Traffic Impact Study

88th & Rosemary

Commerce City, Colorado

Prepared for:

Evergreen Devco, Inc.

Kimley»Horn

T R A F F I C I M P A C T S T U D Y

88th and Rosemary

Commerce City, Colorado

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1.0 EXECUTIVE SUMMARY

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the 88th and Rosemary industrial project proposed to be located on the southwest corner of the 88th Avenue and Rosemary Street intersection in Commerce City, Colorado. The 88th and Rosemary project is proposed to include a general industrial building of approximately 54,600 square feet. It is expected that 88th and Rosemary will be completed in the next few years; therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the City of Commerce City standards and requirements:

- 88th Avenue and I-76 Westbound Ramp (#1)
- 88th Avenue and I-76 Eastbound Ramp (#2)
- 88th Avenue and Rosemary Street (#3)
- 88th Avenue and Highway 2 (#4)

In addition, the two proposed accesses for the project along the west side of Rosemary Street were evaluated, with the North Access (#5) providing right-in/right-out turning movements and the South Access (#6) providing full movements.

Regional access to the 88th and Rosemary project will be provided by Interstate 76 and Highway 2. Primary access will be provided by 88th Avenue and Rosemary Street. Direct access will be provided by two accesses along the west side of Rosemary Street.

88th and Rosemary is expected to generate approximately 256 weekday daily trips, with 41 of these trips occurring during the morning peak hour and 26 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes the 88th and Rosemary industrial project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With completion of the 88th and Rosemary project, two accesses are proposed along the west side of Rosemary Street. The North Access (#5) is recommended to provide right-in/right-out turning movements and is located approximately 425 feet south of 88th Avenue (measured center to center). The South Access (#6) is recommended to provide full turning movements and is proposed to be located approximately 200 feet south of the North Access (#5). It is recommended that R1-1 "STOP" signs be installed on the exiting eastbound approaches out of the development at both driveways. An R3-2 No Left Turn sign should be posted underneath the stop sign at the North Access (#5) to advise drivers that only right turning movements out of this access may be performed.

- Per City of Commerce City standards, it is recommended that a 140-foot with 160-foot taper northbound left turn lane be constructed and designated along Rosemary Street at the South Access (#6). The through lanes along Rosemary Street will need to be redirected around this turn lane at a taper rate of 20.5 to 1 (based on W x S^2 / 60) due to the 35 mile per hour posted speed limit.

- The City of Commerce City has plans to improve 88th Avenue and Rosemary Street which consist of providing five-lane roadway sections for the ultimate condition. However, the additional lanes will likely be striped out until surrounding development occurs and the five-lane sections can be provided throughout the entire corridor. Since the timing of the five-lane section is unknown the existing configuration was analyzed in the long-term 2045 horizon to provide a conservative analysis. If the five-lane sections are provided by 2045 this will only improve operations of what was evaluated in this study.

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Commerce City and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the 88th and Rosemary industrial project proposed to be located on the southwest corner of the 88th Avenue and Rosemary Street intersection in Commerce City, Colorado. A vicinity map illustrating the 88th and Rosemary development location is shown in **Figure 1**. The 88th and Rosemary project is proposed to include a general industrial building of approximately 54,600 square feet. A conceptual site plan is attached in **Appendix F**. It is expected that 88th and Rosemary will be completed in the next few years; therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the City of Commerce City standards and requirements:

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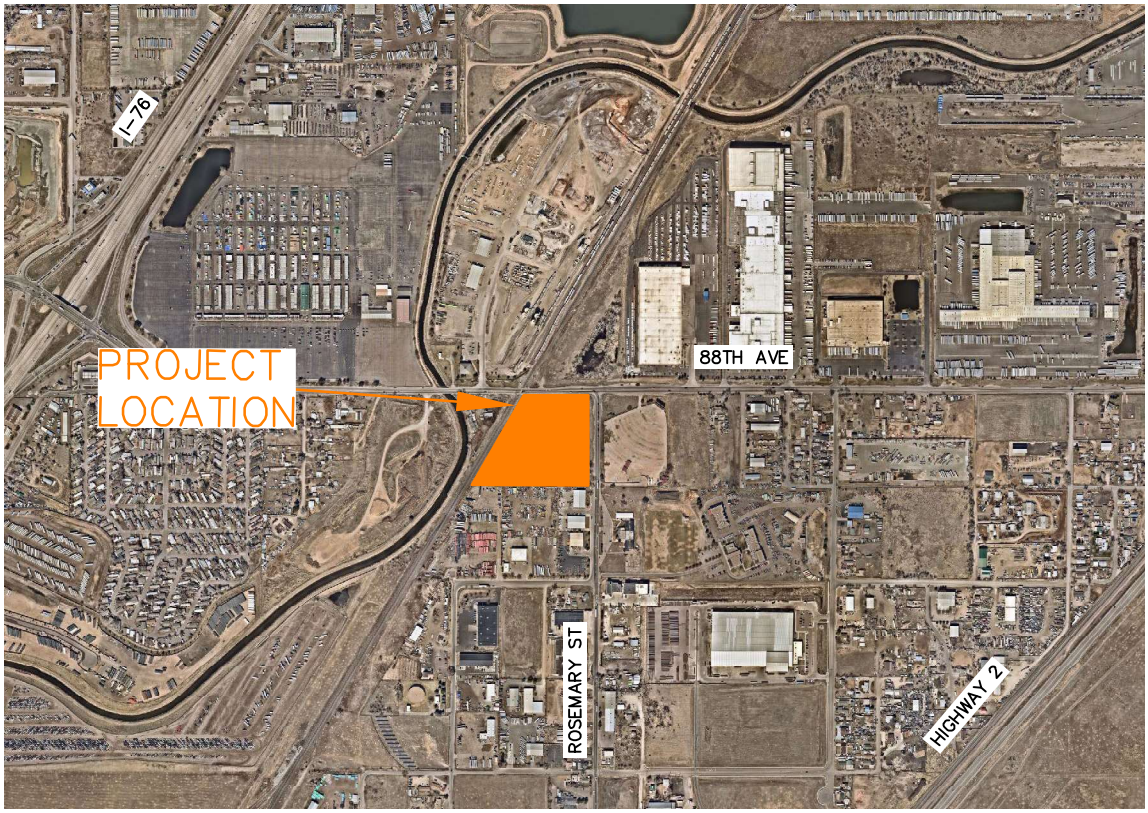
Regional access to 88th and Rosemary will be provided by Interstate 76 and Highway 2. Primary access will be provided by 88th Avenue and Rosemary Street. Direct access will be provided by two proposed accesses along the west side of Rosemary Street.

Kimley»Horn
NORTH
NTS 096266043



88TH & ROSEMARY
COMMERCE CITY, COLORADO
VICINITY MAP

FIGURE 1

Kimley»Horn

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site is comprised of a garage structure, shop building, and vacant land. To the north and south is industrial land. East of the project is a drive-in movie theater. To the west of the project site is a railroad track, a mobile home park, and more industrial land.

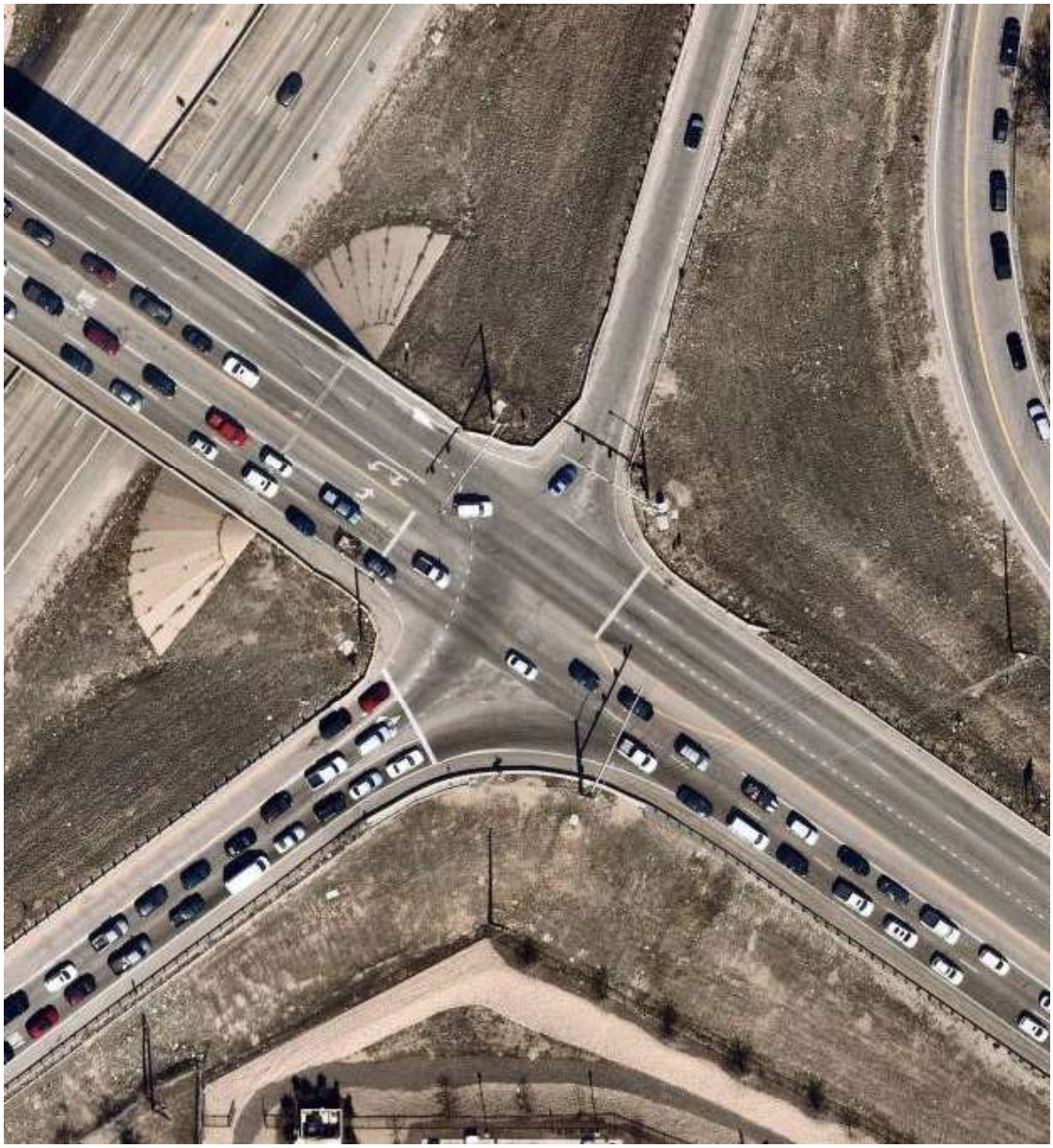
3.2 Existing Roadway Network

88th Avenue extends east/west with one through lane in each direction and a posted speed limit of 40 miles per hour. Rosemary Street extends northbound and southbound with one through lane in each direction and a posted speed limit of 35 miles per hour. Highway 2 extends northeast southwest in the site vicinity with two through lanes in each direction and a posted speed limit of 45 miles per hour.

The signalized intersection of 88th Avenue and I-76 Westbound Ramp (#1) operates with protected-permitted left turn phasing on the east leg of 88th Avenue. The eastbound 88th Avenue approach consists of two through lanes and one right turn lane. The westbound approach consists of one left turn lane and two through lanes. The southbound I-76 Westbound Off-Ramp approach consists of one left turn lane and a shared left/through/right turn lane. Of note, Brighton Road runs parallel to this intersection and is incorporated into the same signal. Brighton Road was analyzed with a hold phase at this intersection as part of the synchro analysis. An aerial photo of the existing intersection configuration is below (north is up - typical).

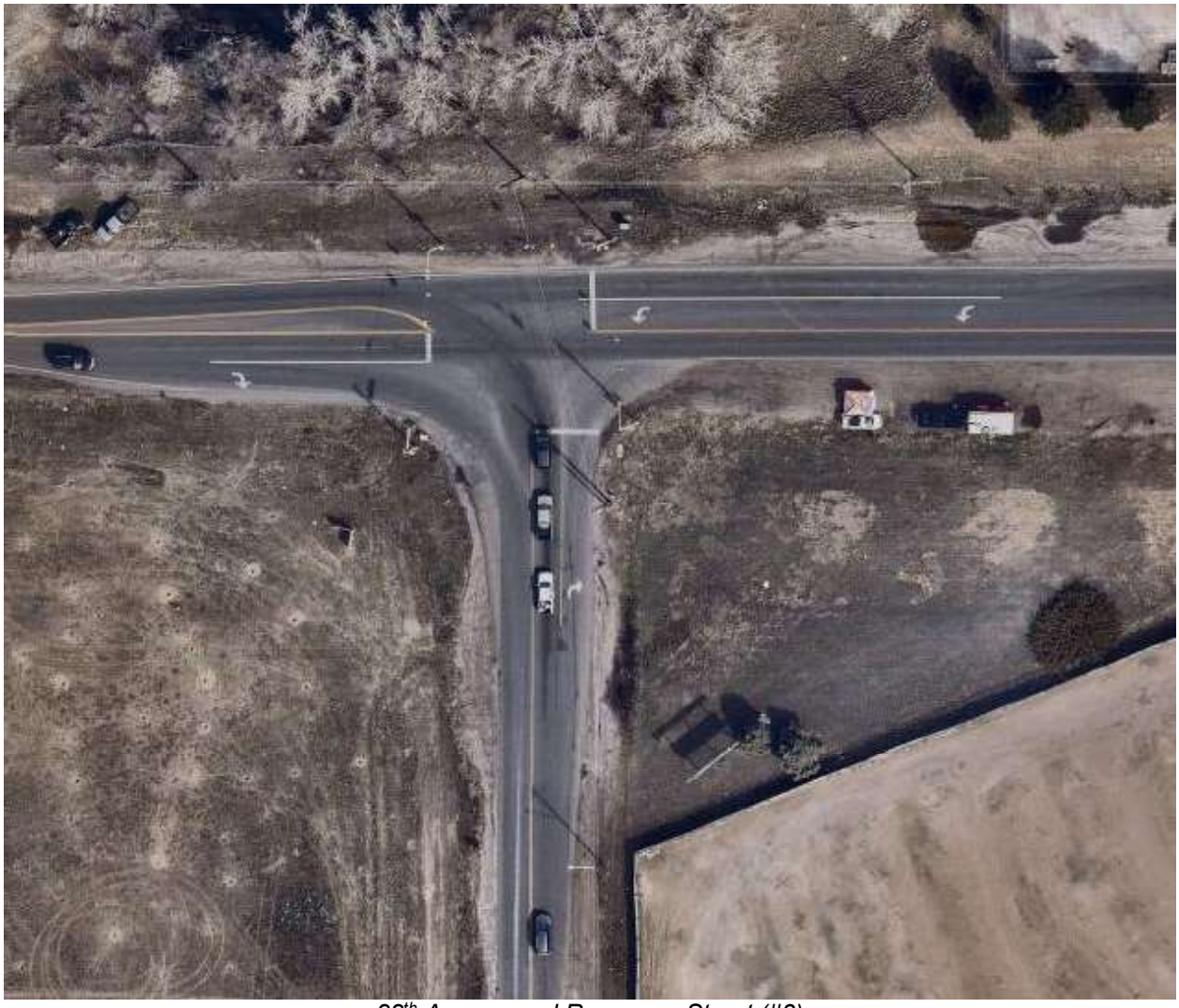
88th Avenue and I-76 Westbound Ramp (#1)

The signalized intersection of 88th Avenue and I-76 Eastbound Ramp (#2) operates with protected-permitted left turn phasing on the west leg of 88th Avenue. The eastbound approach consists of one left turn lane and two through lanes. The westbound approach provides three through lanes with the outside lane being a shared through/right turn lane. The inside westbound through lane is an extension of the westbound left turn lane at the Westbound Ramp intersection as this through lane will drop as a forced left turn lane at the Westbound Ramp. The northbound approach consists of one left turn lane, one shared lane for all movements, and one right turn lane. An aerial photo of the existing intersection configuration is below.



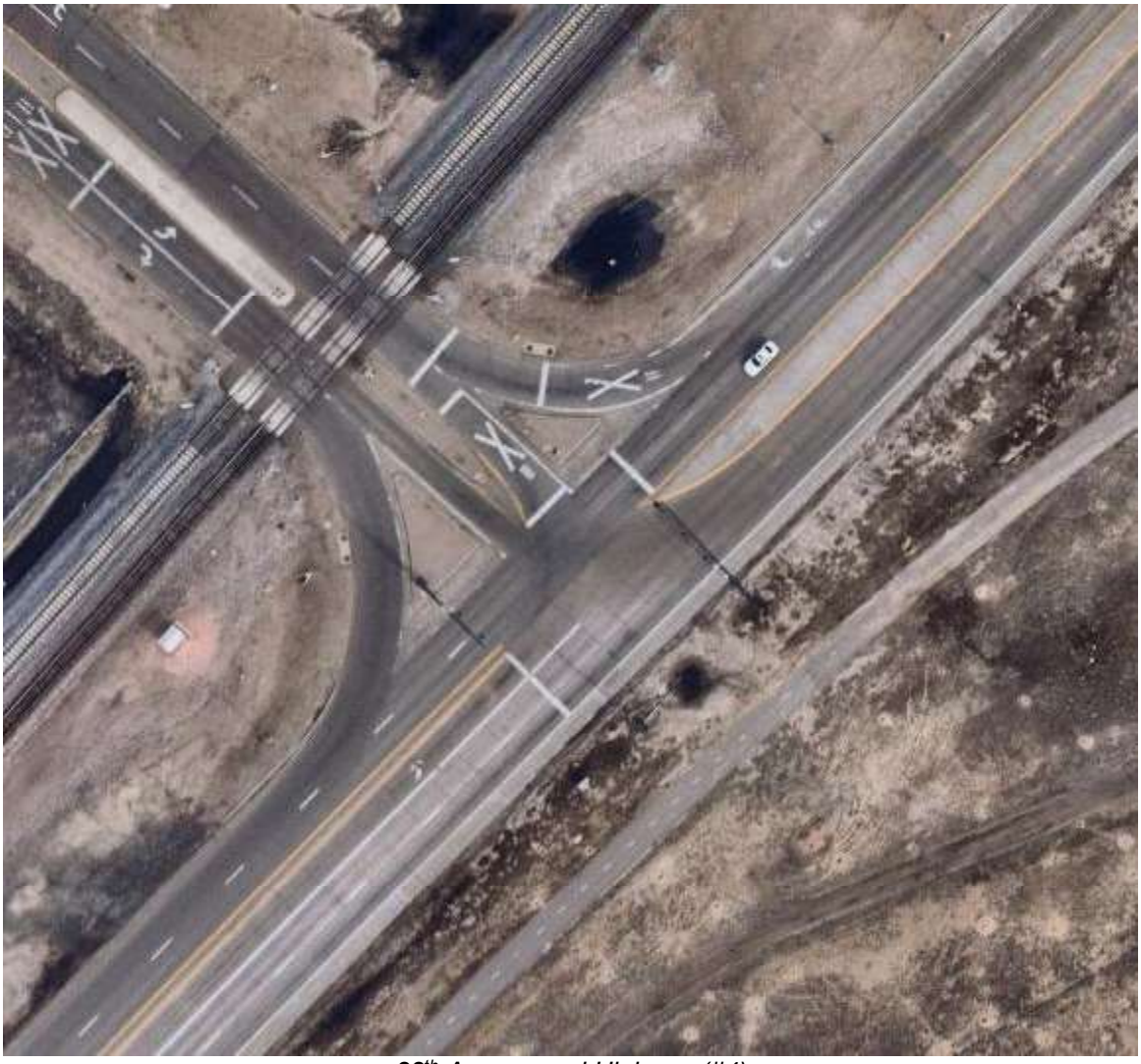
88th Avenue and I-76 Eastbound Ramp (#2)

The signalized 'T'-intersection of 88th Avenue and Rosemary Street (#3) operates with protected-permitted left turn phasing on the west leg of 88th Avenue. Eastbound right turn protected overlap phasing exists. The northbound Rosemary Street approach provides a left turn lane and a right turn lane. Of note, Rosemary Street terminates at this intersection. The eastbound 88th Avenue approach provides one through lane and a right turn lane. The westbound 88th Avenue approach provides one left turn lane and one through lane. An aerial photo of the existing intersection configuration is below.



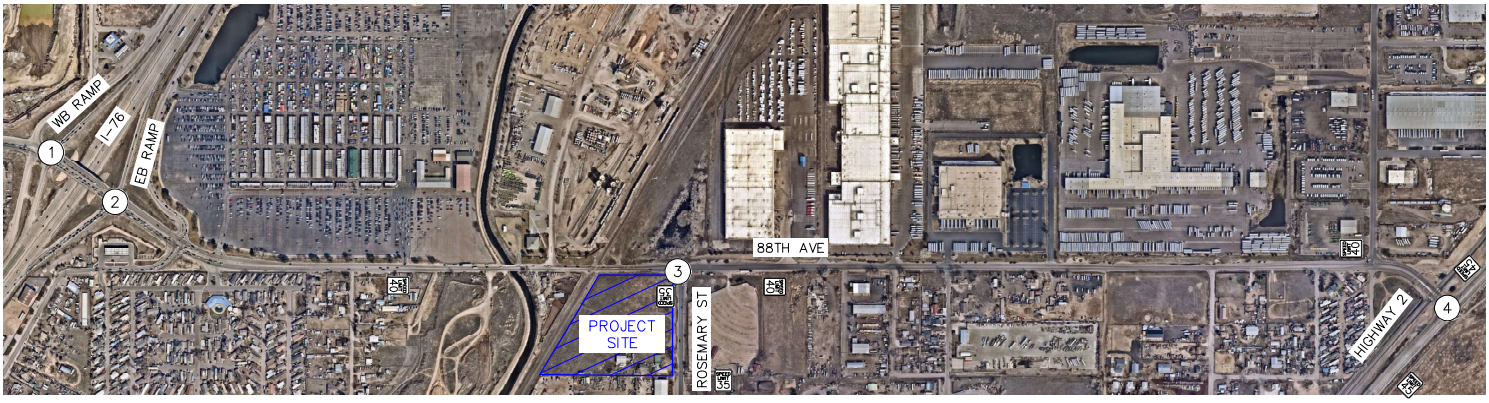
88th Avenue and Rosemary Street (#3)

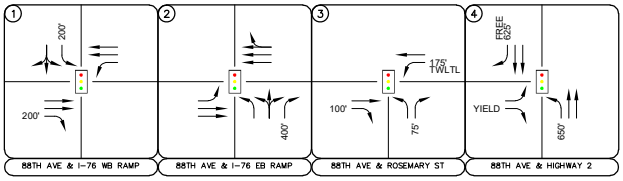
The signalized 'T'-intersection of 88th Avenue and Highway 2 (#4) operates with protected-permitted left turn phasing on the south leg of Highway 2. The eastbound 88th Avenue approach consists of one left turn lane and a yield-controlled right turn lane. The northbound approach of Highway 2 consists of one left turn lane and two through lanes while the southbound approach provides two through lanes and a right turn lane. An aerial photo of the existing intersection configuration is below.



88th Avenue and Highway (#4)

The lane configuration and control for the study area intersections are shown in **Figure 2**.





LEGEND
- Study Area Key Intersection
- Signalized Intersection
- Stop Controlled Approach
- Roadway Speed Limit
- 100' Turn Lane Length (feet)

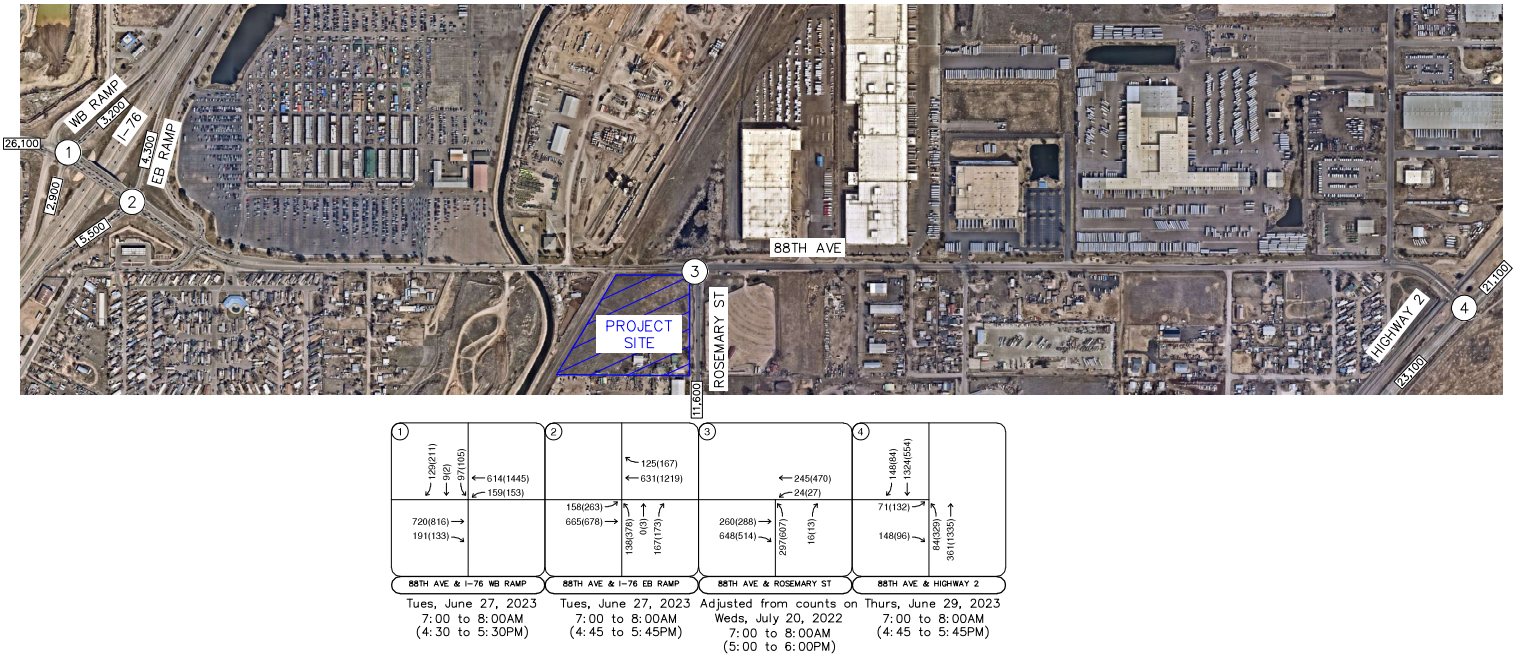
FIGURE 2
88TH & ROSEMARY
COMMERCE CITY, COLORADO
EXISTING GEOMETRY AND CONTROL

3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the 88th Avenue and I-76 Ramp intersections (#1 & #2) on Tuesday, June 27, 2023, at the 88th Avenue and Rosemary (#3) intersection on Wednesday July 20, 2022, and at the 88th Avenue and Highway 2 (#4) intersection on Thursday, June 29, 2023, during the weekday morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on this count date. The counts at the 88th Avenue and Rosemary Street (#3) intersection were grown one year to 2023 with a 1.36 percent growth rate. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix A**.

3.4 Unspecified Development Traffic Growth

According to traffic projections from the Denver Regional Council of Governments (DRCOG) traffic model, the area surrounding the site is expected to have an average 25-year growth factor of 1.50. This growth factor equates to an annual growth rate of 1.36 percent. Future traffic volume projections and growth rate calculations are provided in **Appendix B**. Therefore, a 1.36 percent annual growth rate was used to calculate future traffic volumes at the study area intersection and roadways. This annual growth rate was used to estimate short-term 2025 and long-term 2045 traffic volume projections at the key intersection and roadways. The calculated background traffic volumes for 2025 and 2045 are shown in **Figure 4** and **Figure 5,** respectively.



Tues, June 27, 2023
7:00 to 8:00AM
(4:30 to 5:30PM)

Tues, June 27, 2023
7:00 to 8:00AM
(4:45 to 5:45PM)

Adjusted from counts on Weds, July 20, 2022
7:00 to 8:00AM
(5:00 to 6:00PM)

Thurs, June 29, 2023
7:00 to 8:00AM
(4:45 to 5:45PM)

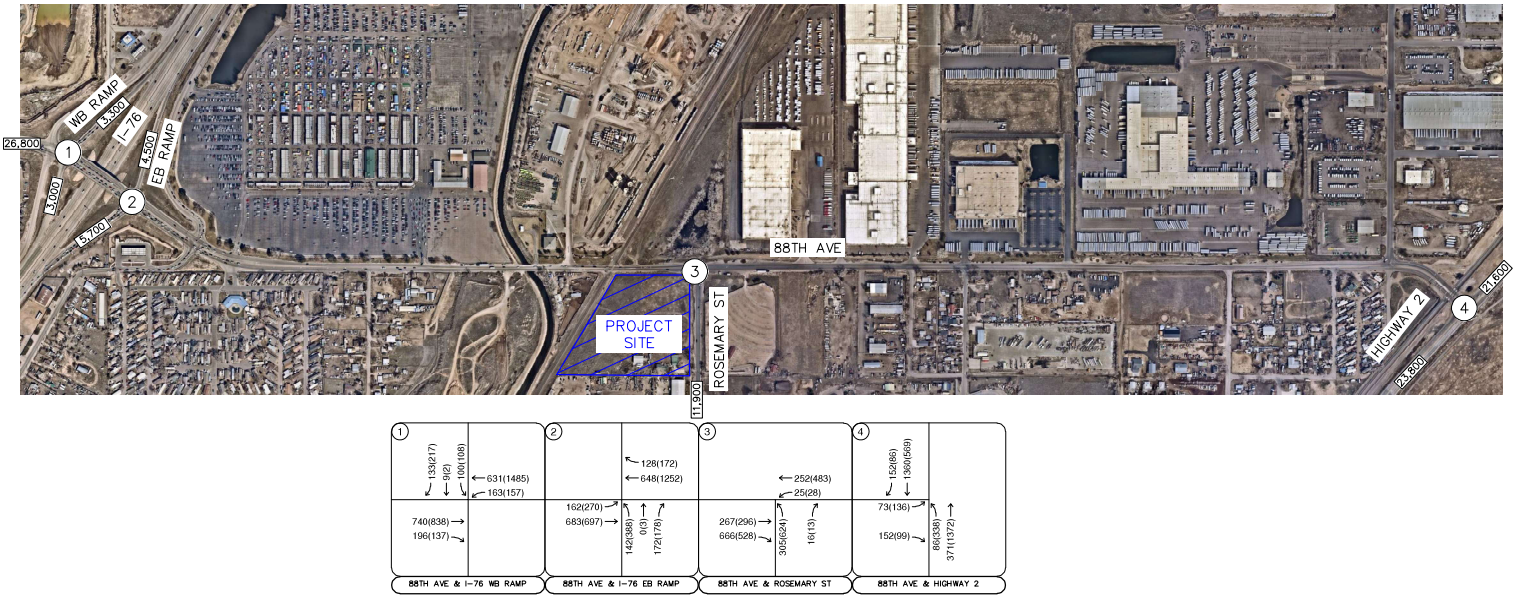
LEGEND

(X) Study Area Key Intersection

XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes

XX,X00 Estimated Daily Traffic Volume

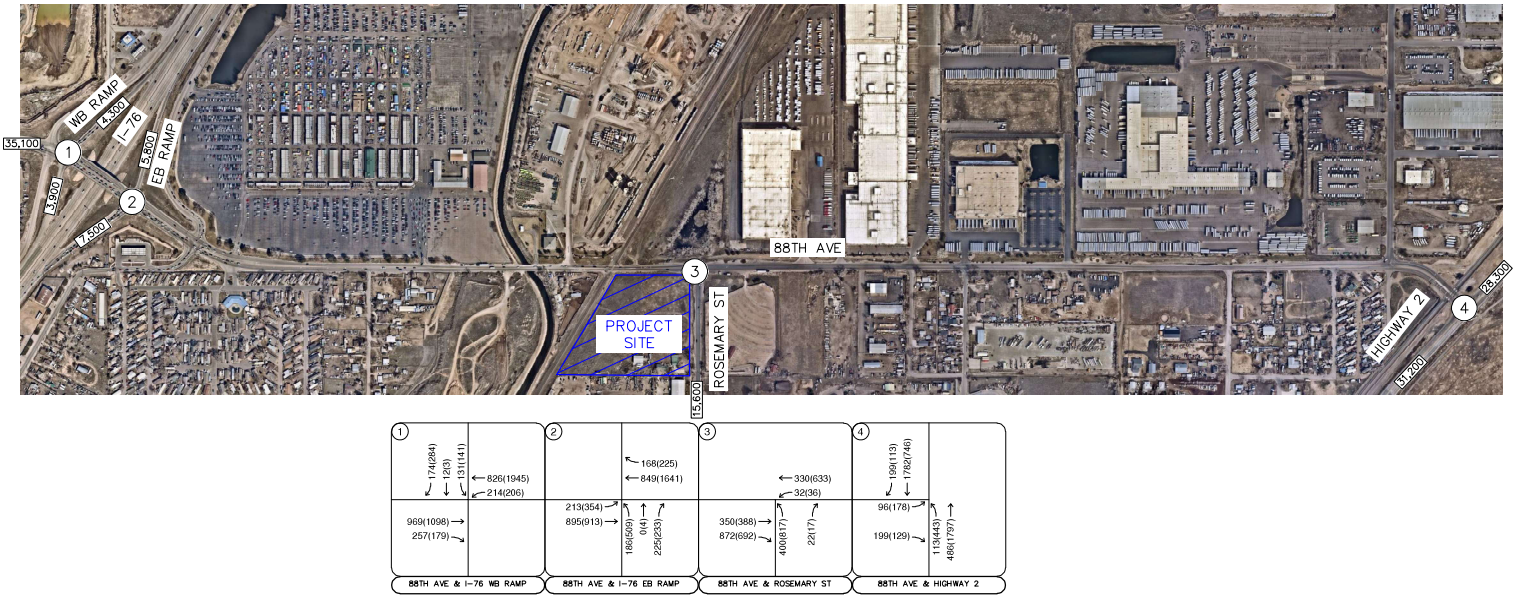
FIGURE 3
88TH & ROSEMARY
COMMERCE CITY, COLORADO
2023 EXISTING TRAFFIC VOLUMES



LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 4
88TH & ROSEMARY
COMMERCE CITY, COLORADO
2025 BACKGROUND TRAFFIC VOLUMES



LEGEND

(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 5
88TH & ROSEMARY
COMMERCE CITY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report fitted curve equations that applies to General Industrial (ITE Land Use Code 110) for traffic associated with the development.

88th and Rosemary is expected to generate approximately 256 weekday daily trips, with 41 of these trips occurring during the morning peak hour and 26 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook*, 2021. **Table 1** summarizes the estimated trip generation for the 88th and Rosemary project. The trip generation worksheets are included in **Appendix C**.

Table 1 – 88th and Rosemary Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
General Industrial (ITE 110) – 54,600 Square Feet	256	36	5	41	3	23	26

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

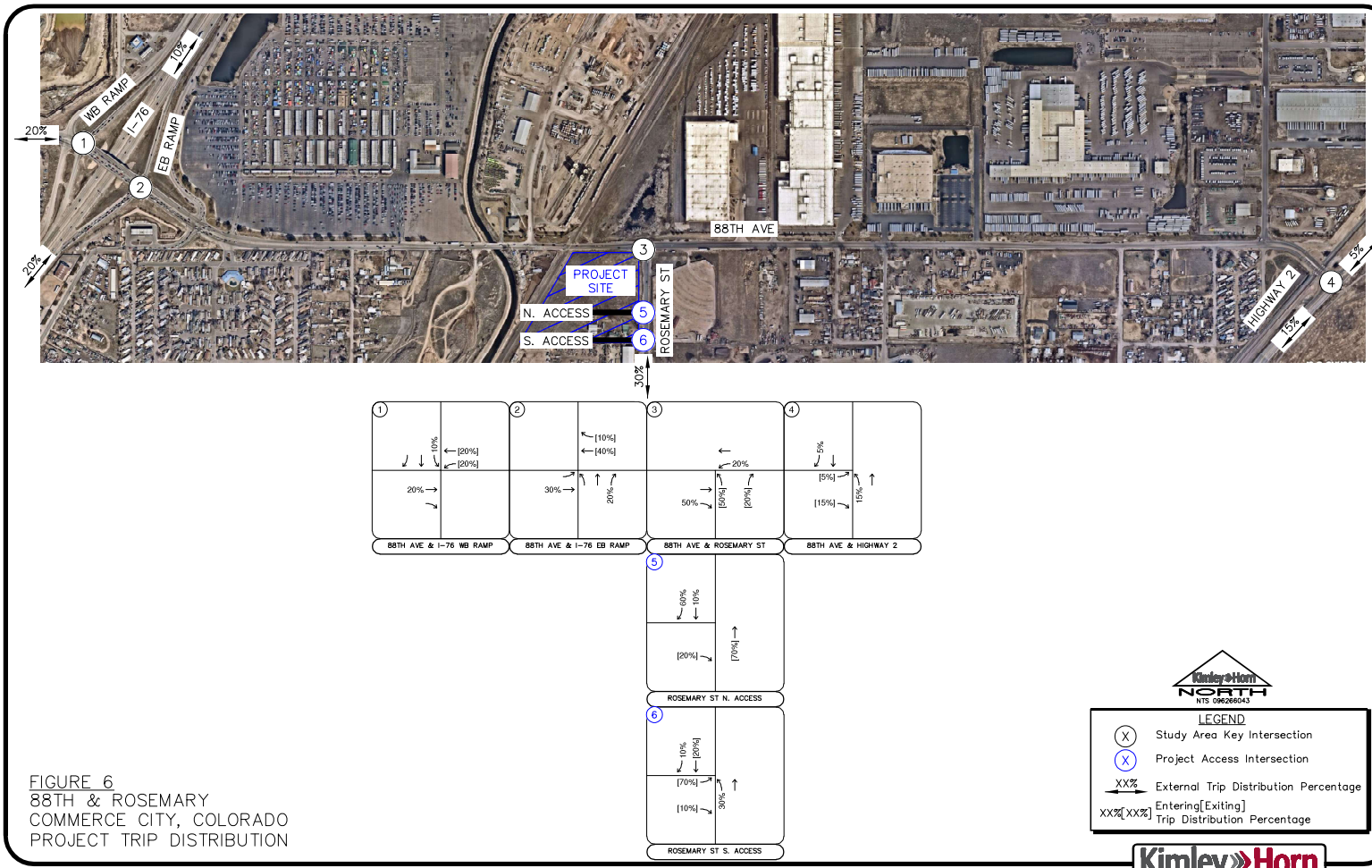


FIGURE 6
88TH & ROSEMARY
COMMERCE CITY, COLORADO
PROJECT TRIP DISTRIBUTION

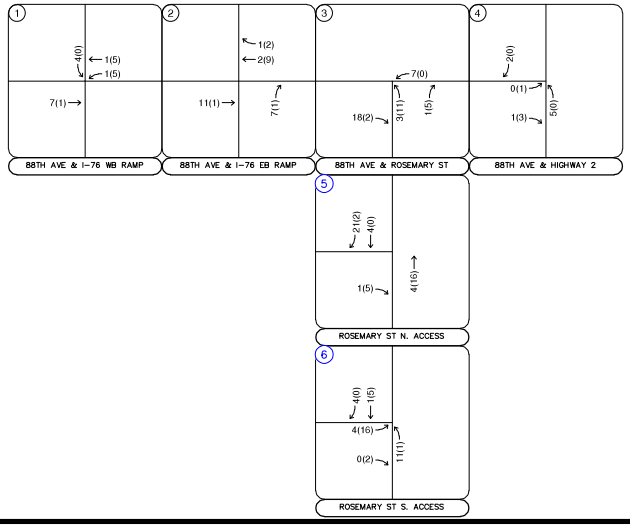
Kimley»Horn

4.3 Traffic Assignment

88th and Rosemary traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7.**

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2025 buildout horizon and long-term 2045 twenty-year planning horizon. These total background plus project traffic volumes for the study area are illustrated for the 2025 and 2045 horizon years in **Figures 8** and **9**, respectively.



Kimley»Horn NORTH
NTS 096266043

LEGEND

(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 7
88TH & ROSEMARY
COMMERCE CITY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

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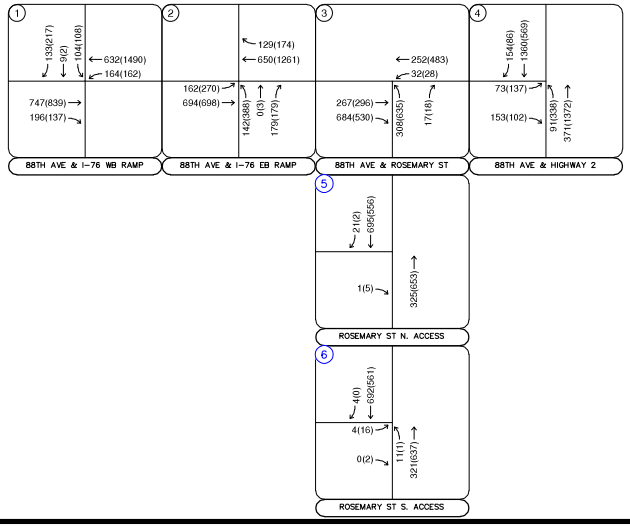

Kimley»Horn NORTH
NTS 096266043

LEGEND

(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

FIGURE 8
88TH & ROSEMARY
COMMERCE CITY, COLORADO
2025 TOTAL TRAFFIC VOLUMES

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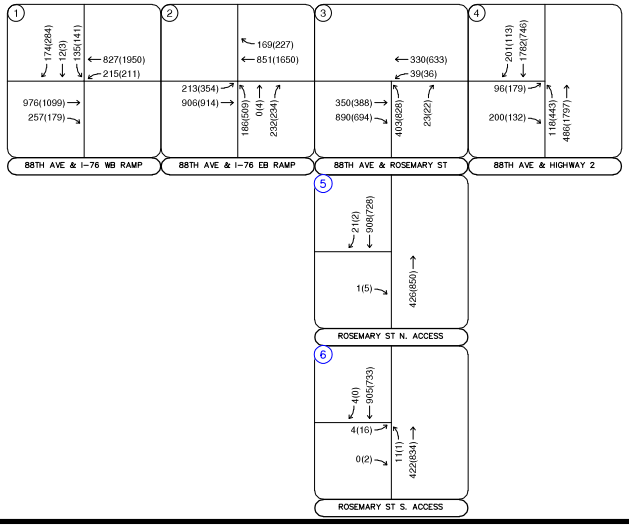


FIGURE 9
88TH & ROSEMARY
COMMERCE CITY, COLORADO
2045 TOTAL TRAFFIC VOLUMES

LEGEND

(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2025 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2.** Existing peak hour factors were utilized in the existing, 2025, and 2045 horizon analysis years. Observed cycle lengths and signal phasing were used for each intersection. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all-red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service.

88th Avenue & I-76 Westbound Ramp (#1)

The signalized intersection of 88th Avenue and I-76 Westbound Ramp (#1) operates with protected-permitted left turn phasing on the east leg of 88th Avenue. Of note, Brighton Road runs parallel to this intersection and is incorporated into the same signal controller. Brighton Road was analyzed with a hold phase at this intersection as part of the synchro analysis. The intersection operates acceptably at LOS C during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating acceptably at LOS C during both peak hours in 2025. By 2045, with or without the addition of project traffic this intersection is anticipated to operate at LOS F during the afternoon peak hour with existing signal timings. Therefore, if future traffic volumes are realized the cycle length at this intersection may need to be lengthened to 120 seconds during the afternoon peak hour in order to provide acceptable operations. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – 88th Avenue & I-76 Westbound Ramp (#1) Street LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Existing	22.3	C	30.3	C
2025 Background	22.8	C	31.7	C
2025 Background Plus Project	22.9	C	32.0	C
2045 Background	31.1	C	80.3	F
2045 Background Plus Project #	20.7	C	27.1	C

= Optimized Timings

As shown in the aerial in Section 3.2 Existing Roadway Network long queues can be seen for the westbound left turn movement and the eastbound through movement. Additionally, extended vehicle queues were observed in the count videos for this intersection but not nearly to the extent of backdated aerial imagery for weekend traffic. Aerial imagery from both Saturday, June 6, 2020 and Sunday, March 19, 2023 display long vehicle queues at this intersection due to large weekend events at the Mile High Flea Market grounds located in the northeast quadrant of the 88th Avenue and I-76 interchange. These long vehicle queues are occurring due to the pay stations at the flea market not clearing causing vehicles to extend into 88th Avenue and Brighton Road while also extending into the interchange ramps. The City of Commerce could consider coordinating with property management of the flea market development to determine a more streamlined process for vehicles to enter that development without causing vehicle queues to extend into 88th Avenue, Brighton Road, and the I-76 interchange ramps. Although the synchro analysis shows acceptable

operations through 2025 with project traffic, this intersection has minor vehicle queuing conflicts during weekday peak hours and long vehicle queues when weekend events are occurring at the flea market development. To improve existing operations at this intersection, the following could be considered:

- The City of Commerce could consider coordinating with property management of the flea market development to determine a more streamlined process for vehicles to enter that development without causing vehicle queues to extend into 88th Avenue, Brighton Road, and the I-76 interchange ramp.
- Modified cycle lengths and/or phasing splits with more eastbound green time.
- Traffic control during major events at the Flea Market development.
- Abandonment of Brighton Road at this intersection due to close proximity to interchange ramps and operations leading to driver confusion. Alternative connections to Brighton Road could be considered and planned to allow continued circulation along Brighton Road.

88th Avenue & I-76 Eastbound Ramp (#2)

The signalized intersection of 88th Avenue and I-76 Eastbound Ramp (#2) operates with protected-permitted left turn phasing on the west leg of 88th Avenue. The intersection operates acceptably at LOS C or better during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating acceptably at LOS C or better during both peak hours throughout 2045. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – 88th Avenue & I-76 Eastbound Ramp (#2) Street LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Existing	12.3	B	25.2	C
2025 Background	12.4	B	26.0	C
2025 Background Plus Project	12.6	B	26.1	C
2045 Background	15.6	B	34.4	C
2045 Background Plus Project	15.6	B	34.5	C

As shown in the aerial in Section 3.2 Existing Roadway Network and similar to the westbound ramp intersection, long queues can be seen for the eastbound through movement on both sides of the intersection and for the northbound approach. The same implementation methods and improvement options documented above for the westbound ramp intersection could be considered for this intersection.

88th Avenue & Rosemary Street (#3)

The signalized intersection of 88th Avenue and Rosemary Street (#3) operates with protected-permitted left turn phasing on the west leg of 88th Avenue. The eastbound right turn operates with protected overlap phasing. The intersection operates acceptably at LOS B during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating acceptably at LOS B during both peak hours in 2025, and at LOS B during the morning peak hour and LOS C during the afternoon peak hour in the 2045 horizon. Of note, this intersection is anticipated to be reconstructed to move the signal poles to their ultimate location. However, since this intersection operates acceptably with the current configuration it is believed the geometry will remain the same with the signal modification improvements. It should be noted that the City of Commerce City has plans to improve 88th Avenue and Rosemary Street which consist of providing five-lane roadway sections for the ultimate condition. However, the additional lanes will likely be striped out until surrounding development occurs and the five-lane sections can be provided throughout the entire corridor. Since the timing of the five-lane section is unknown the existing configuration was analyzed in the long-term 2045 horizon to provide a conservative analysis. If the five-lane sections are provided by 2045 this will only improve operations of what was evaluated in this study. **Table 5** provides the results of the LOS analysis conducted at this intersection.

Table 5 – 88th Avenue & Rosemary Street (#3) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Existing	12.3	B	19.1	B
2025 Background	12.4	B	19.7	B
2025 Background Plus Project	12.6	B	19.7	B
2045 Background	15.2	B	33.1	C
2045 Background Plus Project	15.6	B	33.9	C

88th Avenue & Highway 2 (#4)

The signalized 'T'-intersection of 88th Avenue and Highway 2 (#4) operates with protected-permitted left turn phasing on the south leg of Highway 2. The intersection operates acceptably at LOS A during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating at an acceptable level of service throughout the 2045 horizon. Therefore, no improvements or modifications are anticipated to be needed at this intersection based on the addition of project traffic and this operational level of service analysis. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – 88th Avenue & Highway 2 (#4) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Existing	9.8	A	8.9	A
2025 Background	10.1	B	9.2	A
2025 Background Plus Project	10.2	B	9.2	A
2045 Background	17.4	B	17.8	B
2045 Background Plus Project	17.5	B	17.9	B

Project Accesses

With completion of the 88th and Rosemary project, two accesses are proposed along the west side of Rosemary Street. The North Access (#5) is recommended to be restricted to right-in/right-out turning movements while the South Access (#6) should provide full turning movements. It is recommended that R1-1 "STOP" signs be installed on the exiting eastbound approaches out of the development at both driveways. An R3-2 No Left Turn sign should be installed underneath the STOP sign at the North Access (#5) to advise drivers that only right turning movements may be made out of this access. Additionally, to meet City of Commerce City standards, it is recommended that a northbound left turn lane be constructed and designated at the South Access (#6). **Table 7** provides the results of the level of service for this project street access. As shown in the table, the project access intersections along Rosemary Street are anticipated to have all movements operating with acceptable LOS C or better during the peak hours in both the buildout year 2025 and the 2045 long term horizons.

Table 7 – Project Access Level of Service Results

Intersection	2025 Total				2045 Total			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS
Rosemary St N. Access (#5)								
Eastbound Right	14.0	B	12.3	B	17.2	C	14.4	B
Rosemary St S. Access (#6)								
Northbound Left	9.3	A	8.7	A	10.2	B	9.4	A
Eastbound Approach	15.5	C	16.6	C	18.9	C	20.8	C

5.3 Vehicle Queuing Analysis

Queuing analysis was conducted for the study area intersections per Commerce City standards and requirements. Results were obtained from the 95th percentile queue lengths obtained from the Synchro analysis. Queue analysis worksheets at the signalized intersections are provided in **Appendix E**. Queue length calculations for unsignalized intersections are provided within the level of service operational sheets provided in **Appendix D**. Results of the queuing analysis and recommendations at the study area intersections are provided in **Table 8.** Of note, any queue lengths calculated at less than one vehicle were rounded up to 25 feet to account for one vehicle of storage needed.

Table 8 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2025 Calculated Queue (feet)	2025 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
88th Ave & I-76 WB Ramp (#1)					
Eastbound Right	200’	55’	200’	57’	200’
Westbound Left	365’+375’	160’	365’+375’	165’	365’+375’
Southbound Left	200’	91’	200’	145’	200’
88th Ave & I-76 EB Ramp (#2)					
Eastbound Left	C (365’)	243’	C (365’)	255’	C (365’)
Northbound Left	675’	221’	675’	313’	675’
Northbound Right	400’	55’	400’	97’	400’
88th Ave & Rosemary St (#3)					
Eastbound Right	100’	25’	100’	28’	100’
Westbound Left	175’ TWLTL	27’	175’ TWLTL	33’	175’ TWLTL
Northbound Right	75’	25’	75’	25’	75’
88th Ave & Highway 2 (#4)					
Eastbound Left	C (375’)	80’	C (375’)	100’	C (375’)
Eastbound Right	C (375’)	73’	C (375’)	126’	C (375’)
Northbound Left	650’	153’	650’	369’	650’
Southbound Right	625’	25’	625’	25’	625’
Rosemary St S. Access (#6)					
Northbound Left	DNE	25’	**140’+160’T (CC)**	25’	140’+160’T (CC)

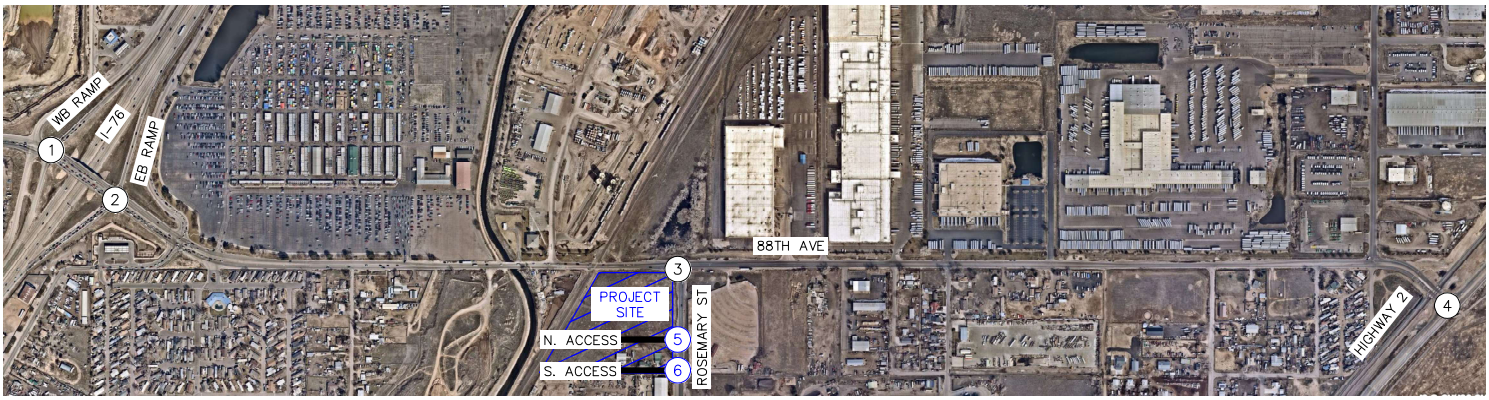
DNE = Does Not Exist; C = Continuous Lane; TWLTL = Two-Way Left Turn Lane; **Blue** Text = Recommendation; CC = City of Commerce City Standards

All vehicle queues are anticipated to remain within the existing or recommended turn lane lengths through the 2045 horizon. As documented previously, long vehicle queues have been observed near the interchange ramps at 88th Avenue and I-76 due to large weekend events at the Mile High Flea Market. Possible mitigations for the vehicle queues associated with these events are documented previously in Section 5.2.

To meet City of Commerce City standards, it is recommended that a 140-foot with 160-foot taper northbound left turn lane be constructed and designated along Rosemary Street at the South Access (#6). The through lanes along Rosemary Street will need to be redirected around this turn lane at a taper rate of 20.5 to 1 (based on W x S^2 / 60) due to the 35 mile per hour posted speed limit.

5.4 Improvement Summary

Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 10**.



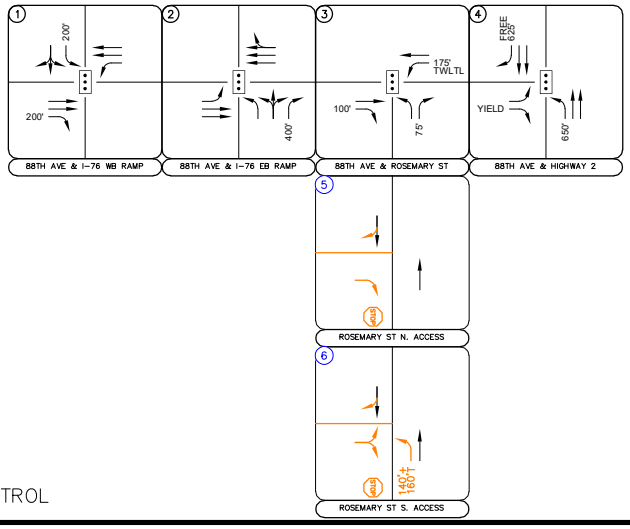


FIGURE 10
88TH & ROSEMARY
COMMERCE CITY, COLORADO
RECOMMENDED GEOMETRY AND CONTROL

Kimley»Horn
NORTH
NTS 0962066043

LEGEND

- Study Area Key Intersection
- Project Access Intersection
- Signalized Intersection
- Stop Controlled Approach
- Improvement
- 100' Turn Lane Length (feet)

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes the 88th and Rosemary industrial project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following conclusions and recommendations:

- With completion of the 88th and Rosemary project, two accesses are proposed along the west side of Rosemary Street. The North Access (#5) is recommended to provide right-in/right-out turning movements and is located approximately 425 feet south of 88th Avenue (measured center to center). The South Access (#6) is recommended to provide full turning movements and is proposed to be located approximately 200 feet south of the North Access (#5). It is recommended that R1-1 "STOP" signs be installed on the exiting eastbound approaches out of the development at both driveways. An R3-2 No Left Turn sign should be posted underneath the stop sign at the North Access (#5) to advise drivers that only right turning movements out of this access may be performed.

- Per City of Commerce City standards, it is recommended that a 140-foot with 160-foot taper northbound left turn lane be constructed and designated along Rosemary Street at the South Access (#6). The through lanes along Rosemary Street will need to be redirected around this turn lane at a taper rate of 20.5 to 1 (based on W x S^2 / 60) due to the 35 mile per hour posted speed limit.

- The City of Commerce City has plans to improve 88th Avenue and Rosemary Street which consist of providing five-lane roadway sections for the ultimate condition. However, the additional lanes will likely be striped out until surrounding development occurs and the five-lane sections can be provided throughout the entire corridor. Since the timing of the five-lane section is unknown the existing configuration was analyzed in the long-term 2045 horizon to provide a conservative analysis. If the five-lane sections are provided by 2045 this will only improve operations of what was evaluated in this study.

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Commerce City and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.

APPENDICES

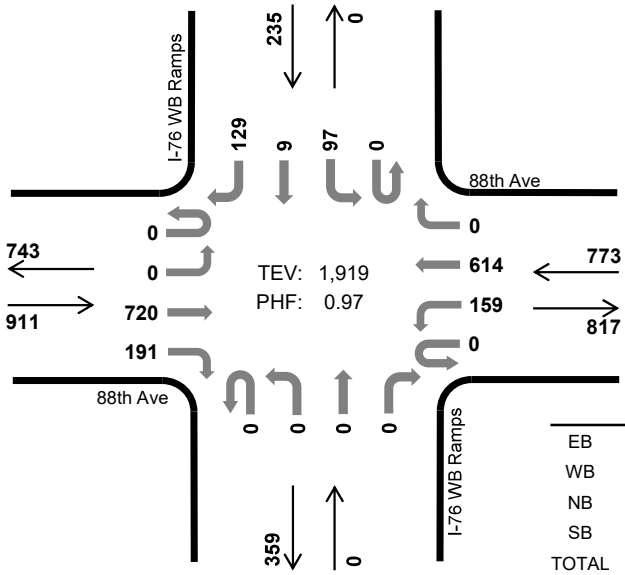
APPENDIX A

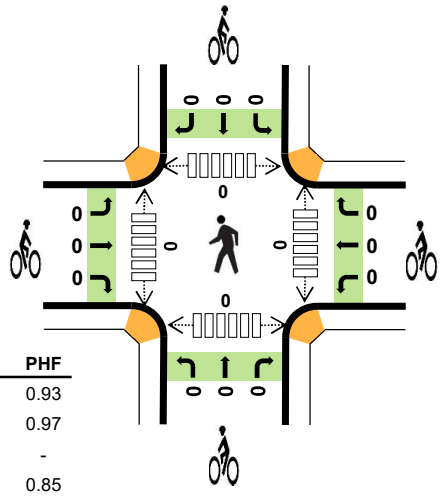
Intersection Count Sheets

I-76 WB Ramps
88th Ave

Date: 06/27/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Peak Hour





	HV %:	PHF
EB	10.5%	0.93
WB	15.8%	0.97
NB	-	-
SB	7.2%	0.85
TOTAL	12.2%	0.97

Two-Hour Count Summaries

Interval Start		88th Ave Eastbound				88th Ave Westbound				I-76 WB Ramps Northbound				I-76 WB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**0**	**199**	**46**	**0**	**42**	**149**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**5**	**30**	**489**	0
7:15 AM		**0**	**0**	**180**	**53**	**0**	**36**	**154**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**2**	**32**	**479**	0
7:30 AM		**0**	**0**	**183**	**50**	**0**	**43**	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**1**	**33**	**495**	0
7:45 AM		**0**	**0**	**158**	**42**	**0**	**38**	**161**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**1**	**34**	**456**	**1,919**
8:00 AM		0	0	161	44	0	21	160	0	0	0	0	0	0	18	0	34	438	1,868
8:15 AM		0	0	141	41	0	21	144	0	0	0	0	0	0	44	1	48	440	1,829
8:30 AM		0	0	133	27	0	28	126	0	0	0	0	0	0	39	3	49	405	1,739
8:45 AM		0	0	118	35	0	38	131	0	0	0	0	0	0	16	1	60	399	1,682
Count Total		0	0	1,273	338	0	267	1,175	0	0	0	0	0	0	214	14	320	3,601	0
Peak Hour	**All**	**0**	**0**	**720**	**191**	**0**	**159**	**614**	**0**	**0**	**0**	**0**	**0**	**0**	**97**	**9**	**129**	**1,919**	**0**
	HV	**0**	**0**	**57**	**39**	**0**	**57**	**65**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**8**	**235**	**0**
	HV%	**-**	**-**	**8%**	**20%**	**-**	**36%**	**11%**	**-**	**-**	**-**	**-**	**-**	**-**	**8%**	**11%**	**6%**	**12%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**30**	**35**	**0**	**5**	***70***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**25**	**26**	**0**	**2**	***53***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**24**	**33**	**0**	**3**	***60***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**17**	**28**	**0**	**7**	***52***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	18	25	0	6	*49*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	26	25	0	11	*62*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	20	30	0	11	*61*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	17	44	0	1	*62*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	177	246	0	46	*469*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**96**	**122**	**0**	**17**	***235***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave Eastbound				88th Ave Westbound				I-76 WB Ramps Northbound				I-76 WB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**18**	**12**	**0**	**19**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**2**	**70**	0
7:15 AM	**0**	**0**	**15**	**10**	**0**	**12**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**53**	0
7:30 AM	**0**	**0**	**14**	**10**	**0**	**15**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**60**	0
7:45 AM	**0**	**0**	**10**	**7**	**0**	**11**	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**3**	**52**	**235**
8:00 AM	0	0	11	7	0	7	18	0	0	0	0	0	0	2	0	4	49	214
8:15 AM	0	0	9	17	0	8	17	0	0	0	0	0	0	4	0	7	62	223
8:30 AM	0	0	12	8	0	14	16	0	0	0	0	0	0	4	0	7	61	224
8:45 AM	0	0	11	6	0	21	23	0	0	0	0	0	0	1	0	0	62	234
Count Total	0	0	100	77	0	107	139	0	0	0	0	0	0	19	1	26	469	0
Peak Hour	**0**	**0**	**57**	**39**	**0**	**57**	**65**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**8**	**235**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave Eastbound			88th Ave Westbound			I-76 WB Ramps Northbound			I-76 WB Ramps Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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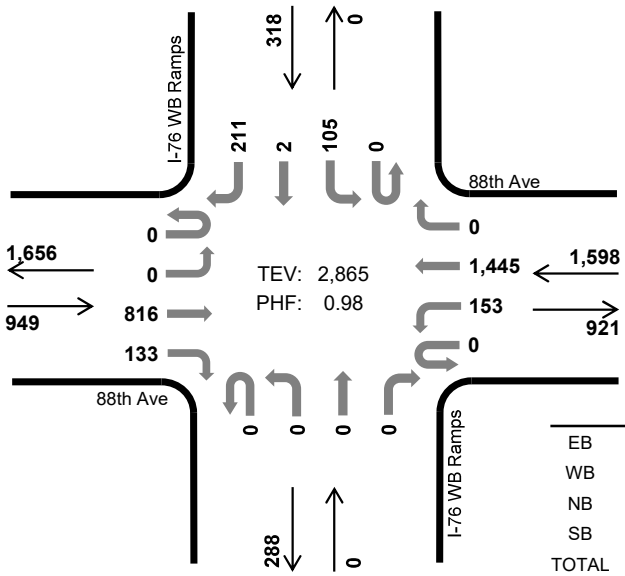
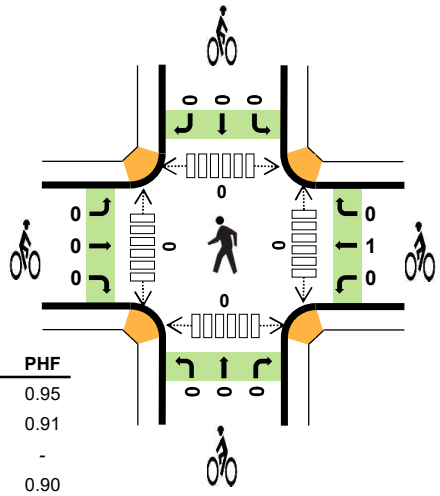
I-76 WB Ramps
88th Ave

Date: 06/27/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour





	HV %:	PHF
EB	6.0%	0.95
WB	3.3%	0.91
NB	-	-
SB	5.7%	0.90
TOTAL	4.4%	0.98

Two-Hour Count Summaries

Interval Start		88th Ave Eastbound				88th Ave Westbound				I-76 WB Ramps Northbound				I-76 WB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	155	28	0	49	355	0	0	0	0	0	0	25	0	41	653	0
4:15 PM		0	0	176	35	0	42	333	0	0	0	0	0	0	26	1	37	650	0
4:30 PM		**0**	**0**	**210**	**38**	**0**	**36**	**367**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**1**	**49**	**730**	0
4:45 PM		**0**	**0**	**194**	**38**	**0**	**29**	**337**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**1**	**62**	**686**	2,719
5:00 PM		**0**	**0**	**197**	**22**	**0**	**53**	**385**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**47**	**731**	2,797
5:15 PM		**0**	**0**	**215**	**35**	**0**	**35**	**356**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**53**	**718**	**2,865**
5:30 PM		0	0	223	41	0	39	344	0	0	0	0	0	0	30	0	39	716	2,851
5:45 PM		0	0	200	29	0	32	319	0	0	0	0	0	0	37	0	52	669	2,834
Count Total		0	0	1,570	266	0	315	2,796	0	0	0	0	0	0	223	3	380	5,553	0
Peak Hour	**All**	**0**	**0**	**816**	**133**	**0**	**153**	**1,445**	**0**	**0**	**0**	**0**	**0**	**0**	**105**	**2**	**211**	**2,865**	**0**
	HV	**0**	**0**	**49**	**8**	**0**	**19**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**7**	**127**	**0**
	HV%	**-**	**-**	**6%**	**6%**	**-**	**12%**	**2%**	**-**	**-**	**-**	**-**	**-**	**-**	**10%**	**0%**	**3%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	21	24	0	2	*47*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	21	17	0	5	*43*	0	0	0	0	*0*	0	0	0	1	*1*
4:30 PM	**28**	**19**	**0**	**6**	***53***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**10**	**13**	**0**	**4**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**11**	**10**	**0**	**5**	***26***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**8**	**10**	**0**	**3**	***21***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	9	12	0	4	*25*	0	1	0	0	*1*	0	0	0	0	*0*
5:45 PM	7	11	0	5	*23*	0	1	0	0	*1*	0	0	0	0	*0*
Count Total	115	116	0	34	*265*	0	3	0	0	*3*	0	0	0	1	*1*
Peak Hour	**57**	**52**	**0**	**18**	***127***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave				88th Ave				I-76 WB Ramps				I-76 WB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	13	8	0	8	16	0	0	0	0	0	0	2	0	0	47	0
4:15 PM	0	0	16	5	0	8	9	0	0	0	0	0	0	3	0	2	43	0
4:30 PM	**0**	**0**	**23**	**5**	**0**	**5**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**53**	0
4:45 PM	**0**	**0**	**9**	**1**	**0**	**5**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**27**	170
5:00 PM	**0**	**0**	**10**	**1**	**0**	**4**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**26**	149
5:15 PM	**0**	**0**	**7**	**1**	**0**	**5**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**21**	**127**
5:30 PM	0	0	7	2	0	2	10	0	0	0	0	0	0	3	0	1	25	99
5:45 PM	0	0	5	2	0	2	9	0	0	0	0	0	0	3	0	2	23	95
Count Total	0	0	90	25	0	39	77	0	0	0	0	0	0	22	0	12	265	0
Peak Hour	**0**	**0**	**49**	**8**	**0**	**19**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**7**	**127**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave			88th Ave			I-76 WB Ramps			I-76 WB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	3
Count Total	0	0	0	0	3	0	0	0	0	0	0	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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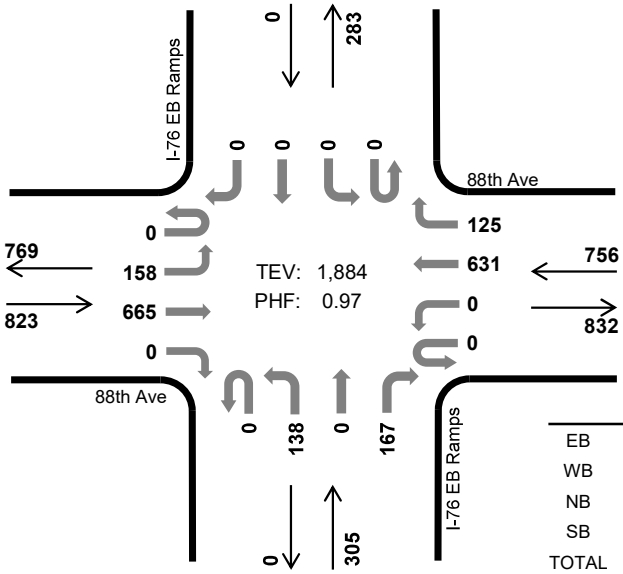
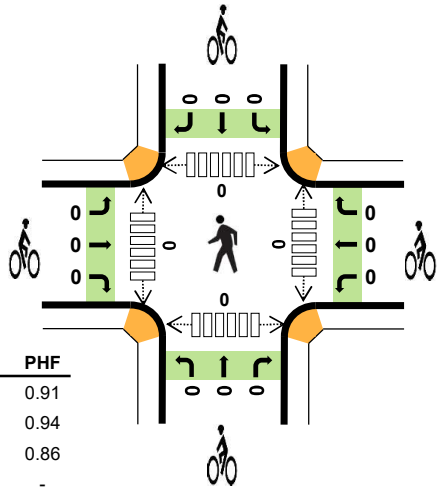
I-76 EB Ramps
88th Ave

Date: 06/27/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Peak Hour



	HV %:	PHF
EB	8.1%	0.91
WB	16.8%	0.94
NB	16.7%	0.86
SB	-	-
TOTAL	13.0%	0.97



Two-Hour Count Summaries

Interval Start		88th Ave Eastbound				88th Ave Westbound				I-76 EB Ramps Northbound				I-76 EB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**35**	**177**	**0**	**0**	**0**	**158**	**43**	**0**	**34**	**0**	**39**	**0**	**0**	**0**	**0**	**486**	0
7:15 AM		**0**	**34**	**166**	**0**	**0**	**0**	**164**	**30**	**0**	**27**	**0**	**48**	**0**	**0**	**0**	**0**	**469**	0
7:30 AM		**0**	**46**	**181**	**0**	**0**	**0**	**157**	**26**	**0**	**37**	**0**	**31**	**0**	**0**	**0**	**0**	**478**	0
7:45 AM		**0**	**43**	**141**	**0**	**0**	**0**	**152**	**26**	**0**	**40**	**0**	**49**	**0**	**0**	**0**	**0**	**451**	**1,884**
8:00 AM		0	39	139	0	0	0	150	15	0	36	0	32	0	0	0	0	411	1,809
8:15 AM		0	41	137	0	0	0	137	33	0	34	0	27	0	0	0	0	409	1,749
8:30 AM		0	32	138	0	0	0	124	24	0	31	0	42	0	0	0	0	391	1,662
8:45 AM		0	29	108	0	0	0	129	19	0	33	0	27	0	0	0	0	345	1,556
Count Total		0	299	1,187	0	0	0	1,171	216	0	272	0	295	0	0	0	0	3,440	0
Peak Hour	**All**	**0**	**158**	**665**	**0**	**0**	**0**	**631**	**125**	**0**	**138**	**0**	**167**	**0**	**0**	**0**	**0**	**1,884**	**0**
	HV	**0**	**24**	**43**	**0**	**0**	**0**	**94**	**33**	**0**	**22**	**0**	**29**	**0**	**0**	**0**	**0**	**245**	**0**
	HV%	**-**	**15%**	**6%**	**-**	**-**	**-**	**15%**	**26%**	**-**	**16%**	**-**	**17%**	**-**	**-**	**-**	**-**	**13%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**22**	**40**	**12**	**0**	***74***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
7:15 AM	**14**	**29**	**13**	**0**	***56***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
7:30 AM	**19**	**29**	**12**	**0**	***60***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
7:45 AM	**12**	**29**	**14**	**0**	***55***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	11	22	22	0	*55*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	13	37	12	0	*62*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	18	29	22	0	*69*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	10	36	21	0	*67*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	119	251	128	0	*498*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**67**	**127**	**51**	**0**	***245***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave Eastbound				88th Ave Westbound				I-76 EB Ramps Northbound				I-76 EB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**9**	**13**	**0**	**0**	**0**	**28**	**12**	**0**	**4**	**0**	**8**	**0**	**0**	**0**	**0**	**74**	0
7:15 AM	**0**	**4**	**10**	**0**	**0**	**0**	**22**	**7**	**0**	**5**	**0**	**8**	**0**	**0**	**0**	**0**	**56**	0
7:30 AM	**0**	**6**	**13**	**0**	**0**	**0**	**23**	**6**	**0**	**7**	**0**	**5**	**0**	**0**	**0**	**0**	**60**	0
7:45 AM	**0**	**5**	**7**	**0**	**0**	**0**	**21**	**8**	**0**	**6**	**0**	**8**	**0**	**0**	**0**	**0**	**55**	**245**
8:00 AM	0	3	8	0	0	0	18	4	0	11	0	11	0	0	0	0	55	226
8:15 AM	0	3	10	0	0	0	25	12	0	2	0	10	0	0	0	0	62	232
8:30 AM	0	5	13	0	0	0	23	6	0	9	0	13	0	0	0	0	69	241
8:45 AM	0	3	7	0	0	0	30	6	0	12	0	9	0	0	0	0	67	253
Count Total	0	38	81	0	0	0	190	61	0	56	0	72	0	0	0	0	498	0
Peak Hour	**0**	**24**	**43**	**0**	**0**	**0**	**94**	**33**	**0**	**22**	**0**	**29**	**0**	**0**	**0**	**0**	**245**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave Eastbound			88th Ave Westbound			I-76 EB Ramps Northbound			I-76 EB Ramps Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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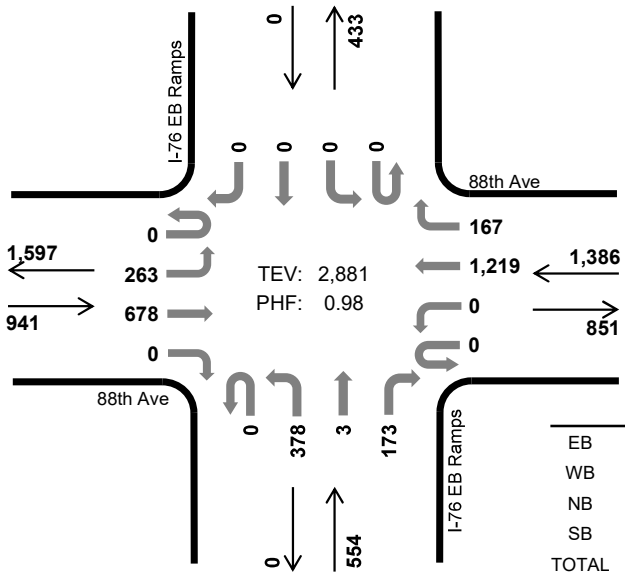
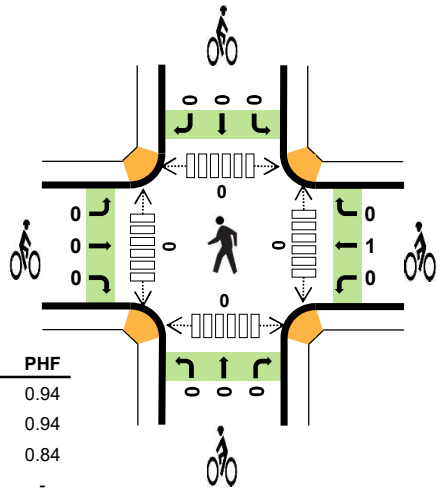
I-76 EB Ramps
88th Ave

Date: 06/27/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour



	HV %:	PHF
EB	5.2%	0.94
WB	2.7%	0.94
NB	9.0%	0.84
SB	-	-
TOTAL	4.7%	0.98



Two-Hour Count Summaries

Interval Start		88th Ave Eastbound				88th Ave Westbound				I-76 EB Ramps Northbound				I-76 EB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	50	114	0	0	0	306	47	0	96	1	53	0	0	0	0	667	0
4:15 PM		0	64	138	0	0	0	287	44	0	85	0	48	0	0	0	0	666	0
4:30 PM		0	74	157	0	0	0	293	52	0	103	0	45	0	0	0	0	724	0
4:45 PM		**0**	**75**	**157**	**0**	**0**	**0**	**304**	**50**	**0**	**78**	**1**	**42**	**0**	**0**	**0**	**0**	**707**	2,764
5:00 PM		**0**	**60**	**151**	**0**	**0**	**0**	**333**	**36**	**0**	**99**	**2**	**40**	**0**	**0**	**0**	**0**	**721**	2,818
5:15 PM		**0**	**58**	**191**	**0**	**0**	**0**	**307**	**36**	**0**	**90**	**0**	**38**	**0**	**0**	**0**	**0**	**720**	2,872
5:30 PM		**0**	**70**	**179**	**0**	**0**	**0**	**275**	**45**	**0**	**111**	**0**	**53**	**0**	**0**	**0**	**0**	**733**	**2,881**
5:45 PM		0	67	187	0	0	0	251	37	0	92	0	39	0	0	0	0	673	2,847
Count Total		0	518	1,274	0	0	0	2,356	347	0	754	4	358	0	0	0	0	5,611	0
Peak Hour	**All**	**0**	**263**	**678**	**0**	**0**	**0**	**1,219**	**167**	**0**	**378**	**3**	**173**	**0**	**0**	**0**	**0**	**2,881**	**0**
	HV	**0**	**12**	**37**	**0**	**0**	**0**	**28**	**9**	**0**	**13**	**0**	**37**	**0**	**0**	**0**	**0**	**136**	**0**
	HV%	**-**	**5%**	**5%**	**-**	**-**	**-**	**2%**	**5%**	**-**	**3%**	**0%**	**21%**	**-**	**-**	**-**	**-**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	17	19	19	0	*55*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	16	22	14	0	*52*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	22	18	21	0	*61*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**8**	**13**	**10**	**0**	***31***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**14**	**9**	**12**	**0**	***35***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**14**	**10**	**17**	**0**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**13**	**5**	**11**	**0**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	8	9	13	0	*30*	0	1	0	0	*1*	0	0	0	0	*0*
Count Total	112	105	117	0	*334*	0	2	0	0	*2*	0	0	0	0	*0*
Peak Hour	**49**	**37**	**50**	**0**	***136***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave				88th Ave				I-76 EB Ramps				I-76 EB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	13	0	0	0	16	3	0	9	1	9	0	0	0	0	55	0
4:15 PM	0	3	13	0	0	0	17	5	0	3	0	11	0	0	0	0	52	0
4:30 PM	0	3	19	0	0	0	13	5	0	7	0	14	0	0	0	0	61	0
4:45 PM	**0**	**3**	**5**	**0**	**0**	**0**	**9**	**4**	**0**	**2**	**0**	**8**	**0**	**0**	**0**	**0**	**31**	199
5:00 PM	**0**	**4**	**10**	**0**	**0**	**0**	**8**	**1**	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**35**	179
5:15 PM	**0**	**3**	**11**	**0**	**0**	**0**	**6**	**4**	**0**	**5**	**0**	**12**	**0**	**0**	**0**	**0**	**41**	168
5:30 PM	**0**	**2**	**11**	**0**	**0**	**0**	**5**	**0**	**0**	**4**	**0**	**7**	**0**	**0**	**0**	**0**	**29**	**136**
5:45 PM	0	1	7	0	0	0	8	1	0	2	0	11	0	0	0	0	30	135
Count Total	0	23	89	0	0	0	82	23	0	34	1	82	0	0	0	0	334	0
Peak Hour	**0**	**12**	**37**	**0**	**0**	**0**	**28**	**9**	**0**	**13**	**0**	**37**	**0**	**0**	**0**	**0**	**136**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave			88th Ave			I-76 EB Ramps			I-76 EB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	2
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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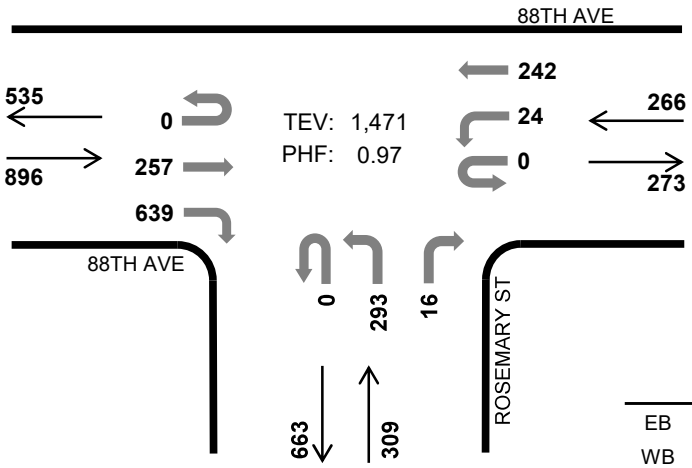
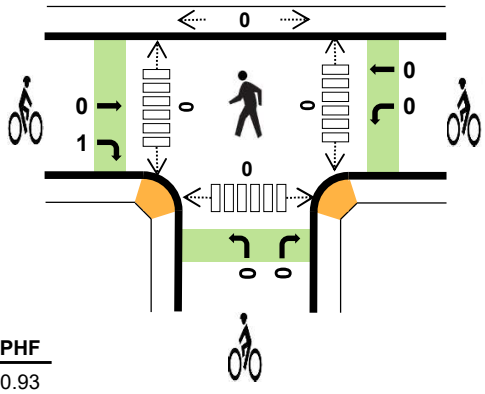
ROSEMARY ST
88TH AVE

N

Peak Hour

Date: 07/20/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	5.7%	0.93
WB	22.6%	0.84
NB	13.9%	0.86
SB	-	-
TOTAL	10.5%	0.97

Two-Hour Count Summaries

Interval Start		88TH AVE Eastbound				88TH AVE Westbound				ROSEMARY ST Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**0**	**82**	**158**	**0**	**10**	**52**	**0**	**0**	**72**	**0**	**4**	**0**	**0**	**0**	**0**	**378**	0
7:15 AM		**0**	**0**	**46**	**169**	**0**	**4**	**51**	**0**	**0**	**73**	**0**	**2**	**0**	**0**	**0**	**0**	**345**	0
7:30 AM		**0**	**0**	**54**	**153**	**0**	**7**	**63**	**0**	**0**	**82**	**0**	**8**	**0**	**0**	**0**	**0**	**367**	0
7:45 AM		**0**	**0**	**75**	**159**	**0**	**3**	**76**	**0**	**0**	**66**	**0**	**2**	**0**	**0**	**0**	**0**	**381**	**1,471**
8:00 AM		0	0	67	120	0	19	50	0	0	53	0	9	0	0	0	0	318	1,411
8:15 AM		0	0	46	117	0	4	49	0	0	77	0	8	0	0	0	0	301	1,367
8:30 AM		0	0	59	120	0	7	54	0	0	59	0	4	0	0	0	0	303	1,303
8:45 AM		0	0	40	81	0	7	60	0	0	59	0	5	0	0	0	0	252	1,174
Count Total		0	0	469	1,077	0	61	455	0	0	541	0	42	0	0	0	0	2,645	0
Peak Hour	**All**	**0**	**0**	**257**	**639**	**0**	**24**	**242**	**0**	**0**	**293**	**0**	**16**	**0**	**0**	**0**	**0**	**1,471**	**0**
	HV	**0**	**0**	**27**	**24**	**0**	**2**	**58**	**0**	**0**	**39**	**0**	**4**	**0**	**0**	**0**	**0**	**154**	**0**
	HV%	**-**	**-**	**11%**	**4%**	**-**	**8%**	**24%**	**-**	**-**	**13%**	**-**	**25%**	**-**	**-**	**-**	**-**	**10%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**19**	**12**	**13**	**0**	***44***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**9**	**12**	**7**	**0**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**10**	**15**	**16**	**0**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**13**	**21**	**7**	**0**	***41***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	20	15	5	0	*40*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	17	17	11	0	*45*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	26	20	8	0	*54*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	20	24	3	0	*47*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	134	136	70	0	*340*	1	0	0	0	*1*	0	0	0	0	*0*
Peak Hr	**51**	**60**	**43**	**0**	***154***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

Project Manager: (720) 646-1008
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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88TH AVE				88TH AVE				ROSEMARY ST				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**9**	**10**	**0**	**0**	**12**	**0**	**0**	**11**	**0**	**2**	**0**	**0**	**0**	**0**	**44**	0
7:15 AM	**0**	**0**	**4**	**5**	**0**	**1**	**11**	**0**	**0**	**6**	**0**	**1**	**0**	**0**	**0**	**0**	**28**	0
7:30 AM	**0**	**0**	**7**	**3**	**0**	**1**	**14**	**0**	**0**	**15**	**0**	**1**	**0**	**0**	**0**	**0**	**41**	0
7:45 AM	**0**	**0**	**7**	**6**	**0**	**0**	**21**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**41**	**154**
8:00 AM	0	0	12	8	0	3	12	0	0	5	0	0	0	0	0	0	40	150
8:15 AM	0	0	12	5	0	2	15	0	0	8	0	3	0	0	0	0	45	167
8:30 AM	0	0	15	11	0	4	16	0	0	6	0	2	0	0	0	0	54	180
8:45 AM	0	0	16	4	0	3	21	0	0	2	0	1	0	0	0	0	47	186
Count Total	0	0	82	52	0	14	122	0	0	60	0	10	0	0	0	0	340	0
Peak Hour	**0**	**0**	**27**	**24**	**0**	**2**	**58**	**0**	**0**	**39**	**0**	**4**	**0**	**0**	**0**	**0**	**154**	**0**

Two-Hour Count Summaries - Bikes

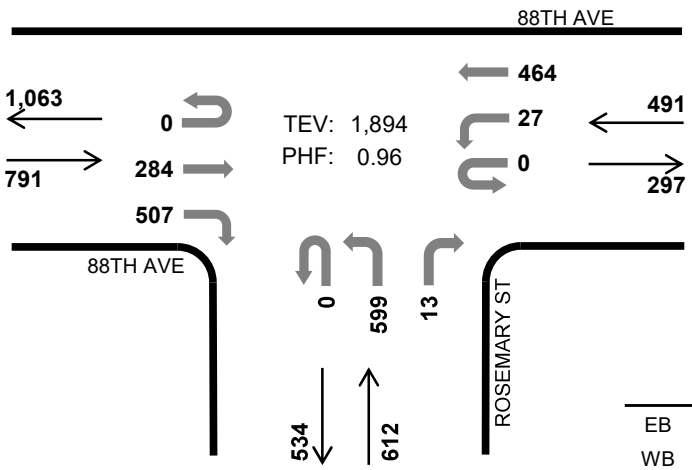
Interval Start	88TH AVE			88TH AVE			ROSEMARY ST			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

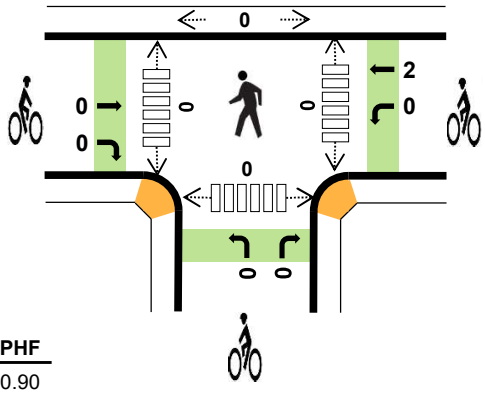
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

ROSEMARY ST
88TH AVE

Peak Hour

Date: 07/20/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	7.0%	0.90
WB	5.5%	0.96
NB	2.9%	0.97
SB	-	-
TOTAL	5.3%	0.96

Two-Hour Count Summaries

Interval Start		88TH AVE Eastbound				88TH AVE Westbound				ROSEMARY ST Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	72	102	0	12	97	0	0	159	0	3	0	0	0	0	445	0
4:15 PM		0	0	66	112	0	3	90	0	0	137	0	7	0	0	0	0	415	0
4:30 PM		0	0	72	114	0	8	133	0	0	148	0	9	0	0	0	0	484	0
4:45 PM		0	0	67	124	0	7	89	0	0	127	0	8	0	0	0	0	422	1,766
5:00 PM		**0**	**0**	**59**	**105**	**0**	**10**	**115**	**0**	**0**	**150**	**0**	**2**	**0**	**0**	**0**	**0**	**441**	1,762
5:15 PM		**0**	**0**	**78**	**141**	**0**	**4**	**111**	**0**	**0**	**150**	**0**	**7**	**0**	**0**	**0**	**0**	**491**	1,838
5:30 PM		**0**	**0**	**80**	**137**	**0**	**8**	**115**	**0**	**0**	**148**	**0**	**3**	**0**	**0**	**0**	**0**	**491**	1,845
5:45 PM		**0**	**0**	**67**	**124**	**0**	**5**	**123**	**0**	**0**	**151**	**0**	**1**	**0**	**0**	**0**	**0**	**471**	**1,894**
Count Total		0	0	561	959	0	57	873	0	0	1,170	0	40	0	0	0	0	3,660	0
Peak Hour	**All**	**0**	**0**	**284**	**507**	**0**	**27**	**464**	**0**	**0**	**599**	**0**	**13**	**0**	**0**	**0**	**0**	**1,894**	**0**
	HV	**0**	**0**	**34**	**21**	**0**	**2**	**25**	**0**	**0**	**16**	**0**	**2**	**0**	**0**	**0**	**0**	**100**	**0**
	HV%	**-**	**-**	**12%**	**4%**	**-**	**7%**	**5%**	**-**	**-**	**3%**	**-**	**15%**	**-**	**-**	**-**	**-**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	18	2	8	0	*28*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	17	8	5	0	*30*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	18	10	6	0	*34*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	22	5	4	0	*31*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**10**	**7**	**3**	**0**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**14**	**9**	**8**	**0**	***31***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**19**	**6**	**4**	**0**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**12**	**5**	**3**	**0**	***20***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***
Count Total	130	52	41	0	*223*	0	2	0	0	*2*	0	0	0	0	*0*
Peak Hr	**55**	**27**	**18**	**0**	***100***	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88TH AVE				88TH AVE				ROSEMARY ST				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	11	7	0	1	1	0	0	7	0	1	0	0	0	0	28	0
4:15 PM	0	0	14	3	0	0	8	0	0	3	0	2	0	0	0	0	30	0
4:30 PM	0	0	9	9	0	2	8	0	0	5	0	1	0	0	0	0	34	0
4:45 PM	0	0	17	5	0	1	4	0	0	2	0	2	0	0	0	0	31	123
5:00 PM	**0**	**0**	**7**	**3**	**0**	**1**	**6**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**20**	115
5:15 PM	**0**	**0**	**8**	**6**	**0**	**1**	**8**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	116
5:30 PM	**0**	**0**	**13**	**6**	**0**	**0**	**6**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**29**	111
5:45 PM	**0**	**0**	**6**	**6**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**100**
Count Total	0	0	85	45	0	6	46	0	0	33	0	8	0	0	0	0	223	0
Peak Hour	**0**	**0**	**34**	**21**	**0**	**2**	**25**	**0**	**0**	**16**	**0**	**2**	**0**	**0**	**0**	**0**	**100**	**0**

Two-Hour Count Summaries - Bikes

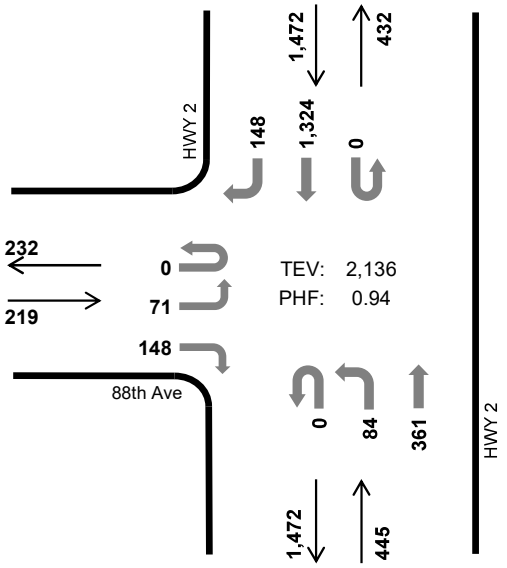
Interval Start	88TH AVE			88TH AVE			ROSEMARY ST			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:45 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

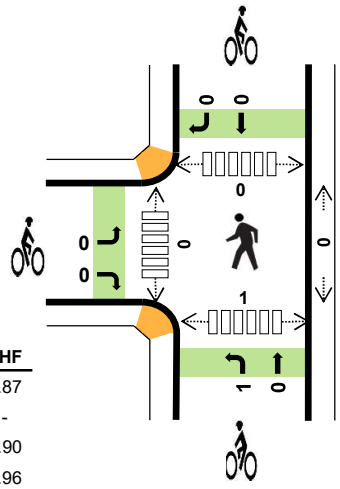
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

HWY 2
88th Ave

Peak Hour

Date: 06/29/2023
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	33.3%	0.87
WB	-	-
NB	13.0%	0.90
SB	8.4%	0.96
TOTAL	11.9%	0.94

Two-Hour Count Summaries

Interval Start	88th Ave Eastbound				n/a Westbound				HWY 2 Northbound				HWY 2 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**13**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**23**	**99**	**0**	**0**	**0**	**335**	**34**	**532**	0
7:15 AM	**0**	**16**	**0**	**47**	**0**	**0**	**0**	**0**	**0**	**17**	**83**	**0**	**0**	**0**	**296**	**44**	**503**	0
7:30 AM	**0**	**19**	**0**	**35**	**0**	**0**	**0**	**0**	**0**	**22**	**77**	**0**	**0**	**0**	**345**	**37**	**535**	0
7:45 AM	**0**	**23**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**22**	**102**	**0**	**0**	**0**	**348**	**33**	**566**	**2,136**
8:00 AM	0	18	0	43	0	0	0	0	0	21	87	0	0	0	255	21	445	2,049
8:15 AM	0	15	0	32	0	0	0	0	0	26	86	0	0	0	243	32	434	1,980
8:30 AM	0	13	0	33	0	0	0	0	0	22	88	0	0	0	196	25	377	1,822
8:45 AM	0	17	0	30	0	0	0	0	0	23	77	0	0	0	166	26	339	1,595
Count Total	0	134	0	286	0	0	0	0	0	176	699	0	0	0	2,184	252	3,731	0
Peak Hour All	**0**	**71**	**0**	**148**	**0**	**0**	**0**	**0**	**0**	**84**	**361**	**0**	**0**	**0**	**1,324**	**148**	**2,136**	**0**
Peak Hour HV	**0**	**15**	**0**	**58**	**0**	**0**	**0**	**0**	**0**	**13**	**45**	**0**	**0**	**0**	**95**	**28**	**254**	**0**
Peak Hour HV%	**-**	**21%**	**-**	**39%**	**-**	**-**	**-**	**-**	**-**	**15%**	**12%**	**-**	**-**	**-**	**7%**	**19%**	**12%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**14**	**0**	**13**	**25**	***52***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**21**	**0**	**15**	**27**	***63***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**15**	**0**	**11**	**41**	***67***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**1**	*1*
7:45 AM	**23**	**0**	**19**	**30**	***72***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	21	0	21	24	*66*	0	0	0	0	*0*	0	0	0	1	*1*
8:15 AM	16	0	24	36	*76*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	16	0	18	25	*59*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	19	0	19	23	*61*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	145	0	140	231	*516*	0	0	1	0	*1*	0	0	0	2	*2*
Peak Hr	**73**	**0**	**58**	**123**	***254***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**1**	***1***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave				n/a				HWY 2				HWY 2				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**2**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**1**	**12**	**0**	**0**	**0**	**22**	**3**	**52**	0
7:15 AM	**0**	**1**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**4**	**11**	**0**	**0**	**0**	**16**	**11**	**63**	0
7:30 AM	**0**	**3**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**8**	**0**	**0**	**0**	**34**	**7**	**67**	0
7:45 AM	**0**	**9**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**5**	**14**	**0**	**0**	**0**	**23**	**7**	**72**	**254**
8:00 AM	0	6	0	15	0	0	0	0	0	6	15	0	0	0	23	1	66	268
8:15 AM	0	7	0	9	0	0	0	0	0	9	15	0	0	0	27	9	76	281
8:30 AM	0	3	0	13	0	0	0	0	0	8	10	0	0	0	24	1	59	273
8:45 AM	0	4	0	15	0	0	0	0	0	7	12	0	0	0	20	3	61	262
Count Total	0	35	0	110	0	0	0	0	0	43	97	0	0	0	189	42	516	0
Peak Hour	**0**	**15**	**0**	**58**	**0**	**0**	**0**	**0**	**0**	**13**	**45**	**0**	**0**	**0**	**95**	**28**	**254**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave			n/a			HWY 2			HWY 2			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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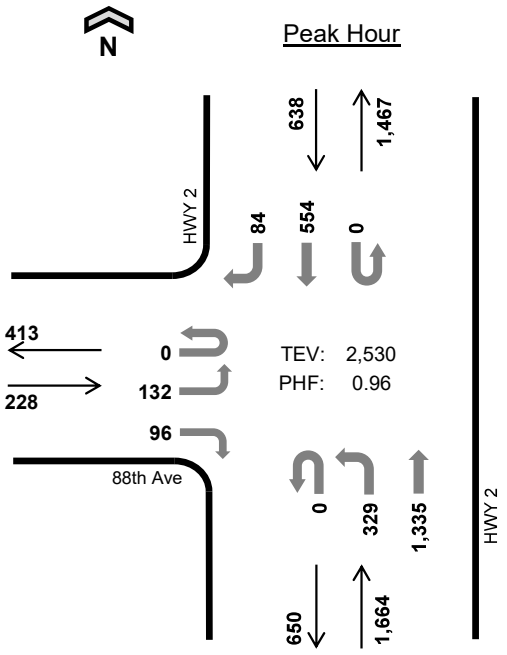
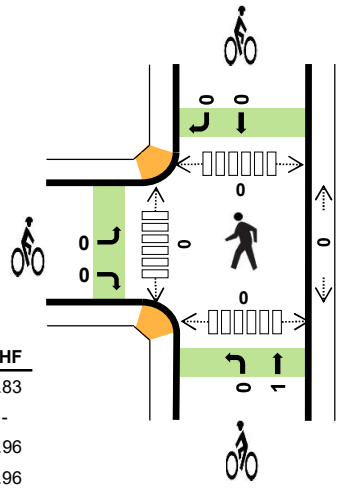
HWY 2
88th Ave

Peak Hour

Date: 06/29/2023
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	4.4%	0.83
WB	-	-
NB	7.2%	0.96
SB	6.7%	0.96
TOTAL	6.8%	0.96



Two-Hour Count Summaries

Interval Start	88th Ave Eastbound				n/a Westbound				HWY 2 Northbound				HWY 2 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	47	0	24	0	0	0	0	0	47	286	0	0	0	157	21	582	0
4:15 PM	0	23	0	22	0	0	0	0	0	60	254	0	0	0	144	21	524	0
4:30 PM	0	30	0	18	0	0	0	0	0	64	294	0	0	0	174	33	613	0
4:45 PM	**0**	**22**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**89**	**340**	**0**	**0**	**0**	**140**	**27**	**635**	2,354
5:00 PM	**0**	**36**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**83**	**321**	**0**	**0**	**0**	**143**	**20**	**622**	2,394
5:15 PM	**0**	**37**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**72**	**361**	**0**	**0**	**0**	**137**	**21**	**656**	2,526
5:30 PM	**0**	**37**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**85**	**313**	**0**	**0**	**0**	**134**	**16**	**617**	**2,530**
5:45 PM	0	29	0	31	0	0	0	0	0	87	300	0	0	0	99	13	559	2,454
Count Total	0	261	0	191	0	0	0	0	0	587	2,469	0	0	0	1,128	172	4,808	0
Peak Hour All	**0**	**132**	**0**	**96**	**0**	**0**	**0**	**0**	**0**	**329**	**1,335**	**0**	**0**	**0**	**554**	**84**	**2,530**	**0**
Peak Hour HV	**0**	**4**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**34**	**86**	**0**	**0**	**0**	**30**	**13**	**173**	**0**
Peak Hour HV%	**-**	**3%**	**-**	**6%**	**-**	**-**	**-**	**-**	**-**	**10%**	**6%**	**-**	**-**	**-**	**5%**	**15%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	0	25	11	*42*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	2	0	23	17	*42*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	7	0	27	18	*52*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**3**	**0**	**29**	**13**	***45***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**30**	**10**	***41***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**5**	**0**	**21**	**10**	***36***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**1**	**0**	**40**	**10**	***51***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	6	0	32	8	*46*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	31	0	227	97	*355*	0	0	1	0	*1*	0	0	0	0	*0*
Peak Hr	**10**	**0**	**120**	**43**	***173***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	88th Ave				n/a				HWY 2				HWY 2				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	0	2	0	0	0	0	0	8	17	0	0	0	9	2	42	0
4:15 PM	0	1	0	1	0	0	0	0	0	7	16	0	0	0	11	6	42	0
4:30 PM	0	1	0	6	0	0	0	0	0	6	21	0	0	0	13	5	52	0
4:45 PM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**7**	**22**	**0**	**0**	**0**	**7**	**6**	**45**	181
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**17**	**0**	**0**	**0**	**8**	**2**	**41**	180
5:15 PM	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**5**	**16**	**0**	**0**	**0**	**5**	**5**	**36**	174
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**31**	**0**	**0**	**0**	**10**	**0**	**51**	**173**
5:45 PM	0	4	0	2	0	0	0	0	0	5	27	0	0	0	7	1	46	174
Count Total	0	14	0	17	0	0	0	0	0	60	167	0	0	0	70	27	355	0
Peak Hour	**0**	**4**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**34**	**86**	**0**	**0**	**0**	**30**	**13**	**173**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	88th Ave			n/a			HWY 2			HWY 2			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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APPENDIX B

Future Traffic Projections

DRCOG Traffic Projections: 88th & Rosemary

Location	2020	2050	Growth Factor	Annual Growth
88th Ave W/O Rosemary St	20,000	30,000	1.50	1.36%
88th Ave E/O Rosemary St	14,000	21,000	1.50	1.36%
Rosemary St S/O 88th Ave	6,000	9,000	1.50	1.36%
Total	40,000	60,000	1.50	**1.36%**

APPENDIX C

Trip Generation Worksheets

Kimley»Horn

Project	88th & Rosemary				
Subject	Trip Generation for General Light Industrial				
Designed by	TES	*Date*	August 02, 2022	*Job No.*	096266043
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Fitted Curve Equations

Land Use Code - General Light Industrial (110)

Independent Variable - 1000 Square Feet Gross Floor Feet (X)
Gross Floor Area = 54,600
X = 54.6
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (100 Series Page 32)

Average Weekday
T = 0.68(X) + 3.81
T = 0.68 * 55 + 3.81

Directional Distribution: 88% ent. 12% exit.
T = 41 Average Vehicle Trip Ends
36 entering 5 exiting

36 + 5 = 41
(*) TRIP END WAS CHANGED BY 1 TO SATISFY THE TOTAL

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (100 Series Page 33)

Average Weekday
Ln(T) = 0.72 Ln(X) + 0.38
Ln(T) = 0.72 * Ln(55) + 0.38

Directional Distribution: 14% ent. 86% exit.
T = 26 Average Vehicle Trip Ends
3 entering 22 exiting

3 + 23 = 26

Weekday (100 Series Page 31)

Daily Weekday
T = 3.76 (X) + 50.47
(T) = 3.76 * 54.6 + 50.47

Directional Distribution: 50% entering, 50% exiting
T = 256 Average Vehicle Trip Ends
128 entering 128 exiting

128 + 128 = 256

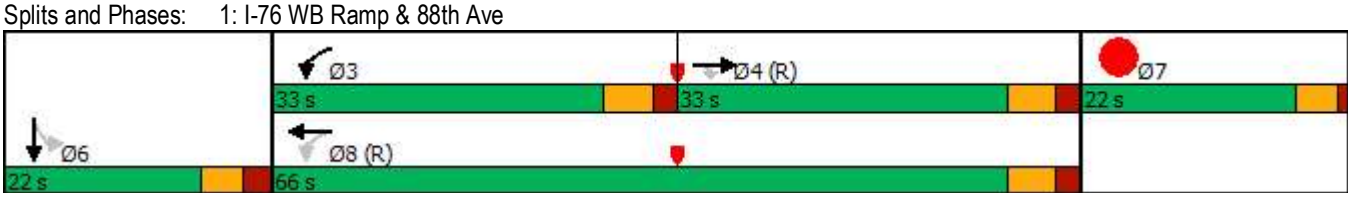
APPENDIX D

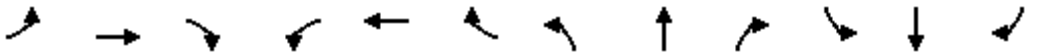
Intersection Analysis Worksheets

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	720	191	159	614	97	9	
Future Volume (vph)	720	191	159	614	97	9	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5
Total Split (s)	33.0	33.0	33.0	66.0	22.0	22.0	22.0
Total Split (%)	30.0%	30.0%	30.0%	60.0%	20.0%	20.0%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	42.1	42.1	60.0	60.0	38.0	38.0	
Actuated g/C Ratio	0.38	0.38	0.55	0.55	0.35	0.35	
v/c Ratio	0.60	0.29	0.50	0.37	0.16	0.26	
Control Delay	30.3	4.8	25.5	12.4	26.0	7.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	4.8	25.5	12.4	26.0	7.1	
LOS	C	A	C	B	C	A	
Approach Delay	25.0			15.1		14.2	
Approach LOS	C			B		B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 50.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





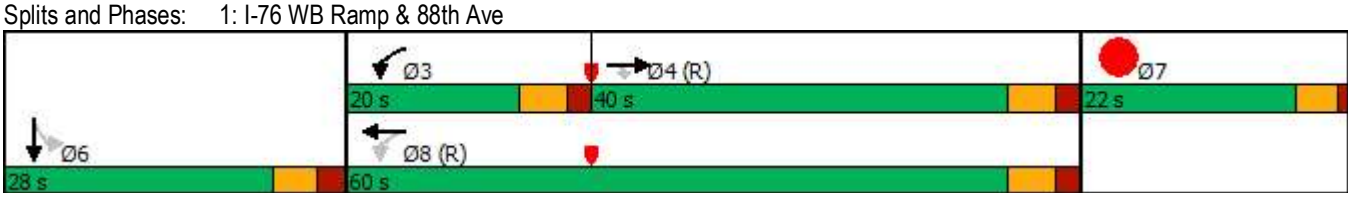
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	720	191	159	614	0	0	0	0	97	9	129
Future Volume (vph)	0	720	191	159	614	0	0	0	0	97	9	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3252	1455	1556	3112					1603	1461	
Flt Permitted		1.00	1.00	0.23	1.00					0.95	1.00	
Satd. Flow (perm)		3252	1455	369	3112					1603	1461	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	742	197	164	633	0	0	0	0	100	9	133
RTOR Reduction (vph)	0	0	122	0	0	0	0	0	0	0	87	0
Lane Group Flow (vph)	0	742	75	164	633	0	0	0	0	90	65	0
Heavy Vehicles (%)	11%	11%	11%	16%	16%	16%	2%	2%	2%	7%	7%	7%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		42.1	42.1	60.0	60.0					38.0	38.0	
Effective Green, g (s)		42.1	42.1	60.0	60.0					38.0	38.0	
Actuated g/C Ratio		0.38	0.38	0.55	0.55					0.35	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1244	556	329	1697					553	504	
v/s Ratio Prot		c0.23		c0.05	0.20							
v/s Ratio Perm			0.05	0.22						c0.06	0.04	
v/c Ratio		0.60	0.14	0.50	0.37					0.16	0.13	
Uniform Delay, d1		27.2	22.1	14.9	14.3					25.0	24.7	
Progression Factor		1.00	1.00	1.58	0.82					1.00	1.00	
Incremental Delay, d2		2.1	0.5	1.1	0.6					0.6	0.5	
Delay (s)		29.3	22.6	24.7	12.3					25.6	25.2	
Level of Service		C	C	C	B					C	C	
Approach Delay (s)		27.9			14.8			0.0			25.3	
Approach LOS		C			B			A			C	

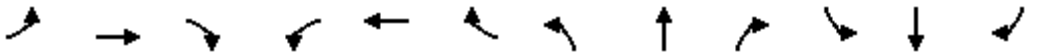
Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	816	133	153	1445	105	2	
Future Volume (vph)	816	133	153	1445	105	2	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	13.0
Total Split (s)	40.0	40.0	20.0	60.0	28.0	28.0	22.0
Total Split (%)	36.4%	36.4%	18.2%	54.5%	25.5%	25.5%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	37.1	37.1	54.0	54.0	44.0	44.0	
Actuated g/C Ratio	0.34	0.34	0.49	0.49	0.40	0.40	
v/c Ratio	0.72	0.23	0.55	0.86	0.15	0.32	
Control Delay	36.9	6.0	34.2	29.5	21.9	4.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	36.9	6.0	34.2	29.5	21.9	4.9	
LOS	D	A	C	C	C	A	
Approach Delay	32.5			29.9		9.9	
Approach LOS	C			C		A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 28.6	Intersection LOS: C
Intersection Capacity Utilization 68.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





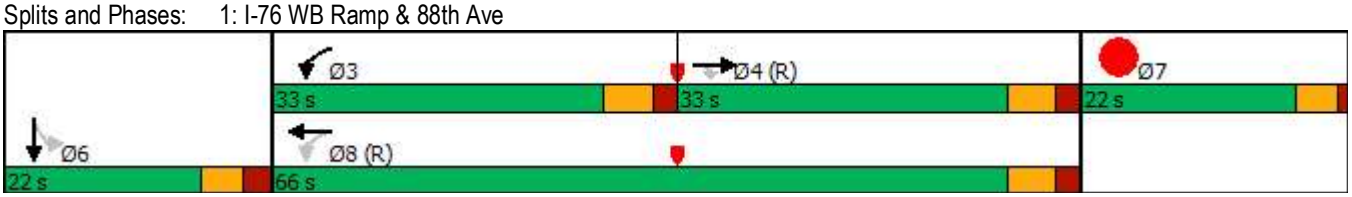
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	816	133	153	1445	0	0	0	0	105	2	211
Future Volume (vph)	0	816	133	153	1445	0	0	0	0	105	2	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3406	1524	1752	3505					1618	1458	
Flt Permitted		1.00	1.00	0.15	1.00					0.95	1.00	
Satd. Flow (perm)		3406	1524	284	3505					1618	1458	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	833	136	156	1474	0	0	0	0	107	2	215
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	129	0
Lane Group Flow (vph)	0	833	47	156	1474	0	0	0	0	96	99	0
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		37.1	37.1	54.0	54.0					44.0	44.0	
Effective Green, g (s)		37.1	37.1	54.0	54.0					44.0	44.0	
Actuated g/C Ratio		0.34	0.34	0.49	0.49					0.40	0.40	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1148	514	284	1720					647	583	
v/s Ratio Prot		0.24		0.05	c0.42							
v/s Ratio Perm			0.03	0.21						0.06	0.07	
v/c Ratio		0.73	0.09	0.55	0.86					0.15	0.17	
Uniform Delay, d1		32.0	24.9	19.0	24.6					21.0	21.2	
Progression Factor		1.00	1.00	1.77	0.98					1.00	1.00	
Incremental Delay, d2		4.0	0.4	1.8	4.7					0.5	0.6	
Delay (s)		36.0	25.3	35.4	28.9					21.5	21.9	
Level of Service		D	C	D	C					C	C	
Approach Delay (s)		34.5			29.6			0.0			21.8	
Approach LOS		C			C			A			C	

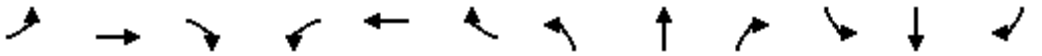
Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	740	196	163	631	100	9	
Future Volume (vph)	740	196	163	631	100	9	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5
Total Split (s)	33.0	33.0	33.0	66.0	22.0	22.0	22.0
Total Split (%)	30.0%	30.0%	30.0%	60.0%	20.0%	20.0%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	41.9	41.9	60.0	60.0	38.0	38.0	
Actuated g/C Ratio	0.38	0.38	0.55	0.55	0.35	0.35	
v/c Ratio	0.62	0.30	0.52	0.38	0.17	0.26	
Control Delay	31.0	5.3	27.4	12.5	26.1	7.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	5.3	27.4	12.5	26.1	7.1	
LOS	C	A	C	B	C	A	
Approach Delay	25.6			15.6		14.2	
Approach LOS	C			B		B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





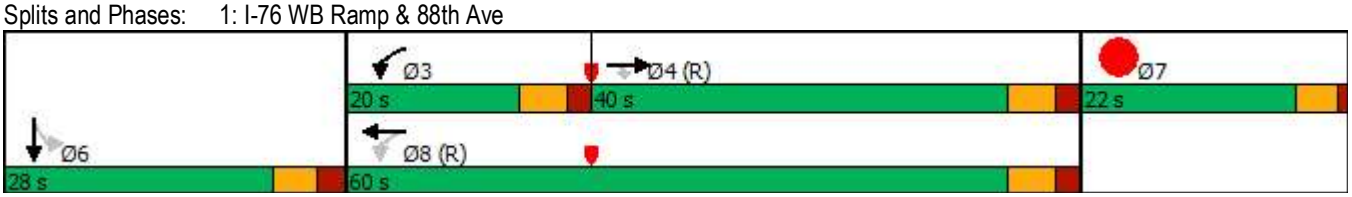
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	740	196	163	631	0	0	0	0	100	9	133
Future Volume (vph)	0	740	196	163	631	0	0	0	0	100	9	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3252	1455	1556	3112					1603	1460	
Flt Permitted		1.00	1.00	0.21	1.00					0.95	1.00	
Satd. Flow (perm)		3252	1455	351	3112					1603	1460	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	763	202	168	651	0	0	0	0	103	9	137
RTOR Reduction (vph)	0	0	121	0	0	0	0	0	0	0	90	0
Lane Group Flow (vph)	0	763	81	168	651	0	0	0	0	93	66	0
Heavy Vehicles (%)	11%	11%	11%	16%	16%	16%	2%	2%	2%	7%	7%	7%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		41.9	41.9	60.0	60.0					38.0	38.0	
Effective Green, g (s)		41.9	41.9	60.0	60.0					38.0	38.0	
Actuated g/C Ratio		0.38	0.38	0.55	0.55					0.35	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1238	554	324	1697					553	504	
v/s Ratio Prot		c0.23		c0.06	0.21							
v/s Ratio Perm			0.06	0.23						c0.06	0.05	
v/c Ratio		0.62	0.15	0.52	0.38					0.17	0.13	
Uniform Delay, d1		27.5	22.3	15.2	14.4					25.0	24.7	
Progression Factor		1.00	1.00	1.68	0.82					1.00	1.00	
Incremental Delay, d2		2.3	0.6	1.3	0.6					0.7	0.5	
Delay (s)		29.9	22.9	26.8	12.4					25.7	25.2	
Level of Service		C	C	C	B					C	C	
Approach Delay (s)		28.4			15.3			0.0			25.4	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	838	137	157	1485	108	2	
Future Volume (vph)	838	137	157	1485	108	2	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	13.0
Total Split (s)	40.0	40.0	20.0	60.0	28.0	28.0	22.0
Total Split (%)	36.4%	36.4%	18.2%	54.5%	25.5%	25.5%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	37.0	37.0	54.0	54.0	44.0	44.0	
Actuated g/C Ratio	0.34	0.34	0.49	0.49	0.40	0.40	
v/c Ratio	0.75	0.23	0.57	0.88	0.15	0.33	
Control Delay	37.7	6.4	36.8	31.5	22.0	4.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.7	6.4	36.8	31.5	22.0	4.8	
LOS	D	A	D	C	C	A	
Approach Delay	33.3			32.0		9.9	
Approach LOS	C			C		A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave



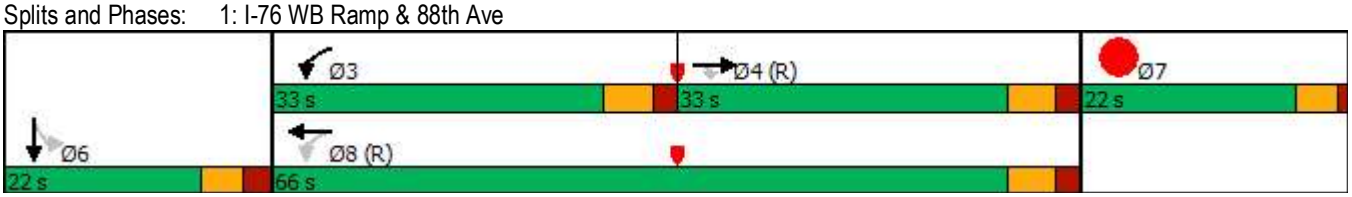
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	838	137	157	1485	0	0	0	0	108	2	217
Future Volume (vph)	0	838	137	157	1485	0	0	0	0	108	2	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3406	1524	1752	3505					1618	1458	
Flt Permitted		1.00	1.00	0.14	1.00					0.95	1.00	
Satd. Flow (perm)		3406	1524	265	3505					1618	1458	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	855	140	160	1515	0	0	0	0	110	2	221
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	133	0
Lane Group Flow (vph)	0	855	51	160	1515	0	0	0	0	99	101	0
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		37.0	37.0	54.0	54.0					44.0	44.0	
Effective Green, g (s)		37.0	37.0	54.0	54.0					44.0	44.0	
Actuated g/C Ratio		0.34	0.34	0.49	0.49					0.40	0.40	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1145	512	278	1720					647	583	
v/s Ratio Prot		0.25		0.06	c0.43							
v/s Ratio Perm			0.03	0.22						0.06	0.07	
v/c Ratio		0.75	0.10	0.58	0.88					0.15	0.17	
Uniform Delay, d1		32.3	25.1	19.3	25.1					21.1	21.3	
Progression Factor		1.00	1.00	1.89	1.01					1.00	1.00	
Incremental Delay, d2		4.5	0.4	2.3	5.5					0.5	0.6	
Delay (s)		36.8	25.5	38.9	30.9					21.6	21.9	
Level of Service		D	C	D	C					C	C	
Approach Delay (s)		35.2			31.6			0.0			21.8	
Approach LOS		D			C			A			C	

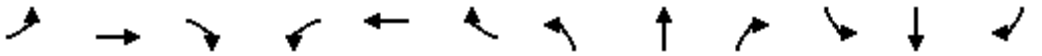
Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	747	196	164	632	104	9	
Future Volume (vph)	747	196	164	632	104	9	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5
Total Split (s)	33.0	33.0	33.0	66.0	22.0	22.0	22.0
Total Split (%)	30.0%	30.0%	30.0%	60.0%	20.0%	20.0%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	41.8	41.8	60.0	60.0	38.0	38.0	
Actuated g/C Ratio	0.38	0.38	0.55	0.55	0.35	0.35	
v/c Ratio	0.62	0.30	0.52	0.38	0.17	0.26	
Control Delay	31.2	5.4	27.8	12.5	26.2	7.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.2	5.4	27.8	12.5	26.2	7.2	
LOS	C	A	C	B	C	A	
Approach Delay	25.8			15.6		14.4	
Approach LOS	C			B		B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





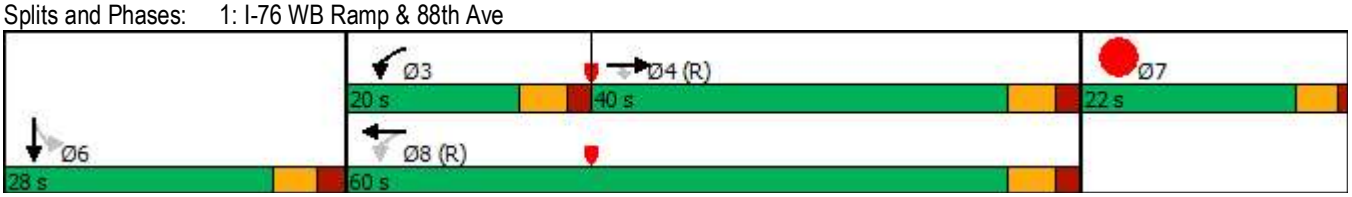
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	747	196	164	632	0	0	0	0	104	9	133
Future Volume (vph)	0	747	196	164	632	0	0	0	0	104	9	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3252	1455	1556	3112					1603	1461	
Flt Permitted		1.00	1.00	0.21	1.00					0.95	1.00	
Satd. Flow (perm)		3252	1455	345	3112					1603	1461	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	770	202	169	652	0	0	0	0	107	9	137
RTOR Reduction (vph)	0	0	121	0	0	0	0	0	0	0	90	0
Lane Group Flow (vph)	0	770	81	169	652	0	0	0	0	96	67	0
Heavy Vehicles (%)	11%	11%	11%	16%	16%	16%	2%	2%	2%	7%	7%	7%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		41.8	41.8	60.0	60.0					38.0	38.0	
Effective Green, g (s)		41.8	41.8	60.0	60.0					38.0	38.0	
Actuated g/C Ratio		0.38	0.38	0.55	0.55					0.35	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1235	552	322	1697					553	504	
v/s Ratio Prot		c0.24		c0.06	0.21							
v/s Ratio Perm			0.06	0.23						c0.06	0.05	
v/c Ratio		0.62	0.15	0.52	0.38					0.17	0.13	
Uniform Delay, d1		27.7	22.4	15.3	14.4					25.1	24.7	
Progression Factor		1.00	1.00	1.70	0.81					1.00	1.00	
Incremental Delay, d2		2.4	0.6	1.5	0.6					0.7	0.5	
Delay (s)		30.1	23.0	27.4	12.3					25.7	25.3	
Level of Service		C	C	C	B					C	C	
Approach Delay (s)		28.6			15.4			0.0			25.4	
Approach LOS		C			B			A			C	

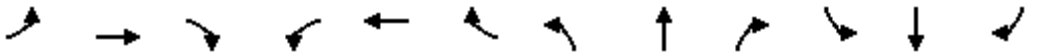
Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	839	137	162	1490	108	2	
Future Volume (vph)	839	137	162	1490	108	2	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	13.0
Total Split (s)	40.0	40.0	20.0	60.0	28.0	28.0	22.0
Total Split (%)	36.4%	36.4%	18.2%	54.5%	25.5%	25.5%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	36.9	36.9	54.0	54.0	44.0	44.0	
Actuated g/C Ratio	0.34	0.34	0.49	0.49	0.40	0.40	
v/c Ratio	0.75	0.23	0.59	0.88	0.15	0.33	
Control Delay	37.9	6.4	37.9	31.7	22.0	4.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.9	6.4	37.9	31.7	22.0	4.8	
LOS	D	A	D	C	C	A	
Approach Delay	33.5			32.3		9.9	
Approach LOS	C			C		A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





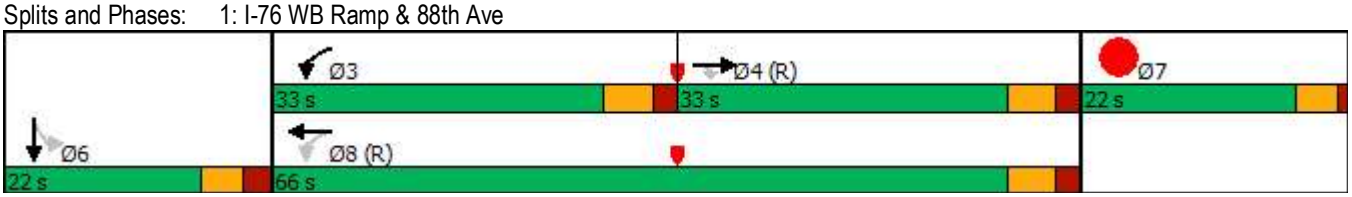
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	839	137	162	1490	0	0	0	0	108	2	217
Future Volume (vph)	0	839	137	162	1490	0	0	0	0	108	2	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3406	1524	1752	3505					1618	1458	
Flt Permitted		1.00	1.00	0.14	1.00					0.95	1.00	
Satd. Flow (perm)		3406	1524	263	3505					1618	1458	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	856	140	165	1520	0	0	0	0	110	2	221
RTOR Reduction (vph)	0	0	89	0	0	0	0	0	0	0	133	0
Lane Group Flow (vph)	0	856	51	165	1520	0	0	0	0	99	101	0
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		36.9	36.9	54.0	54.0					44.0	44.0	
Effective Green, g (s)		36.9	36.9	54.0	54.0					44.0	44.0	
Actuated g/C Ratio		0.34	0.34	0.49	0.49					0.40	0.40	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1142	511	279	1720					647	583	
v/s Ratio Prot		0.25		0.06	c0.43							
v/s Ratio Perm			0.03	0.23						0.06	0.07	
v/c Ratio		0.75	0.10	0.59	0.88					0.15	0.17	
Uniform Delay, d1		32.4	25.1	19.4	25.2					21.1	21.3	
Progression Factor		1.00	1.00	1.93	1.01					1.00	1.00	
Incremental Delay, d2		4.5	0.4	2.6	5.6					0.5	0.6	
Delay (s)		37.0	25.5	40.1	31.1					21.6	21.9	
Level of Service		D	C	D	C					C	C	
Approach Delay (s)		35.4			32.0			0.0			21.8	
Approach LOS		D			C			A			C	

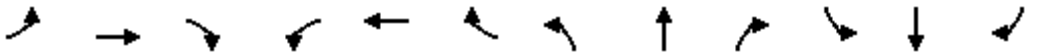
Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	969	257	214	826	131	12	
Future Volume (vph)	969	257	214	826	131	12	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	9.5
Total Split (s)	33.0	33.0	33.0	66.0	22.0	22.0	22.0
Total Split (%)	30.0%	30.0%	30.0%	60.0%	20.0%	20.0%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	38.6	38.6	60.0	60.0	38.0	38.0	
Actuated g/C Ratio	0.35	0.35	0.55	0.55	0.35	0.35	
v/c Ratio	0.88	0.42	0.78	0.50	0.22	0.33	
Control Delay	44.5	10.7	55.7	14.3	26.8	7.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.5	10.7	55.7	14.3	26.8	7.1	
LOS	D	B	E	B	C	A	
Approach Delay	37.4			22.8		14.4	
Approach LOS	D			C		B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





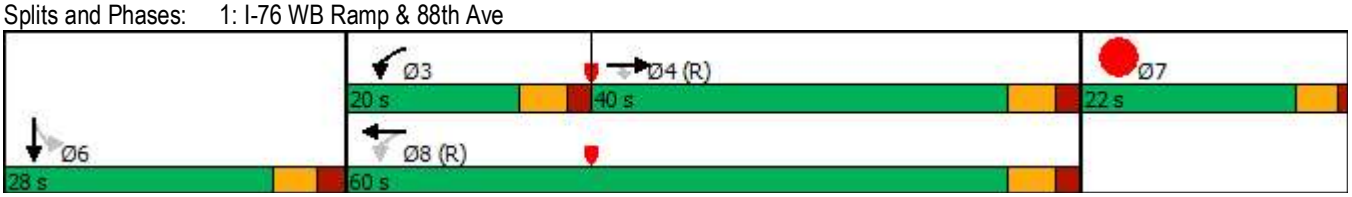
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	969	257	214	826	0	0	0	0	131	12	174
Future Volume (vph)	0	969	257	214	826	0	0	0	0	131	12	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3252	1455	1556	3112					1603	1461	
Flt Permitted		1.00	1.00	0.10	1.00					0.95	1.00	
Satd. Flow (perm)		3252	1455	159	3112					1603	1461	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	999	265	221	852	0	0	0	0	135	12	179
RTOR Reduction (vph)	0	0	128	0	0	0	0	0	0	0	117	0
Lane Group Flow (vph)	0	999	137	221	852	0	0	0	0	121	88	0
Heavy Vehicles (%)	11%	11%	11%	16%	16%	16%	2%	2%	2%	7%	7%	7%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		38.6	38.6	60.0	60.0					38.0	38.0	
Effective Green, g (s)		38.6	38.6	60.0	60.0					38.0	38.0	
Actuated g/C Ratio		0.35	0.35	0.55	0.55					0.35	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1141	510	282	1697					553	504	
v/s Ratio Prot		c0.31		c0.11	0.27							
v/s Ratio Perm			0.09	0.32						c0.08	0.06	
v/c Ratio		0.88	0.27	0.78	0.50					0.22	0.17	
Uniform Delay, d1		33.4	25.6	26.8	15.6					25.5	25.1	
Progression Factor		1.00	1.00	1.61	0.84					1.00	1.00	
Incremental Delay, d2		9.5	1.3	12.2	1.0					0.9	0.8	
Delay (s)		42.9	26.9	55.5	14.1					26.4	25.8	
Level of Service		D	C	E	B					C	C	
Approach Delay (s)		39.6			22.6			0.0			26.0	
Approach LOS		D			C			A			C	

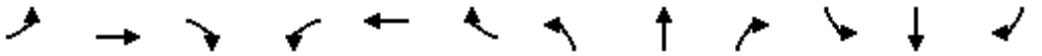
Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	1098	179	206	1945	141	3	
Future Volume (vph)	1098	179	206	1945	141	3	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	13.0
Total Split (s)	40.0	40.0	20.0	60.0	28.0	28.0	22.0
Total Split (%)	36.4%	36.4%	18.2%	54.5%	25.5%	25.5%	20%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	35.4	35.4	54.0	54.0	44.0	44.0	
Actuated g/C Ratio	0.32	0.32	0.49	0.49	0.40	0.40	
v/c Ratio	1.02	0.32	0.78	1.15	0.20	0.41	
Control Delay	71.0	10.6	50.0	105.0	22.6	4.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.0	10.6	50.0	105.0	22.6	4.9	
LOS	E	B	D	F	C	A	
Approach Delay	62.5			99.8		10.2	
Approach LOS	E			F		B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 77.5	Intersection LOS: E
Intersection Capacity Utilization 87.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





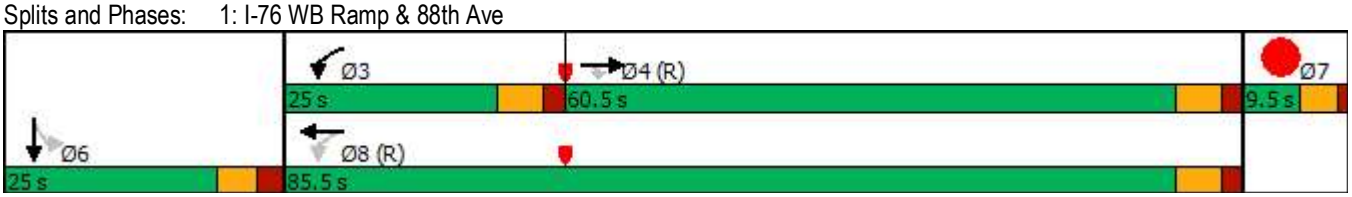
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1098	179	206	1945	0	0	0	0	141	3	284
Future Volume (vph)	0	1098	179	206	1945	0	0	0	0	141	3	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3406	1524	1752	3505					1618	1458	
Flt Permitted		1.00	1.00	0.10	1.00					0.95	1.00	
Satd. Flow (perm)		3406	1524	178	3505					1618	1458	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1120	183	210	1985	0	0	0	0	144	3	290
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	174	0
Lane Group Flow (vph)	0	1120	92	210	1985	0	0	0	0	130	133	0
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		35.4	35.4	54.0	54.0					44.0	44.0	
Effective Green, g (s)		35.4	35.4	54.0	54.0					44.0	44.0	
Actuated g/C Ratio		0.32	0.32	0.49	0.49					0.40	0.40	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1096	490	267	1720					647	583	
v/s Ratio Prot		0.33		0.09	c0.57							
v/s Ratio Perm			0.06	0.29						0.08	0.09	
v/c Ratio		1.02	0.19	0.79	1.15					0.20	0.23	
Uniform Delay, d1		37.3	26.9	26.8	28.0					21.5	21.8	
Progression Factor		1.00	1.00	1.67	1.19					1.00	1.00	
Incremental Delay, d2		32.8	0.8	7.6	73.1					0.7	0.9	
Delay (s)		70.1	27.8	52.5	106.4					22.2	22.7	
Level of Service		E	C	D	F					C	C	
Approach Delay (s)		64.2			101.3			0.0			22.6	
Approach LOS		E			F			A			C	

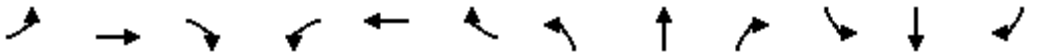
Intersection Summary			
HCM 2000 Control Delay	80.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	976	257	215	827	135	12	
Future Volume (vph)	976	257	215	827	135	12	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0	9.5
Total Split (s)	60.5	60.5	25.0	85.5	25.0	25.0	9.5
Total Split (%)	50.4%	50.4%	20.8%	71.3%	20.8%	20.8%	8%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	60.5	60.5	79.5	79.5	28.5	28.5	
Actuated g/C Ratio	0.50	0.50	0.66	0.66	0.24	0.24	
v/c Ratio	0.61	0.31	0.67	0.41	0.33	0.42	
Control Delay	24.0	3.9	34.9	7.3	40.8	10.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	24.0	3.9	34.9	7.3	40.8	10.8	
LOS	C	A	C	A	D	B	
Approach Delay	19.8			13.0		22.2	
Approach LOS	B			B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





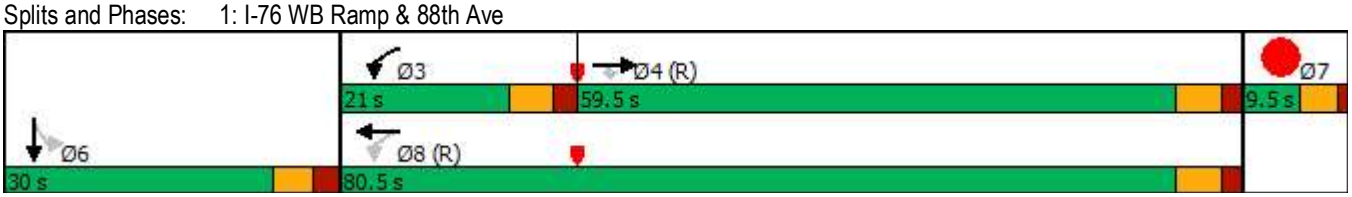
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	976	257	215	827	0	0	0	0	135	12	174
Future Volume (vph)	0	976	257	215	827	0	0	0	0	135	12	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.87	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3252	1455	1556	3112					1603	1461	
Flt Permitted		1.00	1.00	0.18	1.00					0.95	1.00	
Satd. Flow (perm)		3252	1455	293	3112					1603	1461	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1006	265	222	853	0	0	0	0	139	12	179
RTOR Reduction (vph)	0	0	123	0	0	0	0	0	0	0	136	0
Lane Group Flow (vph)	0	1006	142	222	853	0	0	0	0	125	69	0
Heavy Vehicles (%)	11%	11%	11%	16%	16%	16%	2%	2%	2%	7%	7%	7%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		60.5	60.5	79.5	79.5					28.5	28.5	
Effective Green, g (s)		60.5	60.5	79.5	79.5					28.5	28.5	
Actuated g/C Ratio		0.50	0.50	0.66	0.66					0.24	0.24	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1639	733	330	2061					380	346	
v/s Ratio Prot		0.31		c0.07	0.27							
v/s Ratio Perm			0.10	c0.37						c0.08	0.05	
v/c Ratio		0.61	0.19	0.67	0.41					0.33	0.20	
Uniform Delay, d1		21.4	16.3	12.9	9.4					37.8	36.6	
Progression Factor		1.00	1.00	2.69	0.70					1.00	1.00	
Incremental Delay, d2		1.7	0.6	4.9	0.6					2.3	1.3	
Delay (s)		23.1	16.9	39.5	7.2					40.1	37.9	
Level of Service		C	B	D	A					D	D	
Approach Delay (s)		21.8			13.8			0.0			38.7	
Approach LOS		C			B			A			D	

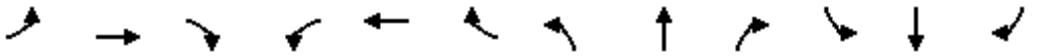
Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	Ø7
Lane Configurations							
Traffic Volume (vph)	1099	179	211	1950	141	3	
Future Volume (vph)	1099	179	211	1950	141	3	
Turn Type	NA	Perm	pm+pt	NA	Perm	NA	
Protected Phases	4		3	8		6	7
Permitted Phases		4	8		6		
Detector Phase	4	4	3	8	6	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	11.0	24.0	24.0	24.0	9.5
Total Split (s)	59.5	59.5	21.0	80.5	30.0	30.0	9.5
Total Split (%)	49.6%	49.6%	17.5%	67.1%	25.0%	25.0%	8%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.5	2.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	None
Act Effct Green (s)	56.3	56.3	74.5	74.5	33.5	33.5	
Actuated g/C Ratio	0.47	0.47	0.62	0.62	0.28	0.28	
v/c Ratio	0.70	0.23	0.72	0.91	0.29	0.65	
Control Delay	28.6	5.6	38.2	23.4	36.1	34.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.6	5.6	38.2	23.4	36.1	34.5	
LOS	C	A	D	C	D	C	
Approach Delay	25.4			24.8		34.9	
Approach LOS	C			C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: I-76 WB Ramp & 88th Ave





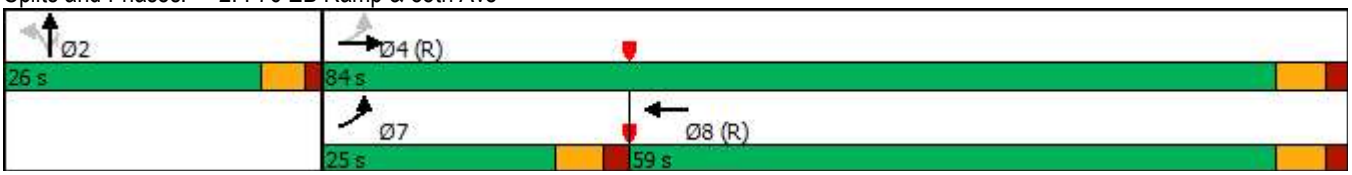
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1099	179	211	1950	0	0	0	0	141	3	284
Future Volume (vph)	0	1099	179	211	1950	0	0	0	0	141	3	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Lane Util. Factor		0.95	1.00	1.00	0.95					0.95	0.95	
Frt		1.00	0.85	1.00	1.00					1.00	0.86	
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3406	1524	1752	3505					1618	1458	
Flt Permitted		1.00	1.00	0.13	1.00					0.95	1.00	
Satd. Flow (perm)		3406	1524	235	3505					1618	1458	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1121	183	215	1990	0	0	0	0	144	3	290
RTOR Reduction (vph)	0	0	80	0	0	0	0	0	0	0	63	0
Lane Group Flow (vph)	0	1121	103	215	1990	0	0	0	0	130	244	0
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		56.3	56.3	74.5	74.5					33.5	33.5	
Effective Green, g (s)		56.3	56.3	74.5	74.5					33.5	33.5	
Actuated g/C Ratio		0.47	0.47	0.62	0.62					0.28	0.28	
Clearance Time (s)		6.0	6.0	6.0	6.0					6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1597	715	300	2176					451	407	
v/s Ratio Prot		0.33		0.07	c0.57							
v/s Ratio Perm			0.07	0.37						0.08	0.17	
v/c Ratio		0.70	0.14	0.72	0.91					0.29	0.60	
Uniform Delay, d1		25.2	18.1	17.3	20.0					33.9	37.5	
Progression Factor		1.00	1.00	2.18	0.94					1.00	1.00	
Incremental Delay, d2		2.6	0.4	3.9	3.9					1.6	6.4	
Delay (s)		27.8	18.6	41.7	22.7					35.5	43.9	
Level of Service		C	B	D	C					D	D	
Approach Delay (s)		26.5			24.6			0.0			41.4	
Approach LOS		C			C			A			D	

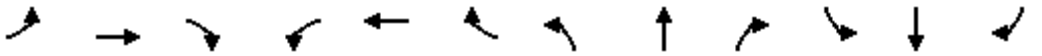
Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	158	665	631	138	0	167
Future Volume (vph)	158	665	631	138	0	167
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	84.0	59.0	26.0	26.0	26.0
Total Split (%)	22.7%	76.4%	53.6%	23.6%	23.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	78.0	78.0	63.0	21.0	21.0	21.0
Actuated g/C Ratio	0.71	0.71	0.57	0.19	0.19	0.19
v/c Ratio	0.35	0.29	0.31	0.39	0.32	0.30
Control Delay	6.3	1.2	11.9	43.7	13.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	1.2	11.9	43.7	13.8	10.2
LOS	A	A	B	D	B	B
Approach Delay		2.2	11.9		23.0	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 52.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave





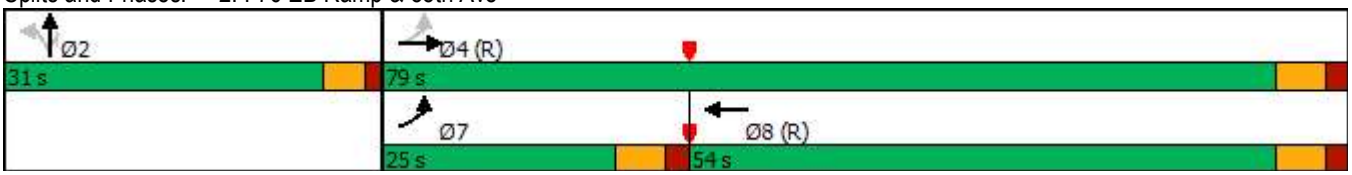
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	665	0	0	631	125	138	0	167	0	0	0
Future Volume (vph)	158	665	0	0	631	125	138	0	167	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (prot)	1671	3343			4323		1466	1306	1311			
Flt Permitted	0.30	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (perm)	528	3343			4323		1466	1306	1311			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	163	686	0	0	651	129	142	0	172	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	72	82	0	0	0
Lane Group Flow (vph)	163	686	0	0	758	0	109	32	19	0	0	0
Heavy Vehicles (%)	8%	8%	8%	17%	17%	17%	17%	17%	17%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	78.0	78.0			63.0		21.0	21.0	21.0			
Effective Green, g (s)	78.0	78.0			63.0		21.0	21.0	21.0			
Actuated g/C Ratio	0.71	0.71			0.57		0.19	0.19	0.19			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	467	2370			2475		279	249	250			
v/s Ratio Prot	0.03	c0.21			0.18							
v/s Ratio Perm	c0.22						c0.07	0.02	0.01			
v/c Ratio	0.35	0.29			0.31		0.39	0.13	0.08			
Uniform Delay, d1	5.6	5.9			12.2		38.9	36.9	36.5			
Progression Factor	0.88	0.16			1.00		1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.3			0.3		4.1	1.1	0.6			
Delay (s)	5.3	1.2			12.5		43.0	38.0	37.1			
Level of Service	A	A			B		D	D	D			
Approach Delay (s)		2.0			12.5			39.4			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	263	678	1219	378	3	173
Future Volume (vph)	263	678	1219	378	3	173
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	79.0	54.0	31.0	31.0	31.0
Total Split (%)	22.7%	71.8%	49.1%	28.2%	28.2%	28.2%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	73.0	73.0	51.7	26.0	26.0	26.0
Actuated g/C Ratio	0.66	0.66	0.47	0.24	0.24	0.24
v/c Ratio	0.79	0.30	0.60	0.55	0.57	0.35
Control Delay	59.6	3.2	23.0	43.5	43.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	3.2	23.0	43.5	43.4	7.7
LOS	E	A	C	D	D	A
Approach Delay		19.0	23.0		33.4	
Approach LOS		B	C		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 68.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



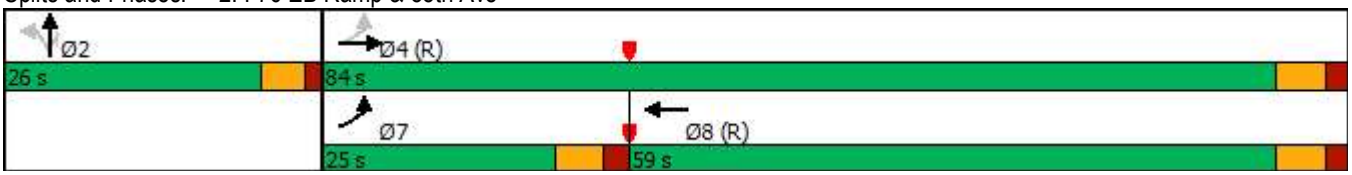
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	678	0	0	1219	167	378	3	173	0	0	0
Future Volume (vph)	263	678	0	0	1219	167	378	3	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.99	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1719	3438			4945		1573	1498	1408			
Flt Permitted	0.11	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	190	3438			4945		1573	1498	1408			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	268	692	0	0	1244	170	386	3	177	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	3	121	0	0	0
Lane Group Flow (vph)	268	692	0	0	1399	0	205	199	38	0	0	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	73.0	73.0			51.7		26.0	26.0	26.0			
Effective Green, g (s)	73.0	73.0			51.7		26.0	26.0	26.0			
Actuated g/C Ratio	0.66	0.66			0.47		0.24	0.24	0.24			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	338	2281			2324		371	354	332			
v/s Ratio Prot	c0.11	0.20			0.28							
v/s Ratio Perm	c0.41						0.13	0.13	0.03			
v/c Ratio	0.79	0.30			0.60		0.55	0.56	0.11			
Uniform Delay, d1	23.1	7.8			21.5		36.9	37.0	33.0			
Progression Factor	2.33	0.37			1.00		1.00	1.00	1.00			
Incremental Delay, d2	9.4	0.3			1.2		5.8	6.3	0.7			
Delay (s)	63.1	3.2			22.7		42.7	43.3	33.6			
Level of Service	E	A			C		D	D	C			
Approach Delay (s)		19.9			22.7			40.4			0.0	
Approach LOS		B			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	162	683	648	142	0	172
Future Volume (vph)	162	683	648	142	0	172
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	84.0	59.0	26.0	26.0	26.0
Total Split (%)	22.7%	76.4%	53.6%	23.6%	23.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	78.0	78.0	62.9	21.0	21.0	21.0
Actuated g/C Ratio	0.71	0.71	0.57	0.19	0.19	0.19
v/c Ratio	0.36	0.30	0.32	0.40	0.33	0.31
Control Delay	7.3	1.2	12.0	44.0	14.3	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	1.2	12.0	44.0	14.3	10.1
LOS	A	A	B	D	B	B
Approach Delay		2.4	12.0		23.3	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 9.6	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



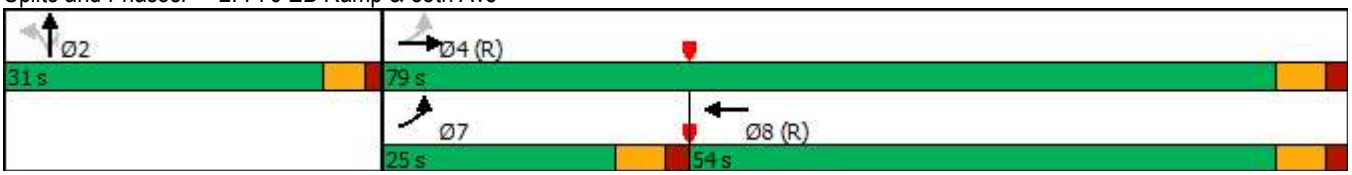
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	683	0	0	648	128	142	0	172	0	0	0
Future Volume (vph)	162	683	0	0	648	128	142	0	172	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (prot)	1671	3343			4324		1466	1306	1311			
Flt Permitted	0.29	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (perm)	515	3343			4324		1466	1306	1311			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	167	704	0	0	668	132	146	0	177	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	72	84	0	0	0
Lane Group Flow (vph)	167	704	0	0	778	0	112	35	20	0	0	0
Heavy Vehicles (%)	8%	8%	8%	17%	17%	17%	17%	17%	17%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	78.0	78.0			62.9		21.0	21.0	21.0			
Effective Green, g (s)	78.0	78.0			62.9		21.0	21.0	21.0			
Actuated g/C Ratio	0.71	0.71			0.57		0.19	0.19	0.19			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	460	2370			2472		279	249	250			
v/s Ratio Prot	0.03	c0.21			0.18							
v/s Ratio Perm	c0.23						c0.08	0.03	0.02			
v/c Ratio	0.36	0.30			0.31		0.40	0.14	0.08			
Uniform Delay, d1	5.7	5.9			12.3		39.0	37.0	36.6			
Progression Factor	1.04	0.16			1.00		1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.3			0.3		4.3	1.2	0.6			
Delay (s)	6.3	1.2			12.6		43.3	38.2	37.2			
Level of Service	A	A			B		D	D	D			
Approach Delay (s)		2.2			12.6			39.6			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	270	697	1252	388	3	178
Future Volume (vph)	270	697	1252	388	3	178
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	79.0	54.0	31.0	31.0	31.0
Total Split (%)	22.7%	71.8%	49.1%	28.2%	28.2%	28.2%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	73.0	73.0	51.1	26.0	26.0	26.0
Actuated g/C Ratio	0.66	0.66	0.46	0.24	0.24	0.24
v/c Ratio	0.82	0.31	0.63	0.57	0.58	0.36
Control Delay	62.4	3.3	23.8	43.9	44.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	3.3	23.8	43.9	44.0	7.7
LOS	E	A	C	D	D	A
Approach Delay		19.8	23.8		33.7	
Approach LOS		B	C		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 24.4	Intersection LOS: C
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



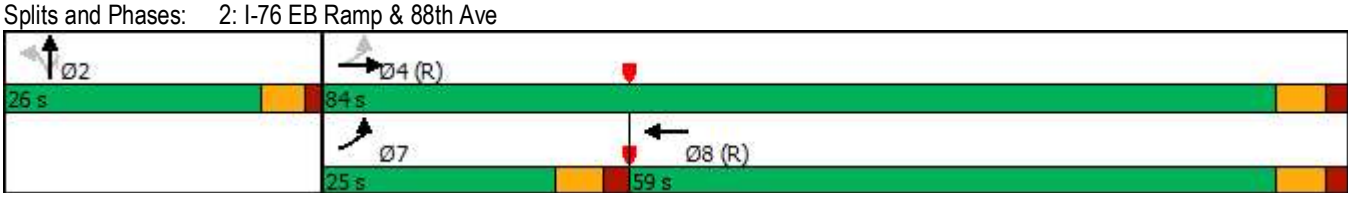
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	697	0	0	1252	172	388	3	178	0	0	0
Future Volume (vph)	270	697	0	0	1252	172	388	3	178	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.99	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1719	3438			4944		1573	1498	1408			
Flt Permitted	0.10	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	175	3438			4944		1573	1498	1408			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	276	711	0	0	1278	176	396	3	182	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	3	125	0	0	0
Lane Group Flow (vph)	276	711	0	0	1438	0	210	204	39	0	0	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	73.0	73.0			51.1		26.0	26.0	26.0			
Effective Green, g (s)	73.0	73.0			51.1		26.0	26.0	26.0			
Actuated g/C Ratio	0.66	0.66			0.46		0.24	0.24	0.24			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	339	2281			2296		371	354	332			
v/s Ratio Prot	c0.12	0.21			0.29							
v/s Ratio Perm	c0.42						0.13	0.14	0.03			
v/c Ratio	0.81	0.31			0.63		0.57	0.58	0.12			
Uniform Delay, d1	25.7	7.8			22.2		37.0	37.1	33.0			
Progression Factor	2.18	0.38			1.00		1.00	1.00	1.00			
Incremental Delay, d2	10.6	0.3			1.3		6.1	6.7	0.7			
Delay (s)	66.6	3.3			23.5		43.2	43.8	33.7			
Level of Service	E	A			C		D	D	C			
Approach Delay (s)		21.0			23.5			40.7			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	162	694	650	142	0	179
Future Volume (vph)	162	694	650	142	0	179
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	84.0	59.0	26.0	26.0	26.0
Total Split (%)	22.7%	76.4%	53.6%	23.6%	23.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	78.0	78.0	62.9	21.0	21.0	21.0
Actuated g/C Ratio	0.71	0.71	0.57	0.19	0.19	0.19
v/c Ratio	0.36	0.30	0.32	0.41	0.35	0.31
Control Delay	7.4	1.3	12.1	44.3	15.1	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	1.3	12.1	44.3	15.1	10.1
LOS	A	A	B	D	B	B
Approach Delay		2.4	12.1		23.6	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



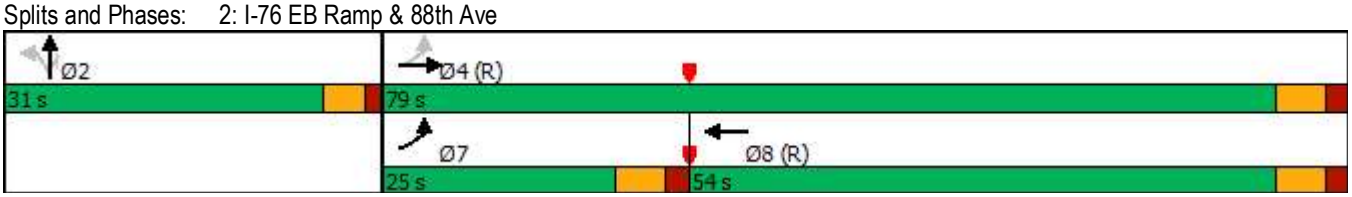
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	694	0	0	650	129	142	0	179	0	0	0
Future Volume (vph)	162	694	0	0	650	129	142	0	179	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.89	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00			
Satd. Flow (prot)	1671	3343			4323		1466	1300	1311			
Flt Permitted	0.29	1.00			1.00		0.95	0.99	1.00			
Satd. Flow (perm)	513	3343			4323		1466	1300	1311			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	167	715	0	0	670	133	146	0	185	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	72	85	0	0	0
Lane Group Flow (vph)	167	715	0	0	781	0	115	39	20	0	0	0
Heavy Vehicles (%)	8%	8%	8%	17%	17%	17%	17%	17%	17%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	78.0	78.0			62.9		21.0	21.0	21.0			
Effective Green, g (s)	78.0	78.0			62.9		21.0	21.0	21.0			
Actuated g/C Ratio	0.71	0.71			0.57		0.19	0.19	0.19			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	459	2370			2471		279	248	250			
v/s Ratio Prot	0.03	c0.21			0.18							
v/s Ratio Perm	c0.23						c0.08	0.03	0.02			
v/c Ratio	0.36	0.30			0.32		0.41	0.16	0.08			
Uniform Delay, d1	5.7	5.9			12.3		39.1	37.1	36.6			
Progression Factor	1.05	0.17			1.00		1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.3			0.3		4.4	1.3	0.6			
Delay (s)	6.4	1.3			12.6		43.5	38.5	37.2			
Level of Service	A	A			B		D	D	D			
Approach Delay (s)		2.2			12.6			39.8			0.0	
Approach LOS		A			B			D			A	

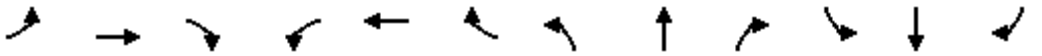
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	270	698	1261	388	3	179
Future Volume (vph)	270	698	1261	388	3	179
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	79.0	54.0	31.0	31.0	31.0
Total Split (%)	22.7%	71.8%	49.1%	28.2%	28.2%	28.2%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	73.0	73.0	51.1	26.0	26.0	26.0
Actuated g/C Ratio	0.66	0.66	0.46	0.24	0.24	0.24
v/c Ratio	0.82	0.31	0.63	0.57	0.58	0.36
Control Delay	62.7	3.3	23.9	43.9	44.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	3.3	23.9	43.9	44.0	7.7
LOS	E	A	C	D	D	A
Approach Delay		19.9	23.9		33.7	
Approach LOS		B	C		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 24.5	Intersection LOS: C
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave





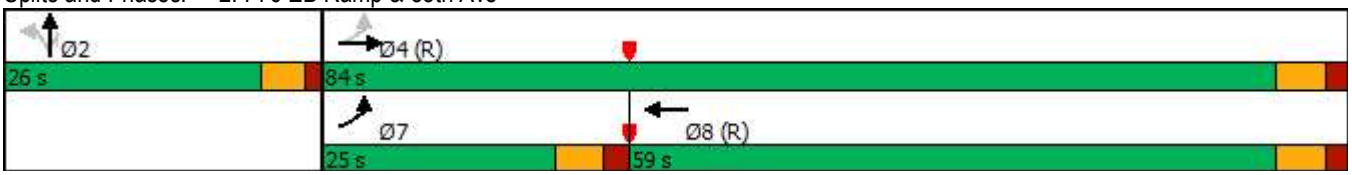
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	698	0	0	1261	174	388	3	179	0	0	0
Future Volume (vph)	270	698	0	0	1261	174	388	3	179	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.99	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1719	3438			4944		1573	1498	1408			
Flt Permitted	0.09	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	171	3438			4944		1573	1498	1408			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	276	712	0	0	1287	178	396	3	183	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	3	126	0	0	0
Lane Group Flow (vph)	276	712	0	0	1449	0	210	204	39	0	0	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	73.0	73.0			51.1		26.0	26.0	26.0			
Effective Green, g (s)	73.0	73.0			51.1		26.0	26.0	26.0			
Actuated g/C Ratio	0.66	0.66			0.46		0.24	0.24	0.24			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	337	2281			2296		371	354	332			
v/s Ratio Prot	c0.12	0.21			0.29							
v/s Ratio Perm	c0.42						0.13	0.14	0.03			
v/c Ratio	0.82	0.31			0.63		0.57	0.58	0.12			
Uniform Delay, d1	26.2	7.8			22.3		37.0	37.1	33.0			
Progression Factor	2.16	0.38			1.00		1.00	1.00	1.00			
Incremental Delay, d2	10.9	0.3			1.3		6.1	6.7	0.7			
Delay (s)	67.5	3.3			23.6		43.2	43.8	33.7			
Level of Service	E	A			C		D	D	C			
Approach Delay (s)		21.2			23.6			40.7			0.0	
Approach LOS		C			C			D			A	

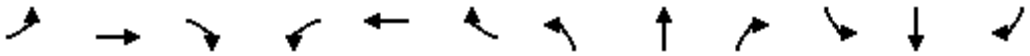
Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	213	895	849	186	0	225
Future Volume (vph)	213	895	849	186	0	225
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	84.0	59.0	26.0	26.0	26.0
Total Split (%)	22.7%	76.4%	53.6%	23.6%	23.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	78.0	78.0	61.6	21.0	21.0	21.0
Actuated g/C Ratio	0.71	0.71	0.56	0.19	0.19	0.19
v/c Ratio	0.57	0.39	0.43	0.53	0.44	0.38
Control Delay	25.0	1.7	14.1	47.9	20.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	1.7	14.1	47.9	20.8	9.8
LOS	C	A	B	D	C	A
Approach Delay		6.2	14.1		26.8	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 65.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave





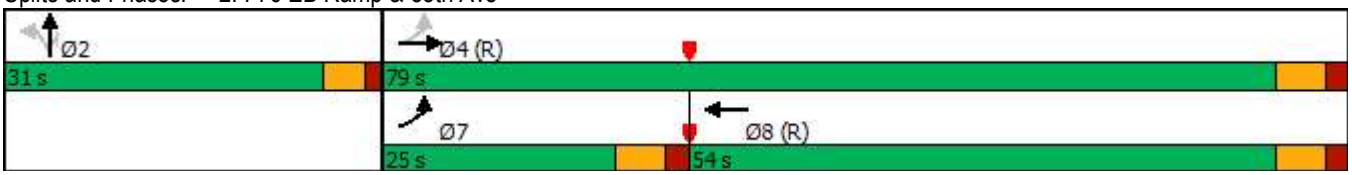
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	895	0	0	849	168	186	0	225	0	0	0
Future Volume (vph)	213	895	0	0	849	168	186	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (prot)	1671	3343			4324		1466	1305	1311			
Flt Permitted	0.21	1.00			1.00		0.95	0.98	1.00			
Satd. Flow (perm)	370	3343			4324		1466	1305	1311			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	220	923	0	0	875	173	192	0	232	0	0	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	72	109	0	0	0
Lane Group Flow (vph)	220	923	0	0	1025	0	148	69	26	0	0	0
Heavy Vehicles (%)	8%	8%	8%	17%	17%	17%	17%	17%	17%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	78.0	78.0			61.6		21.0	21.0	21.0			
Effective Green, g (s)	78.0	78.0			61.6		21.0	21.0	21.0			
Actuated g/C Ratio	0.71	0.71			0.56		0.19	0.19	0.19			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	385	2370			2421		279	249	250			
v/s Ratio Prot	c0.05	0.28			0.24							
v/s Ratio Perm	c0.35						c0.10	0.05	0.02			
v/c Ratio	0.57	0.39			0.42		0.53	0.28	0.10			
Uniform Delay, d1	6.9	6.4			14.0		40.1	38.0	36.7			
Progression Factor	3.91	0.22			1.00		1.00	1.00	1.00			
Incremental Delay, d2	1.2	0.3			0.5		7.1	2.7	0.8			
Delay (s)	28.1	1.7			14.5		47.1	40.8	37.6			
Level of Service	C	A			B		D	D	D			
Approach Delay (s)		6.8			14.5			42.0			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	354	913	1641	509	4	233
Future Volume (vph)	354	913	1641	509	4	233
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	79.0	54.0	31.0	31.0	31.0
Total Split (%)	22.7%	71.8%	49.1%	28.2%	28.2%	28.2%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	73.0	73.0	48.0	26.0	26.0	26.0
Actuated g/C Ratio	0.66	0.66	0.44	0.24	0.24	0.24
v/c Ratio	1.00	0.41	0.88	0.74	0.76	0.46
Control Delay	81.4	3.5	33.5	52.4	53.8	12.3
Queue Delay	0.0	0.0	8.0	0.9	1.0	0.0
Total Delay	81.4	3.5	41.5	53.3	54.8	12.3
LOS	F	A	D	D	D	B
Approach Delay		25.2	41.5		42.3	
Approach LOS		C	D		D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 36.4	Intersection LOS: D
Intersection Capacity Utilization 87.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



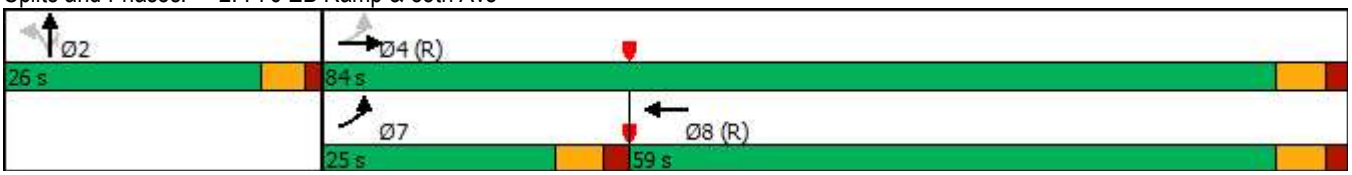
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	354	913	0	0	1641	225	509	4	233	0	0	0
Future Volume (vph)	354	913	0	0	1641	225	509	4	233	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.99	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1719	3438			4945		1573	1498	1408			
Flt Permitted	0.07	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	134	3438			4945		1573	1498	1408			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	361	932	0	0	1674	230	519	4	238	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	3	132	0	0	0
Lane Group Flow (vph)	361	932	0	0	1888	0	275	269	82	0	0	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	73.0	73.0			48.0		26.0	26.0	26.0			
Effective Green, g (s)	73.0	73.0			48.0		26.0	26.0	26.0			
Actuated g/C Ratio	0.66	0.66			0.44		0.24	0.24	0.24			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	362	2281			2157		371	354	332			
v/s Ratio Prot	c0.17	0.27			0.38							
v/s Ratio Perm	c0.49						0.17	0.18	0.06			
v/c Ratio	1.00	0.41			0.88		0.74	0.76	0.25			
Uniform Delay, d1	35.6	8.5			28.3		38.9	39.1	34.1			
Progression Factor	1.72	0.38			1.00		1.00	1.00	1.00			
Incremental Delay, d2	28.9	0.2			5.3		12.5	14.2	1.8			
Delay (s)	90.2	3.5			33.6		51.4	53.3	35.8			
Level of Service	F	A			C		D	D	D			
Approach Delay (s)		27.7			33.6			47.7			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	213	906	851	186	0	232
Future Volume (vph)	213	906	851	186	0	232
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	84.0	59.0	26.0	26.0	26.0
Total Split (%)	22.7%	76.4%	53.6%	23.6%	23.6%	23.6%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	78.0	78.0	61.6	21.0	21.0	21.0
Actuated g/C Ratio	0.71	0.71	0.56	0.19	0.19	0.19
v/c Ratio	0.57	0.39	0.43	0.54	0.44	0.38
Control Delay	24.9	1.8	14.1	48.2	19.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	1.8	14.1	48.2	19.2	9.7
LOS	C	A	B	D	B	A
Approach Delay		6.2	14.1		26.2	
Approach LOS		A	B		C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 65.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



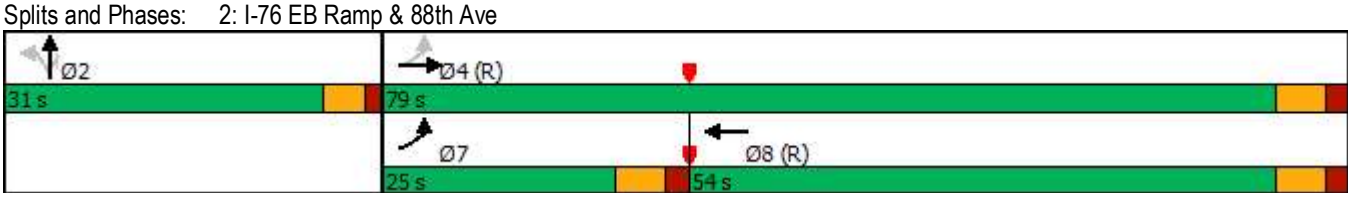
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	906	0	0	851	169	186	0	232	0	0	0
Future Volume (vph)	213	906	0	0	851	169	186	0	232	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.89	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00			
Satd. Flow (prot)	1671	3343			4323		1466	1302	1311			
Flt Permitted	0.21	1.00			1.00		0.95	0.99	1.00			
Satd. Flow (perm)	369	3343			4323		1466	1302	1311			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	220	934	0	0	877	174	192	0	239	0	0	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	78	112	0	0	0
Lane Group Flow (vph)	220	934	0	0	1028	0	150	64	27	0	0	0
Heavy Vehicles (%)	8%	8%	8%	17%	17%	17%	17%	17%	17%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	78.0	78.0			61.6		21.0	21.0	21.0			
Effective Green, g (s)	78.0	78.0			61.6		21.0	21.0	21.0			
Actuated g/C Ratio	0.71	0.71			0.56		0.19	0.19	0.19			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	384	2370			2420		279	248	250			
v/s Ratio Prot	c0.05	0.28			0.24							
v/s Ratio Perm	c0.35						c0.10	0.05	0.02			
v/c Ratio	0.57	0.39			0.42		0.54	0.26	0.11			
Uniform Delay, d1	6.9	6.5			14.0		40.1	37.9	36.7			
Progression Factor	3.91	0.24			1.00		1.00	1.00	1.00			
Incremental Delay, d2	1.2	0.3			0.5		7.2	2.5	0.9			
Delay (s)	28.1	1.8			14.5		47.4	40.4	37.6			
Level of Service	C	A			B		D	D	D			
Approach Delay (s)		6.8			14.5			41.9			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	354	914	1650	509	4	234
Future Volume (vph)	354	914	1650	509	4	234
Turn Type	pm+pt	NA	NA	Perm	NA	Perm
Protected Phases	7	4	8		2	
Permitted Phases	4			2		2
Detector Phase	7	4	8	2	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	11.0	11.0	10.0	10.0	10.0
Total Split (s)	25.0	79.0	54.0	31.0	31.0	31.0
Total Split (%)	22.7%	71.8%	49.1%	28.2%	28.2%	28.2%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	73.0	73.0	48.0	26.0	26.0	26.0
Actuated g/C Ratio	0.66	0.66	0.44	0.24	0.24	0.24
v/c Ratio	1.00	0.41	0.88	0.74	0.76	0.46
Control Delay	81.1	3.5	33.9	52.4	53.8	12.5
Queue Delay	0.0	0.0	9.7	0.9	1.1	0.0
Total Delay	81.1	3.5	43.6	53.3	54.9	12.5
LOS	F	A	D	D	D	B
Approach Delay		25.1	43.6		42.4	
Approach LOS		C	D		D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 37.4	Intersection LOS: D
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: I-76 EB Ramp & 88th Ave



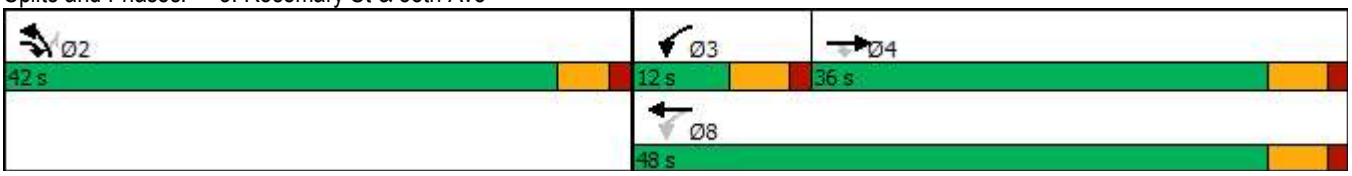
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	354	914	0	0	1650	227	509	4	234	0	0	0
Future Volume (vph)	354	914	0	0	1650	227	509	4	234	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Lane Util. Factor	1.00	0.95			0.91		0.95	0.91	0.95			
Frt	1.00	1.00			0.98		1.00	0.99	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (prot)	1719	3438			4944		1573	1498	1408			
Flt Permitted	0.07	1.00			1.00		0.95	0.96	1.00			
Satd. Flow (perm)	134	3438			4944		1573	1498	1408			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	361	933	0	0	1684	232	519	4	239	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	3	131	0	0	0
Lane Group Flow (vph)	361	933	0	0	1900	0	275	269	84	0	0	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	73.0	73.0			48.0		26.0	26.0	26.0			
Effective Green, g (s)	73.0	73.0			48.0		26.0	26.0	26.0			
Actuated g/C Ratio	0.66	0.66			0.44		0.24	0.24	0.24			
Clearance Time (s)	6.0	6.0			6.0		5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Lane Grp Cap (vph)	362	2281			2157		371	354	332			
v/s Ratio Prot	c0.17	0.27			0.38							
v/s Ratio Perm	c0.49						0.17	0.18	0.06			
v/c Ratio	1.00	0.41			0.88		0.74	0.76	0.25			
Uniform Delay, d1	35.7	8.5			28.4		38.9	39.1	34.1			
Progression Factor	1.72	0.38			1.00		1.00	1.00	1.00			
Incremental Delay, d2	28.7	0.2			5.6		12.5	14.2	1.8			
Delay (s)	90.0	3.4			34.0		51.4	53.3	35.9			
Level of Service	F	A			C		D	D	D			
Approach Delay (s)		27.6			34.0			47.7			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	260	648	24	245	297	16
Future Volume (vph)	260	648	24	245	297	16
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	36.0	42.0	12.0	48.0	42.0	42.0
Total Split (%)	40.0%	46.7%	13.3%	53.3%	46.7%	46.7%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	15.7	62.5	19.8	19.8	37.8	37.8
Actuated g/C Ratio	0.23	0.92	0.29	0.29	0.55	0.55
v/c Ratio	0.65	0.46	0.11	0.57	0.35	0.02
Control Delay	32.5	1.3	16.2	24.6	12.5	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	1.3	16.2	24.6	12.5	6.9
LOS	C	A	B	C	B	A
Approach Delay	10.2			23.8	12.3	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 68.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	260	648	24	245	297	16
Future Volume (veh/h)	260	648	24	245	297	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1559	1559	1693	1693
Adj Flow Rate, veh/h	268	668	25	253	306	16
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	6	6	23	23	14	14
Cap, veh/h	480	1165	205	570	796	709
Arrive On Green	0.27	0.27	0.03	0.37	0.49	0.49
Sat Flow, veh/h	1811	1535	1485	1559	1612	1434
Grp Volume(v), veh/h	268	668	25	253	306	16
Grp Sat Flow(s),veh/h/ln	1811	1535	1485	1559	1612	1434
Q Serve(g_s), s	9.6	13.9	0.9	9.2	8.9	0.4
Cycle Q Clear(g_c), s	9.6	13.9	0.9	9.2	8.9	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	480	1165	205	570	796	709
V/C Ratio(X)	0.56	0.57	0.12	0.44	0.38	0.02
Avail Cap(c_a), veh/h	738	1383	294	885	796	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	3.8	18.6	18.0	11.8	9.7
Incr Delay (d2), s/veh	1.0	0.4	0.3	0.5	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	12.1	0.3	3.2	3.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.7	4.3	18.9	18.5	13.2	9.7
LnGrp LOS	C	A	B	B	B	A
Approach Vol, veh/h	936			278	322	
Approach Delay, s/veh	10.1			18.6	13.1	
Approach LOS	B			B	B	

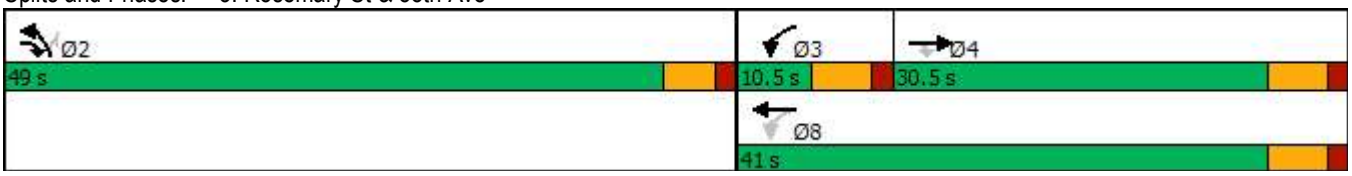
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		42.0	7.5	25.4		32.9
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		37.0	6.5	30.5		42.5
Max Q Clear Time (g_c+I1), s		10.9	2.9	15.9		11.2
Green Ext Time (p_c), s		1.0	0.0	4.0		1.6

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	288	514	27	470	607	13
Future Volume (vph)	288	514	27	470	607	13
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	30.5	49.0	10.5	41.0	49.0	49.0
Total Split (%)	33.9%	54.4%	11.7%	45.6%	54.4%	54.4%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	23.1	76.1	26.9	26.9	44.3	44.3
Actuated g/C Ratio	0.28	0.93	0.33	0.33	0.54	0.54
v/c Ratio	0.60	0.37	0.11	0.83	0.67	0.02
Control Delay	32.0	0.9	18.4	38.1	19.4	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	0.9	18.4	38.1	19.4	8.5
LOS	C	A	B	D	B	A
Approach Delay	12.1			37.0	19.2	
Approach LOS	B			D	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 81.8	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 67.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	288	514	27	470	607	13
Future Volume (veh/h)	288	514	27	470	607	13
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1811	1811	1856	1856
Adj Flow Rate, veh/h	300	535	28	490	632	14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	6	6	3	3
Cap, veh/h	394	1173	180	575	974	867
Arrive On Green	0.22	0.22	0.03	0.32	0.55	0.55
Sat Flow, veh/h	1796	1522	1725	1811	1767	1572
Grp Volume(v), veh/h	300	535	28	490	632	14
Grp Sat Flow(s),veh/h/ln	1796	1522	1725	1811	1767	1572
Q Serve(g_s), s	12.5	9.9	1.0	20.2	19.9	0.3
Cycle Q Clear(g_c), s	12.5	9.9	1.0	20.2	19.9	0.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	394	1173	180	575	974	867
V/C Ratio(X)	0.76	0.46	0.16	0.85	0.65	0.02
Avail Cap(c_a), veh/h	563	1316	238	805	974	867
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	3.2	22.8	25.5	12.5	8.1
Incr Delay (d2), s/veh	3.8	0.3	0.4	6.4	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	10.4	0.4	9.3	7.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.0	3.5	23.2	31.9	15.9	8.1
LnGrp LOS	C	A	C	C	B	A
Approach Vol, veh/h	835			518	646	
Approach Delay, s/veh	14.1			31.4	15.7	
Approach LOS	B			C	B	

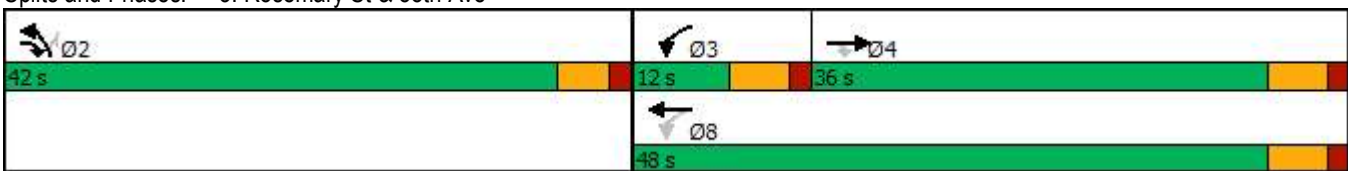
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		49.0	7.8	23.0		30.8
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		44.0	5.0	25.0		35.5
Max Q Clear Time (g_c+I1), s		21.9	3.0	14.5		22.2
Green Ext Time (p_c), s		2.3	0.0	3.0		2.6

Intersection Summary	
HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	267	666	25	252	305	16
Future Volume (vph)	267	666	25	252	305	16
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	36.0	42.0	12.0	48.0	42.0	42.0
Total Split (%)	40.0%	46.7%	13.3%	53.3%	46.7%	46.7%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	16.1	62.9	20.1	20.1	37.8	37.8
Actuated g/C Ratio	0.23	0.92	0.29	0.29	0.55	0.55
v/c Ratio	0.66	0.47	0.11	0.58	0.36	0.02
Control Delay	32.6	1.3	16.2	24.8	12.8	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	1.3	16.2	24.8	12.8	7.0
LOS	C	A	B	C	B	A
Approach Delay	10.2			24.0	12.6	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 68.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 54.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	666	25	252	305	16
Future Volume (veh/h)	267	666	25	252	305	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1559	1559	1693	1693
Adj Flow Rate, veh/h	275	687	26	260	314	16
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	6	6	23	23	14	14
Cap, veh/h	494	1168	206	582	787	700
Arrive On Green	0.27	0.27	0.03	0.37	0.49	0.49
Sat Flow, veh/h	1811	1535	1485	1559	1612	1434
Grp Volume(v), veh/h	275	687	26	260	314	16
Grp Sat Flow(s),veh/h/ln	1811	1535	1485	1559	1612	1434
Q Serve(g_s), s	9.9	14.7	0.9	9.5	9.4	0.4
Cycle Q Clear(g_c), s	9.9	14.7	0.9	9.5	9.4	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	494	1168	206	582	787	700
V/C Ratio(X)	0.56	0.59	0.13	0.45	0.40	0.02
Avail Cap(c_a), veh/h	729	1367	292	874	787	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	3.9	18.4	17.9	12.3	10.0
Incr Delay (d2), s/veh	1.0	0.5	0.3	0.5	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	12.6	0.3	3.3	3.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.6	4.4	18.7	18.4	13.8	10.1
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h	962			286	330	
Approach Delay, s/veh	10.2			18.4	13.7	
Approach LOS	B			B	B	

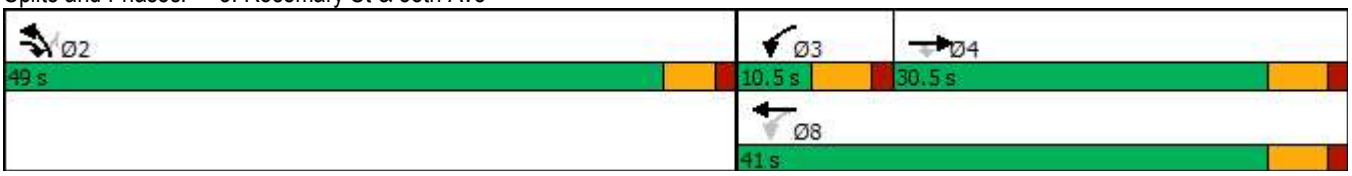
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		42.0	7.6	26.2		33.8
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		37.0	6.5	30.5		42.5
Max Q Clear Time (g_c+I1), s		11.4	2.9	16.7		11.5
Green Ext Time (p_c), s		1.0	0.0	4.0		1.6

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	296	528	28	483	624	13
Future Volume (vph)	296	528	28	483	624	13
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	30.5	49.0	10.5	41.0	49.0	49.0
Total Split (%)	33.9%	54.4%	11.7%	45.6%	54.4%	54.4%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	23.6	76.6	27.5	27.5	44.3	44.3
Actuated g/C Ratio	0.29	0.93	0.33	0.33	0.54	0.54
v/c Ratio	0.61	0.38	0.11	0.84	0.69	0.02
Control Delay	32.0	0.9	18.4	38.8	20.4	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	0.9	18.4	38.8	20.4	8.5
LOS	C	A	B	D	C	A
Approach Delay	12.1			37.7	20.1	
Approach LOS	B			D	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 82.3	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 21.3	Intersection LOS: C
Intersection Capacity Utilization 68.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	296	528	28	483	624	13
Future Volume (veh/h)	296	528	28	483	624	13
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1811	1811	1856	1856
Adj Flow Rate, veh/h	308	550	29	503	650	14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	6	6	3	3
Cap, veh/h	402	1174	180	583	968	861
Arrive On Green	0.22	0.22	0.03	0.32	0.55	0.55
Sat Flow, veh/h	1796	1522	1725	1811	1767	1572
Grp Volume(v), veh/h	308	550	29	503	650	14
Grp Sat Flow(s),veh/h/ln	1796	1522	1725	1811	1767	1572
Q Serve(g_s), s	12.9	10.4	1.0	21.0	21.1	0.3
Cycle Q Clear(g_c), s	12.9	10.4	1.0	21.0	21.1	0.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	402	1174	180	583	968	861
V/C Ratio(X)	0.77	0.47	0.16	0.86	0.67	0.02
Avail Cap(c_a), veh/h	559	1307	236	800	968	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	3.3	22.7	25.6	13.0	8.3
Incr Delay (d2), s/veh	4.2	0.3	0.4	7.3	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	10.8	0.4	9.7	8.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.4	3.6	23.2	32.9	16.7	8.3
LnGrp LOS	C	A	C	C	B	A
Approach Vol, veh/h	858			532	664	
Approach Delay, s/veh	14.3			32.4	16.5	
Approach LOS	B			C	B	

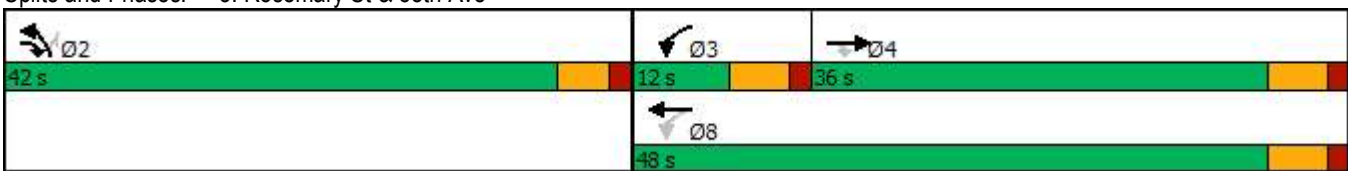
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		49.0	7.9	23.5		31.3
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		44.0	5.0	25.0		35.5
Max Q Clear Time (g_c+I1), s		23.1	3.0	14.9		23.0
Green Ext Time (p_c), s		2.3	0.0	3.0		2.6

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	267	684	32	252	308	17
Future Volume (vph)	267	684	32	252	308	17
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	36.0	42.0	12.0	48.0	42.0	42.0
Total Split (%)	40.0%	46.7%	13.3%	53.3%	46.7%	46.7%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	16.3	63.1	20.4	20.4	37.8	37.8
Actuated g/C Ratio	0.24	0.92	0.30	0.30	0.55	0.55
v/c Ratio	0.65	0.48	0.14	0.57	0.37	0.02
Control Delay	32.2	1.4	16.7	24.5	13.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	1.4	16.7	24.5	13.0	7.0
LOS	C	A	B	C	B	A
Approach Delay	10.0			23.6	12.7	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 68.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 55.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	267	684	32	252	308	17
Future Volume (veh/h)	267	684	32	252	308	17
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1559	1559	1693	1693
Adj Flow Rate, veh/h	275	705	33	260	318	18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	6	6	23	23	14	14
Cap, veh/h	509	1166	215	600	772	687
Arrive On Green	0.28	0.28	0.03	0.38	0.48	0.48
Sat Flow, veh/h	1811	1535	1485	1559	1612	1434
Grp Volume(v), veh/h	275	705	33	260	318	18
Grp Sat Flow(s),veh/h/ln	1811	1535	1485	1559	1612	1434
Q Serve(g_s), s	9.9	15.7	1.2	9.5	9.9	0.5
Cycle Q Clear(g_c), s	9.9	15.7	1.2	9.5	9.9	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	509	1166	215	600	772	687
V/C Ratio(X)	0.54	0.60	0.15	0.43	0.41	0.03
Avail Cap(c_a), veh/h	715	1341	291	858	772	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	4.1	18.2	17.5	13.1	10.6
Incr Delay (d2), s/veh	0.9	0.6	0.3	0.5	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	13.3	0.4	3.3	3.6	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.4	4.7	18.5	18.0	14.7	10.7
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h	980			293	336	
Approach Delay, s/veh	10.3			18.1	14.5	
Approach LOS	B			B	B	

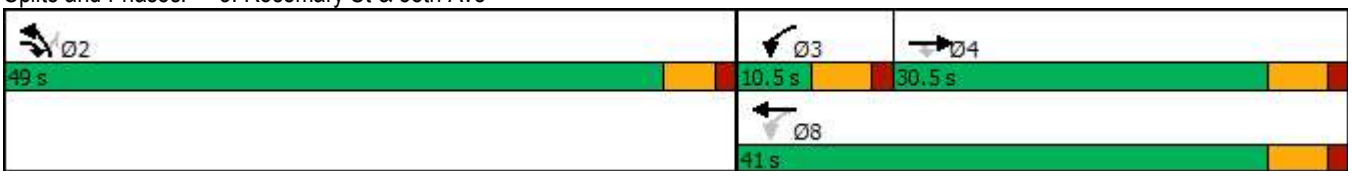
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		42.0	8.0	27.2		35.2
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		37.0	6.5	30.5		42.5
Max Q Clear Time (g_c+I1), s		11.9	3.2	17.7		11.5
Green Ext Time (p_c), s		1.0	0.0	3.9		1.6

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	296	530	28	483	635	18
Future Volume (vph)	296	530	28	483	635	18
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	30.5	49.0	10.5	41.0	49.0	49.0
Total Split (%)	33.9%	54.4%	11.7%	45.6%	54.4%	54.4%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	23.6	76.6	27.5	27.5	44.3	44.3
Actuated g/C Ratio	0.29	0.93	0.33	0.33	0.54	0.54
v/c Ratio	0.61	0.38	0.11	0.84	0.70	0.02
Control Delay	32.0	0.9	18.4	38.8	20.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	0.9	18.4	38.8	20.8	8.4
LOS	C	A	B	D	C	A
Approach Delay	12.1			37.7	20.5	
Approach LOS	B			D	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 82.3	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	296	530	28	483	635	18
Future Volume (veh/h)	296	530	28	483	635	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1811	1811	1856	1856
Adj Flow Rate, veh/h	308	552	29	503	661	19
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	6	6	3	3
Cap, veh/h	402	1174	180	583	968	861
Arrive On Green	0.22	0.22	0.03	0.32	0.55	0.55
Sat Flow, veh/h	1796	1522	1725	1811	1767	1572
Grp Volume(v), veh/h	308	552	29	503	661	19
Grp Sat Flow(s),veh/h/ln	1796	1522	1725	1811	1767	1572
Q Serve(g_s), s	12.9	10.5	1.0	21.0	21.7	0.4
Cycle Q Clear(g_c), s	12.9	10.5	1.0	21.0	21.7	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	402	1174	180	583	968	861
V/C Ratio(X)	0.77	0.47	0.16	0.86	0.68	0.02
Avail Cap(c_a), veh/h	559	1307	236	800	968	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	3.3	22.7	25.6	13.1	8.3
Incr Delay (d2), s/veh	4.2	0.3	0.4	7.3	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	10.8	0.4	9.7	8.7	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.4	3.6	23.2	32.9	17.0	8.4
LnGrp LOS	C	A	C	C	B	A
Approach Vol, veh/h	860			532	680	
Approach Delay, s/veh	14.3			32.3	16.8	
Approach LOS	B			C	B	

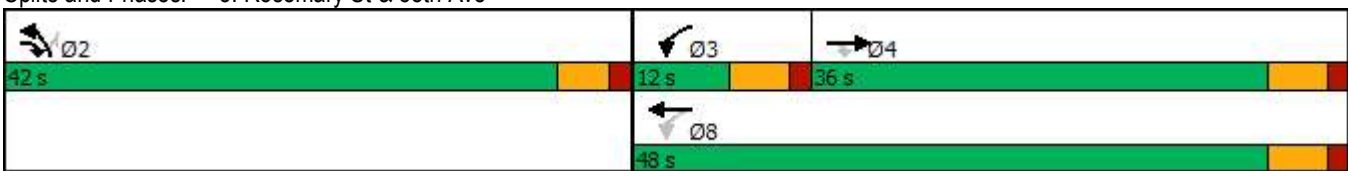
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		49.0	7.9	23.5		31.3
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		44.0	5.0	25.0		35.5
Max Q Clear Time (g_c+I1), s		23.7	3.0	14.9		23.0
Green Ext Time (p_c), s		2.4	0.0	3.1		2.6

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	350	872	32	330	400	22
Future Volume (vph)	350	872	32	330	400	22
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	36.0	42.0	12.0	48.0	42.0	42.0
Total Split (%)	40.0%	46.7%	13.3%	53.3%	46.7%	46.7%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	20.6	67.7	24.7	24.7	37.9	37.9
Actuated g/C Ratio	0.28	0.92	0.34	0.34	0.52	0.52
v/c Ratio	0.72	0.61	0.15	0.66	0.50	0.03
Control Delay	32.9	2.1	15.8	25.9	17.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	2.1	15.8	25.9	17.5	9.0
LOS	C	A	B	C	B	A
Approach Delay	10.9			25.0	17.1	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 73.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	872	32	330	400	22
Future Volume (veh/h)	350	872	32	330	400	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1559	1559	1693	1693
Adj Flow Rate, veh/h	361	899	33	340	412	23
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	6	6	23	23	14	14
Cap, veh/h	631	1199	200	693	698	621
Arrive On Green	0.35	0.35	0.03	0.44	0.43	0.43
Sat Flow, veh/h	1811	1535	1485	1559	1612	1434
Grp Volume(v), veh/h	361	899	33	340	412	23
Grp Sat Flow(s),veh/h/ln	1811	1535	1485	1559	1612	1434
Q Serve(g_s), s	13.9	26.5	1.2	13.2	16.6	0.8
Cycle Q Clear(g_c), s	13.9	26.5	1.2	13.2	16.6	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	631	1199	200	693	698	621
V/C Ratio(X)	0.57	0.75	0.17	0.49	0.59	0.04
Avail Cap(c_a), veh/h	646	1212	265	775	698	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	4.9	17.2	16.9	18.5	14.0
Incr Delay (d2), s/veh	1.2	2.6	0.4	0.5	3.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	19.6	0.4	4.6	6.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.8	7.6	17.6	17.4	22.1	14.1
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h	1260			373	435	
Approach Delay, s/veh	12.2			17.4	21.7	
Approach LOS	B			B	C	

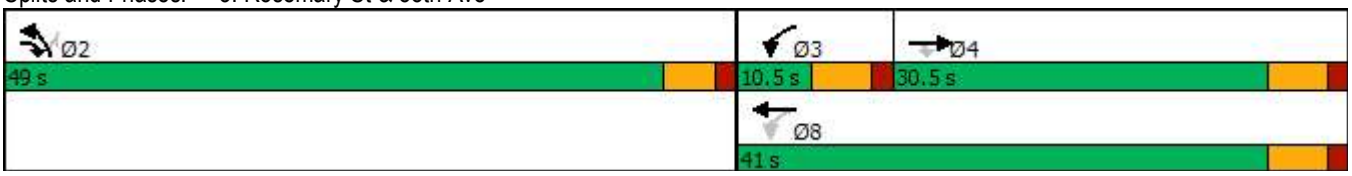
Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	42.0	8.2	35.3	43.5
Change Period (Y+Rc), s	5.0	5.5	5.5	5.5
Max Green Setting (Gmax), s	37.0	6.5	30.5	42.5
Max Q Clear Time (g_c+I1), s	18.6	3.2	28.5	15.2
Green Ext Time (p_c), s	1.3	0.0	1.3	2.2

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	388	692	36	633	817	17
Future Volume (vph)	388	692	36	633	817	17
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	30.5	49.0	10.5	41.0	49.0	49.0
Total Split (%)	33.9%	54.4%	11.7%	45.6%	54.4%	54.4%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	28.1	79.6	34.3	34.3	44.0	44.0
Actuated g/C Ratio	0.32	0.90	0.39	0.39	0.50	0.50
v/c Ratio	0.72	0.51	0.16	0.95	0.98	0.02
Control Delay	37.3	1.4	18.6	52.5	50.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	1.4	18.6	52.5	50.4	9.2
LOS	D	A	B	D	D	A
Approach Delay	14.3			50.6	49.5	
Approach LOS	B			D	D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 88.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	388	692	36	633	817	17
Future Volume (veh/h)	388	692	36	633	817	17
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1811	1811	1856	1856
Adj Flow Rate, veh/h	404	721	38	659	851	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	6	6	3	3
Cap, veh/h	520	1195	181	698	877	780
Arrive On Green	0.29	0.29	0.03	0.39	0.50	0.50
Sat Flow, veh/h	1796	1522	1725	1811	1767	1572
Grp Volume(v), veh/h	404	721	38	659	851	18
Grp Sat Flow(s),veh/h/ln	1796	1522	1725	1811	1767	1572
Q Serve(g_s), s	18.3	17.1	1.3	31.2	41.5	0.5
Cycle Q Clear(g_c), s	18.3	17.1	1.3	31.2	41.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	520	1195	181	698	877	780
V/C Ratio(X)	0.78	0.60	0.21	0.94	0.97	0.02
Avail Cap(c_a), veh/h	520	1195	219	725	877	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	3.9	21.9	26.3	21.7	11.4
Incr Delay (d2), s/veh	7.3	0.9	0.6	20.5	24.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	16.0	0.5	16.7	21.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.3	4.7	22.5	46.8	45.8	11.4
LnGrp LOS	D	A	C	D	D	B
Approach Vol, veh/h	1125			697	869	
Approach Delay, s/veh	16.1			45.5	45.1	
Approach LOS	B			D	D	

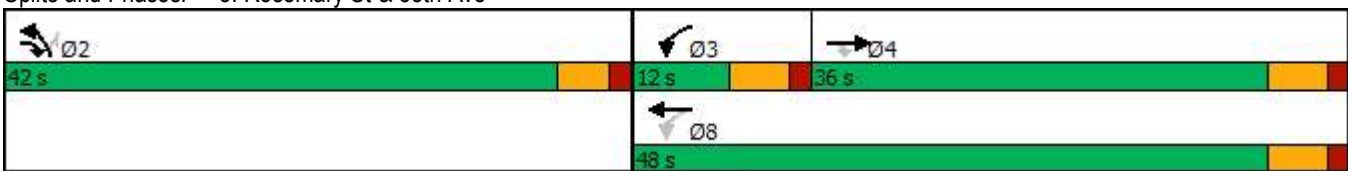
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		49.0	8.5	31.2		39.7
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		44.0	5.0	25.0		35.5
Max Q Clear Time (g_c+I1), s		43.5	3.3	20.3		33.2
Green Ext Time (p_c), s		0.2	0.0	2.4		1.0

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	350	890	39	330	403	23
Future Volume (vph)	350	890	39	330	403	23
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	36.0	42.0	12.0	48.0	42.0	42.0
Total Split (%)	40.0%	46.7%	13.3%	53.3%	46.7%	46.7%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	20.6	66.7	27.1	27.1	38.0	38.0
Actuated g/C Ratio	0.27	0.88	0.36	0.36	0.50	0.50
v/c Ratio	0.74	0.64	0.18	0.62	0.52	0.03
Control Delay	35.6	2.6	15.8	24.0	19.1	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	2.6	15.8	24.0	19.1	9.1
LOS	D	A	B	C	B	A
Approach Delay	11.9			23.2	18.5	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 75.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	890	39	330	403	23
Future Volume (veh/h)	350	890	39	330	403	23
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1559	1559	1693	1693
Adj Flow Rate, veh/h	361	918	40	340	415	24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	6	6	23	23	14	14
Cap, veh/h	638	1196	205	704	689	613
Arrive On Green	0.35	0.35	0.04	0.45	0.43	0.43
Sat Flow, veh/h	1811	1535	1485	1559	1612	1434
Grp Volume(v), veh/h	361	918	40	340	415	24
Grp Sat Flow(s),veh/h/ln	1811	1535	1485	1559	1612	1434
Q Serve(g_s), s	14.0	28.4	1.4	13.2	17.2	0.8
Cycle Q Clear(g_c), s	14.0	28.4	1.4	13.2	17.2	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	638	1196	205	704	689	613
V/C Ratio(X)	0.57	0.77	0.20	0.48	0.60	0.04
Avail Cap(c_a), veh/h	638	1197	263	766	689	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	5.2	17.1	16.7	19.1	14.4
Incr Delay (d2), s/veh	1.2	3.1	0.5	0.5	3.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	20.4	0.5	4.6	6.8	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.9	8.3	17.6	17.2	23.0	14.5
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h	1279			380	439	
Approach Delay, s/veh	12.7			17.2	22.5	
Approach LOS	B			B	C	

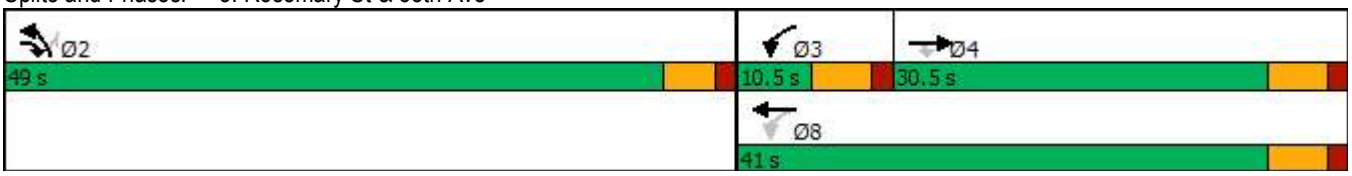
Timer - Assigned Phs		2	3	4			8
Phs Duration (G+Y+Rc), s		42.0	8.6	36.0			44.6
Change Period (Y+Rc), s		5.0	5.5	5.5			5.5
Max Green Setting (Gmax), s		37.0	6.5	30.5			42.5
Max Q Clear Time (g_c+I1), s		19.2	3.4	30.4			15.2
Green Ext Time (p_c), s		1.3	0.0	0.1			2.2

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	388	694	36	633	828	22
Future Volume (vph)	388	694	36	633	828	22
Turn Type	NA	pm+ov	pm+pt	NA	Prot	Perm
Protected Phases	4	2	3	8	2	
Permitted Phases		4	8			2
Detector Phase	4	2	3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.0	10.5	23.5	23.0	23.0
Total Split (s)	30.5	49.0	10.5	41.0	49.0	49.0
Total Split (%)	33.9%	54.4%	11.7%	45.6%	54.4%	54.4%
Yellow Time (s)	4.0	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.0	5.5	5.5	5.0	5.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	Max	None	None	Max	Max
Act Effct Green (s)	28.1	79.6	34.3	34.3	44.0	44.0
Actuated g/C Ratio	0.32	0.90	0.39	0.39	0.50	0.50
v/c Ratio	0.72	0.51	0.16	0.95	0.99	0.03
Control Delay	37.3	1.4	18.6	52.5	53.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	1.4	18.6	52.5	53.7	9.3
LOS	D	A	B	D	D	A
Approach Delay	14.3			50.6	52.6	
Approach LOS	B			D	D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 88.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 36.2	Intersection LOS: D
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Rosemary St & 88th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	388	694	36	633	828	22
Future Volume (veh/h)	388	694	36	633	828	22
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1796	1811	1811	1856	1856
Adj Flow Rate, veh/h	404	723	38	659	862	23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	6	6	3	3
Cap, veh/h	520	1195	180	698	877	780
Arrive On Green	0.29	0.29	0.03	0.39	0.50	0.50
Sat Flow, veh/h	1796	1522	1725	1811	1767	1572
Grp Volume(v), veh/h	404	723	38	659	862	23
Grp Sat Flow(s),veh/h/ln	1796	1522	1725	1811	1767	1572
Q Serve(g_s), s	18.3	17.2	1.3	31.2	42.6	0.7
Cycle Q Clear(g_c), s	18.3	17.2	1.3	31.2	42.6	0.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	520	1195	180	698	877	780
V/C Ratio(X)	0.78	0.60	0.21	0.94	0.98	0.03
Avail Cap(c_a), veh/h	520	1195	219	725	877	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	3.9	21.9	26.3	22.0	11.4
Incr Delay (d2), s/veh	7.3	0.9	0.6	20.5	26.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	16.0	0.5	16.7	22.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.3	4.8	22.5	46.8	48.6	11.5
LnGrp LOS	D	A	C	D	D	B
Approach Vol, veh/h	1127			697	885	
Approach Delay, s/veh	16.1			45.5	47.6	
Approach LOS	B			D	D	

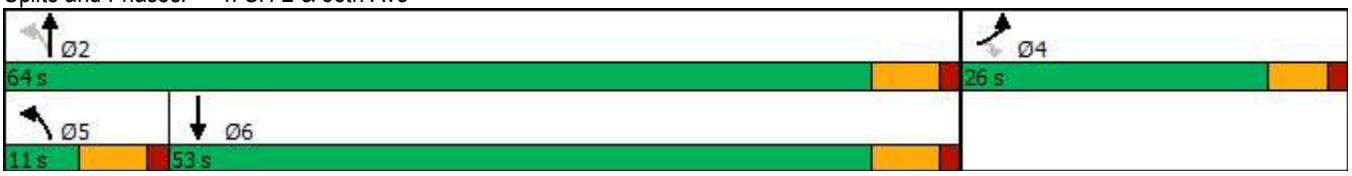
Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		49.0	8.5	31.2		39.7
Change Period (Y+Rc), s		5.0	5.5	5.5		5.5
Max Green Setting (Gmax), s		44.0	5.0	25.0		35.5
Max Q Clear Time (g_c+I1), s		44.6	3.3	20.3		33.2
Green Ext Time (p_c), s		0.0	0.0	2.4		1.0

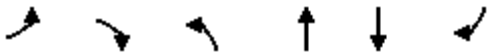
Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	71	148	84	361	1324	148
Future Volume (vph)	71	148	84	361	1324	148
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	26.0	26.0	11.0	64.0	53.0	
Total Split (%)	28.9%	28.9%	12.2%	71.1%	58.9%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	9.9	9.9	58.1	58.1	49.4	79.5
Actuated g/C Ratio	0.12	0.12	0.73	0.73	0.62	1.00
v/c Ratio	0.45	0.59	0.39	0.16	0.68	0.11
Control Delay	40.6	19.0	8.6	3.8	13.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	19.0	8.6	3.8	13.4	0.1
LOS	D	B	A	A	B	A
Approach Delay	26.0			4.7	12.1	
Approach LOS	C			A	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	148	84	361	1324	148
Future Volume (veh/h)	71	148	84	361	1324	148
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1411	1411	1707	1707	1781	1781
Adj Flow Rate, veh/h	76	0	89	384	1409	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	33	13	13	8	8
Cap, veh/h	90		323	2526	2172	
Arrive On Green	0.07	0.00	0.06	0.78	0.64	0.00
Sat Flow, veh/h	1344	1196	1626	3329	3474	1510
Grp Volume(v), veh/h	76	0	89	384	1409	0
Grp Sat Flow(s),veh/h/ln	1344	1196	1626	1622	1692	1510
Q Serve(g_s), s	4.2	0.0	1.2	2.2	19.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	1.2	2.2	19.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	90		323	2526	2172	
V/C Ratio(X)	0.84		0.28	0.15	0.65	
Avail Cap(c_a), veh/h	370		340	2526	2172	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.4	0.0	7.0	2.1	8.2	0.0
Incr Delay (d2), s/veh	18.5	0.0	0.5	0.1	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.4	0.4	5.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.9	0.0	7.4	2.2	9.7	0.0
LnGrp LOS	D		A	A	A	
Approach Vol, veh/h	76			473	1409	
Approach Delay, s/veh	52.9			3.2	9.7	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		10.5	10.2	53.8
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		58.0		20.5	5.0	47.0
Max Q Clear Time (g_c+I1), s		4.2		6.2	3.2	21.0
Green Ext Time (p_c), s		2.9		0.1	0.0	12.7

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

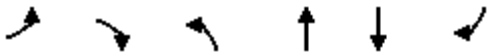
Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	132	96	329	1335	554	84
Future Volume (vph)	132	96	329	1335	554	84
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	24.0	24.0	12.0	36.0	24.0	
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	9.2	9.2	30.7	32.3	18.4	48.6
Actuated g/C Ratio	0.19	0.19	0.63	0.66	0.38	1.00
v/c Ratio	0.42	0.27	0.68	0.62	0.45	0.06
Control Delay	22.4	6.7	16.7	8.8	14.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	6.7	16.7	8.8	14.2	0.1
LOS	C	A	B	A	B	A
Approach Delay	15.8			10.4	12.3	
Approach LOS	B			B	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 48.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	132	96	329	1335	554	84
Future Volume (veh/h)	132	96	329	1335	554	84
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1796	1796	1796	1796
Adj Flow Rate, veh/h	138	0	343	1391	577	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	7	7	7	7
Cap, veh/h	183		589	2210	1326	
Arrive On Green	0.10	0.00	0.13	0.65	0.39	0.00
Sat Flow, veh/h	1753	1560	1711	3503	3503	1522
Grp Volume(v), veh/h	138	0	343	1391	577	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1711	1706	1706	1522
Q Serve(g_s), s	3.5	0.0	5.1	11.2	5.8	0.0
Cycle Q Clear(g_c), s	3.5	0.0	5.1	11.2	5.8	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	183		589	2210	1326	
V/C Ratio(X)	0.76		0.58	0.63	0.44	
Avail Cap(c_a), veh/h	700		589	2210	1326	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.2	0.0	6.7	4.9	10.4	0.0
Incr Delay (d2), s/veh	6.2	0.0	1.5	1.4	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.4	2.4	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.4	0.0	8.2	6.2	11.5	0.0
LnGrp LOS	C		A	A	B	
Approach Vol, veh/h	138			1734	577	
Approach Delay, s/veh	26.4			6.6	11.5	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.0		10.3	12.0	24.0
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		30.0		18.5	6.0	18.0
Max Q Clear Time (g_c+I1), s		13.2		5.5	7.1	7.8
Green Ext Time (p_c), s		9.7		0.3	0.0	2.8

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

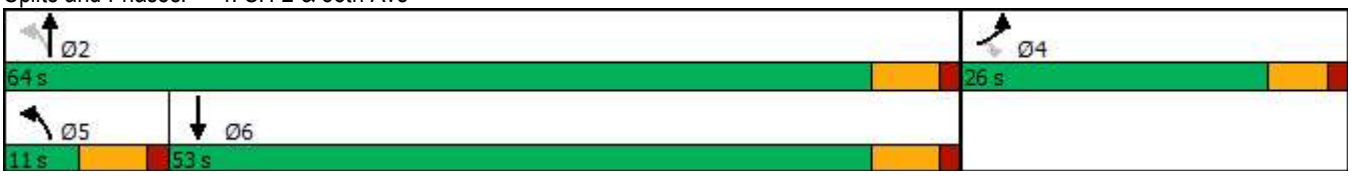
Notes

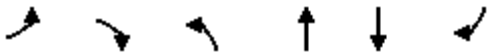
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	152	86	371	1360	152
Future Volume (vph)	73	152	86	371	1360	152
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	26.0	26.0	11.0	64.0	53.0	
Total Split (%)	28.9%	28.9%	12.2%	71.1%	58.9%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	10.1	10.1	58.1	58.1	49.4	79.7
Actuated g/C Ratio	0.13	0.13	0.73	0.73	0.62	1.00
v/c Ratio	0.46	0.61	0.42	0.17	0.70	0.11
Control Delay	40.6	20.2	9.6	3.9	14.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	20.2	9.6	3.9	14.0	0.1
LOS	D	C	A	A	B	A
Approach Delay	26.9			5.0	12.6	
Approach LOS	C			A	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	152	86	371	1360	152
Future Volume (veh/h)	73	152	86	371	1360	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1411	1411	1707	1707	1781	1781
Adj Flow Rate, veh/h	78	0	91	395	1447	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	33	13	13	8	8
Cap, veh/h	93		313	2521	2166	
Arrive On Green	0.07	0.00	0.06	0.78	0.64	0.00
Sat Flow, veh/h	1344	1196	1626	3329	3474	1510
Grp Volume(v), veh/h	78	0	91	395	1447	0
Grp Sat Flow(s),veh/h/ln	1344	1196	1626	1622	1692	1510
Q Serve(g_s), s	4.3	0.0	1.2	2.3	20.1	0.0
Cycle Q Clear(g_c), s	4.3	0.0	1.2	2.3	20.1	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	93		313	2521	2166	
V/C Ratio(X)	0.84		0.29	0.16	0.67	
Avail Cap(c_a), veh/h	369		330	2521	2166	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.3	0.0	7.5	2.1	8.5	0.0
Incr Delay (d2), s/veh	17.9	0.0	0.5	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.4	0.4	6.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.2	0.0	8.0	2.2	10.1	0.0
LnGrp LOS	D		A	A	B	
Approach Vol, veh/h	78			486	1447	
Approach Delay, s/veh	52.2			3.3	10.1	
Approach LOS	D			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		10.6	10.2	53.8
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		58.0		20.5	5.0	47.0
Max Q Clear Time (g_c+I1), s		4.3		6.3	3.2	22.1
Green Ext Time (p_c), s		3.0		0.1	0.0	12.8

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

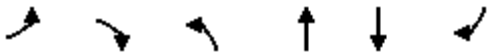
Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	136	99	338	1372	569	86
Future Volume (vph)	136	99	338	1372	569	86
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	24.0	24.0	12.0	36.0	24.0	
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	9.3	9.3	30.7	32.3	18.4	48.7
Actuated g/C Ratio	0.19	0.19	0.63	0.66	0.38	1.00
v/c Ratio	0.43	0.27	0.71	0.64	0.47	0.06
Control Delay	22.5	6.7	18.5	9.2	14.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	6.7	18.5	9.2	14.4	0.1
LOS	C	A	B	A	B	A
Approach Delay	15.8			11.0	12.5	
Approach LOS	B			B	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 48.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	136	99	338	1372	569	86
Future Volume (veh/h)	136	99	338	1372	569	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1796	1796	1796	1796
Adj Flow Rate, veh/h	142	0	352	1429	593	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	7	7	7	7
Cap, veh/h	188		580	2202	1321	
Arrive On Green	0.11	0.00	0.13	0.65	0.39	0.00
Sat Flow, veh/h	1753	1560	1711	3503	3503	1522
Grp Volume(v), veh/h	142	0	352	1429	593	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1711	1706	1706	1522
Q Serve(g_s), s	3.7	0.0	5.3	11.9	6.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	5.3	11.9	6.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	188		580	2202	1321	
V/C Ratio(X)	0.76		0.61	0.65	0.45	
Avail Cap(c_a), veh/h	698		580	2202	1321	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.2	0.0	6.9	5.0	10.6	0.0
Incr Delay (d2), s/veh	6.0	0.0	1.8	1.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.5	2.5	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.2	0.0	8.7	6.5	11.7	0.0
LnGrp LOS	C		A	A	B	
Approach Vol, veh/h	142			1781	593	
Approach Delay, s/veh	26.2			7.0	11.7	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.0		10.5	12.0	24.0
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		30.0		18.5	6.0	18.0
Max Q Clear Time (g_c+I1), s		13.9		5.7	7.3	8.0
Green Ext Time (p_c), s		9.7		0.3	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

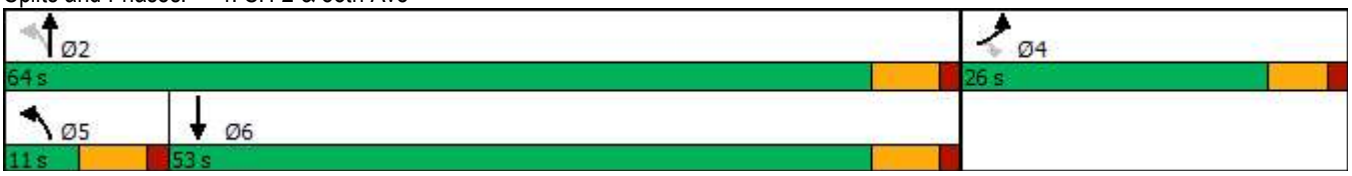
Notes

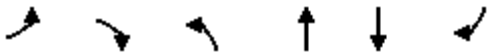
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	153	91	371	1360	154
Future Volume (vph)	73	153	91	371	1360	154
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	26.0	26.0	11.0	64.0	53.0	
Total Split (%)	28.9%	28.9%	12.2%	71.1%	58.9%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	10.1	10.1	58.1	58.1	49.4	79.8
Actuated g/C Ratio	0.13	0.13	0.73	0.73	0.62	1.00
v/c Ratio	0.45	0.61	0.44	0.17	0.70	0.11
Control Delay	40.5	20.4	10.2	3.9	14.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	20.4	10.2	3.9	14.0	0.1
LOS	D	C	B	A	B	A
Approach Delay	26.9			5.2	12.6	
Approach LOS	C			A	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.8	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	153	91	371	1360	154
Future Volume (veh/h)	73	153	91	371	1360	154
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1411	1411	1707	1707	1781	1781
Adj Flow Rate, veh/h	78	0	97	395	1447	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	33	13	13	8	8
Cap, veh/h	93		315	2521	2162	
Arrive On Green	0.07	0.00	0.06	0.78	0.64	0.00
Sat Flow, veh/h	1344	1196	1626	3329	3474	1510
Grp Volume(v), veh/h	78	0	97	395	1447	0
Grp Sat Flow(s),veh/h/ln	1344	1196	1626	1622	1692	1510
Q Serve(g_s), s	4.3	0.0	1.3	2.3	20.1	0.0
Cycle Q Clear(g_c), s	4.3	0.0	1.3	2.3	20.1	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	93		315	2521	2162	
V/C Ratio(X)	0.84		0.31	0.16	0.67	
Avail Cap(c_a), veh/h	369		329	2521	2162	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.3	0.0	7.7	2.1	8.5	0.0
Incr Delay (d2), s/veh	17.9	0.0	0.5	0.1	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.5	0.4	6.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.2	0.0	8.2	2.2	10.2	0.0
LnGrp LOS	D		A	A	B	
Approach Vol, veh/h	78			492	1447	
Approach Delay, s/veh	52.2			3.4	10.2	
Approach LOS	D			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		10.6	10.3	53.7
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		58.0		20.5	5.0	47.0
Max Q Clear Time (g_c+I1), s		4.3		6.3	3.3	22.1
Green Ext Time (p_c), s		3.0		0.1	0.0	12.8

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

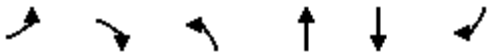
Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	137	102	338	1372	569	86
Future Volume (vph)	137	102	338	1372	569	86
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	24.0	24.0	12.0	36.0	24.0	
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	9.4	9.4	30.7	32.3	18.4	48.7
Actuated g/C Ratio	0.19	0.19	0.63	0.66	0.38	1.00
v/c Ratio	0.43	0.28	0.72	0.64	0.47	0.06
Control Delay	22.5	6.6	18.6	9.2	14.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	6.6	18.6	9.2	14.5	0.1
LOS	C	A	B	A	B	A
Approach Delay	15.7			11.1	12.6	
Approach LOS	B			B	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 48.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	102	338	1372	569	86
Future Volume (veh/h)	137	102	338	1372	569	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1796	1796	1796	1796
Adj Flow Rate, veh/h	143	0	352	1429	593	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	7	7	7	7
Cap, veh/h	189		580	2201	1320	
Arrive On Green	0.11	0.00	0.13	0.64	0.39	0.00
Sat Flow, veh/h	1753	1560	1711	3503	3503	1522
Grp Volume(v), veh/h	143	0	352	1429	593	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1711	1706	1706	1522
Q Serve(g_s), s	3.7	0.0	5.3	11.9	6.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	5.3	11.9	6.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	189		580	2201	1320	
V/C Ratio(X)	0.76		0.61	0.65	0.45	
Avail Cap(c_a), veh/h	697		580	2201	1320	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.2	0.0	6.9	5.0	10.6	0.0
Incr Delay (d2), s/veh	6.0	0.0	1.8	1.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.5	2.6	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.2	0.0	8.8	6.5	11.7	0.0
LnGrp LOS	C		A	A	B	
Approach Vol, veh/h	143			1781	593	
Approach Delay, s/veh	26.2			7.0	11.7	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.0		10.5	12.0	24.0
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		30.0		18.5	6.0	18.0
Max Q Clear Time (g_c+I1), s		13.9		5.7	7.3	8.0
Green Ext Time (p_c), s		9.7		0.3	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

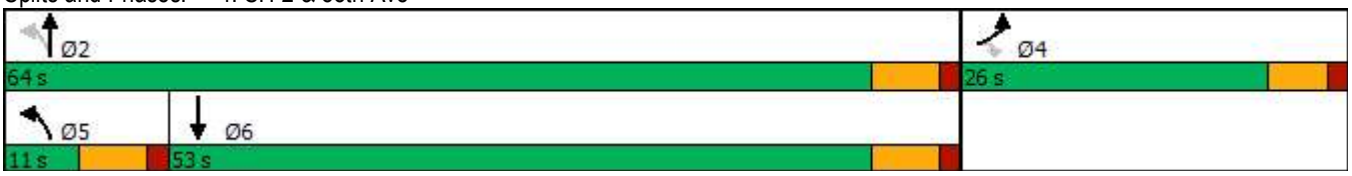
Notes

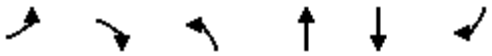
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	199	113	486	1782	199
Future Volume (vph)	96	199	113	486	1782	199
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	26.0	26.0	11.0	64.0	53.0	
Total Split (%)	28.9%	28.9%	12.2%	71.1%	58.9%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	12.9	12.9	58.2	58.2	47.2	82.6
Actuated g/C Ratio	0.16	0.16	0.70	0.70	0.57	1.00
v/c Ratio	0.48	0.75	0.67	0.23	0.99	0.14
Control Delay	39.1	33.0	32.0	5.2	39.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	33.0	32.0	5.2	39.1	0.2
LOS	D	C	C	A	D	A
Approach Delay	35.0			10.3	35.2	
Approach LOS	D			B	D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 82.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	199	113	486	1782	199
Future Volume (veh/h)	96	199	113	486	1782	199
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1411	1411	1707	1707	1781	1781
Adj Flow Rate, veh/h	102	0	120	517	1896	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	33	13	13	8	8
Cap, veh/h	123		221	2460	2097	
Arrive On Green	0.09	0.00	0.06	0.76	0.62	0.00
Sat Flow, veh/h	1344	1196	1626	3329	3474	1510
Grp Volume(v), veh/h	102	0	120	517	1896	0
Grp Sat Flow(s),veh/h/ln	1344	1196	1626	1622	1692	1510
Q Serve(g_s), s	5.7	0.0	1.8	3.5	37.1	0.0
Cycle Q Clear(g_c), s	5.7	0.0	1.8	3.5	37.1	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	123		221	2460	2097	
V/C Ratio(X)	0.83		0.54	0.21	0.90	
Avail Cap(c_a), veh/h	360		230	2460	2097	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.2	0.0	18.3	2.7	12.6	0.0
Incr Delay (d2), s/veh	13.2	0.0	2.4	0.2	7.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	1.4	0.8	13.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.4	0.0	20.6	2.9	19.6	0.0
LnGrp LOS	D		C	A	B	
Approach Vol, veh/h	102			637	1896	
Approach Delay, s/veh	47.4			6.2	19.6	
Approach LOS	D			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		12.5	10.6	53.4
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		58.0		20.5	5.0	47.0
Max Q Clear Time (g_c+I1), s		5.5		7.7	3.8	39.1
Green Ext Time (p_c), s		4.1		0.2	0.0	6.8

Intersection Summary	
HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

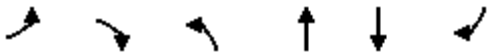
Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	178	129	443	1797	746	113
Future Volume (vph)	178	129	443	1797	746	113
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	24.0	24.0	12.0	36.0	24.0	
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	10.8	10.8	30.1	30.1	18.1	52.4
Actuated g/C Ratio	0.21	0.21	0.57	0.57	0.35	1.00
v/c Ratio	0.52	0.32	1.27	0.97	0.67	0.08
Control Delay	23.9	6.1	158.7	27.9	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	6.1	158.7	27.9	18.6	0.1
LOS	C	A	F	C	B	A
Approach Delay	16.4			53.8	16.2	
Approach LOS	B			D	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 40.9	Intersection LOS: D
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	178	129	443	1797	746	113
Future Volume (veh/h)	178	129	443	1797	746	113
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1796	1796	1796	1796
Adj Flow Rate, veh/h	185	0	461	1872	777	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	7	7	7	7
Cap, veh/h	242		489	2126	1276	
Arrive On Green	0.14	0.00	0.12	0.62	0.37	0.00
Sat Flow, veh/h	1753	1560	1711	3503	3503	1522
Grp Volume(v), veh/h	185	0	461	1872	777	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1711	1706	1706	1522
Q Serve(g_s), s	4.9	0.0	6.0	22.1	8.9	0.0
Cycle Q Clear(g_c), s	4.9	0.0	6.0	22.1	8.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	242		489	2126	1276	
V/C Ratio(X)	0.76		0.94	0.88	0.61	
Avail Cap(c_a), veh/h	673		489	2126	1276	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.0	0.0	12.2	7.6	12.2	0.0
Incr Delay (d2), s/veh	4.9	0.0	27.0	5.6	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	5.7	6.1	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.9	0.0	39.2	13.2	14.4	0.0
LnGrp LOS	C		D	B	B	
Approach Vol, veh/h	185			2333	777	
Approach Delay, s/veh	24.9			18.4	14.4	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.0		12.2	12.0	24.0
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		30.0		18.5	6.0	18.0
Max Q Clear Time (g_c+I1), s		24.1		6.9	8.0	10.9
Green Ext Time (p_c), s		5.1		0.4	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

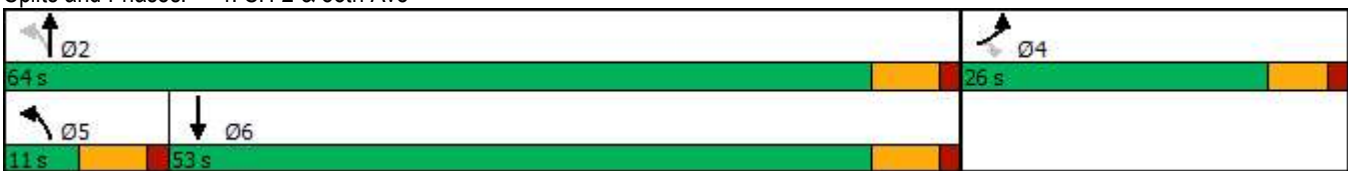
Notes

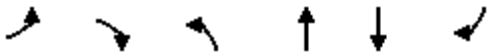
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	200	118	486	1782	201
Future Volume (vph)	96	200	118	486	1782	201
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	26.0	26.0	11.0	64.0	53.0	
Total Split (%)	28.9%	28.9%	12.2%	71.1%	58.9%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	12.9	12.9	58.2	58.2	47.2	82.7
Actuated g/C Ratio	0.16	0.16	0.70	0.70	0.57	1.00
v/c Ratio	0.48	0.75	0.71	0.23	0.99	0.14
Control Delay	39.0	33.2	35.3	5.2	39.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	33.2	35.3	5.2	39.2	0.2
LOS	D	C	D	A	D	A
Approach Delay	35.1			11.1	35.2	
Approach LOS	D			B	D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 82.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	200	118	486	1782	201
Future Volume (veh/h)	96	200	118	486	1782	201
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1411	1411	1707	1707	1781	1781
Adj Flow Rate, veh/h	102	0	126	517	1896	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	33	13	13	8	8
Cap, veh/h	123		222	2460	2095	
Arrive On Green	0.09	0.00	0.06	0.76	0.62	0.00
Sat Flow, veh/h	1344	1196	1626	3329	3474	1510
Grp Volume(v), veh/h	102	0	126	517	1896	0
Grp Sat Flow(s),veh/h/ln	1344	1196	1626	1622	1692	1510
Q Serve(g_s), s	5.7	0.0	1.9	3.5	37.1	0.0
Cycle Q Clear(g_c), s	5.7	0.0	1.9	3.5	37.1	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	123		222	2460	2095	
V/C Ratio(X)	0.83		0.57	0.21	0.91	
Avail Cap(c_a), veh/h	360		229	2460	2095	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.2	0.0	18.3	2.7	12.6	0.0
Incr Delay (d2), s/veh	13.2	0.0	3.1	0.2	7.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	1.6	0.8	13.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.4	0.0	21.4	2.9	19.7	0.0
LnGrp LOS	D		C	A	B	
Approach Vol, veh/h	102			643	1896	
Approach Delay, s/veh	47.4			6.5	19.7	
Approach LOS	D			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.0		12.5	10.7	53.3
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		58.0		20.5	5.0	47.0
Max Q Clear Time (g_c+I1), s		5.5		7.7	3.9	39.1
Green Ext Time (p_c), s		4.1		0.2	0.0	6.7

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

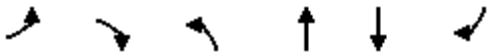
Notes

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

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	179	132	443	1797	746	113
Future Volume (vph)	179	132	443	1797	746	113
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	4		5	2	6	
Permitted Phases		4	2			Free
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.5	23.5	11.0	24.0	24.0	
Total Split (s)	24.0	24.0	12.0	36.0	24.0	
Total Split (%)	40.0%	40.0%	20.0%	60.0%	40.0%	
Yellow Time (s)	4.0	4.0	4.5	4.5	4.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	6.0	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	Max	Max	
Act Effct Green (s)	10.8	10.8	30.1	30.1	18.1	52.4
Actuated g/C Ratio	0.21	0.21	0.57	0.57	0.35	1.00
v/c Ratio	0.52	0.32	1.27	0.97	0.67	0.08
Control Delay	23.9	6.1	158.7	27.9	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	6.1	158.7	27.9	18.6	0.1
LOS	C	A	F	C	B	A
Approach Delay	16.3			53.8	16.2	
Approach LOS	B			D	B	

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 52.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 40.9	Intersection LOS: D
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: SH-2 & 88th Ave



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	179	132	443	1797	746	113
Future Volume (veh/h)	179	132	443	1797	746	113
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1796	1796	1796	1796
Adj Flow Rate, veh/h	186	0	461	1872	777	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	7	7	7	7
Cap, veh/h	244		488	2124	1275	
Arrive On Green	0.14	0.00	0.12	0.62	0.37	0.00
Sat Flow, veh/h	1753	1560	1711	3503	3503	1522
Grp Volume(v), veh/h	186	0	461	1872	777	0
Grp Sat Flow(s),veh/h/ln	1753	1560	1711	1706	1706	1522
Q Serve(g_s), s	4.9	0.0	6.0	22.1	8.9	0.0
Cycle Q Clear(g_c), s	4.9	0.0	6.0	22.1	8.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	244		488	2124	1275	
V/C Ratio(X)	0.76		0.94	0.88	0.61	
Avail Cap(c_a), veh/h	673		488	2124	1275	
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.0	0.0	12.2	7.6	12.2	0.0
Incr Delay (d2), s/veh	4.9	0.0	27.3	5.7	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	5.7	6.1	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.9	0.0	39.5	13.3	14.4	0.0
LnGrp LOS	C		D	B	B	
Approach Vol, veh/h	186			2333	777	
Approach Delay, s/veh	24.9			18.5	14.4	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.0		12.2	12.0	24.0
Change Period (Y+Rc), s		6.0		5.5	6.0	6.0
Max Green Setting (Gmax), s		30.0		18.5	6.0	18.0
Max Q Clear Time (g_c+I1), s		24.1		6.9	8.0	10.9
Green Ext Time (p_c), s		5.1		0.4	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

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

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	325	695	21
Future Vol, veh/h	0	1	0	325	695	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	353	755	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	767	-	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	402	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	402	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	402	-	-
HCM Lane V/C Ratio	-	0.003	-	-
HCM Control Delay (s)	-	14	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	653	556	2
Future Vol, veh/h	0	5	0	653	556	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	710	604	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	605	-	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	498	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	498	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	498	-	-
HCM Lane V/C Ratio	-	0.011	-	-
HCM Control Delay (s)	-	12.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	426	908	21
Future Vol, veh/h	0	1	0	426	908	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	463	987	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	999	-	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	295	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	295	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	295	-	-
HCM Lane V/C Ratio	-	0.004	-	-
HCM Control Delay (s)	-	17.2	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	850	728	2
Future Vol, veh/h	0	5	0	850	728	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	924	791	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	792	-	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	389	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	389	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	389	-	-
HCM Lane V/C Ratio	-	0.014	-	-
HCM Control Delay (s)	-	14.4	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	11	321	692	4
Future Vol, veh/h	4	0	11	321	692	4
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	-	140	-	-	-
Veh in Median Storage, #	1	-	-	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	4	0	12	349	752	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1127	754	756	0	-	0
Stage 1	754	-	-	-	-	-
Stage 2	373	-	-	-	-	-
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	226	409	855	-	-	-
Stage 1	465	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	223	409	855	-	-	-
Mov Cap-2 Maneuver	347	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	855	-	347	-	-
HCM Lane V/C Ratio	0.014	-	0.013	-	-
HCM Control Delay (s)	9.3	-	15.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	2	1	637	561	0
Future Vol, veh/h	16	2	1	637	561	0
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	-	140	-	-	-
Veh in Median Storage, #	1	-	-	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	17	2	1	692	610	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1304	610	610	0	-	0
Stage 1	610	-	-	-	-	-
Stage 2	694	-	-	-	-	-
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	177	494	969	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	496	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	494	969	-	-	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	330	-	-
HCM Lane V/C Ratio	0.001	-	0.059	-	-
HCM Control Delay (s)	8.7	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	11	422	905	4
Future Vol, veh/h	4	0	11	422	905	4
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	-	140	-	-	-
Veh in Median Storage, #	1	-	-	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	4	0	12	459	984	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1469	986	988	0	-	0
Stage 1	986	-	-	-	-	-
Stage 2	483	-	-	-	-	-
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	140	301	699	-	-	-
Stage 1	361	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	138	301	699	-	-	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	355	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	699	-	263	-	-
HCM Lane V/C Ratio	0.017	-	0.017	-	-
HCM Control Delay (s)	10.2	-	18.9	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	2	1	834	733	0
Future Vol, veh/h	16	2	1	834	733	0
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	-	140	-	-	-
Veh in Median Storage, #	1	-	-	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	17	2	1	907	797	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1706	797	797	0	-	0
Stage 1	797	-	-	-	-	-
Stage 2	909	-	-	-	-	-
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	100	387	825	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	100	387	825	-	-	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	825	-	247	-	-
HCM Lane V/C Ratio	0.001	-	0.079	-	-
HCM Control Delay (s)	9.4	-	20.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

APPENDIX E

Queues Analysis Worksheets

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	770	202	169	652	96	157
v/c Ratio	0.62	0.30	0.52	0.38	0.17	0.26
Control Delay	31.2	5.4	27.8	12.5	26.2	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	5.4	27.8	12.5	26.2	7.2
Queue Length 50th (ft)	226	3	59	120	49	9
Queue Length 95th (ft)	322	55	141	138	91	57
Internal Link Dist (ft)	574			577		565
Turn Bay Length (ft)		200			200	
Base Capacity (vph)	1236	674	485	1697	553	594
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.30	0.35	0.38	0.17	0.26

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	856	140	165	1520	99	234
v/c Ratio	0.75	0.23	0.59	0.88	0.15	0.33
Control Delay	37.9	6.4	37.9	31.7	22.0	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	6.4	37.9	31.7	22.0	4.8
Queue Length 50th (ft)	281	3	87	350	46	5
Queue Length 95th (ft)	371	48	160	437	85	56
Internal Link Dist (ft)	574			577		565
Turn Bay Length (ft)		200			200	
Base Capacity (vph)	1141	599	318	1720	647	715
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.23	0.52	0.88	0.15	0.33

Intersection Summary

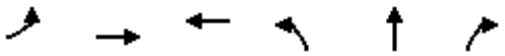
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1006	265	222	853	125	205
v/c Ratio	0.61	0.31	0.67	0.41	0.33	0.42
Control Delay	24.0	3.9	34.9	7.3	40.8	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	3.9	34.9	7.3	40.8	10.8
Queue Length 50th (ft)	280	6	72	92	85	16
Queue Length 95th (ft)	393	56	165	116	145	86
Internal Link Dist (ft)	574			577		565
Turn Bay Length (ft)		200			200	
Base Capacity (vph)	1640	856	394	2061	380	483
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.31	0.56	0.41	0.33	0.42

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Group Flow (vph)	1121	183	215	1990	130	307
v/c Ratio	0.70	0.23	0.72	0.91	0.29	0.65
Control Delay	28.6	5.6	38.2	23.4	36.1	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	5.6	38.2	23.4	36.1	34.5
Queue Length 50th (ft)	351	13	116	377	83	158
Queue Length 95th (ft)	453	57	m146	449	142	269
Internal Link Dist (ft)	574			577		565
Turn Bay Length (ft)		200			200	
Base Capacity (vph)	1598	795	335	2176	451	469
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.23	0.64	0.91	0.29	0.65

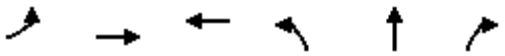
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	167	715	803	115	111	105
v/c Ratio	0.36	0.30	0.32	0.41	0.35	0.31
Control Delay	7.4	1.3	12.1	44.3	15.1	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	1.3	12.1	44.3	15.1	10.1
Queue Length 50th (ft)	12	8	95	75	14	0
Queue Length 95th (ft)	52	22	128	135	69	49
Internal Link Dist (ft)		577	3420		475	
Turn Bay Length (ft)						400
Base Capacity (vph)	563	2370	2495	279	320	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.30	0.32	0.41	0.35	0.31

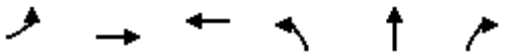
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	276	712	1465	210	207	165
v/c Ratio	0.82	0.31	0.63	0.57	0.58	0.36
Control Delay	62.7	3.3	23.9	43.9	44.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	3.3	23.9	43.9	44.0	7.7
Queue Length 50th (ft)	166	31	283	137	140	0
Queue Length 95th (ft)	m243	43	343	221	227	55
Internal Link Dist (ft)		577	3420		475	
Turn Bay Length (ft)						400
Base Capacity (vph)	381	2281	2312	371	357	458
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	16	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.31	0.64	0.57	0.58	0.36

Intersection Summary

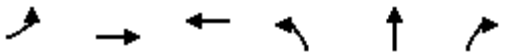
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	220	934	1051	150	142	139
v/c Ratio	0.57	0.39	0.43	0.54	0.44	0.38
Control Delay	24.9	1.8	14.1	48.2	19.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	1.8	14.1	48.2	19.2	9.7
Queue Length 50th (ft)	54	17	141	101	30	0
Queue Length 95th (ft)	m94	m32	186	173	96	55
Internal Link Dist (ft)		577	3420		475	
Turn Bay Length (ft)						400
Base Capacity (vph)	486	2370	2443	279	326	362
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.39	0.43	0.54	0.44	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	361	933	1916	275	272	215
v/c Ratio	1.00	0.41	0.88	0.74	0.76	0.46
Control Delay	81.1	3.5	33.9	52.4	53.8	12.5
Queue Delay	0.0	0.0	9.7	0.9	1.1	0.0
Total Delay	81.1	3.5	43.6	53.3	54.9	12.5
Queue Length 50th (ft)	244	46	438	190	194	25
Queue Length 95th (ft)	m#255	m46	509	#313	#330	97
Internal Link Dist (ft)		577	3420		475	
Turn Bay Length (ft)						400
Base Capacity (vph)	362	2281	2174	371	357	464
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	260	15	15	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.41	1.00	0.77	0.80	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	275	705	33	260	318	18
v/c Ratio	0.65	0.48	0.14	0.57	0.37	0.02
Control Delay	32.2	1.4	16.7	24.5	13.0	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	1.4	16.7	24.5	13.0	7.0
Queue Length 50th (ft)	94	0	10	90	59	1
Queue Length 95th (ft)	197	16	26	151	182	12
Internal Link Dist (ft)	3420			4926	372	
Turn Bay Length (ft)		100	175			75
Base Capacity (vph)	810	1455	238	973	868	784
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.48	0.14	0.27	0.37	0.02

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	308	552	29	503	661	19
v/c Ratio	0.61	0.38	0.11	0.84	0.70	0.02
Control Delay	32.0	0.9	18.4	38.8	20.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	0.9	18.4	38.8	20.8	8.4
Queue Length 50th (ft)	126	0	10	236	245	2
Queue Length 95th (ft)	241	12	27	354	443	14
Internal Link Dist (ft)	3420			4926	372	
Turn Bay Length (ft)		100	175			75
Base Capacity (vph)	558	1442	260	777	942	847
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.11	0.65	0.70	0.02

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	361	918	40	340	415	24
v/c Ratio	0.74	0.64	0.18	0.62	0.52	0.03
Control Delay	35.6	2.6	15.8	24.0	19.1	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	2.6	15.8	24.0	19.1	9.1
Queue Length 50th (ft)	168	8	12	126	147	2
Queue Length 95th (ft)	260	28	29	200	286	18
Internal Link Dist (ft)	3420			4926	372	
Turn Bay Length (ft)		100	175			75
Base Capacity (vph)	740	1439	230	888	792	717
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.64	0.17	0.38	0.52	0.03

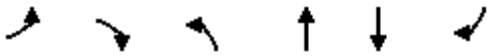
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	404	723	38	659	863	23
v/c Ratio	0.72	0.51	0.16	0.95	0.99	0.03
Control Delay	37.3	1.4	18.6	52.5	53.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	1.4	18.6	52.5	53.7	9.3
Queue Length 50th (ft)	214	0	13	351	~480	4
Queue Length 95th (ft)	#365	14	33	#573	#746	17
Internal Link Dist (ft)	3420			4926	372	
Turn Bay Length (ft)		100	175			75
Base Capacity (vph)	561	1427	237	716	868	781
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.51	0.16	0.92	0.99	0.03

Intersection Summary

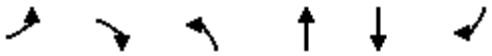
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	78	163	97	395	1447	164
v/c Ratio	0.45	0.61	0.44	0.17	0.70	0.11
Control Delay	40.5	20.4	10.2	3.9	14.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	20.4	10.2	3.9	14.0	0.1
Queue Length 50th (ft)	37	16	11	25	245	0
Queue Length 95th (ft)	77	73	32	51	395	0
Internal Link Dist (ft)	4926			547	432	
Turn Bay Length (ft)			650			625
Base Capacity (vph)	349	407	219	2327	2071	1495
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.40	0.44	0.17	0.70	0.11

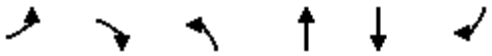
Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	143	106	352	1429	593	90
v/c Ratio	0.43	0.28	0.72	0.64	0.47	0.06
Control Delay	22.5	6.6	18.6	9.2	14.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	6.6	18.6	9.2	14.5	0.1
Queue Length 50th (ft)	38	0	46	135	71	0
Queue Length 95th (ft)	80	30	#153	247	123	0
Internal Link Dist (ft)	4926			547	432	
Turn Bay Length (ft)			650			625
Base Capacity (vph)	674	667	492	2237	1275	1509
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.16	0.72	0.64	0.47	0.06

Intersection Summary

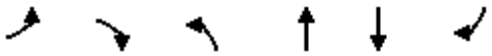
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	102	213	126	517	1896	214
v/c Ratio	0.48	0.75	0.71	0.23	0.99	0.14
Control Delay	39.0	33.2	35.3	5.2	39.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	33.2	35.3	5.2	39.2	0.2
Queue Length 50th (ft)	49	49	17	41	469	0
Queue Length 95th (ft)	95	126	#120	82	#780	0
Internal Link Dist (ft)	4926			547	432	
Turn Bay Length (ft)			650			625
Base Capacity (vph)	338	385	177	2250	1907	1495
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.55	0.71	0.23	0.99	0.14

Intersection Summary

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	186	138	461	1872	777	118
v/c Ratio	0.52	0.32	1.27	0.97	0.67	0.08
Control Delay	23.9	6.1	158.7	27.9	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	6.1	158.7	27.9	18.6	0.1
Queue Length 50th (ft)	51	0	~107	249	104	0
Queue Length 95th (ft)	100	34	#369	#504	177	0
Internal Link Dist (ft)	4926			547	432	
Turn Bay Length (ft)			650			625
Base Capacity (vph)	614	639	363	1938	1163	1509
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.22	1.27	0.97	0.67	0.08

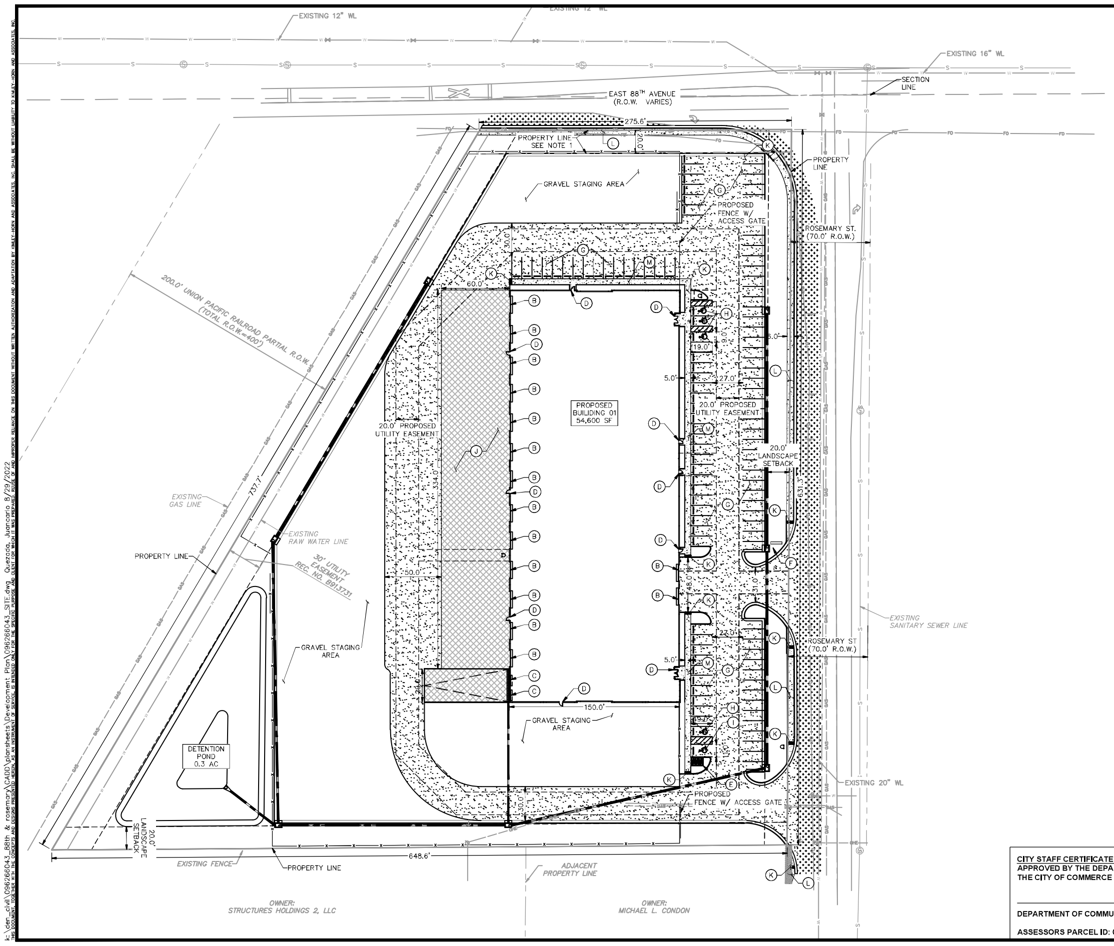
Intersection Summary

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

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

APPENDIX F

Conceptual Site Plan



LEGEND

SITE PROPERTY LINE
20' LANDSCAPE SETBACK
EASEMENT LINE
PROPOSED SITE FENCE
PROPOSED DECORATIVE FENCE
EMPLOYEE PARKING SPACE COUNT
PROPOSED LIGHT DUTY ASPHALT PAVEMENT
PROPOSED HEAVY DUTY CONCRETE PAVEMENT
PROPOSED CONCRETE SIDEWALK
PROPOSED LIGHT DUTY ASPHALT (ROW)
PROPOSED FIRE HYDRANT

NOTES

1. POTENTIAL AREA OF CONCERN: THE PALIOMBO AND AGAZIO SUBDIVISION PLAT, RECORDER AT RECEPTION NO. B494523 OF THE ADAMS COUNTY RECODS, CONTAINS CONFLICTING INFORMATION IN REGARDS TO THE NORTH LINE OF LOT 1. BOTH LINES ARE SHOWN HERE FOR REFERENCE.

SITE KEYNOTES

(A) STOP SIGN AND STOP BAR
(B) 14'X16' DRIVE-THROUGH DOOR (TYP.)
(C) 9'X 10' OVERHEAD DOOR (TYP.)
(D) ENTRY DOOR TO BUILDING
(E) BIKE RACK
(F) MONUMENT SIGN
(G) 9'X19' PARKING STALL (TYP.)
(H) HANDICAPPED PARKING (9'X19') W/ SIGNAGE (TYP.)
(I) HANDICAPPED PARKING (11'X19', VAN ACCESSIBLE) WITH SIGNAGE (TYP.)
(J) LOADING DOCK AREA
(K) ADA RAMP
(L) 6' WIDE CONCRETE SIDEWALK (ROW)
(M) 5' WIDE CONCRETE SIDEWALK (ON-SITE)

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

CITY STAFF CERTIFICATE:
APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT OF THE CITY OF COMMERCE CITY, THIS DAY OF , 20 .

DEPARTMENT OF COMMUNITY DEVELOPMENT

ASSESSORS PARCEL ID: 0172128202002

811 Know what's below. Call before you dig.

NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
4852 South Ulster Street, Suite 1500
Denver, Colorado 80237 (303) 228-2300

DESIGNED BY: SLP
DRAWN BY: JAQ
CHECKED BY: SLP
DATE: 08/25/2022

E. 88TH AVE. & ROSEMARY ST.
COMMERCE CITY, CO
SITE DEVELOPMENT PLAN
SITE PLAN

FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley-Horn and Associates, Inc.

PROJECT NO.
096266043

DRAWING NAME
096266043_SITE