983	
Approach Delay, s/veh		66.4			77.2			15.3			20.1	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	58.6		20.7	5.5	36.6		11.7
Green Ext Time (p_c), s	0.2	31.1		0.1	0.0	37.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	5	625	15	0	5	395	1545	10	80	1770	135
Future Volume (veh/h)	295	5	625	15	0	5	395	1545	10	80	1770	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	0	482	16	0	1	429	1679	11	87	1924	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	526	0	904	67	0	4	497	2450	16	116	2126	948
Arrive On Green	0.15	0.00	0.14	0.04	0.00	0.03	0.14	0.68	0.67	0.07	0.60	0.60
Sat Flow, veh/h	3563	0	3126	1659	0	104	3456	3619	24	1781	3554	1585
Grp Volume(v), veh/h	325	0	482	17	0	0	429	824	866	87	1924	109
Grp Sat Flow(s),veh/h/ln	1781	0	1563	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	19.7	0.0	29.9	2.2	0.0	0.0	27.9	64.2	64.4	11.0	109.1	6.8
Cycle Q Clear(g_c), s	19.7	0.0	29.9	2.2	0.0	0.0	27.9	64.2	64.4	11.0	109.1	6.8
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	526	0	904	72	0	0	497	1203	1263	116	2126	948
V/C Ratio(X)	0.62	0.00	0.53	0.24	0.00	0.00	0.86	0.68	0.69	0.75	0.90	0.11
Avail Cap(c_a), veh/h	526	0	904	238	0	0	871	1498	1573	116	2332	1040
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.9	0.0	69.1	107.0	0.0	0.0	96.3	22.4	22.4	105.7	40.5	19.9
Incr Delay (d2), s/veh	1.6	0.0	0.3	0.6	0.0	0.0	1.8	1.2	1.2	21.0	5.4	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	9.4	0.0	12.3	1.0	0.0	0.0	12.8	27.4	28.8	5.9	49.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.6	0.0	69.4	107.6	0.0	0.0	98.1	23.6	23.6	126.7	45.9	20.0
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	C
Approach Vol, veh/h		807			17			2119			2120	
Approach Delay, s/veh		79.1			107.6			38.7			47.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	37.1	141.7		13.3	19.0	159.7		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	29.9	111.1		4.2	13.0	66.4		31.9
Green Ext Time (p_c), s	1.2	24.6		0.0	0.0	24.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1895	95	90	2350	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1895	95	90	2350	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2060	101	98	2554	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2599	126	124	2950	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3449	168	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1053	1108	98	1247	1312
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1840	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	60.1	60.3
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	60.1	60.3
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1386	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.79	0.80	0.79	0.87	0.87
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1386	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.54	0.54	0.54	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	8.1	8.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.4	2.6	2.7	4.2	7.2	6.9
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	0.4	0.0	0.0	3.4	0.0	0.3	0.4	1.0	1.1	3.4	19.6	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	69.3	2.6	2.7	66.0	15.3	15.0
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2172			2657	
Approach Delay, s/veh		57.1			62.0			3.0			17.0	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	62.3		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	24.0		0.2	0.1	58.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	15	10	65	5	10	5	1825	20	5	2000	325
Future Volume (veh/h)	175	15	10	65	5	10	5	1825	20	5	2000	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	16	9	71	5	7	5	1984	21	5	2174	281
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	18	10	276	20	23	7	2677	28	7	2641	1178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1329	112	63	1381	123	139	1781	3602	38	1781	3554	1585
Grp Volume(v), veh/h	215	0	0	83	0	0	5	977	1028	5	2174	281
Grp Sat Flow(s),veh/h/ln	1504	0	0	1643	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	54.6	7.5
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	54.6	7.5
Prop In Lane	0.88		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	0	319	0	0	7	1321	1385	7	2641	1178
V/C Ratio(X)	0.72	0.00	0.00	0.26	0.00	0.00	0.74	0.74	0.74	0.74	0.82	0.24
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1321	1385	106	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.55	0.55	0.55	0.31	0.31	0.31
Uniform Delay (d), s/veh	54.7	0.0	0.0	49.6	0.0	0.0	66.9	0.0	0.0	67.2	11.5	5.4
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.4	0.0	0.0	27.0	2.1	2.0	16.4	1.0	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	7.6	0.0	0.0	2.5	0.0	0.0	0.2	0.8	0.8	0.2	18.6	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	0.0	50.1	0.0	0.0	93.9	2.1	2.0	83.6	12.4	5.6
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		215			83			2010			2460	
Approach Delay, s/veh		59.5			50.1			2.3			11.8	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	104.3		26.1	4.5	104.3		26.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	56.6		7.8	2.4	2.0		20.6
Green Ext Time (p_c), s	0.0	26.4		0.2	0.0	66.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1625	110	25	1935	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1625	110	25	1935	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	11	109	27	2	60	1766	117	27	2103	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	251	73	263	311	23	76	2407	158	34	2297	177
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.17	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1347	1385	401	1325	1716	127	1781	3385	222	1781	3343	257
Grp Volume(v), veh/h	196	0	49	109	0	29	60	919	964	27	1104	1163
Grp Sat Flow(s),veh/h/ln	1347	0	1785	1325	0	1843	1781	1777	1830	1781	1777	1823
Q Serve(g_s), s	19.1	0.0	3.1	10.2	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	3.1	13.3	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	280	0	323	263	0	334	76	1263	1301	34	1221	1253
V/C Ratio(X)	0.70	0.00	0.15	0.42	0.00	0.09	0.79	0.73	0.74	0.80	0.90	0.93
Avail Cap(c_a), veh/h	345	0	410	327	0	423	106	1263	1301	106	1221	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.43	0.43	0.43
Uniform Delay (d), s/veh	54.7	0.0	46.5	52.1	0.0	46.0	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.0	0.2	1.0	0.0	0.1	1.6	0.3	0.4	6.7	5.3	6.6
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	6.9	0.0	1.4	3.5	0.0	0.8	2.0	0.1	0.1	1.0	1.8	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	46.8	53.2	0.0	46.1	62.7	0.3	0.4	71.3	5.3	6.6
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		245			138			1943			2294	
Approach Delay, s/veh		56.9			51.7			2.3			6.8	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.8		28.4	6.6	100.0		28.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		22.9
Green Ext Time (p_c), s	0.0	65.7		0.4	0.0	47.9		0.6

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1030	85	650	225	660	1135	90
Future Volume (veh/h)	85	125	115	195	120	1030	85	650	225	660	1135	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	20	212	130	0	92	707	162	717	1234	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	260	231	525		115	773	650	751	1895	144
Arrive On Green	0.17	0.17	0.17	0.08	0.28	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	607	944	1534	1781	1870	1585	1781	1870	1574	3456	3345	254
Grp Volume(v), veh/h	228	0	20	212	130	0	92	707	162	717	654	674
Grp Sat Flow(s),veh/h/ln	1552	0	1534	1781	1870	1585	1781	1870	1574	1728	1777	1823
Q Serve(g_s), s	18.7	0.0	1.5	11.0	7.3	0.0	6.9	48.1	9.1	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.5	11.0	7.3	0.0	6.9	48.1	9.1	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	300	0	260	231	525		115	773	650	751	1006	1032
V/C Ratio(X)	0.76	0.00	0.08	0.92	0.25		0.80	0.91	0.25	0.95	0.65	0.65
Avail Cap(c_a), veh/h	347	0	307	231	582		238	773	650	768	1006	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.25	0.25	0.25
Uniform Delay (d), s/veh	54.5	0.0	47.2	46.4	37.6	0.0	62.3	37.4	25.9	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	0.1	37.7	0.2	0.0	4.3	15.6	0.8	8.0	0.8	0.8
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	8.3	0.0	0.6	4.4	3.4	0.0	3.2	24.8	3.6	10.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	47.3	84.2	37.8	0.0	66.6	52.9	26.7	45.5	0.8	0.8
LnGrp LOS	E	A	D	F	D		E	D	C	D	A	A
Approach Vol, veh/h		248			342	A		961			2045	
Approach Delay, s/veh		61.4			66.5			49.8			16.5	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	80.5	15.0	26.9	33.3	59.8		41.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	62.0	10.0	26.0	30.0	50.0		41.0
Max Q Clear Time (g_c+I1), s	9.3	2.0	13.0	21.3	29.1	50.1		9.3
Green Ext Time (p_c), s	0.1	21.3	0.0	0.4	0.3	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2025 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	345	45	50	20	290	330	40	20	295	90
Future Volume (veh/h)	40	45	345	45	50	20	290	330	40	20	295	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	35	49	54	10	315	359	23	22	321	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	130	198	253	193	36	402	944	798	29	552	467
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.23	0.50	0.50	0.02	0.29	0.29
Sat Flow, veh/h	547	1029	1567	1303	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	35	49	0	64	315	359	23	22	321	28
Grp Sat Flow(s),veh/h/ln	1576	0	1567	1303	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.6	0.0	1.4	7.5	5.3	0.3	0.6	6.6	0.6
Cycle Q Clear(g_c), s	2.4	0.0	0.9	4.1	0.0	1.4	7.5	5.3	0.3	0.6	6.6	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	198	253	0	229	402	944	798	29	552	467
V/C Ratio(X)	0.29	0.00	0.18	0.19	0.00	0.28	0.78	0.38	0.03	0.77	0.58	0.06
Avail Cap(c_a), veh/h	949	0	831	780	0	962	1180	3264	2760	590	2644	2237
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	17.7	20.2	0.0	17.9	16.5	6.9	5.6	22.2	13.6	11.5
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.7	3.4	0.5	0.0	34.4	2.1	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	0.9	0.0	0.3	0.5	0.0	0.6	2.9	1.5	0.1	0.5	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	0.0	18.1	20.6	0.0	18.6	19.9	7.4	5.7	56.6	15.7	11.6
LnGrp LOS	B	A	B	C	A	B	B	A	A	E	B	B
Approach Vol, veh/h		127			113			697			371	
Approach Delay, s/veh		18.6			19.5			13.0			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	28.8		10.7	15.2	19.4		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	7.3		4.4	9.5	8.6		6.1				
Green Ext Time (p_c), s	0.0	5.2		0.5	0.9	4.5		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			15.5									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	200	40	15	5	140	485	25	15	515	60
Future Volume (veh/h)	60	20	200	40	15	5	140	485	25	15	515	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	20	43	16	1	152	527	0	16	560	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	78	229	297	255	16	436	886		421	752	635
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.47	0.00	0.01	0.40	0.40
Sat Flow, veh/h	985	529	1558	1346	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	20	43	0	17	152	527	0	16	560	26
Grp Sat Flow(s),veh/h/ln	1514	0	1558	1346	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.3	2.1	9.0	0.0	0.2	11.1	0.4
Cycle Q Clear(g_c), s	2.1	0.0	0.5	3.4	0.0	0.3	2.1	9.0	0.0	0.2	11.1	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	366	0	229	297	0	271	436	886		421	752	635
V/C Ratio(X)	0.24	0.00	0.09	0.15	0.00	0.06	0.35	0.59		0.04	0.74	0.04
Avail Cap(c_a), veh/h	995	0	894	872	0	1061	900	2190		1013	2190	1849
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	16.1	18.3	0.0	16.0	8.0	8.4	0.0	7.9	11.1	7.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.4	0.0	0.1	0.6	2.6	0.0	0.1	3.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	0.0	16.2	18.5	0.0	16.1	8.5	9.0	0.0	8.0	12.6	7.9
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		107			60			679	A		602	
Approach Delay, s/veh		16.9			17.9			8.9			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	26.6		11.4	8.7	23.5		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	11.0		4.1	4.1	13.1		5.4
Green Ext Time (p_c), s	0.0	3.7		0.5	0.3	4.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	85	10	5	10	85	590	15	5	710	50
Future Volume (veh/h)	40	5	85	10	5	10	85	590	15	5	710	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	6	11	5	1	92	641	9	5	772	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	84	100	20	161	137	122	1042	883	7	922	781
Arrive On Green	0.03	0.11	0.11	0.01	0.09	0.09	0.07	0.56	0.56	0.00	0.49	0.49
Sat Flow, veh/h	1781	770	924	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	11	11	5	1	92	641	9	5	772	28
Grp Sat Flow(s),veh/h/ln	1781	0	1694	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.5	0.0	0.4	0.4	0.2	0.0	3.2	14.5	0.2	0.2	22.4	0.6
Cycle Q Clear(g_c), s	1.5	0.0	0.4	0.4	0.2	0.0	3.2	14.5	0.2	0.2	22.4	0.6
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	184	20	161	137	122	1042	883	7	922	781
V/C Ratio(X)	0.72	0.00	0.06	0.56	0.03	0.01	0.75	0.61	0.01	0.70	0.84	0.04
Avail Cap(c_a), veh/h	568	0	567	568	626	531	710	1939	1643	710	1939	1641
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	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	30.0	0.0	25.1	30.9	26.3	26.2	28.7	9.3	6.2	31.2	13.7	8.2
Incr Delay (d2), s/veh	14.8	0.0	0.1	22.1	0.1	0.0	9.1	0.6	0.0	80.8	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.1	0.3	0.1	0.0	1.6	4.7	0.0	0.2	8.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	25.2	52.9	26.3	26.2	37.8	9.9	6.2	112.0	15.8	8.2
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		54			17			742			805	
Approach Delay, s/veh		40.8			43.5			13.3			16.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	40.0	5.7	11.8	9.3	35.9	7.1	10.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	16.5	2.4	2.4	5.2	24.4	3.5	2.2
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0	0.2	6.6	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	640	5	0	775	50
Future Volume (veh/h)	55	10	620	10	0	5	425	640	5	0	775	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	696	5	0	842	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	14		200	4	8	528	2750	20	3	1420	631
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.30	0.76	0.76	0.00	0.40	0.40
Sat Flow, veh/h	1261	231	1585	1437	64	136	1781	3617	26	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	342	359	0	842	17
Grp Sat Flow(s),veh/h/ln	1492	0	1585	1637	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.0	0.0	15.2	3.5	3.5	0.0	11.5	0.4
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.4	0.0	0.0	15.2	3.5	3.5	0.0	11.5	0.4
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	223	0		239	0	0	528	1351	1419	3	1420	631
V/C Ratio(X)	0.32	0.00		0.05	0.00	0.00	0.88	0.25	0.25	0.00	0.59	0.03
Avail Cap(c_a), veh/h	608	0		725	0	0	2047	1984	2084	2047	3969	1763
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	27.0	0.0	0.0	20.7	2.2	2.2	0.0	14.6	11.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	1.9	0.2	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.2	0.0	0.0	5.9	0.5	0.5	0.0	4.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	0.0	27.0	0.0	0.0	22.5	2.4	2.4	0.0	15.5	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1163			859	
Approach Delay, s/veh		28.9			27.0			10.4			15.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	22.3	30.7		8.8	0.0	53.0		8.8
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.2	13.5		2.4	0.0	5.5		4.8
Green Ext Time (p_c), s	1.1	11.2		0.0	0.0	7.7		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1025	20	10	1365	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1025	20	10	1365	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	6	16	5	1	120	1114	21	11	1484	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	14	138	146	35	5	153	2562	48	15	2276	1013
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.72	0.72	0.01	0.64	0.64
Sat Flow, veh/h	1383	155	1548	713	393	53	1781	3568	67	1781	3554	1581
Grp Volume(v), veh/h	65	0	6	22	0	0	120	555	580	11	1484	42
Grp Sat Flow(s),veh/h/ln	1538	0	1548	1159	0	0	1781	1777	1858	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.3	0.1	0.0	0.0	5.0	9.7	9.7	0.5	19.6	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.3	2.7	0.0	0.0	5.0	9.7	9.7	0.5	19.6	0.7
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	249	0	138	201	0	0	153	1276	1335	15	2276	1013
V/C Ratio(X)	0.26	0.00	0.04	0.11	0.00	0.00	0.78	0.43	0.43	0.75	0.65	0.04
Avail Cap(c_a), veh/h	551	0	469	516	0	0	493	2013	2106	258	3558	1583
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	31.6	31.7	0.0	0.0	34.0	4.4	4.4	37.6	8.4	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.3	0.5	0.5	24.8	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.4	0.0	0.0	2.2	2.5	2.6	0.3	5.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	31.7	31.8	0.0	0.0	37.3	4.9	4.9	62.4	9.1	5.1
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		71			22			1255			1537	
Approach Delay, s/veh		32.4			31.8			8.0			9.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	53.6		11.8	4.6	59.5		11.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.0	21.6		4.7	2.5	11.7		4.6
Green Ext Time (p_c), s	0.1	27.0		0.0	0.0	16.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	45	5	35	115	1110	55	30	1455	75
Future Volume (veh/h)	60	5	185	45	5	35	115	1110	55	30	1455	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	12	49	5	2	125	1207	38	33	1582	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	17	225	220	181	72	159	2310	1030	57	2106	939
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.65	0.65	0.03	0.59	0.59
Sat Flow, veh/h	1297	122	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	12	49	0	7	125	1207	38	33	1582	46
Grp Sat Flow(s),veh/h/ln	1419	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	0.0	0.6	2.8	0.0	0.3	5.9	15.3	0.7	1.6	27.9	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.6	6.6	0.0	0.3	5.9	15.3	0.7	1.6	27.9	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	300	0	225	220	0	253	159	2310	1030	57	2106	939
V/C Ratio(X)	0.23	0.00	0.05	0.22	0.00	0.03	0.79	0.52	0.04	0.58	0.75	0.05
Avail Cap(c_a), veh/h	499	0	444	414	0	500	439	2875	1283	251	2500	1115
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	31.6	36.0	0.0	31.5	38.0	7.9	5.4	40.7	12.8	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.2	0.4	0.0	3.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.2	1.0	0.0	0.1	2.6	4.9	0.2	0.7	9.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	0.0	31.7	36.5	0.0	31.5	41.2	8.3	5.4	44.2	14.3	7.3
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		82			56			1370			1661	
Approach Delay, s/veh		32.8			35.9			11.2			14.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	56.5		17.1	6.7	61.4		17.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	7.9	29.9		8.6	3.6	17.3		5.8
Green Ext Time (p_c), s	0.2	20.6		0.1	0.0	19.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	5	460	15	5	20	305	1240	15	60	1475	155
Future Volume (veh/h)	240	5	460	15	5	20	305	1240	15	60	1475	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	0	295	16	5	7	332	1348	16	65	1603	127
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	0	791	47	15	20	447	2300	27	117	2046	912
Arrive On Green	0.13	0.00	0.12	0.05	0.05	0.02	0.13	0.64	0.62	0.07	0.58	0.58
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3597	43	1781	3554	1584
Grp Volume(v), veh/h	265	0	295	28	0	0	332	666	698	65	1603	127
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	9.3	0.0	10.2	2.1	0.0	0.0	12.3	28.7	28.7	4.7	46.3	4.9
Cycle Q Clear(g_c), s	9.3	0.0	10.2	2.1	0.0	0.0	12.3	28.7	28.7	4.7	46.3	4.9
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	454	0	791	82	0	0	447	1136	1191	117	2046	912
V/C Ratio(X)	0.58	0.00	0.37	0.34	0.00	0.00	0.74	0.59	0.59	0.55	0.78	0.14
Avail Cap(c_a), veh/h	912	0	1198	407	0	0	1509	2595	2721	201	4040	1801
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	0.0	41.2	61.7	0.0	0.0	55.7	13.8	13.8	60.1	21.8	13.0
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.9	0.0	0.0	0.9	0.7	0.7	1.5	1.0	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	4.3	0.0	4.1	1.0	0.0	0.0	5.4	11.1	11.6	2.2	18.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	41.4	62.6	0.0	0.0	56.6	14.5	14.5	61.7	22.7	13.1
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	B
Approach Vol, veh/h		560			28			1696			1795	
Approach Delay, s/veh		47.8			62.6			22.7			23.5	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.2	80.5		10.2	12.7	88.9		20.9
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	14.3	48.3		4.1	6.7	30.7		12.2
Green Ext Time (p_c), s	0.9	26.2		0.0	0.0	14.6		1.7

Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	60	5	1440	90	90	1925	10
Future Volume (veh/h)	5	0	5	140	5	60	5	1440	90	90	1925	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1565	95	98	2092	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2415	146	124	2801	15
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3405	206	1781	3625	19
Grp Volume(v), veh/h	6	0	0	152	0	10	5	813	847	98	1025	1078
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1833	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	8.6	9.0	7.0	40.2	40.4
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	8.6	9.0	7.0	40.2	40.4
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1261	1301	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.64	0.65	0.79	0.75	0.75
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1261	1301	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.3	59.5	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.7	2.0	2.0	16.4	3.7	3.6
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	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.0	2.1	3.7	13.8	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	72.0	3.3	3.4	76.0	11.7	11.5
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1665			2201	
Approach Delay, s/veh		49.6			57.4			3.6			14.5	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	42.4		15.4	9.0	11.0		2.7
Green Ext Time (p_c), s	0.0	33.2		0.3	0.0	34.8		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1385	15	10	1710	265
Future Volume (veh/h)	135	5	15	70	5	15	15	1385	15	10	1710	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1505	15	11	1859	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2774	28	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3605	36	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	741	779	11	1859	217
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	21.5	21.5	0.8	33.3	4.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	21.5	21.5	0.8	33.3	4.8
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.54	0.54	0.82	0.68	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.70	0.70	0.70	0.55	0.55	0.55
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	5.9	5.9	64.4	7.4	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	21.4	1.1	1.0	20.9	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	7.0	7.4	0.4	10.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	85.6	7.0	7.0	85.3	8.2	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1536			2087	
Approach Delay, s/veh		57.8			52.6			7.8			8.2	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	35.3		8.3	2.8	23.5		15.6
Green Ext Time (p_c), s	0.0	41.4		0.2	0.0	36.4		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1415	65	15	1720	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1415	65	15	1720	135
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		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	8	103	22	2	71	1538	69	16	1870	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	244	89	293	315	29	90	2461	110	19	2246	169
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1373	1688	153	1781	3463	155	1781	3349	253
Grp Volume(v), veh/h	212	0	30	103	0	24	71	787	820	16	981	1032
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1373	0	1842	1781	1777	1841	1781	1777	1824
Q Serve(g_s), s	19.4	0.0	1.8	8.7	0.0	1.4	5.1	7.7	8.0	1.2	29.2	32.4
Cycle Q Clear(g_c), s	20.8	0.0	1.8	10.5	0.0	1.4	5.1	7.7	8.0	1.2	29.2	32.4
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	298	0	332	293	0	344	90	1262	1308	19	1192	1224
V/C Ratio(X)	0.71	0.00	0.09	0.35	0.00	0.07	0.79	0.62	0.63	0.84	0.82	0.84
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1262	1308	110	1192	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.64	0.64	0.64
Uniform Delay (d), s/veh	52.2	0.0	43.7	48.1	0.0	43.6	60.0	1.3	1.3	64.0	3.9	4.1
Incr Delay (d2), s/veh	5.5	0.0	0.1	0.7	0.0	0.1	2.3	0.2	0.2	19.9	4.3	4.8
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	7.2	0.0	0.8	3.1	0.0	0.7	2.3	1.3	1.3	0.6	4.9	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	43.9	48.8	0.0	43.7	62.3	1.5	1.5	83.9	8.2	8.9
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	A
Approach Vol, veh/h		242			127			1678			2029	
Approach Delay, s/veh		55.9			47.9			4.0			9.1	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	91.2		28.3	5.4	96.4		28.3
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	34.4		12.5	3.2	10.0		22.8
Green Ext Time (p_c), s	0.0	35.8		0.4	0.0	32.4		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	840	95	560	205	565	1015	145
Future Volume (veh/h)	95	120	115	200	140	840	95	560	205	565	1015	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	609	135	614	1103	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	731	611	695	1636	222
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.13	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3143	427
Grp Volume(v), veh/h	233	0	16	217	152	0	103	609	135	614	623	630
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1793
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	38.2	7.5	22.7	38.8	39.0
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	38.2	7.5	22.7	38.8	39.0
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	731	611	695	925	933
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.83	0.22	0.88	0.67	0.68
Avail Cap(c_a), veh/h	339	0	303	279	633		329	731	611	957	925	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.44	0.44	0.44
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	35.7	26.4	54.8	32.9	33.1
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	8.7	0.7	2.8	1.7	1.7
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	18.8	2.9	10.4	17.9	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	44.4	27.0	57.6	34.7	34.8
LnGrp LOS	E	A	D	D	C		E	D	C	E	C	C
Approach Vol, veh/h		249			369	A		847			1867	
Approach Delay, s/veh		60.0			44.0			43.9			42.2	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.1	54.8		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	41.0	14.6	21.7	24.7	40.2		9.9
Green Ext Time (p_c), s	0.1	5.8	0.0	0.3	1.4	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2030 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	230	250	105	10	140	35
Future Volume (veh/h)	50	45	310	85	45	20	230	250	105	10	140	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	44	92	49	9	250	272	54	11	152	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	154	245	316	240	44	334	807	684	15	472	400
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1294	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	44	92	0	58	250	272	54	11	152	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1294	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	1.0	2.7	0.0	1.1	5.3	3.8	0.8	0.2	2.6	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.0	4.8	0.0	1.1	5.3	3.8	0.8	0.2	2.6	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	316	0	284	334	807	684	15	472	400
V/C Ratio(X)	0.26	0.00	0.18	0.29	0.00	0.20	0.75	0.34	0.08	0.72	0.32	0.02
Avail Cap(c_a), veh/h	1085	0	951	897	0	1100	1348	3728	3159	674	3020	2559
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	14.5	17.1	0.0	14.6	15.2	7.5	6.6	19.6	12.1	11.1
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.4	0.5	0.1	46.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.0	1.1	0.2	0.3	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.9	17.6	0.0	14.9	18.6	8.0	6.7	66.2	12.9	11.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		147			150			576			172	
Approach Delay, s/veh		15.2			16.6			12.5			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	23.1		11.2	12.4	16.0		11.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	5.8		4.1	7.3	4.6		6.8				
Green Ext Time (p_c), s	0.0	4.0		0.6	0.7	1.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			14.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	140	560	15	10	545	70
Future Volume (veh/h)	60	5	180	90	20	15	140	560	15	10	545	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	19	98	22	2	152	609	0	11	592	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	375	24	306	340	334	30	399	906		345	755	635
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.40	0.40
Sat Flow, veh/h	1214	121	1545	1358	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	19	98	0	24	152	609	0	11	592	34
Grp Sat Flow(s),veh/h/ln	1335	0	1545	1358	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.5	3.4	0.0	0.5	2.3	12.9	0.0	0.2	14.3	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.5	6.0	0.0	0.5	2.3	12.9	0.0	0.2	14.3	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	306	340	0	364	399	906		345	755	635
V/C Ratio(X)	0.18	0.00	0.06	0.29	0.00	0.07	0.38	0.67		0.03	0.78	0.05
Avail Cap(c_a), veh/h	792	0	746	727	0	888	757	1843		846	1843	1551
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	0.0	16.8	20.2	0.0	16.9	9.5	10.2	0.0	9.7	13.5	9.4
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.0	0.1	0.6	0.9	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.1	0.0	0.2	0.7	4.1	0.0	0.1	5.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	0.0	16.9	20.7	0.0	16.9	10.1	11.1	0.0	9.8	15.3	9.4
LnGrp LOS	B	A	B	C	A	B	B	B		A	B	A
Approach Vol, veh/h		89			122			761	A		637	
Approach Delay, s/veh		17.8			20.0			10.9			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	31.1		15.3	9.6	26.9		15.3
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	14.9		4.6	4.3	16.3		8.0
Green Ext Time (p_c), s	0.0	4.4		0.4	0.3	4.4		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	5	5	5	60	655	15	5	760	30
Future Volume (veh/h)	40	5	125	5	5	5	60	655	15	5	760	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	9	5	5	1	65	712	11	5	826	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	70	126	9	168	141	85	1056	895	7	975	821
Arrive On Green	0.03	0.12	0.12	0.01	0.09	0.09	0.05	0.56	0.56	0.00	0.52	0.52
Sat Flow, veh/h	1781	593	1068	1781	1870	1564	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	43	0	14	5	5	1	65	712	11	5	826	19
Grp Sat Flow(s),veh/h/ln	1781	0	1662	1781	1870	1564	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	1.6	0.0	0.5	0.2	0.2	0.0	2.3	17.4	0.2	0.2	24.6	0.4
Cycle Q Clear(g_c), s	1.6	0.0	0.5	0.2	0.2	0.0	2.3	17.4	0.2	0.2	24.6	0.4
Prop In Lane	1.00		0.64	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	196	9	168	141	85	1056	895	7	975	821
V/C Ratio(X)	0.73	0.00	0.07	0.53	0.03	0.01	0.77	0.67	0.01	0.70	0.85	0.02
Avail Cap(c_a), veh/h	549	0	538	549	605	506	686	1873	1587	686	1873	1577
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	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	31.1	0.0	25.5	32.2	26.9	26.9	30.6	9.9	6.2	32.3	13.3	7.5
Incr Delay (d2), s/veh	15.5	0.0	0.2	38.9	0.1	0.0	13.5	0.8	0.0	81.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.2	0.1	0.0	1.3	5.7	0.1	0.2	8.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	0.0	25.6	71.1	27.0	26.9	44.1	10.7	6.2	113.4	15.5	7.5
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		57			11			788			850	
Approach Delay, s/veh		41.4			47.1			13.4			15.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	41.7	5.3	12.7	8.1	38.8	7.2	10.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	19.4	2.2	2.5	4.3	26.6	3.6	2.2
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.1	7.2	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	730	45	10	855	10
Future Volume (veh/h)	35	10	495	20	5	0	330	730	45	10	855	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	793	48	11	929	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	30		191	30	0	424	2287	138	15	1571	700
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.67	0.67	0.01	0.44	0.44
Sat Flow, veh/h	1115	422	1585	1154	420	0	1781	3404	206	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	414	427	11	929	3
Grp Sat Flow(s),veh/h/ln	1537	0	1585	1574	0	0	1781	1777	1833	1781	1777	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	11.6	6.0	6.0	0.4	11.9	0.1
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.8	0.0	0.0	11.6	6.0	6.0	0.4	11.9	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	241	0		247	0	0	424	1194	1232	15	1571	700
V/C Ratio(X)	0.20	0.00		0.11	0.00	0.00	0.85	0.35	0.35	0.74	0.59	0.00
Avail Cap(c_a), veh/h	627	0		748	0	0	1946	2176	2245	1946	4352	1941
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	26.0	0.0	0.0	22.0	4.2	4.2	29.9	12.7	9.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.8	0.4	0.4	22.8	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	4.6	1.4	1.5	0.2	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	0.0	0.0	26.2	0.0	0.0	23.8	4.6	4.6	52.7	13.5	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1200			943	
Approach Delay, s/veh		26.8			26.2			10.3			13.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.4	32.7		9.3	4.5	46.6		9.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.6	13.9		2.8	2.4	8.0		3.7
Green Ext Time (p_c), s	0.8	12.8		0.0	0.0	10.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1170	20	15	1360	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1170	20	15	1360	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1272	21	16	1478	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	0	71	114	19	3	185	2678	44	20	2331	1040
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.75	0.75	0.01	0.66	0.66
Sat Flow, veh/h	1560	0	1585	692	435	70	1781	3578	59	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	632	661	16	1478	47
Grp Sat Flow(s),veh/h/ln	1560	0	1585	1197	0	0	1781	1777	1860	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.8	9.9	9.9	0.6	17.5	0.8
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.7	0.0	0.0	5.8	9.9	9.9	0.6	17.5	0.8
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	192	0	71	153	0	0	185	1330	1392	20	2331	1040
V/C Ratio(X)	0.17	0.00	0.01	0.11	0.00	0.00	0.79	0.47	0.48	0.79	0.63	0.05
Avail Cap(c_a), veh/h	582	0	509	578	0	0	523	2135	2234	274	3773	1683
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	0.0	32.7	33.2	0.0	0.0	31.3	3.5	3.5	35.3	7.3	4.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	2.9	0.6	0.5	21.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	2.5	2.1	2.2	0.4	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	0.0	32.7	33.3	0.0	0.0	34.2	4.1	4.1	56.6	7.9	4.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	E	A	A
Approach Vol, veh/h		34			17			1440			1541	
Approach Delay, s/veh		32.9			33.3			7.1			8.3	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.4	52.0		8.2	4.8	58.6		8.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.8	19.5		3.7	2.6	11.9		3.3
Green Ext Time (p_c), s	0.1	27.4		0.0	0.0	21.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1325	60	25	1305	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1325	60	25	1305	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1440	49	27	1418	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2775	1238	39	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1440	49	27	1418	35
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	23.1	1.1	2.3	28.8	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	23.1	1.1	2.3	28.8	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2775	1238	39	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.52	0.04	0.68	0.55	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2775	1238	241	2560	1142
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	1.00	1.00	0.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.3	3.8	75.2	10.1	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.0	0.5	0.0	7.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.8	0.3	1.2	10.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.2	6.7	3.9	82.8	11.0	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1614			1480	
Approach Delay, s/veh		67.9			71.9			12.0			12.1	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.4	127.0		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	30.8		15.1	4.3	25.1		9.8
Green Ext Time (p_c), s	0.1	26.7		0.1	0.0	28.6		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1415	15	80	1265	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1415	15	80	1265	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	63	11	11	3	478	1538	16	87	1375	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	0	823	61	61	17	620	2179	23	148	1808	934
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.60	0.59	0.08	0.51	0.51
Sat Flow, veh/h	3563	0	3074	786	786	214	3456	3603	37	1781	3554	1579
Grp Volume(v), veh/h	155	0	63	25	0	0	478	758	796	87	1375	80
Grp Sat Flow(s),veh/h/ln	1781	0	1537	1786	0	0	1728	1777	1864	1781	1777	1579
Q Serve(g_s), s	4.6	0.0	1.7	1.5	0.0	0.0	14.7	32.9	33.0	5.3	34.7	2.4
Cycle Q Clear(g_c), s	4.6	0.0	1.7	1.5	0.0	0.0	14.7	32.9	33.0	5.3	34.7	2.4
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	326	0	823	138	0	0	620	1075	1127	148	1808	934
V/C Ratio(X)	0.48	0.00	0.08	0.18	0.00	0.00	0.77	0.71	0.71	0.59	0.76	0.09
Avail Cap(c_a), veh/h	1083	0	1476	495	0	0	1793	3083	3233	239	4799	2264
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	0.0	31.1	48.5	0.0	0.0	43.7	15.2	15.3	49.4	22.0	9.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.8	1.2	1.2	1.4	1.0	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	2.1	0.0	0.7	0.7	0.0	0.0	6.3	12.5	13.1	2.4	13.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	0.0	31.1	49.1	0.0	0.0	44.5	16.4	16.4	50.8	23.0	9.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		218			25			2032			1542	
Approach Delay, s/veh		43.6			49.1			23.0			23.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.1	60.9		12.6	13.3	71.6		14.2
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	16.7	36.7		3.5	7.3	35.0		6.6
Green Ext Time (p_c), s	1.3	18.2		0.0	0.1	19.7		0.6

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1885	95	30	1485	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1885	95	30	1485	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2049	101	33	1614	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2721	133	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3448	169	1781	3634	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1047	1103	33	789	830
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1840	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	42.4	44.2	2.5	20.3	20.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	42.4	44.2	2.5	20.3	20.3
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1452	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.75	0.76	0.52	0.54	0.54
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1452	102	1455	1529
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	0.55	0.55	0.55	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.6	7.8	66.3	4.1	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.5	2.0	2.1	2.4	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.3	0.0	0.0	0.2	13.8	15.0	1.2	6.2	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	74.9	9.6	9.9	68.7	5.6	5.5
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2155			1652	
Approach Delay, s/veh		58.6			62.0			9.9			6.8	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	22.3		8.1	4.5	46.2		2.8
Green Ext Time (p_c), s	0.0	33.2		0.1	0.0	40.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1870	20	10	1325	190
Future Volume (veh/h)	90	5	5	105	15	15	5	1870	20	10	1325	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	2033	22	11	1440	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2819	30	14	2795	1245
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3601	39	1781	3554	1583
Grp Volume(v), veh/h	106	0	0	142	0	0	5	1001	1054	11	1440	150
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	33.7	34.0	0.7	17.5	2.7
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	33.7	34.0	0.7	17.5	2.7
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1245
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.72	0.72	0.80	0.52	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1245
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	0.61	0.61	0.61	0.83	0.83	0.83
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.5	6.5	59.4	4.6	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	28.4	2.0	1.9	27.5	0.6	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	10.3	10.8	0.4	5.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	88.1	8.5	8.5	87.0	5.2	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			2060			1601	
Approach Delay, s/veh		52.7			54.3			8.7			5.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	19.5		11.7	2.7	36.0		9.9
Green Ext Time (p_c), s	0.0	33.2		0.5	0.0	29.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1690	75	10	1365	70
Future Volume (veh/h)	145	30	20	150	25	35	25	1690	75	10	1365	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1837	81	11	1484	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2561	112	13	2504	124
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3468	152	1781	3445	171
Grp Volume(v), veh/h	158	0	35	163	0	30	27	935	983	11	763	795
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1843	1781	1777	1840
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	28.8	29.2
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	28.8	29.2
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1361	13	1291	1337
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.71	0.72	0.83	0.59	0.59
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1361	140	1291	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.83	0.83	0.83
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.2	9.2
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	31.0	1.7	1.6
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	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	10.7	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.4	10.8	10.9
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1945			1569	
Approach Delay, s/veh		57.2			58.1			1.3			11.5	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	31.2		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	25.9		0.6	0.0	48.5		0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1145	55	665	175	570	1060	75
Future Volume (veh/h)	55	120	60	110	100	1145	55	665	175	570	1060	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	723	119	620	1152	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	889	751	658	2101	144
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.48	0.48	0.38	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3374	231
Grp Volume(v), veh/h	190	0	6	120	109	0	60	723	119	620	606	625
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1828
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	46.3	6.0	24.3	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	46.3	6.0	24.3	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	889	751	658	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.81	0.16	0.94	0.55	0.55
Avail Cap(c_a), veh/h	304	0	256	232	508		178	889	751	691	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.74	0.74	0.74
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	31.4	20.8	42.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	6.5	0.4	16.4	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.2	3.6	3.1	0.0	2.2	22.0	2.3	10.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	37.8	21.2	59.0	1.4	1.4
LnGrp LOS	E	A	D	D	D		E	D	C	E	A	A
Approach Vol, veh/h		196			229	A		902			1851	
Approach Delay, s/veh		63.7			45.0			37.9			20.7	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	30.7	70.6		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	28.0	61.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.3	48.3		8.5
Green Ext Time (p_c), s	0.0	19.2	0.0	0.3	0.4	6.2		0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2030 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	380	60	25	5	400	230	60	5	295	75
Future Volume (veh/h)	55	25	380	60	25	5	400	230	60	5	295	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	24	65	27	1	435	250	41	5	321	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	68	178	223	201	7	521	1058	897	7	519	440
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.57	0.57	0.00	0.28	0.28
Sat Flow, veh/h	912	608	1585	1354	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	24	65	0	28	435	250	41	5	321	20
Grp Sat Flow(s),veh/h/ln	1520	0	1585	1354	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.0	0.0	0.7	2.4	0.0	0.7	11.5	3.4	0.6	0.1	7.5	0.5
Cycle Q Clear(g_c), s	2.7	0.0	0.7	5.1	0.0	0.7	11.5	3.4	0.6	0.1	7.5	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	292	0	178	223	0	209	521	1058	897	7	519	440
V/C Ratio(X)	0.30	0.00	0.13	0.29	0.00	0.13	0.84	0.24	0.05	0.70	0.62	0.05
Avail Cap(c_a), veh/h	840	0	756	716	0	886	1061	2935	2487	531	2378	2015
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	0.0	20.1	23.4	0.0	20.1	16.7	5.5	4.9	25.0	15.9	13.3
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.7	0.0	0.3	3.6	0.2	0.0	79.1	2.6	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	0.9	0.0	0.3	0.8	0.0	0.3	4.4	0.9	0.1	0.2	3.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	20.5	24.1	0.0	20.4	20.3	5.7	4.9	104.1	18.4	13.4
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	B	B
Approach Vol, veh/h		111			93			726			346	
Approach Delay, s/veh		21.3			23.0			14.4			19.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	34.5		10.7	19.7	20.0		10.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.1	5.4		4.7	13.5	9.5		7.1
Green Ext Time (p_c), s	0.0	3.6		0.5	1.2	4.4		0.2

Intersection Summary			
HCM 6th Ctrl Delay			17.0
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	150	45	15	10	205	630	45	25	610	80
Future Volume (veh/h)	75	20	150	45	15	10	205	630	45	25	610	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	49	16	1	223	685	0	27	663	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	55	206	234	226	14	436	998		376	839	708
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.53	0.00	0.02	0.45	0.45
Sat Flow, veh/h	1080	424	1585	1373	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	13	49	0	17	223	685	0	27	663	46
Grp Sat Flow(s),veh/h/ln	1503	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.7	0.0	0.4	1.7	0.0	0.4	3.0	13.6	0.0	0.4	15.2	0.8
Cycle Q Clear(g_c), s	3.2	0.0	0.4	4.9	0.0	0.4	3.0	13.6	0.0	0.4	15.2	0.8
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	0	206	234	0	240	436	998		376	839	708
V/C Ratio(X)	0.32	0.00	0.06	0.21	0.00	0.07	0.51	0.69		0.07	0.79	0.06
Avail Cap(c_a), veh/h	864	0	787	738	0	919	782	1895		873	1895	1599
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	0.0	19.2	22.8	0.0	19.2	9.0	8.6	0.0	8.1	11.9	7.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	0.0	0.1	0.9	0.8	0.0	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.6	0.0	0.2	0.8	3.9	0.0	0.1	5.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	0.0	19.4	23.2	0.0	19.4	9.9	9.5	0.0	8.2	13.6	7.9
LnGrp LOS	C	A	B	C	A	B	A	A		A	B	A
Approach Vol, veh/h		117			66			908	A		736	
Approach Delay, s/veh		20.8			22.2			9.6			13.0	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	32.9		11.5	10.2	28.6		11.5
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	15.6		5.2	5.0	17.2		6.9
Green Ext Time (p_c), s	0.0	5.3		0.5	0.4	5.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	100	10	5	10	170	875	10	5	810	75
Future Volume (veh/h)	55	5	100	10	5	10	170	875	10	5	810	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	11	5	1	185	951	8	5	880	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	96	96	19	151	124	226	1213	1028	7	983	832
Arrive On Green	0.04	0.11	0.11	0.01	0.08	0.08	0.13	0.65	0.65	0.00	0.53	0.53
Sat Flow, veh/h	1781	843	843	1781	1870	1535	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	10	11	5	1	185	951	8	5	880	44
Grp Sat Flow(s),veh/h/ln	1781	0	1687	1781	1870	1535	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	3.0	0.0	0.5	0.6	0.2	0.1	9.1	32.6	0.2	0.3	37.8	1.2
Cycle Q Clear(g_c), s	3.0	0.0	0.5	0.6	0.2	0.1	9.1	32.6	0.2	0.3	37.8	1.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	192	19	151	124	226	1213	1028	7	983	832
V/C Ratio(X)	0.77	0.00	0.05	0.58	0.03	0.01	0.82	0.78	0.01	0.72	0.89	0.05
Avail Cap(c_a), veh/h	397	0	395	397	438	360	497	1356	1149	497	1356	1147
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	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	42.4	0.0	35.4	44.2	38.0	37.9	38.2	11.3	5.6	44.6	19.0	10.4
Incr Delay (d2), s/veh	14.4	0.0	0.1	24.7	0.1	0.0	7.2	2.8	0.0	84.7	6.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.2	0.4	0.1	0.0	4.3	11.9	0.0	0.3	16.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	0.0	35.5	68.9	38.1	38.0	45.4	14.1	5.6	129.3	25.2	10.4
LnGrp LOS	E	A	D	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		70			17			1144			929	
Approach Delay, s/veh		53.7			58.0			19.1			25.1	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	63.2	6.0	15.2	16.4	52.1	8.9	12.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.3	34.6	2.6	2.5	11.1	39.8	5.0	2.2
Green Ext Time (p_c), s	0.0	8.8	0.0	0.0	0.4	7.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	610	85	10	10	625	945	10	5	860	20
Future Volume (veh/h)	75	5	610	85	10	10	625	945	10	5	860	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	0	92	11	9	679	1027	11	5	935	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	8		182	14	12	719	2749	29	7	1292	576
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.76	0.76	0.00	0.36	0.36
Sat Flow, veh/h	1454	89	1585	1340	160	131	1781	3602	39	1781	3554	1585
Grp Volume(v), veh/h	87	0	0	112	0	0	679	507	531	5	935	6
Grp Sat Flow(s),veh/h/ln	1542	0	1585	1632	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	38.2	9.8	9.8	0.3	23.6	0.3
Cycle Q Clear(g_c), s	5.3	0.0	0.0	6.5	0.0	0.0	38.2	9.8	9.8	0.3	23.6	0.3
Prop In Lane	0.94		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	219	0		223	0	0	719	1356	1422	7	1292	576
V/C Ratio(X)	0.40	0.00		0.50	0.00	0.00	0.94	0.37	0.37	0.72	0.72	0.01
Avail Cap(c_a), veh/h	365	0		444	0	0	1215	1356	1422	1215	2356	1051
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	0.0	0.0	45.7	0.0	0.0	29.9	4.1	4.1	51.8	28.6	21.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.7	0.0	0.0	6.4	0.4	0.3	41.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	2.9	0.0	0.0	16.8	2.8	2.9	0.2	10.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	0.0	0.0	47.4	0.0	0.0	36.3	4.4	4.4	92.9	30.3	21.2
LnGrp LOS	D	A		D	A	A	D	A	A	F	C	C
Approach Vol, veh/h		87	A		112			1717			946	
Approach Delay, s/veh		46.4			47.4			17.0			30.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.0	43.8		14.2	4.4	85.4		14.2				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0				
Max Q Clear Time (g_c+I1), s	40.2	25.6		8.5	2.3	11.8		7.3				
Green Ext Time (p_c), s	1.8	12.2		0.3	0.0	13.6		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1545	10	10	1575	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1545	10	10	1575	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1679	11	11	1712	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	18	172	182	2	7	173	2656	17	14	2291	1022
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.73	0.73	0.01	0.64	0.64
Sat Flow, veh/h	1361	155	1522	967	18	62	1781	3619	24	1781	3554	1585
Grp Volume(v), veh/h	59	0	6	17	0	0	141	824	866	11	1712	36
Grp Sat Flow(s),veh/h/ln	1516	0	1522	1047	0	0	1781	1777	1866	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.5	22.2	22.2	0.6	31.8	0.8
Cycle Q Clear(g_c), s	3.0	0.0	0.3	3.9	0.0	0.0	7.5	22.2	22.2	0.6	31.8	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	258	0	172	202	0	0	173	1304	1369	14	2291	1022
V/C Ratio(X)	0.23	0.00	0.03	0.08	0.00	0.00	0.82	0.63	0.63	0.78	0.75	0.04
Avail Cap(c_a), veh/h	435	0	363	374	0	0	388	1587	1666	203	2804	1251
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	38.0	40.1	0.0	0.0	42.6	6.4	6.4	47.7	11.7	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.6	1.1	1.1	27.9	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.1	0.4	0.0	0.0	3.4	6.6	6.9	0.4	11.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	38.1	40.1	0.0	0.0	46.2	7.5	7.5	75.5	13.1	6.2
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1831			1759	
Approach Delay, s/veh		38.9			40.1			10.5			13.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	67.1		15.9	4.8	75.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.5	33.8		5.9	2.6	24.2		5.0
Green Ext Time (p_c), s	0.1	28.3		0.0	0.0	33.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1530	60	35	1745	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1530	60	35	1745	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1663	49	38	1897	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1663	49	38	1897	86
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	36.2	1.3	3.5	59.1	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	36.2	1.3	3.5	59.1	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.62	0.04	0.77	0.78	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.6	5.3	79.7	17.3	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	3.8	0.7	0.0	9.3	2.5	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	13.3	0.4	1.7	23.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	77.8	10.4	5.3	89.0	19.8	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	B	A
Approach Vol, veh/h		115			82			1853			2021	
Approach Delay, s/veh		66.4			77.2			15.4			20.7	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	61.1		20.7	5.5	38.2		11.7
Green Ext Time (p_c), s	0.2	30.2		0.1	0.0	38.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	5	625	15	0	5	395	1575	10	80	1805	135
Future Volume (veh/h)	295	5	625	15	0	5	395	1575	10	80	1805	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	0	482	16	0	1	429	1712	11	87	1962	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	0	895	67	0	4	496	2470	16	114	2143	956
Arrive On Green	0.15	0.00	0.14	0.04	0.00	0.03	0.14	0.68	0.67	0.06	0.60	0.60
Sat Flow, veh/h	3563	0	3125	1659	0	104	3456	3620	23	1781	3554	1585
Grp Volume(v), veh/h	325	0	482	17	0	0	429	840	883	87	1962	110
Grp Sat Flow(s),veh/h/ln	1781	0	1563	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	20.1	0.0	30.6	2.2	0.0	0.0	28.4	66.7	66.9	11.3	114.6	6.9
Cycle Q Clear(g_c), s	20.1	0.0	30.6	2.2	0.0	0.0	28.4	66.7	66.9	11.3	114.6	6.9
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	517	0	895	71	0	0	496	1212	1273	114	2143	956
V/C Ratio(X)	0.63	0.00	0.54	0.24	0.00	0.00	0.87	0.69	0.69	0.76	0.92	0.12
Avail Cap(c_a), veh/h	517	0	895	233	0	0	856	1472	1546	114	2291	1022
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	94.2	0.0	70.9	109.0	0.0	0.0	98.1	22.4	22.4	107.9	41.2	19.8
Incr Delay (d2), s/veh	1.8	0.0	0.4	0.6	0.0	0.0	1.9	1.3	1.3	23.4	6.3	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	9.6	0.0	12.6	1.0	0.0	0.0	13.0	28.4	29.9	6.0	51.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.0	0.0	71.3	109.7	0.0	0.0	100.0	23.8	23.7	131.3	47.5	19.9
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	B
Approach Vol, veh/h		807			17			2152			2159	
Approach Delay, s/veh		81.2			109.7			38.9			49.5	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	37.6	145.2		13.4	19.0	163.8		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	30.4	116.6		4.2	13.3	68.9		32.6
Green Ext Time (p_c), s	1.2	22.6		0.0	0.0	25.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1935	95	90	2400	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1935	95	90	2400	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2103	101	98	2609	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2601	124	124	2950	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3453	164	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1074	1130	98	1273	1341
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1841	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	64.7	64.9
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	64.7	64.9
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1387	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.80	0.82	0.79	0.88	0.88
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1387	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.51	0.51	0.51	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	8.5	8.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.2	2.7	2.8	4.2	8.2	7.9
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	0.4	0.0	0.0	3.4	0.0	0.3	0.4	1.0	1.1	3.4	21.3	22.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	69.1	2.7	2.8	66.0	16.8	16.5
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2215			2712	
Approach Delay, s/veh		57.1			62.0			3.1			18.4	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	66.9		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	19.7		0.2	0.1	60.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	15	10	65	5	10	5	1865	20	5	2045	325
Future Volume (veh/h)	175	15	10	65	5	10	5	1865	20	5	2045	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	16	9	71	5	7	5	2027	21	5	2223	282
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	18	10	276	20	23	7	2678	28	7	2641	1178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1329	112	63	1381	123	139	1781	3603	37	1781	3554	1585
Grp Volume(v), veh/h	215	0	0	83	0	0	5	998	1050	5	2223	282
Grp Sat Flow(s),veh/h/ln	1504	0	0	1643	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	57.9	7.5
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	57.9	7.5
Prop In Lane	0.88		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	0	319	0	0	7	1321	1385	7	2641	1178
V/C Ratio(X)	0.72	0.00	0.00	0.26	0.00	0.00	0.74	0.76	0.76	0.74	0.84	0.24
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1321	1385	106	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.53	0.53	0.53	0.27	0.27	0.27
Uniform Delay (d), s/veh	54.7	0.0	0.0	49.6	0.0	0.0	66.9	0.0	0.0	67.2	11.9	5.4
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.4	0.0	0.0	26.2	2.2	2.1	14.5	1.0	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	7.6	0.0	0.0	2.5	0.0	0.0	0.2	0.8	0.8	0.2	19.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	0.0	50.1	0.0	0.0	93.1	2.2	2.1	81.7	12.8	5.5
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		215			83			2053			2510	
Approach Delay, s/veh		59.5			50.1			2.4			12.2	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	104.3		26.1	4.5	104.3		26.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	59.9		7.8	2.4	2.0		20.6
Green Ext Time (p_c), s	0.0	23.4		0.2	0.0	68.5		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1660	110	25	1975	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1660	110	25	1975	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	11	109	27	2	60	1804	117	27	2147	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	251	73	263	311	23	76	2410	155	34	2301	173
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.17	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1347	1385	401	1325	1716	127	1781	3390	218	1781	3348	252
Grp Volume(v), veh/h	196	0	49	109	0	29	60	936	985	27	1126	1185
Grp Sat Flow(s),veh/h/ln	1347	0	1785	1325	0	1843	1781	1777	1831	1781	1777	1824
Q Serve(g_s), s	19.1	0.0	3.1	10.2	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	3.1	13.3	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	280	0	323	263	0	334	76	1263	1302	34	1221	1253
V/C Ratio(X)	0.70	0.00	0.15	0.42	0.00	0.09	0.79	0.74	0.76	0.80	0.92	0.95
Avail Cap(c_a), veh/h	345	0	410	327	0	423	106	1263	1302	106	1221	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.39	0.39	0.39
Uniform Delay (d), s/veh	54.7	0.0	46.5	52.1	0.0	46.0	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.0	0.2	1.0	0.0	0.1	1.6	0.4	0.4	6.1	5.8	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	1.4	3.5	0.0	0.8	2.0	0.1	0.1	1.0	2.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	46.8	53.2	0.0	46.1	62.7	0.4	0.4	70.8	5.8	7.5
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		245			138			1981			2338	
Approach Delay, s/veh		56.9			51.7			2.3			7.4	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.8		28.4	6.6	100.0		28.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		22.9
Green Ext Time (p_c), s	0.0	67.3		0.4	0.0	49.8		0.6

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1030	85	675	225	660	1170	90
Future Volume (veh/h)	85	125	115	195	120	1030	85	675	225	660	1170	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	20	212	130	0	92	734	163	717	1272	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	260	231	525		115	773	650	751	1899	140
Arrive On Green	0.17	0.17	0.17	0.08	0.28	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	607	944	1534	1781	1870	1585	1781	1870	1574	3456	3354	247
Grp Volume(v), veh/h	228	0	20	212	130	0	92	734	163	717	673	693
Grp Sat Flow(s),veh/h/ln	1552	0	1534	1781	1870	1585	1781	1870	1574	1728	1777	1824
Q Serve(g_s), s	18.7	0.0	1.5	11.0	7.3	0.0	6.9	51.2	9.2	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.5	11.0	7.3	0.0	6.9	51.2	9.2	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	300	0	260	231	525		115	773	650	751	1006	1033
V/C Ratio(X)	0.76	0.00	0.08	0.92	0.25		0.80	0.95	0.25	0.95	0.67	0.67
Avail Cap(c_a), veh/h	347	0	307	231	582		238	773	650	768	1006	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.21	0.21	0.21
Uniform Delay (d), s/veh	54.5	0.0	47.2	46.4	37.6	0.0	62.3	38.2	25.9	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	0.1	37.7	0.2	0.0	4.3	20.3	0.8	6.9	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	0.6	4.4	3.4	0.0	3.2	27.2	3.6	9.9	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	47.3	84.2	37.8	0.0	66.6	58.6	26.7	44.4	0.8	0.7
LnGrp LOS	E	A	D	F	D		E	E	C	D	A	A
Approach Vol, veh/h		248			342	A		989			2083	
Approach Delay, s/veh		61.4			66.5			54.1			15.8	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	80.5	15.0	26.9	33.3	59.8		41.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	62.0	10.0	26.0	30.0	50.0		41.0
Max Q Clear Time (g_c+I1), s	9.9	2.0	13.0	21.3	29.1	53.2		9.3
Green Ext Time (p_c), s	0.1	22.4	0.0	0.4	0.3	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2030 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	345	45	50	20	290	335	40	20	300	90
Future Volume (veh/h)	40	45	345	45	50	20	290	335	40	20	300	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	34	49	54	10	315	364	23	22	326	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	128	196	251	192	36	402	949	803	29	557	471
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.23	0.51	0.51	0.02	0.30	0.30
Sat Flow, veh/h	546	1025	1567	1304	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	34	49	0	64	315	364	23	22	326	28
Grp Sat Flow(s),veh/h/ln	1571	0	1567	1304	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.7	0.0	1.5	7.6	5.4	0.3	0.6	6.7	0.6
Cycle Q Clear(g_c), s	2.5	0.0	0.9	4.1	0.0	1.5	7.6	5.4	0.3	0.6	6.7	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	313	0	196	251	0	228	402	949	803	29	557	471
V/C Ratio(X)	0.29	0.00	0.17	0.20	0.00	0.28	0.78	0.38	0.03	0.77	0.59	0.06
Avail Cap(c_a), veh/h	943	0	826	775	0	957	1173	3245	2744	587	2629	2224
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	17.8	20.4	0.0	18.1	16.6	6.9	5.6	22.3	13.6	11.4
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.7	3.4	0.5	0.0	34.5	2.1	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	0.9	0.0	0.3	0.5	0.0	0.6	2.9	1.6	0.1	0.5	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	0.0	18.2	20.8	0.0	18.7	20.0	7.4	5.6	56.8	15.7	11.5
LnGrp LOS	B	A	B	C	A	B	B	A	A	E	B	B
Approach Vol, veh/h		126			113			702			376	
Approach Delay, s/veh		18.8			19.6			13.0			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	29.1		10.7	15.3	19.6		10.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.6	7.4		4.5	9.6	8.7		6.1
Green Ext Time (p_c), s	0.0	5.2		0.5	0.9	4.6		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	200	40	15	5	140	495	25	15	525	60
Future Volume (veh/h)	60	20	200	40	15	5	140	495	25	15	525	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	20	43	16	1	152	538	0	16	571	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	77	227	293	254	16	433	895		417	762	644
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.48	0.00	0.01	0.41	0.41
Sat Flow, veh/h	985	528	1558	1346	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	20	43	0	17	152	538	0	16	571	26
Grp Sat Flow(s),veh/h/ln	1514	0	1558	1346	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.3	2.1	9.3	0.0	0.2	11.5	0.4
Cycle Q Clear(g_c), s	2.2	0.0	0.5	3.5	0.0	0.3	2.1	9.3	0.0	0.2	11.5	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	363	0	227	293	0	269	433	895		417	762	644
V/C Ratio(X)	0.24	0.00	0.09	0.15	0.00	0.06	0.35	0.60		0.04	0.75	0.04
Avail Cap(c_a), veh/h	985	0	885	862	0	1050	891	2166		1003	2166	1829
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	16.3	18.6	0.0	16.2	8.0	8.4	0.0	7.9	11.1	7.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.7	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.4	0.0	0.1	0.6	2.6	0.0	0.1	3.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	16.4	18.8	0.0	16.3	8.5	9.0	0.0	8.0	12.6	7.9
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		107			60			690	A		613	
Approach Delay, s/veh		17.1			18.1			8.9			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	27.1		11.4	8.7	23.9		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	11.3		4.2	4.1	13.5		5.5
Green Ext Time (p_c), s	0.0	3.8		0.5	0.3	4.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	85	10	5	10	85	605	15	5	725	50
Future Volume (veh/h)	40	5	85	10	5	10	85	605	15	5	725	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	5	11	5	1	92	658	11	5	788	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	91	91	20	158	134	122	1057	896	7	936	793
Arrive On Green	0.03	0.11	0.11	0.01	0.08	0.08	0.07	0.57	0.57	0.00	0.50	0.50
Sat Flow, veh/h	1781	853	853	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	10	11	5	1	92	658	11	5	788	28
Grp Sat Flow(s),veh/h/ln	1781	0	1707	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.5	0.0	0.3	0.4	0.2	0.0	3.2	15.1	0.2	0.2	23.2	0.6
Cycle Q Clear(g_c), s	1.5	0.0	0.3	0.4	0.2	0.0	3.2	15.1	0.2	0.2	23.2	0.6
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	0	182	20	158	134	122	1057	896	7	936	793
V/C Ratio(X)	0.72	0.00	0.05	0.56	0.03	0.01	0.76	0.62	0.01	0.70	0.84	0.04
Avail Cap(c_a), veh/h	557	0	561	557	615	521	697	1902	1612	697	1902	1611
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	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	0.0	25.6	31.4	26.9	26.8	29.2	9.3	6.1	31.8	13.8	8.1
Incr Delay (d2), s/veh	15.2	0.0	0.1	22.2	0.1	0.0	9.1	0.6	0.0	81.0	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.1	0.3	0.1	0.0	1.6	4.9	0.1	0.2	8.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	0.0	25.8	53.6	26.9	26.8	38.3	9.9	6.1	112.8	15.9	8.1
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		53			17			761			821	
Approach Delay, s/veh		42.0			44.2			13.3			16.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	41.1	5.7	11.8	9.4	37.0	7.1	10.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.3	17.1	2.4	2.3	5.2	25.2	3.5	2.2
Green Ext Time (p_c), s	0.0	5.1	0.0	0.0	0.2	6.8	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	655	5	0	795	50
Future Volume (veh/h)	55	10	620	10	0	5	425	655	5	0	795	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	712	5	0	864	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	14		197	4	8	526	2766	19	3	1442	641
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.30	0.76	0.76	0.00	0.41	0.41
Sat Flow, veh/h	1261	231	1585	1439	63	137	1781	3617	25	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	350	367	0	864	17
Grp Sat Flow(s),veh/h/ln	1493	0	1585	1639	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	0.0	15.6	3.6	3.6	0.0	12.1	0.4
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.4	0.0	0.0	15.6	3.6	3.6	0.0	12.1	0.4
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	220	0		235	0	0	526	1359	1427	3	1442	641
V/C Ratio(X)	0.32	0.00		0.05	0.00	0.00	0.88	0.26	0.26	0.00	0.60	0.03
Avail Cap(c_a), veh/h	595	0		710	0	0	2004	1942	2039	2004	3885	1726
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	0.0	27.6	0.0	0.0	21.1	2.2	2.2	0.0	14.7	11.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	1.9	0.2	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.2	0.0	0.0	6.0	0.5	0.5	0.0	4.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	0.0	0.0	27.7	0.0	0.0	23.0	2.4	2.4	0.0	15.6	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1179			881	
Approach Delay, s/veh		29.6			27.7			10.5			15.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.7	31.6		8.9	0.0	54.3		8.9
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.6	14.1		2.4	0.0	5.6		4.9
Green Ext Time (p_c), s	1.1	11.6		0.0	0.0	7.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1045	20	10	1400	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1045	20	10	1400	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	6	16	5	1	120	1136	21	11	1522	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	14	136	142	34	5	153	2586	48	15	2299	1023
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.72	0.72	0.01	0.65	0.65
Sat Flow, veh/h	1386	155	1547	707	388	52	1781	3569	66	1781	3554	1581
Grp Volume(v), veh/h	65	0	6	22	0	0	120	565	592	11	1522	43
Grp Sat Flow(s),veh/h/ln	1541	0	1547	1147	0	0	1781	1777	1858	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.3	0.2	0.0	0.0	5.2	10.0	10.0	0.5	20.6	0.8
Cycle Q Clear(g_c), s	2.7	0.0	0.3	2.8	0.0	0.0	5.2	10.0	10.0	0.5	20.6	0.8
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	244	0	136	195	0	0	153	1287	1346	15	2299	1023
V/C Ratio(X)	0.27	0.00	0.04	0.11	0.00	0.00	0.79	0.44	0.44	0.76	0.66	0.04
Avail Cap(c_a), veh/h	536	0	456	500	0	0	479	1958	2048	251	3460	1540
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	32.6	32.7	0.0	0.0	35.0	4.3	4.3	38.6	8.5	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.3	0.5	0.5	25.1	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.4	0.0	0.0	2.3	2.6	2.7	0.3	6.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	32.6	32.8	0.0	0.0	38.3	4.9	4.8	63.8	9.2	5.0
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		71			22			1277			1576	
Approach Delay, s/veh		33.4			32.8			8.0			9.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.7	55.5		11.9	4.6	61.6		11.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.2	22.6		4.8	2.5	12.0		4.7
Green Ext Time (p_c), s	0.1	27.9		0.0	0.0	17.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	45	5	35	115	1135	55	30	1485	75
Future Volume (veh/h)	60	5	185	45	5	35	115	1135	55	30	1485	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	12	49	5	2	125	1234	38	33	1614	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	17	222	217	179	71	159	2324	1036	56	2119	945
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.65	0.65	0.03	0.60	0.60
Sat Flow, veh/h	1297	122	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	12	49	0	7	125	1234	38	33	1614	46
Grp Sat Flow(s),veh/h/ln	1419	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.6	0.0	0.6	2.9	0.0	0.3	5.9	15.9	0.7	1.6	29.0	1.0
Cycle Q Clear(g_c), s	3.9	0.0	0.6	6.7	0.0	0.3	5.9	15.9	0.7	1.6	29.0	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	222	217	0	250	159	2324	1036	56	2119	945
V/C Ratio(X)	0.24	0.00	0.05	0.23	0.00	0.03	0.79	0.53	0.04	0.59	0.76	0.05
Avail Cap(c_a), veh/h	492	0	439	408	0	494	433	2840	1267	248	2469	1101
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	32.1	36.6	0.0	32.0	38.5	7.9	5.3	41.2	12.9	7.2
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.2	0.4	0.0	3.5	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.2	1.0	0.0	0.1	2.7	5.0	0.2	0.7	10.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	0.0	32.2	37.1	0.0	32.0	41.8	8.3	5.3	44.8	14.6	7.3
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		82			56			1397			1693	
Approach Delay, s/veh		33.4			36.5			11.2			15.0	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	57.5		17.2	6.7	62.5		17.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	7.9	31.0		8.7	3.6	17.9		5.9
Green Ext Time (p_c), s	0.2	20.5		0.1	0.0	19.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	5	460	15	5	20	305	1265	15	60	1505	155
Future Volume (veh/h)	240	5	460	15	5	20	305	1265	15	60	1505	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	0	291	16	5	7	332	1375	16	65	1636	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	446	0	780	46	14	20	444	2329	27	116	2075	925
Arrive On Green	0.13	0.00	0.12	0.05	0.05	0.02	0.13	0.65	0.63	0.06	0.58	0.58
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3598	42	1781	3554	1584
Grp Volume(v), veh/h	265	0	291	28	0	0	332	679	712	65	1636	129
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	9.6	0.0	10.4	2.1	0.0	0.0	12.7	29.9	29.9	4.8	48.6	5.1
Cycle Q Clear(g_c), s	9.6	0.0	10.4	2.1	0.0	0.0	12.7	29.9	29.9	4.8	48.6	5.1
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	446	0	780	80	0	0	444	1150	1206	116	2075	925
V/C Ratio(X)	0.59	0.00	0.37	0.35	0.00	0.00	0.75	0.59	0.59	0.56	0.79	0.14
Avail Cap(c_a), veh/h	885	0	1171	394	0	0	1464	2518	2639	195	3919	1747
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	0.0	42.8	63.7	0.0	0.0	57.5	13.8	13.8	62.1	22.0	12.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	1.0	0.0	0.0	1.0	0.7	0.7	1.6	1.0	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	4.4	0.0	4.2	1.0	0.0	0.0	5.6	11.5	12.1	2.2	19.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	42.9	64.7	0.0	0.0	58.5	14.5	14.5	63.7	23.0	13.0
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	B
Approach Vol, veh/h		556			28			1723			1830	
Approach Delay, s/veh		49.7			64.7			22.9			23.7	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.6	83.9		10.3	12.9	92.6		21.1
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	14.7	50.6		4.1	6.8	31.9		12.4
Green Ext Time (p_c), s	0.9	27.3		0.0	0.0	15.2		1.7

Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	60	5	1470	90	90	1970	10
Future Volume (veh/h)	5	0	5	140	5	60	5	1470	90	90	1970	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1598	95	98	2141	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2419	143	124	2802	14
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3409	202	1781	3625	19
Grp Volume(v), veh/h	6	0	0	152	0	10	5	829	864	98	1048	1104
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1834	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	9.0	9.4	7.0	42.5	42.7
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	9.0	9.4	7.0	42.5	42.7
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1261	1301	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.66	0.66	0.79	0.76	0.76
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1261	1301	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.4	59.5	8.2	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.6	2.1	2.1	16.4	4.1	3.9
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	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.0	2.2	3.7	14.6	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	71.9	3.4	3.5	76.0	12.3	12.1
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1698			2250	
Approach Delay, s/veh		49.6			57.4			3.6			15.0	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	44.7		15.4	9.0	11.4		2.7
Green Ext Time (p_c), s	0.0	32.2		0.3	0.0	36.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1415	15	10	1745	265
Future Volume (veh/h)	135	5	15	70	5	15	15	1415	15	10	1745	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1538	15	11	1897	218
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2774	27	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3606	35	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	757	796	11	1897	218
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	22.3	22.3	0.8	34.8	4.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	22.3	22.3	0.8	34.8	4.8
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.55	0.55	0.82	0.70	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.68	0.68	0.68	0.53	0.53	0.53
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	6.0	6.0	64.4	7.6	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	20.9	1.1	1.1	20.3	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	7.3	7.7	0.4	11.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	85.1	7.1	7.1	84.7	8.4	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1569			2126	
Approach Delay, s/veh		57.8			52.6			7.9			8.4	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	36.8		8.3	2.8	24.3		15.6
Green Ext Time (p_c), s	0.0	40.8		0.2	0.0	37.3		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1445	65	15	1755	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1445	65	15	1755	135
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		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	8	103	22	2	71	1571	69	16	1908	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	244	89	293	315	29	90	2463	108	19	2249	166
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1373	1688	153	1781	3467	152	1781	3354	248
Grp Volume(v), veh/h	212	0	30	103	0	24	71	802	838	16	999	1052
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1373	0	1842	1781	1777	1842	1781	1777	1825
Q Serve(g_s), s	19.4	0.0	1.8	8.7	0.0	1.4	5.1	8.1	8.4	1.2	31.3	34.9
Cycle Q Clear(g_c), s	20.8	0.0	1.8	10.5	0.0	1.4	5.1	8.1	8.4	1.2	31.3	34.9
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	298	0	332	293	0	344	90	1262	1309	19	1192	1224
V/C Ratio(X)	0.71	0.00	0.09	0.35	0.00	0.07	0.79	0.64	0.64	0.84	0.84	0.86
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1262	1309	110	1192	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.62	0.62	0.62
Uniform Delay (d), s/veh	52.2	0.0	43.7	48.1	0.0	43.6	60.0	1.3	1.3	64.0	4.0	4.3
Incr Delay (d2), s/veh	5.5	0.0	0.1	0.7	0.0	0.1	2.3	0.2	0.2	19.4	4.6	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	7.2	0.0	0.8	3.1	0.0	0.7	2.3	1.3	1.4	0.6	5.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	43.9	48.8	0.0	43.7	62.3	1.5	1.5	83.4	8.6	9.4
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	A
Approach Vol, veh/h		242			127			1711			2067	
Approach Delay, s/veh		55.9			47.9			4.0			9.6	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	91.2		28.3	5.4	96.4		28.3
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	36.9		12.5	3.2	10.4		22.8
Green Ext Time (p_c), s	0.0	34.9		0.4	0.0	33.6		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	840	95	580	205	565	1050	145
Future Volume (veh/h)	95	120	115	200	140	840	95	580	205	565	1050	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	630	135	614	1141	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	731	611	695	1644	216
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.13	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3158	414
Grp Volume(v), veh/h	233	0	16	217	152	0	103	630	135	614	641	650
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1795
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	40.2	7.5	22.7	40.3	40.5
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	40.2	7.5	22.7	40.3	40.5
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	731	611	695	925	934
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.86	0.22	0.88	0.69	0.70
Avail Cap(c_a), veh/h	339	0	303	279	633		329	731	611	957	925	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.41	0.41	0.41
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	36.3	26.4	54.8	33.4	33.6
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	10.4	0.7	2.6	1.8	1.8
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	20.0	2.9	10.4	18.6	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	46.7	27.0	57.4	35.2	35.3
LnGrp LOS	E	A	D	D	C		E	D	C	E	D	D
Approach Vol, veh/h		249			369	A		868			1905	
Approach Delay, s/veh		60.0			44.0			45.6			42.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.1	54.8		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	42.5	14.6	21.7	24.7	42.2		9.9
Green Ext Time (p_c), s	0.1	4.9	0.0	0.3	1.4	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.7
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2035 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	230	255	105	10	145	35
Future Volume (veh/h)	50	45	310	85	45	20	230	255	105	10	145	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	42	92	49	9	250	277	54	11	158	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	154	245	316	240	44	334	807	684	15	472	400
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1296	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	42	92	0	58	250	277	54	11	158	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1296	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	0.9	2.7	0.0	1.1	5.3	3.9	0.8	0.2	2.7	0.2
Cycle Q Clear(g_c), s	2.1	0.0	0.9	4.8	0.0	1.1	5.3	3.9	0.8	0.2	2.7	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	316	0	284	334	807	684	15	472	400
V/C Ratio(X)	0.26	0.00	0.17	0.29	0.00	0.20	0.75	0.34	0.08	0.72	0.33	0.02
Avail Cap(c_a), veh/h	1085	0	951	899	0	1100	1348	3728	3160	674	3020	2560
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	14.5	17.1	0.0	14.6	15.2	7.5	6.6	19.6	12.1	11.1
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.4	0.5	0.1	46.6	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.0	1.1	0.2	0.3	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.8	17.6	0.0	14.9	18.6	8.1	6.7	66.2	13.0	11.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		145			150			581			178	
Approach Delay, s/veh		15.2			16.6			12.5			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	23.1		11.2	12.4	16.0		11.2
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.2	5.9		4.1	7.3	4.7		6.8
Green Ext Time (p_c), s	0.0	4.1		0.6	0.7	2.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	140	570	15	10	555	70
Future Volume (veh/h)	60	5	180	90	20	15	140	570	15	10	555	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	19	98	22	2	152	620	0	11	603	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	24	305	338	333	30	395	914		341	765	643
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.49	0.00	0.01	0.41	0.41
Sat Flow, veh/h	1213	121	1545	1357	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	19	98	0	24	152	620	0	11	603	34
Grp Sat Flow(s),veh/h/ln	1335	0	1545	1357	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.1	0.0	0.5	3.5	0.0	0.6	2.3	13.3	0.0	0.2	14.7	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.5	6.1	0.0	0.6	2.3	13.3	0.0	0.2	14.7	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	0	305	338	0	363	395	914		341	765	643
V/C Ratio(X)	0.18	0.00	0.06	0.29	0.00	0.07	0.38	0.68		0.03	0.79	0.05
Avail Cap(c_a), veh/h	782	0	737	717	0	877	748	1821		836	1821	1532
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	17.1	20.5	0.0	17.1	9.6	10.3	0.0	9.8	13.5	9.4
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.0	0.1	0.6	0.9	0.0	0.0	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.1	0.0	0.2	0.7	4.3	0.0	0.1	5.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	17.2	21.0	0.0	17.2	10.2	11.1	0.0	9.8	15.4	9.4
LnGrp LOS	B	A	B	C	A	B	B	B		A	B	A
Approach Vol, veh/h		89			122			772	A		648	
Approach Delay, s/veh		18.0			20.2			11.0			15.0	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	31.6		15.4	9.6	27.4		15.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	15.3		4.6	4.3	16.7		8.1
Green Ext Time (p_c), s	0.0	4.6		0.4	0.3	4.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	5	5	5	60	665	15	5	775	30
Future Volume (veh/h)	40	5	125	5	5	5	60	665	15	5	775	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	8	5	5	1	65	723	11	5	842	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	75	119	9	165	138	85	1070	907	7	989	833
Arrive On Green	0.03	0.12	0.12	0.01	0.09	0.09	0.05	0.57	0.57	0.00	0.53	0.53
Sat Flow, veh/h	1781	642	1027	1781	1870	1564	1781	1870	1585	1781	1870	1575
Grp Volume(v), veh/h	43	0	13	5	5	1	65	723	11	5	842	19
Grp Sat Flow(s),veh/h/ln	1781	0	1669	1781	1870	1564	1781	1870	1585	1781	1870	1575
Q Serve(g_s), s	1.6	0.0	0.5	0.2	0.2	0.0	2.4	17.8	0.2	0.2	25.5	0.4
Cycle Q Clear(g_c), s	1.6	0.0	0.5	0.2	0.2	0.0	2.4	17.8	0.2	0.2	25.5	0.4
Prop In Lane	1.00		0.62	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	194	9	165	138	85	1070	907	7	989	833
V/C Ratio(X)	0.73	0.00	0.07	0.53	0.03	0.01	0.77	0.68	0.01	0.71	0.85	0.02
Avail Cap(c_a), veh/h	538	0	530	538	594	496	673	1838	1557	673	1838	1547
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	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	31.7	0.0	26.0	32.8	27.6	27.5	31.1	9.9	6.1	32.9	13.4	7.4
Incr Delay (d2), s/veh	15.9	0.0	0.1	39.0	0.1	0.0	13.5	0.8	0.0	81.3	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.2	0.1	0.0	1.3	5.8	0.1	0.2	9.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	0.0	26.2	71.8	27.6	27.5	44.6	10.6	6.1	114.2	15.5	7.4
LnGrp LOS	D	A	C	E	C	C	D	B	A	F	B	A
Approach Vol, veh/h		56			11			799			866	
Approach Delay, s/veh		42.6			47.7			13.3			15.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	42.9	5.4	12.7	8.1	40.0	7.2	10.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	19.8	2.2	2.5	4.4	27.5	3.6	2.2
Green Ext Time (p_c), s	0.0	5.9	0.0	0.0	0.1	7.5	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	745	45	10	875	10
Future Volume (veh/h)	35	10	495	20	5	0	330	745	45	10	875	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	810	48	11	951	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	30		188	30	0	423	2309	137	15	1593	711
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.68	0.68	0.01	0.45	0.45
Sat Flow, veh/h	1115	423	1585	1156	419	0	1781	3409	202	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	422	436	11	951	3
Grp Sat Flow(s),veh/h/ln	1538	0	1585	1576	0	0	1781	1777	1834	1781	1777	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	11.9	6.2	6.2	0.4	12.4	0.1
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.8	0.0	0.0	11.9	6.2	6.2	0.4	12.4	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	238	0		243	0	0	423	1204	1242	15	1593	711
V/C Ratio(X)	0.21	0.00		0.11	0.00	0.00	0.85	0.35	0.35	0.74	0.60	0.00
Avail Cap(c_a), veh/h	614	0		733	0	0	1907	2132	2201	1907	4265	1902
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	26.6	0.0	0.0	22.4	4.2	4.2	30.5	12.8	9.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.9	0.4	0.4	23.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	4.7	1.5	1.5	0.2	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	0.0	0.0	26.8	0.0	0.0	24.3	4.6	4.6	53.5	13.6	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1217			965	
Approach Delay, s/veh		27.4			26.8			10.4			14.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.6	33.6		9.4	4.5	47.8		9.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.9	14.4		2.8	2.4	8.2		3.7
Green Ext Time (p_c), s	0.8	13.2		0.0	0.0	10.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1195	20	15	1390	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1195	20	15	1390	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1299	22	16	1511	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	0	70	111	19	3	185	2696	46	20	2351	1049
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.75	0.75	0.01	0.66	0.66
Sat Flow, veh/h	1561	0	1585	687	440	70	1781	3576	61	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	645	676	16	1511	48
Grp Sat Flow(s),veh/h/ln	1561	0	1585	1198	0	0	1781	1777	1859	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.9	10.3	10.3	0.7	18.4	0.8
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.7	0.0	0.0	5.9	10.3	10.3	0.7	18.4	0.8
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	188	0	70	150	0	0	185	1340	1402	20	2351	1049
V/C Ratio(X)	0.18	0.00	0.01	0.11	0.00	0.00	0.80	0.48	0.48	0.79	0.64	0.05
Avail Cap(c_a), veh/h	568	0	496	563	0	0	509	2081	2178	267	3678	1640
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	33.6	34.1	0.0	0.0	32.1	3.5	3.5	36.2	7.3	4.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	2.9	0.6	0.6	21.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	2.6	2.2	2.2	0.4	5.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	0.0	33.6	34.2	0.0	0.0	35.1	4.1	4.0	57.9	7.9	4.4
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		34			17			1468			1575	
Approach Delay, s/veh		33.8			34.2			7.2			8.3	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	53.6		8.2	4.8	60.4		8.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.9	20.4		3.7	2.7	12.3		3.3
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	22.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1350	60	25	1335	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1350	60	25	1335	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1467	49	27	1451	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2775	1238	39	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1467	49	27	1451	35
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	23.9	1.1	2.3	29.9	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	23.9	1.1	2.3	29.9	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2775	1238	39	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.53	0.04	0.68	0.57	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2775	1238	241	2560	1142
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	1.00	1.00	0.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.3	3.8	75.2	10.2	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.0	0.5	0.0	7.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	8.1	0.3	1.2	11.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.1	6.8	3.9	82.8	11.2	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1641			1513	
Approach Delay, s/veh		67.9			71.9			11.9			12.3	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.4	127.0		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	31.9		15.1	4.3	25.9		9.8
Green Ext Time (p_c), s	0.1	27.6		0.1	0.0	29.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1445	15	80	1295	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1445	15	80	1295	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	62	11	11	3	478	1571	16	87	1408	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	0	815	60	60	16	616	2210	22	147	1838	946
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.61	0.60	0.08	0.52	0.52
Sat Flow, veh/h	3563	0	3073	786	786	214	3456	3604	37	1781	3554	1580
Grp Volume(v), veh/h	155	0	62	25	0	0	478	774	813	87	1408	82
Grp Sat Flow(s),veh/h/ln	1781	0	1536	1786	0	0	1728	1777	1864	1781	1777	1580
Q Serve(g_s), s	4.8	0.0	1.8	1.5	0.0	0.0	15.2	34.4	34.5	5.4	36.6	2.5
Cycle Q Clear(g_c), s	4.8	0.0	1.8	1.5	0.0	0.0	15.2	34.4	34.5	5.4	36.6	2.5
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	321	0	815	135	0	0	616	1090	1143	147	1838	946
V/C Ratio(X)	0.48	0.00	0.08	0.18	0.00	0.00	0.78	0.71	0.71	0.59	0.77	0.09
Avail Cap(c_a), veh/h	1050	0	1444	480	0	0	1737	2987	3133	232	4650	2196
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	32.3	50.1	0.0	0.0	45.2	15.3	15.3	51.1	22.3	9.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.8	1.2	1.2	1.4	1.0	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	2.2	0.0	0.7	0.7	0.0	0.0	6.5	13.1	13.8	2.5	14.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	32.3	50.8	0.0	0.0	46.0	16.5	16.5	52.5	23.2	9.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		217			25			2065			1577	
Approach Delay, s/veh		45.2			50.8			23.4			24.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.6	63.7		12.8	13.5	74.8		14.4
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	17.2	38.6		3.5	7.4	36.5		6.8
Green Ext Time (p_c), s	1.3	19.1		0.0	0.1	20.8		0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1925	95	30	1515	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1925	95	30	1515	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2092	101	33	1647	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2724	130	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3452	165	1781	3634	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1068	1125	33	805	847
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1840	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	44.5	46.5	2.5	21.0	21.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	44.5	46.5	2.5	21.0	21.1
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1452	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.76	0.77	0.52	0.55	0.55
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1452	102	1455	1529
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	0.53	0.53	0.53	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.8	8.0	66.3	4.2	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.3	2.1	2.2	2.4	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.3	0.0	0.0	0.2	14.5	15.7	1.2	6.4	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	74.7	9.9	10.2	68.7	5.7	5.7
LnGrp LOS	E	A	A	E	A	E	E	A	B	E	A	A
Approach Vol, veh/h		11			66			2198			1685	
Approach Delay, s/veh		58.6			62.0			10.2			6.9	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	23.1		8.1	4.5	48.5		2.8
Green Ext Time (p_c), s	0.0	34.4		0.1	0.0	39.8		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1910	20	10	1350	190
Future Volume (veh/h)	90	5	5	105	15	15	5	1910	20	10	1350	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	2076	22	11	1467	152
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2819	30	14	2795	1245
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3602	38	1781	3554	1583
Grp Volume(v), veh/h	106	0	0	142	0	0	5	1022	1076	11	1467	152
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1864	1781	1777	1583
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	35.3	35.6	0.7	18.0	2.7
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	35.3	35.6	0.7	18.0	2.7
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1245
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.73	0.74	0.80	0.52	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1245
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	0.59	0.59	0.59	0.82	0.82	0.82
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.7	6.7	59.4	4.7	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	27.6	2.1	2.0	27.2	0.6	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	10.7	11.3	0.4	5.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	87.3	8.8	8.7	86.7	5.2	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			2103			1630	
Approach Delay, s/veh		52.7			54.3			8.9			5.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	20.0		11.7	2.7	37.6		9.9
Green Ext Time (p_c), s	0.0	33.6		0.5	0.0	28.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1725	75	10	1395	70
Future Volume (veh/h)	145	30	20	150	25	35	25	1725	75	10	1395	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1875	81	11	1516	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2563	110	13	2507	122
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3472	149	1781	3449	168
Grp Volume(v), veh/h	158	0	35	163	0	30	27	953	1003	11	778	812
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1844	1781	1777	1840
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	29.8	30.2
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	29.8	30.2
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1361	13	1291	1337
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.73	0.74	0.83	0.60	0.61
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1361	140	1291	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.82	0.82	0.82
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.3	9.4
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	30.7	1.7	1.7
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	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	11.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.1	11.0	11.1
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1983			1601	
Approach Delay, s/veh		57.2			58.1			1.3			11.7	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	32.2		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	26.5		0.6	0.0	50.3		0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1145	55	680	175	570	1085	75
Future Volume (veh/h)	55	120	60	110	100	1145	55	680	175	570	1085	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	739	119	620	1179	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	889	751	658	2105	141
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.48	0.48	0.38	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3380	226
Grp Volume(v), veh/h	190	0	6	120	109	0	60	739	119	620	619	639
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1829
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	48.0	6.0	24.3	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	48.0	6.0	24.3	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	889	751	658	1106	1139
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.83	0.16	0.94	0.56	0.56
Avail Cap(c_a), veh/h	304	0	256	232	508		178	889	751	691	1106	1139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.73	0.73	0.73
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	31.8	20.8	42.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	7.2	0.4	16.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.2	3.6	3.1	0.0	2.2	22.9	2.3	10.1	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	39.0	21.2	58.8	1.5	1.5
LnGrp LOS	E	A	D	D	D		E	D	C	E	A	A
Approach Vol, veh/h		196			229	A		918			1878	
Approach Delay, s/veh		63.7			45.0			38.8			20.4	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	30.7	70.6		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	28.0	61.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.3	50.0		8.5
Green Ext Time (p_c), s	0.0	20.1	0.0	0.3	0.4	5.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2035 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	380	60	25	5	400	235	60	5	305	75
Future Volume (veh/h)	55	25	380	60	25	5	400	235	60	5	305	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	24	65	27	1	435	255	41	5	332	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	67	176	218	199	7	520	1069	906	7	531	450
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.29	0.57	0.57	0.00	0.28	0.28
Sat Flow, veh/h	910	602	1585	1354	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	24	65	0	28	435	255	41	5	332	21
Grp Sat Flow(s),veh/h/ln	1512	0	1585	1354	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.7	2.4	0.0	0.7	11.7	3.5	0.6	0.1	7.9	0.5
Cycle Q Clear(g_c), s	2.8	0.0	0.7	5.2	0.0	0.7	11.7	3.5	0.6	0.1	7.9	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	0	176	218	0	206	520	1069	906	7	531	450
V/C Ratio(X)	0.30	0.00	0.14	0.30	0.00	0.14	0.84	0.24	0.05	0.70	0.62	0.05
Avail Cap(c_a), veh/h	827	0	745	704	0	873	1046	2893	2452	523	2344	1986
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	20.5	23.9	0.0	20.5	17.0	5.4	4.8	25.4	15.9	13.3
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.8	0.0	0.3	3.7	0.2	0.0	79.2	2.6	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	1.0	0.0	0.3	0.8	0.0	0.3	4.5	0.9	0.1	0.2	3.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	20.8	24.6	0.0	20.8	20.6	5.7	4.9	104.6	18.5	13.4
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	B	B
Approach Vol, veh/h		111			93			731			358	
Approach Delay, s/veh		21.7			23.5			14.5			19.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	35.2		10.7	19.9	20.5		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	5.5		4.8	13.7	9.9		7.2				
Green Ext Time (p_c), s	0.0	3.7		0.5	1.2	4.6		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			17.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	150	45	15	10	205	645	45	25	625	80
Future Volume (veh/h)	75	20	150	45	15	10	205	645	45	25	625	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	49	16	1	223	701	0	27	679	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	55	205	231	226	14	429	1009		370	853	719
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.54	0.00	0.02	0.46	0.46
Sat Flow, veh/h	1079	424	1585	1373	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	13	49	0	17	223	701	0	27	679	47
Grp Sat Flow(s),veh/h/ln	1503	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.8	0.0	0.4	1.8	0.0	0.4	3.1	14.1	0.0	0.4	15.9	0.9
Cycle Q Clear(g_c), s	3.2	0.0	0.4	5.0	0.0	0.4	3.1	14.1	0.0	0.4	15.9	0.9
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	205	231	0	240	429	1009		370	853	719
V/C Ratio(X)	0.32	0.00	0.06	0.21	0.00	0.07	0.52	0.69		0.07	0.80	0.07
Avail Cap(c_a), veh/h	849	0	773	723	0	903	768	1861		858	1861	1570
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	19.6	23.2	0.0	19.6	9.2	8.7	0.0	8.2	11.9	7.8
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.5	0.0	0.1	1.0	0.9	0.0	0.1	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.6	0.0	0.2	0.8	4.1	0.0	0.1	5.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	19.7	23.6	0.0	19.7	10.2	9.6	0.0	8.2	13.7	7.9
LnGrp LOS	C	A	B	C	A	B	B	A		A	B	A
Approach Vol, veh/h		117			66			924	A		753	
Approach Delay, s/veh		21.2			22.6			9.7			13.1	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	33.7		11.6	10.3	29.4		11.6
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	16.1		5.2	5.1	17.9		7.0
Green Ext Time (p_c), s	0.0	5.4		0.5	0.4	5.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	100	10	5	10	170	895	10	5	830	75
Future Volume (veh/h)	55	5	100	10	5	10	170	895	10	5	830	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	11	5	1	185	973	8	5	902	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	94	94	19	147	120	225	1229	1042	7	1001	846
Arrive On Green	0.04	0.11	0.11	0.01	0.08	0.08	0.13	0.66	0.66	0.00	0.53	0.53
Sat Flow, veh/h	1781	843	843	1781	1870	1534	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	10	11	5	1	185	973	8	5	902	44
Grp Sat Flow(s),veh/h/ln	1781	0	1686	1781	1870	1534	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	3.1	0.0	0.5	0.6	0.2	0.1	9.4	34.3	0.2	0.3	40.0	1.2
Cycle Q Clear(g_c), s	3.1	0.0	0.5	0.6	0.2	0.1	9.4	34.3	0.2	0.3	40.0	1.2
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	188	19	147	120	225	1229	1042	7	1001	846
V/C Ratio(X)	0.77	0.00	0.05	0.58	0.03	0.01	0.82	0.79	0.01	0.72	0.90	0.05
Avail Cap(c_a), veh/h	386	0	383	386	425	349	482	1316	1115	482	1316	1113
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	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	43.7	0.0	36.7	45.5	39.3	39.2	39.4	11.3	5.5	46.0	19.3	10.3
Incr Delay (d2), s/veh	14.3	0.0	0.1	25.0	0.1	0.0	7.4	3.2	0.0	85.0	7.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.2	0.4	0.1	0.0	4.4	12.6	0.0	0.3	17.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	36.8	70.5	39.4	39.3	46.7	14.5	5.5	131.0	26.5	10.3
LnGrp LOS	E	A	D	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		70			17			1166			951	
Approach Delay, s/veh		55.0			59.5			19.5			26.3	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	65.7	6.0	15.3	16.6	54.4	9.1	12.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.3	36.3	2.6	2.5	11.4	42.0	5.1	2.2
Green Ext Time (p_c), s	0.0	9.0	0.0	0.0	0.4	7.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	610	85	10	10	625	965	10	5	880	20
Future Volume (veh/h)	75	5	610	85	10	10	625	965	10	5	880	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	0	92	11	9	679	1049	11	5	957	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	193	8		180	14	12	718	2765	29	7	1309	584
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.77	0.77	0.00	0.37	0.37
Sat Flow, veh/h	1451	88	1585	1342	160	131	1781	3603	38	1781	3554	1585
Grp Volume(v), veh/h	87	0	0	112	0	0	679	517	543	5	957	6
Grp Sat Flow(s),veh/h/ln	1540	0	1585	1634	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	39.3	10.2	10.2	0.3	24.9	0.3
Cycle Q Clear(g_c), s	5.5	0.0	0.0	6.7	0.0	0.0	39.3	10.2	10.2	0.3	24.9	0.3
Prop In Lane	0.94		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	216	0		221	0	0	718	1364	1430	7	1309	584
V/C Ratio(X)	0.40	0.00		0.51	0.00	0.00	0.95	0.38	0.38	0.72	0.73	0.01
Avail Cap(c_a), veh/h	355	0		433	0	0	1184	1364	1430	1184	2296	1024
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	0.0	47.0	0.0	0.0	30.8	4.1	4.1	53.1	29.2	21.4
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.8	0.0	0.0	7.3	0.4	0.4	41.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	2.9	0.0	0.0	17.5	2.9	3.1	0.2	10.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	0.0	0.0	48.8	0.0	0.0	38.0	4.4	4.4	94.5	30.9	21.4
LnGrp LOS	D	A		D	A	A	D	A	A	F	C	C
Approach Vol, veh/h		87	A		112			1739			968	
Approach Delay, s/veh		47.7			48.8			17.6			31.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	47.0	45.3		14.4	4.4	88.0		14.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	41.3	26.9		8.7	2.3	12.2		7.5
Green Ext Time (p_c), s	1.8	12.5		0.3	0.0	14.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1580	10	10	1610	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1580	10	10	1610	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	5	16	0	1	141	1717	11	11	1750	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	17	171	179	2	7	172	2669	17	14	2305	1028
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1362	155	1521	965	18	61	1781	3620	23	1781	3554	1585
Grp Volume(v), veh/h	59	0	5	17	0	0	141	842	886	11	1750	37
Grp Sat Flow(s),veh/h/ln	1517	0	1521	1044	0	0	1781	1777	1866	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.3	1.0	0.0	0.0	7.6	23.2	23.3	0.6	33.5	0.8
Cycle Q Clear(g_c), s	3.0	0.0	0.3	4.0	0.0	0.0	7.6	23.2	23.3	0.6	33.5	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	256	0	171	199	0	0	172	1310	1376	14	2305	1028
V/C Ratio(X)	0.23	0.00	0.03	0.09	0.00	0.00	0.82	0.64	0.64	0.78	0.76	0.04
Avail Cap(c_a), veh/h	427	0	356	366	0	0	381	1555	1634	199	2749	1226
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	38.8	41.0	0.0	0.0	43.5	6.4	6.4	48.6	11.9	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.6	1.2	1.2	28.2	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.1	0.4	0.0	0.0	3.5	6.9	7.3	0.4	11.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	38.9	41.0	0.0	0.0	47.1	7.7	7.6	76.8	13.4	6.2
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		64			17			1869			1798	
Approach Delay, s/veh		39.7			41.0			10.6			13.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.5	68.7		16.0	4.8	77.4		16.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.6	35.5		6.0	2.6	25.3		5.0
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	34.6		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1560	60	35	1780	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1560	60	35	1780	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1696	49	38	1935	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1696	49	38	1935	87
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	37.5	1.3	3.5	61.7	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	37.5	1.3	3.5	61.7	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.64	0.04	0.77	0.79	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.8	5.3	79.7	17.7	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	3.7	0.7	0.0	9.3	2.7	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	13.8	0.4	1.7	24.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	77.7	10.6	5.3	89.0	20.5	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	C	A
Approach Vol, veh/h		115			82			1886			2060	
Approach Delay, s/veh		66.4			77.2			15.4			21.2	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	63.7		20.7	5.5	39.5		11.7
Green Ext Time (p_c), s	0.2	29.1		0.1	0.0	39.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	5	625	15	0	5	395	1610	10	80	1845	135
Future Volume (veh/h)	295	5	625	15	0	5	395	1610	10	80	1845	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	0	483	16	0	1	429	1750	11	87	2005	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	508	0	886	66	0	4	495	2488	16	112	2158	962
Arrive On Green	0.14	0.00	0.14	0.04	0.00	0.03	0.14	0.69	0.68	0.06	0.61	0.61
Sat Flow, veh/h	3563	0	3124	1659	0	104	3456	3620	23	1781	3554	1585
Grp Volume(v), veh/h	325	0	483	17	0	0	429	858	903	87	2005	109
Grp Sat Flow(s),veh/h/ln	1781	0	1562	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	20.5	0.0	31.3	2.2	0.0	0.0	28.9	69.6	69.8	11.5	121.2	6.9
Cycle Q Clear(g_c), s	20.5	0.0	31.3	2.2	0.0	0.0	28.9	69.6	69.8	11.5	121.2	6.9
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	508	0	886	70	0	0	495	1221	1283	112	2158	962
V/C Ratio(X)	0.64	0.00	0.54	0.24	0.00	0.00	0.87	0.70	0.70	0.78	0.93	0.11
Avail Cap(c_a), veh/h	508	0	886	229	0	0	841	1447	1520	112	2252	1005
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	96.3	0.0	72.7	111.0	0.0	0.0	99.9	22.5	22.6	110.0	42.2	19.7
Incr Delay (d2), s/veh	2.1	0.0	0.4	0.7	0.0	0.0	2.3	1.5	1.4	25.9	7.5	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	9.8	0.0	12.9	1.1	0.0	0.0	13.3	29.7	31.3	6.2	54.9	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.4	0.0	73.1	111.6	0.0	0.0	102.1	24.0	24.0	135.9	49.7	19.8
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	B
Approach Vol, veh/h		808			17			2190			2201	
Approach Delay, s/veh		83.3			111.6			39.3			51.6	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	38.1	148.7		13.5	19.0	167.8		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	30.9	123.2		4.2	13.5	71.8		33.3
Green Ext Time (p_c), s	1.2	19.5		0.0	0.0	27.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	51.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1980	95	90	2455	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1980	95	90	2455	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2152	101	98	2668	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2605	121	124	2950	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3457	161	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1098	1155	98	1302	1371
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1841	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	70.2	70.3
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	70.2	70.3
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1387	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.82	0.83	0.79	0.90	0.90
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1387	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	9.1	9.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.0	2.8	3.0	4.2	9.6	9.3
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	0.4	0.0	0.0	3.4	0.0	0.3	0.4	1.1	1.2	3.4	23.4	24.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	68.9	2.8	3.0	66.0	18.7	18.4
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2264			2771	
Approach Delay, s/veh		57.1			62.0			3.2			20.2	
Approach LOS		E			E			A			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	72.3		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	14.5		0.2	0.1	62.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	15	10	65	5	10	5	1905	20	5	2090	325
Future Volume (veh/h)	175	15	10	65	5	10	5	1905	20	5	2090	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	16	9	71	5	7	5	2071	22	5	2272	285
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	18	10	276	20	23	7	2677	28	7	2641	1178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1329	112	63	1381	123	139	1781	3602	38	1781	3554	1585
Grp Volume(v), veh/h	215	0	0	83	0	0	5	1020	1073	5	2272	285
Grp Sat Flow(s),veh/h/ln	1504	0	0	1643	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	61.4	7.6
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	61.4	7.6
Prop In Lane	0.88		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	297	0	0	319	0	0	7	1321	1385	7	2641	1178
V/C Ratio(X)	0.72	0.00	0.00	0.26	0.00	0.00	0.74	0.77	0.77	0.74	0.86	0.24
Avail Cap(c_a), veh/h	380	0	0	402	0	0	106	1321	1385	106	2641	1178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.51	0.51	0.51	0.23	0.23	0.23
Uniform Delay (d), s/veh	54.7	0.0	0.0	49.6	0.0	0.0	66.9	0.0	0.0	67.2	12.3	5.4
Incr Delay (d2), s/veh	4.9	0.0	0.0	0.4	0.0	0.0	25.3	2.3	2.2	12.5	0.9	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	7.6	0.0	0.0	2.5	0.0	0.0	0.2	0.8	0.9	0.2	20.9	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	0.0	50.1	0.0	0.0	92.2	2.3	2.2	79.7	13.3	5.5
LnGrp LOS	E	A	A	D	A	A	F	A	A	E	B	A
Approach Vol, veh/h		215			83			2098			2562	
Approach Delay, s/veh		59.5			50.1			2.5			12.6	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	104.3		26.1	4.5	104.3		26.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	63.4		7.8	2.4	2.0		20.6
Green Ext Time (p_c), s	0.0	20.1		0.2	0.0	70.1		0.5

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1695	110	25	2020	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1695	110	25	2020	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	11	109	27	2	60	1842	117	27	2196	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	251	73	263	311	23	76	2414	152	34	2305	170
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.17	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1347	1385	401	1325	1716	127	1781	3395	213	1781	3355	247
Grp Volume(v), veh/h	196	0	49	109	0	29	60	954	1005	27	1150	1210
Grp Sat Flow(s),veh/h/ln	1347	0	1785	1325	0	1843	1781	1777	1832	1781	1777	1825
Q Serve(g_s), s	19.1	0.0	3.1	10.2	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	3.1	13.3	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	280	0	323	263	0	334	76	1263	1302	34	1221	1254
V/C Ratio(X)	0.70	0.00	0.15	0.42	0.00	0.09	0.79	0.76	0.77	0.80	0.94	0.97
Avail Cap(c_a), veh/h	345	0	410	327	0	423	106	1263	1302	106	1221	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.36	0.36	0.36
Uniform Delay (d), s/veh	54.7	0.0	46.5	52.1	0.0	46.0	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.0	0.2	1.0	0.0	0.1	1.6	0.4	0.4	5.6	6.8	9.1
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	6.9	0.0	1.4	3.5	0.0	0.8	2.0	0.1	0.2	1.0	2.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	46.8	53.2	0.0	46.1	62.7	0.4	0.4	70.3	6.8	9.1
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		245			138			2019			2387	
Approach Delay, s/veh		56.9			51.7			2.3			8.7	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.8		28.4	6.6	100.0		28.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		22.9
Green Ext Time (p_c), s	0.0	69.0		0.4	0.0	51.8		0.6

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1030	85	690	225	660	1200	90
Future Volume (veh/h)	85	125	115	195	120	1030	85	690	225	660	1200	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	20	212	130	0	92	750	163	717	1304	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	260	231	525		115	773	650	751	1903	137
Arrive On Green	0.17	0.17	0.17	0.08	0.28	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	607	944	1534	1781	1870	1585	1781	1870	1574	3456	3361	242
Grp Volume(v), veh/h	228	0	20	212	130	0	92	750	163	717	688	710
Grp Sat Flow(s),veh/h/ln	1552	0	1534	1781	1870	1585	1781	1870	1574	1728	1777	1825
Q Serve(g_s), s	18.7	0.0	1.5	11.0	7.3	0.0	6.9	53.0	9.2	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.5	11.0	7.3	0.0	6.9	53.0	9.2	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	300	0	260	231	525		115	773	650	751	1006	1034
V/C Ratio(X)	0.76	0.00	0.08	0.92	0.25		0.80	0.97	0.25	0.95	0.68	0.69
Avail Cap(c_a), veh/h	347	0	307	231	582		238	773	650	768	1006	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.17	0.17	0.17
Uniform Delay (d), s/veh	54.5	0.0	47.2	46.4	37.6	0.0	62.3	38.8	25.9	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.0	0.1	37.7	0.2	0.0	4.3	23.9	0.8	5.8	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	0.6	4.4	3.4	0.0	3.2	28.8	3.6	9.8	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	47.3	84.2	37.8	0.0	66.6	62.7	26.7	43.4	0.7	0.6
LnGrp LOS	E	A	D	F	D		E	E	C	D	A	A
Approach Vol, veh/h		248			342	A		1005			2115	
Approach Delay, s/veh		61.4			66.5			57.2			15.1	
Approach LOS		E			E			E			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	80.5	15.0	26.9	33.3	59.8		41.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	62.0	10.0	26.0	30.0	50.0		41.0
Max Q Clear Time (g_c+I1), s	9.3	2.0	13.0	21.3	29.1	55.0		9.3
Green Ext Time (p_c), s	0.1	23.4	0.0	0.4	0.3	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2035 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	345	45	50	20	290	345	40	20	305	90
Future Volume (veh/h)	40	45	345	45	50	20	290	345	40	20	305	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	34	49	54	10	315	375	23	22	332	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	127	195	248	191	35	401	955	808	28	564	477
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.23	0.51	0.51	0.02	0.30	0.30
Sat Flow, veh/h	545	1021	1567	1304	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	34	49	0	64	315	375	23	22	332	30
Grp Sat Flow(s),veh/h/ln	1566	0	1567	1304	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.7	0.0	1.5	7.6	5.6	0.3	0.6	6.9	0.6
Cycle Q Clear(g_c), s	2.5	0.0	0.9	4.2	0.0	1.5	7.6	5.6	0.3	0.6	6.9	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	0	195	248	0	226	401	955	808	28	564	477
V/C Ratio(X)	0.30	0.00	0.17	0.20	0.00	0.28	0.79	0.39	0.03	0.77	0.59	0.06
Avail Cap(c_a), veh/h	935	0	820	767	0	950	1165	3220	2724	582	2609	2207
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	18.0	20.6	0.0	18.2	16.7	6.9	5.6	22.5	13.6	11.4
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.7	3.4	0.6	0.0	34.6	2.1	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	0.9	0.0	0.3	0.5	0.0	0.6	3.0	1.6	0.1	0.5	2.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	0.0	18.4	21.0	0.0	18.9	20.2	7.4	5.6	57.1	15.7	11.5
LnGrp LOS	B	A	B	C	A	B	C	A	A	E	B	B
Approach Vol, veh/h		126			113			713			384	
Approach Delay, s/veh		18.9			19.8			13.0			17.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	29.4		10.7	15.3	19.8		10.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.6	7.6		4.5	9.6	8.9		6.2
Green Ext Time (p_c), s	0.0	5.4		0.5	0.9	4.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	200	40	15	5	140	505	25	15	535	60
Future Volume (veh/h)	60	20	200	40	15	5	140	505	25	15	535	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	19	43	16	1	152	549	0	16	582	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	76	225	290	252	16	429	905		414	772	652
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.08	0.48	0.00	0.01	0.41	0.41
Sat Flow, veh/h	985	528	1558	1347	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	19	43	0	17	152	549	0	16	582	26
Grp Sat Flow(s),veh/h/ln	1513	0	1558	1347	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.4	2.1	9.5	0.0	0.2	11.8	0.4
Cycle Q Clear(g_c), s	2.2	0.0	0.5	3.5	0.0	0.4	2.1	9.5	0.0	0.2	11.8	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	360	0	225	290	0	267	429	905		414	772	652
V/C Ratio(X)	0.24	0.00	0.08	0.15	0.00	0.06	0.35	0.61		0.04	0.75	0.04
Avail Cap(c_a), veh/h	974	0	875	852	0	1039	882	2144		993	2144	1810
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	16.5	18.8	0.0	16.4	8.1	8.4	0.0	7.9	11.1	7.8
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.7	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.4	0.0	0.1	0.6	2.7	0.0	0.1	3.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	0.0	16.6	19.0	0.0	16.5	8.6	9.1	0.0	7.9	12.7	7.8
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		106			60			701	A		624	
Approach Delay, s/veh		17.3			18.3			9.0			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	27.5		11.4	8.7	24.4		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	11.5		4.2	4.1	13.8		5.5
Green Ext Time (p_c), s	0.0	3.9		0.5	0.3	4.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	85	10	5	10	85	615	15	5	740	50
Future Volume (veh/h)	40	5	85	10	5	10	85	615	15	5	740	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	5	11	5	1	92	668	11	5	804	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	90	90	20	157	133	122	1071	908	7	951	805
Arrive On Green	0.03	0.11	0.11	0.01	0.08	0.08	0.07	0.57	0.57	0.00	0.51	0.51
Sat Flow, veh/h	1781	853	853	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	10	11	5	1	92	668	11	5	804	29
Grp Sat Flow(s),veh/h/ln	1781	0	1707	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.6	0.0	0.3	0.4	0.2	0.0	3.3	15.5	0.2	0.2	24.2	0.6
Cycle Q Clear(g_c), s	1.6	0.0	0.3	0.4	0.2	0.0	3.3	15.5	0.2	0.2	24.2	0.6
Prop In Lane	1.00		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	181	20	157	133	122	1071	908	7	951	805
V/C Ratio(X)	0.73	0.00	0.06	0.56	0.03	0.01	0.76	0.62	0.01	0.70	0.85	0.04
Avail Cap(c_a), veh/h	546	0	549	546	602	510	682	1863	1578	682	1863	1577
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	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	31.3	0.0	26.2	32.1	27.5	27.4	29.9	9.3	6.0	32.5	13.8	8.0
Incr Delay (d2), s/veh	15.6	0.0	0.1	22.3	0.1	0.0	9.1	0.6	0.0	81.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.1	0.3	0.1	0.0	1.6	5.0	0.1	0.2	8.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	26.4	54.4	27.6	27.4	39.0	9.9	6.0	113.6	16.0	8.1
LnGrp LOS	D	A	C	D	C	C	D	A	A	F	B	A
Approach Vol, veh/h		53			17			771			838	
Approach Delay, s/veh		43.0			44.9			13.3			16.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	42.4	5.7	11.9	9.5	38.2	7.2	10.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.2	17.5	2.4	2.3	5.3	26.2	3.6	2.2
Green Ext Time (p_c), s	0.0	5.2	0.0	0.0	0.2	7.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	670	5	0	810	50
Future Volume (veh/h)	55	10	620	10	0	5	425	670	5	0	810	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	728	5	0	880	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	14		196	4	8	525	2776	19	3	1457	648
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.29	0.77	0.77	0.00	0.41	0.41
Sat Flow, veh/h	1261	231	1585	1441	62	137	1781	3618	25	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	358	375	0	880	17
Grp Sat Flow(s),veh/h/ln	1493	0	1585	1639	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	0.0	15.8	3.8	3.8	0.0	12.5	0.4
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.4	0.0	0.0	15.8	3.8	3.8	0.0	12.5	0.4
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	218	0		233	0	0	525	1364	1432	3	1457	648
V/C Ratio(X)	0.33	0.00		0.05	0.00	0.00	0.88	0.26	0.26	0.00	0.60	0.03
Avail Cap(c_a), veh/h	586	0		699	0	0	1971	1911	2007	1971	3822	1699
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	0.0	28.0	0.0	0.0	21.5	2.2	2.2	0.0	14.8	11.3
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.1	0.0	0.0	1.9	0.2	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.2	0.0	0.0	6.2	0.5	0.6	0.0	4.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	0.0	0.0	28.1	0.0	0.0	23.5	2.4	2.4	0.0	15.7	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1195			897	
Approach Delay, s/veh		30.1			28.1			10.5			15.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.9	32.3		8.9	0.0	55.2		8.9
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.8	14.5		2.4	0.0	5.8		4.9
Green Ext Time (p_c), s	1.1	11.9		0.0	0.0	8.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1070	20	10	1430	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1070	20	10	1430	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	16	5	1	120	1163	21	11	1554	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	13	134	139	33	4	152	2605	47	14	2317	1031
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.73	0.73	0.01	0.65	0.65
Sat Flow, veh/h	1389	155	1547	701	385	52	1781	3571	64	1781	3554	1581
Grp Volume(v), veh/h	65	0	5	22	0	0	120	579	605	11	1554	43
Grp Sat Flow(s),veh/h/ln	1544	0	1547	1139	0	0	1781	1777	1859	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.2	0.2	0.0	0.0	5.3	10.4	10.4	0.5	21.6	0.8
Cycle Q Clear(g_c), s	2.7	0.0	0.2	2.9	0.0	0.0	5.3	10.4	10.4	0.5	21.6	0.8
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	240	0	134	191	0	0	152	1296	1356	14	2317	1031
V/C Ratio(X)	0.27	0.00	0.04	0.12	0.00	0.00	0.79	0.45	0.45	0.76	0.67	0.04
Avail Cap(c_a), veh/h	525	0	446	488	0	0	469	1915	2003	246	3384	1506
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	33.4	33.6	0.0	0.0	35.8	4.3	4.3	39.5	8.6	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.4	0.5	0.5	25.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	2.3	2.7	2.8	0.3	6.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	33.4	33.7	0.0	0.0	39.1	4.8	4.8	64.9	9.3	5.0
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		70			22			1304			1608	
Approach Delay, s/veh		34.2			33.7			8.0			9.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	57.0		11.9	4.6	63.2		11.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.3	23.6		4.9	2.5	12.4		4.7
Green Ext Time (p_c), s	0.1	28.5		0.0	0.0	17.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	45	5	35	115	1155	55	30	1515	75
Future Volume (veh/h)	60	5	185	45	5	35	115	1155	55	30	1515	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	11	49	5	2	125	1255	38	33	1647	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	17	220	214	177	71	159	2337	1042	56	2132	951
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.66	0.66	0.03	0.60	0.60
Sat Flow, veh/h	1297	122	1578	1392	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	11	49	0	7	125	1255	38	33	1647	46
Grp Sat Flow(s),veh/h/ln	1418	0	1578	1392	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.6	0.0	0.5	2.9	0.0	0.3	6.0	16.3	0.7	1.6	30.2	1.0
Cycle Q Clear(g_c), s	3.9	0.0	0.5	6.8	0.0	0.3	6.0	16.3	0.7	1.6	30.2	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	293	0	220	214	0	247	159	2337	1042	56	2132	951
V/C Ratio(X)	0.24	0.00	0.05	0.23	0.00	0.03	0.79	0.54	0.04	0.59	0.77	0.05
Avail Cap(c_a), veh/h	487	0	433	402	0	488	428	2806	1252	245	2440	1088
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	32.6	37.1	0.0	32.5	39.0	7.9	5.2	41.8	13.0	7.2
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.3	0.4	0.0	3.6	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.2	1.0	0.0	0.1	2.7	5.2	0.2	0.7	10.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	32.7	37.7	0.0	32.5	42.2	8.3	5.3	45.3	14.9	7.2
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		81			56			1418			1726	
Approach Delay, s/veh		33.9			37.0			11.2			15.2	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	58.4		17.2	6.8	63.5		17.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	8.0	32.2		8.8	3.6	18.3		5.9
Green Ext Time (p_c), s	0.2	20.2		0.1	0.0	20.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	5	460	15	5	20	305	1290	15	60	1535	155
Future Volume (veh/h)	240	5	460	15	5	20	305	1290	15	60	1535	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	0	292	16	5	7	332	1402	16	65	1668	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	0	774	45	14	20	440	2354	27	114	2100	936
Arrive On Green	0.12	0.00	0.12	0.04	0.04	0.02	0.13	0.65	0.64	0.06	0.59	0.59
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3599	41	1781	3554	1584
Grp Volume(v), veh/h	265	0	292	28	0	0	332	692	726	65	1668	129
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	10.0	0.0	10.8	2.2	0.0	0.0	13.1	31.2	31.3	5.0	51.2	5.1
Cycle Q Clear(g_c), s	10.0	0.0	10.8	2.2	0.0	0.0	13.1	31.2	31.3	5.0	51.2	5.1
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	441	0	774	78	0	0	440	1162	1219	114	2100	936
V/C Ratio(X)	0.60	0.00	0.38	0.36	0.00	0.00	0.75	0.60	0.60	0.57	0.79	0.14
Avail Cap(c_a), veh/h	856	0	1143	382	0	0	1416	2436	2554	189	3792	1691
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	0.0	44.5	66.0	0.0	0.0	59.6	13.9	13.9	64.3	22.3	12.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	1.0	0.0	0.0	1.0	0.7	0.7	1.7	1.0	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	4.6	0.0	4.4	1.0	0.0	0.0	5.8	12.1	12.7	2.3	20.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	0.0	44.6	67.0	0.0	0.0	60.6	14.6	14.5	66.0	23.3	13.0
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	B
Approach Vol, veh/h		557			28			1750			1862	
Approach Delay, s/veh		51.5			67.0			23.3			24.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.0	87.6		10.3	13.1	96.6		21.5
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	15.1	53.2		4.2	7.0	33.3		12.8
Green Ext Time (p_c), s	0.9	28.4		0.0	0.0	15.9		1.7

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	60	5	1500	90	90	2010	10
Future Volume (veh/h)	5	0	5	140	5	60	5	1500	90	90	2010	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1630	95	98	2185	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2422	140	124	2802	14
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3414	198	1781	3626	18
Grp Volume(v), veh/h	6	0	0	152	0	10	5	844	881	98	1070	1126
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1835	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	9.5	9.9	7.0	44.7	44.9
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	9.5	9.9	7.0	44.7	44.9
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1261	1302	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.67	0.68	0.79	0.78	0.78
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1261	1302	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.4	59.5	8.4	8.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.5	2.2	2.2	16.4	4.4	4.3
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	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.1	2.2	3.7	15.4	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	71.7	3.5	3.5	76.0	12.9	12.7
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1730			2294	
Approach Delay, s/veh		49.6			57.4			3.7			15.5	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	46.9		15.4	9.0	11.9		2.7
Green Ext Time (p_c), s	0.0	31.0		0.3	0.0	37.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1445	15	10	1780	265
Future Volume (veh/h)	135	5	15	70	5	15	15	1445	15	10	1780	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1571	15	11	1935	220
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2775	26	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3607	34	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	773	813	11	1935	220
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	23.1	23.2	0.8	36.3	4.9
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	23.1	23.2	0.8	36.3	4.9
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.57	0.57	0.82	0.71	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.67	0.67	0.67	0.50	0.50	0.50
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	6.1	6.1	64.4	7.8	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	20.7	1.1	1.1	19.3	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	7.6	8.0	0.4	11.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	84.9	7.3	7.2	83.7	8.6	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1602			2166	
Approach Delay, s/veh		57.8			52.6			8.0			8.5	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	38.3		8.3	2.8	25.2		15.6
Green Ext Time (p_c), s	0.0	40.0		0.2	0.0	38.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1475	65	15	1790	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1475	65	15	1790	135
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		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	8	103	22	2	71	1603	69	16	1946	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	244	89	293	315	29	90	2466	106	19	2253	163
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1373	1688	153	1781	3471	149	1781	3359	244
Grp Volume(v), veh/h	212	0	30	103	0	24	71	818	854	16	1018	1071
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1373	0	1842	1781	1777	1843	1781	1777	1826
Q Serve(g_s), s	19.4	0.0	1.8	8.7	0.0	1.4	5.1	8.5	8.8	1.2	33.8	37.8
Cycle Q Clear(g_c), s	20.8	0.0	1.8	10.5	0.0	1.4	5.1	8.5	8.8	1.2	33.8	37.8
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.13
Lane Grp Cap(c), veh/h	298	0	332	293	0	344	90	1262	1309	19	1192	1225
V/C Ratio(X)	0.71	0.00	0.09	0.35	0.00	0.07	0.79	0.65	0.65	0.84	0.85	0.87
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1262	1309	110	1192	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.60	0.60	0.60
Uniform Delay (d), s/veh	52.2	0.0	43.7	48.1	0.0	43.6	60.0	1.3	1.3	64.0	4.1	4.4
Incr Delay (d2), s/veh	5.5	0.0	0.1	0.7	0.0	0.1	2.3	0.2	0.2	18.9	4.9	5.6
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	7.2	0.0	0.8	3.1	0.0	0.7	2.3	1.3	1.4	0.6	5.3	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	43.9	48.8	0.0	43.7	62.3	1.5	1.5	82.9	9.1	10.0
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	B
Approach Vol, veh/h		242			127			1743			2105	
Approach Delay, s/veh		55.9			47.9			4.0			10.1	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	91.2		28.3	5.4	96.4		28.3
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	39.8		12.5	3.2	10.8		22.8
Green Ext Time (p_c), s	0.0	33.6		0.4	0.0	34.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	840	95	590	205	565	1070	145
Future Volume (veh/h)	95	120	115	200	140	840	95	590	205	565	1070	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	641	135	614	1163	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	731	611	695	1648	212
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.13	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3166	407
Grp Volume(v), veh/h	233	0	16	217	152	0	103	641	135	614	651	662
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1796
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	41.3	7.5	22.7	41.1	41.4
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	41.3	7.5	22.7	41.1	41.4
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	731	611	695	925	935
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.88	0.22	0.88	0.70	0.71
Avail Cap(c_a), veh/h	339	0	303	279	633		329	731	611	957	925	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.38	0.38	0.38
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	36.7	26.4	54.8	33.7	33.9
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	11.4	0.7	2.4	1.7	1.7
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	20.7	2.9	10.4	19.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	48.1	27.0	57.2	35.4	35.6
LnGrp LOS	E	A	D	D	C		E	D	C	E	D	D
Approach Vol, veh/h		249			369	A		879			1927	
Approach Delay, s/veh		60.0			44.0			46.6			42.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.1	54.8		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	43.4	14.6	21.7	24.7	43.3		9.9
Green Ext Time (p_c), s	0.1	4.3	0.0	0.3	1.4	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2022 Scenario 1 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	310	85	45	20	235	250	105	10	140	35
Future Volume (veh/h)	50	45	310	85	45	20	235	250	105	10	140	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	42	92	49	9	255	272	54	11	152	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	154	245	315	240	44	340	811	687	15	470	398
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.43	0.43	0.01	0.25	0.25
Sat Flow, veh/h	630	987	1570	1296	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	42	92	0	58	255	272	54	11	152	9
Grp Sat Flow(s),veh/h/ln	1617	0	1570	1296	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	0.9	2.7	0.0	1.1	5.4	3.8	0.8	0.2	2.6	0.2
Cycle Q Clear(g_c), s	2.1	0.0	0.9	4.8	0.0	1.1	5.4	3.8	0.8	0.2	2.6	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	245	315	0	284	340	811	687	15	470	398
V/C Ratio(X)	0.26	0.00	0.17	0.29	0.00	0.20	0.75	0.34	0.08	0.72	0.32	0.02
Avail Cap(c_a), veh/h	1080	0	946	894	0	1094	1342	3710	3144	671	3005	2547
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	14.6	17.2	0.0	14.6	15.2	7.5	6.6	19.7	12.2	11.2
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.3	0.5	0.1	46.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.1	1.1	0.2	0.3	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	14.9	17.7	0.0	15.0	18.5	8.0	6.7	66.3	13.0	11.3
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		145			150			581			172	
Approach Delay, s/veh		15.2			16.7			12.5			16.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	23.3		11.2	12.6	16.0		11.2				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	5.8		4.1	7.4	4.6		6.8				
Green Ext Time (p_c), s	0.0	4.0		0.6	0.7	1.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			14.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	180	90	20	15	145	555	15	10	530	70
Future Volume (veh/h)	60	5	180	90	20	15	145	555	15	10	530	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	20	98	22	2	158	603	0	11	576	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	377	24	307	343	335	30	408	897		345	740	622
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.40	0.40
Sat Flow, veh/h	1214	122	1545	1356	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	20	98	0	24	158	603	0	11	576	34
Grp Sat Flow(s),veh/h/ln	1336	0	1545	1356	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.5	3.4	0.0	0.5	2.4	12.6	0.0	0.2	13.7	0.7
Cycle Q Clear(g_c), s	2.5	0.0	0.5	5.9	0.0	0.5	2.4	12.6	0.0	0.2	13.7	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	0	307	343	0	365	408	897		345	740	622
V/C Ratio(X)	0.17	0.00	0.07	0.29	0.00	0.07	0.39	0.67		0.03	0.78	0.05
Avail Cap(c_a), veh/h	804	0	757	738	0	900	767	1869		853	1869	1572
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	16.6	19.9	0.0	16.6	9.4	10.2	0.0	9.8	13.5	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.0	0.1	0.6	0.9	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.0	0.0	0.2	0.7	4.0	0.0	0.1	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	16.7	20.4	0.0	16.7	10.0	11.1	0.0	9.8	15.3	9.6
LnGrp LOS	B	A	B	C	A	B	A	B		A	B	A
Approach Vol, veh/h		90			122			761	A		621	
Approach Delay, s/veh		17.5			19.6			10.9			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	30.5		15.1	9.7	26.2		15.1
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	14.6		4.5	4.4	15.7		7.9
Green Ext Time (p_c), s	0.0	4.4		0.4	0.3	4.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	125	40	15	20	60	635	20	10	735	30
Future Volume (veh/h)	40	5	125	40	15	20	60	635	20	10	735	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	6	43	16	1	65	690	13	11	799	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	93	112	58	228	191	85	1013	858	15	939	796
Arrive On Green	0.03	0.12	0.12	0.03	0.12	0.12	0.05	0.54	0.54	0.01	0.50	0.50
Sat Flow, veh/h	1781	768	922	1781	1870	1572	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	43	0	11	43	16	1	65	690	13	11	799	18
Grp Sat Flow(s),veh/h/ln	1781	0	1690	1781	1870	1572	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.6	0.0	0.4	1.6	0.5	0.0	2.4	18.1	0.3	0.4	25.1	0.4
Cycle Q Clear(g_c), s	1.6	0.0	0.4	1.6	0.5	0.0	2.4	18.1	0.3	0.4	25.1	0.4
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	58	0	206	58	228	191	85	1013	858	15	939	796
V/C Ratio(X)	0.74	0.00	0.05	0.74	0.07	0.01	0.77	0.68	0.02	0.75	0.85	0.02
Avail Cap(c_a), veh/h	527	0	525	527	581	489	659	1799	1524	659	1799	1524
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	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	32.4	0.0	26.2	32.4	26.3	26.1	31.8	11.3	7.2	33.4	14.6	8.5
Incr Delay (d2), s/veh	16.3	0.0	0.1	16.3	0.1	0.0	13.4	0.8	0.0	52.9	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.9	0.2	0.0	1.3	6.2	0.1	0.4	9.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	0.0	26.3	48.7	26.4	26.1	45.2	12.1	7.2	86.3	16.9	8.5
LnGrp LOS	D	A	C	D	C	C	D	B	A	F	B	A
Approach Vol, veh/h		54			60			768			828	
Approach Delay, s/veh		44.2			42.4			14.8			17.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	41.6	7.2	13.2	8.2	38.9	7.2	13.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	2.4	20.1	3.6	2.4	4.4	27.1	3.6	2.5
Green Ext Time (p_c), s	0.0	5.5	0.1	0.0	0.1	6.8	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	715	45	10	860	10
Future Volume (veh/h)	35	10	495	20	5	0	330	715	45	10	860	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	777	48	11	935	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	30		190	30	0	424	2289	141	15	1577	703
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.67	0.67	0.01	0.44	0.44
Sat Flow, veh/h	1115	422	1585	1155	420	0	1781	3399	210	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	406	419	11	935	3
Grp Sat Flow(s),veh/h/ln	1538	0	1585	1575	0	0	1781	1777	1833	1781	1777	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	11.7	5.9	5.9	0.4	12.1	0.1
Cycle Q Clear(g_c), s	1.7	0.0	0.0	0.8	0.0	0.0	11.7	5.9	5.9	0.4	12.1	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	240	0		246	0	0	424	1196	1234	15	1577	703
V/C Ratio(X)	0.20	0.00		0.11	0.00	0.00	0.85	0.34	0.34	0.74	0.59	0.00
Avail Cap(c_a), veh/h	623	0		744	0	0	1935	2164	2232	1935	4328	1931
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	0.0	26.2	0.0	0.0	22.1	4.2	4.2	30.1	12.8	9.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	1.8	0.4	0.3	22.9	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	4.6	1.4	1.4	0.2	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	0.0	0.0	26.4	0.0	0.0	23.9	4.6	4.5	52.9	13.5	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	D	B	A
Approach Vol, veh/h		49	A		27			1184			949	
Approach Delay, s/veh		27.0			26.4			10.4			14.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.5	33.0		9.3	4.5	46.9		9.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	13.7	14.1		2.8	2.4	7.9		3.7
Green Ext Time (p_c), s	0.8	12.9		0.0	0.0	9.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1135	20	15	1340	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1135	20	15	1340	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1234	21	16	1457	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	0	71	115	19	3	185	2663	45	20	2318	1034
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1559	0	1585	695	431	70	1781	3575	61	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	613	642	16	1457	47
Grp Sat Flow(s),veh/h/ln	1559	0	1585	1196	0	0	1781	1777	1859	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	5.7	9.5	9.5	0.6	17.0	0.7
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.7	0.0	0.0	5.7	9.5	9.5	0.6	17.0	0.7
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	194	0	71	155	0	0	185	1324	1385	20	2318	1034
V/C Ratio(X)	0.17	0.00	0.01	0.11	0.00	0.00	0.79	0.46	0.46	0.78	0.63	0.05
Avail Cap(c_a), veh/h	592	0	518	587	0	0	531	2170	2271	278	3835	1711
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	32.1	32.7	0.0	0.0	30.8	3.5	3.5	34.7	7.2	4.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	2.9	0.5	0.5	21.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	2.5	2.0	2.0	0.4	4.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	32.2	32.8	0.0	0.0	33.7	4.0	4.0	55.8	7.8	4.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	E	A	A
Approach Vol, veh/h		34			17			1402			1520	
Approach Delay, s/veh		32.4			32.8			7.1			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	50.9		8.2	4.8	57.5		8.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.7	19.0		3.7	2.6	11.5		3.3
Green Ext Time (p_c), s	0.1	26.9		0.0	0.0	19.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1290	60	30	1290	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1290	60	30	1290	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1402	49	33	1402	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2767	1234	44	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1402	49	33	1402	35
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	22.4	1.1	2.9	28.2	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	22.4	1.1	2.9	28.2	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2767	1234	44	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.51	0.04	0.76	0.55	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2767	1234	241	2560	1142
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	1.00	1.00	0.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.3	3.9	75.1	10.0	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.2	0.5	0.0	9.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.6	0.3	1.4	10.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.3	6.8	4.0	84.7	10.9	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1576			1470	
Approach Delay, s/veh		67.9			71.9			12.1			12.4	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.8	126.7		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	30.2		15.1	4.9	24.4		9.8
Green Ext Time (p_c), s	0.1	26.3		0.1	0.0	27.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1380	15	80	1245	100
Future Volume (veh/h)	135	10	225	10	10	10	440	1380	15	80	1245	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	65	11	11	3	478	1500	16	87	1353	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	0	828	61	61	17	623	2159	23	150	1788	927
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.60	0.58	0.08	0.50	0.50
Sat Flow, veh/h	3563	0	3075	786	786	214	3456	3602	38	1781	3554	1579
Grp Volume(v), veh/h	155	0	65	25	0	0	478	740	776	87	1353	80
Grp Sat Flow(s),veh/h/ln	1781	0	1538	1786	0	0	1728	1777	1863	1781	1777	1579
Q Serve(g_s), s	4.5	0.0	1.7	1.4	0.0	0.0	14.4	31.3	31.4	5.2	33.5	2.4
Cycle Q Clear(g_c), s	4.5	0.0	1.7	1.4	0.0	0.0	14.4	31.3	31.4	5.2	33.5	2.4
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	330	0	828	139	0	0	623	1065	1117	150	1788	927
V/C Ratio(X)	0.47	0.00	0.08	0.18	0.00	0.00	0.77	0.69	0.70	0.58	0.76	0.09
Avail Cap(c_a), veh/h	1105	0	1498	505	0	0	1829	3146	3299	244	4897	2309
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	0.0	30.3	47.4	0.0	0.0	42.7	15.1	15.1	48.3	21.8	9.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.8	1.2	1.1	1.3	1.0	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	2.0	0.0	0.7	0.7	0.0	0.0	6.1	11.9	12.4	2.3	13.4	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	0.0	30.4	48.0	0.0	0.0	43.5	16.2	16.2	49.6	22.8	9.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		220			25			1994			1520	
Approach Delay, s/veh		42.5			48.0			22.8			23.7	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.8	59.1		12.5	13.2	69.7		14.1
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	16.4	35.5		3.4	7.2	33.4		6.5
Green Ext Time (p_c), s	1.3	17.7		0.0	0.1	18.5		0.6

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1830	95	30	1455	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1830	95	30	1455	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	1989	101	33	1582	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2717	137	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3442	173	1781	3634	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1018	1072	33	773	814
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1839	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	39.6	41.3	2.5	19.6	19.6
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	39.6	41.3	2.5	19.6	19.6
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1451	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.73	0.74	0.52	0.53	0.53
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1451	102	1455	1529
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	0.59	0.59	0.59	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.3	7.5	66.3	4.1	4.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.9	2.0	2.0	2.4	1.4	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	0.4	0.0	0.0	2.3	0.0	0.0	0.2	12.9	14.0	1.2	6.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	75.2	9.3	9.5	68.7	5.5	5.4
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2095			1620	
Approach Delay, s/veh		58.6			62.0			9.6			6.7	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	21.6		8.1	4.5	43.3		2.8
Green Ext Time (p_c), s	0.0	32.0		0.1	0.0	41.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1815	20	10	1295	195
Future Volume (veh/h)	90	5	5	105	15	15	5	1815	20	10	1295	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	1973	21	11	1408	152
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2819	30	14	2795	1247
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3602	38	1781	3554	1585
Grp Volume(v), veh/h	106	0	0	142	0	0	5	971	1023	11	1408	152
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	31.5	31.7	0.7	16.8	2.7
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	31.5	31.7	0.7	16.8	2.7
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1247
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.70	0.70	0.80	0.50	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.63	0.63	0.63	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.3	6.3	59.4	4.5	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	29.2	1.9	1.8	27.8	0.5	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	9.6	10.1	0.4	4.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	88.9	8.1	8.1	87.2	5.1	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			1999			1571	
Approach Delay, s/veh		52.7			54.3			8.3			5.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	18.8		11.7	2.7	33.7		9.9
Green Ext Time (p_c), s	0.0	32.7		0.5	0.0	31.1		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1640	75	10	1340	75
Future Volume (veh/h)	145	30	20	150	25	35	25	1640	75	10	1340	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1783	80	11	1457	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2559	114	13	2490	136
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3465	154	1781	3426	188
Grp Volume(v), veh/h	158	0	35	163	0	30	27	909	954	11	753	784
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1843	1781	1777	1837
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	28.2	28.5
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	28.2	28.5
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1361	13	1291	1335
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.69	0.70	0.83	0.58	0.59
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1361	140	1291	1335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.84	0.84	0.84
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.1	9.1
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	31.3	1.6	1.6
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	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	10.4	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.7	10.7	10.7
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1890			1548	
Approach Delay, s/veh		57.2			58.1			1.3			11.4	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	30.5		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	25.5		0.6	0.0	45.9		0.6

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1150	55	640	175	575	1025	75
Future Volume (veh/h)	55	120	60	110	100	1150	55	640	175	575	1025	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	696	118	625	1114	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	880	742	676	2095	149
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.47	0.47	0.39	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3365	238
Grp Volume(v), veh/h	190	0	6	120	109	0	60	696	118	625	588	605
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1827
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	44.0	6.0	24.1	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	44.0	6.0	24.1	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	880	742	676	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.79	0.16	0.92	0.53	0.53
Avail Cap(c_a), veh/h	304	0	256	232	508		178	880	742	839	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.75	0.75	0.75
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	31.3	21.2	41.6	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	5.8	0.4	10.0	1.4	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	7.0	0.0	0.2	3.6	3.1	0.0	2.2	20.8	2.3	9.5	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	37.1	21.6	51.6	1.4	1.3
LnGrp LOS	E	A	D	D	D		E	D	C	D	A	A
Approach Vol, veh/h		196			229	A		874			1818	
Approach Delay, s/veh		63.7			45.0			37.3			18.6	
Approach LOS		E			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	31.4	69.8		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	34.0	55.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.1	46.0		8.5
Green Ext Time (p_c), s	0.0	18.1	0.0	0.3	1.3	4.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	15	690	5	0	810
Future Vol, veh/h	0	15	690	5	0	810
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	750	5	0	880

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	750	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	411	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	411	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	411	-
HCM Lane V/C Ratio	-	-	0.04	-
HCM Control Delay (s)	-	-	14.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	745	0	0	900
Future Vol, veh/h	0	0	745	0	0	900
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	810	0	0	978

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1788	810	0	0	810	0
Stage 1	810	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	89	380	-	-	816	-
Stage 1	438	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	89	380	-	-	816	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	364	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	816	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	20	0	0	10	0	0	0	0	0	0	60
Future Vol, veh/h	15	20	0	0	10	0	0	0	0	0	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	22	0	0	11	0	0	0	0	0	0	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	11	0	0	22	0	0	98	65	22	65	65	11
Stage 1	-	-	-	-	-	-	54	54	-	11	11	-
Stage 2	-	-	-	-	-	-	44	11	-	54	54	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1608	-	-	1593	-	-	884	826	1055	929	826	1070
Stage 1	-	-	-	-	-	-	958	850	-	1010	886	-
Stage 2	-	-	-	-	-	-	970	886	-	958	850	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1608	-	-	1593	-	-	824	818	1055	922	818	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	824	818	-	922	818	-
Stage 1	-	-	-	-	-	-	948	842	-	1000	886	-
Stage 2	-	-	-	-	-	-	911	886	-	948	842	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	0	0	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1608	-	-	1593	-	-	1070
HCM Lane V/C Ratio	-	0.01	-	-	-	-	-	0.061
HCM Control Delay (s)	0	7.3	-	-	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0

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

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	11	0	0	22	0	0	33	33	22	33	33	11
Stage 1	-	-	-	-	-	-	22	22	-	11	11	-
Stage 2	-	-	-	-	-	-	11	11	-	22	22	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1608	-	-	1593	-	-	974	860	1055	974	860	1070
Stage 1	-	-	-	-	-	-	996	877	-	1010	886	-
Stage 2	-	-	-	-	-	-	1010	886	-	996	877	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1608	-	-	1593	-	-	974	860	1055	974	860	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	974	860	-	974	860	-
Stage 1	-	-	-	-	-	-	996	877	-	1010	886	-
Stage 2	-	-	-	-	-	-	1010	886	-	996	877	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1608	-	-	1593	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2022 Scenario 1 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/08/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	390	60	25	5	405	230	60	5	295	75
Future Volume (veh/h)	55	25	390	60	25	5	405	230	60	5	295	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	25	65	27	1	440	250	41	5	321	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	68	177	221	201	7	526	1062	900	7	518	439
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.30	0.57	0.57	0.00	0.28	0.28
Sat Flow, veh/h	911	606	1585	1352	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	25	65	0	28	440	250	41	5	321	20
Grp Sat Flow(s),veh/h/ln	1518	0	1585	1352	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.0	0.0	0.7	2.4	0.0	0.7	11.7	3.4	0.6	0.1	7.6	0.5
Cycle Q Clear(g_c), s	2.7	0.0	0.7	5.1	0.0	0.7	11.7	3.4	0.6	0.1	7.6	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	0	177	221	0	208	526	1062	900	7	518	439
V/C Ratio(X)	0.30	0.00	0.14	0.29	0.00	0.13	0.84	0.24	0.05	0.70	0.62	0.05
Avail Cap(c_a), veh/h	835	0	752	711	0	881	1056	2920	2474	528	2365	2004
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	20.3	23.6	0.0	20.3	16.7	5.5	4.8	25.2	16.0	13.4
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.7	0.0	0.3	3.6	0.2	0.0	79.1	2.6	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	1.0	0.0	0.3	0.8	0.0	0.3	4.5	0.9	0.1	0.2	3.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	20.6	24.3	0.0	20.6	20.3	5.7	4.9	104.3	18.6	13.5
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	B	B
Approach Vol, veh/h		112			93			731			346	
Approach Delay, s/veh		21.5			23.2			14.5			19.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	34.7		10.7	19.9	20.0		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	5.4		4.7	13.7	9.6		7.1				
Green Ext Time (p_c), s	0.0	3.6		0.5	1.3	4.4		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		17.1
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	155	45	15	10	205	620	45	25	605	80
Future Volume (veh/h)	75	20	155	45	15	10	205	620	45	25	605	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	14	49	16	1	223	674	0	27	658	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	55	206	235	226	14	438	995		382	835	704
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.53	0.00	0.02	0.45	0.45
Sat Flow, veh/h	1079	424	1585	1372	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	14	49	0	17	223	674	0	27	658	46
Grp Sat Flow(s),veh/h/ln	1504	0	1585	1372	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.7	0.0	0.4	1.7	0.0	0.4	3.0	13.2	0.0	0.4	15.0	0.8
Cycle Q Clear(g_c), s	3.2	0.0	0.4	4.9	0.0	0.4	3.0	13.2	0.0	0.4	15.0	0.8
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	0	206	235	0	240	438	995		382	835	704
V/C Ratio(X)	0.32	0.00	0.07	0.21	0.00	0.07	0.51	0.68		0.07	0.79	0.07
Avail Cap(c_a), veh/h	869	0	791	742	0	924	786	1905		882	1905	1607
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	19.1	22.6	0.0	19.1	8.9	8.6	0.0	8.1	11.8	7.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.4	0.0	0.1	0.9	0.8	0.0	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.6	0.0	0.2	0.8	3.8	0.0	0.1	5.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	0.0	19.3	23.1	0.0	19.3	9.9	9.4	0.0	8.2	13.5	7.9
LnGrp LOS	C	A	B	C	A	B	A	A		A	B	A
Approach Vol, veh/h		118			66			897	A		731	
Approach Delay, s/veh		20.7			22.1			9.5			13.0	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	32.6		11.5	10.2	28.4		11.5
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	15.2		5.2	5.0	17.0		6.9
Green Ext Time (p_c), s	0.0	5.1		0.5	0.4	5.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	15	100	30	15	15	170	865	30	25	785	75
Future Volume (veh/h)	55	15	100	30	15	15	170	865	30	25	785	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	16	2	33	16	1	185	940	21	27	853	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	192	24	44	185	154	225	1156	980	33	954	807
Arrive On Green	0.04	0.12	0.12	0.02	0.10	0.10	0.13	0.62	0.62	0.02	0.51	0.51
Sat Flow, veh/h	1781	1624	203	1781	1870	1555	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	18	33	16	1	185	940	21	27	853	42
Grp Sat Flow(s),veh/h/ln	1781	0	1827	1781	1870	1555	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	3.0	0.0	0.8	1.7	0.7	0.1	9.2	35.0	0.5	1.4	37.3	1.2
Cycle Q Clear(g_c), s	3.0	0.0	0.8	1.7	0.7	0.1	9.2	35.0	0.5	1.4	37.3	1.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	216	44	185	154	225	1156	980	33	954	807
V/C Ratio(X)	0.77	0.00	0.08	0.74	0.09	0.01	0.82	0.81	0.02	0.82	0.89	0.05
Avail Cap(c_a), veh/h	392	0	422	392	433	360	491	1339	1135	491	1339	1133
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	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	42.9	0.0	35.7	44.0	37.2	36.9	38.7	13.3	6.7	44.4	20.0	11.2
Incr Delay (d2), s/veh	14.3	0.0	0.2	21.5	0.2	0.0	7.3	3.5	0.0	36.6	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.4	1.0	0.3	0.0	4.4	13.4	0.1	0.9	16.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	0.0	35.8	65.5	37.4	36.9	45.9	16.8	6.7	81.0	26.1	11.2
LnGrp LOS	E	A	D	E	D	D	D	B	A	F	C	B
Approach Vol, veh/h		78			50			1146			922	
Approach Delay, s/veh		52.3			55.9			21.3			27.0	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	61.1	7.3	15.7	16.5	51.3	9.0	14.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	3.4	37.0	3.7	2.8	11.2	39.3	5.0	2.7
Green Ext Time (p_c), s	0.0	8.4	0.0	0.0	0.4	7.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	610	85	10	10	625	950	10	5	855	20
Future Volume (veh/h)	80	5	610	85	10	10	625	950	10	5	855	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	5	0	92	11	9	679	1033	11	5	929	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	7		183	14	12	719	2746	29	7	1288	574
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.76	0.76	0.00	0.36	0.36
Sat Flow, veh/h	1459	84	1585	1349	161	132	1781	3602	38	1781	3554	1585
Grp Volume(v), veh/h	92	0	0	112	0	0	679	510	534	5	929	6
Grp Sat Flow(s),veh/h/ln	1543	0	1585	1643	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	37.9	9.9	9.9	0.3	23.3	0.2
Cycle Q Clear(g_c), s	5.6	0.0	0.0	6.4	0.0	0.0	37.9	9.9	9.9	0.3	23.3	0.2
Prop In Lane	0.95		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	219	0		225	0	0	719	1355	1421	7	1288	574
V/C Ratio(X)	0.42	0.00		0.50	0.00	0.00	0.94	0.38	0.38	0.72	0.72	0.01
Avail Cap(c_a), veh/h	368	0		449	0	0	1227	1355	1421	1227	2378	1061
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	0.0	45.3	0.0	0.0	29.6	4.1	4.1	51.3	28.4	21.0
Incr Delay (d2), s/veh	1.3	0.0	0.0	1.7	0.0	0.0	6.1	0.4	0.4	41.0	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	2.8	0.0	0.0	16.5	2.8	2.9	0.2	9.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.0	0.0	47.0	0.0	0.0	35.7	4.5	4.4	92.3	30.0	21.1
LnGrp LOS	D	A		D	A	A	D	A	A	F	C	C
Approach Vol, veh/h		92	A		112			1723			940	
Approach Delay, s/veh		46.2			47.0			16.8			30.3	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	45.6	43.4		14.1	4.4	84.6		14.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	39.9	25.3		8.4	2.3	11.9		7.6
Green Ext Time (p_c), s	1.8	12.1		0.3	0.0	13.7		0.2

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1530	10	10	1540	55
Future Volume (veh/h)	50	5	135	15	0	5	130	1530	10	10	1540	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1663	11	11	1674	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	18	173	184	2	7	173	2642	17	14	2277	1015
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.73	0.73	0.01	0.64	0.64
Sat Flow, veh/h	1360	156	1522	970	19	62	1781	3619	24	1781	3554	1584
Grp Volume(v), veh/h	59	0	6	17	0	0	141	816	858	11	1674	36
Grp Sat Flow(s),veh/h/ln	1515	0	1522	1050	0	0	1781	1777	1866	1781	1777	1584
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.3	21.6	21.7	0.6	30.2	0.8
Cycle Q Clear(g_c), s	2.9	0.0	0.3	3.8	0.0	0.0	7.3	21.6	21.7	0.6	30.2	0.8
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	261	0	173	204	0	0	173	1297	1362	14	2277	1015
V/C Ratio(X)	0.23	0.00	0.03	0.08	0.00	0.00	0.81	0.63	0.63	0.78	0.74	0.04
Avail Cap(c_a), veh/h	445	0	371	383	0	0	397	1621	1702	208	2865	1277
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	37.2	39.1	0.0	0.0	41.7	6.4	6.4	46.7	11.5	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.5	1.1	1.0	27.5	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	3.3	6.4	6.7	0.4	10.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	0.0	37.2	39.2	0.0	0.0	45.2	7.4	7.4	74.2	12.7	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1815			1721	
Approach Delay, s/veh		38.0			39.2			10.4			13.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	65.4		15.7	4.8	73.8		15.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.3	32.2		5.8	2.6	23.7		4.9
Green Ext Time (p_c), s	0.1	28.2		0.0	0.0	33.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	180	70	5	45	130	1515	60	35	1710	100
Future Volume (veh/h)	75	5	180	70	5	45	130	1515	60	35	1710	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	5	28	76	5	1	141	1647	49	38	1859	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	12	204	142	197	39	163	2668	1189	49	2442	1089
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.69	0.69
Sat Flow, veh/h	1303	90	1563	1362	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	87	0	28	76	0	6	141	1647	49	38	1859	86
Grp Sat Flow(s),veh/h/ln	1393	0	1563	1362	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	2.6	9.0	0.0	0.5	12.9	35.5	1.3	3.5	56.6	3.0
Cycle Q Clear(g_c), s	9.7	0.0	2.6	18.7	0.0	0.5	12.9	35.5	1.3	3.5	56.6	3.0
Prop In Lane	0.94		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	204	142	0	237	163	2668	1189	49	2442	1089
V/C Ratio(X)	0.37	0.00	0.14	0.54	0.00	0.03	0.87	0.62	0.04	0.77	0.76	0.08
Avail Cap(c_a), veh/h	254	0	227	162	0	263	281	2668	1189	108	2442	1089
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	1.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	63.5	75.2	0.0	62.5	74.0	9.5	5.3	79.7	16.9	8.5
Incr Delay (d2), s/veh	1.0	0.0	0.3	3.1	0.0	0.0	3.9	0.7	0.0	9.3	2.3	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	3.5	0.0	1.1	3.3	0.0	0.2	6.1	13.1	0.4	1.7	22.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	0.0	63.8	78.4	0.0	62.6	77.9	10.3	5.3	89.0	19.2	8.7
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	B	A
Approach Vol, veh/h		115			82			1837			1983	
Approach Delay, s/veh		66.4			77.2			15.3			20.1	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	119.4		26.6	8.5	129.9		26.6
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	58.6		20.7	5.5	37.5		11.7
Green Ext Time (p_c), s	0.2	31.1		0.1	0.0	38.1		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	5	625	15	0	5	395	1555	10	80	1760	140
Future Volume (veh/h)	300	5	625	15	0	5	395	1555	10	80	1760	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	330	0	475	16	0	1	429	1690	11	87	1913	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	529	0	906	67	0	4	497	2445	16	117	2122	1175
Arrive On Green	0.15	0.00	0.14	0.04	0.00	0.03	0.14	0.68	0.67	0.07	0.60	0.60
Sat Flow, veh/h	3563	0	3126	1659	0	104	3456	3619	24	1781	3554	1585
Grp Volume(v), veh/h	330	0	475	17	0	0	429	829	872	87	1913	131
Grp Sat Flow(s),veh/h/ln	1781	0	1563	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	19.9	0.0	29.2	2.1	0.0	0.0	27.8	65.0	65.2	11.0	107.6	5.3
Cycle Q Clear(g_c), s	19.9	0.0	29.2	2.1	0.0	0.0	27.8	65.0	65.2	11.0	107.6	5.3
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	529	0	906	72	0	0	497	1201	1261	117	2122	1175
V/C Ratio(X)	0.62	0.00	0.52	0.24	0.00	0.00	0.86	0.69	0.69	0.75	0.90	0.11
Avail Cap(c_a), veh/h	529	0	906	239	0	0	875	1505	1580	117	2342	1273
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.6	0.0	68.5	106.5	0.0	0.0	95.9	22.6	22.6	105.2	40.3	8.4
Incr Delay (d2), s/veh	1.7	0.0	0.3	0.6	0.0	0.0	1.8	1.3	1.2	20.5	5.2	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	9.5	0.0	12.0	1.0	0.0	0.0	12.7	27.7	29.2	5.8	48.2	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.3	0.0	68.8	107.2	0.0	0.0	97.6	23.8	23.8	125.7	45.4	8.4
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	A
Approach Vol, veh/h		805			17			2130			2131	
Approach Delay, s/veh		78.8			107.2			38.7			46.4	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	37.0	140.8		13.3	19.0	158.8		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	29.8	109.6		4.1	13.0	67.2		31.2
Green Ext Time (p_c), s	1.2	25.2		0.0	0.0	24.8		0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1900	95	90	2335	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1900	95	90	2335	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2065	101	98	2538	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2599	126	124	2950	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3450	167	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1055	1111	98	1239	1304
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1840	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	58.9	59.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	58.9	59.0
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1386	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.79	0.80	0.79	0.86	0.86
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1386	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.53	0.53	0.53	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	8.0	8.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.3	2.6	2.7	4.2	6.9	6.6
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	3.4	0.0	0.3	0.4	1.0	1.1	3.4	19.1	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	69.2	2.6	2.7	66.0	14.9	14.7
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2177			2641	
Approach Delay, s/veh		57.1			62.0			3.0			16.7	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	61.0		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	25.1		0.2	0.1	58.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	15	10	65	5	10	5	1825	20	5	1990	330
Future Volume (veh/h)	180	15	10	65	5	10	5	1825	20	5	1990	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	16	9	71	5	7	5	1984	21	5	2163	284
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	18	10	283	21	23	7	2663	28	7	2627	1172
Arrive On Green	0.17	0.17	0.16	0.17	0.17	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1331	109	61	1386	123	139	1781	3602	38	1781	3554	1585
Grp Volume(v), veh/h	221	0	0	83	0	0	5	977	1028	5	2163	284
Grp Sat Flow(s),veh/h/ln	1501	0	0	1648	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	13.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	54.8	7.7
Cycle Q Clear(g_c), s	19.2	0.0	0.0	5.8	0.0	0.0	0.4	0.0	0.0	0.4	54.8	7.7
Prop In Lane	0.89		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	303	0	0	327	0	0	7	1313	1377	7	2627	1172
V/C Ratio(X)	0.73	0.00	0.00	0.25	0.00	0.00	0.74	0.74	0.75	0.74	0.82	0.24
Avail Cap(c_a), veh/h	380	0	0	404	0	0	106	1313	1377	106	2627	1172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.55	0.55	0.55	0.32	0.32	0.32
Uniform Delay (d), s/veh	54.4	0.0	0.0	49.1	0.0	0.0	66.9	0.0	0.0	67.2	11.7	5.6
Incr Delay (d2), s/veh	5.3	0.0	0.0	0.4	0.0	0.0	27.0	2.1	2.1	16.9	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	0.0	2.5	0.0	0.0	0.2	0.8	0.8	0.2	18.8	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	0.0	0.0	49.5	0.0	0.0	93.9	2.1	2.1	84.1	12.7	5.8
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		221			83			2010			2452	
Approach Delay, s/veh		59.7			49.5			2.3			12.1	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	103.8		26.7	4.5	103.8		26.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	56.8		7.8	2.4	2.0		21.2
Green Ext Time (p_c), s	0.0	26.3		0.2	0.0	66.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	35	50	100	25	20	55	1625	110	25	1920	155
Future Volume (veh/h)	180	35	50	100	25	20	55	1625	110	25	1920	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	38	11	109	27	2	60	1766	117	27	2087	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	251	73	263	311	23	76	2407	158	34	2296	178
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.17	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1347	1385	401	1325	1716	127	1781	3385	222	1781	3341	259
Grp Volume(v), veh/h	196	0	49	109	0	29	60	919	964	27	1097	1154
Grp Sat Flow(s),veh/h/ln	1347	0	1785	1325	0	1843	1781	1777	1830	1781	1777	1823
Q Serve(g_s), s	19.1	0.0	3.1	10.2	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	3.1	13.3	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	280	0	323	263	0	334	76	1263	1301	34	1221	1253
V/C Ratio(X)	0.70	0.00	0.15	0.42	0.00	0.09	0.79	0.73	0.74	0.80	0.90	0.92
Avail Cap(c_a), veh/h	345	0	410	327	0	423	106	1263	1301	106	1221	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.43	0.43	0.43
Uniform Delay (d), s/veh	54.7	0.0	46.5	52.1	0.0	46.0	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.0	0.2	1.0	0.0	0.1	1.6	0.3	0.4	6.7	5.0	6.2
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	6.9	0.0	1.4	3.5	0.0	0.8	1.9	0.1	0.1	1.0	1.7	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	46.8	53.2	0.0	46.1	62.7	0.3	0.4	71.4	5.0	6.2
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		245			138			1943			2278	
Approach Delay, s/veh		56.9			51.7			2.3			6.4	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.8		28.4	6.6	100.0		28.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		22.9
Green Ext Time (p_c), s	0.0	63.5		0.4	0.0	46.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1040	85	650	225	660	1130	90
Future Volume (veh/h)	85	125	115	195	120	1040	85	650	225	660	1130	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	18	212	130	0	92	707	165	717	1228	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	160	259	231	524		115	774	651	751	1895	145
Arrive On Green	0.17	0.17	0.17	0.08	0.28	0.00	0.06	0.41	0.41	0.43	1.00	1.00
Sat Flow, veh/h	608	944	1534	1781	1870	1585	1781	1870	1574	3456	3344	256
Grp Volume(v), veh/h	228	0	18	212	130	0	92	707	165	717	651	671
Grp Sat Flow(s),veh/h/ln	1551	0	1534	1781	1870	1585	1781	1870	1574	1728	1777	1823
Q Serve(g_s), s	18.7	0.0	1.3	11.0	7.3	0.0	6.9	48.1	9.3	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.3	11.0	7.3	0.0	6.9	48.1	9.3	27.1	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	300	0	259	231	524		115	774	651	751	1007	1033
V/C Ratio(X)	0.76	0.00	0.07	0.92	0.25		0.80	0.91	0.25	0.95	0.65	0.65
Avail Cap(c_a), veh/h	336	0	296	231	568		238	774	651	768	1007	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.27	0.27	0.27
Uniform Delay (d), s/veh	54.6	0.0	47.2	46.5	37.6	0.0	62.3	37.3	25.9	37.5	0.0	0.0
Incr Delay (d2), s/veh	8.8	0.0	0.1	38.1	0.2	0.0	4.3	15.5	0.8	8.4	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	8.3	0.0	0.5	4.4	3.4	0.0	3.2	24.8	3.6	10.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	0.0	47.3	84.5	37.8	0.0	66.6	52.8	26.8	46.0	0.9	0.9
LnGrp LOS	E	A	D	F	D		E	D	C	D	A	A
Approach Vol, veh/h		246			342	A		964			2039	
Approach Delay, s/veh		62.2			66.8			49.7			16.7	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	80.5	15.0	26.8	33.3	59.8		41.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	63.0	10.0	25.0	30.0	51.0		40.0
Max Q Clear Time (g_c+I1), s	9.3	2.0	13.0	21.3	29.1	50.1		9.3
Green Ext Time (p_c), s	0.1	21.2	0.0	0.3	0.3	0.6		0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	10	915	25	0	810
Future Vol, veh/h	0	10	915	25	0	810
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	995	27	0	880

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	995	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	297	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	297	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	297	-
HCM Lane V/C Ratio	-	-	0.037	-
HCM Control Delay (s)	-	-	17.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1040	0	0	915
Future Vol, veh/h	0	0	1040	0	0	915
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1130	0	0	995

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2125	1130	0	0	1130	0
Stage 1	1130	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	55	248	-	-	618	-
Stage 1	308	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	55	248	-	-	618	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	308	-	-	-	-	-
Stage 2	358	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	618	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	15	0	0	20	0	0	0	0	0	0	40
Future Vol, veh/h	60	15	0	0	20	0	0	0	0	0	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	16	0	0	22	0	0	0	0	0	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	16	0	0	190	168	16	168	168	22
Stage 1	-	-	-	-	-	-	146	146	-	22	22	-
Stage 2	-	-	-	-	-	-	44	22	-	146	146	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1593	-	-	1602	-	-	770	725	1063	796	725	1055
Stage 1	-	-	-	-	-	-	857	776	-	996	877	-
Stage 2	-	-	-	-	-	-	970	877	-	857	776	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1602	-	-	715	695	1063	771	695	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	715	695	-	771	695	-
Stage 1	-	-	-	-	-	-	822	744	-	955	877	-
Stage 2	-	-	-	-	-	-	930	877	-	822	744	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.9	0	0	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1593	-	-	1602	-	-	1055
HCM Lane V/C Ratio	-	0.041	-	-	-	-	-	0.041
HCM Control Delay (s)	0	7.4	-	-	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	15	0	0	20	0	0	0	0	0	0	0
Future Vol, veh/h	0	15	0	0	20	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	16	0	0	22	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	16	0	0	38	38	16	38	38	22
Stage 1	-	-	-	-	-	-	16	16	-	22	22	-
Stage 2	-	-	-	-	-	-	22	22	-	16	16	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1593	-	-	1602	-	-	967	854	1063	967	854	1055
Stage 1	-	-	-	-	-	-	1004	882	-	996	877	-
Stage 2	-	-	-	-	-	-	996	877	-	1004	882	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1602	-	-	967	854	1063	967	854	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	967	854	-	967	854	-
Stage 1	-	-	-	-	-	-	1004	882	-	996	877	-
Stage 2	-	-	-	-	-	-	996	877	-	1004	882	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1593	-	-	1602	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2022 Scenario 1 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	350	45	50	20	295	330	40	20	295	90
Future Volume (veh/h)	40	45	350	45	50	20	295	330	40	20	295	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	34	49	54	10	321	359	23	22	321	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	128	196	251	192	36	408	949	803	29	550	465
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.23	0.51	0.51	0.02	0.29	0.29
Sat Flow, veh/h	546	1025	1567	1304	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	34	49	0	64	321	359	23	22	321	28
Grp Sat Flow(s),veh/h/ln	1571	0	1567	1304	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.0	0.0	0.9	1.7	0.0	1.5	7.7	5.3	0.3	0.6	6.7	0.6
Cycle Q Clear(g_c), s	2.5	0.0	0.9	4.1	0.0	1.5	7.7	5.3	0.3	0.6	6.7	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	313	0	196	251	0	228	408	949	803	29	550	465
V/C Ratio(X)	0.29	0.00	0.17	0.20	0.00	0.28	0.79	0.38	0.03	0.77	0.58	0.06
Avail Cap(c_a), veh/h	943	0	826	775	0	957	1173	3244	2744	587	2628	2224
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	17.8	20.4	0.0	18.1	16.5	6.8	5.6	22.3	13.7	11.5
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.4	0.0	0.7	3.4	0.5	0.0	34.5	2.1	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	0.9	0.0	0.3	0.5	0.0	0.6	3.0	1.5	0.1	0.5	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	0.0	18.2	20.8	0.0	18.7	19.9	7.4	5.6	56.8	15.8	11.7
LnGrp LOS	B	A	B	C	A	B	B	A	A	E	B	B
Approach Vol, veh/h		126			113			703			371	
Approach Delay, s/veh		18.8			19.6			13.0			17.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	29.1		10.7	15.4	19.4		10.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.6	7.3		4.5	9.7	8.7		6.1
Green Ext Time (p_c), s	0.0	5.2		0.5	0.9	4.5		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	205	40	15	5	140	490	25	15	520	60
Future Volume (veh/h)	60	20	205	40	15	5	140	490	25	15	520	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	21	43	16	1	152	533	0	16	565	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	77	228	295	255	16	435	890		418	757	639
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.48	0.00	0.01	0.40	0.40
Sat Flow, veh/h	985	529	1558	1345	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	21	43	0	17	152	533	0	16	565	26
Grp Sat Flow(s),veh/h/ln	1514	0	1558	1345	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.5	0.0	0.5	1.3	0.0	0.3	2.1	9.1	0.0	0.2	11.3	0.4
Cycle Q Clear(g_c), s	2.2	0.0	0.5	3.5	0.0	0.3	2.1	9.1	0.0	0.2	11.3	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	0	228	295	0	271	435	890		418	757	639
V/C Ratio(X)	0.24	0.00	0.09	0.15	0.00	0.06	0.35	0.60		0.04	0.75	0.04
Avail Cap(c_a), veh/h	990	0	889	866	0	1055	896	2178		1007	2178	1839
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	16.2	18.4	0.0	16.1	8.0	8.4	0.0	7.9	11.1	7.9
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.4	0.0	0.1	0.6	2.6	0.0	0.1	3.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	0.0	16.3	18.7	0.0	16.2	8.5	9.1	0.0	8.0	12.6	7.9
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		108			60			685	A		607	
Approach Delay, s/veh		17.0			18.0			8.9			12.3	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	26.8		11.4	8.7	23.7		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	11.1		4.2	4.1	13.3		5.5
Green Ext Time (p_c), s	0.0	3.7		0.5	0.3	4.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	15	85	35	15	20	85	600	30	25	700	50
Future Volume (veh/h)	40	15	85	35	15	20	85	600	30	25	700	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	16	4	38	16	1	92	652	19	27	761	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	174	43	54	221	187	122	994	843	32	900	762
Arrive On Green	0.03	0.12	0.12	0.03	0.12	0.12	0.07	0.53	0.53	0.02	0.48	0.48
Sat Flow, veh/h	1781	1441	360	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	20	38	16	1	92	652	19	27	761	27
Grp Sat Flow(s),veh/h/ln	1781	0	1801	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.6	0.0	0.7	1.4	0.5	0.0	3.4	16.7	0.4	1.0	23.8	0.6
Cycle Q Clear(g_c), s	1.6	0.0	0.7	1.4	0.5	0.0	3.4	16.7	0.4	1.0	23.8	0.6
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	217	54	221	187	122	994	843	32	900	762
V/C Ratio(X)	0.73	0.00	0.09	0.70	0.07	0.01	0.76	0.66	0.02	0.84	0.85	0.04
Avail Cap(c_a), veh/h	534	0	566	534	588	498	667	1821	1543	667	1821	1541
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	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	32.0	0.0	26.1	32.1	26.2	26.0	30.6	11.2	7.4	32.7	15.1	9.1
Incr Delay (d2), s/veh	16.1	0.0	0.2	15.4	0.1	0.0	9.1	0.7	0.0	41.4	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.3	0.8	0.2	0.0	1.7	5.8	0.1	0.8	8.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	0.0	26.3	47.4	26.3	26.0	39.7	12.0	7.4	74.1	17.4	9.2
LnGrp LOS	D	A	C	D	C	C	D	B	A	E	B	A
Approach Vol, veh/h		63			55			763			815	
Approach Delay, s/veh		41.2			40.9			15.2			19.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	40.5	7.0	13.0	9.6	37.1	7.2	12.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	3.0	18.7	3.4	2.7	5.4	25.8	3.6	2.5
Green Ext Time (p_c), s	0.0	5.1	0.0	0.0	0.2	6.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	10	620	10	0	5	425	665	5	0	790	55
Future Volume (veh/h)	55	10	620	10	0	5	425	665	5	0	790	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	11	0	11	0	1	462	723	5	0	859	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	14		198	4	8	527	2764	19	3	1438	639
Arrive On Green	0.08	0.06	0.00	0.08	0.00	0.06	0.30	0.76	0.76	0.00	0.40	0.40
Sat Flow, veh/h	1261	231	1585	1439	63	137	1781	3618	25	1781	3554	1579
Grp Volume(v), veh/h	71	0	0	12	0	0	462	355	373	0	859	20
Grp Sat Flow(s),veh/h/ln	1493	0	1585	1639	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	0.0	15.5	3.7	3.7	0.0	11.9	0.5
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.4	0.0	0.0	15.5	3.7	3.7	0.0	11.9	0.5
Prop In Lane	0.85		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	221	0		236	0	0	527	1357	1425	3	1438	639
V/C Ratio(X)	0.32	0.00		0.05	0.00	0.00	0.88	0.26	0.26	0.00	0.60	0.03
Avail Cap(c_a), veh/h	597	0		713	0	0	2011	1950	2047	2011	3899	1733
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	0.0	27.5	0.0	0.0	21.1	2.2	2.2	0.0	14.7	11.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	1.9	0.2	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.2	0.0	0.0	6.0	0.5	0.6	0.0	4.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	0.0	27.6	0.0	0.0	23.0	2.4	2.4	0.0	15.6	11.3
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		71	A		12			1190			879	
Approach Delay, s/veh		29.4			27.6			10.4			15.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.6	31.4		8.8	0.0	54.0		8.8
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	17.5	13.9		2.4	0.0	5.7		4.9
Green Ext Time (p_c), s	1.1	11.5		0.0	0.0	8.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1040	20	10	1370	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1040	20	10	1370	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	6	16	5	1	120	1130	21	11	1489	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	14	138	145	35	5	153	2566	48	15	2279	1014
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.72	0.72	0.01	0.64	0.64
Sat Flow, veh/h	1383	155	1548	712	392	53	1781	3569	66	1781	3554	1581
Grp Volume(v), veh/h	65	0	6	22	0	0	120	563	588	11	1489	42
Grp Sat Flow(s),veh/h/ln	1538	0	1548	1157	0	0	1781	1777	1858	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.3	0.1	0.0	0.0	5.0	9.9	9.9	0.5	19.7	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.3	2.7	0.0	0.0	5.0	9.9	9.9	0.5	19.7	0.7
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	248	0	138	200	0	0	153	1278	1336	15	2279	1014
V/C Ratio(X)	0.26	0.00	0.04	0.11	0.00	0.00	0.78	0.44	0.44	0.76	0.65	0.04
Avail Cap(c_a), veh/h	549	0	467	514	0	0	491	2006	2098	257	3545	1578
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	31.7	31.8	0.0	0.0	34.1	4.4	4.4	37.7	8.4	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.3	0.5	0.5	24.9	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.4	0.0	0.0	2.2	2.5	2.6	0.3	6.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	31.8	31.9	0.0	0.0	37.4	4.9	4.9	62.6	9.1	5.1
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		71			22			1271			1542	
Approach Delay, s/veh		32.5			31.9			8.0			9.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	53.9		11.8	4.6	59.8		11.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.0	21.7		4.7	2.5	11.9		4.6
Green Ext Time (p_c), s	0.1	27.1		0.0	0.0	16.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	185	45	5	35	115	1130	55	30	1460	75
Future Volume (veh/h)	65	5	185	45	5	35	115	1130	55	30	1460	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	5	12	49	5	2	125	1228	38	33	1587	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	16	225	214	181	72	159	2311	1031	57	2107	940
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.65	0.65	0.03	0.59	0.59
Sat Flow, veh/h	1304	112	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	0	12	49	0	7	125	1228	38	33	1587	46
Grp Sat Flow(s),veh/h/ln	1415	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.9	0.0	0.6	2.8	0.0	0.3	5.9	15.8	0.7	1.6	28.1	1.0
Cycle Q Clear(g_c), s	4.2	0.0	0.6	7.0	0.0	0.3	5.9	15.8	0.7	1.6	28.1	1.0
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	300	0	225	214	0	253	159	2311	1031	57	2107	940
V/C Ratio(X)	0.25	0.00	0.05	0.23	0.00	0.03	0.79	0.53	0.04	0.58	0.75	0.05
Avail Cap(c_a), veh/h	497	0	443	406	0	498	437	2866	1279	250	2493	1112
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	31.7	36.4	0.0	31.6	38.1	8.0	5.4	40.9	12.8	7.3
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.5	0.0	0.0	3.2	0.4	0.0	3.5	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	1.0	0.0	0.1	2.6	5.0	0.2	0.7	9.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	31.8	37.0	0.0	31.6	41.4	8.4	5.4	44.4	14.4	7.4
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		88			56			1391			1666	
Approach Delay, s/veh		33.1			36.3			11.3			14.8	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	56.7		17.2	6.7	61.6		17.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	7.9	30.1		9.0	3.6	17.8		6.2
Green Ext Time (p_c), s	0.2	20.6		0.1	0.0	19.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	5	460	15	5	20	305	1250	15	60	1470	160
Future Volume (veh/h)	245	5	460	15	5	20	305	1250	15	60	1470	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	270	0	288	16	5	7	332	1359	16	65	1598	142
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	0	786	47	15	20	448	2302	27	118	2048	1100
Arrive On Green	0.13	0.00	0.12	0.05	0.05	0.02	0.13	0.64	0.62	0.07	0.58	0.58
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3597	42	1781	3554	1584
Grp Volume(v), veh/h	270	0	288	28	0	0	332	671	704	65	1598	142
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	9.5	0.0	9.9	2.1	0.0	0.0	12.2	28.9	28.9	4.7	45.7	4.0
Cycle Q Clear(g_c), s	9.5	0.0	9.9	2.1	0.0	0.0	12.2	28.9	28.9	4.7	45.7	4.0
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	449	0	786	82	0	0	448	1137	1192	118	2048	1100
V/C Ratio(X)	0.60	0.00	0.37	0.34	0.00	0.00	0.74	0.59	0.59	0.55	0.78	0.13
Avail Cap(c_a), veh/h	917	0	1203	409	0	0	1518	2610	2737	202	4064	1999
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	0.0	41.1	61.3	0.0	0.0	55.3	13.8	13.8	59.8	21.5	6.8
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.9	0.0	0.0	0.9	0.7	0.7	1.5	1.0	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	4.3	0.0	4.0	0.9	0.0	0.0	5.4	11.1	11.7	2.2	18.3	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	41.2	62.2	0.0	0.0	56.2	14.5	14.4	61.3	22.5	6.8
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	A
Approach Vol, veh/h		558			28			1707			1805	
Approach Delay, s/veh		47.9			62.2			22.6			22.7	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.1	80.1		10.2	12.7	88.5		20.6
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	14.2	47.7		4.1	6.7	30.9		11.9
Green Ext Time (p_c), s	0.9	26.4		0.0	0.0	14.8		1.7

Intersection Summary	
HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	65	5	1445	90	90	1915	10
Future Volume (veh/h)	5	0	5	140	5	65	5	1445	90	90	1915	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	6	5	1571	95	98	2082	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	5	30	239	99	119	11	2416	145	124	2802	15
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1139	36	235	1416	774	929	1781	3405	205	1781	3625	19
Grp Volume(v), veh/h	6	0	0	152	0	11	5	816	850	98	1020	1073
Grp Sat Flow(s),veh/h/ln	1411	0	0	1416	0	1703	1781	1777	1833	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.7	0.0	0.7	0.4	8.6	9.0	7.0	39.8	39.9
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	8.6	9.0	7.0	39.8	39.9
Prop In Lane	0.83		0.17	1.00		0.55	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	232	0	0	239	0	219	11	1261	1301	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.65	0.65	0.79	0.74	0.74
Avail Cap(c_a), veh/h	312	0	0	319	0	314	151	1261	1301	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.3	59.5	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.7	2.0	2.0	16.4	3.7	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.0	2.1	3.7	13.6	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	0.0	0.0	57.9	0.0	50.0	72.0	3.3	3.4	76.0	11.5	11.4
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			163			1671			2191	
Approach Delay, s/veh		49.7			57.4			3.6			14.3	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	41.9		15.4	9.0	11.0		2.7
Green Ext Time (p_c), s	0.0	33.4		0.3	0.0	35.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	5	15	70	5	15	15	1390	15	10	1700	270
Future Volume (veh/h)	135	5	15	70	5	15	15	1390	15	10	1700	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	5	13	76	5	9	16	1511	15	11	1848	220
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	6	16	228	16	22	19	2774	28	13	2723	1214
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.01	0.77	0.76	0.01	0.77	0.77
Sat Flow, veh/h	1348	46	119	1356	125	165	1781	3605	36	1781	3554	1584
Grp Volume(v), veh/h	165	0	0	90	0	0	16	744	782	11	1848	220
Grp Sat Flow(s),veh/h/ln	1513	0	0	1646	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	1.2	21.6	21.7	0.8	32.9	4.9
Cycle Q Clear(g_c), s	13.6	0.0	0.0	6.3	0.0	0.0	1.2	21.6	21.7	0.8	32.9	4.9
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	0	266	0	0	19	1367	1434	13	2723	1214
V/C Ratio(X)	0.66	0.00	0.00	0.34	0.00	0.00	0.84	0.54	0.55	0.82	0.68	0.18
Avail Cap(c_a), veh/h	349	0	0	365	0	0	110	1367	1434	110	2723	1214
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	0.70	0.70	0.70	0.56	0.56	0.56
Uniform Delay (d), s/veh	54.8	0.0	0.0	51.9	0.0	0.0	64.2	5.9	6.0	64.4	7.4	4.1
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	21.4	1.1	1.0	21.2	0.8	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	5.5	0.0	0.0	2.8	0.0	0.0	0.6	7.1	7.4	0.4	10.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	52.6	0.0	0.0	85.6	7.0	7.0	85.6	8.2	4.3
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		165			90			1542			2079	
Approach Delay, s/veh		57.8			52.6			7.8			8.2	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.6		21.0	5.0	104.0		21.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	34.9		8.3	2.8	23.7		15.6
Green Ext Time (p_c), s	0.0	41.6		0.2	0.0	36.6		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	20	55	95	20	20	65	1415	65	15	1710	135
Future Volume (veh/h)	195	20	55	95	20	20	65	1415	65	15	1710	135
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		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	22	8	103	22	2	71	1538	69	16	1859	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	244	89	293	315	29	90	2461	110	19	2245	170
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1373	1688	153	1781	3463	155	1781	3347	254
Grp Volume(v), veh/h	212	0	30	103	0	24	71	787	820	16	975	1027
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1373	0	1842	1781	1777	1841	1781	1777	1824
Q Serve(g_s), s	19.4	0.0	1.8	8.7	0.0	1.4	5.1	7.7	8.0	1.2	28.6	31.7
Cycle Q Clear(g_c), s	20.8	0.0	1.8	10.5	0.0	1.4	5.1	7.7	8.0	1.2	28.6	31.7
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	298	0	332	293	0	344	90	1262	1308	19	1192	1223
V/C Ratio(X)	0.71	0.00	0.09	0.35	0.00	0.07	0.79	0.62	0.63	0.84	0.82	0.84
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1262	1308	110	1192	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.64	0.64	0.64
Uniform Delay (d), s/veh	52.2	0.0	43.7	48.1	0.0	43.6	60.0	1.3	1.3	64.0	3.9	4.1
Incr Delay (d2), s/veh	5.5	0.0	0.1	0.7	0.0	0.1	2.3	0.2	0.2	19.9	4.1	4.6
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	7.2	0.0	0.8	3.1	0.0	0.7	2.3	1.3	1.3	0.6	4.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	43.9	48.8	0.0	43.7	62.3	1.5	1.5	83.9	8.0	8.7
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	A
Approach Vol, veh/h		242			127			1678			2018	
Approach Delay, s/veh		55.9			47.9			4.0			9.0	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	91.2		28.3	5.4	96.4		28.3
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	33.7		12.5	3.2	10.0		22.8
Green Ext Time (p_c), s	0.0	36.0		0.4	0.0	32.4		0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	850	95	560	205	570	1010	150
Future Volume (veh/h)	95	120	115	200	140	850	95	560	205	570	1010	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	609	135	620	1098	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	728	608	701	1629	228
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.14	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3130	438
Grp Volume(v), veh/h	233	0	16	217	152	0	103	609	135	620	622	630
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1791
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	38.3	7.5	22.9	38.8	39.0
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	38.3	7.5	22.9	38.8	39.0
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	728	608	701	925	932
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.84	0.22	0.88	0.67	0.68
Avail Cap(c_a), veh/h	339	0	303	279	633		329	728	608	957	925	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.44	0.44	0.44
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	35.9	26.5	54.7	32.9	33.1
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	8.9	0.7	2.9	1.7	1.7
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	18.9	2.9	10.5	17.9	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	44.8	27.2	57.6	34.7	34.8
LnGrp LOS	E	A	D	D	C		E	D	C	E	C	C
Approach Vol, veh/h		249			369	A		847			1872	
Approach Delay, s/veh		60.0			44.0			44.2			42.3	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.4	54.6		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	41.0	14.6	21.7	24.9	40.3		9.9
Green Ext Time (p_c), s	0.1	5.8	0.0	0.3	1.5	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.3
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	10	645	20	0	770
Future Vol, veh/h	0	10	645	20	0	770
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	701	22	0	837

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	701	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	439	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	439	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	439	-
HCM Lane V/C Ratio	-	-	0.025	-
HCM Control Delay (s)	-	-	13.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	725	0	0	825
Future Vol, veh/h	0	0	725	0	0	825
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	788	0	0	897

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1685	788	0	0	788	0
Stage 1	788	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	103	391	-	-	831	-
Stage 1	448	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	103	391	-	-	831	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	398	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	831	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	25	0	0	25	0	0	0	0	0	0	45
Future Vol, veh/h	50	25	0	0	25	0	0	0	0	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	27	0	0	27	0	0	0	0	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	27	0	0	187	162	27	162	162	27
Stage 1	-	-	-	-	-	-	135	135	-	27	27	-
Stage 2	-	-	-	-	-	-	52	27	-	135	135	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1587	-	-	1587	-	-	774	730	1048	803	730	1048
Stage 1	-	-	-	-	-	-	868	785	-	990	873	-
Stage 2	-	-	-	-	-	-	961	873	-	868	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1587	-	-	719	705	1048	782	705	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	719	705	-	782	705	-
Stage 1	-	-	-	-	-	-	838	758	-	956	873	-
Stage 2	-	-	-	-	-	-	916	873	-	838	758	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.9	0	0	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1587	-	-	1587	-	-	1048
HCM Lane V/C Ratio	-	0.034	-	-	-	-	-	0.047
HCM Control Delay (s)	0	7.3	-	-	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	0	0	25	0	0	0	0	0	0	0
Future Vol, veh/h	0	25	0	0	25	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	0	0	27	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	27	0	0	54	54	27	54	54	27
Stage 1	-	-	-	-	-	-	27	27	-	27	27	-
Stage 2	-	-	-	-	-	-	27	27	-	27	27	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1587	-	-	1587	-	-	944	837	1048	944	837	1048
Stage 1	-	-	-	-	-	-	990	873	-	990	873	-
Stage 2	-	-	-	-	-	-	990	873	-	990	873	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1587	-	-	944	837	1048	944	837	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	944	837	-	944	837	-
Stage 1	-	-	-	-	-	-	990	873	-	990	873	-
Stage 2	-	-	-	-	-	-	990	873	-	990	873	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1587	-	-	1587	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2025 Scenario 2 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	315	85	45	20	245	265	110	10	140	35
Future Volume (veh/h)	50	45	315	85	45	20	245	265	110	10	140	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	43	92	49	9	266	288	57	11	152	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	155	245	313	240	44	353	819	694	15	464	394
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.20	0.44	0.44	0.01	0.25	0.25
Sat Flow, veh/h	629	988	1570	1295	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	43	92	0	58	266	288	57	11	152	9
Grp Sat Flow(s),veh/h/ln	1618	0	1570	1295	0	1816	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.7	0.0	1.0	2.8	0.0	1.1	5.7	4.1	0.8	0.2	2.7	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.0	4.9	0.0	1.1	5.7	4.1	0.8	0.2	2.7	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	389	0	245	313	0	284	353	819	694	15	464	394
V/C Ratio(X)	0.26	0.00	0.18	0.29	0.00	0.20	0.75	0.35	0.08	0.72	0.33	0.02
Avail Cap(c_a), veh/h	1068	0	935	883	0	1082	1327	3669	3109	663	2972	2519
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	14.7	17.4	0.0	14.8	15.2	7.5	6.6	19.9	12.4	11.4
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.5	0.0	0.4	3.3	0.6	0.1	46.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.3	0.8	0.0	0.4	2.2	1.2	0.2	0.3	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	15.1	17.9	0.0	15.2	18.5	8.1	6.7	66.6	13.3	11.5
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		146			150			611			172	
Approach Delay, s/veh		15.4			16.9			12.5			16.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	23.6		11.3	13.0	16.0		11.3
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.2	6.1		4.1	7.7	4.7		6.9
Green Ext Time (p_c), s	0.0	4.3		0.6	0.7	1.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	185	95	20	15	155	590	15	10	540	70
Future Volume (veh/h)	60	5	185	95	20	15	155	590	15	10	540	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	21	103	22	2	168	641	0	11	587	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	377	24	311	343	339	31	405	907		323	747	629
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.48	0.00	0.01	0.40	0.40
Sat Flow, veh/h	1215	121	1546	1356	1685	153	1781	1870	1585	1781	1870	1573
Grp Volume(v), veh/h	70	0	21	103	0	24	168	641	0	11	587	34
Grp Sat Flow(s),veh/h/ln	1336	0	1546	1356	0	1838	1781	1870	1585	1781	1870	1573
Q Serve(g_s), s	2.0	0.0	0.6	3.7	0.0	0.6	2.6	14.1	0.0	0.2	14.4	0.7
Cycle Q Clear(g_c), s	2.6	0.0	0.6	6.3	0.0	0.6	2.6	14.1	0.0	0.2	14.4	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	0	311	343	0	370	405	907		323	747	629
V/C Ratio(X)	0.17	0.00	0.07	0.30	0.00	0.06	0.42	0.71		0.03	0.79	0.05
Avail Cap(c_a), veh/h	783	0	738	717	0	877	748	1821		818	1821	1532
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	16.9	20.4	0.0	16.9	9.7	10.6	0.0	10.1	13.8	9.7
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.0	0.1	0.7	1.0	0.0	0.0	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	1.1	0.0	0.2	0.8	4.5	0.0	0.1	5.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	17.0	20.9	0.0	17.0	10.3	11.6	0.0	10.2	15.6	9.7
LnGrp LOS	B	A	B	C	A	B	B	B		B	B	A
Approach Vol, veh/h		91			127			809	A		632	
Approach Delay, s/veh		17.8			20.2			11.3			15.2	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	31.4		15.5	9.9	26.9		15.5
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	16.1		4.6	4.6	16.4		8.3
Green Ext Time (p_c), s	0.0	4.8		0.4	0.3	4.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	125	85	40	55	60	645	35	20	745	30
Future Volume (veh/h)	40	10	125	85	40	55	60	645	35	20	745	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	11	4	92	43	5	65	701	22	22	810	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	166	60	121	306	258	85	993	842	26	932	789
Arrive On Green	0.03	0.13	0.13	0.07	0.16	0.16	0.05	0.53	0.53	0.01	0.50	0.50
Sat Flow, veh/h	1781	1303	474	1781	1870	1573	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	43	0	15	92	43	5	65	701	22	22	810	17
Grp Sat Flow(s),veh/h/ln	1781	0	1776	1781	1870	1573	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.8	0.0	0.6	3.9	1.5	0.2	2.8	21.7	0.5	1.0	29.6	0.4
Cycle Q Clear(g_c), s	1.8	0.0	0.6	3.9	1.5	0.2	2.8	21.7	0.5	1.0	29.6	0.4
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	0	226	121	306	258	85	993	842	26	932	789
V/C Ratio(X)	0.77	0.00	0.07	0.76	0.14	0.02	0.76	0.71	0.03	0.84	0.87	0.02
Avail Cap(c_a), veh/h	462	0	484	462	509	428	577	1576	1336	577	1576	1336
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	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	37.1	0.0	29.6	35.3	27.6	27.1	36.3	13.6	8.6	37.9	17.1	9.8
Incr Delay (d2), s/veh	20.0	0.0	0.1	9.5	0.2	0.0	13.2	0.9	0.0	48.1	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	2.0	0.7	0.1	1.5	8.0	0.2	0.7	11.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	0.0	29.8	44.8	27.8	27.1	49.5	14.5	8.6	86.1	20.1	9.8
LnGrp LOS	E	A	C	D	C	C	D	B	A	F	C	A
Approach Vol, veh/h		58			140			788			849	
Approach Delay, s/veh		50.0			39.0			17.2			21.6	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	46.0	10.2	14.8	8.7	43.4	7.4	17.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	3.8	23.7	5.9	2.6	4.8	31.6	3.8	3.5
Green Ext Time (p_c), s	0.0	5.6	0.2	0.0	0.1	6.8	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	495	20	5	0	330	735	45	10	915	15
Future Volume (veh/h)	35	10	495	20	5	0	330	735	45	10	915	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	11	0	22	5	0	359	799	48	11	995	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	29		182	29	0	421	2346	141	15	1638	731
Arrive On Green	0.09	0.07	0.00	0.09	0.07	0.00	0.24	0.69	0.69	0.01	0.46	0.46
Sat Flow, veh/h	1116	424	1585	1161	418	0	1781	3406	205	1781	3554	1585
Grp Volume(v), veh/h	49	0	0	27	0	0	359	417	430	11	995	6
Grp Sat Flow(s),veh/h/ln	1539	0	1585	1578	0	0	1781	1777	1834	1781	1777	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	12.4	6.1	6.1	0.4	13.5	0.1
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.9	0.0	0.0	12.4	6.1	6.1	0.4	13.5	0.1
Prop In Lane	0.78		1.00	0.81		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	230	0		236	0	0	421	1224	1263	15	1638	731
V/C Ratio(X)	0.21	0.00		0.11	0.00	0.00	0.85	0.34	0.34	0.74	0.61	0.01
Avail Cap(c_a), veh/h	589	0		703	0	0	1828	2044	2110	1828	4089	1824
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	0.0	27.9	0.0	0.0	23.5	4.1	4.1	31.8	13.0	9.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.0	0.0	1.9	0.4	0.3	23.3	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	5.0	1.5	1.5	0.3	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	0.0	28.1	0.0	0.0	25.4	4.4	4.4	55.2	13.8	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	E	B	A
Approach Vol, veh/h		49	A		27			1206			1012	
Approach Delay, s/veh		28.7			28.1			10.7			14.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	59.2	35.7		9.5	4.5	50.3		9.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	14.4	15.5		2.9	2.4	8.1		3.8
Green Ext Time (p_c), s	0.8	14.2		0.0	0.0	10.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1165	20	15	1400	70
Future Volume (veh/h)	30	0	70	10	5	10	135	1165	20	15	1400	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1266	21	16	1522	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	0	70	110	19	3	185	2703	45	20	2358	1052
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.76	0.76	0.01	0.66	0.66
Sat Flow, veh/h	1561	0	1585	685	442	70	1781	3577	59	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	629	658	16	1522	48
Grp Sat Flow(s),veh/h/ln	1561	0	1585	1198	0	0	1781	1777	1860	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	6.0	9.9	9.9	0.7	18.7	0.8
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.7	0.0	0.0	6.0	9.9	9.9	0.7	18.7	0.8
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	187	0	70	149	0	0	185	1343	1405	20	2358	1052
V/C Ratio(X)	0.18	0.00	0.01	0.11	0.00	0.00	0.80	0.47	0.47	0.79	0.65	0.05
Avail Cap(c_a), veh/h	563	0	492	558	0	0	505	2064	2160	265	3648	1627
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	33.9	34.4	0.0	0.0	32.4	3.4	3.4	36.5	7.3	4.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.0	0.5	0.5	21.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	2.6	2.1	2.1	0.4	5.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	33.9	34.5	0.0	0.0	35.4	4.0	3.9	58.3	8.0	4.4
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		34			17			1434			1586	
Approach Delay, s/veh		34.1			34.5			7.2			8.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	54.1		8.2	4.8	60.9		8.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	3.3	20.7		3.7	2.7	11.9		3.3
Green Ext Time (p_c), s	0.1	28.4		0.0	0.0	20.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	35	45	15	50	115	1320	60	30	1345	45
Future Volume (veh/h)	55	5	35	45	15	50	115	1320	60	30	1345	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	1	49	16	1	125	1435	49	33	1462	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	12	158	117	175	11	147	2767	1234	44	2560	1142
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1203	120	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	65	0	1	49	0	17	125	1435	49	33	1462	35
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.5	0.0	0.1	5.3	0.0	1.3	10.7	23.3	1.1	2.9	30.3	1.0
Cycle Q Clear(g_c), s	7.8	0.0	0.1	13.1	0.0	1.3	10.7	23.3	1.1	2.9	30.3	1.0
Prop In Lane	0.92		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	158	117	0	185	147	2767	1234	44	2560	1142
V/C Ratio(X)	0.37	0.00	0.01	0.42	0.00	0.09	0.85	0.52	0.04	0.76	0.57	0.03
Avail Cap(c_a), veh/h	255	0	245	194	0	287	241	2767	1234	241	2560	1142
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	1.00	1.00	0.00	1.00	0.70	0.70	0.70	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	62.8	72.5	0.0	63.3	70.1	6.4	3.9	75.1	10.3	6.2
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	5.1	0.5	0.0	9.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.0	0.0	0.6	5.1	7.9	0.3	1.4	11.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	0.0	62.8	74.9	0.0	63.5	75.2	6.9	4.0	84.7	11.2	6.2
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		66			66			1609			1530	
Approach Delay, s/veh		67.9			71.9			12.1			12.7	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.7		20.5	7.8	126.7		20.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	32.3		15.1	4.9	25.3		9.8
Green Ext Time (p_c), s	0.1	27.9		0.1	0.0	28.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	10	225	10	10	10	440	1405	15	80	1295	105
Future Volume (veh/h)	135	10	225	10	10	10	440	1405	15	80	1295	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	0	62	11	11	3	478	1527	16	87	1408	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	320	0	815	60	60	16	616	2210	23	147	1839	946
Arrive On Green	0.09	0.00	0.08	0.08	0.08	0.05	0.18	0.61	0.60	0.08	0.52	0.52
Sat Flow, veh/h	3563	0	3073	786	786	214	3456	3603	38	1781	3554	1580
Grp Volume(v), veh/h	155	0	62	25	0	0	478	753	790	87	1408	85
Grp Sat Flow(s),veh/h/ln	1781	0	1536	1786	0	0	1728	1777	1864	1781	1777	1580
Q Serve(g_s), s	4.8	0.0	1.8	1.5	0.0	0.0	15.2	32.8	32.9	5.4	36.6	2.6
Cycle Q Clear(g_c), s	4.8	0.0	1.8	1.5	0.0	0.0	15.2	32.8	32.9	5.4	36.6	2.6
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	815	135	0	0	616	1090	1143	147	1839	946
V/C Ratio(X)	0.48	0.00	0.08	0.18	0.00	0.00	0.78	0.69	0.69	0.59	0.77	0.09
Avail Cap(c_a), veh/h	1049	0	1443	479	0	0	1735	2985	3130	231	4646	2194
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	32.3	50.2	0.0	0.0	45.3	15.0	15.0	51.1	22.3	9.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.8	1.1	1.1	1.4	1.0	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	2.2	0.0	0.7	0.7	0.0	0.0	6.5	12.5	13.1	2.5	14.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	0.0	32.3	50.8	0.0	0.0	46.1	16.1	16.1	52.6	23.2	9.9
LnGrp LOS	D	A	C	D	A	A	D	B	B	D	C	A
Approach Vol, veh/h		217			25			2021			1580	
Approach Delay, s/veh		45.3			50.8			23.2			24.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.6	63.8		12.8	13.5	74.8		14.4
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	17.2	38.6		3.5	7.4	34.9		6.8
Green Ext Time (p_c), s	1.3	19.2		0.0	0.1	19.3		0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1865	95	30	1505	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1865	95	30	1505	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2027	101	33	1636	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2720	134	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3446	170	1781	3634	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1037	1091	33	800	841
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1839	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	41.3	43.1	2.5	20.8	20.8
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	41.3	43.1	2.5	20.8	20.8
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1452	64	1455	1529
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.74	0.75	0.52	0.55	0.55
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1452	102	1455	1529
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	0.57	0.57	0.57	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	7.5	7.7	66.3	4.2	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.7	2.0	2.1	2.4	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.3	0.0	0.0	0.2	13.5	14.6	1.2	6.3	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	75.0	9.5	9.8	68.7	5.7	5.6
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	A	A
Approach Vol, veh/h		11			66			2133			1674	
Approach Delay, s/veh		58.6			62.0			9.8			6.9	
Approach LOS		E			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	22.8		8.1	4.5	45.1		2.8
Green Ext Time (p_c), s	0.0	34.0		0.1	0.0	40.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	5	5	105	15	15	5	1845	20	10	1340	195
Future Volume (veh/h)	90	5	5	105	15	15	5	1845	20	10	1340	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	5	3	114	16	12	5	2005	22	11	1457	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	8	5	199	20	15	7	2818	31	14	2795	1247
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1393	71	43	1317	185	139	1781	3601	39	1781	3554	1585
Grp Volume(v), veh/h	106	0	0	142	0	0	5	988	1039	11	1457	154
Grp Sat Flow(s),veh/h/ln	1506	0	0	1641	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	32.6	32.9	0.7	17.8	2.8
Cycle Q Clear(g_c), s	7.9	0.0	0.0	9.7	0.0	0.0	0.3	32.6	32.9	0.7	17.8	2.8
Prop In Lane	0.92		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	223	0	0	234	0	0	7	1391	1458	14	2795	1247
V/C Ratio(X)	0.48	0.00	0.00	0.61	0.00	0.00	0.73	0.71	0.71	0.80	0.52	0.12
Avail Cap(c_a), veh/h	432	0	0	451	0	0	119	1391	1458	119	2795	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.62	0.62	0.62	0.82	0.82	0.82
Uniform Delay (d), s/veh	51.1	0.0	0.0	51.8	0.0	0.0	59.7	6.4	6.4	59.4	4.6	3.0
Incr Delay (d2), s/veh	1.6	0.0	0.0	2.5	0.0	0.0	28.8	1.9	1.9	27.2	0.6	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	3.2	0.0	0.0	4.3	0.0	0.0	0.2	9.9	10.5	0.4	5.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	0.0	54.3	0.0	0.0	88.5	8.3	8.3	86.7	5.2	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		106			142			2032			1622	
Approach Delay, s/veh		52.7			54.3			8.5			5.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.2	4.9	97.9		17.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	19.8		11.7	2.7	34.9		9.9
Green Ext Time (p_c), s	0.0	33.5		0.5	0.0	30.4		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	30	20	150	25	35	25	1670	75	10	1380	75
Future Volume (veh/h)	145	30	20	150	25	35	25	1670	75	10	1380	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	33	2	163	27	3	27	1815	81	11	1500	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2559	113	13	2494	133
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3466	154	1781	3432	182
Grp Volume(v), veh/h	158	0	35	163	0	30	27	924	972	11	774	806
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1843	1781	1777	1838
Q Serve(g_s), s	15.6	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	29.5	29.9
Cycle Q Clear(g_c), s	17.5	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	29.5	29.9
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1361	13	1291	1335
V/C Ratio(X)	0.60	0.00	0.11	0.63	0.00	0.10	0.79	0.70	0.71	0.83	0.60	0.60
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1361	140	1291	1335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.82	0.82	0.82
Uniform Delay (d), s/veh	56.6	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.3	9.3
Incr Delay (d2), s/veh	2.2	0.0	0.2	2.6	0.0	0.1	1.4	0.3	0.3	30.7	1.7	1.7
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	5.6	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	10.9	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	0.0	49.5	59.7	0.0	49.4	68.5	0.3	0.3	100.1	11.0	11.0
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		193			193			1923			1591	
Approach Delay, s/veh		57.2			58.1			1.3			11.6	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	31.9		20.5	2.9	2.0		19.5
Green Ext Time (p_c), s	0.0	26.3		0.6	0.0	47.4		0.6

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1155	55	650	175	585	1055	75
Future Volume (veh/h)	55	120	60	110	100	1155	55	650	175	585	1055	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	707	117	636	1147	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	874	738	687	2100	145
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.47	0.47	0.40	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3373	232
Grp Volume(v), veh/h	190	0	6	120	109	0	60	707	117	636	604	622
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1828
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	45.3	6.0	24.6	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	45.3	6.0	24.6	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	874	738	687	1106	1138
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.81	0.16	0.93	0.55	0.55
Avail Cap(c_a), veh/h	304	0	256	232	508		178	874	738	839	1106	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.74	0.74	0.74
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	31.9	21.5	41.2	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	6.4	0.4	10.3	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.2	3.6	3.1	0.0	2.2	21.6	2.3	9.6	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	38.3	21.8	51.5	1.4	1.4
LnGrp LOS	E	A	D	D	D		E	D	C	D	A	A
Approach Vol, veh/h		196			229	A		884			1862	
Approach Delay, s/veh		63.7			45.0			38.4			18.5	
Approach LOS		E			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	31.8	69.4		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	34.0	55.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	26.6	47.3		8.5
Green Ext Time (p_c), s	0.0	19.1	0.0	0.3	1.2	4.2		0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	15	735	5	0	825
Future Vol, veh/h	0	15	735	5	0	825
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	799	5	0	897

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	799	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	386	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	386	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	386	-
HCM Lane V/C Ratio	-	-	0.042	-
HCM Control Delay (s)	-	-	14.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	770	0	0	955
Future Vol, veh/h	0	0	770	0	0	955
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	837	0	0	1038

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1875	837	0	0	837	0
Stage 1	837	-	-	-	-	-
Stage 2	1038	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	79	367	-	-	797	-
Stage 1	425	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	79	367	-	-	797	-
Mov Cap-2 Maneuver	208	-	-	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	341	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	797	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	40	5	0	95	0	25	0	0	0	0	60
Future Vol, veh/h	15	40	5	0	95	0	25	0	0	0	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	43	5	0	103	0	27	0	0	0	0	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	48	0	0	214	181	24	157	183	103
Stage 1	-	-	-	-	-	-	78	78	-	103	103	-
Stage 2	-	-	-	-	-	-	136	103	-	54	80	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1488	-	-	1558	-	-	733	712	1047	802	711	951
Stage 1	-	-	-	-	-	-	922	830	-	902	809	-
Stage 2	-	-	-	-	-	-	867	809	-	952	828	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1488	-	-	1558	-	-	677	704	1047	796	703	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	677	704	-	796	703	-
Stage 1	-	-	-	-	-	-	912	821	-	892	809	-
Stage 2	-	-	-	-	-	-	808	809	-	942	819	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	10.5	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	677	1488	-	-	1558	-	-	951
HCM Lane V/C Ratio	0.04	0.011	-	-	-	-	-	0.069
HCM Control Delay (s)	10.5	7.4	-	-	0	-	-	9.1
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	20	25	0	10	0	85	0	0	0	0	0
Future Vol, veh/h	0	20	25	0	10	0	85	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	22	27	0	11	0	92	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	11	0	0	49	0	0	47	47	25	22	60	11
Stage 1	-	-	-	-	-	-	36	36	-	11	11	-
Stage 2	-	-	-	-	-	-	11	11	-	11	49	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1607	-	-	1557	-	-	951	844	1046	989	831	1070
Stage 1	-	-	-	-	-	-	975	865	-	1009	886	-
Stage 2	-	-	-	-	-	-	1009	886	-	1008	854	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1557	-	-	951	844	1046	989	831	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	951	844	-	989	831	-
Stage 1	-	-	-	-	-	-	975	865	-	1009	886	-
Stage 2	-	-	-	-	-	-	1009	886	-	1008	854	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.2	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	951	1607	-	-	1557	-	-	-
HCM Lane V/C Ratio	0.097	-	-	-	-	-	-	-
HCM Control Delay (s)	9.2	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2025 Scenario 2 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	405	60	25	5	415	235	65	5	305	75
Future Volume (veh/h)	55	25	405	60	25	5	415	235	65	5	305	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	28	65	27	1	451	255	45	5	332	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	66	174	213	197	7	534	1082	917	7	528	447
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.30	0.58	0.58	0.00	0.28	0.28
Sat Flow, veh/h	909	597	1585	1349	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	28	65	0	28	451	255	45	5	332	21
Grp Sat Flow(s),veh/h/ln	1506	0	1585	1349	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.8	2.5	0.0	0.7	12.3	3.5	0.6	0.1	8.0	0.5
Cycle Q Clear(g_c), s	2.8	0.0	0.8	5.3	0.0	0.7	12.3	3.5	0.6	0.1	8.0	0.5
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	174	213	0	204	534	1082	917	7	528	447
V/C Ratio(X)	0.31	0.00	0.16	0.31	0.00	0.14	0.84	0.24	0.05	0.70	0.63	0.05
Avail Cap(c_a), veh/h	812	0	732	688	0	859	1029	2844	2410	514	2304	1953
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	21.0	24.4	0.0	20.9	17.0	5.3	4.8	25.8	16.3	13.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.8	0.0	0.3	3.7	0.2	0.0	79.3	2.6	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	1.0	0.0	0.3	0.8	0.0	0.3	4.8	1.0	0.2	0.2	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	0.0	21.4	25.2	0.0	21.2	20.8	5.6	4.8	105.2	18.9	13.7
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	B	B
Approach Vol, veh/h		115			93			751			358	
Approach Delay, s/veh		22.2			24.0			14.7			19.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	36.0		10.7	20.6	20.7		10.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.1	5.5		4.8	14.3	10.0		7.3
Green Ext Time (p_c), s	0.0	3.7		0.5	1.3	4.6		0.2

Intersection Summary		
HCM 6th Ctrl Delay		17.4
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	165	50	15	10	210	645	45	25	640	80
Future Volume (veh/h)	75	20	165	50	15	10	210	645	45	25	640	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	14	54	16	1	228	701	0	27	696	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	57	211	232	232	14	421	1021		373	864	729
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.10	0.55	0.00	0.02	0.46	0.46
Sat Flow, veh/h	1075	430	1585	1372	1742	109	1781	1870	1585	1781	1870	1578
Grp Volume(v), veh/h	104	0	14	54	0	17	228	701	0	27	696	47
Grp Sat Flow(s),veh/h/ln	1505	0	1585	1372	0	1851	1781	1870	1585	1781	1870	1578
Q Serve(g_s), s	2.8	0.0	0.4	2.0	0.0	0.4	3.2	14.4	0.0	0.4	16.9	0.9
Cycle Q Clear(g_c), s	3.3	0.0	0.4	5.3	0.0	0.4	3.2	14.4	0.0	0.4	16.9	0.9
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	0	211	232	0	246	421	1021		373	864	729
V/C Ratio(X)	0.32	0.00	0.07	0.23	0.00	0.07	0.54	0.69		0.07	0.81	0.06
Avail Cap(c_a), veh/h	823	0	749	699	0	875	744	1804		845	1804	1522
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	20.1	23.8	0.0	20.1	9.7	8.7	0.0	8.2	12.2	7.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.5	0.0	0.1	1.1	0.8	0.0	0.1	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.7	0.0	0.2	0.9	4.2	0.0	0.1	5.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	20.2	24.3	0.0	20.2	10.8	9.6	0.0	8.3	14.0	7.9
LnGrp LOS	C	A	C	C	A	C	B	A		A	B	A
Approach Vol, veh/h		118			71			929	A		770	
Approach Delay, s/veh		21.6			23.3			9.8			13.4	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	34.9		12.0	10.4	30.4		12.0
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	16.4		5.3	5.2	18.9		7.3
Green Ext Time (p_c), s	0.0	5.4		0.5	0.4	5.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	35	100	60	30	40	170	875	90	60	795	75
Future Volume (veh/h)	55	35	100	60	30	40	170	875	90	60	795	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	38	32	65	33	1	185	951	61	65	864	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	107	90	85	224	187	222	1096	929	85	953	806
Arrive On Green	0.04	0.12	0.12	0.05	0.12	0.12	0.12	0.59	0.59	0.05	0.51	0.51
Sat Flow, veh/h	1781	924	778	1781	1870	1557	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	70	65	33	1	185	951	61	65	864	41
Grp Sat Flow(s),veh/h/ln	1781	0	1702	1781	1870	1557	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	3.3	0.0	3.8	3.6	1.6	0.1	10.0	42.4	1.6	3.6	41.7	1.3
Cycle Q Clear(g_c), s	3.3	0.0	3.8	3.6	1.6	0.1	10.0	42.4	1.6	3.6	41.7	1.3
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	198	85	224	187	222	1096	929	85	953	806
V/C Ratio(X)	0.77	0.00	0.35	0.77	0.15	0.01	0.83	0.87	0.07	0.76	0.91	0.05
Avail Cap(c_a), veh/h	360	0	361	360	397	330	450	1228	1041	450	1228	1038
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	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	46.8	0.0	40.3	46.6	39.0	38.4	42.3	17.2	8.8	46.6	22.2	12.2
Incr Delay (d2), s/veh	14.3	0.0	1.1	13.3	0.3	0.0	7.9	6.3	0.0	13.1	8.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.6	1.9	0.7	0.0	4.8	17.9	0.5	1.9	18.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	0.0	41.4	59.9	39.3	38.4	50.2	23.5	8.8	59.7	30.4	12.3
LnGrp LOS	E	A	D	E	D	D	D	C	A	E	C	B
Approach Vol, veh/h		130			99			1197			970	
Approach Delay, s/veh		50.5			52.8			26.9			31.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	63.0	9.7	16.5	17.4	55.4	9.4	16.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	5.6	44.4	5.6	5.8	12.0	43.7	5.3	3.6
Green Ext Time (p_c), s	0.1	7.7	0.1	0.2	0.4	6.7	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	5	610	85	10	10	625	1020	10	5	890	20
Future Volume (veh/h)	85	5	610	85	10	10	625	1020	10	5	890	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	5	0	92	11	9	679	1109	11	5	967	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	192	7		179	14	12	718	2776	28	7	1319	588
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.77	0.77	0.00	0.37	0.37
Sat Flow, veh/h	1460	79	1585	1363	163	133	1781	3605	36	1781	3554	1585
Grp Volume(v), veh/h	97	0	0	112	0	0	679	547	573	5	967	6
Grp Sat Flow(s),veh/h/ln	1539	0	1585	1659	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	39.6	11.0	11.0	0.3	25.3	0.3
Cycle Q Clear(g_c), s	6.2	0.0	0.0	6.6	0.0	0.0	39.6	11.0	11.0	0.3	25.3	0.3
Prop In Lane	0.95		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	213	0		220	0	0	718	1368	1435	7	1319	588
V/C Ratio(X)	0.46	0.00		0.51	0.00	0.00	0.95	0.40	0.40	0.73	0.73	0.01
Avail Cap(c_a), veh/h	353	0		432	0	0	1175	1368	1435	1175	2279	1017
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	0.0	0.0	47.4	0.0	0.0	31.0	4.1	4.1	53.5	29.2	21.4
Incr Delay (d2), s/veh	1.5	0.0	0.0	1.8	0.0	0.0	7.5	0.4	0.4	41.4	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	3.0	0.0	0.0	17.7	3.1	3.3	0.2	10.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	0.0	0.0	49.3	0.0	0.0	38.5	4.5	4.5	94.9	30.9	21.4
LnGrp LOS	D	A		D	A	A	D	A	A	F	C	C
Approach Vol, veh/h		97	A		112			1799			978	
Approach Delay, s/veh		48.8			49.3			17.3			31.2	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.3	45.9		14.3	4.4	88.9		14.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0				
Max Q Clear Time (g_c+I1), s	41.6	27.3		8.6	2.3	13.0		8.2				
Green Ext Time (p_c), s	1.8	12.6		0.3	0.0	15.4		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	135	15	0	5	130	1605	10	10	1585	60
Future Volume (veh/h)	50	5	135	15	0	5	130	1605	10	10	1585	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	5	6	16	0	1	141	1745	11	11	1723	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	17	171	181	2	7	173	2661	17	14	2296	1023
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.74	0.74	0.01	0.65	0.65
Sat Flow, veh/h	1361	155	1522	966	18	62	1781	3620	23	1781	3554	1584
Grp Volume(v), veh/h	59	0	6	17	0	0	141	856	900	11	1723	40
Grp Sat Flow(s),veh/h/ln	1516	0	1522	1046	0	0	1781	1777	1866	1781	1777	1584
Q Serve(g_s), s	0.0	0.0	0.3	0.9	0.0	0.0	7.5	23.9	23.9	0.6	32.3	0.9
Cycle Q Clear(g_c), s	3.0	0.0	0.3	3.9	0.0	0.0	7.5	23.9	23.9	0.6	32.3	0.9
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	258	0	171	201	0	0	173	1306	1372	14	2296	1023
V/C Ratio(X)	0.23	0.00	0.03	0.08	0.00	0.00	0.82	0.66	0.66	0.78	0.75	0.04
Avail Cap(c_a), veh/h	433	0	361	371	0	0	386	1576	1655	202	2786	1242
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	38.3	40.4	0.0	0.0	42.9	6.6	6.6	48.0	11.8	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.6	1.3	1.3	28.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.1	0.4	0.0	0.0	3.4	7.1	7.5	0.4	11.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	38.3	40.4	0.0	0.0	46.5	7.9	7.8	76.0	13.2	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		65			17			1897			1774	
Approach Delay, s/veh		39.1			40.4			10.7			13.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	67.6		15.9	4.8	76.3		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	9.5	34.3		5.9	2.6	25.9		5.0
Green Ext Time (p_c), s	0.1	28.3		0.0	0.0	35.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	180	70	5	45	130	1580	60	35	1755	100
Future Volume (veh/h)	80	5	180	70	5	45	130	1580	60	35	1755	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	5	37	76	5	1	141	1717	49	38	1908	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	11	210	140	202	40	163	2657	1184	49	2430	1084
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.75	0.75	0.03	0.68	0.68
Sat Flow, veh/h	1308	79	1564	1351	1509	302	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	92	0	37	76	0	6	141	1717	49	38	1908	86
Grp Sat Flow(s),veh/h/ln	1387	0	1564	1351	0	1811	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	9.9	0.0	3.5	9.1	0.0	0.5	12.9	38.9	1.3	3.5	60.5	3.0
Cycle Q Clear(g_c), s	10.3	0.0	3.5	19.5	0.0	0.5	12.9	38.9	1.3	3.5	60.5	3.0
Prop In Lane	0.95		1.00	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	0	210	140	0	243	163	2657	1184	49	2430	1084
V/C Ratio(X)	0.39	0.00	0.18	0.54	0.00	0.02	0.87	0.65	0.04	0.77	0.79	0.08
Avail Cap(c_a), veh/h	253	0	227	156	0	263	281	2657	1184	108	2430	1084
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	1.00	1.00	0.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.1	0.0	63.4	75.4	0.0	62.1	74.0	10.2	5.4	79.7	17.8	8.7
Incr Delay (d2), s/veh	1.0	0.0	0.4	3.2	0.0	0.0	3.6	0.8	0.0	9.3	2.6	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	8.6	0.0	1.4	3.3	0.0	0.2	6.1	14.4	0.4	1.7	24.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	0.0	63.8	78.6	0.0	62.1	77.6	11.0	5.5	89.0	20.4	8.9
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	C	A
Approach Vol, veh/h		129			82			1907			2032	
Approach Delay, s/veh		66.2			77.4			15.7			21.2	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	118.8		27.1	8.5	129.3		27.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	62.5		21.5	5.5	40.9		12.3
Green Ext Time (p_c), s	0.2	29.5		0.0	0.0	40.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	5	625	15	0	5	395	1615	10	80	1805	140
Future Volume (veh/h)	310	5	625	15	0	5	395	1615	10	80	1805	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	341	0	476	16	0	1	429	1755	11	87	1962	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	0	895	67	0	4	496	2471	15	114	2143	1179
Arrive On Green	0.15	0.00	0.14	0.04	0.00	0.03	0.14	0.68	0.67	0.06	0.60	0.60
Sat Flow, veh/h	3563	0	3125	1659	0	104	3456	3620	23	1781	3554	1585
Grp Volume(v), veh/h	341	0	476	17	0	0	429	861	905	87	1962	131
Grp Sat Flow(s),veh/h/ln	1781	0	1563	1763	0	0	1728	1777	1866	1781	1777	1585
Q Serve(g_s), s	21.2	0.0	30.2	2.2	0.0	0.0	28.5	69.9	70.1	11.3	114.7	5.4
Cycle Q Clear(g_c), s	21.2	0.0	30.2	2.2	0.0	0.0	28.5	69.9	70.1	11.3	114.7	5.4
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	517	0	895	71	0	0	496	1213	1274	114	2143	1179
V/C Ratio(X)	0.66	0.00	0.53	0.24	0.00	0.00	0.87	0.71	0.71	0.76	0.92	0.11
Avail Cap(c_a), veh/h	517	0	895	233	0	0	855	1470	1544	114	2289	1244
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	94.8	0.0	70.9	109.1	0.0	0.0	98.2	22.9	22.9	108.0	41.2	8.4
Incr Delay (d2), s/veh	2.5	0.0	0.3	0.6	0.0	0.0	1.9	1.5	1.5	23.6	6.3	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	10.2	0.0	12.4	1.0	0.0	0.0	13.0	29.9	31.4	6.0	51.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.3	0.0	71.2	109.8	0.0	0.0	100.1	24.4	24.4	131.5	47.5	8.4
LnGrp LOS	F	A	E	F	A	A	F	C	C	F	D	A
Approach Vol, veh/h		817			17			2195			2180	
Approach Delay, s/veh		82.1			109.8			39.2			48.5	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	37.6	145.4		13.4	19.0	164.0		38.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	30.5	116.7		4.2	13.3	72.1		32.2
Green Ext Time (p_c), s	1.2	22.7		0.0	0.0	27.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	60	10	1965	95	90	2385	5
Future Volume (veh/h)	10	0	5	90	5	60	10	1965	95	90	2385	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2136	101	98	2592	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	2	10	182	96	58	22	2604	122	124	2950	6
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	0.99	0.07	0.81	0.80
Sat Flow, veh/h	1240	26	115	1416	1095	657	1781	3456	162	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1090	1147	98	1265	1332
Grp Sat Flow(s),veh/h/ln	1381	0	0	1416	0	1752	1781	1777	1841	1781	1777	1869
Q Serve(g_s), s	0.8	0.0	0.0	7.4	0.0	0.6	0.8	0.0	0.3	7.3	63.2	63.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	8.8	0.0	0.6	0.8	0.0	0.3	7.3	63.2	63.4
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	182	0	154	22	1339	1387	124	1440	1515
V/C Ratio(X)	0.07	0.00	0.00	0.54	0.00	0.05	0.49	0.81	0.83	0.79	0.88	0.88
Avail Cap(c_a), veh/h	300	0	0	309	0	311	145	1339	1387	251	1440	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	0.0	60.0	0.0	56.6	66.0	0.0	0.0	61.8	8.4	8.4
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.5	0.0	0.1	3.0	2.7	2.9	4.2	7.9	7.6
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	3.4	0.0	0.3	0.4	1.0	1.1	3.4	20.7	21.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	0.0	62.5	0.0	56.7	68.9	2.7	2.9	66.0	16.3	16.0
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	B	B
Approach Vol, veh/h		12			106			2248			2695	
Approach Delay, s/veh		57.1			62.0			3.1			18.0	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	113.4		15.9	13.4	105.7		15.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	1.0	87.0		23.0	19.0	79.0		23.0
Max Q Clear Time (g_c+I1), s	2.8	65.4		10.8	9.3	2.3		3.4
Green Ext Time (p_c), s	0.0	21.1		0.2	0.1	61.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	15	10	65	5	10	5	1885	20	5	2030	330
Future Volume (veh/h)	185	15	10	65	5	10	5	1885	20	5	2030	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	16	9	71	5	7	5	2049	22	5	2207	285
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	18	10	288	21	24	7	2650	28	7	2615	1166
Arrive On Green	0.17	0.17	0.16	0.17	0.17	0.16	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1333	106	60	1391	123	139	1781	3602	39	1781	3554	1585
Grp Volume(v), veh/h	226	0	0	83	0	0	5	1009	1062	5	2207	285
Grp Sat Flow(s),veh/h/ln	1499	0	0	1652	0	0	1781	1777	1863	1781	1777	1585
Q Serve(g_s), s	13.9	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	58.5	7.8
Cycle Q Clear(g_c), s	19.7	0.0	0.0	5.7	0.0	0.0	0.4	0.0	0.0	0.4	58.5	7.8
Prop In Lane	0.89		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	0	333	0	0	7	1307	1371	7	2615	1166
V/C Ratio(X)	0.73	0.00	0.00	0.25	0.00	0.00	0.74	0.77	0.77	0.74	0.84	0.24
Avail Cap(c_a), veh/h	380	0	0	405	0	0	106	1307	1371	106	2615	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.51	0.51	0.51	0.29	0.29	0.29
Uniform Delay (d), s/veh	54.1	0.0	0.0	48.7	0.0	0.0	66.9	0.0	0.0	67.2	12.4	5.7
Incr Delay (d2), s/veh	5.6	0.0	0.0	0.4	0.0	0.0	25.3	2.3	2.3	15.5	1.1	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	8.0	0.0	0.0	2.5	0.0	0.0	0.2	0.8	0.9	0.2	20.2	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	0.0	0.0	49.1	0.0	0.0	92.2	2.3	2.3	82.6	13.5	5.9
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		226			83			2076			2497	
Approach Delay, s/veh		59.8			49.1			2.5			12.8	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	103.3		27.2	4.5	103.3		27.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	84.0		29.0	8.0	84.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	60.5		7.7	2.4	2.0		21.7
Green Ext Time (p_c), s	0.0	22.9		0.2	0.0	69.3		0.5

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	35	50	100	25	20	55	1680	110	25	1960	155
Future Volume (veh/h)	185	35	50	100	25	20	55	1680	110	25	1960	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	38	11	109	27	2	60	1826	117	27	2130	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	255	74	267	317	23	76	2401	152	34	2288	174
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.09	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1348	1385	401	1325	1716	127	1781	3393	215	1781	3346	254
Grp Volume(v), veh/h	201	0	49	109	0	29	60	947	996	27	1118	1176
Grp Sat Flow(s),veh/h/ln	1348	0	1786	1325	0	1843	1781	1777	1831	1781	1777	1824
Q Serve(g_s), s	19.6	0.0	3.1	10.1	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	21.4	0.0	3.1	13.3	0.0	1.8	4.5	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.07	1.00		0.12	1.00		0.14
Lane Grp Cap(c), veh/h	284	0	329	267	0	340	76	1257	1296	34	1215	1247
V/C Ratio(X)	0.71	0.00	0.15	0.41	0.00	0.09	0.79	0.75	0.77	0.80	0.92	0.94
Avail Cap(c_a), veh/h	345	0	410	327	0	423	106	1257	1296	106	1215	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.39	0.39	0.39
Uniform Delay (d), s/veh	54.5	0.0	46.2	51.7	0.0	45.6	61.1	0.0	0.0	64.7	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.0	0.2	1.0	0.0	0.1	1.6	0.4	0.4	6.1	5.7	7.3
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	7.1	0.0	1.4	3.5	0.0	0.8	1.9	0.1	0.1	1.0	1.9	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	0.0	46.4	52.7	0.0	45.7	62.7	0.4	0.4	70.8	5.7	7.3
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		250			138			2003			2321	
Approach Delay, s/veh		56.9			51.2			2.3			7.3	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	96.3		28.9	6.6	99.5		28.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		30.0	8.0	83.0		30.0
Max Q Clear Time (g_c+I1), s	6.5	2.0		15.3	4.0	2.0		23.4
Green Ext Time (p_c), s	0.0	65.2		0.4	0.0	49.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1060	85	675	225	665	1150	90
Future Volume (veh/h)	85	125	115	195	120	1060	85	675	225	665	1150	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	18	212	130	0	92	734	165	723	1250	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	159	258	230	523		115	770	647	760	1900	143
Arrive On Green	0.17	0.17	0.17	0.08	0.28	0.00	0.06	0.41	0.41	0.44	1.00	1.00
Sat Flow, veh/h	608	944	1534	1781	1870	1585	1781	1870	1573	3456	3349	251
Grp Volume(v), veh/h	228	0	18	212	130	0	92	734	165	723	662	682
Grp Sat Flow(s),veh/h/ln	1551	0	1534	1781	1870	1585	1781	1870	1573	1728	1777	1824
Q Serve(g_s), s	18.8	0.0	1.3	11.0	7.3	0.0	6.9	51.3	9.3	27.2	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	1.3	11.0	7.3	0.0	6.9	51.3	9.3	27.2	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	299	0	258	230	523		115	770	647	760	1008	1034
V/C Ratio(X)	0.76	0.00	0.07	0.92	0.25		0.80	0.95	0.25	0.95	0.66	0.66
Avail Cap(c_a), veh/h	313	0	273	230	540		238	770	647	794	1008	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.22	0.22	0.22
Uniform Delay (d), s/veh	54.6	0.0	47.2	46.5	37.6	0.0	62.3	38.5	26.1	37.1	0.0	0.0
Incr Delay (d2), s/veh	10.2	0.0	0.1	38.9	0.2	0.0	4.3	21.1	0.8	6.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	0.5	4.4	3.4	0.0	3.2	27.4	3.6	9.9	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.8	0.0	47.3	85.5	37.9	0.0	66.6	59.6	27.0	43.6	0.7	0.7
LnGrp LOS	E	A	D	F	D		E	E	C	D	A	A
Approach Vol, veh/h		246			342	A		991			2067	
Approach Delay, s/veh		63.5			67.4			54.8			15.7	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	80.6	15.0	26.7	33.7	59.6		41.7
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	18.0	65.0	10.0	23.0	31.0	52.0		38.0
Max Q Clear Time (g_c+I1), s	9.3	2.0	13.0	21.3	29.2	53.3		9.3
Green Ext Time (p_c), s	0.1	22.1	0.0	0.2	0.5	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	10	950	25	0	855
Future Vol, veh/h	0	10	950	25	0	855
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	1033	27	0	929

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1033	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	282	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	282	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	282	-
HCM Lane V/C Ratio	-	-	0.039	-
HCM Control Delay (s)	-	-	18.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1115	0	0	955
Future Vol, veh/h	0	0	1115	0	0	955
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1212	0	0	1038

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2250	1212	0	0	1212	0
Stage 1	1212	-	-	-	-	-
Stage 2	1038	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	46	222	-	-	576	-
Stage 1	282	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	222	-	-	576	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	341	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	576	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	100	25	0	70	0	15	0	0	0	0	40
Future Vol, veh/h	60	100	25	0	70	0	15	0	0	0	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	109	27	0	76	0	16	0	0	0	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	76	0	0	136	0	0	351	329	68	261	342	76
Stage 1	-	-	-	-	-	-	253	253	-	76	76	-
Stage 2	-	-	-	-	-	-	98	76	-	185	266	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1522	-	-	1447	-	-	591	589	982	681	579	985
Stage 1	-	-	-	-	-	-	730	697	-	933	831	-
Stage 2	-	-	-	-	-	-	908	831	-	800	688	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1447	-	-	547	564	982	659	554	985
Mov Cap-2 Maneuver	-	-	-	-	-	-	547	564	-	659	554	-
Stage 1	-	-	-	-	-	-	699	667	-	893	831	-
Stage 2	-	-	-	-	-	-	868	831	-	766	658	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0	11.8	8.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	547	1522	-	-	1447	-	-	985
HCM Lane V/C Ratio	0.03	0.043	-	-	-	-	-	0.044
HCM Control Delay (s)	11.8	7.5	-	-	0	-	-	8.8
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	15	90	0	20	0	50	0	0	0	0	0
Future Vol, veh/h	0	15	90	0	20	0	50	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	16	98	0	22	0	54	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	114	0	0	87	87	57	30	136	22
Stage 1	-	-	-	-	-	-	65	65	-	22	22	-
Stage 2	-	-	-	-	-	-	22	22	-	8	114	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1593	-	-	1474	-	-	894	803	998	977	754	1055
Stage 1	-	-	-	-	-	-	938	840	-	996	877	-
Stage 2	-	-	-	-	-	-	996	877	-	1012	801	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1474	-	-	894	803	998	977	754	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	894	803	-	977	754	-
Stage 1	-	-	-	-	-	-	938	840	-	996	877	-
Stage 2	-	-	-	-	-	-	996	877	-	1012	801	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	894	1593	-	-	1474	-	-	-
HCM Lane V/C Ratio	0.061	-	-	-	-	-	-	-
HCM Control Delay (s)	9.3	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2025 Scenario 2 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	360	45	50	20	305	345	40	20	310	90
Future Volume (veh/h)	40	45	360	45	50	20	305	345	40	20	310	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	33	49	54	10	332	375	23	22	337	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	123	191	239	187	35	418	975	825	28	566	479
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.23	0.52	0.52	0.02	0.30	0.30
Sat Flow, veh/h	540	1008	1566	1305	1532	284	1781	1870	1582	1781	1870	1582
Grp Volume(v), veh/h	92	0	33	49	0	64	332	375	23	22	337	30
Grp Sat Flow(s),veh/h/ln	1548	0	1566	1305	0	1815	1781	1870	1582	1781	1870	1582
Q Serve(g_s), s	1.1	0.0	0.9	1.7	0.0	1.5	8.2	5.6	0.3	0.6	7.2	0.6
Cycle Q Clear(g_c), s	2.6	0.0	0.9	4.4	0.0	1.5	8.2	5.6	0.3	0.6	7.2	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	0	191	239	0	222	418	975	825	28	566	479
V/C Ratio(X)	0.31	0.00	0.17	0.20	0.00	0.29	0.79	0.38	0.03	0.77	0.60	0.06
Avail Cap(c_a), veh/h	912	0	801	747	0	928	1138	3147	2662	569	2550	2157
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	18.5	21.3	0.0	18.8	16.9	6.7	5.5	23.0	13.9	11.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.4	0.0	0.7	3.5	0.5	0.0	35.0	2.1	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	0.9	0.0	0.3	0.5	0.0	0.6	3.2	1.6	0.1	0.5	2.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	0.0	18.9	21.7	0.0	19.5	20.4	7.3	5.5	58.1	16.1	11.8
LnGrp LOS	B	A	B	C	A	B	C	A	A	E	B	B
Approach Vol, veh/h		125			113			730			389	
Approach Delay, s/veh		19.5			20.4			13.2			18.1	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	30.5		10.7	16.0	20.2		10.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.6	7.6		4.6	10.2	9.2		6.4				
Green Ext Time (p_c), s	0.0	5.4		0.5	0.9	4.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			15.8
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	215	40	15	5	150	520	25	15	545	60
Future Volume (veh/h)	60	20	215	40	15	5	150	520	25	15	545	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	21	43	16	1	163	565	0	16	592	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	75	223	285	250	16	432	919		410	779	658
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.49	0.00	0.01	0.42	0.42
Sat Flow, veh/h	987	526	1557	1345	1740	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	87	0	21	43	0	17	163	565	0	16	592	26
Grp Sat Flow(s),veh/h/ln	1513	0	1557	1345	0	1849	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	1.6	0.0	0.5	1.4	0.0	0.4	2.2	10.0	0.0	0.2	12.2	0.4
Cycle Q Clear(g_c), s	2.2	0.0	0.5	3.6	0.0	0.4	2.2	10.0	0.0	0.2	12.2	0.4
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	0	223	285	0	265	432	919		410	779	658
V/C Ratio(X)	0.24	0.00	0.09	0.15	0.00	0.06	0.38	0.61		0.04	0.76	0.04
Avail Cap(c_a), veh/h	956	0	859	834	0	1019	866	2104		977	2104	1776
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	16.9	19.2	0.0	16.8	8.1	8.4	0.0	8.0	11.3	7.8
Incr Delay (d2), s/veh	0.4	0.0	0.2	0.2	0.0	0.1	0.5	0.7	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	0.4	0.0	0.1	0.6	2.8	0.0	0.1	4.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	17.0	19.5	0.0	16.9	8.7	9.1	0.0	8.0	12.8	7.9
LnGrp LOS	B	A	B	B	A	B	A	A		A	B	A
Approach Vol, veh/h		108			60			728	A		634	
Approach Delay, s/veh		17.7			18.7			9.0			12.5	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	28.3		11.5	8.9	24.9		11.5
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	12.0		4.2	4.2	14.2		5.6
Green Ext Time (p_c), s	0.0	4.0		0.5	0.3	4.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	85	75	30	50	85	610	85	55	710	50
Future Volume (veh/h)	40	30	85	75	30	50	85	610	85	55	710	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	33	18	82	33	3	92	663	50	60	772	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	145	79	108	293	249	121	940	797	78	895	757
Arrive On Green	0.03	0.13	0.13	0.06	0.16	0.16	0.07	0.50	0.50	0.04	0.48	0.48
Sat Flow, veh/h	1781	1133	618	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	51	82	33	3	92	663	50	60	772	26
Grp Sat Flow(s),veh/h/ln	1781	0	1751	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	1.8	0.0	2.0	3.4	1.1	0.1	3.8	20.6	1.2	2.5	27.7	0.7
Cycle Q Clear(g_c), s	1.8	0.0	2.0	3.4	1.1	0.1	3.8	20.6	1.2	2.5	27.7	0.7
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	0	224	108	293	249	121	940	797	78	895	757
V/C Ratio(X)	0.77	0.00	0.23	0.76	0.11	0.01	0.76	0.71	0.06	0.77	0.86	0.03
Avail Cap(c_a), veh/h	472	0	487	472	521	441	590	1612	1366	590	1612	1364
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	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	36.3	0.0	29.5	34.9	27.3	26.9	34.5	14.5	9.6	35.7	17.5	10.4
Incr Delay (d2), s/veh	19.2	0.0	0.5	10.5	0.2	0.0	9.2	1.0	0.0	14.5	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.8	1.8	0.5	0.0	1.9	7.8	0.4	1.4	10.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	0.0	30.1	45.4	27.5	26.9	43.8	15.4	9.7	50.2	20.1	10.5
LnGrp LOS	E	A	C	D	C	C	D	B	A	D	C	B
Approach Vol, veh/h		94			118			805			858	
Approach Delay, s/veh		41.7			39.9			18.3			21.9	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	42.9	9.6	14.6	10.1	41.1	7.4	16.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	4.5	22.6	5.4	4.0	5.8	29.7	3.8	3.1
Green Ext Time (p_c), s	0.1	5.3	0.1	0.2	0.2	6.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	10	620	10	0	5	425	720	5	0	835	55
Future Volume (veh/h)	60	10	620	10	0	5	425	720	5	0	835	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	11	0	11	0	1	462	783	5	0	908	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	14		198	4	9	523	2786	18	3	1479	657
Arrive On Green	0.08	0.07	0.00	0.08	0.00	0.07	0.29	0.77	0.77	0.00	0.42	0.42
Sat Flow, veh/h	1273	215	1585	1451	57	137	1781	3620	23	1781	3554	1579
Grp Volume(v), veh/h	76	0	0	12	0	0	462	384	404	0	908	21
Grp Sat Flow(s),veh/h/ln	1488	0	1585	1645	0	0	1781	1777	1866	1781	1777	1579
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	16.5	4.2	4.2	0.0	13.4	0.5
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.4	0.0	0.0	16.5	4.2	4.2	0.0	13.4	0.5
Prop In Lane	0.86		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	220	0		236	0	0	523	1368	1437	3	1479	657
V/C Ratio(X)	0.35	0.00		0.05	0.00	0.00	0.88	0.28	0.28	0.00	0.61	0.03
Avail Cap(c_a), veh/h	562	0		673	0	0	1894	1836	1928	1894	3671	1632
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	28.9	0.0	0.0	22.5	2.3	2.3	0.0	15.3	11.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.1	0.0	0.0	2.0	0.2	0.2	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.2	0.0	0.0	6.5	0.7	0.7	0.0	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	0.0	29.0	0.0	0.0	24.5	2.5	2.5	0.0	16.2	11.6
LnGrp LOS	C	A		C	A	A	C	A	A	A	B	B
Approach Vol, veh/h		76	A		12			1250			929	
Approach Delay, s/veh		31.2			29.0			10.6			16.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.6	33.8		9.4	0.0	57.4		9.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	7.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	19.5	15.4		2.4	0.0	6.2		5.3
Green Ext Time (p_c), s	1.1	12.4		0.0	0.0	9.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	145	15	5	15	110	1100	20	10	1420	65
Future Volume (veh/h)	55	5	145	15	5	15	110	1100	20	10	1420	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	16	5	1	120	1196	21	11	1543	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	14	135	140	34	5	153	2601	46	15	2311	1029
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.09	0.73	0.73	0.01	0.65	0.65
Sat Flow, veh/h	1388	155	1547	703	387	52	1781	3573	63	1781	3554	1581
Grp Volume(v), veh/h	65	0	5	22	0	0	120	595	622	11	1543	43
Grp Sat Flow(s),veh/h/ln	1543	0	1547	1142	0	0	1781	1777	1859	1781	1777	1581
Q Serve(g_s), s	0.0	0.0	0.2	0.2	0.0	0.0	5.2	10.8	10.8	0.5	21.2	0.8
Cycle Q Clear(g_c), s	2.7	0.0	0.2	2.9	0.0	0.0	5.2	10.8	10.8	0.5	21.2	0.8
Prop In Lane	0.92		1.00	0.73		0.05	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	241	0	135	192	0	0	153	1293	1353	15	2311	1029
V/C Ratio(X)	0.27	0.00	0.04	0.11	0.00	0.00	0.79	0.46	0.46	0.76	0.67	0.04
Avail Cap(c_a), veh/h	529	0	449	492	0	0	472	1929	2019	247	3410	1517
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	0.0	33.1	33.3	0.0	0.0	35.5	4.4	4.4	39.2	8.6	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.4	0.5	0.5	25.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.1	0.4	0.0	0.0	2.3	2.8	2.9	0.3	6.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	33.1	33.4	0.0	0.0	38.9	5.0	4.9	64.5	9.3	5.0
LnGrp LOS	C	A	C	C	A	A	D	A	A	E	A	A
Approach Vol, veh/h		70			22			1337			1597	
Approach Delay, s/veh		34.0			33.4			8.0			9.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	56.5		11.9	4.6	62.7		11.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	7.2	23.2		4.9	2.5	12.8		4.7
Green Ext Time (p_c), s	0.1	28.3		0.0	0.0	18.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	185	45	5	35	115	1180	55	30	1505	80
Future Volume (veh/h)	65	5	185	45	5	35	115	1180	55	30	1505	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	5	12	49	5	2	125	1283	38	33	1636	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	16	221	209	178	71	159	2332	1040	56	2127	949
Arrive On Green	0.15	0.14	0.14	0.14	0.14	0.14	0.09	0.66	0.66	0.03	0.60	0.60
Sat Flow, veh/h	1303	112	1578	1391	1269	508	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	0	12	49	0	7	125	1283	38	33	1636	49
Grp Sat Flow(s),veh/h/ln	1415	0	1578	1391	0	1776	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.0	0.0	0.6	2.9	0.0	0.3	6.0	16.9	0.7	1.6	29.9	1.1
Cycle Q Clear(g_c), s	4.3	0.0	0.6	7.2	0.0	0.3	6.0	16.9	0.7	1.6	29.9	1.1
Prop In Lane	0.93		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	0	221	209	0	249	159	2332	1040	56	2127	949
V/C Ratio(X)	0.26	0.00	0.05	0.23	0.00	0.03	0.79	0.55	0.04	0.59	0.77	0.05
Avail Cap(c_a), veh/h	487	0	435	397	0	489	429	2813	1255	245	2446	1091
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	32.5	37.3	0.0	32.3	38.9	8.1	5.3	41.7	13.0	7.3
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.6	0.0	0.0	3.3	0.4	0.0	3.6	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	1.0	0.0	0.1	2.7	5.4	0.2	0.7	10.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	32.6	37.9	0.0	32.4	42.1	8.5	5.3	45.2	14.8	7.3
LnGrp LOS	C	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		88			56			1446			1718	
Approach Delay, s/veh		33.9			37.2			11.3			15.2	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	58.2		17.2	6.8	63.2		17.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	9.0	31.9		9.2	3.6	18.9		6.3
Green Ext Time (p_c), s	0.2	20.3		0.1	0.0	20.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	5	460	15	5	20	305	1300	15	60	1510	160
Future Volume (veh/h)	255	5	460	15	5	20	305	1300	15	60	1510	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	0	286	16	5	7	332	1413	16	65	1641	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	0	776	45	14	20	443	2339	26	115	2084	1114
Arrive On Green	0.12	0.00	0.12	0.05	0.05	0.02	0.13	0.65	0.64	0.06	0.59	0.59
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3599	41	1781	3554	1584
Grp Volume(v), veh/h	281	0	286	28	0	0	332	697	732	65	1641	145
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1863	1781	1777	1584
Q Serve(g_s), s	10.3	0.0	10.3	2.2	0.0	0.0	12.8	31.2	31.2	4.9	48.9	4.1
Cycle Q Clear(g_c), s	10.3	0.0	10.3	2.2	0.0	0.0	12.8	31.2	31.2	4.9	48.9	4.1
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	441	0	776	79	0	0	443	1155	1211	115	2084	1114
V/C Ratio(X)	0.64	0.00	0.37	0.35	0.00	0.00	0.75	0.60	0.60	0.56	0.79	0.13
Avail Cap(c_a), veh/h	879	0	1165	392	0	0	1454	2500	2622	194	3892	1920
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	43.2	64.2	0.0	0.0	58.0	13.9	13.9	62.6	21.9	6.7
Incr Delay (d2), s/veh	0.6	0.0	0.1	1.0	0.0	0.0	1.0	0.7	0.7	1.6	1.0	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	4.7	0.0	4.1	1.0	0.0	0.0	5.6	12.0	12.7	2.3	19.7	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	43.3	65.2	0.0	0.0	58.9	14.6	14.6	64.2	22.9	6.8
LnGrp LOS	E	A	D	E	A	A	E	B	B	E	C	A
Approach Vol, veh/h		567			28			1761			1851	
Approach Delay, s/veh		50.6			65.2			23.0			23.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.7	84.8		10.3	12.9	93.6		21.1
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	14.8	50.9		4.2	6.9	33.2		12.3
Green Ext Time (p_c), s	0.9	27.9		0.0	0.0	16.2		1.7

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	65	5	1495	90	90	1965	10
Future Volume (veh/h)	5	0	5	140	5	65	5	1495	90	90	1965	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	6	5	1625	95	98	2136	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	5	30	239	99	119	11	2422	141	124	2802	14
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1139	36	235	1416	774	929	1781	3413	198	1781	3625	19
Grp Volume(v), veh/h	6	0	0	152	0	11	5	841	879	98	1046	1101
Grp Sat Flow(s),veh/h/ln	1411	0	0	1416	0	1703	1781	1777	1835	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.7	0.0	0.7	0.4	9.4	9.8	7.0	42.2	42.4
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	9.4	9.8	7.0	42.2	42.4
Prop In Lane	0.83		0.17	1.00		0.55	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	232	0	0	239	0	219	11	1261	1302	124	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.67	0.67	0.79	0.76	0.76
Avail Cap(c_a), veh/h	312	0	0	319	0	314	151	1261	1302	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.3	1.4	59.5	8.1	8.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	7.5	2.2	2.2	16.4	4.0	3.9
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	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.1	2.2	3.7	14.5	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	0.0	0.0	57.9	0.0	50.0	71.8	3.5	3.5	76.0	12.2	12.0
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			163			1725			2245	
Approach Delay, s/veh		49.7			57.4			3.7			14.9	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.1	96.2		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	44.4		15.4	9.0	11.8		2.7
Green Ext Time (p_c), s	0.0	32.4		0.3	0.0	37.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	5	15	70	5	15	15	1435	15	10	1740	270
Future Volume (veh/h)	140	5	15	70	5	15	15	1435	15	10	1740	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	5	13	76	5	9	16	1560	15	11	1891	221
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	6	15	234	17	22	19	2762	27	13	2711	1208
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.01	0.77	0.76	0.01	0.76	0.76
Sat Flow, veh/h	1350	44	115	1362	125	165	1781	3606	35	1781	3554	1584
Grp Volume(v), veh/h	170	0	0	90	0	0	16	768	807	11	1891	221
Grp Sat Flow(s),veh/h/ln	1510	0	0	1651	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	7.8	0.0	0.0	0.0	0.0	0.0	1.2	23.2	23.2	0.8	35.1	5.0
Cycle Q Clear(g_c), s	14.1	0.0	0.0	6.3	0.0	0.0	1.2	23.2	23.2	0.8	35.1	5.0
Prop In Lane	0.89		0.08	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	255	0	0	273	0	0	19	1361	1428	13	2711	1208
V/C Ratio(X)	0.67	0.00	0.00	0.33	0.00	0.00	0.84	0.56	0.57	0.82	0.70	0.18
Avail Cap(c_a), veh/h	349	0	0	367	0	0	110	1361	1428	110	2711	1208
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	0.67	0.67	0.67	0.53	0.53	0.53
Uniform Delay (d), s/veh	54.6	0.0	0.0	51.5	0.0	0.0	64.2	6.3	6.3	64.4	7.8	4.2
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.7	0.0	0.0	20.7	1.1	1.1	20.3	0.8	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	5.7	0.0	0.0	2.8	0.0	0.0	0.6	7.7	8.1	0.4	11.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	0.0	0.0	52.2	0.0	0.0	84.9	7.4	7.4	84.7	8.6	4.4
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		170			90			1591			2123	
Approach Delay, s/veh		57.6			52.2			8.2			8.6	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	103.2		21.4	5.0	103.6		21.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	37.1		8.3	2.8	25.2		16.1
Green Ext Time (p_c), s	0.0	40.5		0.2	0.0	37.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	20	55	95	20	20	65	1460	65	15	1745	140
Future Volume (veh/h)	200	20	55	95	20	20	65	1460	65	15	1745	140
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		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	217	22	8	103	22	2	71	1587	69	16	1897	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	248	90	297	321	29	90	2453	106	19	2231	172
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.18	0.07	0.94	0.93	0.01	0.89	0.88
Sat Flow, veh/h	1381	1307	475	1374	1688	153	1781	3469	150	1781	3343	257
Grp Volume(v), veh/h	217	0	30	103	0	24	71	810	846	16	996	1049
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1374	0	1842	1781	1777	1842	1781	1777	1824
Q Serve(g_s), s	19.9	0.0	1.8	8.7	0.0	1.4	5.1	9.0	9.3	1.2	32.3	36.0
Cycle Q Clear(g_c), s	21.3	0.0	1.8	10.5	0.0	1.4	5.1	9.0	9.3	1.2	32.3	36.0
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.08	1.00		0.14
Lane Grp Cap(c), veh/h	303	0	338	297	0	350	90	1256	1303	19	1186	1217
V/C Ratio(X)	0.72	0.00	0.09	0.35	0.00	0.07	0.79	0.64	0.65	0.84	0.84	0.86
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1256	1303	110	1186	1217
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.62	0.62	0.62
Uniform Delay (d), s/veh	52.0	0.0	43.4	47.7	0.0	43.3	60.0	1.4	1.4	64.0	4.2	4.5
Incr Delay (d2), s/veh	5.9	0.0	0.1	0.7	0.0	0.1	2.3	0.2	0.2	19.4	4.7	5.3
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	7.4	0.0	0.8	3.1	0.0	0.7	2.3	1.4	1.5	0.6	5.2	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	43.5	48.4	0.0	43.3	62.3	1.6	1.7	83.4	8.9	9.8
LnGrp LOS	E	A	D	D	A	D	E	A	A	F	A	A
Approach Vol, veh/h		247			127			1727			2061	
Approach Delay, s/veh		56.1			47.4			4.1			9.9	
Approach LOS		E			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	90.7		28.7	5.4	95.9		28.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	38.0		12.5	3.2	11.3		23.3
Green Ext Time (p_c), s	0.0	34.1		0.4	0.0	34.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	865	95	575	205	575	1030	150
Future Volume (veh/h)	95	120	115	200	140	865	95	575	205	575	1030	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	16	217	152	0	103	625	134	625	1120	155
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	150	268	279	590		128	726	606	706	1632	225
Arrive On Green	0.18	0.18	0.18	0.11	0.32	0.00	0.07	0.39	0.39	0.14	0.35	0.34
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3136	433
Grp Volume(v), veh/h	233	0	16	217	152	0	103	625	134	625	634	641
Grp Sat Flow(s),veh/h/ln	1497	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1792
Q Serve(g_s), s	19.4	0.0	1.1	12.6	7.9	0.0	7.4	39.9	7.5	23.1	39.7	39.9
Cycle Q Clear(g_c), s	19.7	0.0	1.1	12.6	7.9	0.0	7.4	39.9	7.5	23.1	39.7	39.9
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	305	0	268	279	590		128	726	606	706	925	933
V/C Ratio(X)	0.76	0.00	0.06	0.78	0.26		0.81	0.86	0.22	0.89	0.69	0.69
Avail Cap(c_a), veh/h	339	0	303	279	633		329	726	606	957	925	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.41	0.41	0.41
Uniform Delay (d), s/veh	52.1	0.0	44.5	38.4	33.1	0.0	59.5	36.6	26.6	54.6	33.2	33.4
Incr Delay (d2), s/veh	8.9	0.0	0.1	13.0	0.2	0.0	3.6	10.4	0.7	2.8	1.7	1.7
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	8.2	0.0	0.4	6.6	3.7	0.0	3.5	19.9	2.9	10.6	18.3	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	0.0	44.6	51.5	33.4	0.0	63.0	47.0	27.3	57.4	34.9	35.1
LnGrp LOS	E	A	D	D	C		E	D	C	E	C	D
Approach Vol, veh/h		249			369	A		862			1900	
Approach Delay, s/veh		60.0			44.0			45.9			42.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	71.7	18.0	27.0	30.6	54.4		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	49.0	13.0	25.0	36.0	37.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	41.9	14.6	21.7	25.1	41.9		9.9
Green Ext Time (p_c), s	0.1	5.3	0.0	0.3	1.5	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	44.7
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	10	680	20	0	805
Future Vol, veh/h	0	10	680	20	0	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	739	22	0	875

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	739	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	417	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	417	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	417	-
HCM Lane V/C Ratio	-	-	0.026	-
HCM Control Delay (s)	-	-	13.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	785	0	0	875
Future Vol, veh/h	0	0	785	0	0	875
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	853	0	0	951

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1804	853	0	0	853	0
Stage 1	853	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	87	359	-	-	786	-
Stage 1	418	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	87	359	-	-	786	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	375	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	786	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	100	20	0	90	0	20	0	0	0	0	45
Future Vol, veh/h	50	100	20	0	90	0	20	0	0	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	109	22	0	98	0	22	0	0	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	98	0	0	131	0	0	351	326	66	261	337	98
Stage 1	-	-	-	-	-	-	228	228	-	98	98	-
Stage 2	-	-	-	-	-	-	123	98	-	163	239	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1494	-	-	1453	-	-	591	592	985	681	583	957
Stage 1	-	-	-	-	-	-	755	715	-	908	813	-
Stage 2	-	-	-	-	-	-	881	813	-	823	707	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1494	-	-	1453	-	-	545	571	985	662	562	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	545	571	-	662	562	-
Stage 1	-	-	-	-	-	-	728	689	-	875	813	-
Stage 2	-	-	-	-	-	-	836	813	-	793	682	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0	11.9	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	545	1494	-	-	1453	-	-	957
HCM Lane V/C Ratio	0.04	0.036	-	-	-	-	-	0.051
HCM Control Delay (s)	11.9	7.5	-	-	0	-	-	9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	25	75	0	25	0	65	0	0	0	0	0
Future Vol, veh/h	0	25	75	0	25	0	65	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	82	0	27	0	71	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	109	0	0	95	95	55	41	136	27
Stage 1	-	-	-	-	-	-	68	68	-	27	27	-
Stage 2	-	-	-	-	-	-	27	27	-	14	109	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1586	-	-	1480	-	-	883	795	1001	960	754	1048
Stage 1	-	-	-	-	-	-	935	838	-	990	872	-
Stage 2	-	-	-	-	-	-	990	872	-	1004	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1586	-	-	1480	-	-	883	795	1001	960	754	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	883	795	-	960	754	-
Stage 1	-	-	-	-	-	-	935	838	-	990	872	-
Stage 2	-	-	-	-	-	-	990	872	-	1004	805	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.4	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	883	1586	-	-	1480	-	-	-
HCM Lane V/C Ratio	0.08	-	-	-	-	-	-	-
HCM Control Delay (s)	9.4	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2030 Scenario 3 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/07/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	335	90	45	20	270	295	120	10	155	35
Future Volume (veh/h)	50	45	335	90	45	20	270	295	120	10	155	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	46	98	49	9	293	321	64	11	168	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	162	254	315	248	46	383	834	707	15	449	380
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.21	0.45	0.45	0.01	0.24	0.24
Sat Flow, veh/h	619	1003	1570	1292	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	46	98	0	58	293	321	64	11	168	9
Grp Sat Flow(s),veh/h/ln	1622	0	1570	1292	0	1817	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.5	0.0	1.1	3.0	0.0	1.2	6.4	4.8	1.0	0.3	3.1	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.1	5.2	0.0	1.2	6.4	4.8	1.0	0.3	3.1	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	394	0	254	315	0	294	383	834	707	15	449	380
V/C Ratio(X)	0.26	0.00	0.18	0.31	0.00	0.20	0.77	0.38	0.09	0.72	0.37	0.02
Avail Cap(c_a), veh/h	1033	0	904	850	0	1046	1282	3544	3003	641	2871	2433
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	15.1	17.9	0.0	15.1	15.4	7.7	6.7	20.6	13.2	12.1
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.6	0.0	0.3	3.2	0.6	0.1	47.0	1.1	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	0.8	0.0	0.4	0.9	0.0	0.4	2.4	1.4	0.2	0.3	1.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	15.4	18.4	0.0	15.5	18.6	8.3	6.8	67.6	14.3	12.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		149			156			678			188	
Approach Delay, s/veh		15.7			17.3			12.6			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	24.6		11.7	14.0	16.0		11.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.3	6.8		4.1	8.4	5.1		7.2
Green Ext Time (p_c), s	0.0	4.9		0.6	0.8	2.1		0.5

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	195	100	20	15	170	665	20	10	585	70
Future Volume (veh/h)	60	5	195	100	20	15	170	665	20	10	585	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	21	109	22	2	185	723	0	11	636	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	24	313	334	341	31	388	946		284	786	662
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.51	0.00	0.01	0.42	0.42
Sat Flow, veh/h	1216	119	1546	1356	1685	153	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	70	0	21	109	0	24	185	723	0	11	636	35
Grp Sat Flow(s),veh/h/ln	1335	0	1546	1356	0	1838	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	2.2	0.0	0.6	4.2	0.0	0.6	3.0	17.6	0.0	0.2	16.9	0.7
Cycle Q Clear(g_c), s	2.8	0.0	0.6	7.0	0.0	0.6	3.0	17.6	0.0	0.2	16.9	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	393	0	313	334	0	372	388	946		284	786	662
V/C Ratio(X)	0.18	0.00	0.07	0.33	0.00	0.06	0.48	0.76		0.04	0.81	0.05
Avail Cap(c_a), veh/h	725	0	684	660	0	814	694	1689		743	1689	1421
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	18.2	22.1	0.0	18.2	10.5	11.2	0.0	10.7	14.4	9.7
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.6	0.0	0.1	0.9	1.3	0.0	0.1	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	1.3	0.0	0.2	0.9	5.8	0.0	0.1	6.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	0.0	18.3	22.6	0.0	18.3	11.5	12.5	0.0	10.8	16.4	9.7
LnGrp LOS	B	A	B	C	A	B	B	B		B	B	A
Approach Vol, veh/h		91			133			908	A		682	
Approach Delay, s/veh		19.2			21.8			12.3			16.0	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	34.6		16.4	10.3	29.7		16.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	19.6		4.8	5.0	18.9		9.0
Green Ext Time (p_c), s	0.0	5.6		0.4	0.3	4.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	130	155	70	105	60	690	100	60	770	30
Future Volume (veh/h)	40	30	130	155	70	105	60	690	100	60	770	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	33	27	168	76	13	65	750	64	65	837	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	111	91	206	379	319	85	936	793	85	936	793
Arrive On Green	0.03	0.12	0.12	0.12	0.20	0.20	0.05	0.50	0.50	0.05	0.50	0.50
Sat Flow, veh/h	1781	944	772	1781	1870	1576	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	43	0	60	168	76	13	65	750	64	65	837	17
Grp Sat Flow(s),veh/h/ln	1781	0	1716	1781	1870	1576	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	2.9	8.4	3.1	0.6	3.3	30.7	1.9	3.3	37.1	0.5
Cycle Q Clear(g_c), s	2.2	0.0	2.9	8.4	3.1	0.6	3.3	30.7	1.9	3.3	37.1	0.5
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	0	203	206	379	319	85	936	793	85	936	793
V/C Ratio(X)	0.78	0.00	0.30	0.82	0.20	0.04	0.76	0.80	0.08	0.76	0.89	0.02
Avail Cap(c_a), veh/h	389	0	393	389	429	361	486	1327	1124	486	1327	1124
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	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	44.1	0.0	36.9	39.6	30.4	29.4	43.1	19.1	11.9	43.1	20.7	11.6
Incr Delay (d2), s/veh	20.9	0.0	0.8	7.7	0.3	0.1	13.0	2.4	0.0	13.0	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.3	4.1	1.4	0.2	1.7	12.6	0.7	1.7	16.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.0	0.0	37.7	47.3	30.6	29.4	56.2	21.5	12.0	56.2	26.8	11.6
LnGrp LOS	E	A	D	D	C	C	E	C	B	E	C	B
Approach Vol, veh/h		103			257			879			919	
Approach Delay, s/veh		49.1			41.4			23.4			28.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	50.9	15.6	15.8	9.4	50.9	7.8	23.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	5.3	32.7	10.4	4.9	5.3	39.1	4.2	5.1
Green Ext Time (p_c), s	0.1	6.2	0.3	0.2	0.1	6.8	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	495	20	5	0	330	845	45	15	1055	15
Future Volume (veh/h)	40	10	495	20	5	0	330	845	45	15	1055	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	11	0	22	5	0	359	918	48	16	1147	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	24		167	27	0	413	2474	129	20	1777	792
Arrive On Green	0.08	0.07	0.00	0.08	0.07	0.00	0.23	0.72	0.72	0.01	0.50	0.50
Sat Flow, veh/h	1173	361	1585	1187	412	0	1781	3435	180	1781	3554	1585
Grp Volume(v), veh/h	54	0	0	27	0	0	359	475	491	16	1147	6
Grp Sat Flow(s),veh/h/ln	1534	0	1585	1600	0	0	1781	1777	1838	1781	1777	1585
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	14.4	7.6	7.6	0.7	17.7	0.1
Cycle Q Clear(g_c), s	2.4	0.0	0.0	1.0	0.0	0.0	14.4	7.6	7.6	0.7	17.7	0.1
Prop In Lane	0.80		1.00	0.81		0.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	209	0		216	0	0	413	1280	1324	20	1777	792
V/C Ratio(X)	0.26	0.00		0.13	0.00	0.00	0.87	0.37	0.37	0.79	0.65	0.01
Avail Cap(c_a), veh/h	509	0		612	0	0	1584	1771	1832	1584	3542	1580
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	0.0	32.4	0.0	0.0	27.4	4.0	4.0	36.6	13.7	9.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	2.3	0.4	0.4	21.9	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.5	0.0	0.0	6.0	1.9	1.9	0.4	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	0.0	32.7	0.0	0.0	29.7	4.3	4.3	58.5	14.6	9.3
LnGrp LOS	C	A		C	A	A	C	A	A	E	B	A
Approach Vol, veh/h		54	A		27			1325			1169	
Approach Delay, s/veh		33.7			32.7			11.2			15.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.2	43.1		9.9	4.8	59.5		9.9
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	16.0	74.0		25.0	66.0	74.0		20.0
Max Q Clear Time (g_c+I1), s	16.4	19.7		3.0	2.7	9.6		4.4
Green Ext Time (p_c), s	0.8	17.4		0.0	0.0	12.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	70	10	5	10	135	1280	20	20	1550	75
Future Volume (veh/h)	30	0	70	10	5	10	135	1280	20	20	1550	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	1	11	5	1	147	1391	22	22	1685	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	0	66	99	19	3	182	2774	44	26	2441	1089
Arrive On Green	0.05	0.00	0.04	0.05	0.04	0.04	0.10	0.77	0.77	0.01	0.69	0.69
Sat Flow, veh/h	1567	0	1585	664	459	70	1781	3580	57	1781	3554	1585
Grp Volume(v), veh/h	33	0	1	17	0	0	147	690	723	22	1685	54
Grp Sat Flow(s),veh/h/ln	1567	0	1585	1193	0	0	1781	1777	1860	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.1	0.4	0.0	0.0	6.7	11.8	11.9	1.0	23.4	0.9
Cycle Q Clear(g_c), s	1.5	0.0	0.1	1.9	0.0	0.0	6.7	11.8	11.9	1.0	23.4	0.9
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	171	0	66	136	0	0	182	1377	1441	26	2441	1089
V/C Ratio(X)	0.19	0.00	0.02	0.13	0.00	0.00	0.81	0.50	0.50	0.85	0.69	0.05
Avail Cap(c_a), veh/h	504	0	440	498	0	0	452	1846	1932	237	3262	1455
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	38.0	38.5	0.0	0.0	36.4	3.4	3.4	40.7	7.7	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	3.2	0.6	0.6	23.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.3	0.0	0.0	3.0	2.6	2.7	0.6	6.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	0.0	38.1	38.7	0.0	0.0	39.5	4.0	4.0	64.3	8.5	4.2
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	A	A
Approach Vol, veh/h		34			17			1560			1761	
Approach Delay, s/veh		38.4			38.7			7.4			9.1	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.5	61.9		8.5	5.2	69.1		8.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	3.5	25.4		3.9	3.0	13.9		3.5
Green Ext Time (p_c), s	0.1	31.5		0.0	0.0	25.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	35	45	15	50	115	1430	60	30	1485	50
Future Volume (veh/h)	60	5	35	45	15	50	115	1430	60	30	1485	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	1	49	16	1	125	1554	48	33	1614	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	12	164	117	180	11	147	2755	1229	44	2548	1137
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.78	0.78	0.02	0.72	0.72
Sat Flow, veh/h	1212	111	1580	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	70	0	1	49	0	17	125	1554	48	33	1614	40
Grp Sat Flow(s),veh/h/ln	1323	0	1580	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.1	0.0	0.1	5.3	0.0	1.3	10.7	27.1	1.1	2.9	36.5	1.1
Cycle Q Clear(g_c), s	8.3	0.0	0.1	13.6	0.0	1.3	10.7	27.1	1.1	2.9	36.5	1.1
Prop In Lane	0.93		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	0	164	117	0	192	147	2755	1229	44	2548	1137
V/C Ratio(X)	0.38	0.00	0.01	0.42	0.00	0.09	0.85	0.56	0.04	0.76	0.63	0.04
Avail Cap(c_a), veh/h	255	0	245	189	0	287	241	2755	1229	241	2548	1137
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	1.00	1.00	0.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.5	0.0	62.3	72.5	0.0	62.9	70.1	7.0	4.0	75.1	11.4	6.4
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.4	0.0	0.2	4.8	0.6	0.0	9.5	1.2	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	2.7	0.0	0.0	2.0	0.0	0.6	5.1	9.3	0.3	1.4	13.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	0.0	62.3	74.9	0.0	63.1	75.0	7.5	4.1	84.7	12.6	6.4
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		71			66			1727			1687	
Approach Delay, s/veh		67.8			71.8			12.3			13.8	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	117.1		21.1	7.8	126.2		21.1
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	38.5		15.6	4.9	29.1		10.3
Green Ext Time (p_c), s	0.1	31.3		0.1	0.0	31.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	10	225	10	10	10	440	1510	15	85	1410	110
Future Volume (veh/h)	145	10	225	10	10	10	440	1510	15	85	1410	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	166	0	63	11	11	3	478	1641	16	92	1533	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	0	794	55	55	15	598	2308	22	144	1946	992
Arrive On Green	0.09	0.00	0.08	0.07	0.07	0.05	0.17	0.64	0.62	0.08	0.55	0.55
Sat Flow, veh/h	3563	0	3071	785	785	214	3456	3606	35	1781	3554	1580
Grp Volume(v), veh/h	166	0	63	25	0	0	478	808	849	92	1533	93
Grp Sat Flow(s),veh/h/ln	1781	0	1535	1785	0	0	1728	1777	1864	1781	1777	1580
Q Serve(g_s), s	5.9	0.0	2.1	1.7	0.0	0.0	17.5	39.6	39.8	6.6	45.3	3.1
Cycle Q Clear(g_c), s	5.9	0.0	2.1	1.7	0.0	0.0	17.5	39.6	39.8	6.6	45.3	3.1
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	311	0	794	126	0	0	598	1137	1193	144	1946	992
V/C Ratio(X)	0.53	0.00	0.08	0.20	0.00	0.00	0.80	0.71	0.71	0.64	0.79	0.09
Avail Cap(c_a), veh/h	917	0	1316	419	0	0	1518	2610	2739	202	4064	1933
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	0.0	37.6	58.0	0.0	0.0	52.4	15.7	15.7	58.8	23.8	9.7
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.8	0.0	0.0	0.9	1.2	1.1	1.8	1.0	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	2.7	0.0	0.8	0.8	0.0	0.0	7.6	15.3	16.1	3.0	18.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	0.0	37.6	58.8	0.0	0.0	53.3	16.9	16.9	60.6	24.8	9.8
LnGrp LOS	E	A	D	E	A	A	D	B	B	E	C	A
Approach Vol, veh/h		229			25			2135			1718	
Approach Delay, s/veh		52.6			58.8			25.0			25.9	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.9	76.3		13.3	14.7	88.5		15.5
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	19.5	47.3		3.7	8.6	41.8		7.9
Green Ext Time (p_c), s	1.3	23.0		0.0	0.1	23.3		0.6

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	45	5	1980	95	35	1625	5
Future Volume (veh/h)	5	5	5	60	0	45	5	1980	95	35	1625	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2152	101	38	1766	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2728	127	64	2976	8
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3457	161	1781	3635	10
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1098	1155	38	863	908
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1841	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	47.7	49.8	2.9	24.0	24.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	47.7	49.8	2.9	24.0	24.0
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1453	64	1455	1530
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.78	0.80	0.60	0.59	0.59
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1453	102	1455	1530
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	0.50	0.50	0.50	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	8.1	8.4	66.5	4.5	4.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.0	2.3	2.3	3.3	1.8	1.7
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	0.4	0.0	0.0	2.3	0.0	0.0	0.2	15.5	16.9	1.4	7.3	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	74.4	10.4	10.7	69.8	6.3	6.2
LnGrp LOS	E	A	A	E	A	E	E	B	B	E	A	A
Approach Vol, veh/h		11			66			2258			1809	
Approach Delay, s/veh		58.6			62.0			10.7			7.6	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	26.0		8.1	4.9	51.8		2.8
Green Ext Time (p_c), s	0.0	38.7		0.1	0.0	38.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	5	5	105	15	15	5	1955	20	10	1445	210
Future Volume (veh/h)	95	5	5	105	15	15	5	1955	20	10	1445	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	5	3	114	16	12	5	2125	22	11	1571	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	7	4	199	20	15	7	2823	29	14	2798	1248
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.78	0.01	0.79	0.79
Sat Flow, veh/h	1397	68	41	1328	186	140	1781	3603	37	1781	3554	1585
Grp Volume(v), veh/h	111	0	0	142	0	0	5	1046	1101	11	1571	170
Grp Sat Flow(s),veh/h/ln	1506	0	0	1654	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.3	37.2	37.5	0.7	20.2	3.1
Cycle Q Clear(g_c), s	8.3	0.0	0.0	9.6	0.0	0.0	0.3	37.2	37.5	0.7	20.2	3.1
Prop In Lane	0.93		0.03	0.80		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	222	0	0	234	0	0	7	1392	1460	14	2798	1248
V/C Ratio(X)	0.50	0.00	0.00	0.61	0.00	0.00	0.73	0.75	0.75	0.80	0.56	0.14
Avail Cap(c_a), veh/h	432	0	0	453	0	0	119	1392	1460	119	2798	1248
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	0.56	0.56	0.56	0.78	0.78	0.78
Uniform Delay (d), s/veh	51.4	0.0	0.0	51.9	0.0	0.0	59.7	6.8	6.9	59.4	4.9	3.0
Incr Delay (d2), s/veh	1.7	0.0	0.0	2.5	0.0	0.0	26.4	2.1	2.1	26.2	0.6	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	3.3	0.0	0.0	4.3	0.0	0.0	0.2	11.3	11.9	0.4	5.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	0.0	54.4	0.0	0.0	86.1	9.0	9.0	85.6	5.5	3.2
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		111			142			2152			1752	
Approach Delay, s/veh		53.1			54.4			9.1			5.8	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.5		17.1	4.9	98.0		17.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	22.2		11.6	2.7	39.5		10.3
Green Ext Time (p_c), s	0.0	34.9		0.5	0.0	27.0		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	30	20	150	25	35	25	1770	75	10	1480	75
Future Volume (veh/h)	150	30	20	150	25	35	25	1770	75	10	1480	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	33	2	163	27	3	27	1924	81	11	1609	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	294	18	258	278	31	34	2567	107	13	2504	124
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3476	145	1781	3446	171
Grp Volume(v), veh/h	163	0	35	163	0	30	27	977	1028	11	826	863
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1844	1781	1777	1840
Q Serve(g_s), s	16.1	0.0	2.2	16.2	0.0	1.9	2.1	0.0	0.0	0.9	33.2	33.9
Cycle Q Clear(g_c), s	18.1	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	33.2	33.9
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	262	0	311	258	0	309	34	1312	1362	13	1291	1337
V/C Ratio(X)	0.62	0.00	0.11	0.63	0.00	0.10	0.79	0.74	0.76	0.83	0.64	0.65
Avail Cap(c_a), veh/h	382	0	476	378	0	472	140	1312	1362	140	1291	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.79	0.79	0.79
Uniform Delay (d), s/veh	56.8	0.0	49.3	57.2	0.0	49.3	67.1	0.0	0.0	69.4	9.8	9.9
Incr Delay (d2), s/veh	2.4	0.0	0.2	2.6	0.0	0.1	1.4	0.4	0.4	29.8	1.9	1.9
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	5.8	0.0	1.1	5.8	0.0	0.9	1.0	0.1	0.1	0.5	12.3	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.3	0.0	49.5	59.7	0.0	49.4	68.5	0.4	0.4	99.2	11.7	11.8
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		198			193			2032			1700	
Approach Delay, s/veh		57.5			58.1			1.3			12.3	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.7		27.6	5.0	107.4		27.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	80.0		35.0	11.0	80.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	35.9		20.5	2.9	2.0		20.1
Green Ext Time (p_c), s	0.0	27.7		0.6	0.0	52.6		0.6

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1190	55	700	175	610	1135	75
Future Volume (veh/h)	55	120	60	110	100	1190	55	700	175	610	1135	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	6	120	109	0	60	761	117	663	1234	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	227	464		77	860	726	712	2111	135
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.46	0.46	0.41	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3391	217
Grp Volume(v), veh/h	190	0	6	120	109	0	60	761	117	663	646	667
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1831
Q Serve(g_s), s	13.8	0.0	0.5	7.7	6.5	0.0	4.7	51.9	6.1	25.6	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.5	7.7	6.5	0.0	4.7	51.9	6.1	25.6	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	270	0	223	227	464		77	860	726	712	1106	1140
V/C Ratio(X)	0.70	0.00	0.03	0.53	0.23		0.78	0.88	0.16	0.93	0.58	0.59
Avail Cap(c_a), veh/h	304	0	256	232	508		178	860	726	839	1106	1140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.69	0.69	0.69
Uniform Delay (d), s/veh	57.9	0.0	51.5	45.3	42.0	0.0	66.3	34.4	22.0	40.2	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0	2.1	0.3	0.0	5.0	10.5	0.4	10.8	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.2	3.6	3.1	0.0	2.2	25.4	2.3	10.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.6	47.4	42.3	0.0	71.3	44.9	22.4	51.1	1.6	1.5
LnGrp LOS	E	A	D	D	D		E	D	C	D	A	A
Approach Vol, veh/h		196			229	A		938			1976	
Approach Delay, s/veh		63.7			45.0			43.8			18.2	
Approach LOS		E			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.2	14.7	24.1	32.8	68.4		38.8
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	75.0	10.0	22.0	34.0	55.0		37.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	27.6	53.9		8.5
Green Ext Time (p_c), s	0.0	21.8	0.0	0.3	1.2	0.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	20	825	15	0	895
Future Vol, veh/h	0	20	825	15	0	895
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	897	16	0	973

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	897	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	339	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	339	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	339	-
HCM Lane V/C Ratio	-	-	0.064	-
HCM Control Delay (s)	-	-	16.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	30	860	25	15	1045
Future Vol, veh/h	55	30	860	25	15	1045
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	33	935	27	16	1136

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2103	935	0	0	962	0
Stage 1	935	-	-	-	-	-
Stage 2	1168	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 57	322	-	-	715	-
Stage 1	382	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 56	322	-	-	715	-
Mov Cap-2 Maneuver	171	-	-	-	-	-
Stage 1	374	-	-	-	-	-
Stage 2	296	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.1	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	171	322	715	-
HCM Lane V/C Ratio	-	-	0.35	0.101	0.023	-
HCM Control Delay (s)	-	-	37	17.4	10.2	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.3	0.1	-

Notes

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

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	80	95	0	190	0	75	0	0	0	0	60
Future Vol, veh/h	15	80	95	0	190	0	75	0	0	0	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	87	103	0	207	0	82	0	0	0	0	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	207	0	0	190	0	0	411	378	95	283	429	207
Stage 1	-	-	-	-	-	-	171	171	-	207	207	-
Stage 2	-	-	-	-	-	-	240	207	-	76	222	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1363	-	-	1382	-	-	538	553	944	658	518	833
Stage 1	-	-	-	-	-	-	815	757	-	794	730	-
Stage 2	-	-	-	-	-	-	763	730	-	925	719	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1363	-	-	1382	-	-	491	546	944	652	512	833
Mov Cap-2 Maneuver	-	-	-	-	-	-	491	546	-	652	512	-
Stage 1	-	-	-	-	-	-	805	748	-	784	730	-
Stage 2	-	-	-	-	-	-	703	730	-	914	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	13.8	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	491	1363	-	-	1382	-	-	833
HCM Lane V/C Ratio	0.166	0.012	-	-	-	-	-	0.078
HCM Control Delay (s)	13.8	7.7	-	-	0	-	-	9.7
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	20	25	0	10	0	85	0	0	0	0	100
Future Vol, veh/h	40	20	25	0	10	0	85	0	0	0	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	22	27	0	11	0	92	0	0	0	0	109

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	11	0	0	49	0	0	188	133	25	108	146	11
Stage 1	-	-	-	-	-	-	122	122	-	11	11	-
Stage 2	-	-	-	-	-	-	66	11	-	97	135	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1607	-	-	1557	-	-	764	757	1046	865	745	1070
Stage 1	-	-	-	-	-	-	870	794	-	1009	886	-
Stage 2	-	-	-	-	-	-	944	886	-	899	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1557	-	-	672	737	1046	848	725	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	672	737	-	848	725	-
Stage 1	-	-	-	-	-	-	847	773	-	982	886	-
Stage 2	-	-	-	-	-	-	848	886	-	875	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	11.2	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	672	1607	-	-	1557	-	-	1070
HCM Lane V/C Ratio	0.137	0.027	-	-	-	-	-	0.102
HCM Control Delay (s)	11.2	7.3	-	-	0	-	-	8.7
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	20	5	0	75	0	5	0	0	0	0	10
Future Vol, veh/h	15	20	5	0	75	0	5	0	0	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	22	5	0	82	0	5	0	0	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	27	0	0	145	139	25	139	141	82
Stage 1	-	-	-	-	-	-	57	57	-	82	82	-
Stage 2	-	-	-	-	-	-	88	82	-	57	59	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1515	-	-	1587	-	-	824	752	1051	831	750	978
Stage 1	-	-	-	-	-	-	955	847	-	926	827	-
Stage 2	-	-	-	-	-	-	920	827	-	955	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1515	-	-	1587	-	-	808	744	1051	824	742	978
Mov Cap-2 Maneuver	-	-	-	-	-	-	808	744	-	824	742	-
Stage 1	-	-	-	-	-	-	944	838	-	916	827	-
Stage 2	-	-	-	-	-	-	910	827	-	944	837	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0	9.5	8.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	808	1515	-	-	1587	-	-	978
HCM Lane V/C Ratio	0.007	0.011	-	-	-	-	-	0.011
HCM Control Delay (s)	9.5	7.4	0	-	0	-	-	8.7
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	10	0	40	35	0
Future Vol, veh/h	10	10	0	40	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	0	43	38	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	22	0	60	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1593	-	947	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1593	-	947	1062
Mov Cap-2 Maneuver	-	-	-	-	947	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	979	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	947	-	-	1593	-
HCM Lane V/C Ratio	0.04	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2030 Scenario 3 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/08/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	440	65	25	5	450	260	65	5	340	75
Future Volume (veh/h)	55	25	440	65	25	5	450	260	65	5	340	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	30	71	27	1	489	283	45	5	370	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	72	180	207	203	8	563	1139	965	7	556	471
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.32	0.61	0.61	0.00	0.30	0.30
Sat Flow, veh/h	913	633	1585	1346	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	30	71	0	28	489	283	45	5	370	22
Grp Sat Flow(s),veh/h/ln	1546	0	1585	1346	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	1.0	3.1	0.0	0.8	15.1	4.1	0.7	0.2	10.1	0.6
Cycle Q Clear(g_c), s	3.0	0.0	1.0	6.0	0.0	0.8	15.1	4.1	0.7	0.2	10.1	0.6
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	180	207	0	211	563	1139	965	7	556	471
V/C Ratio(X)	0.31	0.00	0.17	0.34	0.00	0.13	0.87	0.25	0.05	0.70	0.67	0.05
Avail Cap(c_a), veh/h	726	0	651	607	0	763	914	2528	2142	457	2048	1736
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	23.4	27.1	0.0	23.3	18.9	5.3	4.6	29.1	18.0	14.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	1.0	0.0	0.3	5.3	0.2	0.0	80.2	2.9	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	1.1	0.0	0.4	1.0	0.0	0.4	6.2	1.2	0.2	0.2	4.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	23.9	28.1	0.0	23.6	24.1	5.5	4.6	109.3	20.9	14.7
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	C	B
Approach Vol, veh/h		117			99			817			397	
Approach Delay, s/veh		24.6			26.8			16.6			21.7	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	41.6		11.6	23.5	23.4		11.6				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	6.1		5.0	17.1	12.1		8.0				
Green Ext Time (p_c), s	0.0	4.1		0.5	1.3	5.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			19.4
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	185	55	15	10	230	710	50	25	715	80
Future Volume (veh/h)	75	20	185	55	15	10	230	710	50	25	715	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	14	60	16	1	250	772	0	27	777	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	56	216	221	237	15	391	1082		349	928	783
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.10	0.58	0.00	0.02	0.50	0.50
Sat Flow, veh/h	1087	415	1585	1372	1742	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	104	0	14	60	0	17	250	772	0	27	777	49
Grp Sat Flow(s),veh/h/ln	1501	0	1585	1372	0	1851	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	3.2	0.0	0.5	2.5	0.0	0.5	3.6	17.7	0.0	0.4	21.4	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.5	6.3	0.0	0.5	3.6	17.7	0.0	0.4	21.4	1.0
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	0	216	221	0	252	391	1082		349	928	783
V/C Ratio(X)	0.33	0.00	0.06	0.27	0.00	0.07	0.64	0.71		0.08	0.84	0.06
Avail Cap(c_a), veh/h	727	0	662	607	0	773	658	1594		763	1594	1346
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	22.5	26.9	0.0	22.5	11.6	9.1	0.0	8.6	13.0	7.8
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.7	0.0	0.1	1.7	0.9	0.0	0.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	0.8	0.0	0.2	1.5	5.4	0.0	0.1	7.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	22.7	27.5	0.0	22.6	13.4	9.9	0.0	8.7	15.1	7.9
LnGrp LOS	C	A	C	C	A	C	B	A		A	B	A
Approach Vol, veh/h		118			77			1022	A		853	
Approach Delay, s/veh		24.3			26.5			10.8			14.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	40.6		13.1	11.0	35.7		13.1
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	19.7		5.8	5.6	23.4		8.3
Green Ext Time (p_c), s	0.0	6.2		0.5	0.5	6.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	65	105	135	60	120	175	900	215	120	840	75
Future Volume (veh/h)	55	65	105	135	60	120	175	900	215	120	840	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	71	77	147	65	13	190	978	188	130	913	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	90	98	173	309	259	218	1040	881	156	975	825
Arrive On Green	0.04	0.11	0.11	0.10	0.17	0.17	0.12	0.56	0.56	0.09	0.52	0.52
Sat Flow, veh/h	1781	806	874	1781	1870	1565	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	148	147	65	13	190	978	188	130	913	41
Grp Sat Flow(s),veh/h/ln	1781	0	1680	1781	1870	1565	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	4.5	0.0	11.7	11.0	4.1	1.0	14.2	66.1	8.1	9.8	62.0	1.7
Cycle Q Clear(g_c), s	4.5	0.0	11.7	11.0	4.1	1.0	14.2	66.1	8.1	9.8	62.0	1.7
Prop In Lane	1.00		0.52	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	0	188	173	309	259	218	1040	881	156	975	825
V/C Ratio(X)	0.77	0.00	0.79	0.85	0.21	0.05	0.87	0.94	0.21	0.83	0.94	0.05
Avail Cap(c_a), veh/h	302	0	260	262	309	259	393	1156	980	328	1087	920
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	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	64.3	0.0	58.7	60.4	49.0	47.7	58.6	28.1	15.2	61.0	30.4	16.0
Incr Delay (d2), s/veh	14.7	0.0	10.3	15.1	0.3	0.1	10.2	13.7	0.1	10.8	13.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	5.5	5.7	2.0	0.4	7.0	32.0	3.0	4.9	30.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.0	0.0	69.1	75.5	49.4	47.8	68.8	41.8	15.3	71.8	44.2	16.0
LnGrp LOS	E	A	E	E	D	D	E	D	B	E	D	B
Approach Vol, veh/h		208			225			1356			1084	
Approach Delay, s/veh		71.9			66.3			41.9			46.4	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	80.6	18.2	20.2	21.6	75.8	10.9	27.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	84.0	20.0	21.0	30.0	79.0	23.0	18.0
Max Q Clear Time (g_c+I1), s	11.8	68.1	13.0	13.7	16.2	64.0	6.5	6.1
Green Ext Time (p_c), s	0.2	7.4	0.2	0.4	0.4	6.1	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	5	610	85	10	10	625	1195	10	5	1030	25
Future Volume (veh/h)	100	5	610	85	10	10	625	1195	10	5	1030	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	5	0	92	11	9	679	1299	11	5	1120	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	6		174	15	12	710	2862	24	7	1413	630
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.79	0.79	0.00	0.40	0.40
Sat Flow, veh/h	1449	66	1585	1403	168	137	1781	3611	31	1781	3554	1585
Grp Volume(v), veh/h	114	0	0	112	0	0	679	639	671	5	1120	7
Grp Sat Flow(s),veh/h/ln	1515	0	1585	1708	0	0	1781	1777	1865	1781	1777	1585
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	48.3	15.2	15.2	0.4	36.2	0.3
Cycle Q Clear(g_c), s	9.3	0.0	0.0	7.9	0.0	0.0	48.3	15.2	15.2	0.4	36.2	0.3
Prop In Lane	0.96		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	200	0		214	0	0	710	1408	1478	7	1413	630
V/C Ratio(X)	0.57	0.00		0.52	0.00	0.00	0.96	0.45	0.45	0.74	0.79	0.01
Avail Cap(c_a), veh/h	291	0		365	0	0	970	1408	1478	970	1880	838
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	0.0	0.0	57.4	0.0	0.0	38.1	4.4	4.4	64.9	34.5	23.8
Incr Delay (d2), s/veh	2.6	0.0	0.0	2.0	0.0	0.0	14.3	0.5	0.5	43.5	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	3.7	0.0	0.0	23.3	4.6	4.8	0.2	15.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	0.0	0.0	59.3	0.0	0.0	52.4	4.9	4.8	108.4	37.2	23.8
LnGrp LOS	E	A		E	A	A	D	A	A	F	D	C
Approach Vol, veh/h		114	A		112			1989			1132	
Approach Delay, s/veh		60.5			59.3			21.1			37.5	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	56.0	57.9		16.5	4.5	109.4		16.5
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	50.3	38.2		9.9	2.4	17.2		11.3
Green Ext Time (p_c), s	1.7	13.7		0.3	0.0	19.7		0.2

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	135	15	0	5	130	1790	10	10	1740	60
Future Volume (veh/h)	55	5	135	15	0	5	130	1790	10	10	1740	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	16	0	1	141	1946	11	11	1891	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	16	171	171	2	7	171	2703	15	14	2338	1042
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.75	0.75	0.01	0.66	0.66
Sat Flow, veh/h	1385	140	1522	930	17	59	1781	3623	20	1781	3554	1584
Grp Volume(v), veh/h	65	0	5	17	0	0	141	953	1004	11	1891	41
Grp Sat Flow(s),veh/h/ln	1524	0	1522	1006	0	0	1781	1777	1867	1781	1777	1584
Q Serve(g_s), s	0.0	0.0	0.3	1.0	0.0	0.0	8.2	30.8	31.0	0.6	40.8	1.0
Cycle Q Clear(g_c), s	3.6	0.0	0.3	4.6	0.0	0.0	8.2	30.8	31.0	0.6	40.8	1.0
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	252	0	171	189	0	0	171	1326	1393	14	2338	1042
V/C Ratio(X)	0.26	0.00	0.03	0.09	0.00	0.00	0.83	0.72	0.72	0.79	0.81	0.04
Avail Cap(c_a), veh/h	402	0	334	336	0	0	357	1457	1530	187	2575	1147
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	41.4	44.0	0.0	0.0	46.6	7.3	7.3	52.0	13.1	6.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.8	2.1	2.1	29.2	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.1	0.4	0.0	0.0	3.7	9.6	10.1	0.4	14.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	41.5	44.1	0.0	0.0	50.3	9.4	9.4	81.2	15.4	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	F	B	A
Approach Vol, veh/h		70			17			2098			1943	
Approach Delay, s/veh		42.6			44.1			12.2			15.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	74.0		16.8	4.8	83.3		16.8
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	10.2	42.8		6.6	2.6	33.0		5.6
Green Ext Time (p_c), s	0.1	26.2		0.0	0.0	38.6		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	5	180	70	5	50	130	1755	60	40	1895	110
Future Volume (veh/h)	85	5	180	70	5	50	130	1755	60	40	1895	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	5	46	76	5	2	141	1908	48	43	2060	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	10	215	138	174	70	163	2631	1173	55	2417	1078
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.74	0.74	0.03	0.68	0.68
Sat Flow, veh/h	1305	71	1564	1341	1265	506	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	97	0	46	76	0	7	141	1908	48	43	2060	97
Grp Sat Flow(s),veh/h/ln	1376	0	1564	1341	0	1771	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	10.5	0.0	4.3	9.2	0.0	0.6	12.9	49.7	1.3	4.0	72.8	3.4
Cycle Q Clear(g_c), s	11.0	0.0	4.3	20.3	0.0	0.6	12.9	49.7	1.3	4.0	72.8	3.4
Prop In Lane	0.95		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	0	215	138	0	244	163	2631	1173	55	2417	1078
V/C Ratio(X)	0.40	0.00	0.21	0.55	0.00	0.03	0.87	0.73	0.04	0.78	0.85	0.09
Avail Cap(c_a), veh/h	251	0	228	149	0	258	281	2631	1173	108	2417	1078
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	1.00	1.00	0.00	1.00	0.53	0.53	0.53	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	0.0	63.2	75.5	0.0	61.6	74.0	12.0	5.7	79.4	20.1	9.0
Incr Delay (d2), s/veh	1.1	0.0	0.5	3.6	0.0	0.0	3.1	0.9	0.0	8.3	4.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.8	3.3	0.0	0.3	6.0	18.5	0.4	1.9	29.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	0.0	63.7	79.1	0.0	61.6	77.1	13.0	5.8	87.7	24.1	9.2
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	C	A
Approach Vol, veh/h		143			83			2097			2200	
Approach Delay, s/veh		66.0			77.7			17.1			24.7	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	118.2		27.7	9.1	128.2		27.7
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	74.8		22.3	6.0	51.7		13.0
Green Ext Time (p_c), s	0.2	22.3		0.0	0.0	43.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	335	5	625	15	0	5	395	1760	10	85	1925	150
Future Volume (veh/h)	335	5	625	15	0	5	395	1760	10	85	1925	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	368	0	540	16	0	1	429	1913	11	92	2092	142
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	483	0	860	57	0	4	489	2541	15	119	2227	1202
Arrive On Green	0.14	0.00	0.13	0.03	0.00	0.02	0.14	0.70	0.69	0.07	0.63	0.63
Sat Flow, veh/h	3563	0	3122	1658	0	104	3456	3623	21	1781	3554	1585
Grp Volume(v), veh/h	368	0	540	17	0	0	429	937	987	92	2092	142
Grp Sat Flow(s),veh/h/ln	1781	0	1561	1762	0	0	1728	1777	1867	1781	1777	1585
Q Serve(g_s), s	25.7	0.0	34.0	2.4	0.0	0.0	31.4	86.2	86.5	13.1	138.1	6.1
Cycle Q Clear(g_c), s	25.7	0.0	34.0	2.4	0.0	0.0	31.4	86.2	86.5	13.1	138.1	6.1
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	483	0	860	61	0	0	489	1246	1309	119	2227	1202
V/C Ratio(X)	0.76	0.00	0.63	0.28	0.00	0.00	0.88	0.75	0.75	0.77	0.94	0.12
Avail Cap(c_a), veh/h	483	0	860	164	0	0	776	1334	1401	214	2297	1233
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	107.7	0.0	82.5	121.7	0.0	0.0	108.7	24.4	24.4	118.7	43.8	8.3
Incr Delay (d2), s/veh	6.4	0.0	1.1	0.9	0.0	0.0	4.3	2.5	2.4	4.0	8.4	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	12.6	0.0	16.3	1.2	0.0	0.0	14.6	37.2	39.3	6.3	62.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.1	0.0	83.6	122.6	0.0	0.0	113.0	26.9	26.9	122.6	52.2	8.4
LnGrp LOS	F	A	F	F	A	A	F	C	C	F	D	A
Approach Vol, veh/h		908			17			2353			2326	
Approach Delay, s/veh		96.0			122.6			42.6			52.3	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	40.6	165.9		12.9	21.3	185.2		39.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	165.0		21.0	29.0	192.0		32.0
Max Q Clear Time (g_c+I1), s	33.4	140.1		4.4	15.1	88.5		36.0
Green Ext Time (p_c), s	1.1	19.8		0.0	0.1	34.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	55.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	65	10	2115	95	95	2515	5
Future Volume (veh/h)	10	0	5	90	5	65	10	2115	95	95	2515	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2299	101	103	2734	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	2	10	176	95	57	22	2634	115	127	2978	5
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	1.00	0.07	0.82	0.81
Sat Flow, veh/h	1239	24	115	1416	1095	657	1781	3469	151	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1169	1231	103	1334	1405
Grp Sat Flow(s),veh/h/ln	1378	0	0	1416	0	1752	1781	1777	1843	1781	1777	1869
Q Serve(g_s), s	0.9	0.0	0.0	7.9	0.0	0.6	0.9	0.0	0.0	8.3	79.5	79.7
Cycle Q Clear(g_c), s	1.5	0.0	0.0	9.4	0.0	0.6	0.9	0.0	0.0	8.3	79.5	79.7
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.08	1.00		0.00
Lane Grp Cap(c), veh/h	167	0	0	176	0	152	22	1349	1400	127	1454	1529
V/C Ratio(X)	0.07	0.00	0.00	0.56	0.00	0.05	0.50	0.87	0.88	0.81	0.92	0.92
Avail Cap(c_a), veh/h	279	0	0	288	0	290	61	1349	1400	184	1454	1529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.40	0.40	0.40	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	0.0	0.0	64.6	0.0	60.9	70.9	0.0	0.0	66.4	9.6	9.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.7	0.0	0.1	2.6	3.3	3.5	10.3	10.7	10.3
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	0.4	0.0	0.0	3.7	0.0	0.3	0.4	1.2	1.4	4.1	26.9	28.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	0.0	0.0	67.4	0.0	61.1	73.5	3.3	3.5	76.7	20.3	20.0
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	C	B
Approach Vol, veh/h		12			106			2411			2842	
Approach Delay, s/veh		61.5			66.9			3.7			22.2	
Approach LOS		E			E			A			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	122.6		16.6	14.3	114.1		16.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	5.0	103.0		23.0	15.0	93.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	81.7		11.4	10.3	2.0		3.5
Green Ext Time (p_c), s	0.0	21.0		0.2	0.1	77.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	15	10	65	5	10	5	2025	20	5	2140	345
Future Volume (veh/h)	195	15	10	65	5	10	5	2025	20	5	2140	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	16	9	71	5	7	5	2201	22	5	2326	304
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	18	10	295	21	25	7	2653	26	7	2615	1167
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.17	0.01	1.00	1.00	0.00	0.74	0.74
Sat Flow, veh/h	1335	101	57	1403	121	140	1781	3605	36	1781	3554	1585
Grp Volume(v), veh/h	237	0	0	83	0	0	5	1083	1140	5	2326	304
Grp Sat Flow(s),veh/h/ln	1492	0	0	1665	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	16.3	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	72.5	9.1
Cycle Q Clear(g_c), s	22.4	0.0	0.0	6.1	0.0	0.0	0.4	0.0	0.0	0.4	72.5	9.1
Prop In Lane	0.89		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	312	0	0	342	0	0	7	1308	1372	7	2615	1167
V/C Ratio(X)	0.76	0.00	0.00	0.24	0.00	0.00	0.74	0.83	0.83	0.74	0.89	0.26
Avail Cap(c_a), veh/h	354	0	0	383	0	0	98	1308	1372	98	2615	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.47	0.47	0.47	0.21	0.21	0.21
Uniform Delay (d), s/veh	57.9	0.0	0.0	51.6	0.0	0.0	71.9	0.0	0.0	72.2	14.6	6.3
Incr Delay (d2), s/veh	8.2	0.0	0.0	0.4	0.0	0.0	24.2	3.0	2.9	11.9	1.1	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	9.3	0.0	0.0	2.7	0.0	0.0	0.2	1.1	1.1	0.2	25.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	0.0	0.0	51.9	0.0	0.0	96.1	3.0	2.9	84.0	15.8	6.4
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		237			83			2228			2635	
Approach Delay, s/veh		66.1			51.9			3.2			14.8	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	110.7		29.7	4.5	110.7		29.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	94.0		29.0	8.0	94.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	74.5		8.1	2.4	2.0		24.4
Green Ext Time (p_c), s	0.0	19.1		0.2	0.0	82.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	35	50	100	25	20	55	1805	110	25	2065	160
Future Volume (veh/h)	195	35	50	100	25	20	55	1805	110	25	2065	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	38	16	109	27	1	60	1962	117	27	2245	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	196	83	223	284	11	74	2521	149	34	2403	180
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.15	0.08	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1344	1237	521	1315	1790	66	1781	3409	201	1781	3351	250
Grp Volume(v), veh/h	212	0	54	109	0	28	60	1013	1066	27	1177	1238
Grp Sat Flow(s),veh/h/ln	1344	0	1757	1315	0	1856	1781	1777	1834	1781	1777	1824
Q Serve(g_s), s	21.1	0.0	3.9	11.4	0.0	1.9	4.8	0.0	0.0	2.2	0.0	0.0
Cycle Q Clear(g_c), s	23.0	0.0	3.9	15.2	0.0	1.9	4.8	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.04	1.00		0.11	1.00		0.14
Lane Grp Cap(c), veh/h	245	0	279	223	0	294	74	1314	1356	34	1274	1309
V/C Ratio(X)	0.86	0.00	0.19	0.49	0.00	0.10	0.81	0.77	0.79	0.79	0.92	0.95
Avail Cap(c_a), veh/h	245	0	279	223	0	294	74	1314	1356	74	1274	1309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.32	0.32	0.32
Uniform Delay (d), s/veh	62.7	0.0	53.0	59.6	0.0	52.1	66.0	0.0	0.0	69.4	0.0	0.0
Incr Delay (d2), s/veh	25.7	0.0	0.3	1.7	0.0	0.1	5.9	0.4	0.4	4.9	4.8	6.2
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	9.7	0.0	1.8	3.9	0.0	0.9	2.2	0.2	0.2	1.0	1.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	0.0	53.3	61.2	0.0	52.3	71.9	0.4	0.4	74.4	4.8	6.2
LnGrp LOS	F	A	D	E	A	D	E	A	A	E	A	A
Approach Vol, veh/h		266			137			2139			2442	
Approach Delay, s/veh		81.3			59.4			2.4			6.3	
Approach LOS		F			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	108.0		27.0	6.8	111.2		27.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	6.0	103.0		22.0	6.0	103.0		22.0
Max Q Clear Time (g_c+I1), s	16.8	2.0		17.2	4.2	2.0		25.0
Green Ext Time (p_c), s	0.0	83.8		0.2	0.0	64.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1115	85	730	225	690	1225	90
Future Volume (veh/h)	85	125	115	195	120	1115	85	730	225	690	1225	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	23	212	130	0	92	793	171	750	1332	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	155	254	236	529		113	763	642	783	1923	135
Arrive On Green	0.17	0.17	0.17	0.09	0.28	0.00	0.06	0.41	0.41	0.45	1.00	1.00
Sat Flow, veh/h	612	937	1533	1781	1870	1585	1781	1870	1573	3456	3366	237
Grp Volume(v), veh/h	228	0	23	212	130	0	92	793	171	750	701	725
Grp Sat Flow(s),veh/h/ln	1549	0	1533	1781	1870	1585	1781	1870	1573	1728	1777	1826
Q Serve(g_s), s	20.5	0.0	1.8	13.0	7.8	0.0	7.4	59.1	10.5	30.4	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	1.8	13.0	7.8	0.0	7.4	59.1	10.5	30.4	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	291	0	254	236	529		113	763	642	783	1015	1043
V/C Ratio(X)	0.78	0.00	0.09	0.90	0.25		0.82	1.04	0.27	0.96	0.69	0.69
Avail Cap(c_a), veh/h	302	0	264	236	542		123	763	642	810	1015	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.21	0.21	0.21
Uniform Delay (d), s/veh	59.2	0.0	51.3	47.8	40.1	0.0	67.1	42.9	28.5	38.9	0.0	0.0
Incr Delay (d2), s/veh	12.2	0.0	0.2	33.1	0.2	0.0	25.7	41.4	0.9	6.9	0.8	0.8
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	9.3	0.0	0.7	3.7	3.7	0.0	4.2	35.5	4.1	11.2	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	0.0	51.4	81.0	40.3	0.0	92.7	84.3	29.4	45.8	0.8	0.8
LnGrp LOS	E	A	D	F	D		F	F	C	D	A	A
Approach Vol, veh/h		251			342	A		1056			2176	
Approach Delay, s/veh		69.6			65.5			76.1			16.3	
Approach LOS		E			E			E			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	86.8	17.0	28.0	36.9	63.1		45.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	80.0	12.0	24.0	34.0	56.0		41.0
Max Q Clear Time (g_c+I1), s	9.4	2.0	15.0	22.9	32.4	61.1		9.8
Green Ext Time (p_c), s	0.0	26.2	0.0	0.1	0.5	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	15	1045	35	0	965
Future Vol, veh/h	0	15	1045	35	0	965
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	1136	38	0	1049

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1136	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	246	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	246	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	246	-
HCM Lane V/C Ratio	-	-	0.066	-
HCM Control Delay (s)	-	-	20.7	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	35	1235	75	40	1045
Future Vol, veh/h	55	35	1235	75	40	1045
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	38	1342	82	43	1136

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2564	1342	0	0	1424	0
Stage 1	1342	-	-	-	-	-
Stage 2	1222	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 29	186	-	-	478	-
Stage 1	244	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 26	186	-	-	478	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	222	-	-	-	-	-
Stage 2	278	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	51.2	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	116	186	478	-
HCM Lane V/C Ratio	-	-	0.515	0.205	0.091	-
HCM Control Delay (s)	-	-	65.2	29.3	13.3	-
HCM Lane LOS	-	-	F	D	B	-
HCM 95th %tile Q(veh)	-	-	2.4	0.7	0.3	-

Notes

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

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	190	165	5	135	0	140	15	5	0	5	35
Future Vol, veh/h	45	190	165	5	135	0	140	15	5	0	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	207	179	5	147	0	152	16	5	0	5	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	147	0	0	386	0	0	574	552	193	367	641	147
Stage 1	-	-	-	-	-	-	395	395	-	157	157	-
Stage 2	-	-	-	-	-	-	179	157	-	210	484	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1434	-	-	1171	-	-	415	441	817	577	392	899
Stage 1	-	-	-	-	-	-	602	604	-	845	767	-
Stage 2	-	-	-	-	-	-	822	767	-	773	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1171	-	-	382	424	817	540	377	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	382	424	-	540	377	-
Stage 1	-	-	-	-	-	-	582	583	-	816	764	-
Stage 2	-	-	-	-	-	-	778	764	-	721	532	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.3	21.3	10
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	392	1434	-	-	1171	-	-	766
HCM Lane V/C Ratio	0.444	0.034	-	-	0.005	-	-	0.057
HCM Control Delay (s)	21.3	7.6	-	-	8.1	-	-	10
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	15	75	0	20	0	50	10	0	0	5	75
Future Vol, veh/h	105	15	75	0	20	0	50	10	0	0	5	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	16	82	0	22	0	54	11	0	0	5	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	98	0	0	351	307	49	264	348	22
Stage 1	-	-	-	-	-	-	285	285	-	22	22	-
Stage 2	-	-	-	-	-	-	66	22	-	242	326	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1593	-	-	1494	-	-	591	606	1009	678	575	1055
Stage 1	-	-	-	-	-	-	699	675	-	996	877	-
Stage 2	-	-	-	-	-	-	944	877	-	741	648	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1494	-	-	512	562	1009	631	534	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	562	-	631	534	-
Stage 1	-	-	-	-	-	-	649	626	-	924	877	-
Stage 2	-	-	-	-	-	-	866	877	-	676	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4	0	12.9	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	520	1593	-	-	1494	-	-	994
HCM Lane V/C Ratio	0.125	0.072	-	-	-	-	-	0.087
HCM Control Delay (s)	12.9	7.4	-	-	0	-	-	9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	75	15	0	50	5	20	0	0	15	0	25
Future Vol, veh/h	25	75	15	0	50	5	20	0	0	15	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	82	16	0	54	5	22	0	0	16	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	59	0	0	98	0	0	214	203	90	201	209	57
Stage 1	-	-	-	-	-	-	144	144	-	57	57	-
Stage 2	-	-	-	-	-	-	70	59	-	144	152	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1545	-	-	1495	-	-	743	693	968	757	688	1009
Stage 1	-	-	-	-	-	-	859	778	-	955	847	-
Stage 2	-	-	-	-	-	-	940	846	-	859	772	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1545	-	-	1495	-	-	713	680	968	746	675	1009
Mov Cap-2 Maneuver	-	-	-	-	-	-	713	680	-	746	675	-
Stage 1	-	-	-	-	-	-	843	763	-	937	847	-
Stage 2	-	-	-	-	-	-	915	846	-	843	757	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0	10.2	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	713	1545	-	-	1495	-	-	891
HCM Lane V/C Ratio	0.03	0.018	-	-	-	-	-	0.049
HCM Control Delay (s)	10.2	7.4	0	-	0	-	-	9.2
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	40	0	30	25	0
Future Vol, veh/h	50	40	0	30	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	43	0	33	27	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	97	0	109	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1496	-	888	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1496	-	888	985
Mov Cap-2 Maneuver	-	-	-	-	888	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	989	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	888	-	-	1496	-
HCM Lane V/C Ratio	0.031	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2030 Scenario 3 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/08/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	405	50	50	20	345	400	45	20	345	90
Future Volume (veh/h)	40	45	405	50	50	20	345	400	45	20	345	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	35	54	54	10	375	435	29	22	375	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	127	192	227	188	35	455	1040	880	28	591	500
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.26	0.56	0.56	0.02	0.32	0.32
Sat Flow, veh/h	542	1031	1566	1303	1532	284	1781	1870	1582	1781	1870	1583
Grp Volume(v), veh/h	92	0	35	54	0	64	375	435	29	22	375	28
Grp Sat Flow(s),veh/h/ln	1573	0	1566	1303	0	1815	1781	1870	1582	1781	1870	1583
Q Serve(g_s), s	1.2	0.0	1.1	2.1	0.0	1.7	10.4	7.0	0.4	0.6	9.0	0.6
Cycle Q Clear(g_c), s	2.8	0.0	1.1	5.0	0.0	1.7	10.4	7.0	0.4	0.6	9.0	0.6
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	0	192	227	0	223	455	1040	880	28	591	500
V/C Ratio(X)	0.31	0.00	0.18	0.24	0.00	0.29	0.82	0.42	0.03	0.79	0.63	0.06
Avail Cap(c_a), veh/h	820	0	717	664	0	832	1020	2821	2386	510	2285	1934
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	20.6	23.7	0.0	20.9	18.4	6.7	5.3	25.7	15.3	12.5
Incr Delay (d2), s/veh	0.6	0.0	0.5	0.5	0.0	0.7	3.8	0.6	0.0	37.1	2.4	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	1.0	0.0	0.4	0.6	0.0	0.7	4.1	2.1	0.1	0.5	3.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	21.1	24.2	0.0	21.6	22.2	7.3	5.3	62.8	17.7	12.6
LnGrp LOS	C	A	C	C	A	C	C	A	A	E	B	B
Approach Vol, veh/h		127			118			839			425	
Approach Delay, s/veh		21.7			22.8			13.9			19.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	35.1		11.4	18.4	22.6		11.4
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0
Max Q Clear Time (g_c+I1), s	2.6	9.0		4.8	12.4	11.0		7.0
Green Ext Time (p_c), s	0.0	6.6		0.5	1.1	5.4		0.4

Intersection Summary			
HCM 6th Ctrl Delay			16.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	245	50	15	5	175	615	35	15	635	60
Future Volume (veh/h)	60	20	245	50	15	5	175	615	35	15	635	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	21	54	16	1	190	668	0	16	690	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	73	226	266	253	16	403	1004		374	858	725
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.09	0.54	0.00	0.01	0.46	0.46
Sat Flow, veh/h	1002	505	1558	1345	1740	109	1781	1870	1585	1781	1870	1580
Grp Volume(v), veh/h	87	0	21	54	0	17	190	668	0	16	690	28
Grp Sat Flow(s),veh/h/ln	1507	0	1558	1345	0	1849	1781	1870	1585	1781	1870	1580
Q Serve(g_s), s	1.9	0.0	0.6	2.0	0.0	0.4	2.7	13.5	0.0	0.3	16.6	0.5
Cycle Q Clear(g_c), s	2.6	0.0	0.6	4.6	0.0	0.4	2.7	13.5	0.0	0.3	16.6	0.5
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	226	266	0	269	403	1004		374	858	725
V/C Ratio(X)	0.26	0.00	0.09	0.20	0.00	0.06	0.47	0.67		0.04	0.80	0.04
Avail Cap(c_a), veh/h	829	0	744	713	0	883	753	1823		863	1823	1540
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	0.0	19.4	22.3	0.0	19.3	9.4	8.7	0.0	8.3	12.1	7.8
Incr Delay (d2), s/veh	0.4	0.0	0.2	0.4	0.0	0.1	0.9	0.8	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2	0.6	0.0	0.2	0.8	4.0	0.0	0.1	5.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	0.0	19.5	22.7	0.0	19.4	10.3	9.5	0.0	8.3	14.0	7.8
LnGrp LOS	C	A	B	C	A	B	B	A		A	B	A
Approach Vol, veh/h		108			71			858	A		734	
Approach Delay, s/veh		20.4			21.9			9.7			13.6	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	34.1		12.6	9.7	30.0		12.6
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	15.5		4.6	4.7	18.6		6.6
Green Ext Time (p_c), s	0.0	5.1		0.5	0.4	5.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	70	90	185	80	155	90	645	245	140	760	50
Future Volume (veh/h)	40	70	90	185	80	155	90	645	245	140	760	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	76	64	201	87	23	98	701	183	152	826	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	100	85	237	392	332	127	850	720	187	913	773
Arrive On Green	0.03	0.11	0.11	0.13	0.21	0.21	0.07	0.45	0.45	0.11	0.49	0.49
Sat Flow, veh/h	1781	932	784	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	140	201	87	23	98	701	183	152	826	25
Grp Sat Flow(s),veh/h/ln	1781	0	1716	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	2.4	0.0	7.9	11.0	3.9	1.2	5.4	32.7	7.1	8.3	40.5	0.8
Cycle Q Clear(g_c), s	2.4	0.0	7.9	11.0	3.9	1.2	5.4	32.7	7.1	8.3	40.5	0.8
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	0	185	237	392	332	127	850	720	187	913	773
V/C Ratio(X)	0.78	0.00	0.76	0.85	0.22	0.07	0.77	0.83	0.25	0.81	0.90	0.03
Avail Cap(c_a), veh/h	356	0	360	356	393	333	445	1216	1031	445	1216	1029
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	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	48.1	0.0	43.3	42.4	32.8	31.7	45.6	23.8	16.8	43.8	23.4	13.3
Incr Delay (d2), s/veh	20.4	0.0	6.2	11.6	0.3	0.1	9.6	3.2	0.2	8.2	7.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.7	5.6	1.8	0.5	2.7	14.3	2.6	4.0	18.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	0.0	49.5	54.0	33.0	31.8	55.3	27.0	17.0	51.9	31.3	13.3
LnGrp LOS	E	A	D	D	C	C	E	C	B	D	C	B
Approach Vol, veh/h		183			311			982			1003	
Approach Delay, s/veh		54.0			46.5			28.0			34.0	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	50.4	18.3	15.8	12.1	53.8	8.1	26.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	10.3	34.7	13.0	9.9	7.4	42.5	4.4	5.9
Green Ext Time (p_c), s	0.3	6.0	0.3	0.5	0.2	6.4	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	10	620	10	0	5	425	945	5	0	1025	70
Future Volume (veh/h)	80	10	620	10	0	5	425	945	5	0	1025	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	11	0	11	0	1	462	1027	5	0	1114	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	14		201	3	11	509	2866	14	2	1630	724
Arrive On Green	0.09	0.08	0.00	0.09	0.00	0.08	0.29	0.79	0.79	0.00	0.46	0.46
Sat Flow, veh/h	1308	165	1585	1462	37	136	1781	3626	18	1781	3554	1580
Grp Volume(v), veh/h	98	0	0	12	0	0	462	503	529	0	1114	39
Grp Sat Flow(s),veh/h/ln	1474	0	1585	1636	0	0	1781	1777	1867	1781	1777	1580
Q Serve(g_s), s	5.0	0.0	0.0	0.0	0.0	0.0	21.8	7.2	7.2	0.0	21.5	1.2
Cycle Q Clear(g_c), s	5.6	0.0	0.0	0.5	0.0	0.0	21.8	7.2	7.2	0.0	21.5	1.2
Prop In Lane	0.89		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	218	0		234	0	0	509	1404	1476	2	1630	724
V/C Ratio(X)	0.45	0.00		0.05	0.00	0.00	0.91	0.36	0.36	0.00	0.68	0.05
Avail Cap(c_a), veh/h	431	0		524	0	0	1454	1410	1482	1454	2820	1254
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	0.0	0.0	36.4	0.0	0.0	30.0	2.7	2.7	0.0	18.6	13.1
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.1	0.0	0.0	2.6	0.3	0.3	0.0	1.1	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	2.1	0.0	0.0	0.2	0.0	0.0	9.2	1.5	1.6	0.0	8.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	0.0	0.0	36.5	0.0	0.0	32.6	3.0	3.0	0.0	19.7	13.1
LnGrp LOS	D	A		D	A	A	C	A	A	A	B	B
Approach Vol, veh/h		98	A		12			1494			1153	
Approach Delay, s/veh		40.1			36.5			12.1			19.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.8	45.9		12.2	0.0	74.7		12.2
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	23.8	23.5		2.5	0.0	9.2		7.6
Green Ext Time (p_c), s	1.1	16.4		0.0	0.0	13.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	145	15	5	20	110	1325	20	10	1620	70
Future Volume (veh/h)	65	5	145	15	5	20	110	1325	20	10	1620	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	5	5	16	5	1	120	1440	22	11	1761	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	12	141	126	31	4	150	2684	41	14	2391	1064
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.08	0.75	0.75	0.01	0.67	0.67
Sat Flow, veh/h	1436	129	1548	648	343	47	1781	3583	55	1781	3554	1582
Grp Volume(v), veh/h	76	0	5	22	0	0	120	714	748	11	1761	48
Grp Sat Flow(s),veh/h/ln	1565	0	1548	1038	0	0	1781	1777	1861	1781	1777	1582
Q Serve(g_s), s	0.0	0.0	0.3	0.4	0.0	0.0	6.1	15.5	15.6	0.6	29.7	0.9
Cycle Q Clear(g_c), s	3.7	0.0	0.3	4.1	0.0	0.0	6.1	15.5	15.6	0.6	29.7	0.9
Prop In Lane	0.93		1.00	0.73		0.05	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	235	0	141	173	0	0	150	1331	1394	14	2391	1064
V/C Ratio(X)	0.32	0.00	0.04	0.13	0.00	0.00	0.80	0.54	0.54	0.77	0.74	0.05
Avail Cap(c_a), veh/h	458	0	386	407	0	0	405	1656	1734	212	2926	1302
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	0.0	38.2	39.0	0.0	0.0	41.5	4.8	4.9	45.7	9.8	5.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	3.6	0.7	0.7	27.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.1	0.5	0.0	0.0	2.8	4.2	4.4	0.4	9.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.7	0.0	38.3	39.1	0.0	0.0	45.1	5.6	5.5	72.9	11.0	5.1
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		81			22			1582			1820	
Approach Delay, s/veh		39.6			39.1			8.6			11.2	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	67.1		13.4	4.7	74.1		13.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	8.1	31.7		6.1	2.6	17.6		5.7
Green Ext Time (p_c), s	0.1	30.4		0.0	0.0	26.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	185	45	5	40	115	1385	55	35	1690	90
Future Volume (veh/h)	80	5	185	45	5	40	115	1385	55	35	1690	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	5	12	49	5	3	125	1505	38	38	1837	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	12	212	179	147	88	158	2380	1062	60	2185	975
Arrive On Green	0.15	0.13	0.13	0.13	0.13	0.13	0.09	0.67	0.67	0.03	0.61	0.61
Sat Flow, veh/h	1307	91	1578	1391	1093	656	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	92	0	12	49	0	8	125	1505	38	38	1837	59
Grp Sat Flow(s),veh/h/ln	1398	0	1578	1391	0	1749	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.3	0.0	0.6	3.1	0.0	0.4	6.4	22.4	0.8	1.9	38.1	1.4
Cycle Q Clear(g_c), s	5.7	0.0	0.6	8.8	0.0	0.4	6.4	22.4	0.8	1.9	38.1	1.4
Prop In Lane	0.95		1.00	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	212	179	0	235	158	2380	1062	60	2185	975
V/C Ratio(X)	0.33	0.00	0.06	0.27	0.00	0.03	0.79	0.63	0.04	0.63	0.84	0.06
Avail Cap(c_a), veh/h	456	0	409	353	0	454	404	2651	1182	231	2305	1028
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	34.9	41.2	0.0	34.8	41.3	8.7	5.2	44.1	14.2	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.8	0.0	0.1	3.4	0.7	0.0	4.1	3.2	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	1.9	0.0	0.2	1.1	0.0	0.2	2.9	7.3	0.2	0.9	13.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	35.0	42.0	0.0	34.9	44.7	9.4	5.2	48.2	17.4	7.2
LnGrp LOS	D	A	D	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		104			57			1668			1934	
Approach Delay, s/veh		37.2			41.0			12.0			17.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	62.9		17.4	7.1	68.0		17.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	8.4	40.1		10.8	3.9	24.4		7.7
Green Ext Time (p_c), s	0.2	16.8		0.1	0.0	24.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	5	460	15	5	20	305	1470	15	65	1665	175
Future Volume (veh/h)	290	5	460	15	5	20	305	1470	15	65	1665	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	319	0	288	16	5	7	332	1598	16	71	1810	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	0	768	39	12	17	423	2441	24	112	2195	1169
Arrive On Green	0.13	0.00	0.12	0.04	0.04	0.02	0.12	0.68	0.67	0.06	0.62	0.62
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3605	36	1781	3554	1584
Grp Volume(v), veh/h	319	0	288	28	0	0	332	787	827	71	1810	164
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1864	1781	1777	1584
Q Serve(g_s), s	14.5	0.0	12.8	2.7	0.0	0.0	15.7	43.3	43.5	6.6	67.0	5.1
Cycle Q Clear(g_c), s	14.5	0.0	12.8	2.7	0.0	0.0	15.7	43.3	43.5	6.6	67.0	5.1
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	448	0	768	69	0	0	423	1203	1262	112	2195	1169
V/C Ratio(X)	0.71	0.00	0.37	0.41	0.00	0.00	0.79	0.65	0.66	0.63	0.82	0.14
Avail Cap(c_a), veh/h	717	0	1007	320	0	0	1187	2042	2142	158	3178	1607
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	0.0	53.3	79.5	0.0	0.0	71.9	15.8	15.8	77.2	25.2	6.5
Incr Delay (d2), s/veh	0.8	0.0	0.1	1.4	0.0	0.0	1.2	0.9	0.8	2.2	1.5	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	6.8	0.0	5.2	1.2	0.0	0.0	7.1	17.3	18.2	3.1	27.8	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	0.0	53.4	81.0	0.0	0.0	73.2	16.7	16.7	79.4	26.7	6.6
LnGrp LOS	E	A	D	F	A	A	E	B	B	E	C	A
Approach Vol, veh/h		607			28			1946			2045	
Approach Delay, s/veh		63.0			81.0			26.3			26.9	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.7	108.3		10.7	14.6	118.3		25.3
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	17.7	69.0		4.7	8.6	45.5		16.5
Green Ext Time (p_c), s	0.9	33.3		0.0	0.0	21.7		1.7

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	70	5	1665	90	95	2120	10
Future Volume (veh/h)	5	0	5	140	5	70	5	1665	90	95	2120	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1810	95	103	2304	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2428	126	129	2803	13
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3436	179	1781	3627	17
Grp Volume(v), veh/h	6	0	0	152	0	10	5	929	976	103	1128	1187
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1838	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	13.4	14.3	7.4	51.3	51.6
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	13.4	14.3	7.4	51.3	51.6
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1256	1299	129	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.74	0.75	0.80	0.82	0.82
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1256	1299	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.5	1.6	59.3	9.2	9.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	6.8	2.7	2.8	19.0	5.6	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.6	2.7	4.0	17.9	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	71.0	4.3	4.4	78.3	14.8	14.6
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1910			2418	
Approach Delay, s/veh		49.6			57.4			4.5			17.4	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.4	95.9		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	53.6		15.4	9.4	16.3		2.7
Green Ext Time (p_c), s	0.0	26.4		0.3	0.0	43.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	5	15	70	5	15	15	1585	15	10	1870	290
Future Volume (veh/h)	155	5	15	70	5	15	15	1585	15	10	1870	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	5	14	76	5	9	16	1723	15	11	2033	243
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	6	16	251	18	24	19	2723	24	13	2669	1190
Arrive On Green	0.15	0.15	0.14	0.15	0.15	0.14	0.01	0.75	0.75	0.01	0.75	0.75
Sat Flow, veh/h	1349	40	112	1372	122	166	1781	3610	31	1781	3554	1584
Grp Volume(v), veh/h	187	0	0	90	0	0	16	847	891	11	2033	243
Grp Sat Flow(s),veh/h/ln	1502	0	0	1661	0	0	1781	1777	1865	1781	1777	1584
Q Serve(g_s), s	9.4	0.0	0.0	0.0	0.0	0.0	1.2	29.1	29.2	0.8	43.3	5.9
Cycle Q Clear(g_c), s	15.6	0.0	0.0	6.2	0.0	0.0	1.2	29.1	29.2	0.8	43.3	5.9
Prop In Lane	0.90		0.07	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	272	0	0	293	0	0	19	1340	1406	13	2669	1190
V/C Ratio(X)	0.69	0.00	0.00	0.31	0.00	0.00	0.84	0.63	0.63	0.82	0.76	0.20
Avail Cap(c_a), veh/h	349	0	0	371	0	0	110	1340	1406	110	2669	1190
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	0.56	0.56	0.56	0.43	0.43	0.43
Uniform Delay (d), s/veh	53.8	0.0	0.0	50.1	0.0	0.0	64.2	7.5	7.5	64.4	9.4	4.8
Incr Delay (d2), s/veh	3.9	0.0	0.0	0.6	0.0	0.0	17.8	1.3	1.2	17.0	0.9	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	6.3	0.0	0.0	2.7	0.0	0.0	0.6	9.8	10.3	0.4	14.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	0.0	50.7	0.0	0.0	82.0	8.8	8.8	81.4	10.3	4.9
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		187			90			1754			2287	
Approach Delay, s/veh		57.7			50.7			9.4			10.1	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	101.6		23.0	5.0	102.0		23.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	45.3		8.2	2.8	31.2		17.6
Green Ext Time (p_c), s	0.0	35.1		0.2	0.0	39.5		0.4

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	20	55	95	20	20	65	1595	65	20	1870	145
Future Volume (veh/h)	215	20	55	95	20	20	65	1595	65	20	1870	145
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		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	22	8	103	22	2	71	1734	69	22	2033	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	263	96	313	340	31	90	2408	95	27	2198	164
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.19	0.05	0.69	0.68	0.02	0.87	0.86
Sat Flow, veh/h	1381	1307	475	1374	1688	153	1781	3484	138	1781	3351	251
Grp Volume(v), veh/h	234	0	30	103	0	24	71	880	923	22	1065	1122
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1374	0	1842	1781	1777	1845	1781	1777	1825
Q Serve(g_s), s	21.5	0.0	1.8	8.6	0.0	1.4	5.1	39.4	40.2	1.6	49.2	56.1
Cycle Q Clear(g_c), s	22.8	0.0	1.8	10.3	0.0	1.4	5.1	39.4	40.2	1.6	49.2	56.1
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.07	1.00		0.14
Lane Grp Cap(c), veh/h	319	0	359	313	0	371	90	1228	1275	27	1165	1197
V/C Ratio(X)	0.73	0.00	0.08	0.33	0.00	0.06	0.79	0.72	0.72	0.81	0.91	0.94
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1228	1275	110	1165	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.52	0.52	0.52
Uniform Delay (d), s/veh	51.3	0.0	42.2	46.4	0.0	42.1	61.0	12.3	12.4	63.5	6.0	6.5
Incr Delay (d2), s/veh	7.1	0.0	0.1	0.6	0.0	0.1	2.3	0.3	0.3	10.7	7.2	8.9
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	8.1	0.0	0.8	3.0	0.0	0.6	2.4	14.1	15.0	0.8	7.1	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	0.0	42.3	47.0	0.0	42.1	63.3	12.6	12.8	74.2	13.2	15.4
LnGrp LOS	E	A	D	D	A	D	E	B	B	E	B	B
Approach Vol, veh/h		264			127			1874			2209	
Approach Delay, s/veh		56.6			46.1			14.6			14.9	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	89.3		30.2	6.0	93.9		30.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	58.1		12.3	3.6	42.2		24.8
Green Ext Time (p_c), s	0.0	20.2		0.4	0.0	27.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	930	95	640	205	605	1120	155
Future Volume (veh/h)	95	120	115	200	140	930	95	640	205	605	1120	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	45	217	152	0	103	696	161	658	1217	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	150	268	251	562		128	754	630	705	1691	222
Arrive On Green	0.18	0.18	0.18	0.09	0.30	0.00	0.07	0.40	0.40	0.20	0.54	0.53
Sat Flow, veh/h	651	846	1513	1781	1870	1585	1781	1870	1563	3456	3159	414
Grp Volume(v), veh/h	233	0	45	217	152	0	103	696	161	658	683	694
Grp Sat Flow(s),veh/h/ln	1498	0	1513	1781	1870	1585	1781	1870	1563	1728	1777	1795
Q Serve(g_s), s	19.4	0.0	3.3	12.0	8.0	0.0	7.4	46.0	8.9	24.3	37.7	38.2
Cycle Q Clear(g_c), s	19.7	0.0	3.3	12.0	8.0	0.0	7.4	46.0	8.9	24.3	37.7	38.2
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	306	0	268	251	562		128	754	630	705	952	961
V/C Ratio(X)	0.76	0.00	0.17	0.86	0.27		0.81	0.92	0.26	0.93	0.72	0.72
Avail Cap(c_a), veh/h	339	0	303	251	604		329	754	630	718	952	961
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	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.27	0.27	0.27
Uniform Delay (d), s/veh	52.0	0.0	45.3	41.2	34.6	0.0	59.5	36.9	25.8	50.9	22.8	23.0
Incr Delay (d2), s/veh	8.9	0.0	0.3	25.3	0.3	0.0	3.6	15.6	0.8	6.7	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	8.2	0.0	1.3	7.5	3.8	0.0	3.5	23.7	3.4	11.1	15.5	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.0	45.6	66.5	34.9	0.0	63.0	52.5	26.6	57.6	24.1	24.3
LnGrp LOS	E	A	D	E	C		E	D	C	E	C	C
Approach Vol, veh/h		278			369	A		960			2035	
Approach Delay, s/veh		58.4			53.5			49.3			35.0	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	73.6	16.0	27.1	30.5	56.4		43.1
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	51.0	11.0	25.0	27.0	48.0		41.0
Max Q Clear Time (g_c+I1), s	9.4	40.2	14.0	21.7	26.3	48.0		10.0
Green Ext Time (p_c), s	0.1	8.0	0.0	0.4	0.2	0.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	42.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	20	810	35	0	945
Future Vol, veh/h	0	20	810	35	0	945
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	880	38	0	1027

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	880	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	346	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	346	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	346	-
HCM Lane V/C Ratio	-	-	0.063	-
HCM Control Delay (s)	-	-	16.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	50	940	95	50	995
Future Vol, veh/h	85	50	940	95	50	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	54	1022	103	54	1082

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2212	1022	0	0	1125	0
Stage 1	1022	-	-	-	-	-
Stage 2	1190	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 48	287	-	-	621	-
Stage 1	347	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 44	287	-	-	621	-
Mov Cap-2 Maneuver	143	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	289	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	50	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	143	287	621	-
HCM Lane V/C Ratio	-	-	0.646	0.189	0.088	-
HCM Control Delay (s)	-	-	67.4	20.5	11.4	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.5	0.7	0.3	-

Notes

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

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	195	210	0	175	0	195	0	0	0	0	45
Future Vol, veh/h	50	195	210	0	175	0	195	0	0	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	212	228	0	190	0	212	0	0	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	0	440	0	0	649	624	220	404	738	190
Stage 1	-	-	-	-	-	-	434	434	-	190	190	-
Stage 2	-	-	-	-	-	-	215	190	-	214	548	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1382	-	-	1118	-	-	369	401	785	544	345	851
Stage 1	-	-	-	-	-	-	571	580	-	811	742	-
Stage 2	-	-	-	-	-	-	787	742	-	769	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1382	-	-	1118	-	-	337	385	785	528	332	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	385	-	528	332	-
Stage 1	-	-	-	-	-	-	549	557	-	779	742	-
Stage 2	-	-	-	-	-	-	742	742	-	739	496	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	32.2	9.5
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	337	1382	-	-	1118	-	-	851
HCM Lane V/C Ratio	0.629	0.039	-	-	-	-	-	0.057
HCM Control Delay (s)	32.2	7.7	-	-	0	-	-	9.5
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	25	75	0	25	0	65	0	0	0	0	90
Future Vol, veh/h	95	25	75	0	25	0	65	0	0	0	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	27	82	0	27	0	71	0	0	0	0	98

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	109	0	0	350	301	55	247	342	27
Stage 1	-	-	-	-	-	-	274	274	-	27	27	-
Stage 2	-	-	-	-	-	-	76	27	-	220	315	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1586	-	-	1480	-	-	592	611	1001	696	579	1048
Stage 1	-	-	-	-	-	-	709	683	-	990	872	-
Stage 2	-	-	-	-	-	-	933	872	-	763	655	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1586	-	-	1480	-	-	510	571	1001	661	541	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	510	571	-	661	541	-
Stage 1	-	-	-	-	-	-	663	639	-	926	872	-
Stage 2	-	-	-	-	-	-	846	872	-	713	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.6	0	13.2	8.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	510	1586	-	-	1480	-	-	1048
HCM Lane V/C Ratio	0.139	0.065	-	-	-	-	-	0.093
HCM Control Delay (s)	13.2	7.4	-	-	0	-	-	8.8
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	75	40	0	60	0	45	0	0	0	0	30
Future Vol, veh/h	35	75	40	0	60	0	45	0	0	0	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	82	43	0	65	0	49	0	0	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	65	0	0	125	0	0	262	245	104	245	266	65
Stage 1	-	-	-	-	-	-	180	180	-	65	65	-
Stage 2	-	-	-	-	-	-	82	65	-	180	201	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1537	-	-	1462	-	-	691	657	951	709	640	999
Stage 1	-	-	-	-	-	-	822	750	-	946	841	-
Stage 2	-	-	-	-	-	-	926	841	-	822	735	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1537	-	-	1462	-	-	654	639	951	694	623	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	654	639	-	694	623	-
Stage 1	-	-	-	-	-	-	800	730	-	920	841	-
Stage 2	-	-	-	-	-	-	896	841	-	800	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	10.9	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	654	1537	-	-	1462	-	-	999
HCM Lane V/C Ratio	0.075	0.025	-	-	-	-	-	0.033
HCM Control Delay (s)	10.9	7.4	0	-	0	-	-	8.7
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	35	0	35	30	0
Future Vol, veh/h	40	35	0	35	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	38	0	38	33	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	81	0	100	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	38	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1517	-	899	1003
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1517	-	899	1003
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1517	-
HCM Lane V/C Ratio	0.036	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2035 Scenario 4 AM Peak

HCM 6th Signalized Intersection Summary
1: Honoapiilani Highway & Napilihau Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	335	90	45	20	270	290	120	10	155	35
Future Volume (veh/h)	50	45	335	90	45	20	270	290	120	10	155	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	49	46	98	49	9	293	315	64	11	168	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	162	254	315	248	46	383	834	707	15	449	380
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.21	0.45	0.45	0.01	0.24	0.24
Sat Flow, veh/h	619	1003	1570	1292	1535	282	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	0	46	98	0	58	293	315	64	11	168	9
Grp Sat Flow(s),veh/h/ln	1622	0	1570	1292	0	1817	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.5	0.0	1.1	3.0	0.0	1.2	6.4	4.7	1.0	0.3	3.1	0.2
Cycle Q Clear(g_c), s	2.1	0.0	1.1	5.2	0.0	1.2	6.4	4.7	1.0	0.3	3.1	0.2
Prop In Lane	0.52		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	394	0	254	315	0	294	383	834	707	15	449	380
V/C Ratio(X)	0.26	0.00	0.18	0.31	0.00	0.20	0.77	0.38	0.09	0.72	0.37	0.02
Avail Cap(c_a), veh/h	1033	0	904	850	0	1046	1282	3544	3003	641	2871	2433
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	15.1	17.9	0.0	15.1	15.4	7.7	6.7	20.6	13.2	12.1
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.6	0.0	0.3	3.2	0.6	0.1	47.0	1.1	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	0.8	0.0	0.4	0.9	0.0	0.4	2.4	1.4	0.2	0.3	1.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	15.4	18.4	0.0	15.5	18.6	8.3	6.8	67.6	14.3	12.2
LnGrp LOS	B	A	B	B	A	B	B	A	A	E	B	B
Approach Vol, veh/h		149			156			672			188	
Approach Delay, s/veh		15.7			17.3			12.7			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	24.6		11.7	14.0	16.0		11.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.3	6.7		4.1	8.4	5.1		7.2				
Green Ext Time (p_c), s	0.0	4.8		0.6	0.8	2.1		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			14.4
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Honoapiilani Highway & Hoohui Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	195	100	20	15	170	670	20	10	595	70
Future Volume (veh/h)	60	5	195	100	20	15	170	670	20	10	595	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	21	109	22	2	185	728	0	11	647	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	24	312	332	340	31	384	954		284	796	670
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.09	0.51	0.00	0.01	0.43	0.43
Sat Flow, veh/h	1216	118	1546	1356	1685	153	1781	1870	1585	1781	1870	1574
Grp Volume(v), veh/h	70	0	21	109	0	24	185	728	0	11	647	35
Grp Sat Flow(s),veh/h/ln	1334	0	1546	1356	0	1838	1781	1870	1585	1781	1870	1574
Q Serve(g_s), s	2.2	0.0	0.6	4.2	0.0	0.6	3.0	17.9	0.0	0.2	17.4	0.7
Cycle Q Clear(g_c), s	2.9	0.0	0.6	7.1	0.0	0.6	3.0	17.9	0.0	0.2	17.4	0.7
Prop In Lane	0.93		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	0	312	332	0	371	384	954		284	796	670
V/C Ratio(X)	0.18	0.00	0.07	0.33	0.00	0.06	0.48	0.76		0.04	0.81	0.05
Avail Cap(c_a), veh/h	716	0	676	651	0	804	685	1668		737	1668	1404
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	0.0	18.5	22.4	0.0	18.5	10.7	11.2	0.0	10.7	14.4	9.7
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.6	0.0	0.1	0.9	1.3	0.0	0.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.2	1.3	0.0	0.3	0.9	5.9	0.0	0.1	6.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	0.0	18.6	22.9	0.0	18.5	11.7	12.5	0.0	10.8	16.5	9.7
LnGrp LOS	B	A	B	C	A	B	B	B		B	B	A
Approach Vol, veh/h		91			133			913	A		693	
Approach Delay, s/veh		19.4			22.1			12.4			16.1	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	35.2		16.5	10.3	30.3		16.5
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.2	19.9		4.9	5.0	19.4		9.1
Green Ext Time (p_c), s	0.0	5.6		0.4	0.3	4.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	130	245	70	220	60	580	210	190	655	30
Future Volume (veh/h)	40	30	130	245	70	220	60	580	210	190	655	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	33	27	266	76	41	65	630	148	207	712	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	103	84	306	468	395	85	713	604	245	881	746
Arrive On Green	0.03	0.11	0.11	0.17	0.25	0.25	0.05	0.38	0.38	0.14	0.47	0.47
Sat Flow, veh/h	1781	943	772	1781	1870	1577	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	43	0	60	266	76	41	65	630	148	207	712	15
Grp Sat Flow(s),veh/h/ln	1781	0	1715	1781	1870	1577	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.4	0.0	3.2	14.5	3.2	2.0	3.6	31.4	6.4	11.3	32.5	0.5
Cycle Q Clear(g_c), s	2.4	0.0	3.2	14.5	3.2	2.0	3.6	31.4	6.4	11.3	32.5	0.5
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	0	188	306	468	395	85	713	604	245	881	746
V/C Ratio(X)	0.78	0.00	0.32	0.87	0.16	0.10	0.76	0.88	0.24	0.85	0.81	0.02
Avail Cap(c_a), veh/h	463	0	360	535	468	395	446	1029	872	446	1029	872
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	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	48.1	0.0	41.1	40.3	29.3	28.8	47.0	28.8	21.1	42.1	22.6	14.1
Incr Delay (d2), s/veh	20.1	0.0	1.0	7.5	0.2	0.1	13.1	6.6	0.2	7.9	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.4	6.9	1.4	0.8	1.9	14.7	0.0	5.4	14.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	0.0	42.0	47.8	29.4	29.0	60.1	35.5	21.3	50.0	26.8	14.1
LnGrp LOS	E	A	D	D	C	C	E	D	C	D	C	B
Approach Vol, veh/h		103			383			843			934	
Approach Delay, s/veh		53.0			42.1			34.9			31.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	43.1	22.2	15.9	9.8	52.0	8.1	30.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	55.0	30.0	21.0	25.0	55.0	26.0	25.0
Max Q Clear Time (g_c+I1), s	13.3	33.4	16.5	5.2	5.6	34.5	4.4	5.2
Green Ext Time (p_c), s	0.4	4.7	0.6	0.2	0.1	4.9	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	35.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
4: Honoapiilani Highway & Lower Honoapiilani Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	10	495	20	5	0	330	845	45	15	1030	15
Future Volume (veh/h)	45	10	495	20	5	0	330	845	45	15	1030	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	11	0	22	5	0	359	918	48	16	1120	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	20		172	28	0	414	2453	128	20	1752	782
Arrive On Green	0.08	0.07	0.00	0.08	0.07	0.00	0.23	0.71	0.71	0.01	0.49	0.49
Sat Flow, veh/h	1225	298	1585	1199	414	0	1781	3435	180	1781	3554	1585
Grp Volume(v), veh/h	60	0	0	27	0	0	359	475	491	16	1120	6
Grp Sat Flow(s),veh/h/ln	1524	0	1585	1613	0	0	1781	1777	1838	1781	1777	1585
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	14.1	7.6	7.6	0.7	17.0	0.1
Cycle Q Clear(g_c), s	2.6	0.0	0.0	1.0	0.0	0.0	14.1	7.6	7.6	0.7	17.0	0.1
Prop In Lane	0.82		1.00	0.81		0.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	215	0		222	0	0	414	1269	1312	20	1752	782
V/C Ratio(X)	0.28	0.00		0.12	0.00	0.00	0.87	0.37	0.37	0.79	0.64	0.01
Avail Cap(c_a), veh/h	498	0		625	0	0	1616	1831	1895	1616	3663	1634
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	0.0	31.6	0.0	0.0	26.9	4.1	4.1	35.9	13.6	9.4
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.2	0.0	0.0	2.2	0.4	0.4	21.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.4	0.0	0.0	5.8	1.9	1.9	0.4	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	0.0	0.0	31.9	0.0	0.0	29.1	4.5	4.4	57.5	14.5	9.4
LnGrp LOS	C	A		C	A	A	C	A	A	E	B	A
Approach Vol, veh/h		60	A		27			1325			1142	
Approach Delay, s/veh		33.0			31.9			11.1			15.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.9	41.9		10.0	4.8	58.0		10.0
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	66.0	75.0		25.0	66.0	75.0		19.0
Max Q Clear Time (g_c+I1), s	16.1	19.0		3.0	2.7	9.6		4.6
Green Ext Time (p_c), s	0.8	16.9		0.0	0.0	12.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
5: Honoapiilani Highway & Kai Malina Parkway/Halawai Drive

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	70	10	5	10	135	1290	20	20	1530	75
Future Volume (veh/h)	35	0	70	10	5	10	135	1290	20	20	1530	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	0	1	11	5	1	147	1402	22	22	1663	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	0	70	100	21	3	183	2760	43	26	2427	1082
Arrive On Green	0.06	0.00	0.04	0.06	0.04	0.04	0.10	0.77	0.77	0.01	0.68	0.68
Sat Flow, veh/h	1567	0	1585	629	481	69	1781	3581	56	1781	3554	1585
Grp Volume(v), veh/h	38	0	1	17	0	0	147	695	729	22	1663	54
Grp Sat Flow(s),veh/h/ln	1567	0	1585	1179	0	0	1781	1777	1860	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	6.6	12.1	12.1	1.0	22.9	0.9
Cycle Q Clear(g_c), s	1.7	0.0	0.0	1.9	0.0	0.0	6.6	12.1	12.1	1.0	22.9	0.9
Prop In Lane	1.00		1.00	0.65		0.06	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	176	0	70	139	0	0	183	1370	1434	26	2427	1082
V/C Ratio(X)	0.22	0.00	0.01	0.12	0.00	0.00	0.81	0.51	0.51	0.85	0.69	0.05
Avail Cap(c_a), veh/h	509	0	445	502	0	0	456	1864	1951	239	3294	1469
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	0.0	37.5	37.8	0.0	0.0	36.0	3.5	3.5	40.3	7.8	4.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.1	0.6	0.6	23.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.3	0.0	0.0	2.9	2.6	2.7	0.6	6.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	37.5	38.0	0.0	0.0	39.1	4.2	4.1	64.1	8.5	4.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	A	A
Approach Vol, veh/h		39			17			1571			1739	
Approach Delay, s/veh		38.0			38.0			7.4			9.1	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.4	61.0		8.6	5.2	68.2		8.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	3.6	24.9		3.9	3.0	14.1		3.7
Green Ext Time (p_c), s	0.1	31.1		0.0	0.0	25.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	35	45	15	55	115	1430	60	35	1460	50
Future Volume (veh/h)	65	5	35	45	15	55	115	1430	60	35	1460	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	5	1	49	16	1	125	1554	48	38	1587	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	11	170	116	187	12	147	2729	1217	49	2534	1130
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.08	0.77	0.77	0.03	0.71	0.71
Sat Flow, veh/h	1222	102	1581	1407	1742	109	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	0	1	49	0	17	125	1554	48	38	1587	40
Grp Sat Flow(s),veh/h/ln	1324	0	1581	1407	0	1850	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.7	0.0	0.1	5.3	0.0	1.3	10.7	27.9	1.1	3.3	35.9	1.2
Cycle Q Clear(g_c), s	9.0	0.0	0.1	14.3	0.0	1.3	10.7	27.9	1.1	3.3	35.9	1.2
Prop In Lane	0.93		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	187	0	170	116	0	199	147	2729	1217	49	2534	1130
V/C Ratio(X)	0.41	0.00	0.01	0.42	0.00	0.09	0.85	0.57	0.04	0.77	0.63	0.04
Avail Cap(c_a), veh/h	254	0	245	183	0	287	241	2729	1217	241	2534	1130
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	1.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	61.8	72.5	0.0	62.3	70.1	7.4	4.3	74.9	11.5	6.5
Incr Delay (d2), s/veh	1.4	0.0	0.0	2.4	0.0	0.2	4.9	0.6	0.0	9.1	1.2	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	3.0	0.0	0.0	2.0	0.0	0.6	5.1	9.7	0.4	1.6	13.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	0.0	61.8	74.9	0.0	62.5	75.0	8.0	4.3	84.0	12.7	6.6
LnGrp LOS	E	A	E	E	A	E	E	A	A	F	B	A
Approach Vol, veh/h		77			66			1727			1665	
Approach Delay, s/veh		67.6			71.7			12.7			14.2	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.8	116.5		21.7	8.3	125.0		21.7
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	95.0		24.0	21.0	95.0		24.0
Max Q Clear Time (g_c+I1), s	12.7	37.9		16.3	5.3	29.9		11.0
Green Ext Time (p_c), s	0.1	30.6		0.1	0.0	31.7		0.2

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	10	225	10	10	15	440	1500	15	90	1365	115
Future Volume (veh/h)	155	10	225	10	10	15	440	1500	15	90	1365	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	0	65	11	11	6	478	1630	16	98	1484	96
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	0	811	51	51	28	603	2249	22	151	1899	977
Arrive On Green	0.09	0.00	0.08	0.07	0.07	0.05	0.17	0.62	0.61	0.09	0.53	0.53
Sat Flow, veh/h	3563	0	3076	690	690	376	3456	3605	35	1781	3554	1580
Grp Volume(v), veh/h	176	0	65	28	0	0	478	803	843	98	1484	96
Grp Sat Flow(s),veh/h/ln	1781	0	1538	1756	0	0	1728	1777	1864	1781	1777	1580
Q Serve(g_s), s	6.0	0.0	2.0	1.9	0.0	0.0	16.9	39.5	39.7	6.8	42.6	3.2
Cycle Q Clear(g_c), s	6.0	0.0	2.0	1.9	0.0	0.0	16.9	39.5	39.7	6.8	42.6	3.2
Prop In Lane	1.00		1.00	0.39		0.21	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	327	0	811	130	0	0	603	1108	1163	151	1899	977
V/C Ratio(X)	0.54	0.00	0.08	0.22	0.00	0.00	0.79	0.72	0.73	0.65	0.78	0.10
Avail Cap(c_a), veh/h	950	0	1349	427	0	0	1571	2702	2835	209	4207	2003
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	0.0	35.8	55.9	0.0	0.0	50.5	16.5	16.5	56.5	23.7	9.9
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.8	0.0	0.0	0.9	1.3	1.2	1.7	1.0	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	2.8	0.0	0.8	0.9	0.0	0.0	7.3	15.4	16.2	3.1	17.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.9	0.0	35.9	56.7	0.0	0.0	51.4	17.8	17.8	58.2	24.8	10.0
LnGrp LOS	E	A	D	E	A	A	D	B	B	E	C	A
Approach Vol, veh/h		241			28			2124			1678	
Approach Delay, s/veh		50.5			56.7			25.3			25.9	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.2	72.2		13.4	14.8	83.6		15.7
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	19.9	44.6		3.9	8.8	41.7		8.0
Green Ext Time (p_c), s	1.3	21.6		0.1	0.1	22.9		0.7

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	60	0	50	5	1980	95	35	1580	5
Future Volume (veh/h)	5	5	5	60	0	50	5	1980	95	35	1580	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	1	65	0	1	5	2152	101	38	1717	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	80	13	177	0	138	11	2728	127	64	2975	9
Arrive On Green	0.09	0.09	0.08	0.09	0.00	0.08	0.01	0.79	0.78	0.04	0.82	0.81
Sat Flow, veh/h	586	899	148	1378	0	1545	1781	3457	161	1781	3635	11
Grp Volume(v), veh/h	11	0	0	65	0	1	5	1098	1155	38	839	883
Grp Sat Flow(s),veh/h/ln	1633	0	0	1378	0	1545	1781	1777	1841	1781	1777	1868
Q Serve(g_s), s	0.0	0.0	0.0	5.3	0.0	0.1	0.4	47.7	49.8	2.9	22.7	22.8
Cycle Q Clear(g_c), s	0.8	0.0	0.0	6.1	0.0	0.1	0.4	47.7	49.8	2.9	22.7	22.8
Prop In Lane	0.45		0.09	1.00		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	183	0	0	177	0	138	11	1402	1453	64	1455	1530
V/C Ratio(X)	0.06	0.00	0.00	0.37	0.00	0.01	0.44	0.78	0.80	0.60	0.58	0.58
Avail Cap(c_a), veh/h	313	0	0	290	0	265	102	1402	1453	102	1455	1530
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	0.50	0.50	0.50	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	0.0	60.7	0.0	58.5	69.3	8.1	8.4	66.5	4.4	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.3	0.0	0.0	5.0	2.3	2.3	3.3	1.7	1.6
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	2.3	0.0	0.0	0.2	15.5	16.9	1.4	6.9	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	0.0	62.0	0.0	58.6	74.4	10.4	10.7	69.8	6.0	6.0
LnGrp LOS	E	A	A	E	A	E	E	B	B	E	A	A
Approach Vol, veh/h		11			66			2258			1760	
Approach Delay, s/veh		58.6			62.0			10.7			7.4	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.9	118.6		16.5	9.0	114.5		16.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	95.0		23.0	8.0	95.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	24.8		8.1	4.9	51.8		2.8
Green Ext Time (p_c), s	0.0	37.0		0.1	0.0	38.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
9: Honoapiilani Highway & Front Street/Flemming Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	5	5	105	15	20	5	1950	20	10	1390	220
Future Volume (veh/h)	100	5	5	105	15	20	5	1950	20	10	1390	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	5	3	114	16	15	5	2120	22	11	1511	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	7	4	198	20	19	7	2821	29	14	2796	1247
Arrive On Green	0.11	0.11	0.10	0.11	0.11	0.10	0.00	0.78	0.77	0.01	0.79	0.79
Sat Flow, veh/h	1383	63	38	1315	185	173	1781	3603	37	1781	3554	1585
Grp Volume(v), veh/h	117	0	0	145	0	0	5	1044	1098	11	1511	176
Grp Sat Flow(s),veh/h/ln	1484	0	0	1673	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	0.3	37.1	37.4	0.7	18.9	3.2
Cycle Q Clear(g_c), s	8.9	0.0	0.0	9.7	0.0	0.0	0.3	37.1	37.4	0.7	18.9	3.2
Prop In Lane	0.93		0.03	0.79		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	220	0	0	237	0	0	7	1391	1459	14	2796	1247
V/C Ratio(X)	0.53	0.00	0.00	0.61	0.00	0.00	0.73	0.75	0.75	0.80	0.54	0.14
Avail Cap(c_a), veh/h	429	0	0	455	0	0	119	1391	1459	119	2796	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.57	0.57	0.57	0.79	0.79	0.79
Uniform Delay (d), s/veh	51.6	0.0	0.0	51.9	0.0	0.0	59.7	6.9	6.9	59.4	4.7	3.1
Incr Delay (d2), s/veh	2.0	0.0	0.0	2.6	0.0	0.0	26.8	2.2	2.1	26.4	0.6	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	3.5	0.0	0.0	4.4	0.0	0.0	0.2	11.3	11.9	0.4	5.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	0.0	54.4	0.0	0.0	86.5	9.0	9.0	85.9	5.3	3.3
LnGrp LOS	D	A	A	D	A	A	F	A	A	F	A	A
Approach Vol, veh/h		117			145			2147			1698	
Approach Delay, s/veh		53.6			54.4			9.2			5.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	98.4		17.1	4.9	97.9		17.1
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	68.0		30.0	8.0	68.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	20.9		11.7	2.7	39.4		10.9
Green Ext Time (p_c), s	0.0	34.5		0.5	0.0	27.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	30	20	150	25	35	25	1755	75	10	1425	80
Future Volume (veh/h)	155	30	20	150	25	35	25	1755	75	10	1425	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	33	2	163	27	3	27	1908	80	11	1549	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	292	18	256	276	31	34	2571	107	13	2494	136
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.16	0.04	1.00	1.00	0.01	0.73	0.72
Sat Flow, veh/h	1359	1744	106	1353	1650	183	1781	3476	145	1781	3426	187
Grp Volume(v), veh/h	168	0	35	163	0	30	27	969	1019	11	800	834
Grp Sat Flow(s),veh/h/ln	1359	0	1849	1353	0	1834	1781	1777	1844	1781	1777	1837
Q Serve(g_s), s	16.7	0.0	2.2	16.3	0.0	1.9	2.1	0.0	0.0	0.9	31.2	31.7
Cycle Q Clear(g_c), s	18.7	0.0	2.2	18.5	0.0	1.9	2.1	0.0	0.0	0.9	31.2	31.7
Prop In Lane	1.00		0.06	1.00		0.10	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	260	0	309	256	0	307	34	1314	1364	13	1293	1337
V/C Ratio(X)	0.65	0.00	0.11	0.64	0.00	0.10	0.79	0.74	0.75	0.83	0.62	0.62
Avail Cap(c_a), veh/h	304	0	370	300	0	367	140	1314	1364	140	1293	1337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.80	0.80	0.80
Uniform Delay (d), s/veh	57.2	0.0	49.5	57.3	0.0	49.4	67.1	0.0	0.0	69.4	9.4	9.5
Incr Delay (d2), s/veh	3.7	0.0	0.2	3.4	0.0	0.1	1.4	0.3	0.4	30.1	1.8	1.8
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	6.1	0.0	1.1	5.9	0.0	0.9	1.0	0.1	0.1	0.5	11.6	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.0	49.6	60.7	0.0	49.5	68.5	0.3	0.4	99.5	11.2	11.3
LnGrp LOS	E	A	D	E	A	D	E	A	A	F	B	B
Approach Vol, veh/h		203			193			2015			1645	
Approach Delay, s/veh		59.0			59.0			1.3			11.8	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.7	105.9		27.4	5.0	107.5		27.4
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	88.0		27.0	11.0	88.0		27.0
Max Q Clear Time (g_c+I1), s	4.1	33.7		20.5	2.9	2.0		20.7
Green Ext Time (p_c), s	0.0	29.7		0.4	0.0	55.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	120	60	110	100	1175	55	680	175	565	1115	80
Future Volume (veh/h)	55	120	60	110	100	1175	55	680	175	565	1115	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	130	11	120	109	0	60	739	107	614	1212	83
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	169	223	231	468		77	882	744	666	2095	143
Arrive On Green	0.14	0.14	0.14	0.08	0.25	0.00	0.04	0.47	0.47	0.39	1.00	1.00
Sat Flow, veh/h	467	1179	1555	1781	1870	1585	1781	1870	1578	3456	3374	231
Grp Volume(v), veh/h	190	0	11	120	109	0	60	739	107	614	637	658
Grp Sat Flow(s),veh/h/ln	1646	0	1555	1781	1870	1585	1781	1870	1578	1728	1777	1828
Q Serve(g_s), s	13.8	0.0	0.9	7.7	6.5	0.0	4.7	48.3	5.4	23.7	0.0	0.0
Cycle Q Clear(g_c), s	15.6	0.0	0.9	7.7	6.5	0.0	4.7	48.3	5.4	23.7	0.0	0.0
Prop In Lane	0.32		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	270	0	223	231	468		77	882	744	666	1103	1135
V/C Ratio(X)	0.70	0.00	0.05	0.52	0.23		0.78	0.84	0.14	0.92	0.58	0.58
Avail Cap(c_a), veh/h	304	0	256	384	668		178	882	744	839	1103	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.71	0.71	0.71
Uniform Delay (d), s/veh	57.9	0.0	51.7	45.0	41.8	0.0	66.3	32.3	21.0	42.0	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.1	1.8	0.3	0.0	5.0	7.6	0.3	9.1	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.3	3.6	3.1	0.0	2.2	23.2	2.1	9.3	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	51.8	46.9	42.0	0.0	71.3	39.9	21.3	51.2	1.6	1.5
LnGrp LOS	E	A	D	D	D		E	D	C	D	A	A
Approach Vol, veh/h		201			229	A		906			1909	
Approach Delay, s/veh		63.4			44.6			39.8			17.5	
Approach LOS		E			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	90.9	14.9	24.1	31.0	70.0		39.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	63.0	22.0	22.0	34.0	43.0		49.0
Max Q Clear Time (g_c+I1), s	6.7	2.0	9.7	17.6	25.7	50.3		8.5
Green Ext Time (p_c), s	0.0	20.4	0.3	0.3	1.3	0.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	20	830	15	0	910
Future Vol, veh/h	0	20	830	15	0	910
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	902	16	0	989

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	902	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	336	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	336	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	336	-
HCM Lane V/C Ratio	-	-	0.065	-
HCM Control Delay (s)	-	-	16.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	30	865	25	15	1030
Future Vol, veh/h	55	30	865	25	15	1030
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	33	940	27	16	1120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2092	940	0	0	967	0
Stage 1	940	-	-	-	-	-
Stage 2	1152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 58	320	-	-	712	-
Stage 1	380	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 57	320	-	-	712	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	372	-	-	-	-	-
Stage 2	301	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	173	320	712	-
HCM Lane V/C Ratio	-	-	0.346	0.102	0.023	-
HCM Control Delay (s)	-	-	36.4	17.5	10.2	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.4	0.3	0.1	-

Notes

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

Intersection	
Int Delay, s/veh	15.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	75	340	10	180	0	300	5	5	0	10	55
Future Vol, veh/h	15	75	340	10	180	0	300	5	5	0	10	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	82	370	11	196	0	326	5	5	0	11	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	196	0	0	452	0	0	553	517	226	294	702	196
Stage 1	-	-	-	-	-	-	299	299	-	218	218	-
Stage 2	-	-	-	-	-	-	254	218	-	76	484	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1376	-	-	1107	-	-	445	462	778	647	362	845
Stage 1	-	-	-	-	-	-	686	666	-	784	722	-
Stage 2	-	-	-	-	-	-	750	722	-	925	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1376	-	-	1107	-	-	397	452	778	626	354	845
Mov Cap-2 Maneuver	-	-	-	-	-	-	397	452	-	626	354	-
Stage 1	-	-	-	-	-	-	678	658	-	775	715	-
Stage 2	-	-	-	-	-	-	680	715	-	900	544	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	46.5	10.8
HCM LOS			E	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	401	1376	-	-	1107	-	-	696
HCM Lane V/C Ratio	0.84	0.012	-	-	0.01	-	-	0.102
HCM Control Delay (s)	46.5	7.6	-	-	8.3	-	-	10.8
HCM Lane LOS	E	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	7.9	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	20	25	0	10	0	90	0	0	0	0	100
Future Vol, veh/h	40	20	25	0	10	0	90	0	0	0	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	22	27	0	11	0	98	0	0	0	0	109

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	11	0	0	49	0	0	188	133	25	108	146	11
Stage 1	-	-	-	-	-	-	122	122	-	11	11	-
Stage 2	-	-	-	-	-	-	66	11	-	97	135	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1607	-	-	1557	-	-	764	757	1046	865	745	1070
Stage 1	-	-	-	-	-	-	870	794	-	1009	886	-
Stage 2	-	-	-	-	-	-	944	886	-	899	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1557	-	-	672	737	1046	848	725	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	672	737	-	848	725	-
Stage 1	-	-	-	-	-	-	847	773	-	982	886	-
Stage 2	-	-	-	-	-	-	848	886	-	875	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	11.3	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	672	1607	-	-	1557	-	-	1070
HCM Lane V/C Ratio	0.146	0.027	-	-	-	-	-	0.102
HCM Control Delay (s)	11.3	7.3	-	-	0	-	-	8.7
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	20	5	0	70	10	5	0	0	5	0	10
Future Vol, veh/h	15	20	5	0	70	10	5	0	0	5	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	22	5	0	76	11	5	0	0	5	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	27	0	0	144	144	25	139	141	82
Stage 1	-	-	-	-	-	-	57	57	-	82	82	-
Stage 2	-	-	-	-	-	-	87	87	-	57	59	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1509	-	-	1587	-	-	825	747	1051	831	750	978
Stage 1	-	-	-	-	-	-	955	847	-	926	827	-
Stage 2	-	-	-	-	-	-	921	823	-	955	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1509	-	-	1587	-	-	809	739	1051	824	742	978
Mov Cap-2 Maneuver	-	-	-	-	-	-	809	739	-	824	742	-
Stage 1	-	-	-	-	-	-	944	838	-	916	827	-
Stage 2	-	-	-	-	-	-	911	823	-	944	837	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0	9.5	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	809	1509	-	-	1587	-	-	921
HCM Lane V/C Ratio	0.007	0.011	-	-	-	-	-	0.018
HCM Control Delay (s)	9.5	7.4	0	-	0	-	-	9
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	15	10	0	45	40	0
Future Vol, veh/h	15	10	0	45	40	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	11	0	49	43	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	71	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1587	-	933	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	973	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1587	-	933	1055
Mov Cap-2 Maneuver	-	-	-	-	933	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	973	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	933	-	-	1587	-
HCM Lane V/C Ratio	0.047	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2035 Scenario 4 PM Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	440	65	25	5	450	265	65	5	345	75
Future Volume (veh/h)	55	25	440	65	25	5	450	265	65	5	345	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	27	30	71	27	1	489	288	45	5	375	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	72	180	206	203	8	562	1143	969	7	561	475
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.32	0.61	0.61	0.00	0.30	0.30
Sat Flow, veh/h	913	634	1585	1346	1792	66	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	87	0	30	71	0	28	489	288	45	5	375	22
Grp Sat Flow(s),veh/h/ln	1547	0	1585	1346	0	1858	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	1.0	3.1	0.0	0.8	15.3	4.2	0.7	0.2	10.3	0.6
Cycle Q Clear(g_c), s	3.0	0.0	1.0	6.1	0.0	0.8	15.3	4.2	0.7	0.2	10.3	0.6
Prop In Lane	0.69		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	180	206	0	211	562	1143	969	7	561	475
V/C Ratio(X)	0.31	0.00	0.17	0.34	0.00	0.13	0.87	0.25	0.05	0.70	0.67	0.05
Avail Cap(c_a), veh/h	721	0	645	602	0	757	907	2507	2125	453	2031	1721
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	23.6	27.3	0.0	23.5	19.0	5.3	4.6	29.3	18.1	14.7
Incr Delay (d2), s/veh	0.6	0.0	0.4	1.0	0.0	0.3	5.5	0.2	0.0	80.3	2.9	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	1.1	0.0	0.4	1.0	0.0	0.4	6.3	1.2	0.2	0.2	4.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	0.0	24.0	28.3	0.0	23.8	24.5	5.5	4.6	109.6	21.0	14.7
LnGrp LOS	C	A	C	C	A	C	C	A	A	F	C	B
Approach Vol, veh/h		117			99			822			402	
Approach Delay, s/veh		24.8			27.1			16.8			21.8	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	42.0		11.7	23.6	23.7		11.7				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.2	6.2		5.0	17.3	12.3		8.1				
Green Ext Time (p_c), s	0.0	4.2		0.5	1.3	5.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			19.5
HCM 6th LOS			B

HCM 6th Signalized Intersection Summary
2: Hoohui Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	20	185	55	15	10	230	720	50	25	725	80
Future Volume (veh/h)	75	20	185	55	15	10	230	720	50	25	725	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	22	13	60	16	1	250	783	0	27	788	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	56	215	219	237	15	386	1089		345	937	791
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.10	0.58	0.00	0.02	0.50	0.50
Sat Flow, veh/h	1087	413	1585	1373	1742	109	1781	1870	1585	1781	1870	1579
Grp Volume(v), veh/h	104	0	13	60	0	17	250	783	0	27	788	50
Grp Sat Flow(s),veh/h/ln	1501	0	1585	1373	0	1851	1781	1870	1585	1781	1870	1579
Q Serve(g_s), s	3.3	0.0	0.4	2.6	0.0	0.5	3.6	18.2	0.0	0.4	22.0	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.4	6.4	0.0	0.5	3.6	18.2	0.0	0.4	22.0	1.0
Prop In Lane	0.79		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	0	215	219	0	251	386	1089		345	937	791
V/C Ratio(X)	0.34	0.00	0.06	0.27	0.00	0.07	0.65	0.72		0.08	0.84	0.06
Avail Cap(c_a), veh/h	718	0	653	598	0	763	649	1573		753	1573	1327
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	22.8	27.3	0.0	22.9	11.9	9.1	0.0	8.6	13.1	7.8
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.7	0.0	0.1	1.8	0.9	0.0	0.1	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.2	0.9	0.0	0.2	1.6	5.6	0.0	0.1	7.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	23.0	27.9	0.0	23.0	13.7	10.0	0.0	8.7	15.2	7.8
LnGrp LOS	C	A	C	C	A	C	B	B		A	B	A
Approach Vol, veh/h		117			77			1033	A		865	
Approach Delay, s/veh		24.7			26.8			10.9			14.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	41.3		13.2	11.0	36.4		13.2
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.4	20.2		5.8	5.6	24.0		8.4
Green Ext Time (p_c), s	0.0	6.3		0.5	0.5	6.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Honoapiilani Highway & Akahele Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	65	105	160	60	150	175	885	240	150	830	75
Future Volume (veh/h)	55	65	105	160	60	150	175	885	240	150	830	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	71	77	174	65	17	190	962	208	163	902	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	88	95	197	330	276	216	1008	854	188	979	828
Arrive On Green	0.04	0.11	0.11	0.11	0.18	0.18	0.12	0.54	0.54	0.11	0.52	0.52
Sat Flow, veh/h	1781	805	873	1781	1870	1566	1781	1870	1585	1781	1870	1582
Grp Volume(v), veh/h	60	0	148	174	65	17	190	962	208	163	902	41
Grp Sat Flow(s),veh/h/ln	1781	0	1679	1781	1870	1566	1781	1870	1585	1781	1870	1582
Q Serve(g_s), s	4.9	0.0	12.7	14.2	4.4	1.3	15.5	71.9	10.3	13.3	65.4	1.9
Cycle Q Clear(g_c), s	4.9	0.0	12.7	14.2	4.4	1.3	15.5	71.9	10.3	13.3	65.4	1.9
Prop In Lane	1.00		0.52	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	0	183	197	330	276	216	1008	854	188	979	828
V/C Ratio(X)	0.77	0.00	0.81	0.88	0.20	0.06	0.88	0.95	0.24	0.87	0.92	0.05
Avail Cap(c_a), veh/h	278	0	239	242	330	276	363	1067	904	302	1003	848
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	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	69.7	0.0	64.1	64.5	51.8	50.5	63.7	32.2	18.0	64.9	32.3	17.2
Incr Delay (d2), s/veh	15.0	0.0	14.3	25.7	0.3	0.1	12.6	17.2	0.1	14.1	13.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	6.2	7.9	2.1	0.5	7.7	36.0	3.9	6.7	32.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.8	0.0	78.5	90.2	52.1	50.6	76.3	49.4	18.2	79.0	45.6	17.2
LnGrp LOS	F	A	E	F	D	D	E	D	B	E	D	B
Approach Vol, veh/h		208			256			1360			1106	
Approach Delay, s/veh		80.3			77.9			48.4			49.4	
Approach LOS		F			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.5	84.4	21.3	21.0	22.8	82.1	11.4	31.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	84.0	20.0	21.0	30.0	79.0	23.0	18.0
Max Q Clear Time (g_c+I1), s	15.3	73.9	16.2	14.7	17.5	67.4	6.9	6.4
Green Ext Time (p_c), s	0.3	5.5	0.2	0.4	0.4	5.2	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	5	610	85	10	10	625	1200	10	5	1040	25
Future Volume (veh/h)	100	5	610	85	10	10	625	1200	10	5	1040	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	5	0	92	11	9	679	1304	11	5	1130	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	6		175	15	12	711	2856	24	7	1406	627
Arrive On Green	0.10	0.09	0.00	0.10	0.09	0.09	0.40	0.79	0.79	0.00	0.40	0.40
Sat Flow, veh/h	1450	66	1585	1402	168	137	1781	3611	30	1781	3554	1585
Grp Volume(v), veh/h	114	0	0	112	0	0	679	641	674	5	1130	7
Grp Sat Flow(s),veh/h/ln	1516	0	1585	1707	0	0	1781	1777	1865	1781	1777	1585
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	47.6	15.2	15.2	0.4	36.3	0.3
Cycle Q Clear(g_c), s	9.2	0.0	0.0	7.7	0.0	0.0	47.6	15.2	15.2	0.4	36.3	0.3
Prop In Lane	0.96		1.00	0.82		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	201	0		215	0	0	711	1405	1475	7	1406	627
V/C Ratio(X)	0.57	0.00		0.52	0.00	0.00	0.95	0.46	0.46	0.74	0.80	0.01
Avail Cap(c_a), veh/h	295	0		369	0	0	1052	1405	1475	983	1767	788
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	0.0	0.0	56.6	0.0	0.0	37.5	4.4	4.4	64.0	34.5	23.6
Incr Delay (d2), s/veh	2.5	0.0	0.0	1.9	0.0	0.0	11.8	0.5	0.5	43.3	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.0	3.6	0.0	0.0	22.5	4.6	4.8	0.2	15.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	0.0	0.0	58.5	0.0	0.0	49.3	4.9	4.9	107.4	37.6	23.6
LnGrp LOS	E	A		E	A	A	D	A	A	F	D	C
Approach Vol, veh/h		114	A		112			1994			1142	
Approach Delay, s/veh		59.6			58.5			20.0			37.8	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	55.4	56.9		16.4	4.5	107.8		16.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	76.0	64.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	49.6	38.3		9.7	2.4	17.2		11.2
Green Ext Time (p_c), s	1.7	12.6		0.3	0.0	19.8		0.2

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	135	15	0	5	130	1810	10	10	1765	60
Future Volume (veh/h)	55	5	135	15	0	5	130	1810	10	10	1765	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	5	5	16	0	1	141	1967	11	11	1918	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	16	171	170	2	7	171	2709	15	14	2344	1045
Arrive On Green	0.12	0.11	0.11	0.12	0.00	0.11	0.10	0.75	0.75	0.01	0.66	0.66
Sat Flow, veh/h	1385	140	1522	928	17	59	1781	3623	20	1781	3554	1584
Grp Volume(v), veh/h	65	0	5	17	0	0	141	964	1014	11	1918	41
Grp Sat Flow(s),veh/h/ln	1525	0	1522	1004	0	0	1781	1777	1867	1781	1777	1584
Q Serve(g_s), s	0.0	0.0	0.3	1.0	0.0	0.0	8.2	31.7	31.8	0.7	42.3	1.0
Cycle Q Clear(g_c), s	3.6	0.0	0.3	4.6	0.0	0.0	8.2	31.7	31.8	0.7	42.3	1.0
Prop In Lane	0.92		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	251	0	171	188	0	0	171	1328	1396	14	2344	1045
V/C Ratio(X)	0.26	0.00	0.03	0.09	0.00	0.00	0.83	0.73	0.73	0.79	0.82	0.04
Avail Cap(c_a), veh/h	398	0	331	332	0	0	353	1443	1516	185	2551	1137
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	41.9	44.5	0.0	0.0	47.0	7.4	7.4	52.4	13.3	6.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	3.8	2.3	2.2	29.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.1	0.4	0.0	0.0	3.8	9.9	10.5	0.4	15.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	41.9	44.6	0.0	0.0	50.8	9.6	9.6	81.8	15.8	6.3
LnGrp LOS	D	A	D	D	A	A	D	A	A	F	B	A
Approach Vol, veh/h		70			17			2119			1970	
Approach Delay, s/veh		43.0			44.6			12.3			16.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	74.8		16.9	4.8	84.2		16.9
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	10.2	44.3		6.6	2.7	33.8		5.6
Green Ext Time (p_c), s	0.1	25.6		0.0	0.0	38.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
6: Honoapiilani Highway & Kai Ala Drive/Puukolii Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	5	180	70	5	50	130	1770	60	40	1925	110
Future Volume (veh/h)	85	5	180	70	5	50	130	1770	60	40	1925	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	5	46	76	5	2	141	1924	48	43	2092	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	10	215	138	174	70	163	2631	1173	55	2417	1078
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.74	0.74	0.03	0.68	0.68
Sat Flow, veh/h	1305	71	1564	1341	1265	506	1781	3554	1584	1781	3554	1585
Grp Volume(v), veh/h	97	0	46	76	0	7	141	1924	48	43	2092	97
Grp Sat Flow(s),veh/h/ln	1376	0	1564	1341	0	1771	1781	1777	1584	1781	1777	1585
Q Serve(g_s), s	10.5	0.0	4.3	9.2	0.0	0.6	12.9	50.6	1.3	4.0	75.5	3.4
Cycle Q Clear(g_c), s	11.0	0.0	4.3	20.3	0.0	0.6	12.9	50.6	1.3	4.0	75.5	3.4
Prop In Lane	0.95		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	0	215	138	0	244	163	2631	1173	55	2417	1078
V/C Ratio(X)	0.40	0.00	0.21	0.55	0.00	0.03	0.87	0.73	0.04	0.78	0.87	0.09
Avail Cap(c_a), veh/h	251	0	228	149	0	258	281	2631	1173	108	2417	1078
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	1.00	1.00	0.00	1.00	0.54	0.54	0.54	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	0.0	63.2	75.5	0.0	61.6	74.0	12.1	5.7	79.4	20.5	9.0
Incr Delay (d2), s/veh	1.1	0.0	0.5	3.6	0.0	0.0	3.1	1.0	0.0	8.3	4.5	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	3.8	0.0	1.8	3.3	0.0	0.3	6.0	18.8	0.4	1.9	30.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	0.0	63.7	79.1	0.0	61.6	77.1	13.1	5.8	87.7	25.0	9.2
LnGrp LOS	E	A	E	E	A	E	E	B	A	F	C	A
Approach Vol, veh/h		143			83			2113			2232	
Approach Delay, s/veh		66.0			77.7			17.2			25.5	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.1	118.2		27.7	9.1	128.2		27.7
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	26.0	100.0		24.0	10.0	116.0		24.0
Max Q Clear Time (g_c+I1), s	14.9	77.5		22.3	6.0	52.6		13.0
Green Ext Time (p_c), s	0.2	20.2		0.0	0.0	43.4		0.3

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	5	625	15	0	5	395	1775	10	85	1950	150
Future Volume (veh/h)	340	5	625	15	0	5	395	1775	10	85	1950	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.94	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	374	0	543	16	0	1	429	1929	11	92	2120	142
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	477	0	853	41	0	3	487	2585	15	119	2271	1219
Arrive On Green	0.13	0.00	0.13	0.03	0.00	0.01	0.14	0.71	0.71	0.07	0.64	0.64
Sat Flow, veh/h	3563	0	3121	1657	0	104	3456	3623	21	1781	3554	1585
Grp Volume(v), veh/h	374	0	543	17	0	0	429	945	995	92	2120	142
Grp Sat Flow(s),veh/h/ln	1781	0	1561	1761	0	0	1728	1777	1867	1781	1777	1585
Q Serve(g_s), s	26.6	0.0	34.0	2.5	0.0	0.0	31.8	85.2	85.6	13.3	139.7	5.9
Cycle Q Clear(g_c), s	26.6	0.0	34.0	2.5	0.0	0.0	31.8	85.2	85.6	13.3	139.7	5.9
Prop In Lane	1.00		1.00	0.94		0.06	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	477	0	853	44	0	0	487	1268	1332	119	2271	1219
V/C Ratio(X)	0.78	0.00	0.64	0.39	0.00	0.00	0.88	0.75	0.75	0.78	0.93	0.12
Avail Cap(c_a), veh/h	477	0	853	162	0	0	674	1318	1384	211	2364	1260
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	109.6	0.0	84.1	125.6	0.0	0.0	110.2	22.9	23.0	120.2	42.3	7.7
Incr Delay (d2), s/veh	7.7	0.0	1.2	2.0	0.0	0.0	7.9	2.5	2.4	4.1	7.6	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	18.1	0.0	16.7	1.2	0.0	0.0	15.1	36.7	38.6	6.4	63.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	117.3	0.0	85.4	127.7	0.0	0.0	118.0	25.4	25.4	124.2	49.9	7.7
LnGrp LOS	F	A	F	F	A	A	F	C	C	F	D	A
Approach Vol, veh/h		917			17			2369			2354	
Approach Delay, s/veh		98.4			127.7			42.2			50.2	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	40.9	171.2		10.5	21.4	190.6		39.0
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	49.0	172.0		21.0	29.0	192.0		32.0
Max Q Clear Time (g_c+I1), s	33.8	141.7		4.5	15.3	87.6		36.0
Green Ext Time (p_c), s	1.0	23.5		0.0	0.1	35.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	5	90	5	65	10	2135	95	95	2555	5
Future Volume (veh/h)	10	0	5	90	5	65	10	2135	95	95	2555	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	0	1	98	5	3	11	2321	101	103	2777	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	2	10	176	95	57	22	2635	114	127	2978	5
Arrive On Green	0.09	0.00	0.08	0.09	0.09	0.08	0.02	1.00	1.00	0.07	0.82	0.81
Sat Flow, veh/h	1239	24	115	1416	1095	657	1781	3470	150	1781	3639	7
Grp Volume(v), veh/h	12	0	0	98	0	8	11	1180	1242	103	1355	1427
Grp Sat Flow(s),veh/h/ln	1378	0	0	1416	0	1752	1781	1777	1843	1781	1777	1869
Q Serve(g_s), s	0.9	0.0	0.0	7.9	0.0	0.6	0.9	0.0	0.0	8.3	84.7	85.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	9.4	0.0	0.6	0.9	0.0	0.0	8.3	84.7	85.0
Prop In Lane	0.92		0.08	1.00		0.38	1.00		0.08	1.00		0.00
Lane Grp Cap(c), veh/h	167	0	0	176	0	152	22	1349	1400	127	1454	1529
V/C Ratio(X)	0.07	0.00	0.00	0.56	0.00	0.05	0.50	0.87	0.89	0.81	0.93	0.93
Avail Cap(c_a), veh/h	279	0	0	288	0	290	61	1349	1400	184	1454	1529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.38	0.38	0.38	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	0.0	0.0	64.6	0.0	60.9	70.9	0.0	0.0	66.4	10.1	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.7	0.0	0.1	2.5	3.3	3.6	10.3	12.2	11.8
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	0.4	0.0	0.0	3.7	0.0	0.3	0.4	1.3	1.4	4.1	29.0	30.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	0.0	0.0	67.4	0.0	61.1	73.3	3.3	3.6	76.7	22.3	21.9
LnGrp LOS	E	A	A	E	A	E	E	A	A	E	C	C
Approach Vol, veh/h		12			106			2433			2885	
Approach Delay, s/veh		61.5			66.9			3.8			24.0	
Approach LOS		E			E			A			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	122.6		16.6	14.3	114.1		16.6
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	5.0	103.0		23.0	15.0	93.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	87.0		11.4	10.3	2.0		3.5
Green Ext Time (p_c), s	0.0	15.9		0.2	0.1	78.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	15	10	65	5	10	5	2045	20	5	2170	350
Future Volume (veh/h)	195	15	10	65	5	10	5	2045	20	5	2170	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	16	9	71	5	7	5	2223	22	5	2359	309
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	18	10	295	21	25	7	2653	26	7	2615	1167
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.17	0.01	0.98	0.97	0.00	0.74	0.74
Sat Flow, veh/h	1335	101	57	1403	121	140	1781	3605	36	1781	3554	1585
Grp Volume(v), veh/h	237	0	0	83	0	0	5	1094	1151	5	2359	309
Grp Sat Flow(s),veh/h/ln	1492	0	0	1665	0	0	1781	1777	1864	1781	1777	1585
Q Serve(g_s), s	16.3	0.0	0.0	0.0	0.0	0.0	0.4	10.4	10.7	0.4	75.6	9.3
Cycle Q Clear(g_c), s	22.4	0.0	0.0	6.1	0.0	0.0	0.4	10.4	10.7	0.4	75.6	9.3
Prop In Lane	0.89		0.04	0.86		0.08	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	312	0	0	342	0	0	7	1308	1372	7	2615	1167
V/C Ratio(X)	0.76	0.00	0.00	0.24	0.00	0.00	0.74	0.84	0.84	0.74	0.90	0.26
Avail Cap(c_a), veh/h	354	0	0	383	0	0	98	1308	1372	98	2615	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.46	0.46	0.46	0.18	0.18	0.18
Uniform Delay (d), s/veh	57.9	0.0	0.0	51.6	0.0	0.0	72.1	0.5	0.5	72.2	15.0	6.3
Incr Delay (d2), s/veh	8.2	0.0	0.0	0.4	0.0	0.0	23.8	3.1	3.0	10.3	1.1	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	9.3	0.0	0.0	2.7	0.0	0.0	0.2	1.8	1.9	0.2	26.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	0.0	0.0	51.9	0.0	0.0	95.8	3.6	3.5	82.5	16.1	6.4
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		237			83			2250			2673	
Approach Delay, s/veh		66.1			51.9			3.8			15.1	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	110.7		29.7	4.5	110.7		29.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	94.0		29.0	8.0	94.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	77.6		8.1	2.4	12.7		24.4
Green Ext Time (p_c), s	0.0	16.2		0.2	0.0	73.9		0.4

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
10: Honoapiilani Highway & Kapunakea Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	35	50	100	25	20	55	1815	110	25	2090	160
Future Volume (veh/h)	195	35	50	100	25	20	55	1815	110	25	2090	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	38	16	109	27	1	60	1973	117	27	2272	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	196	83	223	284	11	74	2522	148	34	2406	178
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.15	0.08	1.00	1.00	0.04	1.00	1.00
Sat Flow, veh/h	1344	1237	521	1315	1790	66	1781	3411	200	1781	3354	248
Grp Volume(v), veh/h	212	0	54	109	0	28	60	1018	1072	27	1190	1252
Grp Sat Flow(s),veh/h/ln	1344	0	1757	1315	0	1856	1781	1777	1834	1781	1777	1825
Q Serve(g_s), s	21.1	0.0	3.9	11.4	0.0	1.9	4.8	0.0	0.0	2.2	0.0	0.0
Cycle Q Clear(g_c), s	23.0	0.0	3.9	15.2	0.0	1.9	4.8	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.04	1.00		0.11	1.00		0.14
Lane Grp Cap(c), veh/h	245	0	279	223	0	294	74	1314	1356	34	1274	1309
V/C Ratio(X)	0.86	0.00	0.19	0.49	0.00	0.10	0.81	0.77	0.79	0.79	0.93	0.96
Avail Cap(c_a), veh/h	245	0	279	223	0	294	74	1314	1356	74	1274	1309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.29	0.29	0.29
Uniform Delay (d), s/veh	62.7	0.0	53.0	59.6	0.0	52.1	66.0	0.0	0.0	69.4	0.0	0.0
Incr Delay (d2), s/veh	25.7	0.0	0.3	1.7	0.0	0.1	5.9	0.4	0.4	4.5	4.9	6.6
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	9.7	0.0	1.8	3.9	0.0	0.9	2.2	0.2	0.2	1.0	1.7	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	0.0	53.3	61.2	0.0	52.3	71.9	0.4	0.4	73.9	4.9	6.6
LnGrp LOS	F	A	D	E	A	D	E	A	A	E	A	A
Approach Vol, veh/h		266			137			2150			2469	
Approach Delay, s/veh		81.3			59.4			2.4			6.5	
Approach LOS		F			E			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	108.0		27.0	6.8	111.2		27.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	6.0	103.0		22.0	6.0	103.0		22.0
Max Q Clear Time (g_c+I1), s	16.8	2.0		17.2	4.2	2.0		25.0
Green Ext Time (p_c), s	0.0	85.1		0.2	0.0	64.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
11: Honoapiilani Highway & Keawe Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	125	115	195	120	1105	85	730	225	680	1245	90
Future Volume (veh/h)	85	125	115	195	120	1105	85	730	225	680	1245	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	136	24	212	130	0	92	793	170	739	1353	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	155	254	260	555		113	748	629	763	1879	130
Arrive On Green	0.17	0.17	0.17	0.10	0.30	0.00	0.06	0.40	0.40	0.44	1.00	1.00
Sat Flow, veh/h	612	937	1533	1781	1870	1585	1781	1870	1573	3456	3370	233
Grp Volume(v), veh/h	228	0	24	212	130	0	92	793	170	739	711	736
Grp Sat Flow(s),veh/h/ln	1549	0	1533	1781	1870	1585	1781	1870	1573	1728	1777	1827
Q Serve(g_s), s	20.5	0.0	1.9	14.0	7.6	0.0	7.4	58.0	10.5	30.3	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	1.9	14.0	7.6	0.0	7.4	58.0	10.5	30.3	0.0	0.0
Prop In Lane	0.40		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	291	0	254	260	555		113	748	629	763	990	1018
V/C Ratio(X)	0.78	0.00	0.09	0.81	0.23		0.82	1.06	0.27	0.97	0.72	0.72
Avail Cap(c_a), veh/h	302	0	264	260	568		123	748	629	763	990	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	0.88	0.88	0.88	0.19	0.19	0.19
Uniform Delay (d), s/veh	59.2	0.0	51.3	44.5	38.6	0.0	67.1	43.5	29.3	40.0	0.0	0.0
Incr Delay (d2), s/veh	12.2	0.0	0.2	17.7	0.2	0.0	25.7	48.0	0.9	8.3	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	9.3	0.0	0.8	7.6	3.6	0.0	4.2	36.2	4.2	11.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	0.0	51.4	62.2	38.8	0.0	92.7	91.5	30.2	48.3	0.9	0.9
LnGrp LOS	E	A	D	E	D		F	F	C	D	A	A
Approach Vol, veh/h		252			342	A		1055			2186	
Approach Delay, s/veh		69.5			53.3			81.7			16.9	
Approach LOS		E			D			F			B	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.2	84.8	19.0	28.0	36.0	62.0		47.0
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	78.0	14.0	24.0	32.0	56.0		43.0
Max Q Clear Time (g_c+I1), s	9.4	2.0	16.0	22.9	32.3	60.0		9.6
Green Ext Time (p_c), s	0.0	26.9	0.0	0.1	0.0	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	41.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	15	1065	30	0	980
Future Vol, veh/h	0	15	1065	30	0	980
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	1158	33	0	1065

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1158	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	239	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	239	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	239	-
HCM Lane V/C Ratio	-	-	0.068	-
HCM Control Delay (s)	-	-	21.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	35	1250	70	40	1060
Future Vol, veh/h	55	35	1250	70	40	1060
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	38	1359	76	43	1152

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2597	1359	0	0	1435	0
Stage 1	1359	-	-	-	-	-
Stage 2	1238	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 27	182	-	-	473	-
Stage 1	239	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 25	182	-	-	473	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	217	-	-	-	-	-
Stage 2	274	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.6	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	114	182	473	-
HCM Lane V/C Ratio	-	-	0.524	0.209	0.092	-
HCM Control Delay (s)	-	-	67.1	29.9	13.4	-
HCM Lane LOS	-	-	F	D	B	-
HCM 95th %tile Q(veh)	-	-	2.4	0.8	0.3	-

Notes

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

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	185	220	5	135	0	200	15	5	0	10	35
Future Vol, veh/h	45	185	220	5	135	0	200	15	5	0	10	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	201	239	5	147	0	217	16	5	0	11	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	147	0	0	440	0	0	601	576	220	364	695	147
Stage 1	-	-	-	-	-	-	419	419	-	157	157	-
Stage 2	-	-	-	-	-	-	182	157	-	207	538	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1434	-	-	1118	-	-	398	427	785	579	365	899
Stage 1	-	-	-	-	-	-	583	589	-	845	767	-
Stage 2	-	-	-	-	-	-	819	767	-	776	521	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1118	-	-	361	411	785	541	351	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	361	411	-	541	351	-
Stage 1	-	-	-	-	-	-	563	569	-	816	764	-
Stage 2	-	-	-	-	-	-	770	764	-	723	503	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.3	31	10.8
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	369	1434	-	-	1118	-	-	667
HCM Lane V/C Ratio	0.648	0.034	-	-	0.005	-	-	0.073
HCM Control Delay (s)	31	7.6	-	-	8.2	-	-	10.8
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	15	80	0	20	0	50	10	0	0	5	75
Future Vol, veh/h	105	15	80	0	20	0	50	10	0	0	5	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	16	87	0	22	0	54	11	0	0	5	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	103	0	0	354	310	52	264	353	22
Stage 1	-	-	-	-	-	-	288	288	-	22	22	-
Stage 2	-	-	-	-	-	-	66	22	-	242	331	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1593	-	-	1488	-	-	589	604	1005	678	571	1055
Stage 1	-	-	-	-	-	-	696	673	-	996	877	-
Stage 2	-	-	-	-	-	-	944	877	-	741	644	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1488	-	-	509	561	1005	631	530	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	509	561	-	631	530	-
Stage 1	-	-	-	-	-	-	646	625	-	924	877	-
Stage 2	-	-	-	-	-	-	866	877	-	676	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	0	13	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	517	1593	-	-	1488	-	-	993
HCM Lane V/C Ratio	0.126	0.072	-	-	-	-	-	0.088
HCM Control Delay (s)	13	7.4	-	-	0	-	-	9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	75	15	0	45	10	20	0	0	15	0	25
Future Vol, veh/h	25	75	15	0	45	10	20	0	0	15	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	82	16	0	49	11	22	0	0	16	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	98	0	0	212	204	90	199	207	55
Stage 1	-	-	-	-	-	-	144	144	-	55	55	-
Stage 2	-	-	-	-	-	-	68	60	-	144	152	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1495	-	-	745	692	968	760	690	1012
Stage 1	-	-	-	-	-	-	859	778	-	957	849	-
Stage 2	-	-	-	-	-	-	942	845	-	859	772	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1495	-	-	714	679	968	749	677	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	714	679	-	749	677	-
Stage 1	-	-	-	-	-	-	843	763	-	939	849	-
Stage 2	-	-	-	-	-	-	917	845	-	843	757	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0	10.2	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	714	1544	-	-	1495	-	-	894
HCM Lane V/C Ratio	0.03	0.018	-	-	-	-	-	0.049
HCM Control Delay (s)	10.2	7.4	0	-	0	-	-	9.2
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	45	0	30	25	0
Future Vol, veh/h	50	45	0	30	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	49	0	33	27	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	112	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	885	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1489	-	885	981
Mov Cap-2 Maneuver	-	-	-	-	885	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	989	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1489	-
HCM Lane V/C Ratio	0.031	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2035 Scenario 4 WE Peak

HCM 6th Signalized Intersection Summary
1: Napilihau Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	45	405	50	50	20	345	405	45	20	355	90
Future Volume (veh/h)	40	45	405	50	50	20	345	405	45	20	355	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	49	33	54	54	10	375	440	29	22	386	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	127	192	224	188	35	454	1050	888	28	602	510
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.25	0.56	0.56	0.02	0.32	0.32
Sat Flow, veh/h	541	1033	1566	1305	1532	284	1781	1870	1582	1781	1870	1583
Grp Volume(v), veh/h	92	0	33	54	0	64	375	440	29	22	386	30
Grp Sat Flow(s),veh/h/ln	1574	0	1566	1305	0	1815	1781	1870	1582	1781	1870	1583
Q Serve(g_s), s	1.2	0.0	1.0	2.1	0.0	1.7	10.6	7.2	0.4	0.7	9.4	0.7
Cycle Q Clear(g_c), s	2.9	0.0	1.0	5.0	0.0	1.7	10.6	7.2	0.4	0.7	9.4	0.7
Prop In Lane	0.47		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	292	0	192	224	0	223	454	1050	888	28	602	510
V/C Ratio(X)	0.31	0.00	0.17	0.24	0.00	0.29	0.83	0.42	0.03	0.79	0.64	0.06
Avail Cap(c_a), veh/h	806	0	705	652	0	818	1003	2774	2346	502	2247	1901
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	20.9	24.1	0.0	21.3	18.7	6.7	5.2	26.1	15.4	12.5
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.5	0.0	0.7	3.9	0.6	0.0	37.5	2.4	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	1.1	0.0	0.4	0.7	0.0	0.7	4.2	2.1	0.1	0.5	3.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	21.4	24.7	0.0	22.0	22.6	7.3	5.3	63.6	17.9	12.6
LnGrp LOS	C	A	C	C	A	C	C	A	A	E	B	B
Approach Vol, veh/h		125			118			844			438	
Approach Delay, s/veh		22.1			23.2			14.0			19.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	35.9		11.5	18.6	23.2		11.5				
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s	15.0	79.0		24.0	30.0	64.0		24.0				
Max Q Clear Time (g_c+I1), s	2.7	9.2		4.9	12.6	11.4		7.0				
Green Ext Time (p_c), s	0.0	6.7		0.5	1.1	5.6		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
2: Hoohui Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	245	50	15	5	175	625	35	15	650	60
Future Volume (veh/h)	60	20	245	50	15	5	175	625	35	15	650	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	22	20	54	16	1	190	679	0	16	707	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	73	225	262	252	16	396	1016		371	872	737
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.54	0.00	0.01	0.47	0.47
Sat Flow, veh/h	1004	503	1558	1346	1740	109	1781	1870	1585	1781	1870	1580
Grp Volume(v), veh/h	87	0	20	54	0	17	190	679	0	16	707	29
Grp Sat Flow(s),veh/h/ln	1507	0	1558	1346	0	1849	1781	1870	1585	1781	1870	1580
Q Serve(g_s), s	2.0	0.0	0.6	2.0	0.0	0.4	2.7	13.9	0.0	0.3	17.3	0.5
Cycle Q Clear(g_c), s	2.7	0.0	0.6	4.7	0.0	0.4	2.7	13.9	0.0	0.3	17.3	0.5
Prop In Lane	0.75		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	0	225	262	0	268	396	1016		371	872	737
V/C Ratio(X)	0.26	0.00	0.09	0.21	0.00	0.06	0.48	0.67		0.04	0.81	0.04
Avail Cap(c_a), veh/h	813	0	730	698	0	866	738	1788		851	1788	1510
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	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	0.0	19.8	22.8	0.0	19.7	9.7	8.7	0.0	8.2	12.2	7.7
Incr Delay (d2), s/veh	0.4	0.0	0.2	0.4	0.0	0.1	0.9	0.8	0.0	0.0	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.2	0.6	0.0	0.2	0.8	4.1	0.0	0.1	5.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	0.0	19.9	23.2	0.0	19.8	10.6	9.5	0.0	8.3	14.1	7.8
LnGrp LOS	C	A	B	C	A	B	B	A		A	B	A
Approach Vol, veh/h		107			71			869	A		752	
Approach Delay, s/veh		20.8			22.4			9.7			13.7	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	35.0		12.7	9.8	30.9		12.7
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0		5.0
Max Green Setting (Gmax), s	15.0	51.0		25.0	15.0	51.0		25.0
Max Q Clear Time (g_c+I1), s	2.3	15.9		4.7	4.7	19.3		6.7
Green Ext Time (p_c), s	0.0	5.2		0.5	0.4	5.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	70	90	185	80	155	90	655	245	140	775	50
Future Volume (veh/h)	40	70	90	185	80	155	90	655	245	140	775	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	76	64	201	87	23	98	712	184	152	842	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	100	84	236	390	330	126	862	731	187	925	783
Arrive On Green	0.03	0.11	0.11	0.13	0.21	0.21	0.07	0.46	0.46	0.10	0.49	0.49
Sat Flow, veh/h	1781	932	784	1781	1870	1585	1781	1870	1585	1781	1870	1583
Grp Volume(v), veh/h	43	0	140	201	87	23	98	712	184	152	842	25
Grp Sat Flow(s),veh/h/ln	1781	0	1716	1781	1870	1585	1781	1870	1585	1781	1870	1583
Q Serve(g_s), s	2.5	0.0	8.1	11.3	4.0	1.2	5.5	34.0	7.3	8.6	42.4	0.8
Cycle Q Clear(g_c), s	2.5	0.0	8.1	11.3	4.0	1.2	5.5	34.0	7.3	8.6	42.4	0.8
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	55	0	184	236	390	330	126	862	731	187	925	783
V/C Ratio(X)	0.78	0.00	0.76	0.85	0.22	0.07	0.78	0.83	0.25	0.81	0.91	0.03
Avail Cap(c_a), veh/h	347	0	351	347	390	330	434	1185	1005	434	1185	1004
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	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	49.3	0.0	44.5	43.5	33.7	32.6	46.8	24.1	16.9	44.9	23.8	13.3
Incr Delay (d2), s/veh	20.3	0.0	6.4	12.6	0.3	0.1	9.8	3.5	0.2	8.3	8.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	3.8	5.8	1.8	0.5	2.8	14.9	2.6	4.2	19.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.6	0.0	50.9	56.1	34.0	32.7	56.6	27.6	17.0	53.3	32.6	13.3
LnGrp LOS	E	A	D	E	C	C	E	C	B	D	C	B
Approach Vol, veh/h		183			311			994			1019	
Approach Delay, s/veh		55.3			48.2			28.5			35.2	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	52.3	18.6	16.0	12.3	55.7	8.2	26.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	65.0	20.0	21.0	25.0	65.0	20.0	21.0
Max Q Clear Time (g_c+I1), s	10.6	36.0	13.3	10.1	7.5	44.4	4.5	6.0
Green Ext Time (p_c), s	0.3	6.1	0.3	0.5	0.2	6.3	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	35.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
4: Honoapiilani Highway & Lower Honoapiilani Road

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	10	620	10	0	5	425	960	5	0	1040	70
Future Volume (veh/h)	80	10	620	10	0	5	425	960	5	0	1040	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	11	0	11	0	1	462	1043	5	0	1130	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	14		200	3	11	508	2874	14	2	1641	730
Arrive On Green	0.09	0.08	0.00	0.09	0.00	0.08	0.29	0.79	0.79	0.00	0.46	0.46
Sat Flow, veh/h	1308	165	1585	1461	37	136	1781	3627	17	1781	3554	1580
Grp Volume(v), veh/h	98	0	0	12	0	0	462	511	537	0	1130	39
Grp Sat Flow(s),veh/h/ln	1474	0	1585	1634	0	0	1781	1777	1867	1781	1777	1580
Q Serve(g_s), s	5.1	0.0	0.0	0.0	0.0	0.0	22.1	7.4	7.4	0.0	22.2	1.2
Cycle Q Clear(g_c), s	5.7	0.0	0.0	0.5	0.0	0.0	22.1	7.4	7.4	0.0	22.2	1.2
Prop In Lane	0.89		1.00	0.92		0.08	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	216	0		232	0	0	508	1408	1480	2	1641	730
V/C Ratio(X)	0.45	0.00		0.05	0.00	0.00	0.91	0.36	0.36	0.00	0.69	0.05
Avail Cap(c_a), veh/h	424	0		516	0	0	1431	1408	1480	1431	2775	1234
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	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	0.0	37.0	0.0	0.0	30.5	2.7	2.7	0.0	18.8	13.1
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.1	0.0	0.0	2.7	0.3	0.3	0.0	1.1	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	2.1	0.0	0.0	0.2	0.0	0.0	9.4	1.6	1.6	0.0	8.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	0.0	37.1	0.0	0.0	33.1	3.0	3.0	0.0	19.9	13.2
LnGrp LOS	D	A		D	A	A	C	A	A	A	B	B
Approach Vol, veh/h		98	A		12			1510			1169	
Approach Delay, s/veh		40.7			37.1			12.2			19.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	89.2	46.8		12.3	0.0	76.0		12.3
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	71.0	69.0		25.0	71.0	69.0		20.0
Max Q Clear Time (g_c+I1), s	24.1	24.2		2.5	0.0	9.4		7.7
Green Ext Time (p_c), s	1.1	16.6		0.0	0.0	13.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	145	15	5	20	110	1345	20	10	1650	70
Future Volume (veh/h)	65	5	145	15	5	20	110	1345	20	10	1650	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	5	4	16	5	1	120	1462	22	11	1793	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	12	141	125	31	4	150	2694	41	14	2401	1068
Arrive On Green	0.10	0.09	0.09	0.10	0.09	0.09	0.08	0.75	0.75	0.01	0.68	0.68
Sat Flow, veh/h	1433	129	1548	644	340	47	1781	3584	54	1781	3554	1582
Grp Volume(v), veh/h	76	0	4	22	0	0	120	724	760	11	1793	49
Grp Sat Flow(s),veh/h/ln	1561	0	1548	1031	0	0	1781	1777	1861	1781	1777	1582
Q Serve(g_s), s	0.0	0.0	0.2	0.4	0.0	0.0	6.2	16.0	16.1	0.6	31.0	1.0
Cycle Q Clear(g_c), s	3.8	0.0	0.2	4.2	0.0	0.0	6.2	16.0	16.1	0.6	31.0	1.0
Prop In Lane	0.93		1.00	0.73		0.05	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	141	171	0	0	150	1336	1399	14	2401	1068
V/C Ratio(X)	0.33	0.00	0.03	0.13	0.00	0.00	0.80	0.54	0.54	0.77	0.75	0.05
Avail Cap(c_a), veh/h	450	0	379	399	0	0	398	1628	1705	209	2877	1280
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	38.9	39.7	0.0	0.0	42.2	4.9	4.9	46.5	10.0	5.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.0	3.7	0.7	0.7	27.5	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.1	0.5	0.0	0.0	2.8	4.4	4.6	0.4	10.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	0.0	38.9	39.8	0.0	0.0	45.9	5.6	5.6	74.0	11.3	5.1
LnGrp LOS	D	A	D	D	A	A	D	A	A	E	B	A
Approach Vol, veh/h		80			22			1604			1853	
Approach Delay, s/veh		40.3			39.8			8.6			11.5	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.9	68.4		13.5	4.7	75.6		13.5
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	21.0	76.0		23.0	11.0	86.0		23.0
Max Q Clear Time (g_c+I1), s	8.2	33.0		6.2	2.6	18.1		5.8
Green Ext Time (p_c), s	0.1	30.4		0.0	0.0	27.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	185	45	5	40	115	1405	55	35	1720	90
Future Volume (veh/h)	80	5	185	45	5	40	115	1405	55	35	1720	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	5	12	49	5	3	125	1527	39	38	1870	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	12	211	177	146	88	158	2387	1065	60	2192	978
Arrive On Green	0.14	0.13	0.13	0.13	0.13	0.13	0.09	0.67	0.67	0.03	0.62	0.62
Sat Flow, veh/h	1307	91	1578	1391	1093	656	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	92	0	12	49	0	8	125	1527	39	38	1870	59
Grp Sat Flow(s),veh/h/ln	1398	0	1578	1391	0	1749	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.4	0.0	0.6	3.2	0.0	0.4	6.4	23.0	0.8	2.0	39.6	1.4
Cycle Q Clear(g_c), s	5.8	0.0	0.6	8.9	0.0	0.4	6.4	23.0	0.8	2.0	39.6	1.4
Prop In Lane	0.95		1.00	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	0	211	177	0	234	158	2387	1065	60	2192	978
V/C Ratio(X)	0.33	0.00	0.06	0.28	0.00	0.03	0.79	0.64	0.04	0.63	0.85	0.06
Avail Cap(c_a), veh/h	453	0	407	350	0	451	402	2634	1175	230	2290	1021
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	35.2	41.6	0.0	35.1	41.6	8.8	5.1	44.4	14.4	7.1
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.8	0.0	0.1	3.4	0.7	0.0	4.1	3.6	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	1.9	0.0	0.2	1.1	0.0	0.2	2.9	7.5	0.2	0.9	14.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	35.3	42.4	0.0	35.2	45.0	9.5	5.2	48.5	18.1	7.2
LnGrp LOS	D	A	D	D	A	D	D	A	A	D	B	A
Approach Vol, veh/h		104			57			1691			1967	
Approach Delay, s/veh		37.5			41.4			12.1			18.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	63.4		17.4	7.1	68.5		17.4
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0
Max Green Setting (Gmax), s	21.0	60.0		24.0	12.0	69.0		24.0
Max Q Clear Time (g_c+I1), s	8.4	41.6		10.9	4.0	25.0		7.8
Green Ext Time (p_c), s	0.2	15.8		0.1	0.0	25.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
7: Honoapiilani Highway & Kaanapali Parkway/Halelo Street

08/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	5	460	15	5	20	305	1490	15	65	1695	175
Future Volume (veh/h)	290	5	460	15	5	20	305	1490	15	65	1695	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	319	0	285	16	5	7	332	1620	16	71	1842	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	0	762	38	12	17	420	2461	24	111	2215	1176
Arrive On Green	0.12	0.00	0.12	0.04	0.04	0.02	0.12	0.68	0.67	0.06	0.62	0.62
Sat Flow, veh/h	3563	0	3170	996	311	436	3456	3605	36	1781	3554	1584
Grp Volume(v), veh/h	319	0	285	28	0	0	332	798	838	71	1842	165
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1742	0	0	1728	1777	1864	1781	1777	1584
Q Serve(g_s), s	15.0	0.0	13.1	2.7	0.0	0.0	16.2	45.0	45.1	6.8	70.5	5.2
Cycle Q Clear(g_c), s	15.0	0.0	13.1	2.7	0.0	0.0	16.2	45.0	45.1	6.8	70.5	5.2
Prop In Lane	1.00		1.00	0.57		0.25	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	444	0	762	67	0	0	420	1213	1273	111	2215	1176
V/C Ratio(X)	0.72	0.00	0.37	0.42	0.00	0.00	0.79	0.66	0.66	0.64	0.83	0.14
Avail Cap(c_a), veh/h	696	0	986	310	0	0	1152	1981	2078	154	3084	1563
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	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.2	0.0	55.2	82.1	0.0	0.0	74.3	15.9	15.9	79.7	25.6	6.5
Incr Delay (d2), s/veh	0.8	0.0	0.1	1.5	0.0	0.0	1.3	0.9	0.8	2.3	1.7	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	7.0	0.0	5.3	1.3	0.0	0.0	7.3	18.0	19.0	3.2	29.4	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	0.0	55.3	83.6	0.0	0.0	75.6	16.8	16.8	82.0	27.4	6.5
LnGrp LOS	E	A	E	F	A	A	E	B	B	F	C	A
Approach Vol, veh/h		604			28			1968			2078	
Approach Delay, s/veh		65.2			83.6			26.7			27.6	
Approach LOS		E			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	35.1	112.5		10.7	14.8	122.8		25.7
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0
Max Green Setting (Gmax), s	56.0	149.0		28.0	13.0	192.0		31.0
Max Q Clear Time (g_c+I1), s	19.2	72.5		4.7	8.8	47.1		17.0
Green Ext Time (p_c), s	0.9	33.9		0.0	0.0	22.5		1.7

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	5	140	5	70	5	1695	90	95	2160	10
Future Volume (veh/h)	5	0	5	140	5	70	5	1695	90	95	2160	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	0	1	152	5	5	5	1842	95	103	2348	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	5	30	239	110	110	11	2431	124	129	2803	13
Arrive On Green	0.13	0.00	0.12	0.13	0.13	0.12	0.01	0.94	0.93	0.07	0.77	0.77
Sat Flow, veh/h	1146	36	236	1416	858	858	1781	3440	176	1781	3627	17
Grp Volume(v), veh/h	6	0	0	152	0	10	5	944	993	103	1149	1210
Grp Sat Flow(s),veh/h/ln	1418	0	0	1416	0	1716	1781	1777	1839	1781	1777	1867
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.7	0.4	14.1	15.2	7.4	54.1	54.3
Cycle Q Clear(g_c), s	0.7	0.0	0.0	13.4	0.0	0.7	0.4	14.1	15.2	7.4	54.1	54.3
Prop In Lane	0.83		0.17	1.00		0.50	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	233	0	0	239	0	221	11	1256	1299	129	1373	1443
V/C Ratio(X)	0.03	0.00	0.00	0.64	0.00	0.05	0.44	0.75	0.76	0.80	0.84	0.84
Avail Cap(c_a), veh/h	313	0	0	319	0	317	151	1256	1299	151	1373	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	0.0	0.0	55.1	0.0	49.9	64.2	1.6	1.6	59.3	9.5	9.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.8	0.0	0.1	6.6	2.8	2.9	19.0	6.2	6.0
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	0.2	0.0	0.0	5.1	0.0	0.3	0.2	2.6	2.8	4.0	19.0	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	0.0	57.9	0.0	50.0	70.8	4.4	4.6	78.3	15.7	15.5
LnGrp LOS	D	A	A	E	A	D	E	A	A	E	B	B
Approach Vol, veh/h		6			162			1942			2462	
Approach Delay, s/veh		49.6			57.4			4.7			18.2	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.8	104.5		20.7	13.4	95.9		20.7
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	11.0	82.0		23.0	11.0	82.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	56.3		15.4	9.4	17.2		2.7
Green Ext Time (p_c), s	0.0	24.2		0.3	0.0	43.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	5	15	70	5	15	15	1615	15	10	1910	290
Future Volume (veh/h)	155	5	15	70	5	15	15	1615	15	10	1910	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	5	14	76	5	9	16	1755	16	11	2076	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	6	16	251	18	24	19	2721	25	13	2669	1190
Arrive On Green	0.15	0.15	0.14	0.15	0.15	0.14	0.01	0.75	0.75	0.01	0.75	0.75
Sat Flow, veh/h	1349	40	112	1372	122	166	1781	3608	33	1781	3554	1584
Grp Volume(v), veh/h	187	0	0	90	0	0	16	863	908	11	2076	242
Grp Sat Flow(s),veh/h/ln	1502	0	0	1661	0	0	1781	1777	1864	1781	1777	1584
Q Serve(g_s), s	9.4	0.0	0.0	0.0	0.0	0.0	1.2	30.2	30.3	0.8	45.5	5.8
Cycle Q Clear(g_c), s	15.6	0.0	0.0	6.2	0.0	0.0	1.2	30.2	30.3	0.8	45.5	5.8
Prop In Lane	0.90		0.07	0.84		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	272	0	0	293	0	0	19	1340	1406	13	2669	1190
V/C Ratio(X)	0.69	0.00	0.00	0.31	0.00	0.00	0.84	0.64	0.65	0.82	0.78	0.20
Avail Cap(c_a), veh/h	349	0	0	371	0	0	110	1340	1406	110	2669	1190
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	0.54	0.54	0.54	0.40	0.40	0.40
Uniform Delay (d), s/veh	53.8	0.0	0.0	50.1	0.0	0.0	64.2	7.6	7.7	64.4	9.7	4.8
Incr Delay (d2), s/veh	3.9	0.0	0.0	0.6	0.0	0.0	17.3	1.3	1.2	16.0	0.9	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	6.3	0.0	0.0	2.7	0.0	0.0	0.6	10.2	10.7	0.4	15.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	0.0	0.0	50.7	0.0	0.0	81.5	8.9	8.9	80.4	10.6	4.9
LnGrp LOS	E	A	A	D	A	A	F	A	A	F	B	A
Approach Vol, veh/h		187			90			1787			2329	
Approach Delay, s/veh		57.7			50.7			9.6			10.4	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	101.6		23.0	5.0	102.0		23.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	83.0		25.0	8.0	83.0		25.0
Max Q Clear Time (g_c+I1), s	3.2	47.5		8.2	2.8	32.3		17.6
Green Ext Time (p_c), s	0.0	33.4		0.2	0.0	39.6		0.4

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	20	55	95	20	20	65	1630	65	20	1910	145
Future Volume (veh/h)	215	20	55	95	20	20	65	1630	65	20	1910	145
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		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	22	8	103	22	2	71	1772	69	22	2076	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	263	96	313	340	31	90	2411	93	27	2202	161
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.19	0.07	0.92	0.91	0.02	0.87	0.86
Sat Flow, veh/h	1381	1307	475	1374	1688	153	1781	3487	135	1781	3357	246
Grp Volume(v), veh/h	234	0	30	103	0	24	71	898	943	22	1086	1144
Grp Sat Flow(s),veh/h/ln	1381	0	1782	1374	0	1842	1781	1777	1845	1781	1777	1826
Q Serve(g_s), s	21.5	0.0	1.8	8.6	0.0	1.4	5.1	16.2	16.8	1.6	54.2	62.4
Cycle Q Clear(g_c), s	22.8	0.0	1.8	10.3	0.0	1.4	5.1	16.2	16.8	1.6	54.2	62.4
Prop In Lane	1.00		0.27	1.00		0.08	1.00		0.07	1.00		0.13
Lane Grp Cap(c), veh/h	319	0	359	313	0	371	90	1228	1276	27	1166	1198
V/C Ratio(X)	0.73	0.00	0.08	0.33	0.00	0.06	0.79	0.73	0.74	0.81	0.93	0.95
Avail Cap(c_a), veh/h	349	0	398	343	0	411	110	1228	1276	110	1166	1198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.49	0.49	0.49
Uniform Delay (d), s/veh	51.3	0.0	42.2	46.4	0.0	42.1	60.0	2.3	2.3	63.5	6.3	6.9
Incr Delay (d2), s/veh	7.1	0.0	0.1	0.6	0.0	0.1	2.3	0.4	0.4	10.1	8.2	10.3
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	8.1	0.0	0.8	3.0	0.0	0.6	2.3	2.3	2.4	0.8	7.5	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	0.0	42.3	47.0	0.0	42.1	62.3	2.6	2.7	73.6	14.5	17.2
LnGrp LOS	E	A	D	D	A	D	E	A	A	E	B	B
Approach Vol, veh/h		264			127			1912			2252	
Approach Delay, s/veh		56.6			46.1			4.9			16.5	
Approach LOS		E			D			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	89.3		30.2	6.0	93.9		30.2
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	80.0		28.0	8.0	80.0		28.0
Max Q Clear Time (g_c+I1), s	7.1	64.4		12.3	3.6	18.8		24.8
Green Ext Time (p_c), s	0.0	14.7		0.4	0.0	38.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	120	115	200	140	930	95	655	205	605	1145	155
Future Volume (veh/h)	95	120	115	200	140	930	95	655	205	605	1145	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	130	42	217	152	0	103	712	164	658	1245	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	149	267	236	545		128	778	651	691	1725	221
Arrive On Green	0.18	0.18	0.18	0.08	0.29	0.00	0.07	0.42	0.42	0.20	0.54	0.54
Sat Flow, veh/h	652	845	1512	1781	1870	1585	1781	1870	1564	3456	3168	405
Grp Volume(v), veh/h	233	0	42	217	152	0	103	712	164	658	696	709
Grp Sat Flow(s),veh/h/ln	1497	0	1512	1781	1870	1585	1781	1870	1564	1728	1777	1797
Q Serve(g_s), s	19.4	0.0	3.1	11.0	8.1	0.0	7.4	46.7	8.9	24.5	38.1	38.7
Cycle Q Clear(g_c), s	19.7	0.0	3.1	11.0	8.1	0.0	7.4	46.7	8.9	24.5	38.1	38.7
Prop In Lane	0.44		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	304	0	267	236	545		128	778	651	691	967	978
V/C Ratio(X)	0.77	0.00	0.16	0.92	0.28		0.81	0.91	0.25	0.95	0.72	0.72
Avail Cap(c_a), veh/h	305	0	268	236	547		329	778	651	691	967	978
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	1.00	1.00	1.00	0.00	0.79	0.79	0.79	0.23	0.23	0.23
Uniform Delay (d), s/veh	52.2	0.0	45.4	43.7	35.5	0.0	59.5	35.8	24.8	51.4	22.2	22.4
Incr Delay (d2), s/veh	11.1	0.0	0.3	37.6	0.3	0.0	3.6	14.3	0.7	7.9	1.1	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	8.4	0.0	1.2	4.3	3.8	0.0	3.5	23.8	3.4	11.2	15.6	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	0.0	45.6	81.3	35.8	0.0	63.0	50.1	25.5	59.3	23.3	23.5
LnGrp LOS	E	A	D	F	D		E	D	C	E	C	C
Approach Vol, veh/h		275			369	A		979			2063	
Approach Delay, s/veh		60.6			62.6			47.3			34.8	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	13.3	74.8	15.0	26.9	30.0	58.1		41.9
Change Period (Y+Rc), s	4.0	5.0	5.0	5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	24.0	55.0	10.0	22.0	26.0	53.0		37.0
Max Q Clear Time (g_c+I1), s	9.4	40.7	13.0	21.7	26.5	48.7		10.1
Green Ext Time (p_c), s	0.1	10.2	0.0	0.0	0.0	2.7		0.6

Intersection Summary	
HCM 6th Ctrl Delay	42.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑	↱		↑
Traffic Vol, veh/h	0	20	825	35	0	960
Future Vol, veh/h	0	20	825	35	0	960
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	897	38	0	1043

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	897	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	339	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	339	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	339	-
HCM Lane V/C Ratio	-	-	0.064	-
HCM Control Delay (s)	-	-	16.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	50	955	95	50	1010
Future Vol, veh/h	85	50	955	95	50	1010
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	54	1038	103	54	1098

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2244	1038	0	0	1141	0
Stage 1	1038	-	-	-	-	-
Stage 2	1206	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 46	280	-	-	612	-
Stage 1	341	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 42	280	-	-	612	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	283	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.7	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	139	280	612	-
HCM Lane V/C Ratio	-	-	0.665	0.194	0.089	-
HCM Control Delay (s)	-	-	71.4	20.9	11.5	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.7	0.7	0.3	-

Notes

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

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	195	210	0	175	0	195	0	0	0	0	45
Future Vol, veh/h	50	195	210	0	175	0	195	0	0	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	212	228	0	190	0	212	0	0	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	0	440	0	0	649	624	220	404	738	190
Stage 1	-	-	-	-	-	-	434	434	-	190	190	-
Stage 2	-	-	-	-	-	-	215	190	-	214	548	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1382	-	-	1118	-	-	369	401	785	544	345	851
Stage 1	-	-	-	-	-	-	571	580	-	811	742	-
Stage 2	-	-	-	-	-	-	787	742	-	769	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1382	-	-	1118	-	-	337	385	785	528	332	851
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	385	-	528	332	-
Stage 1	-	-	-	-	-	-	549	557	-	779	742	-
Stage 2	-	-	-	-	-	-	742	742	-	739	496	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	32.2	9.5
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	337	1382	-	-	1118	-	-	851
HCM Lane V/C Ratio	0.629	0.039	-	-	-	-	-	0.057
HCM Control Delay (s)	32.2	7.7	-	-	0	-	-	9.5
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	25	75	0	25	0	65	0	0	0	0	90
Future Vol, veh/h	95	25	75	0	25	0	65	0	0	0	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	27	82	0	27	0	71	0	0	0	0	98

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	109	0	0	350	301	55	247	342	27
Stage 1	-	-	-	-	-	-	274	274	-	27	27	-
Stage 2	-	-	-	-	-	-	76	27	-	220	315	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1586	-	-	1480	-	-	592	611	1001	696	579	1048
Stage 1	-	-	-	-	-	-	709	683	-	990	872	-
Stage 2	-	-	-	-	-	-	933	872	-	763	655	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1586	-	-	1480	-	-	510	571	1001	661	541	1048
Mov Cap-2 Maneuver	-	-	-	-	-	-	510	571	-	661	541	-
Stage 1	-	-	-	-	-	-	663	639	-	926	872	-
Stage 2	-	-	-	-	-	-	846	872	-	713	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.6	0	13.2	8.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	510	1586	-	-	1480	-	-	1048
HCM Lane V/C Ratio	0.139	0.065	-	-	-	-	-	0.093
HCM Control Delay (s)	13.2	7.4	-	-	0	-	-	8.8
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	75	40	0	60	0	45	0	0	0	0	30
Future Vol, veh/h	35	75	40	0	60	0	45	0	0	0	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	82	43	0	65	0	49	0	0	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	65	0	0	125	0	0	262	245	104	245	266	65
Stage 1	-	-	-	-	-	-	180	180	-	65	65	-
Stage 2	-	-	-	-	-	-	82	65	-	180	201	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1537	-	-	1462	-	-	691	657	951	709	640	999
Stage 1	-	-	-	-	-	-	822	750	-	946	841	-
Stage 2	-	-	-	-	-	-	926	841	-	822	735	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1537	-	-	1462	-	-	654	639	951	694	623	999
Mov Cap-2 Maneuver	-	-	-	-	-	-	654	639	-	694	623	-
Stage 1	-	-	-	-	-	-	800	730	-	920	841	-
Stage 2	-	-	-	-	-	-	896	841	-	800	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	10.9	8.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	654	1537	-	-	1462	-	-	999
HCM Lane V/C Ratio	0.075	0.025	-	-	-	-	-	0.033
HCM Control Delay (s)	10.9	7.4	0	-	0	-	-	8.7
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	35	0	35	30	0
Future Vol, veh/h	40	35	0	35	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	38	0	38	33	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	81	0	100	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	38	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1517	-	899	1003
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1517	-	899	1003
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1517	-
HCM Lane V/C Ratio	0.036	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

APPENDIX D

ROADWAY IMPROVEMENTS PLAN

Appendix D: Roadway Improvements Summary

Buildout Year	Project Scenario	Intersection	Roadway Improvement
ROADWAY IMPROVEMENTS WITHOUT PULELEHUA			
Planned Roadway Improvements (Without Project)		Honoapiilani Highway/ Napilihau Street	- Construct an exclusive right-turn lane on the northbound Honoapiilani Highway approach. - Construct an exclusive left-turn lane and shared through/right-turn lane on the westbound Napilihau Street approach.
Base Year 2022 (Without Project)	--	Honoapiilani Highway/ Kaanapali Parkway/ Halelo Street	- Construct an additional eastbound left-turn lane, resulting in a dedicated left-turn lane, shared left-turn/through lane and two (2) dedicated right-turn lanes.
	--	Honoapiilani Highway/ Kapunakea Street	- Consider restriping to provide exclusive eastbound left-turn lane and shared through/right-turn lane.
Base Year 2025 (Without Project)	--	--	- No roadway improvements recommended.
Base Year 2030 (Without Project)	--	--	- No roadway improvements recommended.
Base Year 2035 (Without Project)	--	--	- No roadway improvements recommended.

Appendix D: Roadway Improvements Summary cont'd

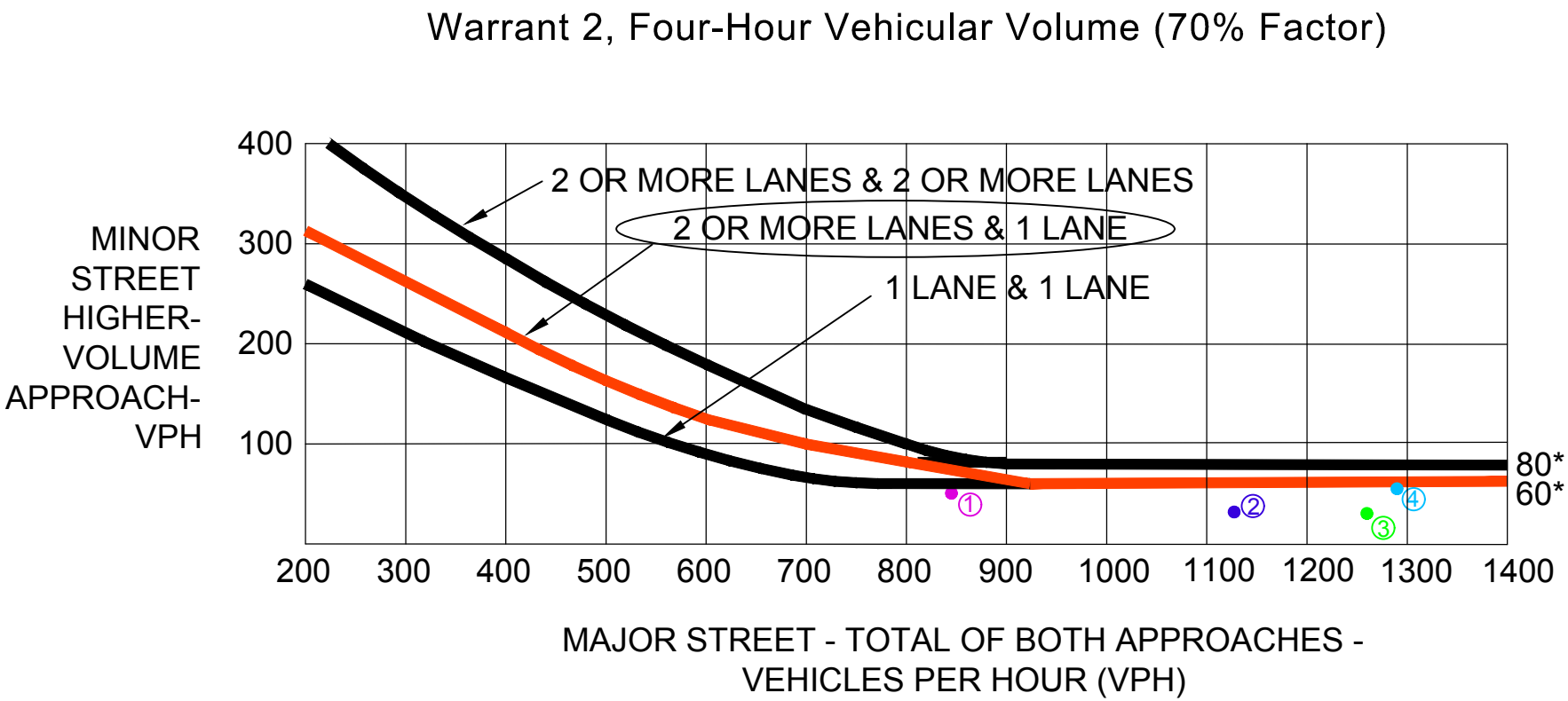
Buildout Year	Project Scenario	Intersection	Roadway Improvement
ROADWAY IMPROVEMENTS WITH PULELEHUA			
Future Year 2022 (With Project)	Scenario 1	Honoapiilani Highway/ Project Retail Area North RIRO Access [1]	- Northbound right-turn lane → Provide a new right-turn with at least a 100 feet of storage space.
Future Year 2025 (With Project)	Scenario 2	Akahele Street/Road A and Road C	- Consider installing left-turn storage lanes along Akahele Street at Road A and Road C.
Future Year 2030 (With Project)	Scenario 3	Honoapiilani Highway/ Akahele Street [1]	- Optimize signal timing plan. - Northbound left-turn lane → Lengthen lane to provide at least 250 feet of storage space. - Westbound left-turn lane → Lengthen lane to provide at least 200 feet of storage space.
		Honoapiilani Highway/ Road J (Project South Access) [1]	- Consider providing a median refuge lane along Honoapiilani Highway for westbound left-turn vehicles. - Northbound right-turn lane → Provide a new right-turn with at least a 100 feet of storage space. - Southhbound left-turn lane → Provide a new left-turn with at least a 100 feet of storage space. - Westbound left-turn lane → Provide a new right-turn with at least a 100 feet of storage space. - Monitor the intersection to determine if or when a traffic signal is warranted at the intersection.
Future Year 2035 (With Project)	Scenario 4	Honoapiilani Highway/ Akahele Street [1]	- Optimize signal timing plan. - Northbound left-turn lane → Lengthen lane to provide at least 275 feet of storage space. - Southhbound left-turn lane → Lengthen lane to provide at least 275 feet of storage space. - Westbound left-turn lane → Lengthen lane to provide at least 275 feet of storage space.

Notes:

1. Right-turn and left-turn lane lengths show required minimum storage space only. Additional taper length and/or deceleration length to be provided/verified upon intersection design. Based on AASHTO Green Book, 425 feet is recommended to accommodate full deceleration length with a design speed of 50 mph.

APPENDIX E

SIGNAL WARRANT



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

① (7:15 AM to 8:15 PM), (845, 50)
② (1:45 PM to 2:45 PM), (1128, 32)
③ (2:45 PM to 3:45 PM), (1260, 30)
④ (3:45 PM to 4:45 PM), (1290, 55)

PULELEHUA	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII FUTURE YEAR 2035 FOUR HOUR TRAFFIC SIGNAL WARRANT FOR HONOAPIILANI HIGHWAY/ROAD J INTERSECTION	FIGURE E.1