Traffic Impact Study

CanAm

Commerce City, Colorado

Prepared for:

QuikTrip Corporation

Kimley»Horn

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

City of Commerce City Engineering
APPROVED

04/27/2022

CanAm

Commerce City, Colorado

Prepared for
QuikTrip Corporation
4705 South 129th East Avenue
Tulsa, OK 74134-7008

United Development Companies, LLC
6900 East Belleview Avenue, Suite 300
Greenwood Village, CO 80111

Prepared by
Kimley-Horn and Associates, Inc.
Jeffrey R. Planck, P.E.
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300

April 2022

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 EXECUTIVE SUMMARY

CanAm is a mixed-use project proposed to be located on the southwest corner of the 112th Avenue and US Highway 85 intersection in Commerce City, Colorado. For the purpose of this analysis, the development is anticipated to include 160 single family housing dwelling units, 290 multifamily housing dwelling units, and a 16 fueling position gas station with a 5,312 square foot convenience store. For the purposes of this study, analysis was completed for the 2022 short term and 2040 long term horizons.

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

- 112th Avenue and Brighton Road
- 112th Avenue and Belle Creek Boulevard
- 112th Avenue and Florence Street
- 112th Avenue and US Highway 85
- Florence Street and Belle Creek Boulevard (future)

In addition, one access intersection along 112th Avenue, two access intersections along Belle Creek Boulevard, and three access intersections along the future extension of Florence Street internal to the project development area were also evaluated.

Regional access to the project will be provided by US Highway 85 and Interstate 76 (I-76) while primary access will be provided by 112th Avenue, Belle Creek Boulevard, and Florence Street. Florence Street will be constructed through the development area to provide a connection between Belle Creek Boulevard and 112th Avenue to align as the south leg of the 112th Avenue and Florence Street intersection. The future intersection of Florence Street with Belle Creek Boulevard is anticipated to be located approximately 600 feet south of 112th Avenue (measured center to center).

Direct access to the site will be provided by one right-in/right-out access located along the south side of 112th Avenue, two full movement accesses along the east side of Belle Creek Boulevard, and three accesses along the future Florence Street extension. The right-in/right-out access along 112th Avenue is proposed to be located approximately 400 feet west of US Highway 85 and 300 feet east of the 112th Avenue/Florence Street intersection. The two full movement accesses along Belle Creek Boulevard are proposed to be approximately 300 feet and 900 feet south of 112th Avenue (measured center to center). Along the Florence Street extension, three accesses are proposed. The north access along Florence Street will serve the gas station with convenience store, the middle access will serve the multifamily housing on the west side of the street, and the west access will serve both residential developments.

CanAm is expected to generate approximately 7,006 weekday driveway trips, with 663 of these trips occurring during the morning peak and 633 trips occurring during the afternoon peak hour. Accounting for pass-by, expected net new trips (non pass-by) to the surrounding street network results in approximately 3,920 new weekday daily trips, of which 334 and 359 new trips are anticipated during the weekday morning and afternoon peak hours, respectively.

Distribution of project traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, demographic information, and the proposed access system for the project. Assignment of project traffic was based upon the trip generation described previously and the distributions developed.

Based on the analysis presented in this report, Kimley-Horn believes CanAm will be successfully incorporated into the existing and future roadway network. The proposed project development resulted in the following recommendations and conclusions:

Existing Condition Improvements

- In order to comply with City of Commerce City Engineering Construction Standards and Specifications, the following improvements are needed to serve existing traffic:
    - A 135-foot northbound right turn lane with a 180-foot taper, and a 310-foot southbound left turn lane with a 180-foot taper at the intersection of 112th Avenue and Brighton Road.
    - A 135-foot eastbound right turn lane with a 180-foot taper, a 235-foot westbound left turn lane with a 180-foot taper, a 150-foot northbound left turn lane, and a continuous northbound right turn lane at the intersection of 112th Avenue and Belle Creek Boulevard.
    - A 185-foot eastbound left turn lane with a 180-foot taper at the 112th Avenue and Florence Street intersection.
    - Eastbound and westbound left turn lanes at the 112th Avenue and US-85 intersection. The calculated westbound left turn length cannot be achieved at the 112th Avenue and US-85 intersection due to the railroad to the east; therefore, a length of 150 feet is recommended. The implementation of eastbound and westbound left turn lanes at this intersection will allow for removal of the existing split phase signal operation.
    - The existing southbound acceleration lane from the eastbound right turn does not meet current CDOT requirements with existing traffic at the 112th Avenue and US-85 intersection. The existing lane is approximately 675 feet long plus a 225-foot taper. CDOT requirements identify that an acceleration lane along an EX Category needs a length of 960 feet plus a 225-foot taper. Therefore, it is recommended that CDOT consider lengthening this acceleration lane along southbound US-85 to meet current standards.

2022 Recommendations

- With CanAm, Florence Street will be constructed as a public roadway internal to the site to provide a connection between Belle Creek Boulevard and 112th Avenue as the new south leg of the 112th Avenue and Florence Street intersection. The intersection of Florence Street and Belle Creek Boulevard will be located approximately 600 feet south of 112th Avenue. It is recommended that the new westbound Florence Street approach to Belle Creek Boulevard operate with stop control with an R1-1 “STOP” sign installed. Florence Street will

be constructed to meet City of Commerce City standards and requirements for public right-of-way roadways. However, this intersection may also operate with all-way stop control if desired by the City of Commerce City.

- Access to CanAm will be provided by one right-in/right-out access located along the south side of 112th Avenue, two full movement accesses along the east side of Belle Creek Boulevard, and three accesses along future Florence Street extension. All project accesses are recommended to have R1-1 "STOP" signs installed and include single lanes for the exiting approaches. To identify the restriction of the access along 112th Avenue to right-in/right-out turning movements only, it is recommended that a R3-2 No Left Turn sign be placed underneath the STOP sign and an additional No Left Turn sign be installed on the southwest corner facing westbound approaching traffic.

- The threshold for requiring an access permit along CDOT roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the west leg of 112th Avenue at US-85 is anticipated to increase existing access traffic volumes by more than 20 percent; therefore, it is believed that an access permit will be required by CDOT for this intersection in association with this project.

- With the existing two-way stop control, the southbound left turn movement at the intersection of 112th Avenue and Florence Street is expected to operate at LOS E during the peaks hours while all other movements are expected to operate acceptably with LOS D or better during the peak hours throughout the 2040 horizon. Based on inclusion of pedestrians, bicycles, and vehicle traffic, it is anticipated that the intersection of 112th Avenue and Florence Street will meet the eight (8) hour volume warrants for all-way stop control. With 112th Avenue being a short section street to the west, the all-way stop control will operate within driver expectations. Further, intersection safety should improve under all-way stop control with reduced crash rates and reduced collision speeds. All-way stop control also allows for pedestrian connectivity with implementation of crosswalks. Therefore, it is recommended that the intersection of 112th Avenue and Florence Street be converted from two-way stop control to all-way stop control by the buildout horizon.

- By 2022, to maximize the back-to-back left turn lane lengths, it is recommended that the westbound left turn lane at the 112th Avenue and Florence Street intersection provide a length of 200 feet while the eastbound left turn lane at the 112th Avenue and US-85 intersection should provide a length of 275 feet. At the 112th Avenue and Florence Street intersection, a 150-foot northbound left turn lane should be constructed.

- The southbound left turn lane at the intersection of 112th Avenue and Florence street could be extended from 75 feet to 100 feet by 2022.

- The existing 600-foot plus 225-foot taper northbound left turn lane at the 112th Avenue and US-85 intersection will not meet CDOT requirements in the future based on existing and proposed project traffic volumes. Therefore, CDOT will require this northbound left turn lane to be lengthened to provide a length of is 1,160 feet (935-foot turn lane plus 225-foot taper) in 2022, which is defined by 335 feet of storage length, 600 feet of deceleration length, and a 225-foot taper.

- Based on Table 3-5: Roadway Design Criteria from the City of Commerce City Construction Standards and Specifications, the posted speed limit along Minor/Multimodal Arterial roadways should be 40 miles per hour. Therefore, it is recommended that speed limit along 112th Avenue be reduced from 45 mph to 40 mph.

2040 Recommendations

- If future traffic volumes are realized in the year 2040, the required northbound left turn lane length at the 112th Avenue and US-85 intersection is 1,210 feet (985-foot left turn lane plus 225-foot taper), which is defined by 385 feet of storage length, 600 feet of deceleration length, plus a 225-foot taper.

General Recommendations

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

2.0 INTRODUCTION

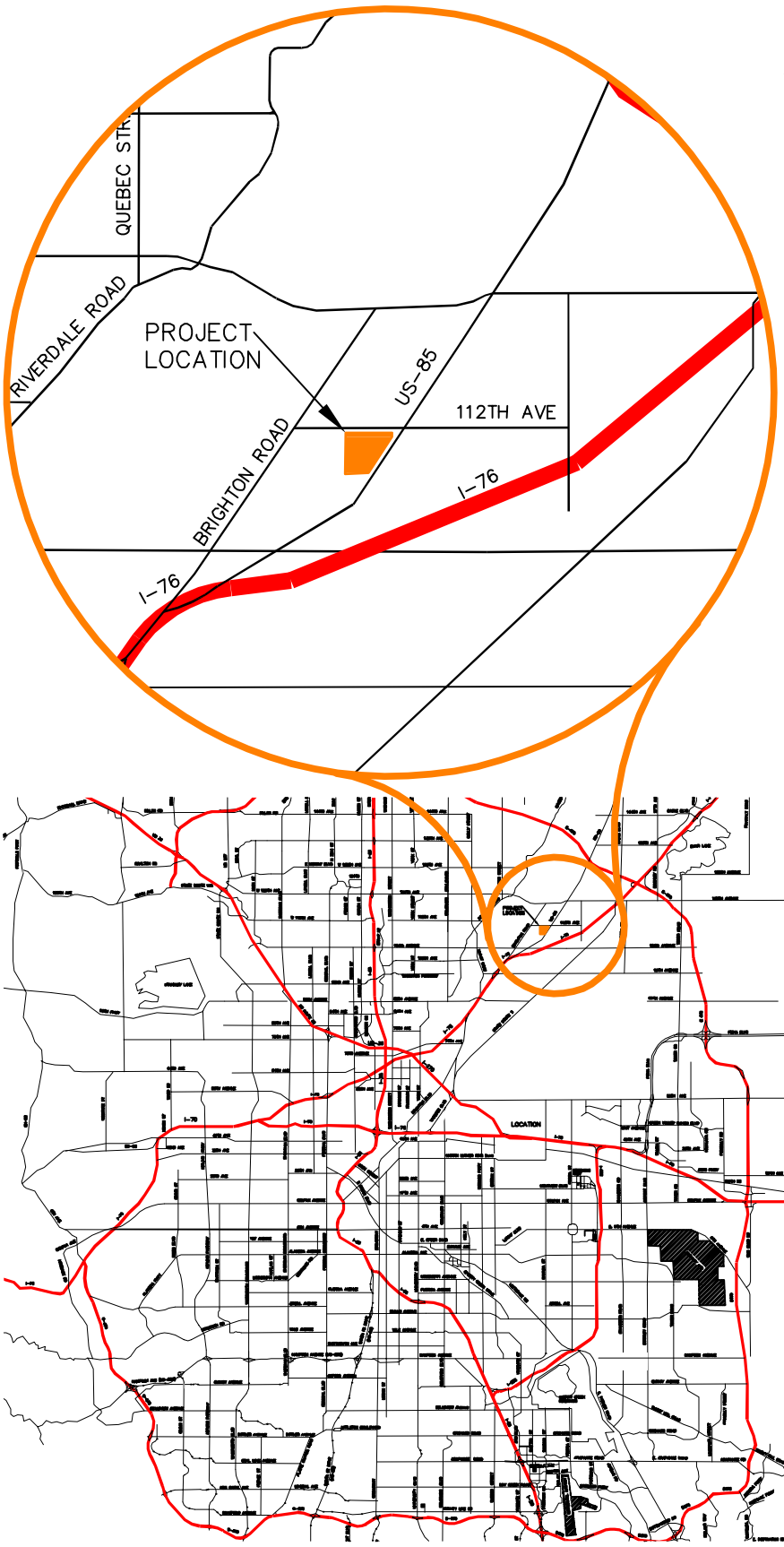
Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study of future traffic conditions associated with CanAm proposed on the southwest corner of the 112th Avenue and US Highway 85 intersection in Commerce City, Colorado. A vicinity map illustrating the project site location is shown in **Figure 1**.

For the purposes of this analysis, the development is anticipated to include 160 single family housing dwelling units, 290 multifamily housing dwelling units, and a 16 fueling position gas station with a 5,312 square foot convenience store. For the purposes of this study, analysis was completed for the 2022 short term and 2040 long term horizons.

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

- 112th Avenue and Brighton Road
- 112th Avenue and Belle Creek Boulevard
- 112th Avenue and Florence Street
- 112th Avenue and US Highway 85
- Florence Street and Belle Creek Boulevard (future)

In addition, one access intersection along 112th Avenue, two access intersections along Belle Creek Boulevard, and three access intersections along the future extension of Florence Street internal to the project development area were also evaluated.



Kimley»Horn
NORTH
NTS 096888000

CanAm
VICINITY MAP

FIGURE 1

Kimley»Horn

Regional access to the project will be provided by US Highway 85 and Interstate 76 (I-76) while primary access will be provided by 112th Avenue, Belle Creek Boulevard, and Florence Street. Florence Street will be constructed through the development area to provide a connection between Belle Creek Boulevard and 112th Avenue to align as the south leg of the 112th Avenue and Florence Street intersection. The future intersection of Florence Street with Belle Creek Boulevard is anticipated to be located approximately 600 feet south of 112th Avenue (measured center to center).

Direct access to the site will be provided by one right-in/right-out access located along the south side of 112th Avenue, two full movement accesses along the east side of Belle Creek Boulevard, and three accesses along the future Florence Street extension. The right-in/right-out access along 112th Avenue is proposed to be located approximately 400 feet west of US Highway 85 and 300 feet east of the 112th Avenue/Florence Street intersection. The two full movement accesses along Belle Creek Boulevard are proposed to be approximately 300 feet and 900 feet south of 112th Avenue (measured center to center). Along the Florence Street extension, three accesses are proposed. The north access along Florence Street will serve the gas station with convenience store, the middle access will serve the multifamily housing on the west side of the street, and the west access will serve both residential developments.

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site is vacant land, with the surrounding area primarily vacant land as well. A residential development is located directly north of the site and shares the west access along 112th Avenue. Residential developments are located northeast and southwest of the site. Industrial land uses are located south of the site along Interstate 76 and US Highway 85. The land uses and roadway network surrounding the site within the study area are shown in the aerial of **Figure 2**.

3.2 Existing Roadway Network

US Highway 85 is classified as a Major Regional Arterial extending north-south with a four-lane section within the project limits. It has a CDOT Category Classification of E-X: Expressway, Major Bypass. 112th Avenue extends east-west with one through lane in each direction in the vicinity of the site and is classified as a future multimodal arterial which has a typical section of a one lane in each direction including bikes and a raised median at buildout according to the City of Commerce City Transportation C3 Vision Transportation Plan. 112th Avenue has a speed limit of 45 miles per hour with one lane of travel in each direction eastbound and westbound. Florence Street, Belle Creek Boulevard, and Brighton Road all provide one lane in each direction northbound and southbound with speed limits of 25 miles per hour, 30 miles per hour, and 45 miles per hour, respectively.

The signalized intersection of 112th Avenue and US Highway 85 operates with split phasing on the eastbound and westbound approaches and protected only left turn phasing on the northbound and southbound approaches. The eastbound and westbound approaches of this intersection provide a through/left turn lane and a channelized right turn lane. The northbound and southbound approaches provide a left turn lane, two through lanes, and a right turn lane.

The stop-controlled intersection of 112th Avenue and Florence Street is a three-leg intersection with stop control on the southbound approach. The eastbound and westbound approaches provide one lane for all movements. The southbound approach provides one left turn lane and one right turn lane.

Kimley»Horn
NORTH
NTS 096888000

CanAm
SITE AREA

FIGURE 2

Kimley»Horn

The stop-controlled intersection of 112th Avenue and Belle Creek Boulevard is a three-leg intersection with stop control on the northbound approach. All approaches provide one lane for all movements.

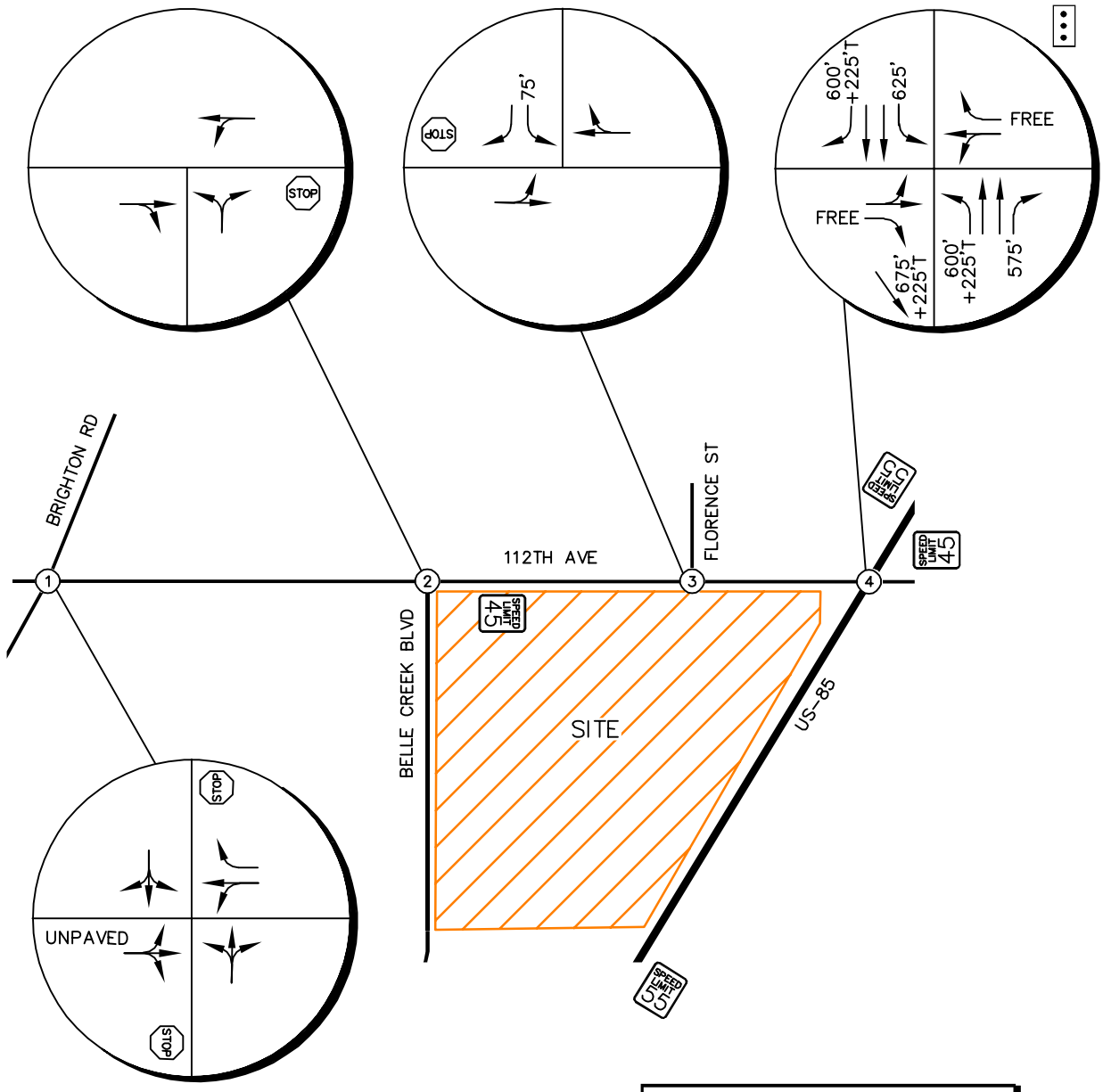
The stop-controlled intersection of 112th Avenue and Brighton Road is a four-leg intersection with stop control on the eastbound (assumed) and westbound approaches. All approaches provide one lane for all movements. The west leg of this intersection is unpaved and did not experience any traffic volumes during the peak hours. The intersection lane configuration and control for the study area intersections are shown in **Figure 3**.

3.3 Existing Traffic Volumes

Existing peak hour turning movement counts were conducted at the intersections of 112th Avenue/US-85 and 112th Avenue/Florence Street on Wednesday, December 11, 2019 while the counts at the intersections of 112th Avenue/Brighton Road and 112th Avenue/Belle Creek Boulevard, and 112th Avenue/US-85 (repeat count) were collected on Wednesday, August 26, 2020. 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. The turning movement counts were grown based on comparing volumes on the west leg of the intersection of 112th Avenue and US Highway 85 on Wednesday, December 11, 2019 (Pre-COVID-19) and on Wednesday, August 28, 2020 (During COVID-19) for a COVID-19 adjustment for the intersections of 112th Avenue/Belle Creek Boulevard and 112th Avenue/Brighton Road. The morning and afternoon peak hour traffic counts collected during COVID-19 in 2020 were increased by 113 percent and 43 percent, respectively. The existing turning movement counts are shown in **Figure 4**, the adjusted turning movement counts are shown in **Figure 5,** and count sheets and COVID adjustment calculations are in **Appendix A**.

3.4 Unspecified Development Traffic Growth

According to traffic projections provided by the Colorado Department of Transportation (CDOT), US Highway 85 is expected to have a 20-year growth factor of 1.37 percent. This equates to an annual growth rate of approximately 1.59 percent. Therefore, an annual growth rate of 1.60 percent was used to calculate short term 2022 background traffic projections and future traffic volume projections in 2040. CDOT traffic information is included in **Appendix B**. Background traffic volumes for 2022 and 2040 are shown in **Figure 6** and **Figure 7**, respectively.



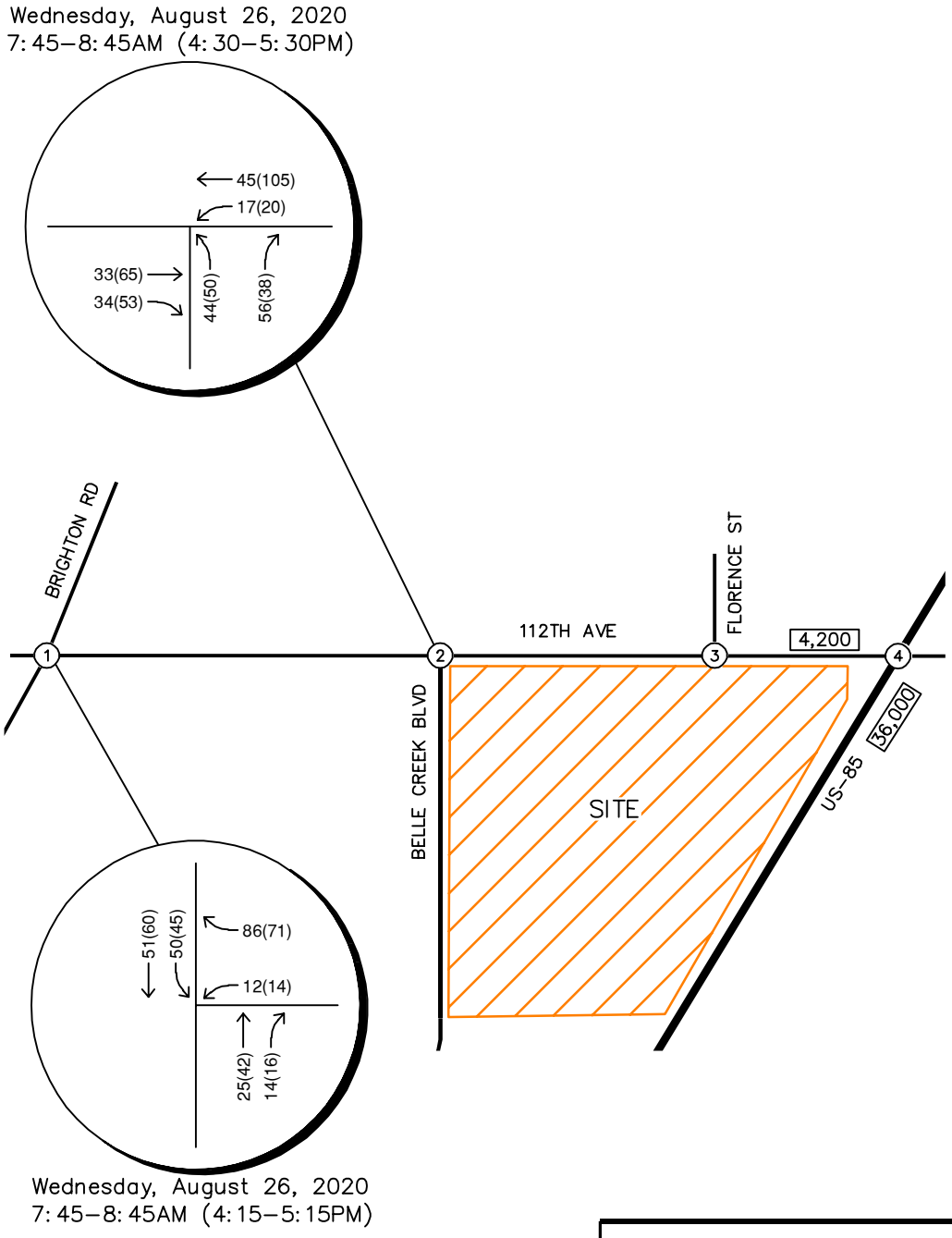
LEGEND

X	Study Area Key Intersection
	Signalized Intersection
STOP	Stop Controlled Approach
SPEED LIMIT XX	Roadway Speed Limit
100'	Turn Lane Length (feet)
T	Taper

CanAm
EXISTING LANE CONFIGURATIONS

FIGURE 3

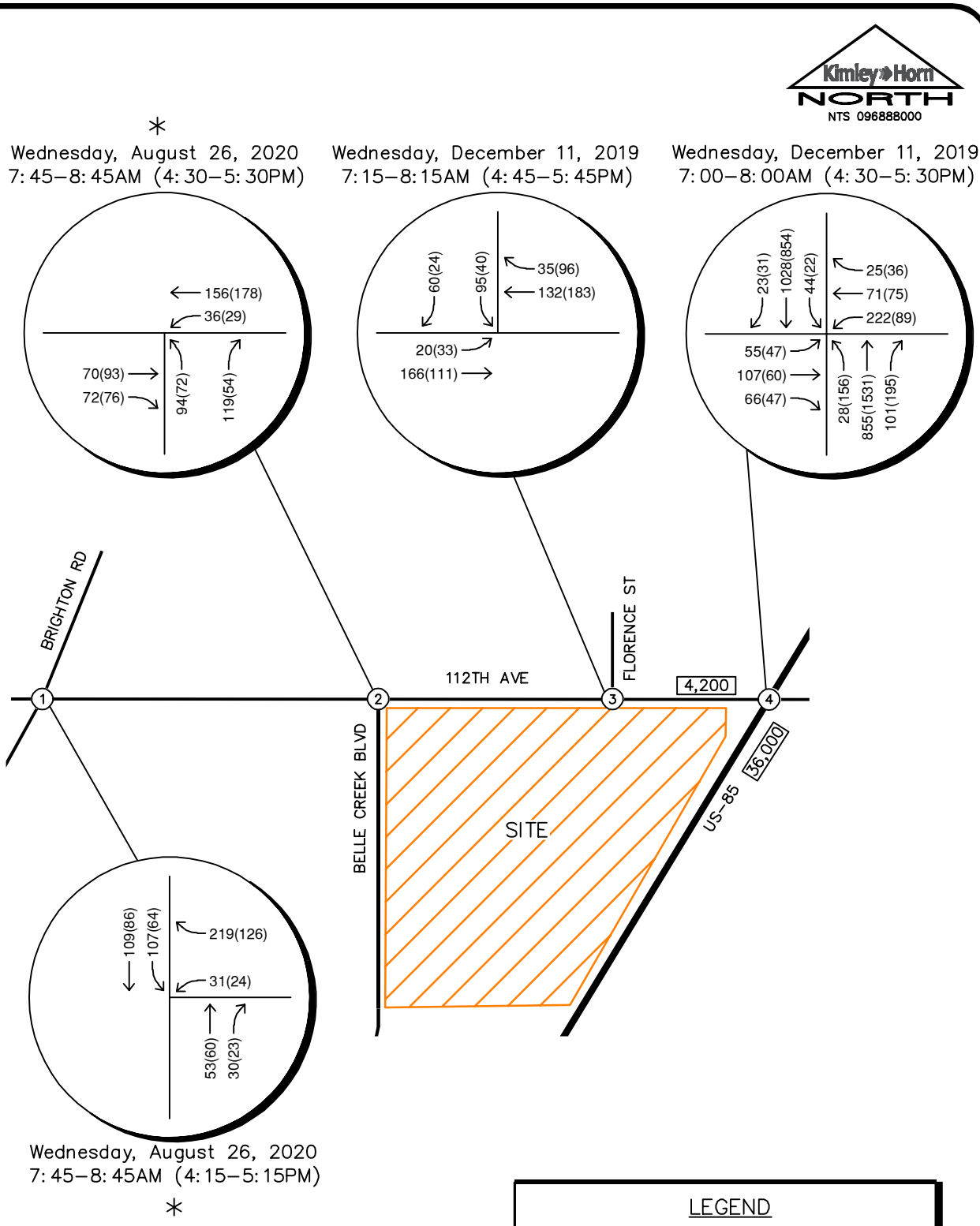
Kimley»Horn



CanAm
2020 EXISTING TRAFFIC VOLUMES

FIGURE 4

Kimley»Horn



LEGEND

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

* NOTE: TRAFFIC VOLUMES WERE ADJUSTED TO ACCOUNT FOR COVID-19.

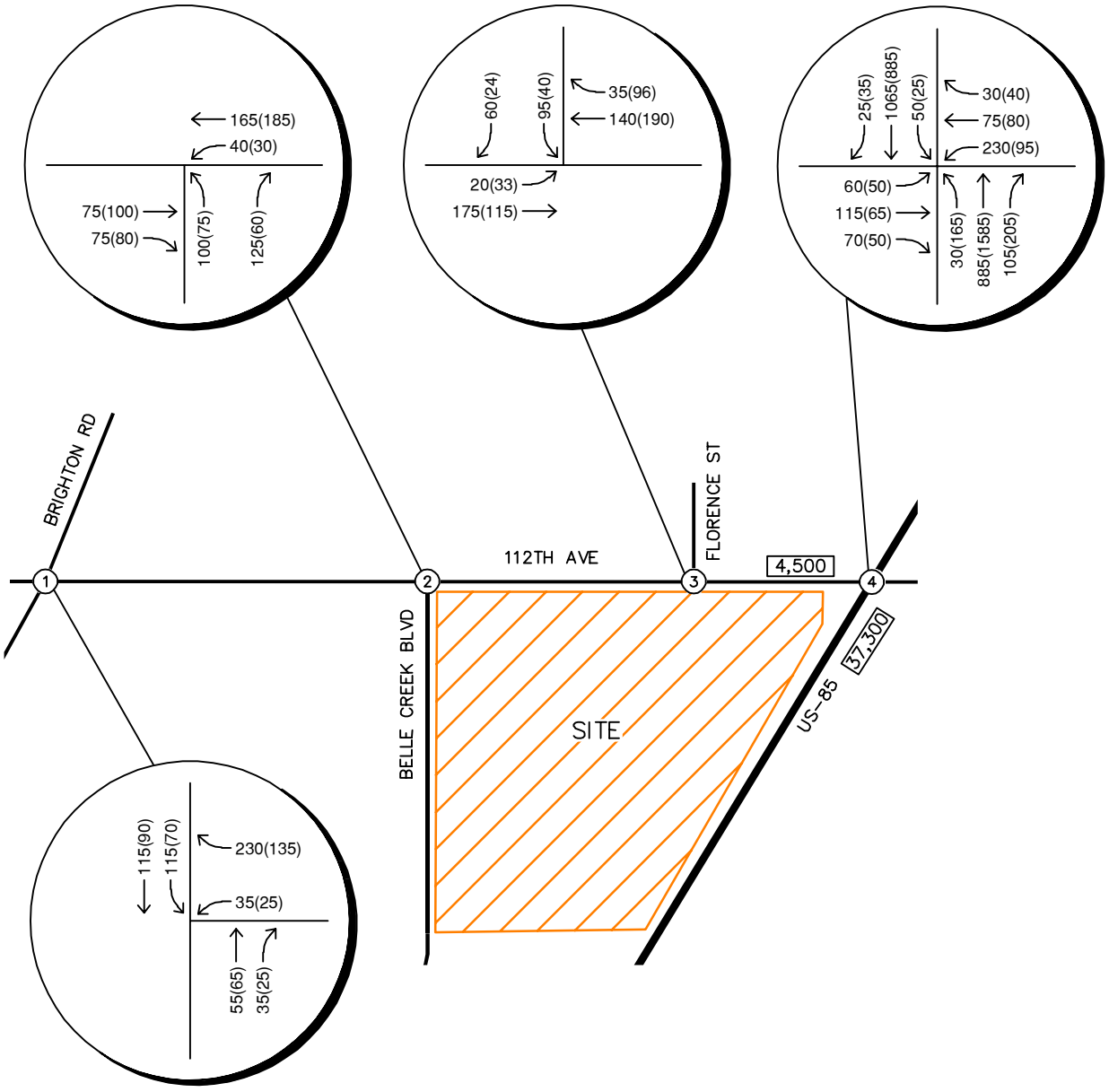
CanAm

2020 EXISTING ADJUSTED TRAFFIC VOLUMES

FIGURE 5

Kimley»Horn

Kimley»Horn
NORTH
NTS 096888000



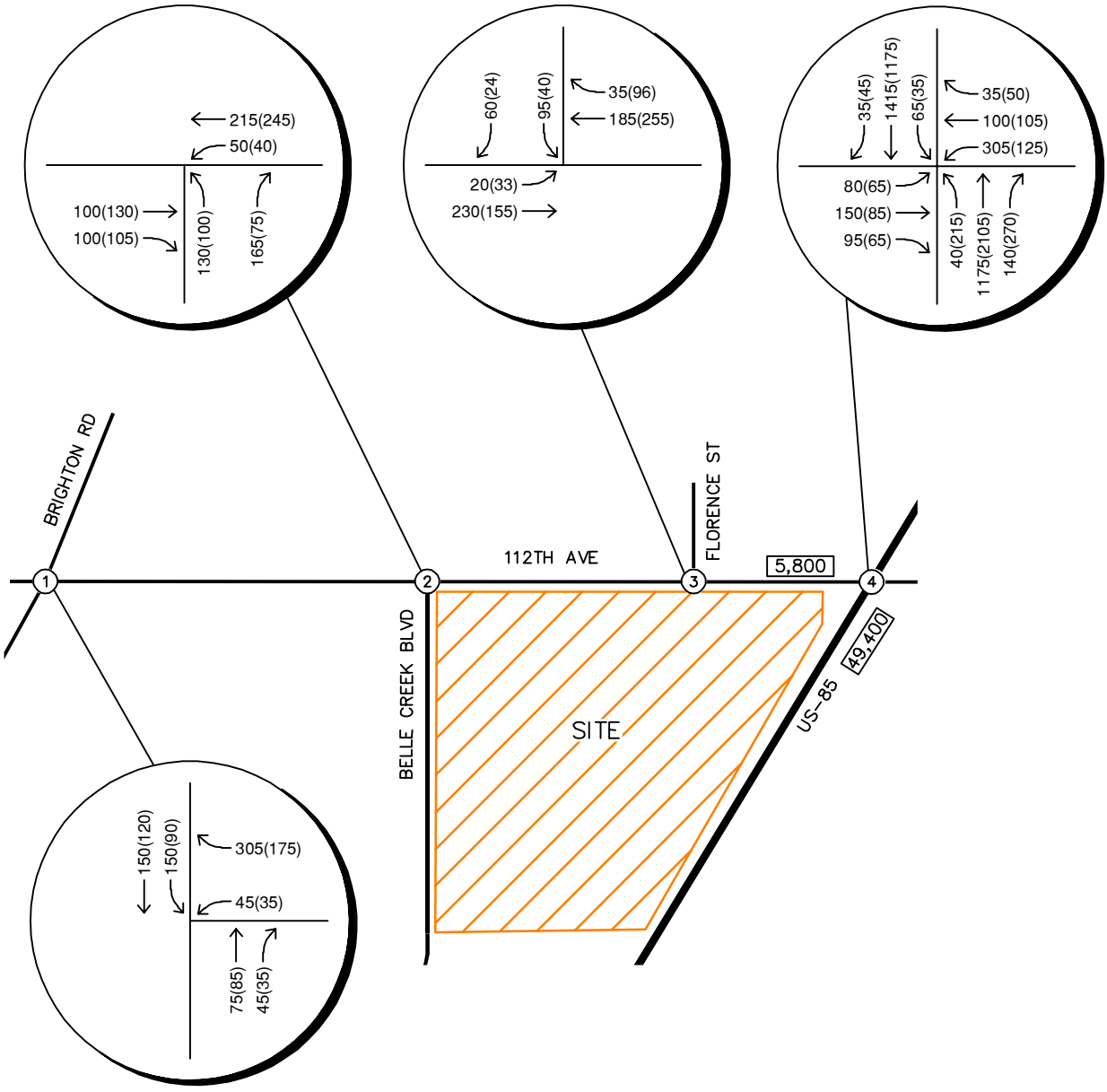
LEGEND

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

CanAm
2022 BACKGROUND TRAFFIC VOLUMES

FIGURE 6

Kimley»Horn



LEGEND

(X) Study Area Key Intersection

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

XX,X00 Estimated Daily Traffic Volume

CanAm

2040 BACKGROUND TRAFFIC VOLUMES

FIGURE 7

Kimley»Horn

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

For the purposes of this analysis, CanAm is anticipated to include 160 single family housing dwelling units, 290 multifamily housing dwelling units, and a 16 fueling position gas station with a 5,312 square foot convenience store.

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 equations that apply to Single-Family Detached Housing (ITE Code 210), Mid-Rise Multifamily Housing (ITE Code 221), and Gasoline Station with Convenience Store (ITE Code 945) for traffic associated with the development. Of note, the 11th Edition of ITE Trip Generation has removed ITE Code 960 and consolidated gas station/convenience stores to ITE 945, based on development size. ITE Code 945 currently provides equations based on the amount of fueling positions compared to the convenience store use. For this project, the ITE Code 945 for 4,000 to 5,500 square feet was used with 16 fueling positions.

Since the project included commercial development; pass-by trips are expected. These pass-by trips are vehicles already on the street network that will be attracted to the gas station. The pass-by percentages were obtained from the ITE "Trip Generation Handbook", Third Edition.

CanAm is expected to generate approximately 7,006 weekday driveway trips, with 663 of these trips occurring during the morning peak and 633 trips occurring during the afternoon peak hour. Accounting for pass-by, expected net new trips (non pass-by) to the surrounding street network results in approximately 3,920 new weekday daily trips, of which 334 and 359 new trips are anticipated during the weekday morning and afternoon peak hours, respectively. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th*

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

Edition – Volume 1: User's Guide and Handbook, 2017. **Table 1** summarizes the estimated trip generation for the proposed development. The trip generation worksheet is included in **Appendix C**.

Table 1 – CanAm Traffic Generation

Land Use	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE 210) 160 Units	1,554	30	84	114	98	57	155
Mid-Rise Multi-Family Housing (ITE 221) – 290 Units	1,338	27	89	116	70	44	114
Gas Station w/ Convenience Store (ITE 945) – 16 Fueling Positions	4,114	216	217	433	182	182	364
Total Site Generated Trips	**7,006**	**273**	**390**	**663**	**350**	**283**	**633**
Total Pass-By Trips	**3,086**	**164**	**165**	**329**	**137**	**137**	**274**
Total Non Pass-By Trips	**3,920**	**109**	**225**	**334**	**213**	**149**	**359**

4.2 Trip Distribution

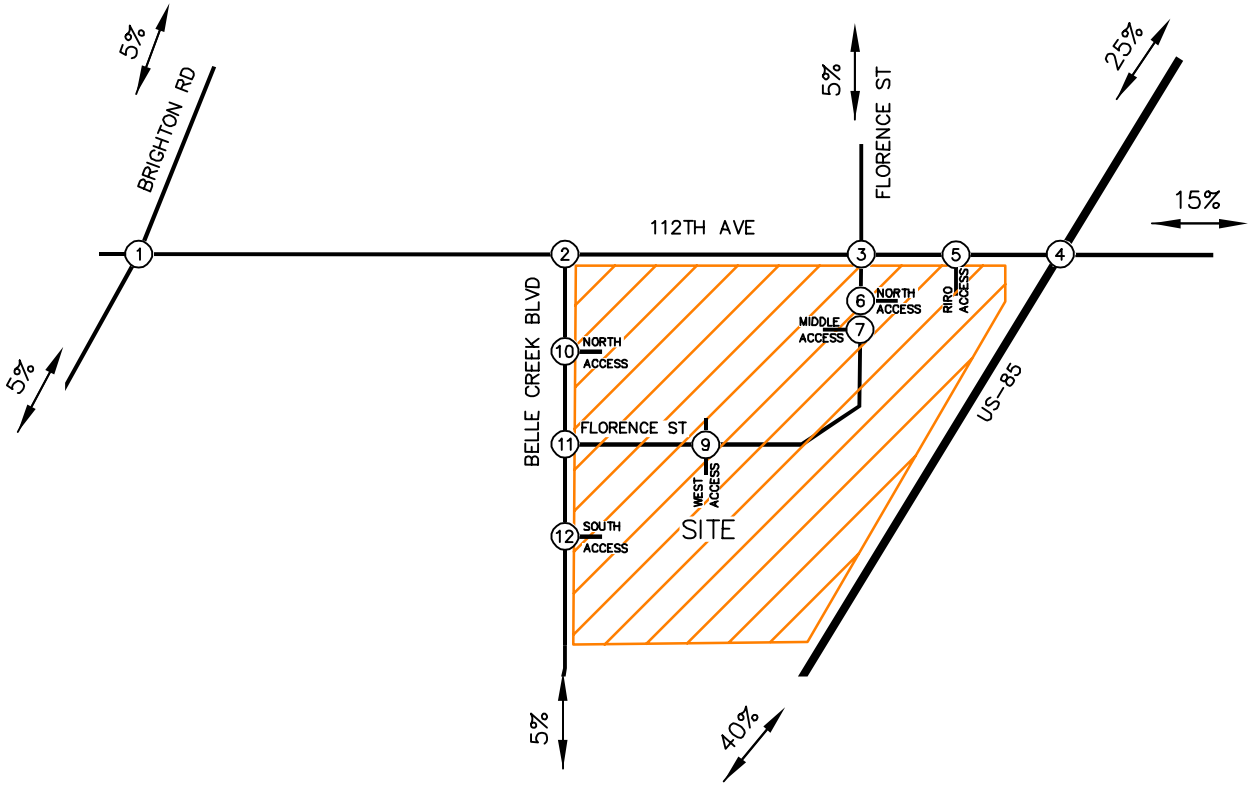
Distribution of site traffic was based on the area street system characteristics, existing traffic patterns and volumes, existing demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project non pass-by trip distribution is illustrated in **Figure 8.**

Since the project includes commercial development, a certain amount of traffic attracted to the gas station will be passing by the site. This pass-by distribution is a means to quantify the amount of traffic arriving to the site from a given direction and then leaving the site in the same original direction of travel, continuing the driver's trip. The expected weekday morning and afternoon peak hour pass-by trip distributions were calculated based on actual traffic volumes. Directional differences in the morning and afternoon peak hours were accounted for in the pass-by distributions as shown in **Figures 9** and **10**, respectively.

4.3 Traffic Assignment and Total (Background Plus Project) Traffic

Project traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Project non pass-by traffic assignment is shown in **Figure 11**, while **Figure 12** illustrates the expected pass-by traffic assignment for CanAm. Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short term 2022 horizon and long term 2040 horizon. These total traffic volumes for the site are illustrated for the 2022 and 2040 horizon years in **Figures 13** and **14**, respectively.

Kimley»Horn
NORTH
NTS 096888000



LEGEND

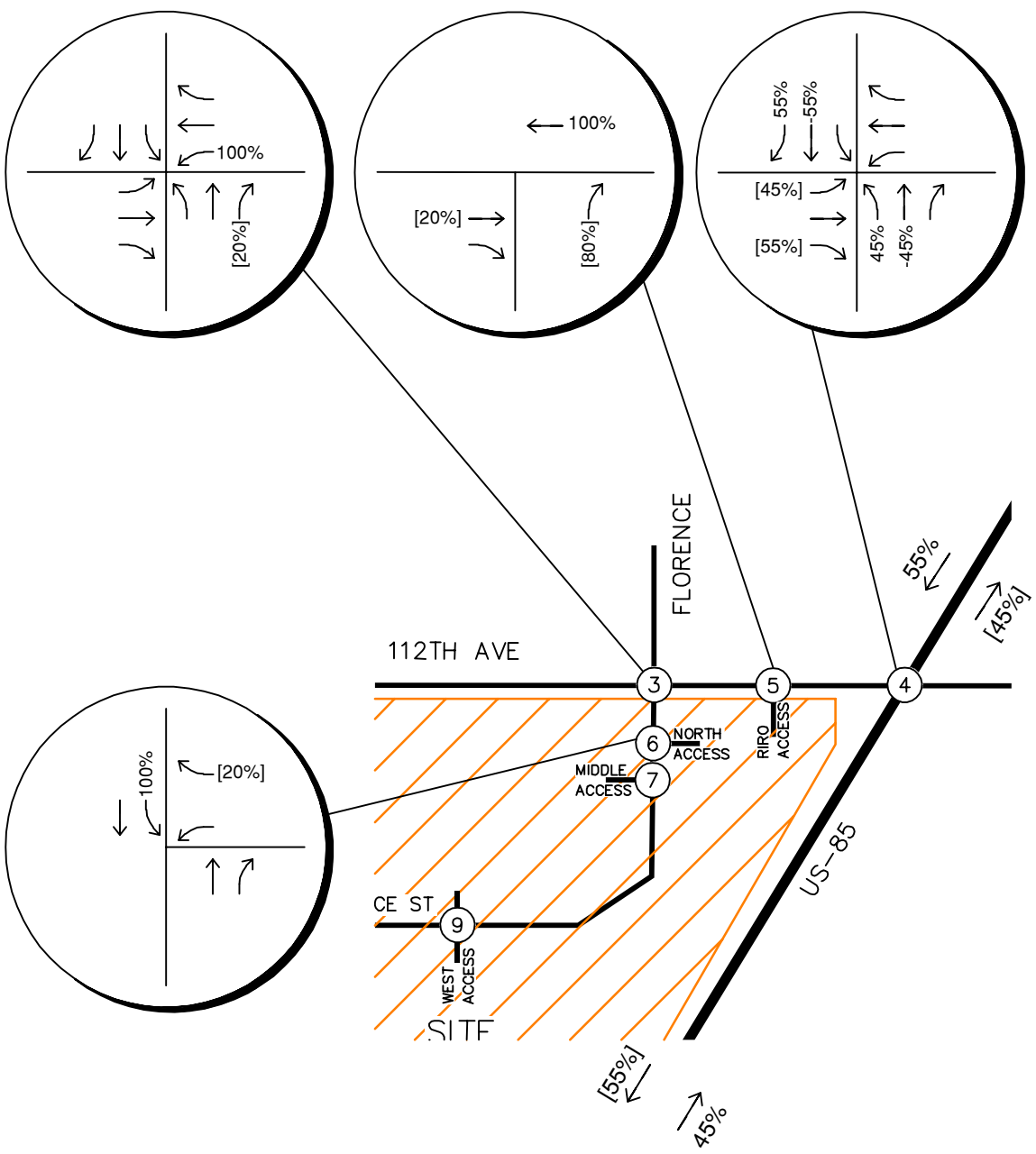
(X) Study Area Key Intersection

XX% External Trip Distribution

CanAm
PROJECT TRIP DISTRIBUTION

FIGURE 8

Kimley»Horn



LEGEND

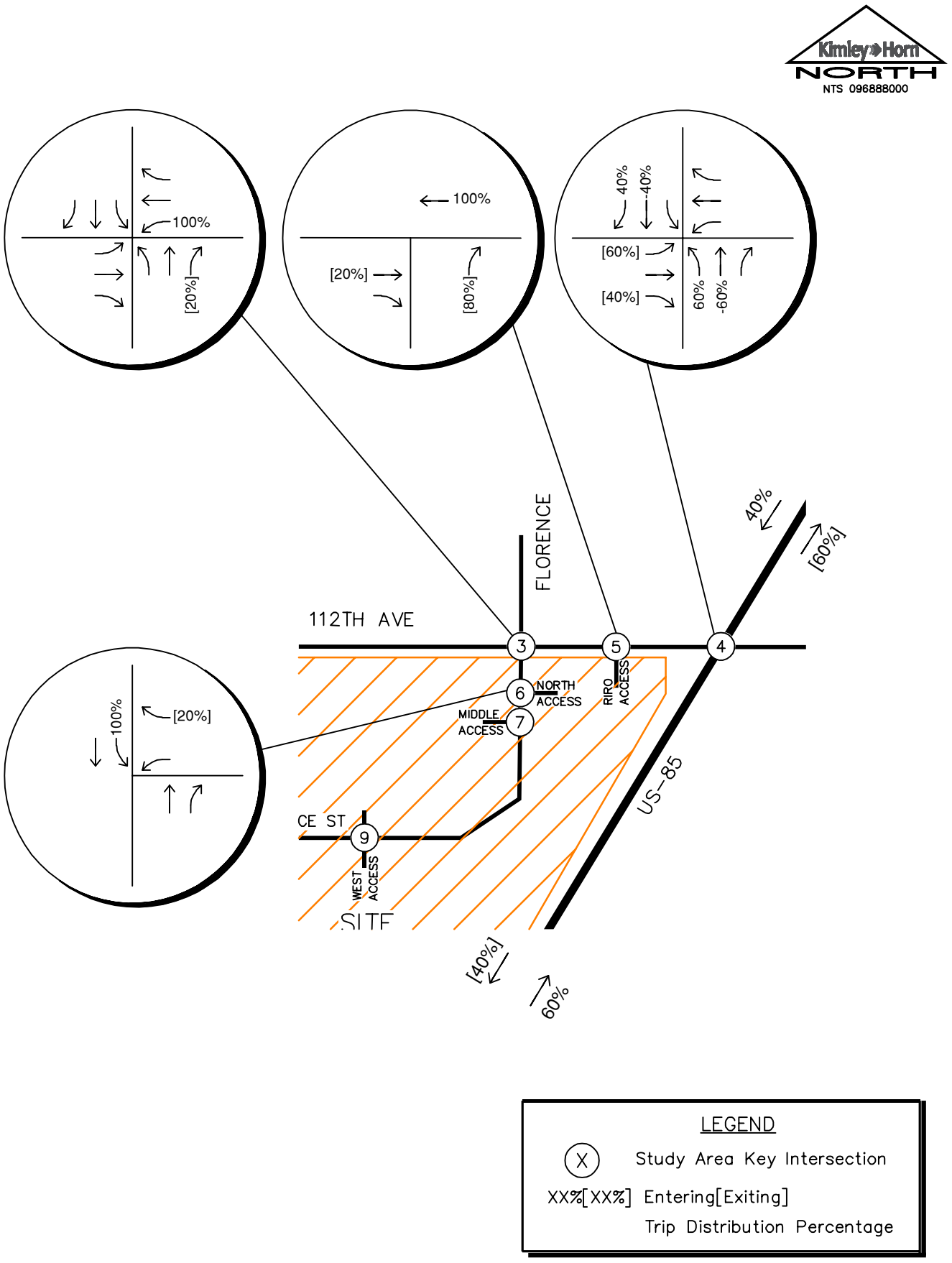
(X) Study Area Key Intersection

XX%[XX%] Entering[Exiting] Trip Distribution Percentage

CanAm
AM PASS-BY TRIP DISTRIBUTION

FIGURE 9

Kimley»Horn

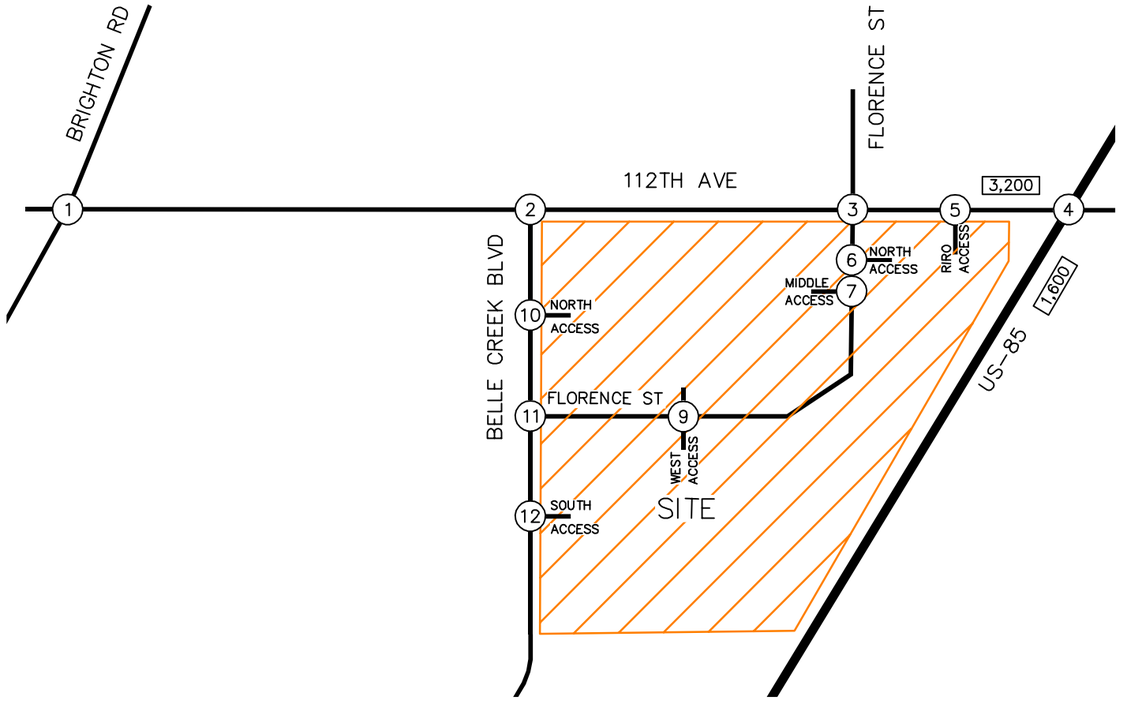


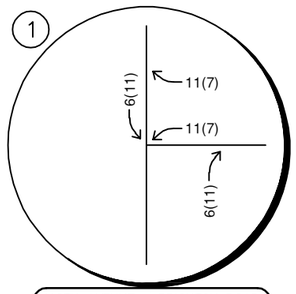
CanAm
PM PASS-BY TRIP DISTRIBUTION

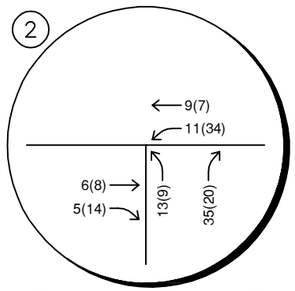
FIGURE 10

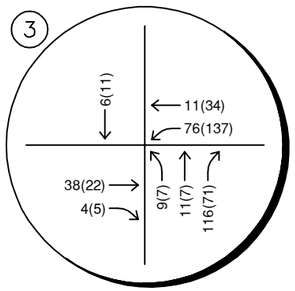
Kimley»Horn

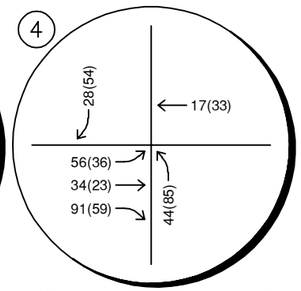
Kimley»Horn
NORTH
NTS 096888000

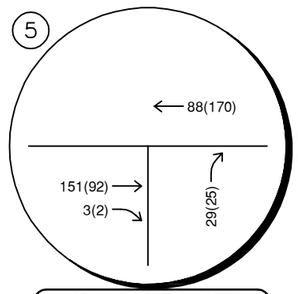


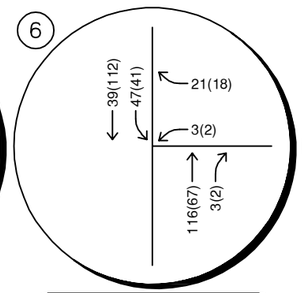


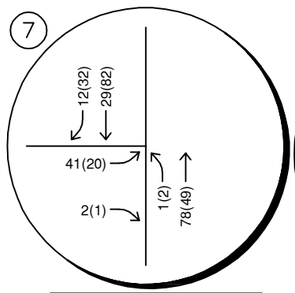


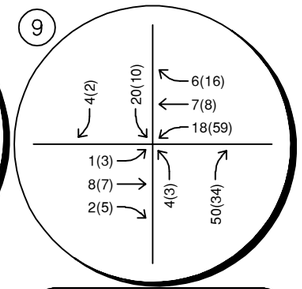


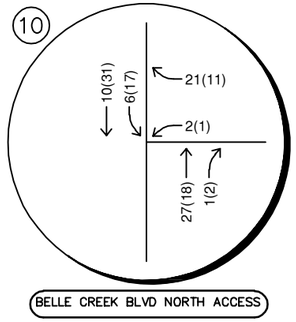


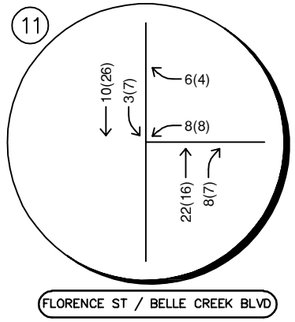


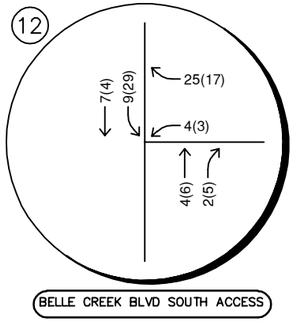












LEGEND

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

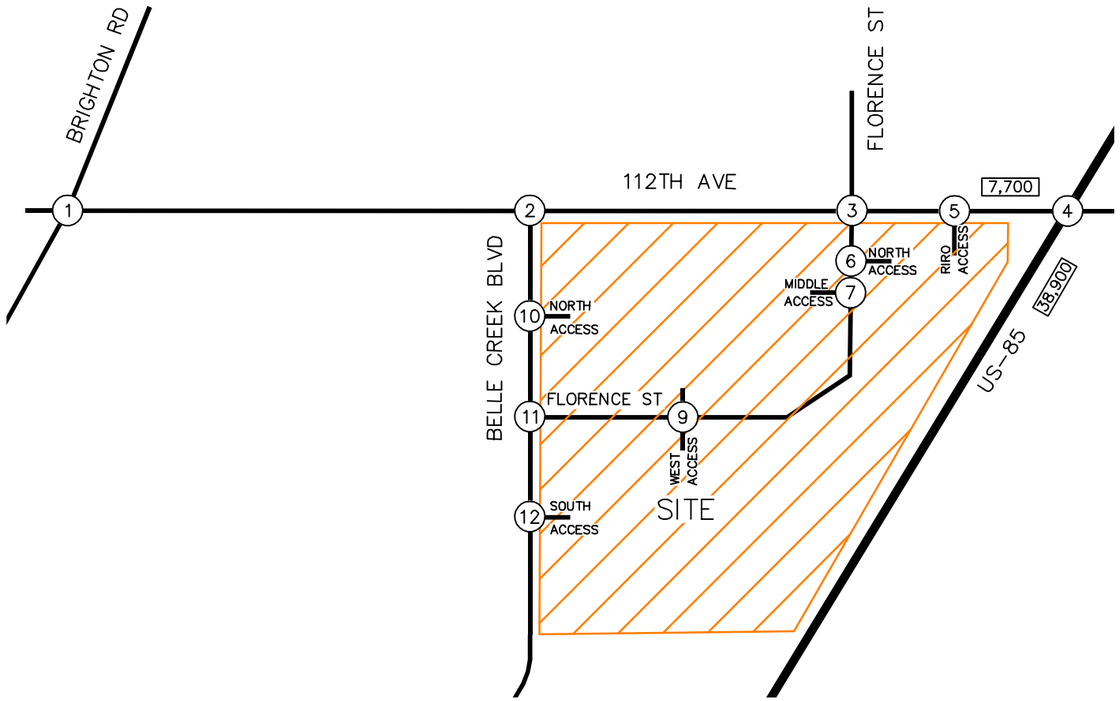
CanAm

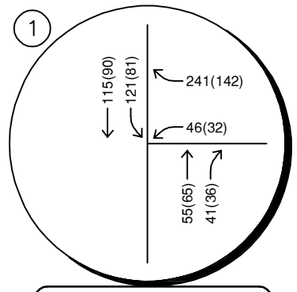
NON PASS-BY PROJECT TRAFFIC ASSIGNMENT VOLUMES

FIGURE 11

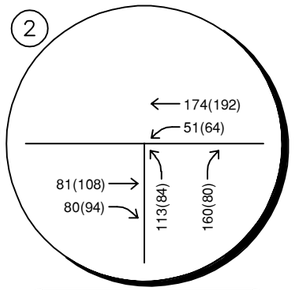
Kimley»Horn

Kimley»Horn
NORTH
NTS 096888000

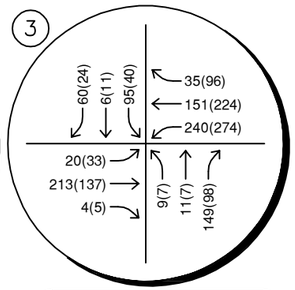




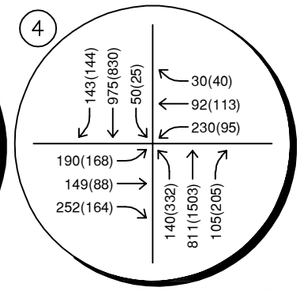
1 112TH AVENUE / BRIGHTON ROAD



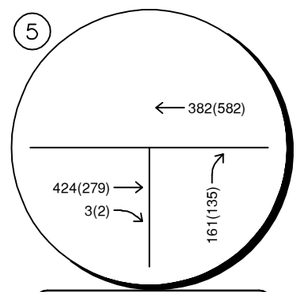
2 112TH AVE / BELLE CREEK BLVD



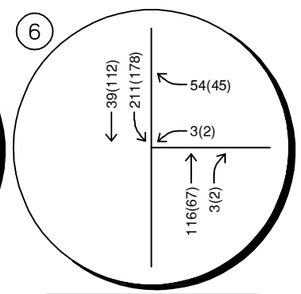
3 112TH AVENUE / FLORENCE ST



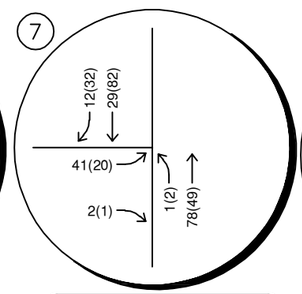
4 112TH AVENUE / US-85



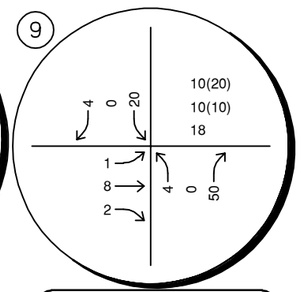
5 112TH AVENUE RIRO ACCESS



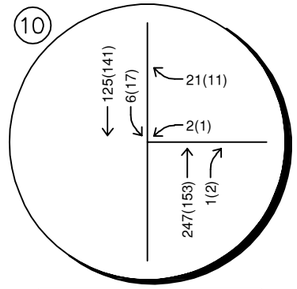
6 FLORENCE STREET NORTH ACCESS



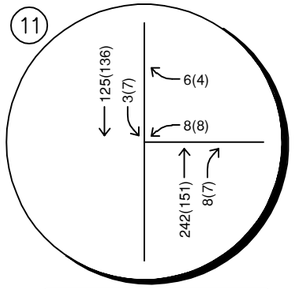
7 FLORENCE STREET MIDDLE ACCESS



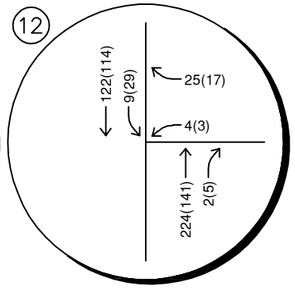
9 FLORENCE ST WEST ACCESS



10 BELLE CREEK BLVD NORTH ACCESS



11 FLORENCE ST / BELLE CREEK BLVD



12 BELLE CREEK BLVD SOUTH ACCESS

LEGEND

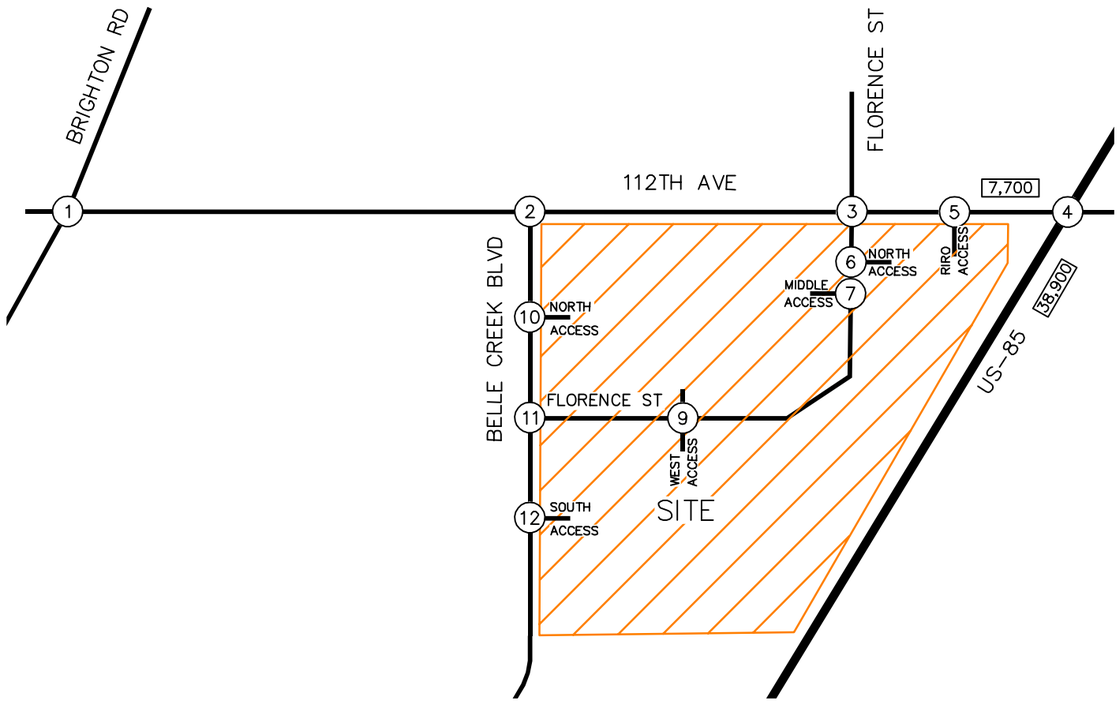
(X)	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

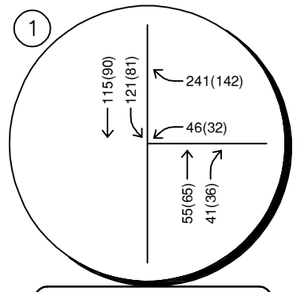
CanAm
2022 BACKGROUND PLUS PROJECT TRAFFIC VOLUMES

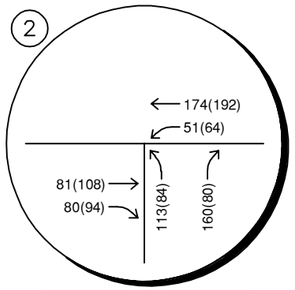
FIGURE 13

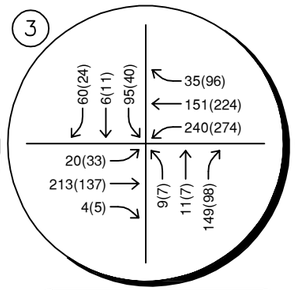
Kimley»Horn

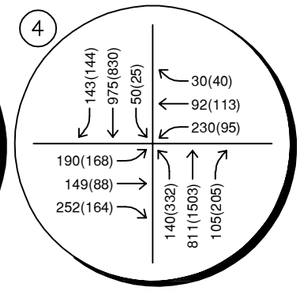
Kimley»Horn
NORTH
NTS 096888000

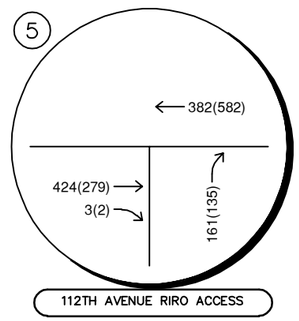


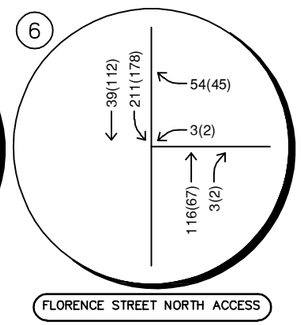


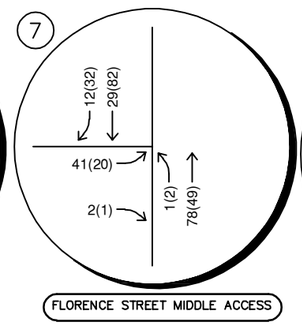


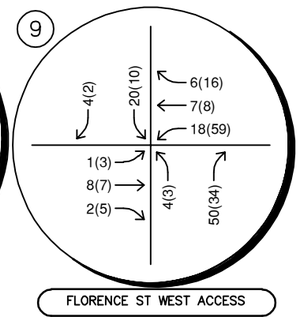


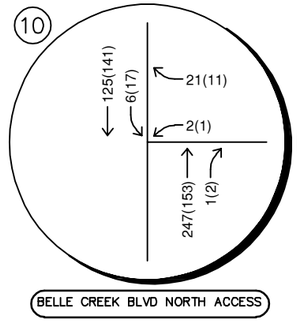


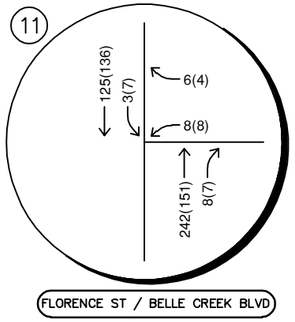


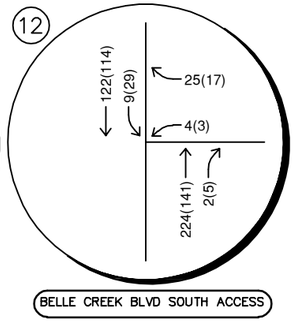












LEGEND

(X) Study Area Key Intersection

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

XX,X00 Estimated Daily Traffic Volume

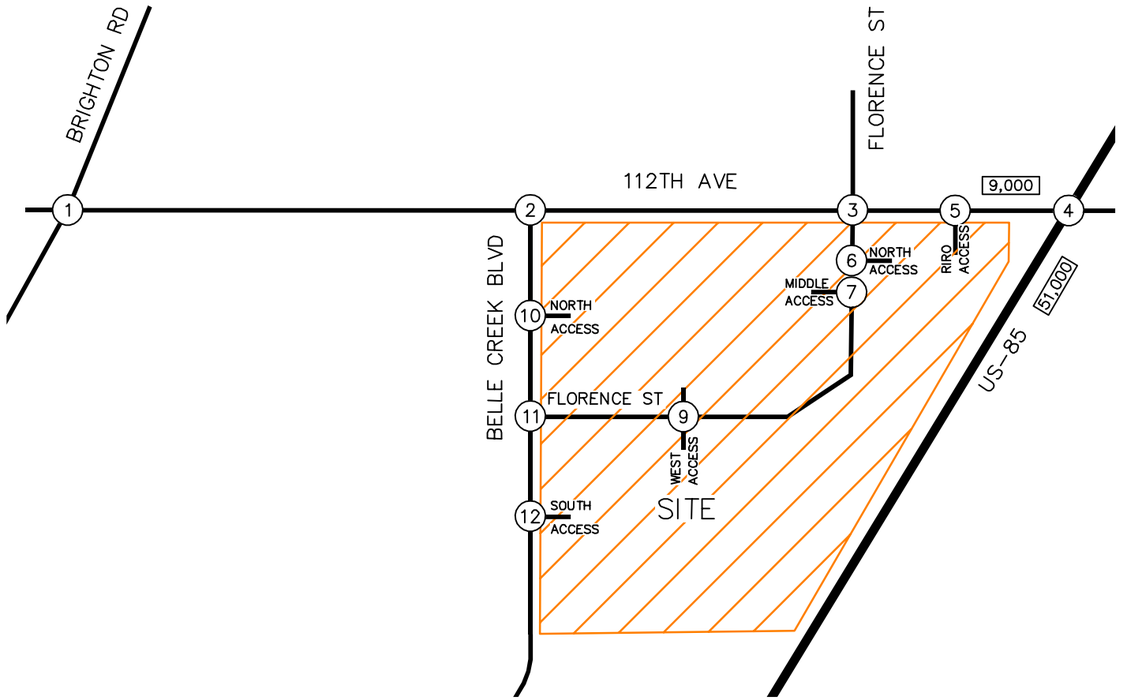
CanAm

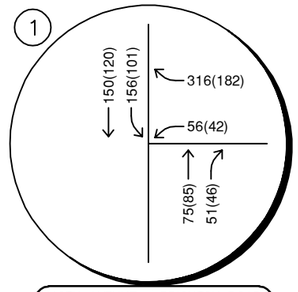
2022 BACKGROUND PLUS PROJECT TRAFFIC VOLUMES

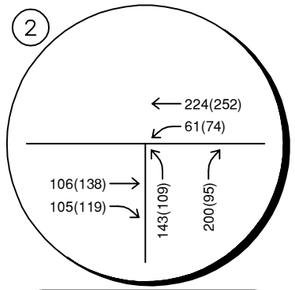
FIGURE 13

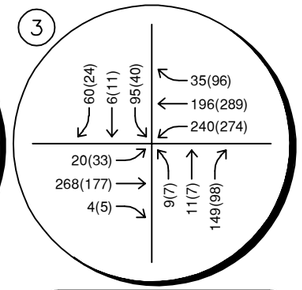
Kimley»Horn

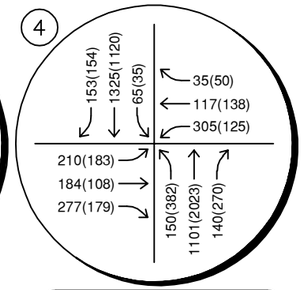
NORTH
NTS 096888000

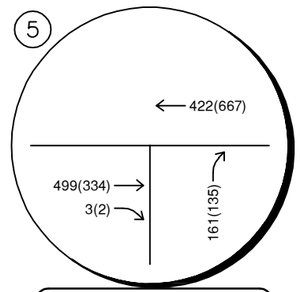


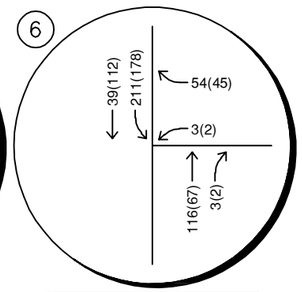


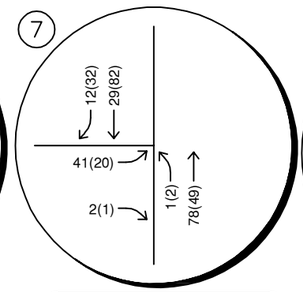


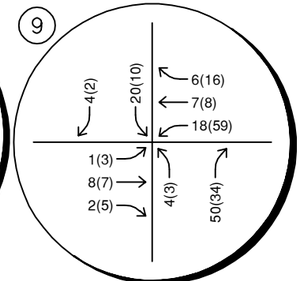


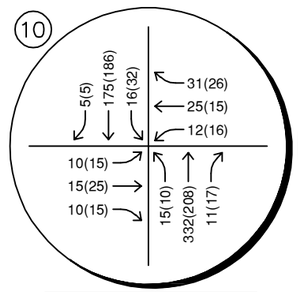


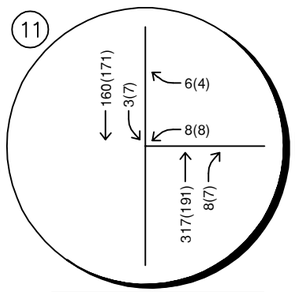


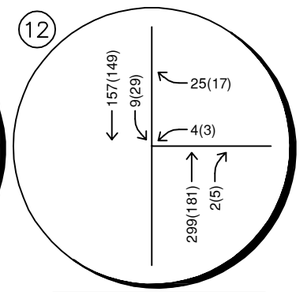












LEGEND

(X) Study Area Key Intersection

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

XX,X00 Estimated Daily Traffic Volume

CanAm

2040 BACKGROUND PLUS PROJECT TRAFFIC VOLUMES

FIGURE 14

Kimley»Horn

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 2022 and 2040 development horizons at the identified key intersections and access driveways. 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 identifies overall LOS D for signalized intersections and LOS E for movements and approaches of unsignalized intersections as the minimum threshold 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 level of service (LOS) for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service for a two-way stop-controlled intersection is not defined for the intersection as a whole. Level of service for a signalized and four-way stop controlled intersection is defined for each approach and for the intersection.

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

5.2 Key Intersection Operational Analysis

Calculations for the 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 3.** Based on national attention given on appropriate yellow clearance intervals to improve intersection safety, these have been calculated and are applied for the approaches to the signalized intersections. The increase in the yellow time sacrifices intersection capacity for improved safety. Per the request of CDOT all red times at the signalized intersection are two seconds. The existing peak hour factors were utilized in the existing and short-term horizon (2022) analysis while the existing signalized intersection analyses used the observed cycle lengths and phasing. The recommended HCM urban area peak hour factor of 0.92 was used for the 2040 horizon analysis. Synchro traffic analysis software was used to analyze the study intersections and access driveway for level of service.

112th Avenue and Brighton Road

The stop-controlled intersection of 112th Avenue and Brighton Road operates with stop control on the westbound approach. The movements at this intersection currently operate acceptably with LOS C or better during the morning and afternoon peaks with the existing lane configuration. In order to comply with City of Commerce City Engineering Construction Standards and Specifications, a northbound right turn lane and a southbound left turn lane should have previously been constructed and are needed based on existing conditions. It should be noted that these improvements have minimal impacts on the operations of this intersection. With these improvements, the movements at this intersection are anticipated to operate acceptably with LOS C or better throughout 2040 with or without project traffic. **Table 3** shows the level of service results at this intersection.

Table 3 – 112th Avenue and Brighton Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2020 Existing				
Westbound Left	16.4	C	12.1	B
Westbound Right	10.3	B	9.6	A
Southbound Left	7.8	A	7.6	A
2022 Background				
Westbound Left	17.9	C	12.5	B
Westbound Right	10.5	B	9.7	A
Southbound Left	7.9	A	7.7	A
2022 Background Plus Project				
Westbound Left	20.2	C	13.4	B
Westbound Right	10.7	B	9.8	A
Southbound Left	8.0	A	7.7	A
2022 Background Plus Project #				
Westbound Left	18.5	C	13.0	B
Westbound Right	10.2	B	9.7	A
Southbound Left	8.0	A	7.7	A
2040 Background #				
Westbound Left	18.6	C	12.7	B
Westbound Right	11.0	B	9.7	A
Southbound Left	8.0	A	7.7	A
2040 Background Plus Project #				
Westbound Left	20.2	C	13.3	B
Westbound Right	11.2	B	9.8	A
Southbound Left	8.0	A	7.7	A

= Northbound Right and Southbound Left Turn Lanes

112th Avenue and Belle Creek Boulevard

The stop-controlled intersection of 112th Avenue and Belle Creek Boulevard operates with stop control on the northbound approach. The movements at this intersection currently operate acceptably with LOS B or better during the morning and afternoon peak hours with the existing lane configuration. In order to comply with City of Commerce City Engineering Construction Standards and Specifications, an eastbound right turn lane, a westbound left turn lane, a northbound left turn lane, and a northbound right turn lane should have previously been constructed and are needed based on existing conditions. With these improvements, the movements at this intersection are anticipated to operate acceptably with LOS C or better throughout 2040 with or without project traffic. **Table 4** shows the level of service results at this intersection.

Table 4 – 112th Avenue and Belle Creek Boulevard LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2020 Existing				
Northbound Approach	14.6	B	11.9	B
Westbound Left	7.9	A	7.7	A
2022 Background				
Northbound Approach	15.9	B	12.2	B
Westbound Left	7.9	A	7.8	A
2022 Background Plus Project				
Northbound Approach	20.3	C	14.6	B
Westbound Left	8.0	A	7.9	A
2022 Background Plus Project #				
Northbound Left	16.9	C	15.0	C
Northbound Right	10.2	B	9.3	A
Westbound Left	8.0	A	7.9	A
2040 Background #				
Northbound Left	17.2	B	13.0	B
Northbound Right	10.1	A	9.5	A
Westbound Left	7.9	A	7.9	A
2040 Background Plus Project #				
Northbound Left	20.3	C	15.1	C
Northbound Right	10.5	B	9.7	A
Westbound Left	8.0	A	8.0	A

= Eastbound Right, Westbound Left, Northbound Left and Northbound Right Turn Lanes

112th Avenue and Florence Street

The stop-controlled intersection of 112th Avenue and Florence Street currently operates with stop control on the southbound approach. The movements at this intersection currently operate acceptably with LOS B or better during the morning and afternoon peak hours. With construction of this project, Florence Street is proposed to be extended south, eventually transitioning west to tie-in with Belle Creek Boulevard. With construction of the south leg, it is recommended that exclusive left turn lanes be constructed on the eastbound, westbound, and northbound approaches to comply with City of Commerce City Engineering Construction Standards and Specifications. With these improvements, the southbound left turn movement at this intersection is expected to operate at LOS E during the peaks hours while all other movements are expected to operate acceptably with LOS D or better during the peak hours throughout the 2040 horizon. Based on inclusion of pedestrians, bicycles, and vehicle traffic, it is anticipated that the intersection of 112th Avenue and Florence Street will meet the eight (8) hour volume warrants for all-way stop control. With 112th Avenue being a short section street to the west, the all-way stop control will operate within driver expectations. Further, intersection safety should improve under all-way stop control with reduced crash rates and reduced collision speeds. All-way stop control also allows for pedestrian connectivity with implementation of crosswalks. Therefore, it is recommended that the intersection of 112th Avenue and Florence Street be converted from two-way stop control to all-way stop control by the buildout horizon. All-way stop control warrant calculations are included in **Appendix H**. With all-way stop control and left turn lanes on all four approaches, the overall intersection is expected to operate at LOS B with all approaches operating at LOS C or better throughout 2045 with project traffic. **Table 5** shows the level of service results at this intersection.

Table 5 – 112th Avenue and Florence Street LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2020 Existing				
Eastbound Left	7.6	A	8.0	A
Southbound Left	12.5	B	12.6	B
Southbound Right	9.2	A	9.4	A
2022 Background				
Eastbound Left	7.7	A	8.1	A
Southbound Left	12.8	B	12.8	B
Southbound Right	9.3	A	9.4	A
2022 Background Plus Project #				
Northbound Left	20.6	C	29.9	D
Northbound Right	11.9	B	11.3	B
Eastbound Left	7.7	A	8.2	A
Westbound Left	8.5	A	8.3	A
Southbound Left	45.2	E	32.5	D
Southbound Right	10.6	B	14.5	B
2022 Background Plus Project ##	**13.8**	**B**	**13.1**	**B**
Eastbound Approach	14.9	B	11.1	B
Westbound Approach	14.5	B	14.6	B
Northbound Approach	12.1	B	10.5	B
Southbound Approach	11.8	B	10.4	B
2040 Background				
Eastbound Left	7.9	A	8.3	A
Southbound Left	14.2	B	12.4	B
Southbound Right	9.7	A	9.7	A
2040 Background Plus Project #				
Northbound Left	21.0	C	30.6	D
Northbound Right	12.3	B	11.7	B
Eastbound Left	7.8	A	8.4	A
Westbound Left	8.6	A	8.5	A
Southbound Left	48.0	E	35.3	E
Southbound Right	10.9	B	16.0	C
2040 Background Plus Project ##	**14.4**	**B**	**15.2**	**B**
Eastbound Approach	16.5	C	12.5	B
Westbound Approach	14.8	B	17.3	C
Northbound Approach	12.4	B	10.9	B
Southbound Approach	11.8	B	10.7	B

= EB Left Turn Lane, WB Left Turn Lane, and NB Left Turn Lane

= All Way Stop-Control, EB Left Turn Lane, WB Left Turn Lane, and NB Left Turn Lane

112th Avenue and US Highway 85

The signalized intersection of 112th Avenue and US Highway 85 operates with protected only left turn phasing on the northbound and southbound approaches and split phasing on the eastbound and westbound approaches. This intersection currently operates acceptably with LOS D during the morning and afternoon peak hours. With the existing lane configurations and control, this intersection is expected to continue to operate acceptably with LOS D during the morning and afternoon peak hours in 2022. With addition of project traffic and the existing intersection configuration, this intersection is anticipated to operate with long delays during the peak hours in 2022. Eastbound and westbound left turn lanes are recommended at this intersection in the future to comply with City of Commerce City Engineering Construction Standards and Specifications. These eastbound and westbound left turn lanes will allow for removal of the existing split phase operation for the minor street approaches. With the recommended improvements by 2022, this intersection is expected to operate acceptably with LOS D during the morning and afternoon peak hours throughout 2040. **Table 6** shows the level of service results at this intersection.

Table 6 – 112th Avenue and US Highway 85 LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2020 Existing	38.5	D	40.0	D
2022 Background	41.2	D	44.9	D
2022 Background Plus Project	69.3	E	71.9	E
2022 Background Plus Project #	36.8	D	41.6	D
2040 Background #	37.6	D	37.4	D
2040 Background Plus Project #	46.6	D	54.3	D

= Includes designated EB and WB Through and Left Turn Lane with Split Phase Removal

5.3 Project Accesses Operational Analysis

With CanAm, access to the site will be provided by one right-in/right-out access located along the south side of 112th Avenue, two full movement accesses along the east side of Belle Creek Boulevard, and three accesses along the future Florence Street extension. The right-in/right-out access along 112th Avenue is proposed to be located approximately 400 feet west of US Highway 85 and 300 feet east of the 112th Avenue/Florence Street intersection. The two full movement accesses along Belle Creek Boulevard are proposed to be approximately 300 feet and 900 feet south of 112th Avenue (measured center to center). Along the Florence Street extension, three accesses are proposed. The north access along Florence Street will serve the gas station with convenience store, the middle access will serve the multifamily housing on the west side of the street, and the west access will serve both residential developments. All project accesses are recommended to have R1-1 "STOP" signs installed and single approach lanes for the exiting approaches. To identify the restriction of the access along 112th Avenue to right-in/right-out turning movements only, it is recommended that a R3-2 No Left Turn sign be placed underneath the STOP sign and an additional "No Left Turn" sign be installed on the southwest corner facing westbound approaching traffic.

With the recommended configuration of the project accesses in the opening year of 2022, all movements at the access intersections are anticipated to operate acceptably with LOS B or better during the weekday peak hours. By 2040, all movements at the access intersections are expected to continue to operate acceptably with LOS B or better during the peak hours. The operational analysis at the proposed project accesses is summarized in **Table 7** for the short-term 2022 horizon and for the long-term 2040 horizon. Detailed results of the operational analysis are also provided in **Appendix D**.

Table 7 – Project Access LOS Results

Access and Movement	2022 Total Traffic				2040 Total Traffic			
	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
112th Ave Right-In/Right-Out Access (#5)								
Northbound Right	13.5	B	11.1	B	14.9	B	11.7	B
Florence St North Access (#6)								
Westbound Approach	9.5	A	9.1	A	9.5	A	9.1	A
Southbound Left	7.9	A	7.7	A	7.9	A	7.7	A
Florence St Middle Access (#7)								
Eastbound Approach	9.4	A	9.5	A	9.4	A	9.5	A
Northbound Left	7.3	A	7.5	A	7.3	A	7.5	A
Florence St West Access (#9)								
Eastbound Left	7.2	A	7.3	A	7.2	A	7.3	A
Westbound Left	7.3	A	7.3	A	7.3	A	7.3	A
Northbound Approach	8.6	A	8.6	A	8.6	A	8.6	A
Southbound Approach	9.6	A	9.8	A	9.4	A	9.8	A
Belle Creek Blvd North Access (#10)								
Westbound Approach	10.0	B	9.3	A	11.5	B	10.9	B
Southbound Left	7.8	A	7.6	A	8.1	A	7.8	A
Florence St and Belle Creek Blvd (#11)								
Westbound Approach	10.6	B	10.1	B	11.4	B	10.6	B
Southbound Left	7.8	A	7.6	A	8.0	A	7.7	A
Belle Creek Blvd South Access (#12)								
Westbound Approach	9.9	A	9.4	A	10.6	B	9.7	A
Southbound Left	7.8	A	7.6	A	8.0	A	7.7	A

5.4 Impacts to Belle Creek Boulevard

As requested by the City of Commerce City, impacts to Belle Creek Boulevard south of the project has been included in this study. It is anticipated that less than 150 project trips per day will utilize Belle Creek Boulevard to the south of this development. Delay issues presently at the intersection of 104th Avenue and Belle Creek Boulevard as well as traffic calming devices in place along Belle Creek Boulevard south of the project will deter project traffic to use Belle Creek Boulevard to the south. It is anticipated that the only project trips to occur to and from the south along Belle Creek Boulevard will be from residences to the south using retail services on the project site. It is more direct for project traffic to use the intersection of 112th Avenue and

US-85 for travel to and from the south. Further, the 112th Avenue and US-85 intersection has reserved capacity to reduce travel times compared to other routes. Therefore, it is believed that project traffic will not utilize (or nominal at most) the intersection of 104th Avenue and Belle Creek Boulevard and minimal impacts will occur along Belle Creek Boulevard from residences to the south.

5.5 Speed Limit Evaluation

As directed by the City of Commerce City, the speed limit along 112th Avenue should be evaluated in association with the project. 112th Avenue is currently categorized by the City of Commerce City as a Minor/Multimodal Arterial and has a speed limit of 45 miles per hour (mph) adjacent to the project. Based on Table 3-5: Roadway Design Criteria from the City of Commerce City Construction Standards and Specifications, the posted speed limit along Minor/Multimodal Arterial roadways should be 40 miles per hour. Therefore, it is recommended that speed limit along 112th Avenue be reduced from 45 mph to 40 mph.

5.6 Turn Bay Length Analysis

The threshold for requiring an access permit along CDOT roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the west leg of 112th Avenue at US-85 is anticipated to increase existing access traffic volumes by more than 20 percent; therefore, it is believed that an access permit will be required by CDOT for this intersection in association with this project.

Since US-85 is a state owned and maintained facility, it is recommended that auxiliary turn lanes along US-85 be constructed in accordance with the current CDOT State Highway Access Code (SHAC). CDOT categorizes the segment of US-85 through the study area as E-X: Expressway, Major Bypass. According to the State Highway Access Code for category E-X, the following thresholds apply for implementation of auxiliary turn lanes:

- A left turn deceleration lane is required for any access with a projected average daily left turn ingress volume greater than 10. If the projected left ingress turning volume is greater than 10 vehicles per day (vpd), a left turn lane with deceleration, storage, and transition taper lengths is required for any access.

- A right turn lane with deceleration and taper lengths is required for any access with a projected peak hour right turn ingress turning volume greater than 10 vph.
- A right turn lane with acceleration and taper lengths is required for any access with a projected peak hour right turning volume greater than 10 vph.

Based on traffic projections and the above thresholds, auxiliary turn lane requirements were calculated for the 112th Avenue and US-85 intersection. US-85 provides two through lanes of travel in each direction and has a speed limit of 55 miles with the study area. As such, turn lane requirements at the 112th Avenue/US-85 intersection that are anticipated to include project traffic volumes are as follows:

- A northbound left turn deceleration lane **is** warranted and exists today with a length of approximately 600 feet plus a 225-foot taper. Since US-85 has an EX category, the left turn lane requirement is storage length plus deceleration length (600 feet) plus taper length (225 feet at 18.5 to 1 taper). The storage length required is one (1) foot per vehicle. Based on the projected northbound left turn volume being 335 vehicles per hour in 2022, the storage length requirement is 335 feet. Of note, the northbound left turn volume projected in 2040 is 382 vehicles per hour, which would identify a storage length requirement of 385 feet. Therefore, the required northbound left turn lane length is 1,160 feet (935-foot turn lane plus 225-foot taper) in 2022, which is defined by 335 feet of storage length, 600 feet of deceleration length, and a 225-foot taper. The required northbound left turn lane length is 1,210 feet (985-foot left turn lane plus 225-foot taper) in 2040, which is defined by 385 feet of storage length, 600 feet of deceleration length, plus a 225-foot taper. Therefore, CDOT may require extension of this existing northbound left turn lane.

- A southbound right turn deceleration lane **is** warranted and exists today with a length of 600 feet plus a 225-foot taper. Since US-85 has an EX category, the right turn deceleration lane requirement is deceleration length (600 feet) plus taper length (225 feet at 18.5 to 1 taper). Therefore, CDOT the existing southbound right turn lane is in compliance with CDOT standards.

- A southbound acceleration lane from the eastbound right turn **is** warranted and exists today with a length of approximately 675 feet plus a 225-foot taper. CDOT SHAC requirements identify that an acceleration lane along an EX Category highway with a speed limit of 55 miles per hour as needing a length of 960 feet plus a 225-foot taper. Therefore, CDOT may require the lengthening of this acceleration lane along southbound US-85 to 960 feet plus a 225-foot taper.

5.7 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)	2022 Calculated Queue (feet)	2022 Recommended Length (feet)	2040 Calculated Queue (feet)	2040 Recommended Length (feet)
112th Ave & Brighton Rd					
Northbound Right	DNE	25’	**135’+180’T (CC)**	25’	135’+180’T (CC)
Southbound Left	DNE	25’	**310’+180’T (CC)**	25’	310’+180’T (CC)
112th Ave & Belle Creek Blvd					
Northbound Left	DNE	50’	**150’**	75’	150’
Northbound Right	DNE	25’	**C**	50’	C
Eastbound Right	DNE	25’	**135’+180’T (CC)**	25’	135’+180’T (CC)
Westbound Left	DNE	25’	**235’+180’T(CC)**	25’	235’+180’T(CC)
112th Ave & Florence St - TWSC					
Eastbound Left	DNE	25’	**185’+180’T(CC)**	25’	185’+180’T(CC)
Westbound Left	DNE	25’	**200’**	25’	200’
Northbound Left	DNE	25’	**150’**	25’	150’
Southbound Left	75’	100’	**100’**	100’	100’
112th Ave & Florence St - AWSC					
Eastbound Left	DNE	25’	**185’+180’T(CC)**	25’	185’+180’T(CC)
Westbound Left	DNE	75’	**200’**	75’	200’
Northbound Left	DNE	25’	**150’**	25’	150’
Southbound Left	75’	25’	**100’**	25’	100’

Intersection Turn Lane	Existing Turn Lane Length (feet)	2022 Calculated Queue (feet)	2022 Recommended Length (feet)	2040 Calculated Queue (feet)	2040 Recommended Length (feet)
112th Ave & US-85					
Eastbound Left	DNE	196’	**275’**	264’	275’
Eastbound Right	FREE	FREE	FREE	FREE	FREE
Westbound Left	DNE	297’	***150’**	432’	*150’
Westbound Right	FREE	FREE	FREE	FREE	FREE
Northbound Left	600’+225’T	408’	**935’+225’T(CDOT)**	578’	**985’+225’T (CDOT)**
Northbound Right	575’	62’	575’	40’	575’
Southbound Left	625’	93’	625’	113’	625’
Southbound Right	600’+225’T	58’	600’+225’T (CDOT)	51’	600’+225’T (CDOT)

DNE = Does Not Exist; C = Continuous Lane, DL = Dual Left Turn Lane, CC = City of Commerce City Standards, CDOT = CDOT State Highway Access Code, * = Constrained due to Railroad to East

As shown in the table representing the queuing results, all anticipated queues are accommodated or managed within existing turn bay lengths with project traffic in the 2022 project build out year except for the westbound left turn lane at the 112th Avenue and US-85 intersection and the southbound left turn lane at the intersection of 112th Avenue and Florence Street. The calculated westbound left turn length cannot be achieved at the 112th Avenue and US-85 intersection due to the railroad to the east. To maximize the back-to-back left turn lane lengths in 2022, it is recommended that the westbound left turn lane at the 112th Avenue and Florence Street intersection should provide a length of 200 feet while the eastbound left turn lane at the 112th Avenue and US-85 intersection should provide a length of 275 feet. The southbound left turn lane at the intersection of 112th Avenue and Florence street could also be extended from 75 feet to 100 feet by 2022. Recommended auxiliary turn lanes and lengths based on the City of Commerce City Engineering Construction Standards and Specifications have been incorporated in **Figure 15** for the 2022 horizon and **Figure 16** for the 2040 horizon, applicable standards are included in **Appendix F.**

5.8 Safety Analysis

As requested by the City of Commerce City, a Safety Analysis was performed for the study area key intersections along 112th Avenue in association with this project. Crash data was obtained for the most recent three-year timeframe available from March 2019 through February 2022. Historical intersection average crash rate data was not available from the State of Colorado; however, this crash rate data was obtained from the State of Massachusetts for the purpose of comparison. Crash rates have been calculated at the studied intersections per million entering vehicles. Crash data from the studied intersections as well as national intersection average

crash rates is provided in **Appendix G**. The following provides a discussion of the crash data and crash rates on an intersection-by-intersection basis.

112th Avenue and Brighton Road (#1)

A total of three (3) crashes were reported at the intersection of 112th Avenue and Brighton Road in the three-year study time period. These three crashes did not result in any fatalities. The crash types consisted of a rollover (one vehicle), a fixed object collision (one vehicle), and one side to side same direction collision (two vehicles). The three crashes all occurred in dry conditions with two crashes occurring at night and one crash occurring in daylight conditions. With a total of three crashes at this intersection in the three-year timeframe, the crash rate is 1.0 crashes per year. Based on existing traffic volumes, the intersection of 112th Avenue and Brighton Road has a crash rate of 0.50 per Million Entering Vehicles (MEV). For reference, the aforementioned intersection average crash rate data from Massachusetts identified an average crash rate of 0.57 at unsignalized intersections.

112th Avenue and Belle Creek Boulevard (#2)

A total of zero (0) crashes were reported at the 112th Avenue and Belle Creek Boulevard intersection in the three-year study time period.

112th Avenue and Florence Street (#3)

A total of four (4) crashes were reported at the intersection of 112th Avenue and Florence Street in the three-year study time period. These four crashes did not result in any fatalities. The crash types consisted of two front to rear collisions, one front to side collision, and one fixed object collision. Three crashes occurred in dry conditions and one occurred under wet conditions. Likewise, three crashes were in daylight while the other crash was at dusk. With a total of four crashes at this intersection in the three-year timeframe, the crash rate is 1.33 crashes per year. Based on existing traffic volumes, the intersection of 112th Avenue and Florence Street has a crash rate of 0.72 per MEV. For reference, the aforementioned intersection average crash rate data from Massachusetts identified an average crash rate of 0.57 at unsignalized intersections. Higher crash rates are common at two-way stop-controlled intersections allowing full turning movements. The City of Commerce City should consider converting this intersection to all-way stop control to potentially reduce the crash rate and reduce collision speeds at this intersection.

112th Avenue and US-85 (#4)

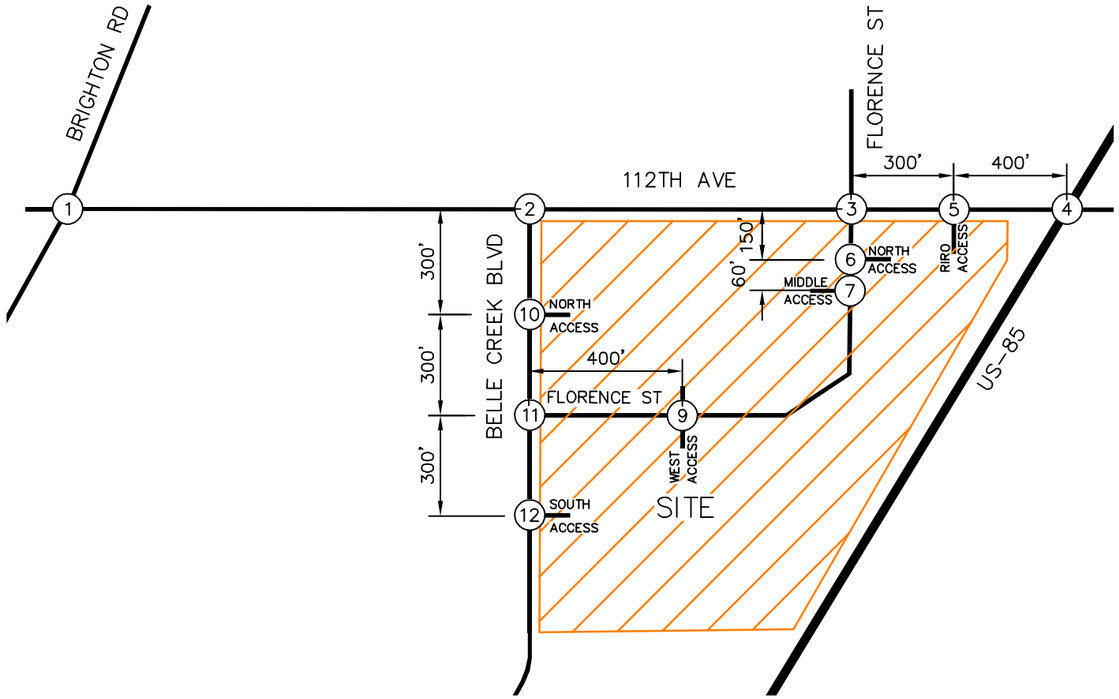
A total of 33 crashes were reported at the intersection of 112th Avenue and US-85 during the three-year study time period. One of these 33 crashes resulted in fatalities. The crash types consisted of 18 front to rear collisions, three front to side, three side to side, two front to front, two fixed objects, one rear to side, and four miscellaneous. Of these 33 crashes, 26 occurred during daylight conditions and four occurred in wet/icy conditions. Of note, 22 of these crashes were reported near the control intersection along US-85 while 11 were reported at the immediate intersection. Therefore, the crash rate at the intersection is 3.66 crashes per year while the crash rate with the intersection and adjacent to the intersection along US-85 is 11.0 crashes per year. Based on existing traffic volumes, the intersection of 112th Avenue and US-85 has a crash rate of 0.32 per MEV. For reference, the aforementioned intersection average crash rate data from Massachusetts identified an average crash rate of 0.78 at signalized intersections. Although not above the average crash rate, dynamic advance flashing beacon warning signs could be considered by CDOT along US-85 in advance of the intersection with 112th Avenue. Other State Department of Transportations use "PREPARE TO STOP WHEN FLASHING" warning signs with flashing beacons along high speed highways which are tied into the signal operation to give drivers advance warning when a traffic signal is about to turn red.

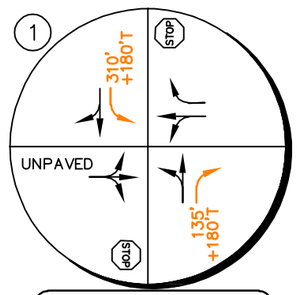
In summary, three of the four studied intersections are below the provided intersection average crash rate data. There is not believed to be any design flaws at the studied intersections causing safety concerns; however, two aforementioned design considerations have been provided at the studied intersections.

5.9 Improvement Summary

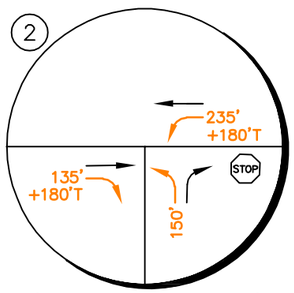
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 15** for the 2022 horizon and **Figure 16** for the 2040 horizon. It should also be noted that distance dimensions between access intersections is also provided in **Figure 15**.

Kimley»Horn
NORTH
NTS 096888000

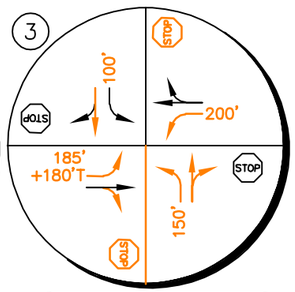




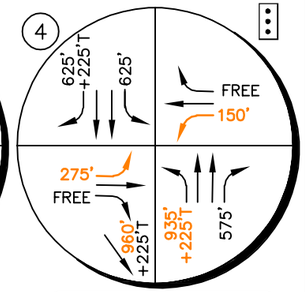
112TH AVENUE / BRIGHTON ROAD



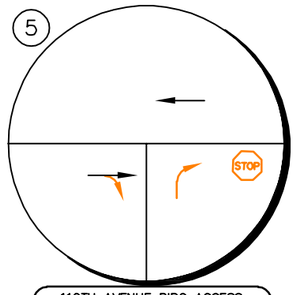
112TH AVE / BELLE CREEK BLVD



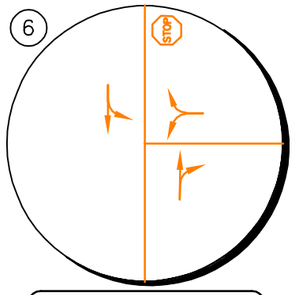
112TH AVENUE / FLORENCE ST



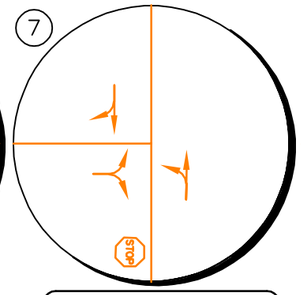
112TH AVENUE / US-85



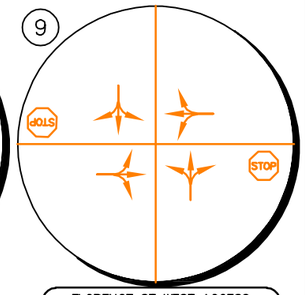
112TH AVENUE RIRO ACCESS



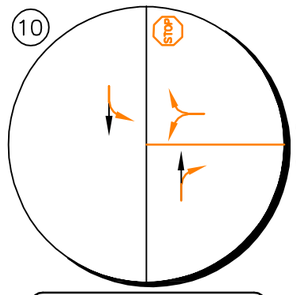
FLORENCE STREET NORTH ACCESS



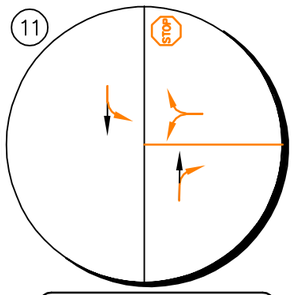
FLORENCE STREET MIDDLE ACCESS



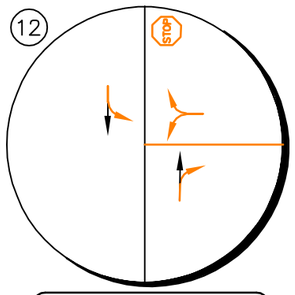
FLORENCE ST WEST ACCESS



BELLE CREEK BLVD NORTH ACCESS



FLORENCE ST / BELLE CREEK BLVD



BELLE CREEK BLVD SOUTH ACCESS

LEGEND

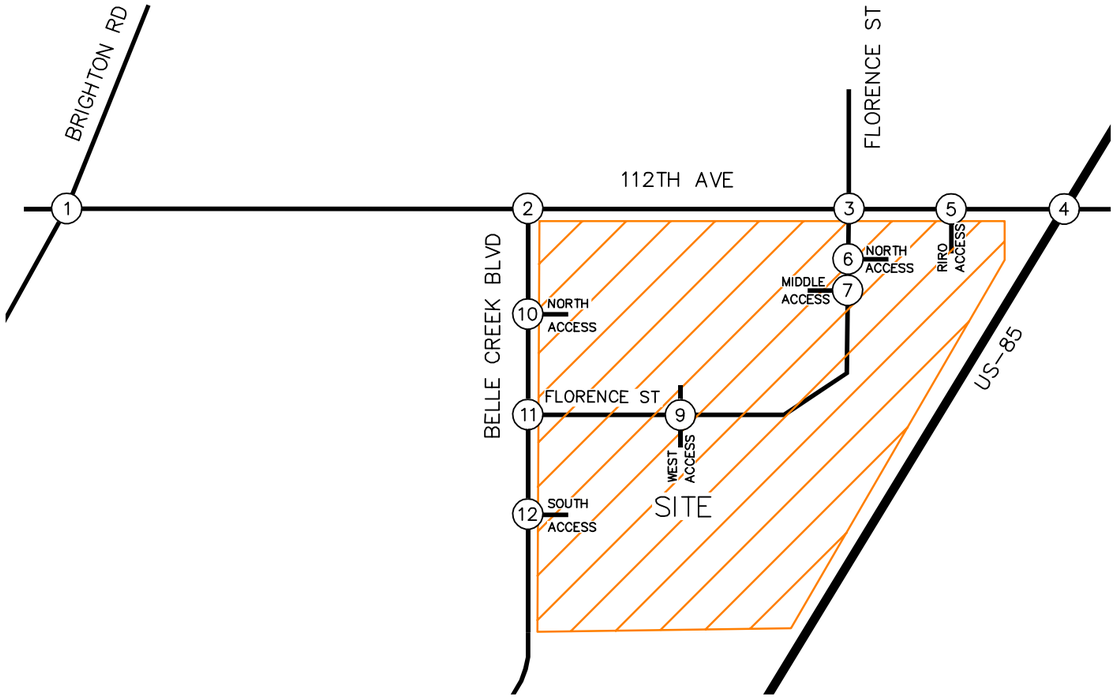
X	Study Area Key Intersection
	Signalized Intersection
STOP	Stop Controlled Approach
←	Improvement
T	Taper
100'	Turn Lane Length (feet)

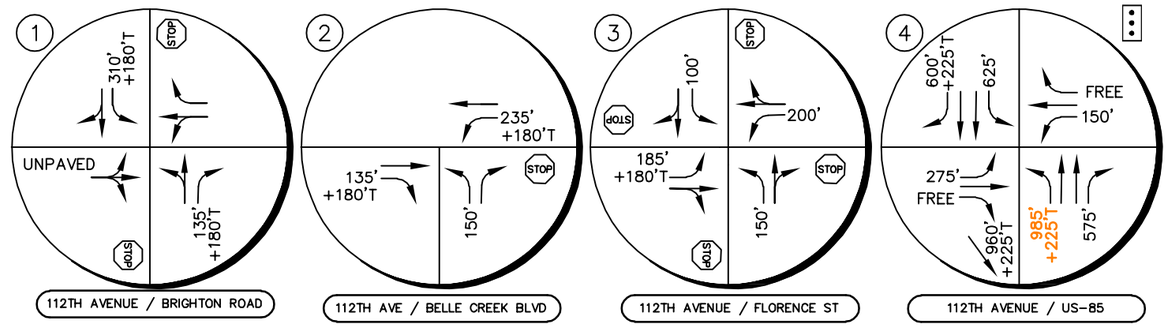
CanAm
2022 RECOMMENDED LANE CONFIGURATIONS AND CONTROL

FIGURE 15

Kimley»Horn

Kimley»Horn
NORTH
NTS 096888000





LEGEND

X	Study Area Key Intersection
	Signalized Intersection
STOP	Stop Controlled Approach
	Improvement
T	Taper
100'	Turn Lane Length (feet)

CanAm
2040 RECOMMENDED LANE CONFIGURATIONS AND CONTROL

FIGURE 16

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes CanAm will be successfully incorporated into the existing and future roadway network. The proposed project development resulted in the following recommendations and conclusions:

Existing Condition Improvements

- In order to comply with City of Commerce City Engineering Construction Standards and Specifications, the following improvements are needed to serve existing traffic:
    - A 135-foot northbound right turn lane with a 180-foot taper, and a 310-foot southbound left turn lane with a 180-foot taper at the intersection of 112th Avenue and Brighton Road.
    - A 135-foot eastbound right turn lane with a 180-foot taper, a 235-foot westbound left turn lane with a 180-foot taper, a 150-foot northbound left turn lane, and a continuous northbound right turn lane at the intersection of 112th Avenue and Belle Creek Boulevard.
    - A 185-foot eastbound left turn lane with a 180-foot taper at the 112th Avenue and Florence Street intersection.
    - Eastbound and westbound left turn lanes at the 112th Avenue and US-85 intersection. The calculated westbound left turn length cannot be achieved at the 112th Avenue and US-85 intersection due to the railroad to the east; therefore, a length of 150 feet is recommended. The implementation of eastbound and westbound left turn lanes at this intersection will allow for removal of the existing split phase signal operation.
    - The existing southbound acceleration lane from the eastbound right turn does not meet current CDOT requirements with existing traffic at the 112th Avenue and US-85 intersection. The existing lane is approximately 675 feet long plus a 225-foot taper. CDOT requirements identify that an acceleration lane along an EX Category needs a length of 960 feet plus a 225-foot taper. Therefore, it is recommended that CDOT consider lengthening this acceleration lane along southbound US-85 to meet current standards.

2022 Recommendations

- With CanAm, Florence Street will be constructed as a public roadway internal to the site to provide a connection between Belle Creek Boulevard and 112th Avenue as the new south leg of the 112th Avenue and Florence Street intersection. The intersection of Florence Street and Belle Creek Boulevard will be located approximately 600 feet south of 112th Avenue. It is recommended that the new westbound Florence Street approach to Belle Creek Boulevard operate with stop control with an R1-1 "STOP" sign installed. Florence Street will be constructed to meet City of Commerce City standards and requirements for public right-of-way roadways. However, this intersection may also operate with all-way stop control if desired by the City of Commerce City.

- Access to CanAm will be provided by one right-in/right-out access located along the south side of 112th Avenue, two full movement accesses along the east side of Belle Creek Boulevard, and three accesses along future Florence Street extension. All project accesses are recommended to have R1-1 "STOP" signs installed and include single lanes for the exiting approaches. To identify the restriction of the access along 112th Avenue to right-in/right-out turning movements only, it is recommended that a R3-2 No Left Turn sign be placed underneath the STOP sign and an additional No Left Turn sign be installed on the southwest corner facing westbound approaching traffic.

- The threshold for requiring an access permit along CDOT roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the west leg of 112th Avenue at US-85 is anticipated to increase existing access traffic volumes by more than 20 percent; therefore, it is believed that an access permit will be required by CDOT for this intersection in association with this project.

- With the existing two-way stop control, the southbound left turn movement at the intersection of 112th Avenue and Florence Street is expected to operate at LOS E during the peaks hours while all other movements are expected to operate acceptably with LOS D or better during the peak hours throughout the 2040 horizon. Based on inclusion of pedestrians, bicycles, and vehicle traffic, it is anticipated that the intersection of 112th Avenue and Florence Street will meet the eight (8) hour volume warrants for all-way stop

control. With 112th Avenue being a short section street to the west, the all-way stop control will operate within driver expectations. Further, intersection safety should improve under all-way stop control with reduced crash rates and reduced collision speeds. All-way stop control also allows for pedestrian connectivity with implementation of crosswalks. Therefore, it is recommended that the intersection of 112th Avenue and Florence Street be converted from two-way stop control to all-way stop control by the buildout horizon.

- By 2022, to maximize the back-to-back left turn lane lengths, it is recommended that the westbound left turn lane at the 112th Avenue and Florence Street intersection provide a length of 200 feet while the eastbound left turn lane at the 112th Avenue and US-85 intersection should provide a length of 275 feet. At the 112th Avenue and Florence Street intersection, a 150-foot northbound left turn lane should be constructed.

- The southbound left turn lane at the intersection of 112th Avenue and Florence street could be extended from 75 feet to 100 feet by 2022.

- The existing 600-foot plus 225-foot taper northbound left turn lane at the 112th Avenue and US-85 intersection will not meet CDOT requirements in the future based on existing and proposed project traffic volumes. Therefore, CDOT will require this northbound left turn lane to be lengthened to provide a length of is 1,160 feet (935-foot turn lane plus 225-foot taper) in 2022, which is defined by 335 feet of storage length, 600 feet of deceleration length, and a 225-foot taper.

- Based on Table 3-5: Roadway Design Criteria from the City of Commerce City Construction Standards and Specifications, the posted speed limit along Minor/Multimodal Arterial roadways should be 40 miles per hour. Therefore, it is recommended that speed limit along 112th Avenue be reduced from 45 mph to 40 mph.

2040 Recommendations

- If future traffic volumes are realized in the year 2040, the required northbound left turn lane length at the 112th Avenue and US-85 intersection is 1,210 feet (985-foot left turn lane plus 225-foot taper), which is defined by 385 feet of storage length, 600 feet of deceleration length, plus a 225-foot taper.

General Recommendations

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

APPENDICES

APPENDIX A

Intersection Count Sheets

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

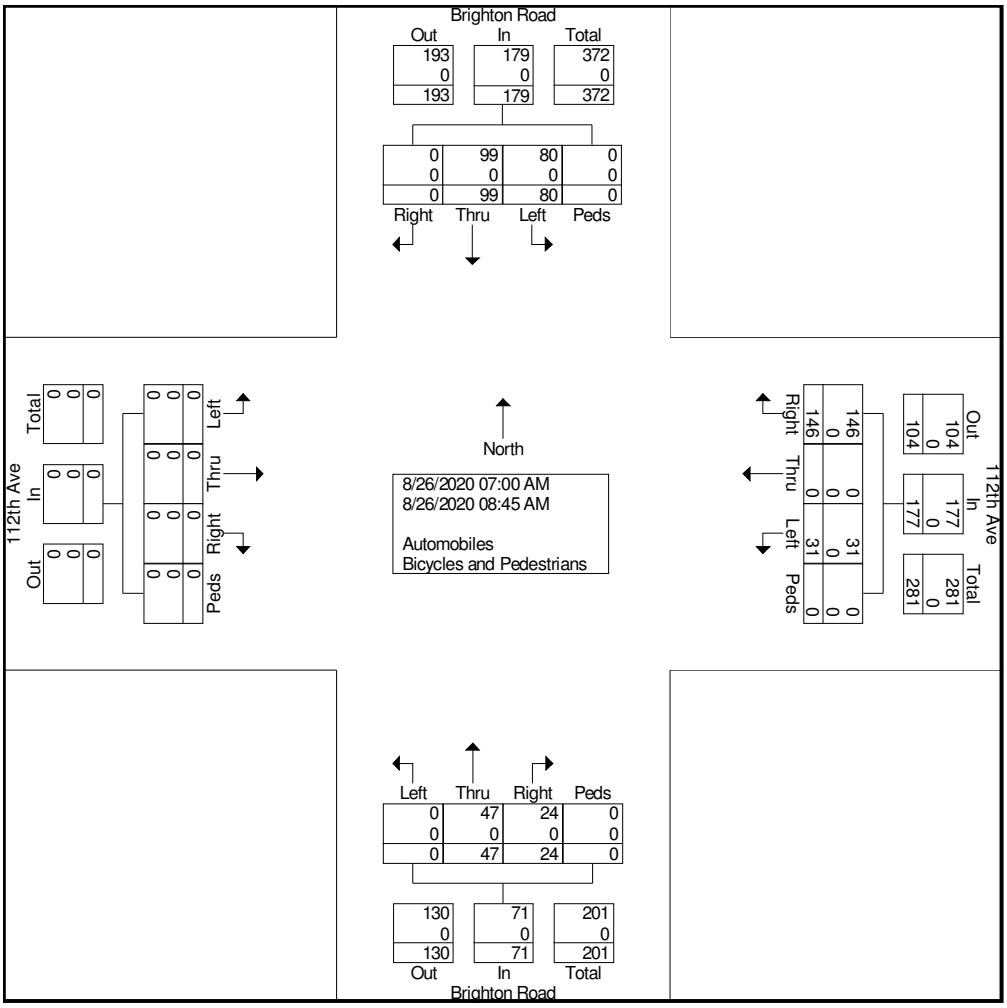
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					Brighton Road Northbound					Brighton Road Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	9	0	16	0	25	0	8	2	0	10	7	14	0	0	21	56
07:15 AM	0	0	0	0	0	4	0	9	0	13	0	6	6	0	12	9	12	0	0	21	46
07:30 AM	0	0	0	0	0	5	0	16	0	21	0	5	0	0	5	5	10	0	0	15	41
07:45 AM	0	0	0	0	0	2	0	26	0	28	0	6	1	0	7	3	21	0	0	24	59
Total	0	0	0	0	0	20	0	67	0	87	0	25	9	0	34	24	57	0	0	81	202
08:00 AM	0	0	0	0	0	1	0	20	0	21	0	9	8	0	17	20	13	0	0	33	71
08:15 AM	0	0	0	0	0	2	0	16	0	18	0	3	3	0	6	17	10	0	0	27	51
08:30 AM	0	0	0	0	0	7	0	24	0	31	0	7	2	0	9	10	7	0	0	17	57
08:45 AM	0	0	0	0	0	1	0	19	0	20	0	3	2	0	5	9	12	0	0	21	46
Total	0	0	0	0	0	11	0	79	0	90	0	22	15	0	37	56	42	0	0	98	225
Grand Total	0	0	0	0	0	31	0	146	0	177	0	47	24	0	71	80	99	0	0	179	427
Apprch %	0	0	0	0		17.5	0	82.5	0		0	66.2	33.8	0		44.7	55.3	0	0		
Total %	0	0	0	0	0	7.3	0	34.2	0	41.5	0	11	5.6	0	16.6	18.7	23.2	0	0	41.9	
Automobiles	0	0	0	0	0	31	0	146	0	177	0	47	24	0	71	80	99	0	0	179	427
% Automobiles	0	0	0	0	0	100	0	100	0	100	0	100	100	0	100	100	100	0	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

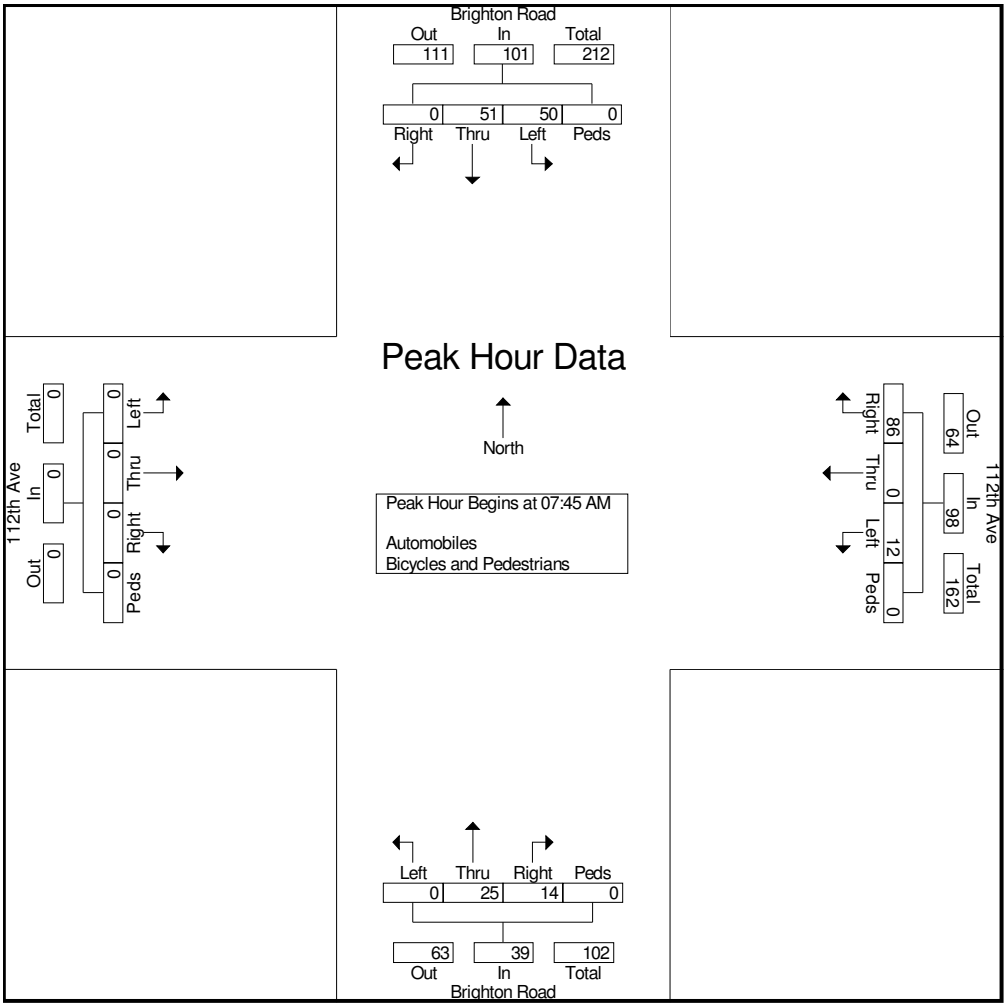


Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					Brighton Road Northbound					Brighton Road Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	2	0	**26**	0	28	0	6	1	0	7	3	**21**	0	0	24	59
08:00 AM	0	0	0	0	0	1	0	20	0	21	0	**9**	**8**	0	**17**	**20**	13	0	0	**33**	**71**
08:15 AM	0	0	0	0	0	2	0	16	0	18	0	3	3	0	6	17	10	0	0	27	51
08:30 AM	0	0	0	0	0	**7**	0	24	0	**31**	0	7	2	0	9	10	7	0	0	17	57
Total Volume	0	0	0	0	0	12	0	86	0	98	0	25	14	0	39	50	51	0	0	101	238
% App. Total	0	0	0	0		12.2	0	87.8	0		0	64.1	35.9	0		49.5	50.5	0	0		
PHF	.000	.000	.000	.000	.000	.429	.000	.827	.000	.790	.000	.694	.438	.000	.574	.625	.607	.000	.000	.765	.838



Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

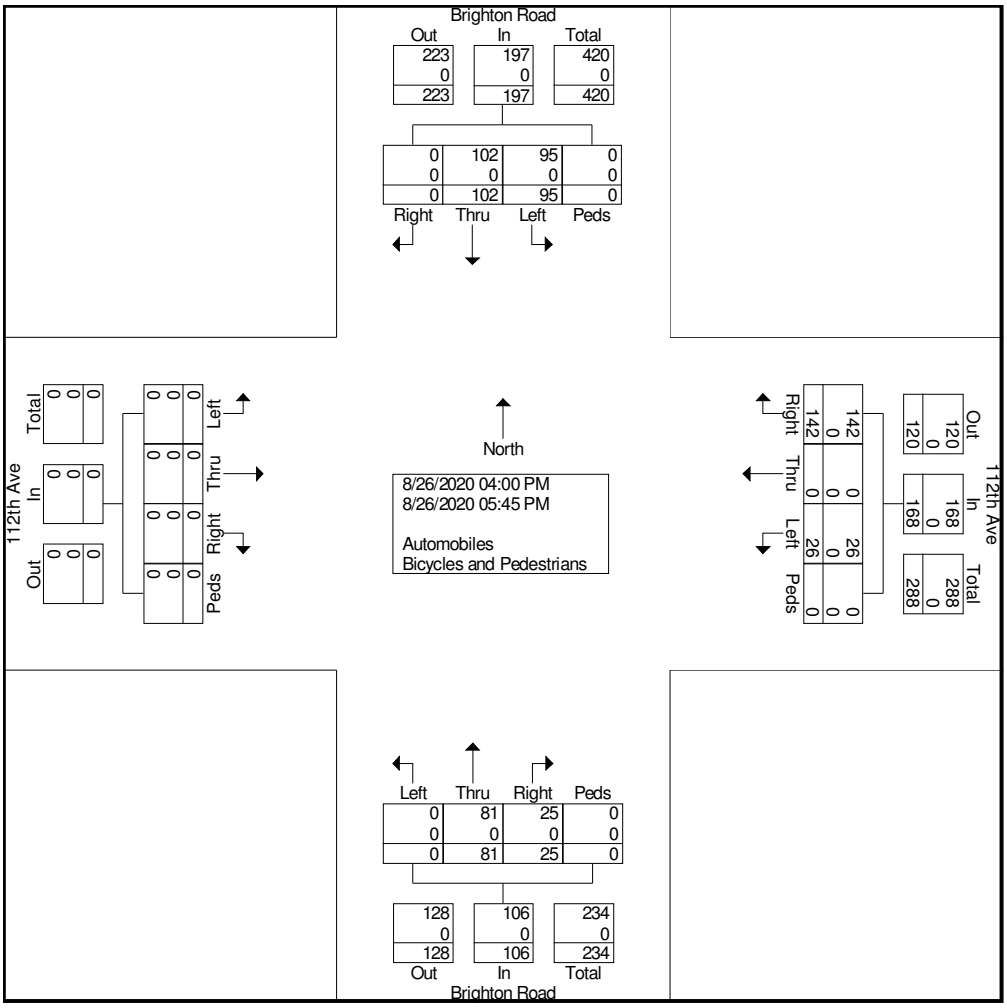
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					Brighton Road Northbound					Brighton Road Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	2	0	18	0	20	0	9	1	0	10	12	9	0	0	21	51
04:15 PM	0	0	0	0	0	7	0	11	0	18	0	16	5	0	21	17	13	0	0	30	69
04:30 PM	0	0	0	0	0	2	0	21	0	23	0	10	5	0	15	11	13	0	0	24	62
04:45 PM	0	0	0	0	0	4	0	23	0	27	0	8	2	0	10	4	19	0	0	23	60
Total	0	0	0	0	0	15	0	73	0	88	0	43	13	0	56	44	54	0	0	98	242
05:00 PM	0	0	0	0	0	1	0	16	0	17	0	8	4	0	12	13	15	0	0	28	57
05:15 PM	0	0	0	0	0	2	0	17	0	19	0	14	4	0	18	12	10	0	0	22	59
05:30 PM	0	0	0	0	0	5	0	18	0	23	0	10	3	0	13	18	11	0	0	29	65
05:45 PM	0	0	0	0	0	3	0	18	0	21	0	6	1	0	7	8	12	0	0	20	48
Total	0	0	0	0	0	11	0	69	0	80	0	38	12	0	50	51	48	0	0	99	229
Grand Total	0	0	0	0	0	26	0	142	0	168	0	81	25	0	106	95	102	0	0	197	471
Apprch %	0	0	0	0		15.5	0	84.5	0		0	76.4	23.6	0		48.2	51.8	0	0		
Total %	0	0	0	0	0	5.5	0	30.1	0	35.7	0	17.2	5.3	0	22.5	20.2	21.7	0	0	41.8	
Automobiles	0	0	0	0	0	26	0	142	0	168	0	81	25	0	106	95	102	0	0	197	471
% Automobiles	0	0	0	0	0	100	0	100	0	100	0	100	100	0	100	100	100	0	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

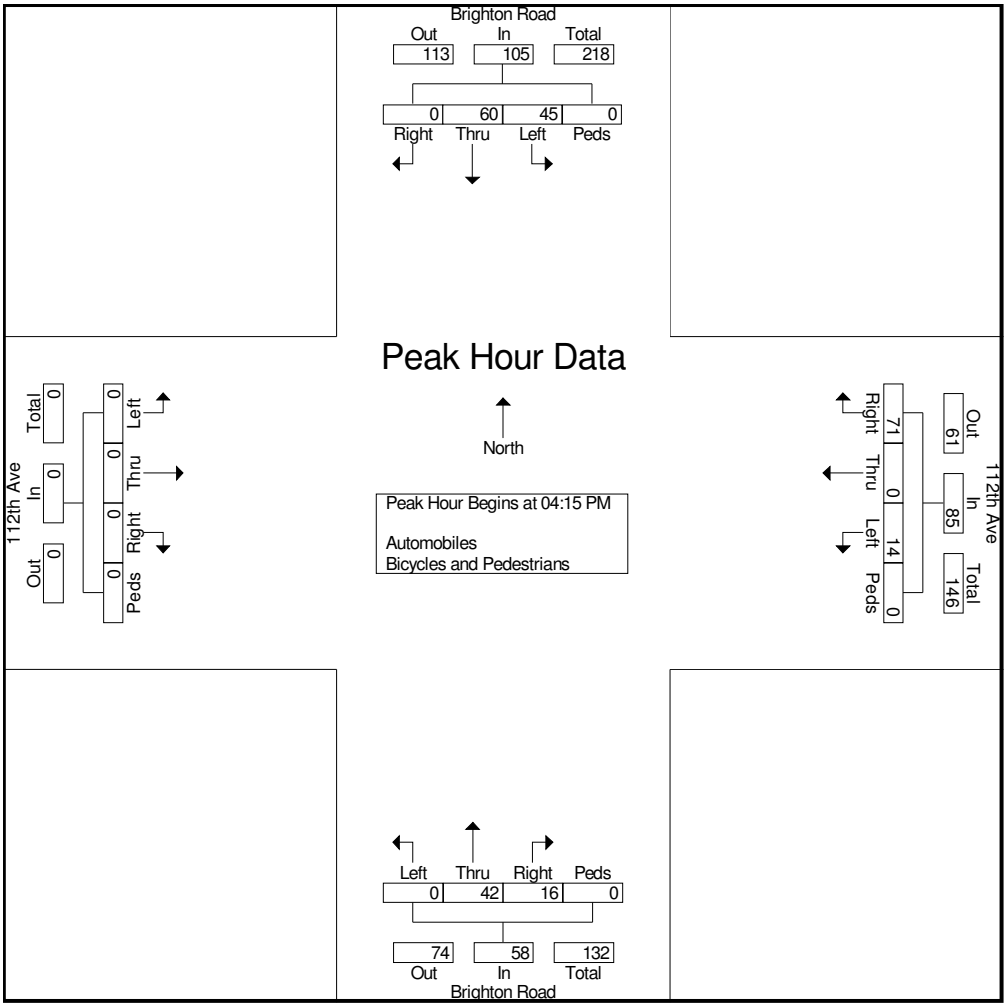


Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Brighton Rd

File Name : 112th and Brighton PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					Brighton Road Northbound					Brighton Road Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	**7**	0	11	0	18	0	**16**	**5**	0	**21**	**17**	13	0	0	**30**	**69**
04:30 PM	0	0	0	0	0	2	0	21	0	23	0	10	5	0	15	11	13	0	0	24	62
04:45 PM	0	0	0	0	0	4	0	**23**	0	**27**	0	8	2	0	10	4	**19**	0	0	23	60
05:00 PM	0	0	0	0	0	1	0	16	0	17	0	8	4	0	12	13	15	0	0	28	57
Total Volume	0	0	0	0	0	14	0	71	0	85	0	42	16	0	58	45	60	0	0	105	248
% App. Total	0	0	0	0		16.5	0	83.5	0		0	72.4	27.6	0		42.9	57.1	0	0		
PHF	.000	.000	.000	.000	.000	.500	.000	.772	.000	.787	.000	.656	.800	.000	.690	.662	.789	.000	.000	.875	.899



Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

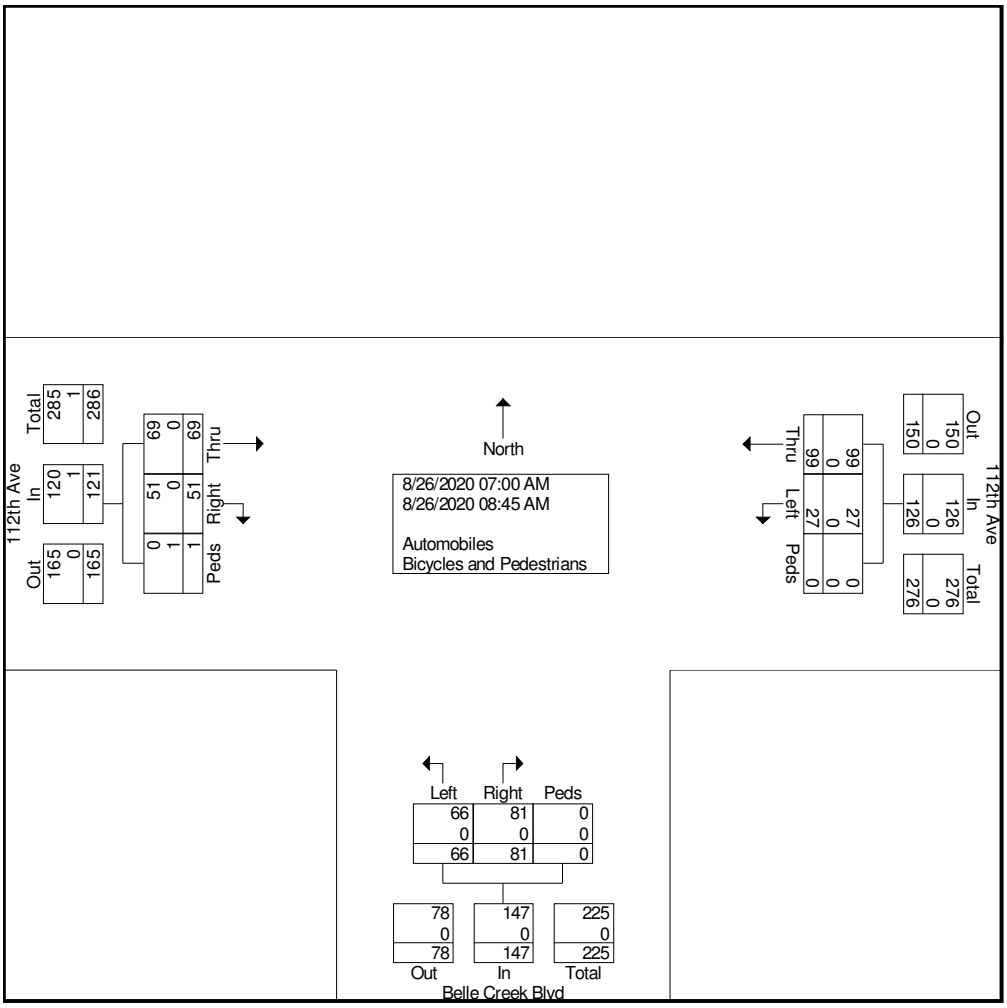
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound				112th Ave Westbound				Belle Creek Blvd Northbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
07:00 AM	9	1	0	10	3	18	0	21	5	6	0	11	42
07:15 AM	15	7	0	22	3	11	0	14	3	4	0	7	43
07:30 AM	3	7	0	10	2	14	0	16	7	4	0	11	37
07:45 AM	2	6	1	9	4	15	0	19	10	10	0	20	48
Total	29	21	1	51	12	58	0	70	25	24	0	49	170
08:00 AM	15	13	0	28	7	16	0	23	8	14	0	22	73
08:15 AM	7	10	0	17	3	2	0	5	12	18	0	30	52
08:30 AM	9	5	0	14	3	12	0	15	14	14	0	28	57
08:45 AM	9	2	0	11	2	11	0	13	7	11	0	18	42
Total	40	30	0	70	15	41	0	56	41	57	0	98	224
Grand Total	69	51	1	121	27	99	0	126	66	81	0	147	394
Apprch %	57	42.1	0.8		21.4	78.6	0		44.9	55.1	0		
Total %	17.5	12.9	0.3	30.7	6.9	25.1	0	32	16.8	20.6	0	37.3	
Automobiles	69	51	0	120	27	99	0	126	66	81	0	147	393
% Automobiles	100	100	0	99.2	100	100	0	100	100	100	0	100	99.7
Bicycles and Pedestrians	0	0	1	1	0	0	0	0	0	0	0	0	1
% Bicycles and Pedestrians	0	0	100	0.8	0	0	0	0	0	0	0	0	0.3

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

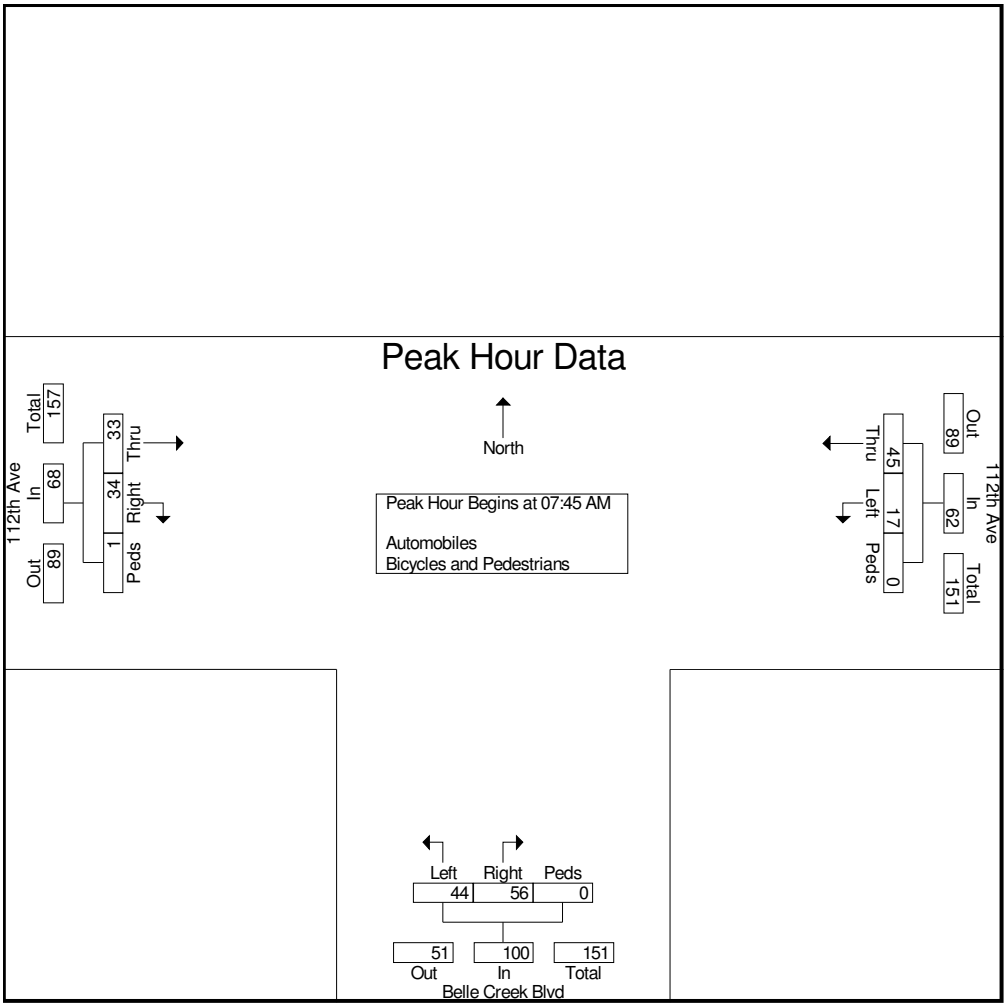


Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk AM
Site Code : IPO 509
Start Date : 8/26/2020

	112th Ave Eastbound				112th Ave Westbound				Belle Creek Blvd Northbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	2	6	**1**	9	4	15	0	19	10	10	0	20	48
08:00 AM	**15**	**13**	0	**28**	**7**	**16**	0	**23**	8	14	0	22	**73**
08:15 AM	7	10	0	17	3	2	0	5	12	**18**	0	**30**	52
08:30 AM	9	5	0	14	3	12	0	15	**14**	14	0	28	57
Total Volume	33	34	1	68	17	45	0	62	44	56	0	100	230
% App. Total	48.5	50	1.5		27.4	72.6	0		44	56	0		
PHF	.550	.654	.250	.607	.607	.703	.000	.674	.786	.778	.000	.833	.788



Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

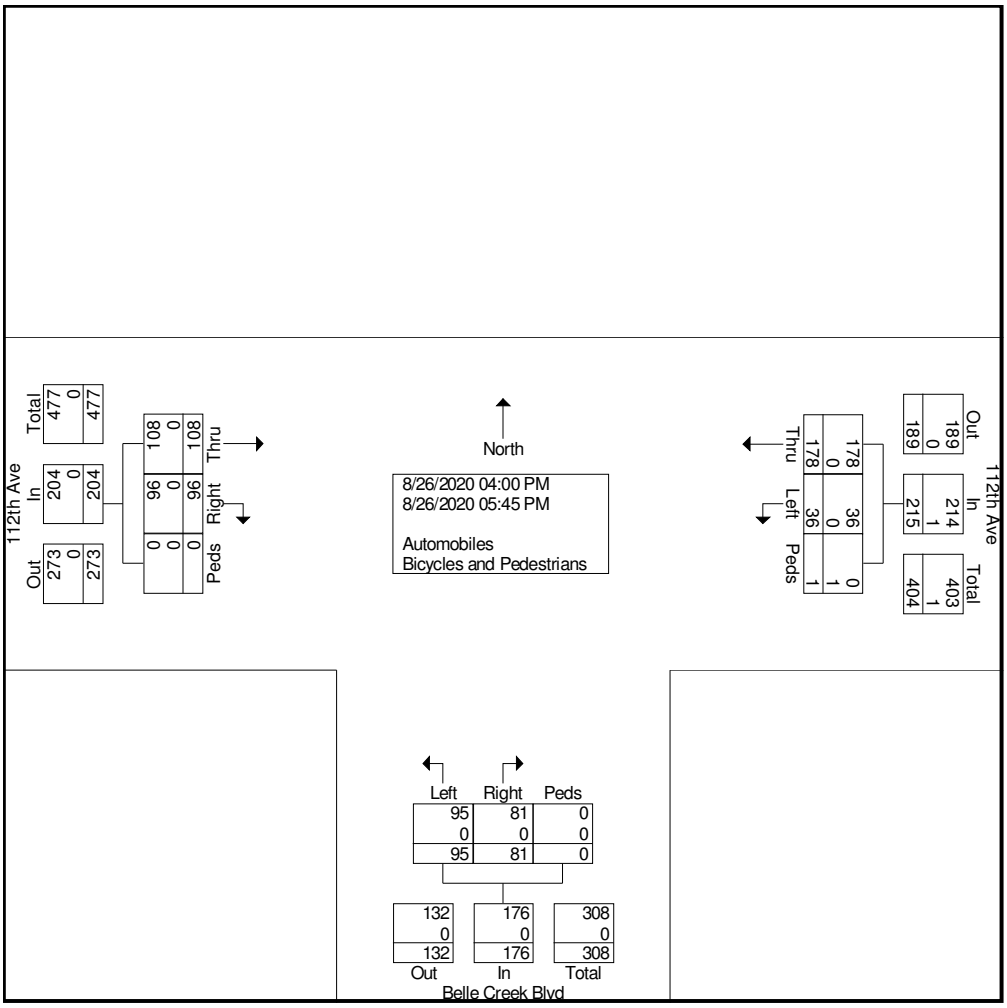
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound				112th Ave Westbound				Belle Creek Blvd Northbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
04:00 PM	8	8	0	16	3	22	0	25	12	8	0	20	61
04:15 PM	12	9	0	21	7	23	0	30	14	18	0	32	83
04:30 PM	13	9	0	22	5	37	0	42	13	9	0	22	86
04:45 PM	10	18	0	28	2	14	0	16	13	9	0	22	66
Total	43	44	0	87	17	96	0	113	52	44	0	96	296
05:00 PM	20	16	0	36	5	25	1	31	11	11	0	22	89
05:15 PM	22	10	0	32	8	29	0	37	13	9	0	22	91
05:30 PM	11	16	0	27	1	12	0	13	10	13	0	23	63
05:45 PM	12	10	0	22	5	16	0	21	9	4	0	13	56
Total	65	52	0	117	19	82	1	102	43	37	0	80	299
Grand Total	108	96	0	204	36	178	1	215	95	81	0	176	595
Apprch %	52.9	47.1	0		16.7	82.8	0.5		54	46	0		
Total %	18.2	16.1	0	34.3	6.1	29.9	0.2	36.1	16	13.6	0	29.6	
Automobiles	108	96	0	204	36	178	0	214	95	81	0	176	594
% Automobiles	100	100	0	100	100	100	0	99.5	100	100	0	100	99.8
Bicycles and Pedestrians	0	0	0	0	0	0	1	1	0	0	0	0	1
% Bicycles and Pedestrians	0	0	0	0	0	0	100	0.5	0	0	0	0	0.2

Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

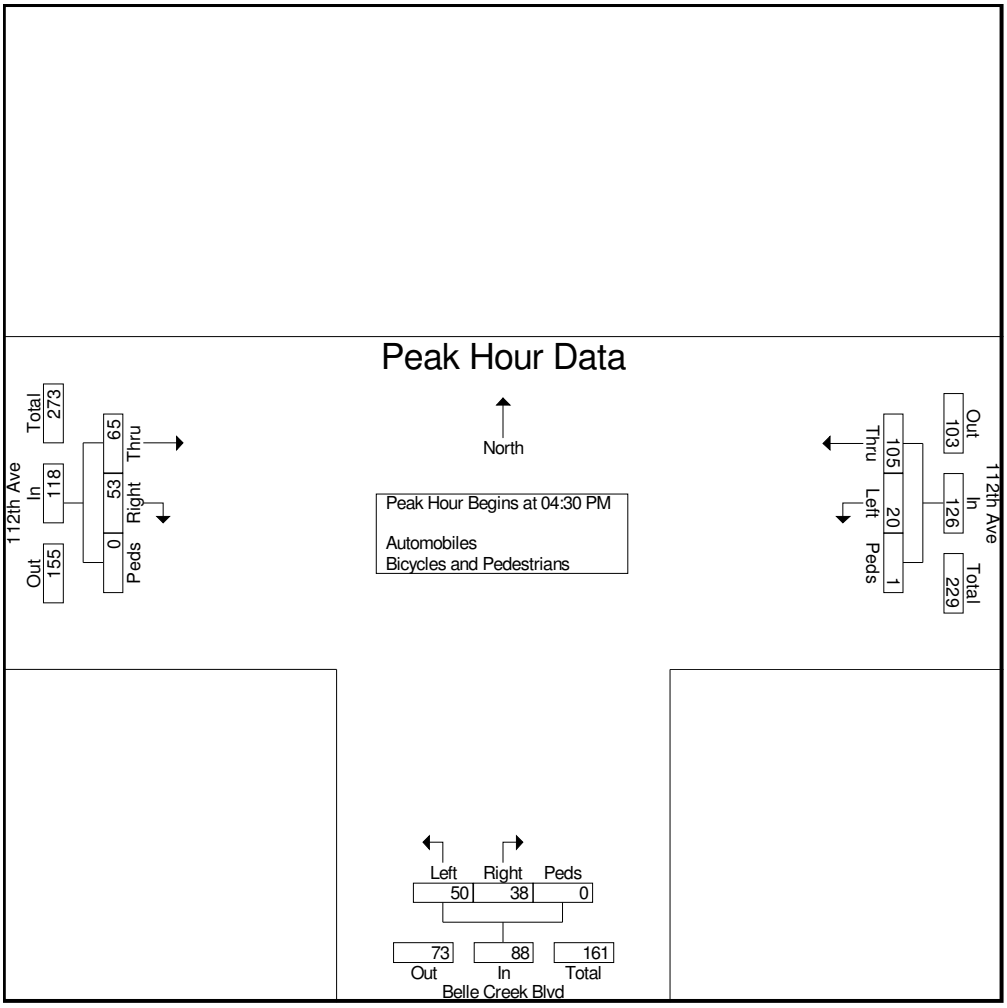


Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Belle Creek Blvd

File Name : 112th and Belle Crk PM
Site Code : IPO 509
Start Date : 8/26/2020

	112th Ave Eastbound				112th Ave Westbound				Belle Creek Blvd Northbound				
Start Time	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	13	9	0	22	5	**37**	0	**42**	**13**	9	0	**22**	86
04:45 PM	10	**18**	0	28	2	14	0	16	13	9	0	22	66
05:00 PM	20	16	0	**36**	5	25	**1**	31	11	**11**	0	22	89
05:15 PM	**22**	10	0	32	**8**	29	0	37	13	9	0	22	**91**
Total Volume	65	53	0	118	20	105	1	126	50	38	0	88	332
% App. Total	55.1	44.9	0		15.9	83.3	0.8		56.8	43.2	0		
PHF	.739	.736	.000	.819	.625	.709	.250	.750	.962	.864	.000	1.00	.912



Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 1

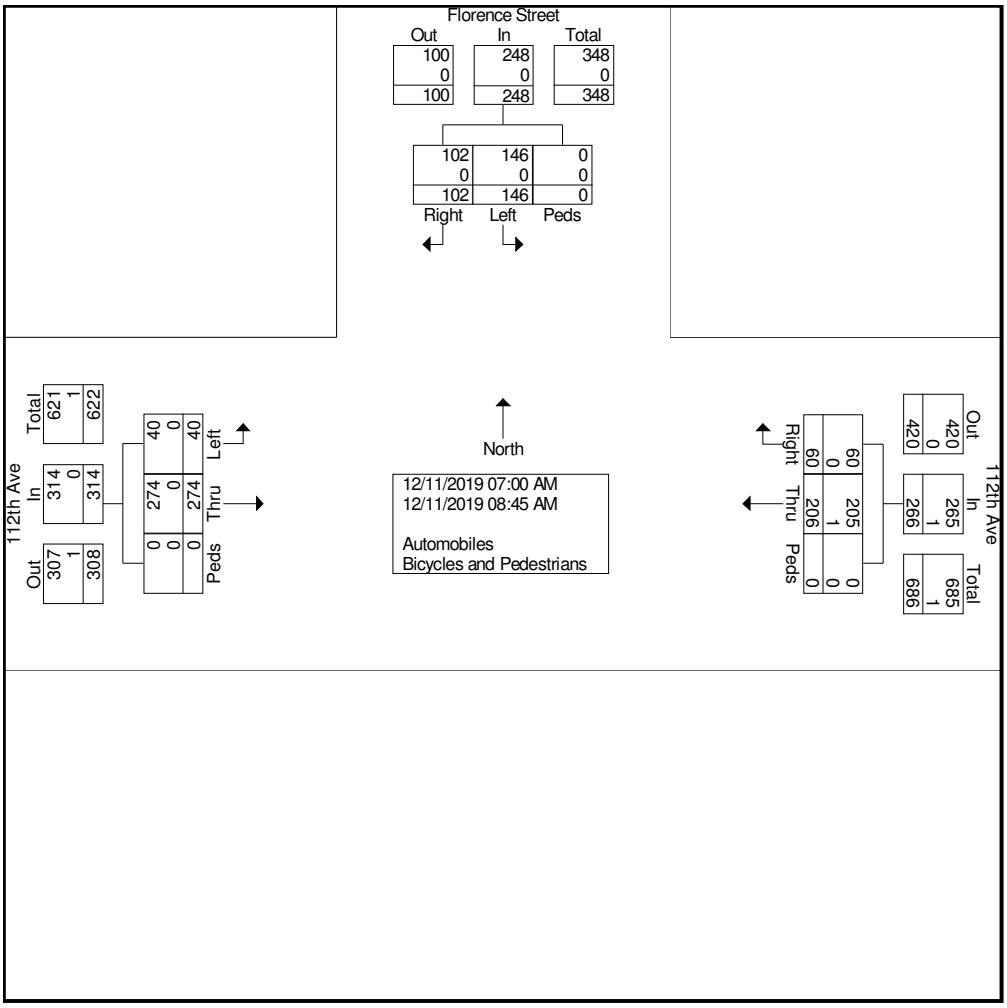
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound				112th Ave Westbound				Florence Street Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
07:00 AM	4	31	0	35	17	4	0	21	19	15	0	34	90
07:15 AM	1	29	0	30	24	5	0	29	34	15	0	49	108
07:30 AM	4	39	0	43	30	11	0	41	22	13	0	35	119
07:45 AM	5	42	0	47	43	10	0	53	19	7	0	26	126
Total	14	141	0	155	114	30	0	144	94	50	0	144	443
08:00 AM	10	56	0	66	35	9	0	44	20	25	0	45	155
08:15 AM	8	40	0	48	26	6	0	32	11	13	0	24	104
08:30 AM	8	24	0	32	22	7	0	29	16	10	0	26	87
08:45 AM	0	13	0	13	9	8	0	17	5	4	0	9	39
Total	26	133	0	159	92	30	0	122	52	52	0	104	385
Grand Total	40	274	0	314	206	60	0	266	146	102	0	248	828
Apprch %	12.7	87.3	0		77.4	22.6	0		58.9	41.1	0		
Total %	4.8	33.1	0	37.9	24.9	7.2	0	32.1	17.6	12.3	0	30	
Automobiles	40	274	0	314	205	60	0	265	146	102	0	248	827
% Automobiles	100	100	0	100	99.5	100	0	99.6	100	100	0	100	99.9
Bicycles and Pedestrians	0	0	0	0	1	0	0	1	0	0	0	0	1
% Bicycles and Pedestrians	0	0	0	0	0.5	0	0	0.4	0	0	0	0	0.1

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 2

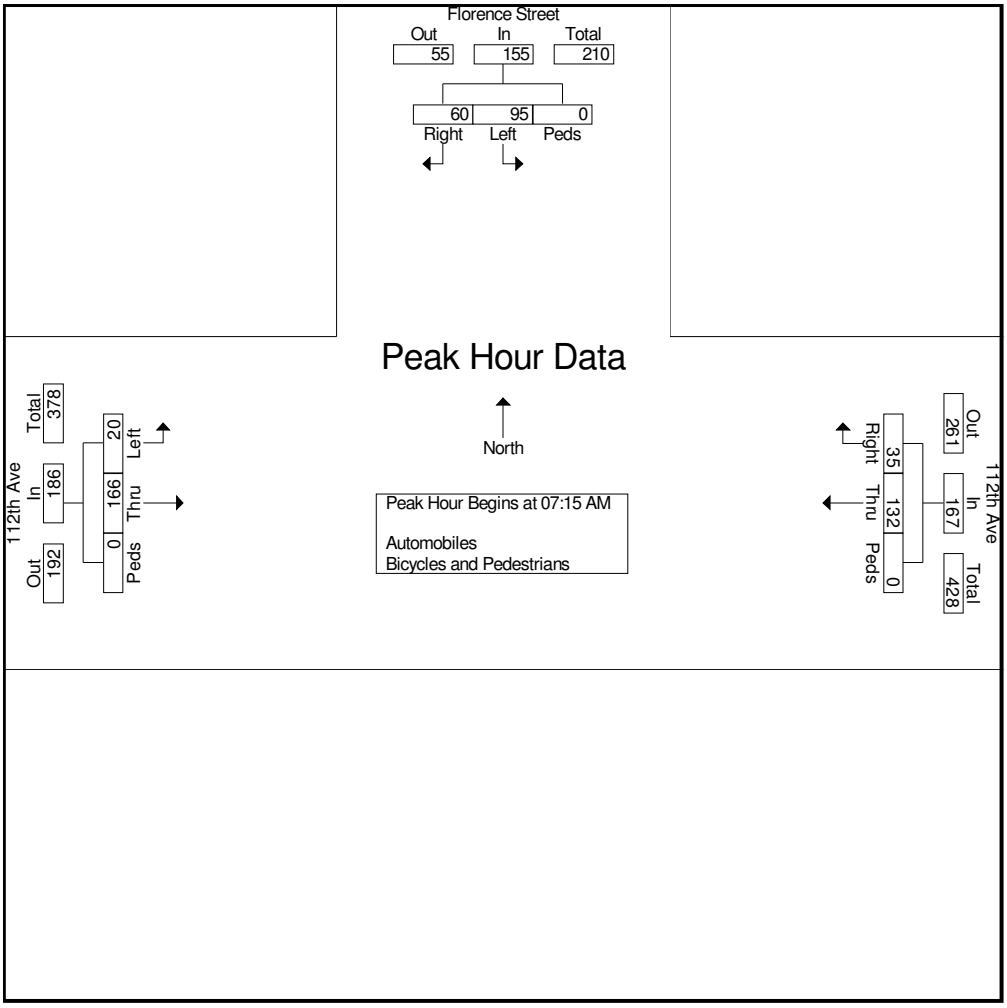


Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 3

	112th Ave Eastbound				112th Ave Westbound				Florence Street Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	1	29	0	30	24	5	0	29	**34**	15	0	**49**	108
07:30 AM	4	39	0	43	30	**11**	0	41	22	13	0	35	119
07:45 AM	5	42	0	47	**43**	10	0	**53**	19	7	0	26	126
08:00 AM	**10**	**56**	0	**66**	35	9	0	44	20	**25**	0	45	**155**
Total Volume	20	166	0	186	132	35	0	167	95	60	0	155	508
% App. Total	10.8	89.2	0		79	21	0		61.3	38.7	0		
PHF	.500	.741	.000	.705	.767	.795	.000	.788	.699	.600	.000	.791	.819



Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 1

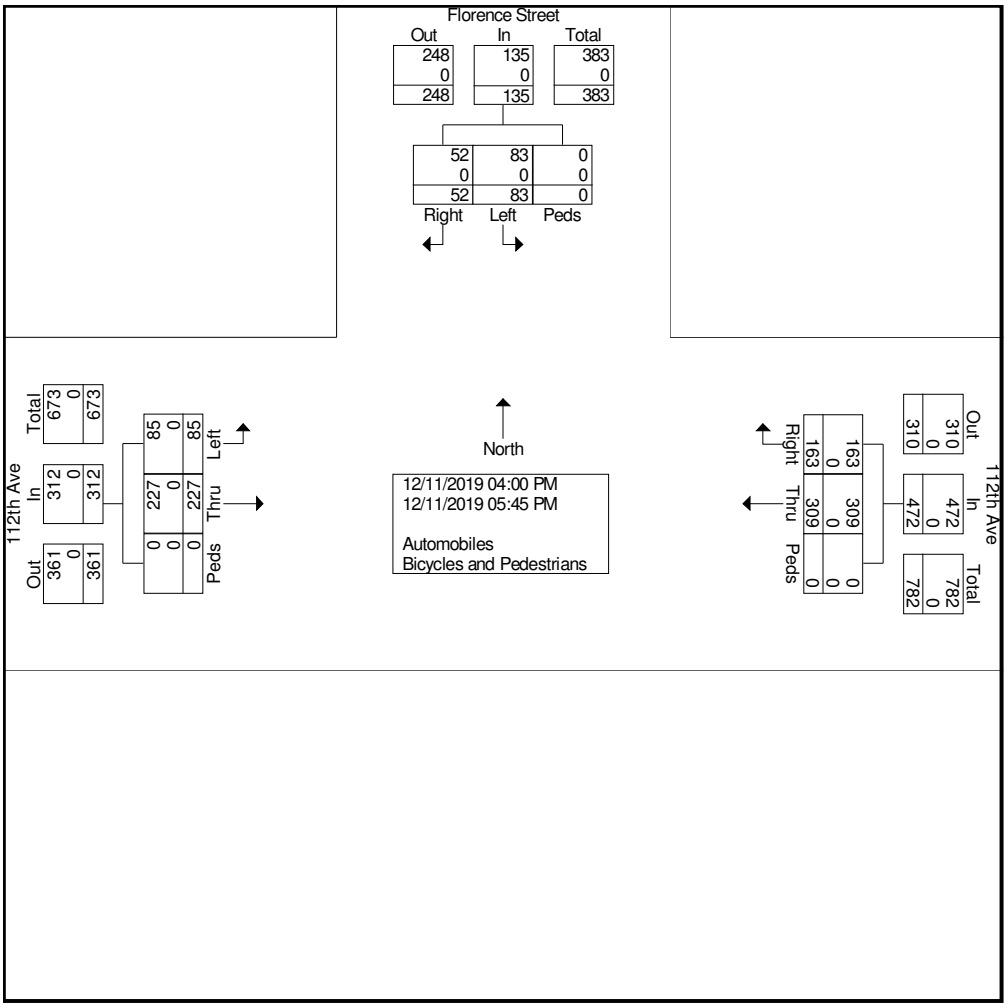
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound				112th Ave Westbound				Florence Street Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
04:00 PM	12	33	0	45	43	14	0	57	11	7	0	18	120
04:15 PM	16	28	0	44	26	18	0	44	9	12	0	21	109
04:30 PM	8	26	0	34	25	20	0	45	15	3	0	18	97
04:45 PM	14	35	0	49	54	24	0	78	11	8	0	19	146
Total	50	122	0	172	148	76	0	224	46	30	0	76	472
05:00 PM	6	34	0	40	39	28	0	67	9	5	0	14	121
05:15 PM	10	21	0	31	45	23	0	68	11	7	0	18	117
05:30 PM	3	21	0	24	45	21	0	66	9	4	0	13	103
05:45 PM	16	29	0	45	32	15	0	47	8	6	0	14	106
Total	35	105	0	140	161	87	0	248	37	22	0	59	447
Grand Total	85	227	0	312	309	163	0	472	83	52	0	135	919
Apprch %	27.2	72.8	0		65.5	34.5	0		61.5	38.5	0		
Total %	9.2	24.7	0	33.9	33.6	17.7	0	51.4	9	5.7	0	14.7	
Automobiles	85	227	0	312	309	163	0	472	83	52	0	135	919
% Automobiles	100	100	0	100	100	100	0	100	100	100	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 2

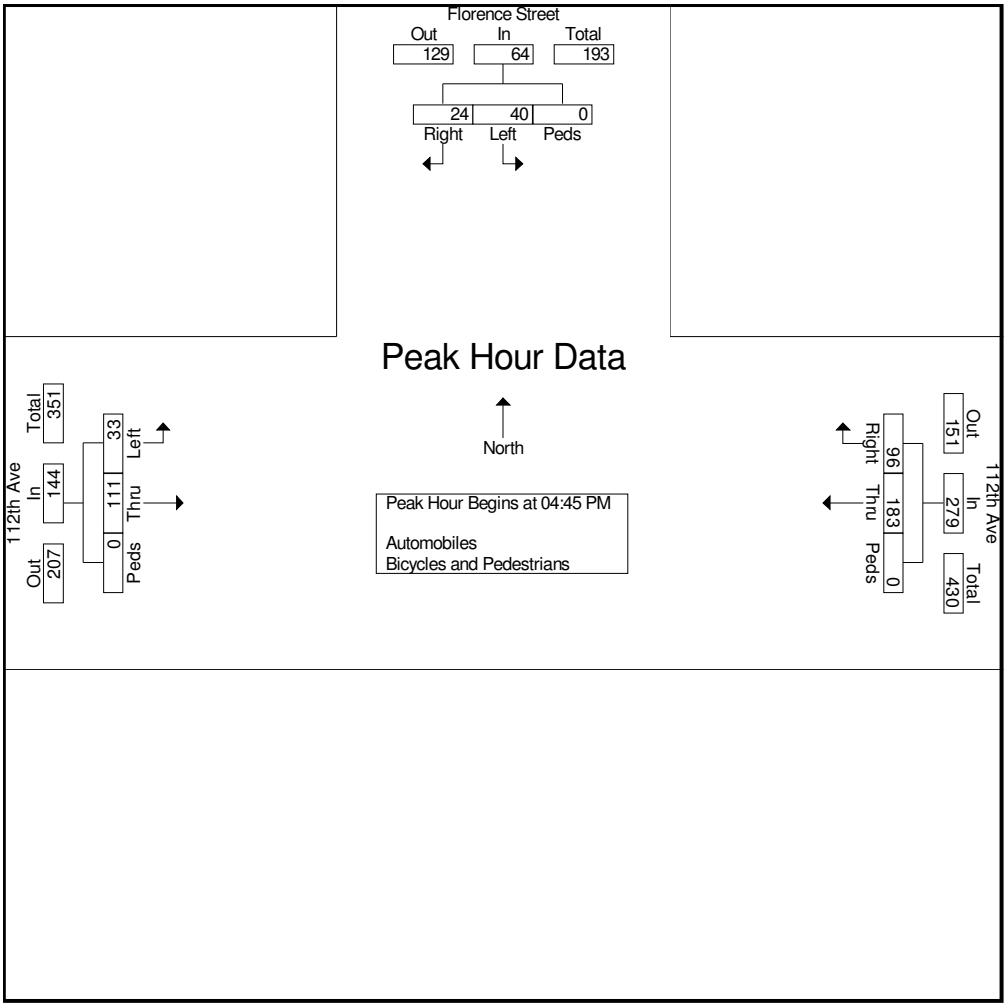


Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and Florence St

File Name : 112th Ave and Florence PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 3

	112th Ave Eastbound				112th Ave Westbound				Florence Street Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	**14**	**35**	0	**49**	**54**	24	0	**78**	**11**	**8**	0	**19**	**146**
05:00 PM	6	34	0	40	39	**28**	0	67	9	5	0	14	121
05:15 PM	10	21	0	31	45	23	0	68	11	7	0	18	117
05:30 PM	3	21	0	24	45	21	0	66	9	4	0	13	103
Total Volume	33	111	0	144	183	96	0	279	40	24	0	64	487
% App. Total	22.9	77.1	0		65.6	34.4	0		62.5	37.5	0		
PHF	.589	.793	.000	.735	.847	.857	.000	.894	.909	.750	.000	.842	.834



Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 1

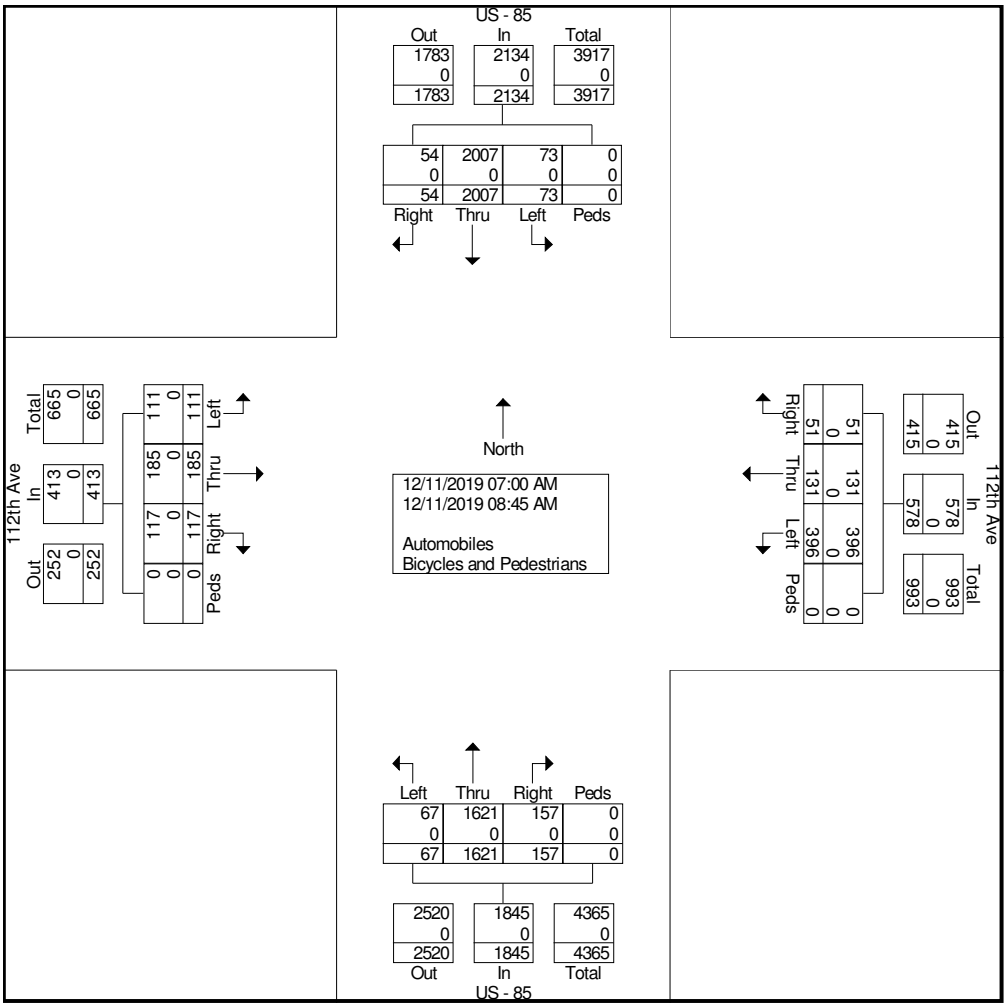
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	5	19	19	0	43	50	9	10	0	69	5	213	23	0	241	16	304	5	0	325	678
07:15 AM	16	25	18	0	59	71	11	8	0	90	7	227	27	0	261	5	225	6	0	236	646
07:30 AM	19	30	11	0	60	53	21	5	0	79	12	223	28	0	263	14	250	2	0	266	668
07:45 AM	15	33	18	0	66	48	30	2	0	80	4	192	23	0	219	9	249	10	0	268	633
Total	55	107	66	0	228	222	71	25	0	318	28	855	101	0	984	44	1028	23	0	1095	2625
08:00 AM	21	27	12	0	60	60	27	4	0	91	12	203	17	0	232	10	257	16	0	283	666
08:15 AM	19	28	12	0	59	57	12	6	0	75	12	204	15	0	231	8	254	7	0	269	634
08:30 AM	12	17	20	0	49	40	16	6	0	62	8	164	13	0	185	10	241	3	0	254	550
08:45 AM	4	6	7	0	17	17	5	10	0	32	7	195	11	0	213	1	227	5	0	233	495
Total	56	78	51	0	185	174	60	26	0	260	39	766	56	0	861	29	979	31	0	1039	2345
Grand Total	111	185	117	0	413	396	131	51	0	578	67	1621	157	0	1845	73	2007	54	0	2134	4970
Apprch %	26.9	44.8	28.3	0		68.5	22.7	8.8	0		3.6	87.9	8.5	0		3.4	94	2.5	0		
Total %	2.2	3.7	2.4	0	8.3	8	2.6	1	0	11.6	1.3	32.6	3.2	0	37.1	1.5	40.4	1.1	0	42.9	
Automobiles	111	185	117	0	413	396	131	51	0	578	67	1621	157	0	1845	73	2007	54	0	2134	4970
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 2

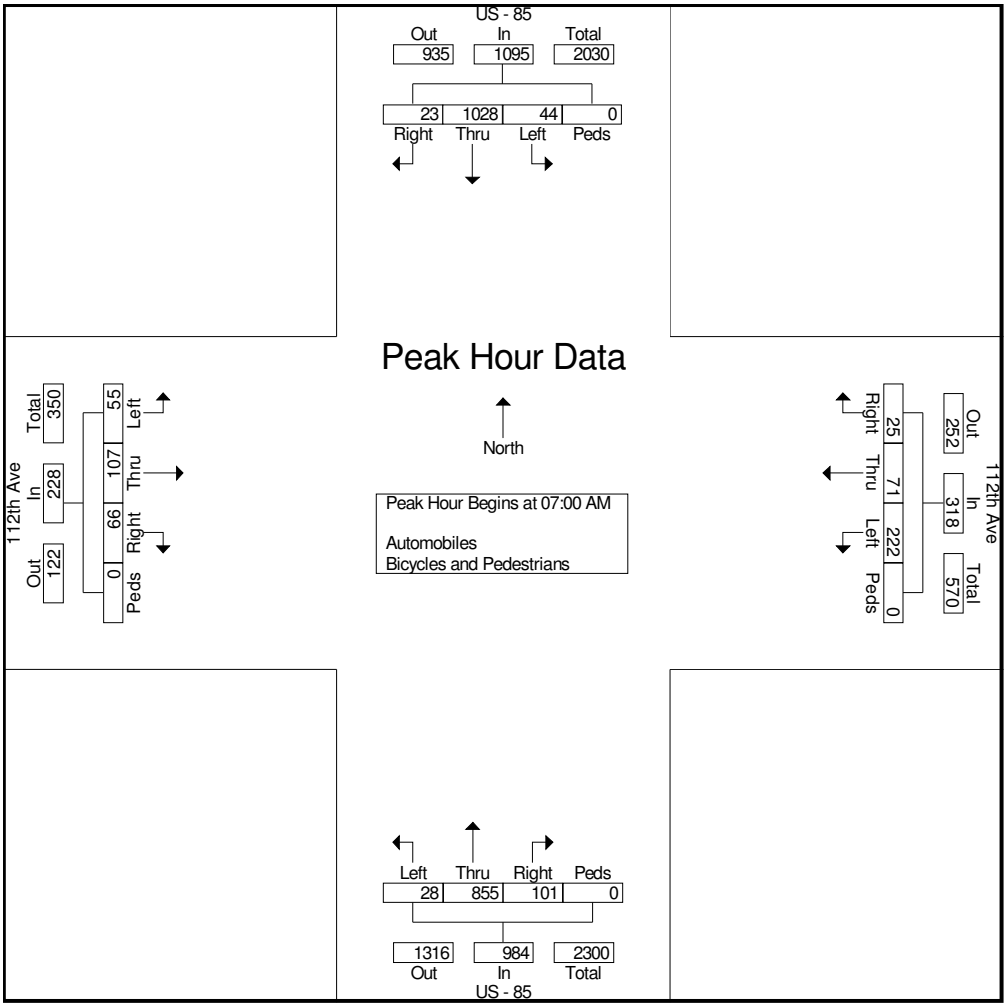


Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 AM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	5	19	**19**	0	43	50	9	**10**	0	69	5	213	23	0	241	**16**	**304**	5	0	**325**	**678**
07:15 AM	16	25	18	0	59	**71**	11	8	0	**90**	7	**227**	27	0	261	5	225	6	0	236	646
07:30 AM	**19**	30	11	0	60	53	21	5	0	79	**12**	223	**28**	0	**263**	14	250	2	0	266	668
07:45 AM	15	**33**	18	0	**66**	48	**30**	2	0	80	4	192	23	0	219	9	249	**10**	0	268	633
Total Volume	55	107	66	0	228	222	71	25	0	318	28	855	101	0	984	44	1028	23	0	1095	2625
% App. Total	24.1	46.9	28.9	0		69.8	22.3	7.9	0		2.8	86.9	10.3	0		4	93.9	2.1	0		
PHF	.724	.811	.868	.000	.864	.782	.592	.625	.000	.883	.583	.942	.902	.000	.935	.688	.845	.575	.000	.842	.968



Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 1

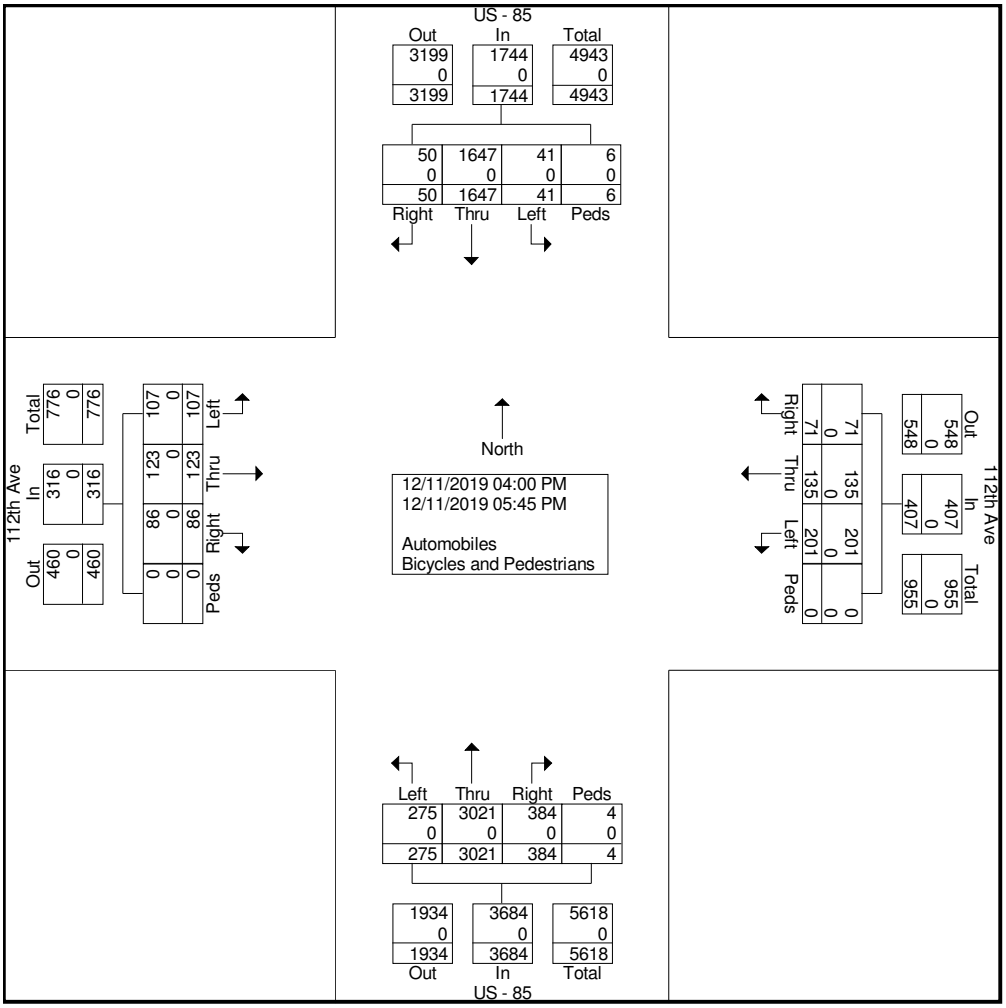
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	13	20	11	0	44	36	17	9	0	62	19	417	38	0	474	5	215	4	0	224	804
04:15 PM	28	6	9	0	43	15	9	5	0	29	42	375	32	0	449	2	191	4	3	200	721
04:30 PM	25	0	11	0	36	0	0	2	0	2	42	519	15	0	576	0	240	7	3	250	864
04:45 PM	10	22	14	0	46	14	23	16	0	53	42	309	61	0	412	12	213	12	0	237	748
Total	76	48	45	0	169	65	49	32	0	146	145	1620	146	0	1911	19	859	27	6	911	3137
05:00 PM	4	29	11	0	44	43	27	8	0	78	35	331	59	3	428	7	188	7	0	202	752
05:15 PM	8	9	11	0	28	32	25	10	0	67	37	372	60	1	470	3	213	5	0	221	786
05:30 PM	9	20	10	0	39	33	23	9	0	65	33	341	60	0	434	9	195	6	0	210	748
05:45 PM	10	17	9	0	36	28	11	12	0	51	25	357	59	0	441	3	192	5	0	200	728
Total	31	75	41	0	147	136	86	39	0	261	130	1401	238	4	1773	22	788	23	0	833	3014
Grand Total	107	123	86	0	316	201	135	71	0	407	275	3021	384	4	3684	41	1647	50	6	1744	6151
Apprch %	33.9	38.9	27.2	0		49.4	33.2	17.4	0		7.5	82	10.4	0.1		2.4	94.4	2.9	0.3		
Total %	1.7	2	1.4	0	5.1	3.3	2.2	1.2	0	6.6	4.5	49.1	6.2	0.1	59.9	0.7	26.8	0.8	0.1	28.4	
Automobiles	107	123	86	0	316	201	135	71	0	407	275	3021	384	4	3684	41	1647	50	6	1744	6151
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 2

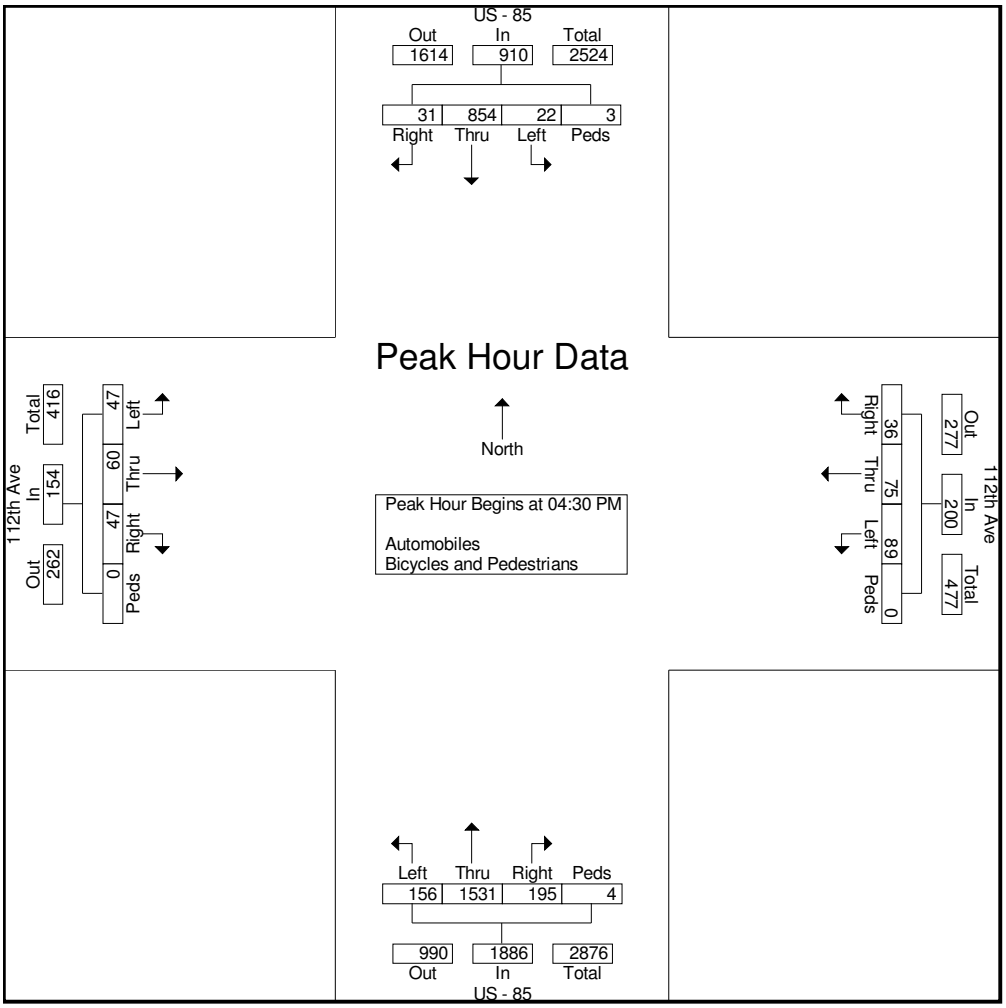


Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th Ave and US 85 PM
Site Code : IPO 476
Start Date : 12/11/2019
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**25**	0	11	0	36	0	0	2	0	2	**42**	**519**	15	0	**576**	0	**240**	7	**3**	**250**	**864**
04:45 PM	10	22	**14**	0	**46**	14	23	**16**	0	53	42	309	**61**	0	412	**12**	213	**12**	0	237	748
05:00 PM	4	**29**	11	0	44	**43**	**27**	8	0	**78**	35	331	59	**3**	428	7	188	7	0	202	752
05:15 PM	8	9	11	0	28	32	25	10	0	67	37	372	60	1	470	3	213	5	0	221	786
Total Volume	47	60	47	0	154	89	75	36	0	200	156	1531	195	4	1886	22	854	31	3	910	3150
% App. Total	30.5	39	30.5	0		44.5	37.5	18	0		8.3	81.2	10.3	0.2		2.4	93.8	3.4	0.3		
PHF	.470	.517	.839	.000	.837	.517	.694	.563	.000	.641	.929	.737	.799	.333	.819	.458	.890	.646	.250	.910	.911



Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th and US-85 AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

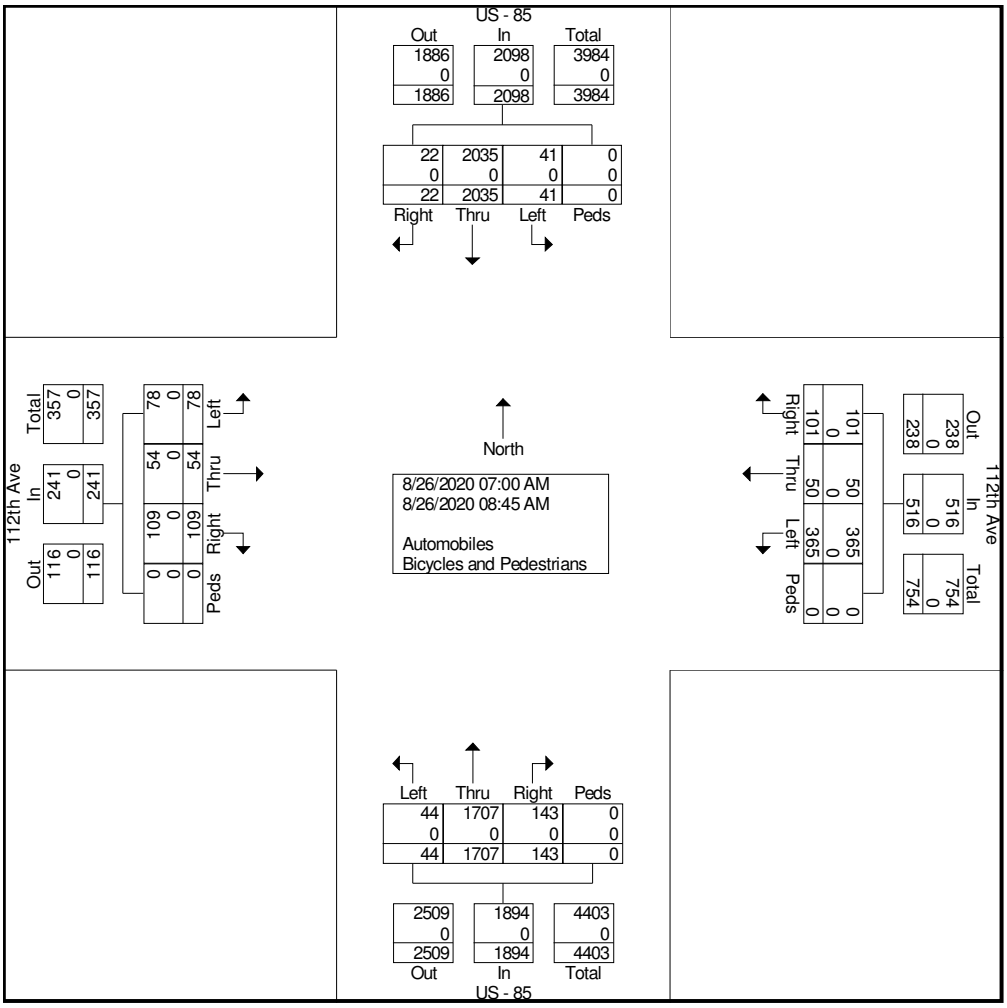
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	10	6	14	0	30	40	6	12	0	58	7	211	20	0	238	3	269	1	0	273	599
07:15 AM	11	7	12	0	30	62	5	18	0	85	4	225	19	0	248	6	273	2	0	281	644
07:30 AM	5	2	22	0	29	56	2	15	0	73	3	247	17	0	267	9	273	5	0	287	656
07:45 AM	11	0	13	0	24	45	8	8	0	61	6	211	15	0	232	4	275	2	0	281	598
Total	37	15	61	0	113	203	21	53	0	277	20	894	71	0	985	22	1090	10	0	1122	2497
08:00 AM	12	6	10	0	28	41	7	12	0	60	9	212	18	0	239	4	201	4	0	209	536
08:15 AM	9	10	12	0	31	36	4	6	0	46	4	209	26	0	239	5	242	3	0	250	566
08:30 AM	14	12	16	0	42	48	9	17	0	74	2	174	13	0	189	5	240	3	0	248	553
08:45 AM	6	11	10	0	27	37	9	13	0	59	9	218	15	0	242	5	262	2	0	269	597
Total	41	39	48	0	128	162	29	48	0	239	24	813	72	0	909	19	945	12	0	976	2252
Grand Total	78	54	109	0	241	365	50	101	0	516	44	1707	143	0	1894	41	2035	22	0	2098	4749
Apprch %	32.4	22.4	45.2	0		70.7	9.7	19.6	0		2.3	90.1	7.6	0		2	97	1	0		
Total %	1.6	1.1	2.3	0	5.1	7.7	1.1	2.1	0	10.9	0.9	35.9	3	0	39.9	0.9	42.9	0.5	0	44.2	
Automobiles	78	54	109	0	241	365	50	101	0	516	44	1707	143	0	1894	41	2035	22	0	2098	4749
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th and US-85 AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

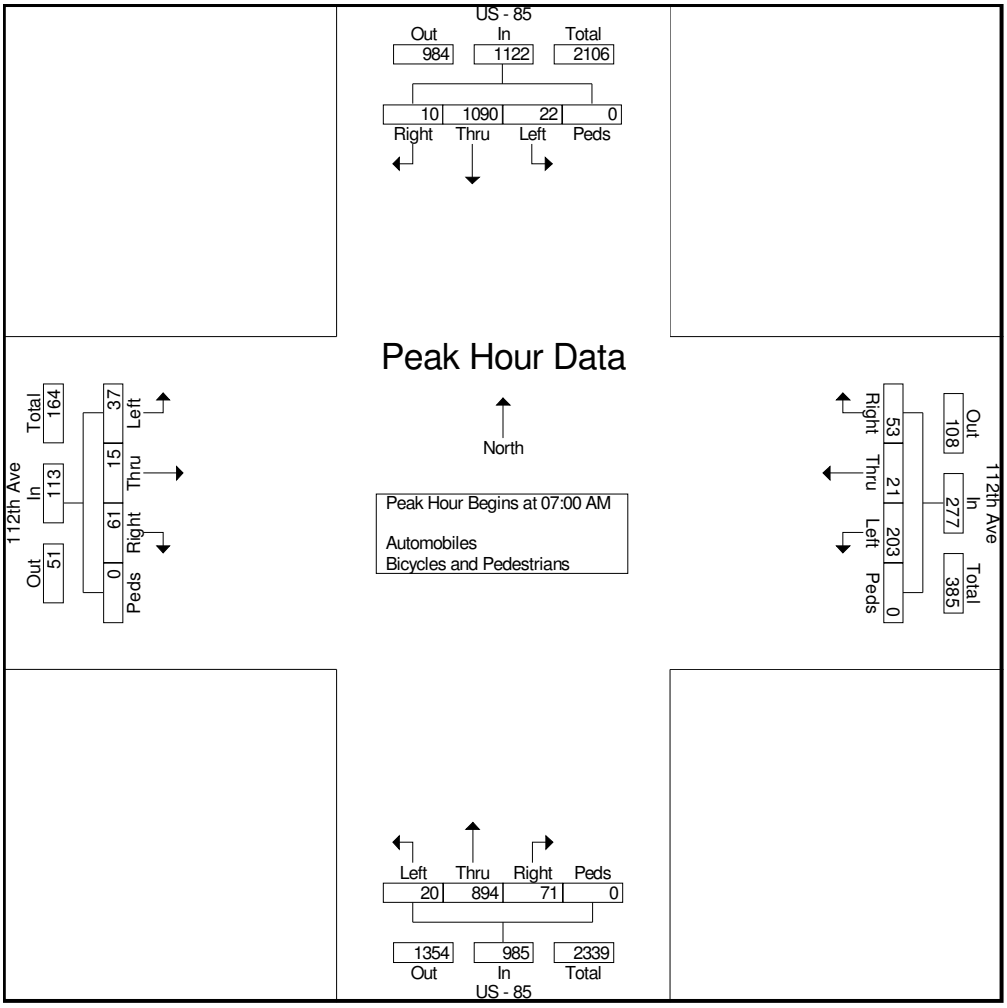


Ridgeview Data Collection

Commerce City, CO
QT 4205
AM Peak
112th Ave and US-85

File Name : 112th and US-85 AM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	10	6	14	0	**30**	40	6	12	0	58	**7**	211	**20**	0	238	3	269	1	0	273	599
07:15 AM	**11**	**7**	12	0	30	**62**	5	**18**	0	**85**	4	225	19	0	248	6	273	2	0	281	644
07:30 AM	5	2	**22**	0	29	56	2	15	0	73	3	**247**	17	0	**267**	**9**	273	**5**	0	**287**	**656**
07:45 AM	11	0	13	0	24	45	**8**	8	0	61	6	211	15	0	232	4	**275**	2	0	281	598
Total Volume	37	15	61	0	113	203	21	53	0	277	20	894	71	0	985	22	1090	10	0	1122	2497
% App. Total	32.7	13.3	54	0		73.3	7.6	19.1	0		2	90.8	7.2	0		2	97.1	0.9	0		
PHF	.841	.536	.693	.000	.942	.819	.656	.736	.000	.815	.714	.905	.888	.000	.922	.611	.991	.500	.000	.977	.952



Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th and US-85 PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 1

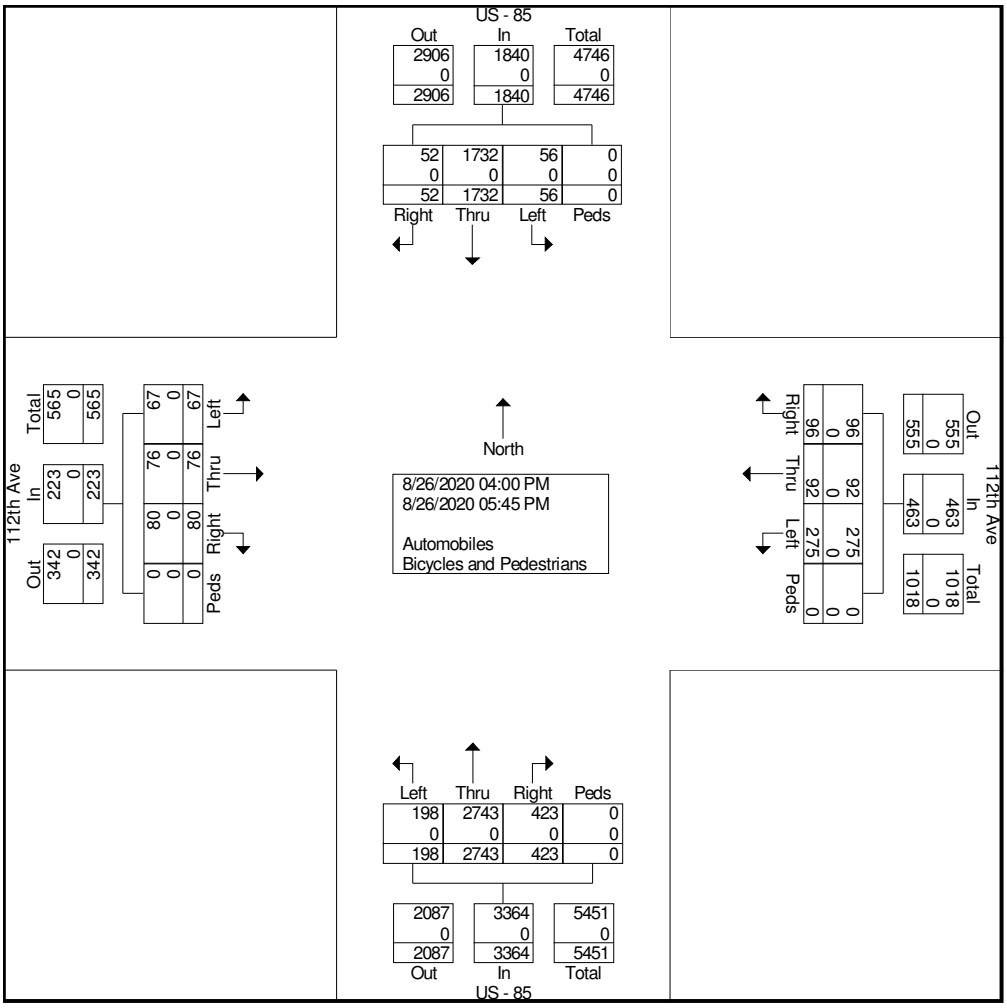
Groups Printed- Automobiles - Bicycles and Pedestrians

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	4	3	9	0	16	31	12	10	0	53	20	364	45	0	429	4	214	0	0	218	716
04:15 PM	16	10	13	0	39	26	6	16	0	48	30	405	52	0	487	7	224	10	0	241	815
04:30 PM	8	8	12	0	28	31	19	8	0	58	31	363	44	0	438	3	223	6	0	232	756
04:45 PM	6	10	8	0	24	33	4	6	0	43	25	348	60	0	433	9	221	2	0	232	732
Total	34	31	42	0	107	121	41	40	0	202	106	1480	201	0	1787	23	882	18	0	923	3019
05:00 PM	8	12	10	0	30	57	14	12	0	83	18	322	54	0	394	8	217	4	0	229	736
05:15 PM	11	11	12	0	34	28	13	12	0	53	29	353	71	0	453	4	240	11	0	255	795
05:30 PM	6	14	6	0	26	44	13	20	0	77	21	313	48	0	382	13	193	11	0	217	702
05:45 PM	8	8	10	0	26	25	11	12	0	48	24	275	49	0	348	8	200	8	0	216	638
Total	33	45	38	0	116	154	51	56	0	261	92	1263	222	0	1577	33	850	34	0	917	2871
Grand Total	67	76	80	0	223	275	92	96	0	463	198	2743	423	0	3364	56	1732	52	0	1840	5890
Apprch %	30	34.1	35.9	0		59.4	19.9	20.7	0		5.9	81.5	12.6	0		3	94.1	2.8	0		
Total %	1.1	1.3	1.4	0	3.8	4.7	1.6	1.6	0	7.9	3.4	46.6	7.2	0	57.1	1	29.4	0.9	0	31.2	
Automobiles	67	76	80	0	223	275	92	96	0	463	198	2743	423	0	3364	56	1732	52	0	1840	5890
% Automobiles	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles and Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th and US-85 PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 2

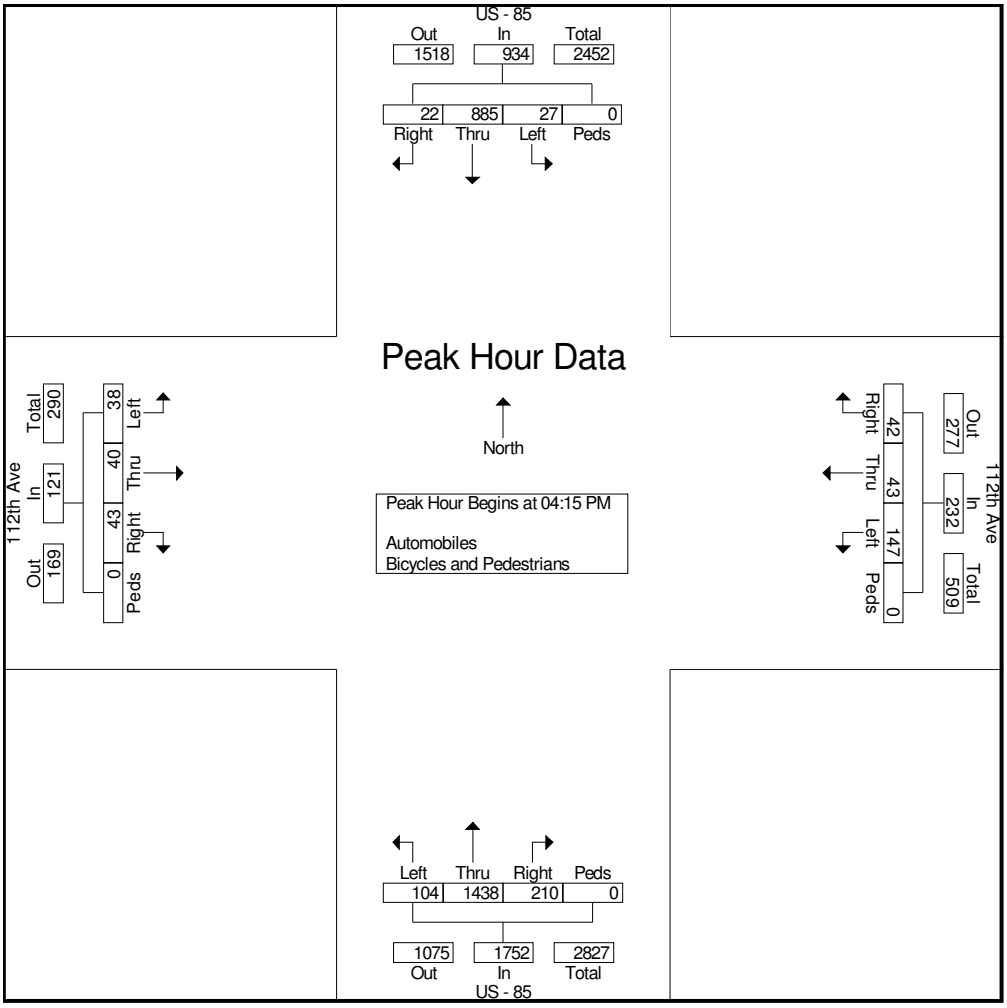


Ridgeview Data Collection

Commerce City, CO
QT 4205
PM Peak
112th Ave and US-85

File Name : 112th and US-85 PM
Site Code : IPO 509
Start Date : 8/26/2020
Page No : 3

	112th Ave Eastbound					112th Ave Westbound					US - 85 Northbound					US - 85 Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	**16**	10	**13**	0	**39**	26	6	**16**	0	48	30	**405**	52	0	**487**	7	**224**	**10**	0	**241**	**815**
04:30 PM	8	8	12	0	28	31	**19**	8	0	58	**31**	363	44	0	438	3	223	6	0	232	756
04:45 PM	6	10	8	0	24	33	4	6	0	43	25	348	**60**	0	433	**9**	221	2	0	232	732
05:00 PM	8	**12**	10	0	30	**57**	14	12	0	**83**	18	322	54	0	394	8	217	4	0	229	736
Total Volume	38	40	43	0	121	147	43	42	0	232	104	1438	210	0	1752	27	885	22	0	934	3039
% App. Total	31.4	33.1	35.5	0		63.4	18.5	18.1	0		5.9	82.1	12	0		2.9	94.8	2.4	0		
PHF	.594	.833	.827	.000	.776	.645	.566	.656	.000	.699	.839	.888	.875	.000	.899	.750	.988	.550	.000	.969	.932



APPENDIX B

CDOT Traffic Information

COVID Adjustment Calculations

CDOT Traffic Projections - QuikTrip 4205 Commerce City

ROUTE	REFPT	ENDREFPT	LENGTH	AADT	COUNTYEAR	YR20FACTOR	DHV	LOCATION
085C	227.385	229.757	2.397	42000	2018	1.37	8	ON SH 85 NE/O SH 44 (104TH AVE)

Annual Growth: 1.59%

CanAm COVID Adjustment Calculations

112th Avenue/US-85 West Leg Traffic Volumes		
Scenario	AM Peak	PM Peak
2019 Existing (Pre-COVID - 2019-10-15)	350	416
2020 Counts (During COVID - 2020-10-08)	164	290
Percent Change	-53.14%	-30.29%
Growth Adjustment	113.41%	43.45%
Adjustment Factor	2.13	1.43
	350	416

Overall 112th Avenue/US-85 Traffic Volumes		
Scenario	AM Peak	PM Peak
2019 Existing (Pre-COVID - 2019-10-15)	2,625	3,150
2020 Counts (During COVID - 2020-10-08)	2,497	3,039
Percent Change	-4.88%	-3.52%
Growth Adjustment	5.13%	3.65%
Adjustment Factor	1.05	1.04

Movement	2020 Existing Counts		COVID Growth Factor		2020 Adjusted Existing Counts		Notes
	AM	PM	AM	PM	AM	PM	
112th Ave and Brighton Rd							
EBL	0	0	2.13	1.43	0	0	
EBT	0	0	2.13	1.43	0	0	
EBR	0	0	2.13	1.43	0	0	
WBL	12	14	0	0	31	24	Balanced from 112th Avenue and Florence Street (PM accounts for vehicles entering onto 112th Court)
WBT	0	0	2.13	1.43	0	0	
WBR	86	71	0	0	219	126	Balanced from 112th Avenue and Florence Street (PM accounts for vehicles entering onto 112th Court)
NBL	0	0	2.13	1.43	0	0	
NBT	25	42	2.13	1.43	78	102	
NBR	14	16	2.13	1.43	44	39	
SBL	50	45	2.13	1.43	157	109	
SBT	51	60	2.13	1.43	160	146	
SBR	0	0	2.13	1.43	0	0	
112th Ave and Belle Creek Blvd							
EBL	0	0	2.13	1.43	0	0	
EBT	33	65	2.13	1.43	103	158	
EBR	34	53	2.13	1.43	106	129	
WBL	17	20	2.13	1.43	53	49	
WBT	45	105	0	0	156	178	Balanced from 112th Avenue and Florence Street
WBR	0	0	2.13	1.43	0	0	
NBL	44	50	2.13	1.43	138	122	
NBT	0	0	2.13	1.43	0	0	
NBR	56	38	2.13	1.43	175	92	
SBL	0	0	2.13	1.43	0	0	
SBT	0	0	2.13	1.43	0	0	
SBR	0	0	2.13	1.43	0	0	

APPENDIX C

Trip Generation Worksheets

CanAm Development Trip Generation Summary

Land Use	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Detached Housing (ITE 210) - 160 DU	1,554	30	84	114	98	57	155
Multi Family Housing (Mid-Rise) (ITE 221) - 300 DU	1,338	27	89	116	70	44	114
Gas Station w/ Convenience Market (ITE 945) - 20 FP	4,114	216	217	433	182	182	364
Total Site Generated Trips	**7,006**	**273**	**390**	**663**	**350**	**283**	**633**
Total Pass-By Trips	**3,086**	**164**	**165**	**329**	**137**	**137**	**274**
Total Non Pass-By Trips	**3,920**	**109**	**225**	**334**	**213**	**146**	**359**

Kimley»Horn

Project	CanAM				
Subject	Trip Generation for Single-Family Detached Housing				
Designed by	TES	*Date*	February 03, 2022	*Job No.*	096888004
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Fitted Curve Equations

Land Use Code - Single-Family Detached Housing (210)

Independent Variable - Dwelling Units (X)

X = 160
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 220)

Directional Distribution: 26% ent. 74% exit.

Ln(T) = 0.91 Ln(X) + 0.12
Ln(T) = 0.91 * Ln(160) + 0.12

T = 114 Average Vehicle Trip Ends
30 entering 84 exiting

30 + 84 = 114

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 221)

Directional Distribution: 63% ent. 37% exit.

Ln(T) = 0.94 Ln(X) + 0.27
Ln(T) = 0.94 * Ln(160) + 0.27

T = 155 Average Vehicle Trip Ends
98 entering 57 exiting

98 + 57 = 155

Weekday (200 Series Page 219)

Directional Distribution: 50% entering, 50% exiting

Ln(T) = 0.92 Ln(X) + 2.68
Ln(T) = 0.92 * Ln(160) + 2.68

T = 1554 Average Vehicle Trip Ends
777 entering 777 exiting

777 + 777 = 1554

Kimley»Horn

Project	CanAM				
Subject	Trip Generation for Multifamily Housing (Mid-Rise)				
Designed by	TES	*Date*	February 03, 2022	*Job No.*	096888004
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independent Variable - Dwelling Units (X)

X = 290
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 275)

Directional Distribution: 23% ent. 77% exit.

(T) = 0.44 (X) - 11.61
(T) = 0.44 * (290.0) - 11.61

T = 116 Average Vehicle Trip Ends
27 entering 89 exiting

27 + 89 = 116

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 276)

Directional Distribution: 61% ent. 39% exit.

(T) = 0.39 (X) + 0.34
(T) = 0.39 * (290.0) + 0.34

T = 114 Average Vehicle Trip Ends
70 entering 44 exiting

70 + 44 = 114

Weekday (200 Series Page 274)

Directional Distribution: 50% ent. 50% exit.

(T) = 4.77 (X) - 46.46
(T) = 4.77 * (290.0) - 46.46

T = 1338 Average Vehicle Trip Ends
669 entering 669 exiting

669 + 669 = 1338

Kimley»Horn

Project	CanAm				
Subject	Trip Generation for Gasoline/Service Station with Convenience Market				
Designed by	TES	*Date*	February 03, 2022	*Job No.*	096888004
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Average Rate Equations

Land Use Code - Convenience Store/Gas Station - GFA (4-5.5K) (945)

Independant Variable - Vehicle Fueling Positions (X)

Vehicle Fueling Positions= 16 Positions
X = 16
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Page 873)

Average Weekday
T = 27.04 (X)
T = 27.04 * 16

Directional Distribution: 50% ent. 50% exit.
T = 433 Average Vehicle Trip Ends
216 entering 217 exiting

216 + 217 = 433

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Page 874)

Average Weekday
T = 22.76 (X)
T = 22.76 * 16.000

Directional Distribution: 50% ent. 50% exit.
T = 364 Average Vehicle Trip Ends
182 entering 182 exiting

182 + 182 = 364

Weekday (Page 872)

Average Weekday
T = 257.13 (X)
T = 257.13 * 16.000

Directional Distribution: 50% entering, 50% exiting
T = 4114 Average Vehicle Trip Ends
2057 entering 2057 exiting

2057 + 2057 = 4114

Non Pass-By Trip Volumes (Per ITE Trip Generation Manual, 11th Edition)

PM Peak Hour = 25% Non-Pass By AM Peak Hour = 24% Non-Pass By

	IN	Out	Total	
AM Peak	52	52	104	
PM Peak	46	46	91	
Daily	514	514	1028	PM Peak Hour Rate Applied to Daily

Pass-By Trip Volumes (Per ITE Trip Generation Manual, 11th Edition)

PM Peak Hour = 75% Pass By AM Peak Hour = 76% Pass By

	IN	Out	Total	
AM Peak	164	165	329	
PM Peak	137	137	273	
Daily	1543	1543	3086	PM Peak Hour Rate Applied to Daily

APPENDIX D

Intersection Analysis Worksheets

Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	219	53	30	107	109
Future Vol, veh/h	31	219	53	30	107	109
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	43	83	69	44	63	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	264	77	68	170	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	630	111	0	0	145	0
Stage 1	111	-	-	-	-	-
Stage 2	519	-	-	-	-	-
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	446	942	-	-	1437	-
Stage 1	914	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	388	942	-	-	1437	-
Mov Cap-2 Maneuver	388	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	519	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	3.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	388	942	1437	-
HCM Lane V/C Ratio	-	-	0.186	0.28	0.118	-
HCM Control Delay (s)	-	-	16.4	10.3	7.8	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	1.2	0.4	-

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	126	60	23	64	86
Future Vol, veh/h	24	126	60	23	64	86
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	77	66	80	66	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	164	91	29	97	109

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	409	106	0	0	120	0
Stage 1	106	-	-	-	-	-
Stage 2	303	-	-	-	-	-
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	599	948	-	-	1468	-
Stage 1	918	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	557	948	-	-	1468	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	3.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	557	948	1468	-
HCM Lane V/C Ratio	-	-	0.086	0.173	0.066	-
HCM Control Delay (s)	-	-	12.1	9.6	7.6	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.6	0.2	-

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	230	55	35	115	115
Future Vol, veh/h	35	230	55	35	115	115
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	43	83	69	44	63	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	277	80	80	183	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	675	120	0	0	160	0
Stage 1	120	-	-	-	-	-
Stage 2	555	-	-	-	-	-
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	419	931	-	-	1419	-
Stage 1	905	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	359	931	-	-	1419	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	492	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	359	931	1419	-
HCM Lane V/C Ratio	-	-	0.227	0.298	0.129	-
HCM Control Delay (s)	-	-	17.9	10.5	7.9	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	1.3	0.4	-

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	135	65	25	70	90
Future Vol, veh/h	25	135	65	25	70	90
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	77	66	80	66	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	175	98	31	106	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	440	114	0	0	129	0
Stage 1	114	-	-	-	-	-
Stage 2	326	-	-	-	-	-
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	574	939	-	-	1457	-
Stage 1	911	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	529	939	-	-	1457	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	3.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	529	939	1457	-
HCM Lane V/C Ratio	-	-	0.095	0.187	0.073	-
HCM Control Delay (s)	-	-	12.5	9.7	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.7	0.2	-

Intersection	
Int Delay, s/veh	7.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	241	55	41	121	115
Future Vol, veh/h	46	241	55	41	121	115
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	43	83	69	44	63	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	290	80	93	192	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	700	127	0	0	173	0
Stage 1	127	-	-	-	-	-
Stage 2	573	-	-	-	-	-
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	405	923	-	-	1404	-
Stage 1	899	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	343	923	-	-	1404	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	343	923	1404	-
HCM Lane V/C Ratio	-	-	0.312	0.315	0.137	-
HCM Control Delay (s)	-	-	20.2	10.7	8	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	1.3	1.4	0.5	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	142	65	36	81	90
Future Vol, veh/h	32	142	65	36	81	90
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	175	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	77	66	80	66	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	184	98	45	123	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	481	121	0	0	143	0
Stage 1	121	-	-	-	-	-
Stage 2	360	-	-	-	-	-
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	544	930	-	-	1440	-
Stage 1	904	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	494	930	-	-	1440	-
Mov Cap-2 Maneuver	494	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	494	930	1440	-
HCM Lane V/C Ratio	-	-	0.13	0.198	0.085	-
HCM Control Delay (s)	-	-	13.4	9.8	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.7	0.3	-

Intersection	
Int Delay, s/veh	6.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	241	55	41	121	115
Future Vol, veh/h	46	241	55	41	121	115
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	43	83	69	44	63	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	290	80	93	192	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	653	80	0	0	173	0
Stage 1	80	-	-	-	-	-
Stage 2	573	-	-	-	-	-
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	432	980	-	-	1404	-
Stage 1	943	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	373	980	-	-	1404	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	487	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	373	980	1404	-
HCM Lane V/C Ratio	-	-	0.287	0.296	0.137	-
HCM Control Delay (s)	-	-	18.5	10.2	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.2	1.2	0.5	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	142	65	36	81	90
Future Vol, veh/h	32	142	65	36	81	90
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	77	66	80	66	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	184	98	45	123	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	458	98	0	0	143	0
Stage 1	98	-	-	-	-	-
Stage 2	360	-	-	-	-	-
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	561	958	-	-	1440	-
Stage 1	926	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	513	958	-	-	1440	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	513	958	1440	-
HCM Lane V/C Ratio	-	-	0.125	0.193	0.085	-
HCM Control Delay (s)	-	-	13	9.7	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.7	0.3	-

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	305	75	45	150	150
Future Vol, veh/h	45	305	75	45	150	150
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	60	83	81	68	71	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	367	93	66	211	195

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	710	93	0	0	159	0
Stage 1	93	-	-	-	-	-
Stage 2	617	-	-	-	-	-
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	400	964	-	-	1420	-
Stage 1	931	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	340	964	-	-	1420	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	4.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	340	964	1420	-
HCM Lane V/C Ratio	-	-	0.221	0.381	0.149	-
HCM Control Delay (s)	-	-	18.6	11	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	1.8	0.5	-

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	175	85	35	90	120
Future Vol, veh/h	35	175	85	35	90	120
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	85	92	92	79	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	206	92	38	114	140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	460	92	0	0	130	0
Stage 1	92	-	-	-	-	-
Stage 2	368	-	-	-	-	-
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	559	965	-	-	1455	-
Stage 1	932	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	515	965	-	-	1455	-
Mov Cap-2 Maneuver	515	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	3.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	515	965	1455	-
HCM Lane V/C Ratio	-	-	0.096	0.213	0.078	-
HCM Control Delay (s)	-	-	12.7	9.7	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.8	0.3	-

Intersection	
Int Delay, s/veh	7.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	316	75	51	156	150
Future Vol, veh/h	56	316	75	51	156	150
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	60	83	81	68	71	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	381	93	75	220	195

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	728	93	0	0	168	0
Stage 1	93	-	-	-	-	-
Stage 2	635	-	-	-	-	-
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	390	964	-	-	1410	-
Stage 1	931	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	329	964	-	-	1410	-
Mov Cap-2 Maneuver	329	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	446	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	4.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	329	964	1410	-
HCM Lane V/C Ratio	-	-	0.284	0.395	0.156	-
HCM Control Delay (s)	-	-	20.2	11.2	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	1.9	0.6	-

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	182	85	46	101	120
Future Vol, veh/h	42	182	85	46	101	120
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	175	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	85	92	92	79	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	214	92	50	128	140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	488	92	0	0	142	0
Stage 1	92	-	-	-	-	-
Stage 2	396	-	-	-	-	-
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	539	965	-	-	1441	-
Stage 1	932	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	491	965	-	-	1441	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	3.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	491	965	1441	-
HCM Lane V/C Ratio	-	-	0.12	0.222	0.089	-
HCM Control Delay (s)	-	-	13.3	9.8	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	72	36	156	94	119
Future Vol, veh/h	70	72	36	156	94	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	65	51	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	111	71	223	119	153

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	238	0	548	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1329	-	519	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	724	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1329	-	487	859
Mov Cap-2 Maneuver	-	-	-	-	487	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	644	-	-	1329	-
HCM Lane V/C Ratio	0.422	-	-	0.053	-
HCM Control Delay (s)	14.6	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	2.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	76	29	178	72	54
Future Vol, veh/h	93	76	29	178	72	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	63	71	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	90	46	251	75	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	201	0	499	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	343	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1371	-	561	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1371	-	539	890
Mov Cap-2 Maneuver	-	-	-	-	539	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	716	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	657	-	-	1371	-
HCM Lane V/C Ratio	0.21	-	-	0.034	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	75	40	165	100	125
Future Vol, veh/h	75	75	40	165	100	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	65	51	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	115	78	236	127	160

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	251	0	586	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	392	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1314	-	490	847
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	702	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1314	-	456	847
Mov Cap-2 Maneuver	-	-	-	-	456	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2	15.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	614	-	-	1314	-
HCM Lane V/C Ratio	0.467	-	-	0.06	-
HCM Control Delay (s)	15.9	-	-	7.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	80	30	185	75	60
Future Vol, veh/h	100	80	30	185	75	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	63	71	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	119	95	48	261	78	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	214	0	524	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1356	-	546	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1356	-	524	877
Mov Cap-2 Maneuver	-	-	-	-	524	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	708	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	647	-	-	1356	-
HCM Lane V/C Ratio	0.229	-	-	0.035	-
HCM Control Delay (s)	12.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	80	51	174	113	160
Future Vol, veh/h	81	80	51	174	113	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	65	51	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	123	100	249	143	205

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	270	0	658	209
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	449	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1293	-	440	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1293	-	400	831
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	597	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	576	-	-	1293	-
HCM Lane V/C Ratio	0.604	-	-	0.077	-
HCM Control Delay (s)	20.3	-	-	8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	4	-	-	0.3	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	94	64	192	84	80
Future Vol, veh/h	108	94	64	192	84	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	63	71	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	112	102	270	88	93

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	241	0	659	185
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1326	-	443	857
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1326	-	402	857
Mov Cap-2 Maneuver	-	-	-	-	402	-
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	553	-	-	1326	-
HCM Lane V/C Ratio	0.326	-	-	0.077	-
HCM Control Delay (s)	14.6	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	80	51	174	113	160
Future Vol, veh/h	81	80	51	174	113	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	65	51	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	123	100	249	143	205

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	270	0	596	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	449	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1293	-	482	900
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1293	-	445	900
Mov Cap-2 Maneuver	-	-	-	-	445	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	606	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	445	900	-	-	1293	-
HCM Lane V/C Ratio	0.321	0.228	-	-	0.077	-
HCM Control Delay (s)	16.9	10.2	-	-	8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.4	0.9	-	-	0.3	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	94	64	192	84	80
Future Vol, veh/h	108	94	64	192	84	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	63	71	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	112	102	270	88	93

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	241	0	603	129
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1326	-	483	921
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1326	-	446	921
Mov Cap-2 Maneuver	-	-	-	-	446	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	592	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	446	921	-	-	1326	-
HCM Lane V/C Ratio	0.196	0.101	-	-	0.077	-
HCM Control Delay (s)	15	9.3	-	-	7.9	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	100	50	215	130	165
Future Vol, veh/h	100	100	50	215	130	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	79	63	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	127	79	307	165	212

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	262	0	600	135
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1302	-	489	914
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1302	-	459	914
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	612	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	459	914	-	-	1302	-
HCM Lane V/C Ratio	0.359	0.231	-	-	0.061	-
HCM Control Delay (s)	17.2	10.1	-	-	7.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.6	0.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	105	40	245	100	75
Future Vol, veh/h	130	105	40	245	100	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	92	92	92	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	155	114	43	266	104	87

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	269	0	507	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1295	-	575	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1295	-	556	891
Mov Cap-2 Maneuver	-	-	-	-	556	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	732	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	556	891	-	-	1295	-
HCM Lane V/C Ratio	0.187	0.098	-	-	0.034	-
HCM Control Delay (s)	13	9.5	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	106	105	61	224	143	200
Future Vol, veh/h	106	105	61	224	143	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	79	63	70	79	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	143	133	97	320	181	256

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	276	0	657	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1287	-	447	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1287	-	413	905
Mov Cap-2 Maneuver	-	-	-	-	413	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	413	905	-	-	1287	-
HCM Lane V/C Ratio	0.438	0.283	-	-	0.075	-
HCM Control Delay (s)	20.3	10.5	-	-	8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	2.2	1.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	119	74	252	109	95
Future Vol, veh/h	138	119	74	252	109	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	150	-	150	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	92	92	92	96	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	164	129	80	274	114	110

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	293	0	598	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	434	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1269	-	502	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %	-	-		-	1	
Mov Cap-1 Maneuver	-	-	1269	-	470	881
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	646	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	470	881	-	-	1269	-
HCM Lane V/C Ratio	0.242	0.125	-	-	0.063	-
HCM Control Delay (s)	15.1	9.7	-	-	8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	166	132	35	95	60
Future Vol, veh/h	20	166	132	35	95	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	202	161	43	116	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	204	0	-	0	433	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	250	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1387	-	-	-	608	925
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1387	-	-	-	596	925
Mov Cap-2 Maneuver	-	-	-	-	596	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1387	-	-	-	596	925
HCM Lane V/C Ratio	0.018	-	-	-	0.194	0.079
HCM Control Delay (s)	7.6	0	-	-	12.5	9.2
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	111	183	96	40	24
Future Vol, veh/h	33	111	183	96	40	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	59	79	85	86	91	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	141	215	112	44	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	327	0	-	0	524	271
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	253	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1246	-	-	-	546	853
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1246	-	-	-	519	853
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	789	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1246	-	-	-	519	853
HCM Lane V/C Ratio	0.045	-	-	-	0.085	0.038
HCM Control Delay (s)	8	0	-	-	12.6	9.4
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	175	140	35	95	60
Future Vol, veh/h	20	175	140	35	95	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	213	171	43	116	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	454	193
Stage 1	-	-	-	-	193	-
Stage 2	-	-	-	-	261	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1374	-	-	-	589	912
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1374	-	-	-	578	912
Mov Cap-2 Maneuver	-	-	-	-	578	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1374	-	-	-	578	912
HCM Lane V/C Ratio	0.018	-	-	-	0.2	0.08
HCM Control Delay (s)	7.7	0	-	-	12.8	9.3
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0.3

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	115	190	96	40	24
Future Vol, veh/h	33	115	190	96	40	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	59	79	85	86	91	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	146	224	112	44	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	336	0	-	0	538	280
Stage 1	-	-	-	-	280	-
Stage 2	-	-	-	-	258	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1235	-	-	-	534	842
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1235	-	-	-	508	842
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1235	-	-	-	508	842
HCM Lane V/C Ratio	0.045	-	-	-	0.087	0.038
HCM Control Delay (s)	8.1	0	-	-	12.8	9.4
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.1

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	213	4	240	151	35	9	11	149	95	6	60
Future Vol, veh/h	20	213	4	240	151	35	9	11	149	95	6	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	92	92	82	82	92	92	92	82	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	260	4	261	184	43	10	12	162	116	7	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	227	0	0	264	0	0	1078	1059	262	1125	1040	206
Stage 1	-	-	-	-	-	-	310	310	-	728	728	-
Stage 2	-	-	-	-	-	-	768	749	-	397	312	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1341	-	-	1300	-	-	196	224	777	182	230	835
Stage 1	-	-	-	-	-	-	700	659	-	415	429	-
Stage 2	-	-	-	-	-	-	394	419	-	629	658	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1341	-	-	1300	-	-	147	176	777	116	181	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	287	-	200	286	-
Stage 1	-	-	-	-	-	-	687	647	-	408	343	-
Stage 2	-	-	-	-	-	-	282	335	-	480	646	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	4.5	12.4	31.1
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	241	695	1341	-	-	1300	-	-	200	722
HCM Lane V/C Ratio	0.041	0.25	0.018	-	-	0.201	-	-	0.579	0.11
HCM Control Delay (s)	20.6	11.9	7.7	-	-	8.5	-	-	45.2	10.6
HCM Lane LOS	C	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.1	1	0.1	-	-	0.7	-	-	3.2	0.4

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	137	5	274	224	96	7	7	98	40	11	24
Future Vol, veh/h	33	137	5	274	224	96	7	7	98	40	11	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	79	92	92	85	86	92	92	92	91	92	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	173	5	298	264	112	8	8	107	44	12	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	376	0	0	178	0	0	1226	1260	176	1261	1206	320
Stage 1	-	-	-	-	-	-	288	288	-	916	916	-
Stage 2	-	-	-	-	-	-	938	972	-	345	290	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1182	-	-	1398	-	-	155	170	867	147	184	721
Stage 1	-	-	-	-	-	-	720	674	-	326	351	-
Stage 2	-	-	-	-	-	-	317	331	-	671	672	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1182	-	-	1398	-	-	114	128	867	101	138	721
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	177	-	174	201	-
Stage 1	-	-	-	-	-	-	686	642	-	311	276	-
Stage 2	-	-	-	-	-	-	228	260	-	554	640	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	3.7	12.5	23.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	152	688	1182	-	-	1398	-	-	174	423
HCM Lane V/C Ratio	0.05	0.166	0.047	-	-	0.213	-	-	0.253	0.104
HCM Control Delay (s)	29.9	11.3	8.2	-	-	8.3	-	-	32.5	14.5
HCM Lane LOS	D	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.2	0.6	0.1	-	-	0.8	-	-	1	0.3

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	213	4	240	151	35	9	11	149	95	6	60
Future Vol, veh/h	20	213	4	240	151	35	9	11	149	95	6	60
Peak Hour Factor	0.82	0.82	0.92	0.92	0.82	0.82	0.92	0.92	0.92	0.82	0.92	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	260	4	261	184	43	10	12	162	116	7	73
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	14.9	14.5	12.1	11.8
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	7%	0%	98%	0%	81%	0%	9%
Vol Right, %	0%	93%	0%	2%	0%	19%	0%	91%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	160	20	217	240	186	95	66
LT Vol	9	0	20	0	240	0	95	0
Through Vol	0	11	0	213	0	151	0	6
RT Vol	0	149	0	4	0	35	0	60
Lane Flow Rate	10	174	24	264	261	227	116	80
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.021	0.313	0.048	0.479	0.49	0.386	0.245	0.142
Departure Headway (Hd)	7.647	6.469	7.058	6.536	6.768	6.127	7.598	6.437
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	551	504	547	530	583	469	552
Service Time	5.442	4.263	4.846	4.324	4.547	3.905	5.395	4.232
HCM Lane V/C Ratio	0.022	0.316	0.048	0.483	0.492	0.389	0.247	0.145
HCM Control Delay	10.6	12.2	10.2	15.3	15.9	12.8	12.9	10.3
HCM Lane LOS	B	B	B	C	C	B	B	B
HCM 95th-tile Q	0.1	1.3	0.2	2.6	2.7	1.8	1	0.5

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	137	5	274	224	96	7	7	98	40	11	24
Future Vol, veh/h	33	137	5	274	224	96	7	7	98	40	11	24
Peak Hour Factor	0.59	0.79	0.92	0.92	0.85	0.86	0.92	0.92	0.92	0.91	0.92	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	173	5	298	264	112	8	8	107	44	12	32
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	11.1	14.6	10.5	10.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	7%	0%	96%	0%	70%	0%	31%
Vol Right, %	0%	93%	0%	4%	0%	30%	0%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	7	105	33	142	274	320	40	35
LT Vol	7	0	33	0	274	0	40	0
Through Vol	0	7	0	137	0	224	0	11
RT Vol	0	98	0	5	0	96	0	24
Lane Flow Rate	8	114	56	179	298	375	44	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.016	0.198	0.102	0.3	0.5	0.555	0.091	0.079
Departure Headway (Hd)	7.431	6.256	6.577	6.046	6.044	5.328	7.489	6.49
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	482	573	545	594	599	679	479	552
Service Time	5.173	3.998	4.316	3.785	3.772	3.056	5.234	4.235
HCM Lane V/C Ratio	0.017	0.199	0.103	0.301	0.497	0.552	0.092	0.08
HCM Control Delay	10.3	10.5	10.1	11.4	14.7	14.5	11	9.8
HCM Lane LOS	B	B	B	B	B	B	B	A
HCM 95th-tile Q	0	0.7	0.3	1.3	2.8	3.4	0.3	0.3

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	230	185	35	95	60
Future Vol, veh/h	20	230	185	35	95	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	74	77	80	70	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	311	240	44	136	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	653	262
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	391	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1297	-	-	-	446	859
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1297	-	-	-	429	859
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1297	-	-	-	528	859
HCM Lane V/C Ratio	0.031	-	-	-	0.257	0.116
HCM Control Delay (s)	7.9	0	-	-	14.2	9.7
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1	0.4

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	155	255	96	40	24
Future Vol, veh/h	33	155	255	96	40	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	59	79	85	86	91	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	196	300	112	44	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	412	0	-	0	664	356
Stage 1	-	-	-	-	356	-
Stage 2	-	-	-	-	308	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1154	-	-	-	450	792
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1154	-	-	-	426	792
Mov Cap-2 Maneuver	-	-	-	-	529	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1154	-	-	-	529	792
HCM Lane V/C Ratio	0.048	-	-	-	0.083	0.04
HCM Control Delay (s)	8.3	0	-	-	12.4	9.7
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	0.1

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	268	4	240	196	35	9	11	149	95	6	60
Future Vol, veh/h	20	268	4	240	196	35	9	11	149	95	6	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	291	4	261	213	38	10	12	162	103	7	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	251	0	0	295	0	0	1127	1110	293	1178	1093	232
Stage 1	-	-	-	-	-	-	337	337	-	754	754	-
Stage 2	-	-	-	-	-	-	790	773	-	424	339	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1314	-	-	1266	-	-	182	209	746	168	214	807
Stage 1	-	-	-	-	-	-	677	641	-	401	417	-
Stage 2	-	-	-	-	-	-	383	409	-	608	640	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1314	-	-	1266	-	-	137	163	746	106	167	807
Mov Cap-2 Maneuver	-	-	-	-	-	-	235	279	-	182	272	-
Stage 1	-	-	-	-	-	-	665	630	-	394	331	-
Stage 2	-	-	-	-	-	-	274	325	-	459	629	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	4.4	12.8	32.8
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	235	669	1314	-	-	1266	-	-	182	685
HCM Lane V/C Ratio	0.042	0.26	0.017	-	-	0.206	-	-	0.567	0.105
HCM Control Delay (s)	21	12.3	7.8	-	-	8.6	-	-	48	10.9
HCM Lane LOS	C	B	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.1	1	0.1	-	-	0.8	-	-	3	0.3

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	177	5	274	289	96	7	7	98	40	11	24
Future Vol, veh/h	33	177	5	274	289	96	7	7	98	40	11	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	150	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	79	92	92	85	86	92	92	92	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	224	5	298	340	112	8	8	107	44	12	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	452	0	0	229	0	0	1310	1347	227	1348	1293	396
Stage 1	-	-	-	-	-	-	299	299	-	992	992	-
Stage 2	-	-	-	-	-	-	1011	1048	-	356	301	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1109	-	-	1339	-	-	136	151	812	128	163	653
Stage 1	-	-	-	-	-	-	710	666	-	296	324	-
Stage 2	-	-	-	-	-	-	289	305	-	661	665	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1109	-	-	1339	-	-	101	114	812	87	123	653
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	172	-	162	187	-
Stage 1	-	-	-	-	-	-	687	645	-	287	252	-
Stage 2	-	-	-	-	-	-	205	237	-	549	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	3.4	12.9	26.3
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	148	651	1109	-	-	1339	-	-	162	366
HCM Lane V/C Ratio	0.051	0.175	0.032	-	-	0.222	-	-	0.271	0.104
HCM Control Delay (s)	30.6	11.7	8.4	-	-	8.5	-	-	35.3	16
HCM Lane LOS	D	B	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.2	0.6	0.1	-	-	0.9	-	-	1	0.3

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	268	4	240	196	35	9	11	149	95	6	60
Future Vol, veh/h	20	268	4	240	196	35	9	11	149	95	6	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	291	4	261	213	38	10	12	162	103	7	65
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	16.5	14.8	12.4	11.8
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	7%	0%	99%	0%	85%	0%	9%
Vol Right, %	0%	93%	0%	1%	0%	15%	0%	91%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	160	20	272	240	231	95	66
LT Vol	9	0	20	0	240	0	95	0
Through Vol	0	11	0	268	0	196	0	6
RT Vol	0	149	0	4	0	35	0	60
Lane Flow Rate	10	174	22	296	261	251	103	72
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.021	0.322	0.043	0.544	0.49	0.429	0.225	0.133
Departure Headway (Hd)	7.84	6.66	7.148	6.618	6.875	6.259	7.836	6.671
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	459	543	504	547	527	580	460	539
Service Time	5.554	4.374	4.848	4.328	4.575	3.959	5.558	4.393
HCM Lane V/C Ratio	0.022	0.32	0.044	0.541	0.495	0.433	0.224	0.134
HCM Control Delay	10.7	12.5	10.2	17	16	13.6	12.8	10.4
HCM Lane LOS	B	B	B	C	C	B	B	B
HCM 95th-tile Q	0.1	1.4	0.1	3.2	2.7	2.1	0.9	0.5

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	177	5	274	289	96	7	7	98	40	11	24
Future Vol, veh/h	33	177	5	274	289	96	7	7	98	40	11	24
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.86	0.92	0.92	0.92	0.91	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	224	5	298	340	112	8	8	107	44	12	26
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

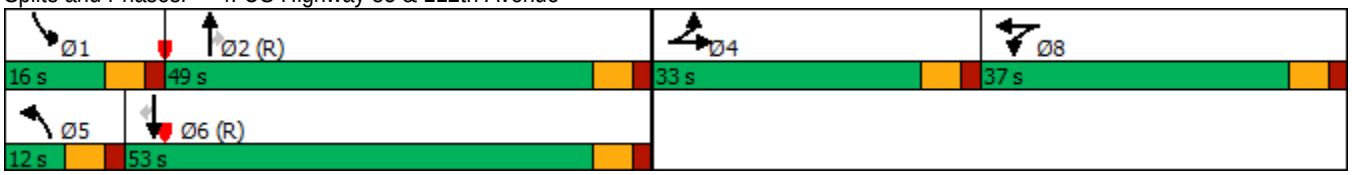
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	12.5	17.3	10.9	10.7
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	100%	0%
Vol Thru, %	0%	7%	0%	97%	0%	75%	0%	31%
Vol Right, %	0%	93%	0%	3%	0%	25%	0%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	7	105	33	182	274	385	40	35
LT Vol	7	0	33	0	274	0	40	0
Through Vol	0	7	0	177	0	289	0	11
RT Vol	0	98	0	5	0	96	0	24
Lane Flow Rate	8	114	36	229	298	452	44	38
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.016	0.205	0.067	0.393	0.504	0.679	0.094	0.071
Departure Headway (Hd)	7.646	6.469	6.684	6.158	6.092	5.411	7.724	6.723
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	468	554	536	583	593	668	463	531
Service Time	5.398	4.221	4.429	3.903	3.824	3.143	5.481	4.479
HCM Lane V/C Ratio	0.017	0.206	0.067	0.393	0.503	0.677	0.095	0.072
HCM Control Delay	10.5	10.9	9.9	12.9	14.9	18.9	11.3	10
HCM Lane LOS	B	B	A	B	B	C	B	A
HCM 95th-tile Q	0	0.8	0.2	1.9	2.8	5.3	0.3	0.2

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	107	66	71	25	28	855	101	44	1028	23
Future Volume (vph)	107	66	71	25	28	855	101	44	1028	23
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	33.0		37.0		12.0	49.0	49.0	16.0	53.0	53.0
Total Split (%)	24.4%		27.4%		8.9%	36.3%	36.3%	11.9%	39.3%	39.3%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.1	135.0	29.3	135.0	6.8	56.2	56.2	8.7	60.7	60.7
Actuated g/C Ratio	0.14	1.00	0.22	1.00	0.05	0.42	0.42	0.06	0.45	0.45
v/c Ratio	0.73	0.05	0.86	0.02	0.34	0.62	0.15	0.46	0.77	0.03
Control Delay	71.1	0.1	71.2	0.0	72.5	36.2	4.5	73.2	38.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	0.1	71.2	0.0	72.5	36.2	4.5	73.2	38.0	0.1
LOS	E	A	E	A	E	D	A	E	D	A
Approach Delay	50.5		65.7			34.0			38.7	
Approach LOS	D		E			C			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 41.4	Intersection LOS: D
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	107	66	222	71	25	28	855	101	44	1028	23
Future Volume (veh/h)	55	107	66	222	71	25	28	855	101	44	1028	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	124	0	252	81	0	30	910	107	52	1224	27
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	146		275	88		45	1644	733	67	1689	753
Arrive On Green	0.12	0.12	0.00	0.20	0.20	0.00	0.03	0.46	0.46	0.04	0.48	0.48
Sat Flow, veh/h	626	1213	1585	1364	438	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	188	0	0	333	0	0	30	910	107	52	1224	27
Grp Sat Flow(s),veh/h/ln	1839	0	1585	1802	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	13.5	0.0	0.0	24.4	0.0	0.0	2.3	25.0	5.3	3.9	37.2	1.2
Cycle Q Clear(g_c), s	13.5	0.0	0.0	24.4	0.0	0.0	2.3	25.0	5.3	3.9	37.2	1.2
Prop In Lane	0.34		1.00	0.76		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	0		363	0		45	1644	733	67	1689	753
V/C Ratio(X)	0.85	0.00		0.92	0.00		0.67	0.55	0.15	0.77	0.72	0.04
Avail Cap(c_a), veh/h	368	0		414	0		79	1644	733	132	1689	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	0.0	0.0	52.8	0.0	0.0	65.3	26.2	20.9	64.4	28.3	18.9
Incr Delay (d2), s/veh	9.5	0.0	0.0	23.2	0.0	0.0	16.2	1.3	0.4	17.0	2.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	0.0	13.4	0.0	0.0	1.2	10.9	2.1	2.1	16.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	0.0	76.0	0.0	0.0	81.5	27.6	21.3	81.4	31.1	19.0
LnGrp LOS	E	A		E	A		F	C	C	F	C	B
Approach Vol, veh/h		188	A		333	A		1047			1303	
Approach Delay, s/veh		67.7			76.0			28.5			32.9	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	68.5		22.2	9.4	70.2		33.2				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	43.0		27.0	6.0	47.0		31.0				
Max Q Clear Time (g_c+I1), s	5.9	27.0		15.5	4.3	39.2		26.4				
Green Ext Time (p_c), s	0.0	6.2		0.7	0.0	4.9		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	60	47	75	36	156	1531	195	22	854	31
Future Volume (vph)	60	47	75	36	156	1531	195	22	854	31
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	25.5		26.5		39.0	86.0	86.0	12.0	59.0	59.0
Total Split (%)	17.0%		17.7%		26.0%	57.3%	57.3%	8.0%	39.3%	39.3%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.3	150.0	24.5	150.0	21.4	84.9	84.9	5.9	64.8	64.8
Actuated g/C Ratio	0.10	1.00	0.16	1.00	0.14	0.57	0.57	0.04	0.43	0.43
v/c Ratio	0.68	0.04	0.86	0.04	0.75	0.93	0.24	0.35	0.61	0.04
Control Delay	83.0	0.0	87.8	0.1	79.8	40.2	2.6	84.1	36.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.0	0.0	87.8	0.1	79.8	40.2	2.6	84.1	36.0	0.1
LOS	F	A	F	A	E	D	A	F	D	A
Approach Delay	57.6		72.0			39.6			35.9	
Approach LOS	E		E			D			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 37 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	60	47	89	75	36	156	1531	195	22	854	31
Future Volume (veh/h)	47	60	47	89	75	36	156	1531	195	22	854	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	71	0	139	117	0	190	1867	238	24	938	34
Peak Hour Factor	0.84	0.84	0.84	0.64	0.64	0.64	0.82	0.82	0.82	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	85		135	114		216	2129	949	38	1773	791
Arrive On Green	0.08	0.08	0.00	0.14	0.14	0.00	0.12	0.60	0.60	0.02	0.50	0.50
Sat Flow, veh/h	807	1023	1585	989	832	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	127	0	0	256	0	0	190	1867	238	24	938	34
Grp Sat Flow(s),veh/h/ln	1830	0	1585	1821	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.3	0.0	0.0	20.5	0.0	0.0	15.7	66.6	10.6	2.0	27.0	1.6
Cycle Q Clear(g_c), s	10.3	0.0	0.0	20.5	0.0	0.0	15.7	66.6	10.6	2.0	27.0	1.6
Prop In Lane	0.44		1.00	0.54		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	0		249	0		216	2129	949	38	1773	791
V/C Ratio(X)	0.83	0.00		1.03	0.00		0.88	0.88	0.25	0.64	0.53	0.04
Avail Cap(c_a), veh/h	238	0		249	0		392	2129	949	71	1773	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.7	0.0	0.0	64.8	0.0	0.0	64.8	25.4	14.2	72.9	25.6	19.2
Incr Delay (d2), s/veh	13.4	0.0	0.0	64.7	0.0	0.0	11.0	5.5	0.6	16.7	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	14.0	0.0	0.0	7.8	28.8	4.0	1.1	11.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.2	0.0	0.0	129.4	0.0	0.0	75.8	30.9	14.8	89.5	26.7	19.4
LnGrp LOS	F	A		F	A		E	C	B	F	C	B
Approach Vol, veh/h		127	A		256	A		2295			996	
Approach Delay, s/veh		81.2			129.4			33.0			28.0	
Approach LOS		F			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	95.8		18.5	24.2	80.8		26.5				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	80.0		19.5	33.0	53.0		20.5				
Max Q Clear Time (g_c+I1), s	4.0	68.6		12.3	17.7	29.0		22.5				
Green Ext Time (p_c), s	0.0	9.5		0.3	0.4	7.4		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

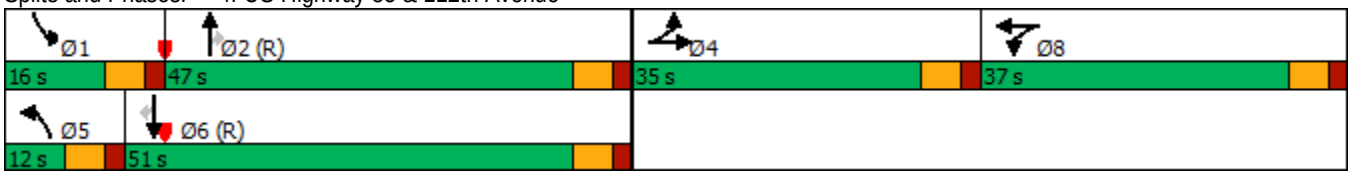
Notes

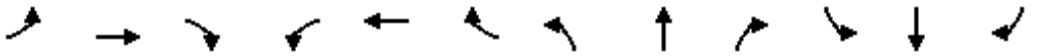
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	115	70	75	30	30	885	105	50	1065	25
Future Volume (vph)	115	70	75	30	30	885	105	50	1065	25
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	35.0		37.0		12.0	47.0	47.0	16.0	51.0	51.0
Total Split (%)	25.9%		27.4%		8.9%	34.8%	34.8%	11.9%	37.8%	37.8%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.3	135.0	30.3	135.0	6.7	53.6	53.6	9.2	58.5	58.5
Actuated g/C Ratio	0.15	1.00	0.22	1.00	0.05	0.40	0.40	0.07	0.43	0.43
v/c Ratio	0.74	0.05	0.86	0.02	0.36	0.67	0.16	0.50	0.83	0.04
Control Delay	70.7	0.1	70.6	0.0	73.9	39.3	5.4	74.7	41.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	0.1	70.6	0.0	73.9	39.3	5.4	74.7	41.7	0.1
LOS	E	A	E	A	E	D	A	E	D	A
Approach Delay	50.6		64.2			36.8			42.2	
Approach LOS	D		E			D			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 43.8	Intersection LOS: D
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	115	70	230	75	30	30	885	105	50	1065	25
Future Volume (veh/h)	60	115	70	230	75	30	30	885	105	50	1065	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	134	0	261	85	0	32	941	112	60	1268	30
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	157		283	92		46	1568	699	77	1630	727
Arrive On Green	0.13	0.13	0.00	0.21	0.21	0.00	0.03	0.44	0.44	0.04	0.46	0.46
Sat Flow, veh/h	631	1208	1585	1360	443	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	204	0	0	346	0	0	32	941	112	60	1268	30
Grp Sat Flow(s),veh/h/ln	1839	0	1585	1802	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.7	0.0	0.0	25.4	0.0	0.0	2.4	27.2	5.7	4.5	40.5	1.4
Cycle Q Clear(g_c), s	14.7	0.0	0.0	25.4	0.0	0.0	2.4	27.2	5.7	4.5	40.5	1.4
Prop In Lane	0.34		1.00	0.75		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	0		375	0		46	1568	699	77	1630	727
V/C Ratio(X)	0.86	0.00		0.92	0.00		0.69	0.60	0.16	0.78	0.78	0.04
Avail Cap(c_a), veh/h	395	0		414	0		79	1568	699	132	1630	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	0.0	52.4	0.0	0.0	65.2	28.7	22.7	63.9	30.8	20.2
Incr Delay (d2), s/veh	9.5	0.0	0.0	24.8	0.0	0.0	17.0	1.7	0.5	15.4	3.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	0.0	14.1	0.0	0.0	1.3	11.9	2.3	2.4	18.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	0.0	0.0	77.2	0.0	0.0	82.3	30.4	23.2	79.3	34.5	20.3
LnGrp LOS	E	A		E	A		F	C	C	E	C	C
Approach Vol, veh/h		204	A		346	A		1085			1358	
Approach Delay, s/veh		67.0			77.2			31.2			36.1	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	65.6		23.5	9.5	67.9		34.1				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	41.0		29.0	6.0	45.0		31.0				
Max Q Clear Time (g_c+I1), s	6.5	29.2		16.7	4.4	42.5		27.4				
Green Ext Time (p_c), s	0.0	5.4		0.8	0.0	1.8		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	41.2
HCM 6th LOS	D

Notes

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	65	50	80	40	165	1585	205	25	885	35
Future Volume (vph)	65	50	80	40	165	1585	205	25	885	35
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	27.5		26.5		33.0	84.0	84.0	12.0	63.0	63.0
Total Split (%)	18.3%		17.7%		22.0%	56.0%	56.0%	8.0%	42.0%	42.0%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.3	150.0	25.7	150.0	21.7	82.8	82.8	5.9	62.3	62.3
Actuated g/C Ratio	0.11	1.00	0.17	1.00	0.14	0.55	0.55	0.04	0.42	0.42
v/c Ratio	0.69	0.04	0.88	0.04	0.79	0.99	0.25	0.39	0.66	0.05
Control Delay	82.0	0.0	88.2	0.1	82.8	51.3	2.7	86.8	38.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	0.0	88.2	0.1	82.8	51.3	2.7	86.8	38.8	0.1
LOS	F	A	F	A	F	D	A	F	D	A
Approach Delay	57.0		71.7			48.8			38.6	
Approach LOS	E		E			D			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 48.5	Intersection LOS: D
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	65	50	95	80	40	165	1585	205	25	885	35
Future Volume (veh/h)	50	65	50	95	80	40	165	1585	205	25	885	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	77	0	148	125	0	201	1933	250	27	973	38
Peak Hour Factor	0.84	0.84	0.84	0.64	0.64	0.64	0.82	0.82	0.82	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	92		135	114		226	2102	938	40	1732	773
Arrive On Green	0.09	0.09	0.00	0.14	0.14	0.00	0.13	0.59	0.59	0.02	0.49	0.49
Sat Flow, veh/h	802	1029	1585	987	834	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	137	0	0	273	0	0	201	1933	250	27	973	38
Grp Sat Flow(s),veh/h/ln	1830	0	1585	1821	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.1	0.0	0.0	20.5	0.0	0.0	16.7	73.1	11.5	2.3	29.0	1.9
Cycle Q Clear(g_c), s	11.1	0.0	0.0	20.5	0.0	0.0	16.7	73.1	11.5	2.3	29.0	1.9
Prop In Lane	0.44		1.00	0.54		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	0		249	0		226	2102	938	40	1732	773
V/C Ratio(X)	0.84	0.00		1.10	0.00		0.89	0.92	0.27	0.67	0.56	0.05
Avail Cap(c_a), veh/h	262	0		249	0		321	2102	938	71	1732	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.2	0.0	0.0	64.8	0.0	0.0	64.5	27.4	14.9	72.8	27.1	20.2
Incr Delay (d2), s/veh	12.3	0.0	0.0	85.4	0.0	0.0	19.4	8.0	0.7	17.8	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	15.4	0.0	0.0	8.8	32.3	4.4	1.2	12.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.5	0.0	0.0	150.2	0.0	0.0	83.8	35.4	15.6	90.6	28.5	20.3
LnGrp LOS	E	A		F	A		F	D	B	F	C	C
Approach Vol, veh/h		137	A		273	A		2384			1038	
Approach Delay, s/veh		79.5			150.2			37.4			29.8	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	94.7		19.4	25.0	79.1		26.5				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	78.0		21.5	27.0	57.0		20.5				
Max Q Clear Time (g_c+I1), s	4.3	75.1		13.1	18.7	31.0		22.5				
Green Ext Time (p_c), s	0.0	2.7		0.4	0.3	8.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		44.9
HCM 6th LOS		D

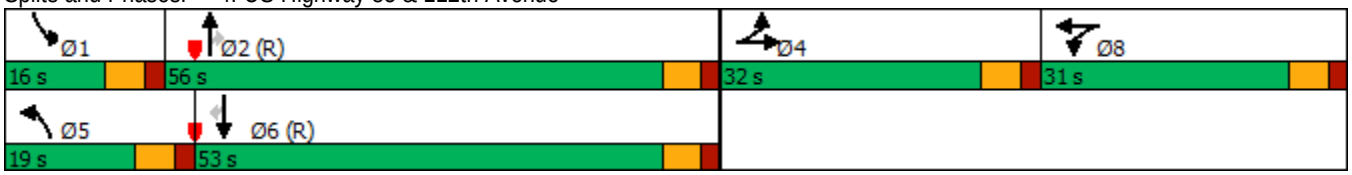
Notes

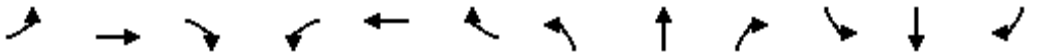
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	149	252	92	30	140	811	105	50	975	143
Future Volume (vph)	149	252	92	30	140	811	105	50	975	143
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	32.0		31.0		19.0	56.0	56.0	16.0	53.0	53.0
Total Split (%)	23.7%		23.0%		14.1%	41.5%	41.5%	11.9%	39.3%	39.3%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	26.0	135.0	25.0	135.0	12.9	53.5	53.5	8.9	47.1	47.1
Actuated g/C Ratio	0.19	1.00	0.19	1.00	0.10	0.40	0.40	0.07	0.35	0.35
v/c Ratio	1.13	0.19	1.10	0.02	0.88	0.62	0.16	0.52	0.94	0.26
Control Delay	137.6	0.3	128.8	0.0	104.2	35.8	4.5	76.4	57.6	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.6	0.3	128.8	0.0	104.2	35.8	4.5	76.4	57.6	5.2
LOS	F	A	F	A	F	D	A	E	E	A
Approach Delay	79.0		117.9			41.7			52.0	
Approach LOS	E		F			D			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 61.3	Intersection LOS: E
Intersection Capacity Utilization 90.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	149	252	230	92	30	140	811	105	50	975	143
Future Volume (veh/h)	190	149	252	230	92	30	140	811	105	50	975	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	221	173	0	261	105	0	149	863	112	60	1161	170
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	154		238	96		172	1426	636	77	1237	552
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.10	0.40	0.40	0.04	0.35	0.35
Sat Flow, veh/h	1020	799	1585	1288	518	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	394	0	0	366	0	0	149	863	112	60	1161	170
Grp Sat Flow(s),veh/h/ln	1819	0	1585	1806	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	26.0	0.0	0.0	25.0	0.0	0.0	11.1	25.9	6.1	4.5	42.7	10.6
Cycle Q Clear(g_c), s	26.0	0.0	0.0	25.0	0.0	0.0	11.1	25.9	6.1	4.5	42.7	10.6
Prop In Lane	0.56		1.00	0.71		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	0		334	0		172	1426	636	77	1237	552
V/C Ratio(X)	1.12	0.00		1.09	0.00		0.87	0.61	0.18	0.78	0.94	0.31
Avail Cap(c_a), veh/h	350	0		334	0		172	1426	636	132	1237	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	0.0	0.0	55.0	0.0	0.0	60.2	32.0	26.0	63.9	42.6	32.1
Incr Delay (d2), s/veh	86.2	0.0	0.0	76.9	0.0	0.0	34.7	1.9	0.6	15.4	14.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.3	0.0	0.0	18.5	0.0	0.0	6.7	11.5	2.5	2.4	21.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	140.7	0.0	0.0	131.9	0.0	0.0	94.9	33.9	26.6	79.3	57.1	33.6
LnGrp LOS	F	A		F	A		F	C	C	E	E	C
Approach Vol, veh/h		394	A		366	A		1124			1391	
Approach Delay, s/veh		140.7			131.9			41.2			55.2	
Approach LOS		F			F			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	60.2		32.0	19.0	53.0		31.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	50.0		26.0	13.0	47.0		25.0				
Max Q Clear Time (g_c+I1), s	6.5	27.9		28.0	13.1	44.7		27.0				
Green Ext Time (p_c), s	0.0	6.8		0.0	0.0	1.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		69.3
HCM 6th LOS		E

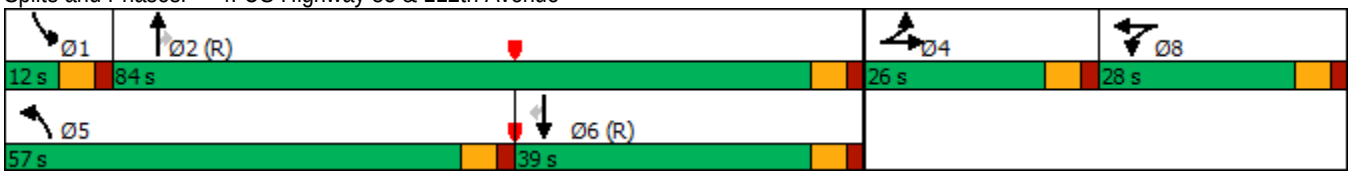
Notes

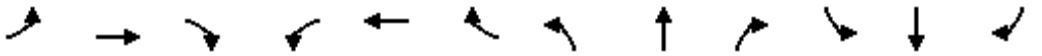
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	88	164	113	40	332	1503	205	25	830	144
Future Volume (vph)	88	164	113	40	332	1503	205	25	830	144
Turn Type	NA	Free	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		Free		Free			2			6
Detector Phase	4		8		5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	26.0		28.0		57.0	84.0	84.0	12.0	39.0	39.0
Total Split (%)	17.3%		18.7%		38.0%	56.0%	56.0%	8.0%	26.0%	26.0%
Yellow Time (s)	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0		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	6.0	6.0
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None		None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	20.0	150.0	22.0	150.0	39.9	82.8	82.8	5.9	44.1	44.1
Actuated g/C Ratio	0.13	1.00	0.15	1.00	0.27	0.55	0.55	0.04	0.29	0.29
v/c Ratio	1.27	0.12	1.22	0.04	0.86	0.94	0.25	0.39	0.88	0.27
Control Delay	200.4	0.2	178.5	0.1	70.1	42.3	2.7	86.8	60.9	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	200.4	0.2	178.5	0.1	70.1	42.3	2.7	86.8	60.9	7.6
LOS	F	A	F	A	E	D	A	F	E	A
Approach Delay	122.3		149.5			42.9			53.9	
Approach LOS	F		F			D			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 63.7	Intersection LOS: E
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	88	164	95	113	40	332	1503	205	25	830	144
Future Volume (veh/h)	168	88	164	95	113	40	332	1503	205	25	830	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	105	0	148	177	0	405	1833	250	27	912	158
Peak Hour Factor	0.84	0.84	0.84	0.64	0.64	0.64	0.82	0.82	0.82	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	83		122	146		434	1910	852	40	1124	502
Arrive On Green	0.13	0.13	0.00	0.15	0.15	0.00	0.24	0.54	0.54	0.02	0.32	0.32
Sat Flow, veh/h	1188	623	1585	833	996	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	305	0	0	325	0	0	405	1833	250	27	912	158
Grp Sat Flow(s),veh/h/ln	1811	0	1585	1829	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	20.0	0.0	0.0	22.0	0.0	0.0	33.4	73.9	13.0	2.3	35.4	11.4
Cycle Q Clear(g_c), s	20.0	0.0	0.0	22.0	0.0	0.0	33.4	73.9	13.0	2.3	35.4	11.4
Prop In Lane	0.66		1.00	0.46		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	0		268	0		434	1910	852	40	1124	502
V/C Ratio(X)	1.26	0.00		1.21	0.00		0.93	0.96	0.29	0.67	0.81	0.32
Avail Cap(c_a), veh/h	241	0		268	0		606	1910	852	71	1124	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	0.0	0.0	64.0	0.0	0.0	55.5	33.1	19.0	72.8	47.1	38.9
Incr Delay (d2), s/veh	147.2	0.0	0.0	124.6	0.0	0.0	17.6	13.0	0.9	17.8	6.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.1	0.0	0.0	19.6	0.0	0.0	17.1	34.5	5.1	1.2	16.7	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	212.2	0.0	0.0	188.6	0.0	0.0	73.2	46.2	19.9	90.6	53.5	40.6
LnGrp LOS	F	A		F	A		E	D	B	F	D	D
Approach Vol, veh/h		305	A		325	A		2488			1097	
Approach Delay, s/veh		212.2			188.6			47.9			52.6	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	86.6		26.0	42.5	53.5		28.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s	6.0	78.0		20.0	51.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.3	75.9		22.0	35.4	37.4		24.0				
Green Ext Time (p_c), s	0.0	1.9		0.0	1.1	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	71.9
HCM 6th LOS	E

Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	149	252	230	92	30	140	811	105	50	975	143
Future Volume (vph)	190	149	252	230	92	30	140	811	105	50	975	143
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	24.0	25.1		23.0	24.1		34.0	70.9	70.9	16.0	52.9	52.9
Total Split (%)	17.8%	18.6%		17.0%	17.9%		25.2%	52.5%	52.5%	11.9%	39.2%	39.2%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.2	16.5	135.0	33.4	16.6	135.0	16.7	71.2	71.2	8.9	61.0	61.0
Actuated g/C Ratio	0.25	0.12	1.00	0.25	0.12	1.00	0.12	0.53	0.53	0.07	0.45	0.45
v/c Ratio	0.61	0.76	0.19	0.85	0.46	0.02	0.68	0.46	0.13	0.52	0.73	0.21
Control Delay	42.4	74.5	0.3	65.1	61.6	0.0	71.9	22.3	3.0	76.4	34.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	74.5	0.3	65.1	61.6	0.0	71.9	22.3	3.0	76.4	34.9	4.3
LOS	D	E	A	E	E	A	E	C	A	E	C	A
Approach Delay		32.5			58.6			26.9			32.9	
Approach LOS		C			E			C			C	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 75.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	149	252	230	92	30	140	811	105	50	975	143
Future Volume (veh/h)	190	149	252	230	92	30	140	811	105	50	975	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	221	173	0	261	105	0	149	863	112	60	1161	170
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.94	0.94	0.94	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	204		299	208		176	1933	862	77	1734	774
Arrive On Green	0.04	0.04	0.00	0.13	0.11	0.00	0.10	0.54	0.54	0.04	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	221	173	0	261	105	0	149	863	112	60	1161	170
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.7	12.4	0.0	17.0	7.1	0.0	11.1	19.8	4.7	4.5	33.5	8.3
Cycle Q Clear(g_c), s	14.7	12.4	0.0	17.0	7.1	0.0	11.1	19.8	4.7	4.5	33.5	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	349	204		299	208		176	1933	862	77	1734	774
V/C Ratio(X)	0.63	0.85		0.87	0.51		0.84	0.45	0.13	0.78	0.67	0.22
Avail Cap(c_a), veh/h	366	265		299	251		369	1933	862	132	1734	774
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	63.9	0.0	47.4	56.5	0.0	59.8	18.6	15.1	63.9	26.3	19.8
Incr Delay (d2), s/veh	3.3	17.7	0.0	23.7	1.9	0.0	10.4	0.7	0.3	15.4	2.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	7.3	0.0	9.8	3.5	0.0	5.5	8.3	1.8	2.4	14.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	81.7	0.0	71.1	58.4	0.0	70.2	19.3	15.4	79.3	28.4	20.5
LnGrp LOS	D	F		E	E		E	B	B	E	C	C
Approach Vol, veh/h		394	A		366	A		1124			1391	
Approach Delay, s/veh		65.7			67.5			25.7			29.6	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	79.4	23.0	20.7	19.4	71.9	22.7	21.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	64.9	17.0	19.1	28.0	46.9	18.0	18.1
Max Q Clear Time (g_c+I1), s	6.5	21.8	19.0	14.4	13.1	35.5	16.7	9.1
Green Ext Time (p_c), s	0.0	8.0	0.0	0.3	0.3	6.6	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

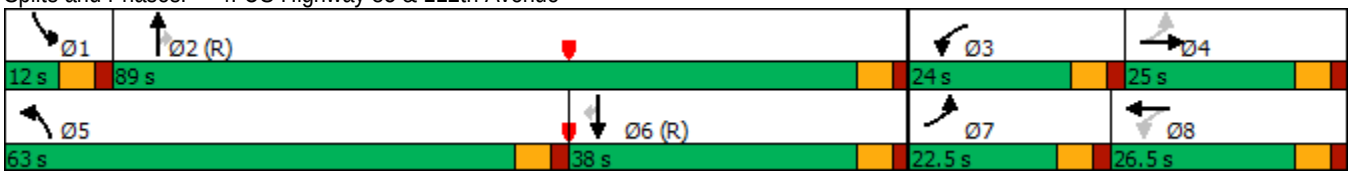
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	88	164	95	113	40	332	1503	205	25	830	144
Future Volume (vph)	168	88	164	95	113	40	332	1503	205	25	830	144
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	22.5	25.0		24.0	26.5		63.0	89.0	89.0	12.0	38.0	38.0
Total Split (%)	15.0%	16.7%		16.0%	17.7%		42.0%	59.3%	59.3%	8.0%	25.3%	25.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	35.1	19.1	150.0	33.0	18.1	150.0	40.5	90.6	90.6	6.2	51.4	51.4
Actuated g/C Ratio	0.23	0.13	1.00	0.22	0.12	1.00	0.27	0.60	0.60	0.04	0.34	0.34
v/c Ratio	0.75	0.44	0.12	0.46	0.79	0.04	0.85	0.86	0.24	0.38	0.75	0.24
Control Delay	60.2	62.4	0.2	48.3	87.9	0.1	67.9	31.3	2.3	84.7	49.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	62.4	0.2	48.3	87.9	0.1	67.9	31.3	2.3	84.7	49.7	6.9
LOS	E	E	A	D	F	A	E	C	A	F	D	A
Approach Delay		37.2			58.5			34.4			44.4	
Approach LOS		D			E			C			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 39.2	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	88	164	95	113	40	332	1503	205	25	830	144
Future Volume (veh/h)	168	88	164	95	113	40	332	1503	205	25	830	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	105	0	148	177	0	405	1833	250	27	912	158
Peak Hour Factor	0.84	0.84	0.84	0.64	0.64	0.64	0.82	0.82	0.82	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	246		306	203		435	2128	949	40	1341	598
Arrive On Green	0.11	0.13	0.00	0.09	0.11	0.00	0.24	0.60	0.60	0.02	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	200	105	0	148	177	0	405	1833	250	27	912	158
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.8	7.7	0.0	10.9	14.0	0.0	33.4	64.1	11.3	2.3	32.2	10.3
Cycle Q Clear(g_c), s	14.8	7.7	0.0	10.9	14.0	0.0	33.4	64.1	11.3	2.3	32.2	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	246		306	203		435	2128	949	40	1341	598
V/C Ratio(X)	0.76	0.43		0.48	0.87		0.93	0.86	0.26	0.67	0.68	0.26
Avail Cap(c_a), veh/h	263	246		365	256		677	2128	949	71	1341	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	59.9	0.0	53.0	65.8	0.0	55.5	24.9	14.3	72.8	39.1	32.3
Incr Delay (d2), s/veh	12.3	1.2	0.0	1.2	22.3	0.0	14.3	4.9	0.7	17.8	2.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	3.8	0.0	5.0	8.0	0.0	16.7	27.6	4.3	1.2	14.7	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	61.1	0.0	54.1	88.1	0.0	69.7	29.8	15.0	90.6	41.9	33.4
LnGrp LOS	E	E		D	F		E	C	B	F	D	C
Approach Vol, veh/h		305	A		325	A		2488			1097	
Approach Delay, s/veh		63.4			72.6			34.8			41.9	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	95.8	19.1	25.7	42.6	62.6	22.5	22.3
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	83.0	18.0	19.0	57.0	32.0	16.5	20.5
Max Q Clear Time (g_c+I1), s	4.3	66.1	12.9	9.7	35.4	34.2	16.8	16.0
Green Ext Time (p_c), s	0.0	13.1	0.2	0.3	1.2	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	150	95	305	100	35	40	1175	140	65	1415	35
Future Volume (vph)	80	150	95	305	100	35	40	1175	140	65	1415	35
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	22.5	22.6		28.7	28.8		12.0	68.7	68.7	15.0	71.7	71.7
Total Split (%)	16.7%	16.7%		21.3%	21.3%		8.9%	50.9%	50.9%	11.1%	53.1%	53.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.4	15.2	135.0	43.4	27.2	135.0	6.2	67.6	67.6	8.6	69.7	69.7
Actuated g/C Ratio	0.19	0.11	1.00	0.32	0.20	1.00	0.05	0.50	0.50	0.06	0.52	0.52
v/c Ratio	0.31	0.78	0.07	0.89	0.29	0.02	0.53	0.71	0.17	0.63	0.84	0.04
Control Delay	36.4	82.5	0.1	64.3	48.2	0.0	86.2	30.2	2.4	86.0	34.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	82.5	0.1	64.3	48.2	0.0	86.2	30.2	2.4	86.0	34.5	0.1
LOS	D	F	A	E	D	A	F	C	A	F	C	A
Approach Delay		47.1			55.6			29.0			35.9	
Approach LOS		D			E			C			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 36.8	Intersection LOS: D
Intersection Capacity Utilization 88.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	150	95	305	100	35	40	1175	140	65	1415	35
Future Volume (veh/h)	80	150	95	305	100	35	40	1175	140	65	1415	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	163	0	332	109	0	43	1250	149	71	1538	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	191		373	396		55	1782	795	90	1851	826
Arrive On Green	0.06	0.10	0.00	0.17	0.21	0.00	0.03	0.50	0.50	0.05	0.52	0.52
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	87	163	0	332	109	0	43	1250	149	71	1538	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.8	11.6	0.0	22.1	6.6	0.0	3.2	36.5	7.0	5.3	49.3	1.6
Cycle Q Clear(g_c), s	5.8	11.6	0.0	22.1	6.6	0.0	3.2	36.5	7.0	5.3	49.3	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	191		373	396		55	1782	795	90	1851	826
V/C Ratio(X)	0.30	0.85		0.89	0.28		0.78	0.70	0.19	0.79	0.83	0.05
Avail Cap(c_a), veh/h	402	230		373	396		79	1782	795	119	1851	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	59.6	0.0	43.3	44.6	0.0	64.9	25.9	18.5	63.4	27.3	15.9
Incr Delay (d2), s/veh	0.6	22.3	0.0	22.4	0.4	0.0	25.6	2.3	0.5	22.3	4.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.7	0.0	12.1	3.1	0.0	1.9	15.8	2.7	3.0	21.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	82.0	0.0	65.6	44.9	0.0	90.5	28.2	19.0	85.6	31.8	16.0
LnGrp LOS	D	F		E	D		F	C	B	F	C	B
Approach Vol, veh/h		250	A		441	A		1442			1647	
Approach Delay, s/veh		71.0			60.5			29.1			33.8	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	73.7	28.7	19.8	10.2	76.3	13.9	34.6
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	9.0	62.7	22.7	16.6	6.0	65.7	16.5	22.8
Max Q Clear Time (g_c+I1), s	7.3	38.5	24.1	13.6	5.2	51.3	7.8	8.6
Green Ext Time (p_c), s	0.0	11.1	0.0	0.2	0.0	9.6	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

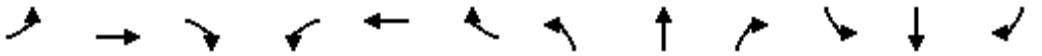
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	85	65	125	105	50	215	2105	270	35	1175	45
Future Volume (vph)	65	85	65	125	105	50	215	2105	270	35	1175	45
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5		31.0	93.0	93.0	12.0	74.0	74.0
Total Split (%)	15.0%	15.0%		15.0%	15.0%		20.7%	62.0%	62.0%	8.0%	49.3%	49.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.8	12.5	150.0	30.8	16.5	150.0	23.3	94.4	94.4	7.1	75.8	75.8
Actuated g/C Ratio	0.15	0.08	1.00	0.21	0.11	1.00	0.16	0.63	0.63	0.05	0.51	0.51
v/c Ratio	0.31	0.59	0.04	0.51	0.56	0.03	0.84	1.03	0.27	0.45	0.71	0.06
Control Delay	50.0	81.3	0.0	55.5	73.3	0.0	86.5	55.0	2.1	86.4	33.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	81.3	0.0	55.5	73.3	0.0	86.5	55.0	2.1	86.4	33.0	0.1
LOS	D	F	A	E	E	A	F	D	A	F	C	A
Approach Delay		47.2			52.3			52.1			33.3	
Approach LOS		D			D			D			C	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	85	65	125	105	50	215	2105	270	35	1175	45
Future Volume (veh/h)	65	85	65	125	105	50	215	2105	270	35	1175	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	92	0	136	114	0	231	2288	293	38	1277	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	118		217	180		254	2365	1055	49	1955	872
Arrive On Green	0.05	0.06	0.00	0.08	0.10	0.00	0.14	0.67	0.67	0.03	0.55	0.55
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	71	92	0	136	114	0	231	2288	293	38	1277	49
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.5	7.3	0.0	10.5	8.8	0.0	19.2	90.7	11.4	3.2	37.8	2.2
Cycle Q Clear(g_c), s	5.5	7.3	0.0	10.5	8.8	0.0	19.2	90.7	11.4	3.2	37.8	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	187	118		217	180		254	2365	1055	49	1955	872
V/C Ratio(X)	0.38	0.78		0.63	0.63		0.91	0.97	0.28	0.78	0.65	0.06
Avail Cap(c_a), veh/h	292	206		263	206		297	2365	1055	71	1955	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.4	69.2	0.0	58.4	65.2	0.0	63.3	23.6	10.3	72.5	23.7	15.7
Incr Delay (d2), s/veh	1.3	10.6	0.0	3.3	5.0	0.0	27.6	12.3	0.7	27.1	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.8	0.0	5.0	4.5	0.0	10.7	39.5	4.2	1.8	16.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	79.8	0.0	61.7	70.2	0.0	90.9	35.9	11.0	99.6	25.4	15.8
LnGrp LOS	E	E		E	E		F	D	B	F	C	B
Approach Vol, veh/h		163	A		250	A		2812			1364	
Approach Delay, s/veh		72.4			65.6			37.8			27.1	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	105.8	18.6	15.5	27.4	88.5	13.6	20.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	87.0	16.5	16.5	25.0	68.0	16.5	16.5
Max Q Clear Time (g_c+I1), s	5.2	92.7	12.5	9.3	21.2	39.8	7.5	10.8
Green Ext Time (p_c), s	0.0	0.0	0.1	0.2	0.2	11.7	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

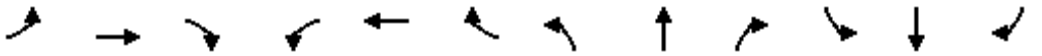
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	184	277	305	117	35	150	1101	140	65	1325	153
Future Volume (vph)	210	184	277	305	117	35	150	1101	140	65	1325	153
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	23.0	26.0		23.0	26.0		21.0	68.0	68.0	18.0	65.0	65.0
Total Split (%)	17.0%	19.3%		17.0%	19.3%		15.6%	50.4%	50.4%	13.3%	48.1%	48.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	34.3	18.1	135.0	36.0	19.0	135.0	14.7	68.3	68.3	10.1	61.2	61.2
Actuated g/C Ratio	0.25	0.13	1.00	0.27	0.14	1.00	0.11	0.51	0.51	0.07	0.45	0.45
v/c Ratio	0.63	0.80	0.19	1.09	0.48	0.02	0.83	0.65	0.17	0.54	0.90	0.21
Control Delay	46.1	79.6	0.3	116.3	60.0	0.0	91.9	28.3	3.6	74.9	43.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	79.6	0.3	116.3	60.0	0.0	91.9	28.3	3.6	74.9	43.2	3.8
LOS	D	E	A	F	E	A	F	C	A	E	D	A
Approach Delay		36.4			93.0			32.7			40.6	
Approach LOS		D			F			C			D	

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 43.2	Intersection LOS: D
Intersection Capacity Utilization 91.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	184	277	305	117	35	150	1101	140	65	1325	153
Future Volume (veh/h)	210	184	277	305	117	35	150	1101	140	65	1325	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	200	0	332	127	0	160	1171	149	71	1440	166
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	229		298	230		184	1859	829	90	1672	746
Arrive On Green	0.13	0.12	0.00	0.13	0.12	0.00	0.10	0.52	0.52	0.05	0.47	0.47
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	228	200	0	332	127	0	160	1171	149	71	1440	166
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.9	14.2	0.0	17.0	8.6	0.0	11.9	31.6	6.7	5.3	48.7	8.4
Cycle Q Clear(g_c), s	14.9	14.2	0.0	17.0	8.6	0.0	11.9	31.6	6.7	5.3	48.7	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	351	229		298	230		184	1859	829	90	1672	746
V/C Ratio(X)	0.65	0.87		1.11	0.55		0.87	0.63	0.18	0.79	0.86	0.22
Avail Cap(c_a), veh/h	352	277		298	277		198	1859	829	158	1672	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	58.2	0.0	48.6	55.7	0.0	59.6	22.9	16.9	63.3	31.8	21.1
Incr Delay (d2), s/veh	4.1	22.1	0.0	86.2	2.1	0.0	30.1	1.6	0.5	13.8	6.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	8.1	0.0	9.1	4.2	0.0	6.9	13.5	2.6	2.8	22.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	80.3	0.0	134.8	57.8	0.0	89.7	24.5	17.4	77.1	37.9	21.8
LnGrp LOS	D	F		F	E		F	C	B	E	D	C
Approach Vol, veh/h		428	A		459	A		1480			1677	
Approach Delay, s/veh		63.2			113.5			30.9			38.0	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	76.6	23.0	22.5	20.0	69.5	22.9	22.6
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	12.0	62.0	17.0	20.0	15.0	59.0	17.0	20.0
Max Q Clear Time (g_c+I1), s	7.3	33.6	19.0	16.2	13.9	50.7	16.9	10.6
Green Ext Time (p_c), s	0.0	11.0	0.0	0.3	0.0	6.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	46.6
HCM 6th LOS	D

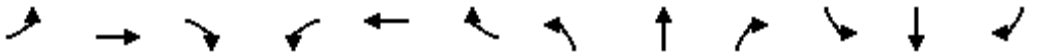
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	108	179	125	138	50	382	2023	270	35	1120	154
Future Volume (vph)	183	108	179	125	138	50	382	2023	270	35	1120	154
Turn Type	pm+pt	NA	Free	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		Free			2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		12.0	22.5	22.5	12.0	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5		46.0	93.0	93.0	12.0	59.0	59.0
Total Split (%)	15.0%	15.0%		15.0%	15.0%		30.7%	62.0%	62.0%	8.0%	39.3%	39.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		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	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	33.3	17.3	150.0	29.3	15.3	150.0	37.8	90.9	90.9	6.2	56.9	56.9
Actuated g/C Ratio	0.22	0.12	1.00	0.20	0.10	1.00	0.25	0.61	0.61	0.04	0.38	0.38
v/c Ratio	0.76	0.55	0.12	0.48	0.79	0.03	0.93	1.03	0.27	0.53	0.91	0.24
Control Delay	66.7	73.1	0.2	51.6	93.3	0.0	82.8	56.4	2.1	95.7	55.3	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	73.1	0.2	51.6	93.3	0.0	82.8	56.4	2.1	95.7	55.3	5.3
LOS	E	E	A	D	F	A	F	E	A	F	E	A
Approach Delay		42.8			61.8			54.7			50.5	
Approach LOS		D			E			D			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 52.8	Intersection LOS: D
Intersection Capacity Utilization 97.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: US Highway 85 & 112th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	108	179	125	138	50	382	2023	270	35	1120	154
Future Volume (veh/h)	183	108	179	125	138	50	382	2023	270	35	1120	154
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	117	0	136	150	0	415	2199	293	38	1217	167
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	227		274	175		438	2164	965	49	1389	619
Arrive On Green	0.11	0.12	0.00	0.08	0.09	0.00	0.25	0.61	0.61	0.03	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	199	117	0	136	150	0	415	2199	293	38	1217	167
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	15.0	8.8	0.0	10.2	11.9	0.0	34.4	91.4	13.3	3.2	47.6	10.8
Cycle Q Clear(g_c), s	15.0	8.8	0.0	10.2	11.9	0.0	34.4	91.4	13.3	3.2	47.6	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	227		274	175		438	2164	965	49	1389	619
V/C Ratio(X)	0.76	0.52		0.50	0.86		0.95	1.02	0.30	0.78	0.88	0.27
Avail Cap(c_a), veh/h	262	227		324	206		475	2164	965	71	1389	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	61.8	0.0	55.3	67.0	0.0	55.6	29.3	14.1	72.5	42.3	31.1
Incr Delay (d2), s/veh	12.2	2.0	0.0	1.4	25.6	0.0	27.5	23.4	0.8	27.1	8.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	4.3	0.0	4.7	6.9	0.0	18.8	44.2	5.0	1.8	22.4	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	63.8	0.0	56.6	92.6	0.0	83.2	52.7	14.9	99.6	50.4	32.2
LnGrp LOS	E	E		E	F		F	F	B	F	D	C
Approach Vol, veh/h		316	A		286	A		2907			1422	
Approach Delay, s/veh		65.3			75.5			53.3			49.6	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	97.4	18.3	24.2	42.9	64.6	22.5	20.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	87.0	16.5	16.5	40.0	53.0	16.5	16.5
Max Q Clear Time (g_c+I1), s	5.2	93.4	12.2	10.8	36.4	49.6	17.0	13.9
Green Ext Time (p_c), s	0.0	0.0	0.1	0.2	0.5	2.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	424	3	0	382	0	161
Future Vol, veh/h	424	3	0	382	0	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	461	3	0	415	0	175

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	463
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	-	0	599
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	599
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	599	-	-	-
HCM Lane V/C Ratio	0.292	-	-	-
HCM Control Delay (s)	13.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.2	-	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	279	2	0	582	0	135
Future Vol, veh/h	279	2	0	582	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	303	2	0	633	0	147

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	304
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	-	0	736
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	736
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	736	-	-	-
HCM Lane V/C Ratio	0.199	-	-	-
HCM Control Delay (s)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	499	3	0	422	0	161
Future Vol, veh/h	499	3	0	422	0	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	542	3	0	459	0	175

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	544
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	-	0	539
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	539
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	539	-	-	-
HCM Lane V/C Ratio	0.325	-	-	-
HCM Control Delay (s)	14.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	334	2	0	667	0	135
Future Vol, veh/h	334	2	0	667	0	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	363	2	0	725	0	147

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	364
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	-	0	681
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	681
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	681	-	-	-
HCM Lane V/C Ratio	0.215	-	-	-
HCM Control Delay (s)	11.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	54	116	3	211	39
Future Vol, veh/h	3	54	116	3	211	39
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	3	59	126	3	229	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	628	128	0	0	129	0
Stage 1	128	-	-	-	-	-
Stage 2	500	-	-	-	-	-
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	447	922	-	-	1457	-
Stage 1	898	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	922	-	-	1457	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	511	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	856	1457	-
HCM Lane V/C Ratio	-	-	0.072	0.157	-
HCM Control Delay (s)	-	-	9.5	7.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	45	67	2	178	112
Future Vol, veh/h	2	45	67	2	178	112
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	2	49	73	2	193	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	582	74	0	0	75	0
Stage 1	74	-	-	-	-	-
Stage 2	508	-	-	-	-	-
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	475	988	-	-	1524	-
Stage 1	949	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	410	988	-	-	1524	-
Mov Cap-2 Maneuver	410	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	4.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1524	-
HCM Lane V/C Ratio	-	-	0.055	0.127	-
HCM Control Delay (s)	-	-	9.1	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.4	-

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	54	116	3	211	39
Future Vol, veh/h	3	54	116	3	211	39
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	3	59	126	3	229	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	628	128	0	0	129	0
Stage 1	128	-	-	-	-	-
Stage 2	500	-	-	-	-	-
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	447	922	-	-	1457	-
Stage 1	898	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	375	922	-	-	1457	-
Mov Cap-2 Maneuver	375	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	511	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	6.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	856	1457	-
HCM Lane V/C Ratio	-	-	0.072	0.157	-
HCM Control Delay (s)	-	-	9.5	7.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	45	67	2	178	112
Future Vol, veh/h	2	45	67	2	178	112
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	2	49	73	2	193	122

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	582	74	0	0	75	0
Stage 1	74	-	-	-	-	-
Stage 2	508	-	-	-	-	-
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	475	988	-	-	1524	-
Stage 1	949	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	410	988	-	-	1524	-
Mov Cap-2 Maneuver	410	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	4.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	932	1524	-
HCM Lane V/C Ratio	-	-	0.055	0.127	-
HCM Control Delay (s)	-	-	9.1	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.4	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	2	1	78	29	12
Future Vol, veh/h	41	2	1	78	29	12
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	45	2	1	85	32	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	126	39	45	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	87	-	-	-	-	-
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	869	1033	1563	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	868	1033	1563	-	-	-
Mov Cap-2 Maneuver	868	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	874	-	-
HCM Lane V/C Ratio	0.001	-	0.053	-	-
HCM Control Delay (s)	7.3	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	1	2	49	82	32
Future Vol, veh/h	20	1	2	49	82	32
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	22	1	2	53	89	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	107	124	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	57	-	-	-	-	-
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	827	947	1463	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	826	947	1463	-	-	-
Mov Cap-2 Maneuver	826	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	831	-	-
HCM Lane V/C Ratio	0.001	-	0.027	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	2	1	78	29	12
Future Vol, veh/h	41	2	1	78	29	12
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	45	2	1	85	32	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	126	39	45	0	-	0
Stage 1	39	-	-	-	-	-
Stage 2	87	-	-	-	-	-
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	869	1033	1563	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	868	1033	1563	-	-	-
Mov Cap-2 Maneuver	868	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	874	-	-
HCM Lane V/C Ratio	0.001	-	0.053	-	-
HCM Control Delay (s)	7.3	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	1	2	49	82	32
Future Vol, veh/h	20	1	2	49	82	32
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	22	1	2	53	89	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	107	124	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	57	-	-	-	-	-
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	827	947	1463	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	826	947	1463	-	-	-
Mov Cap-2 Maneuver	826	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	831	-	-
HCM Lane V/C Ratio	0.001	-	0.027	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	8	2	18	7	6	4	0	50	20	0	4
Future Vol, veh/h	1	8	2	18	7	6	4	0	50	20	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	9	2	20	8	7	4	0	54	22	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	11	0	0	66	67	10	91	65	12
Stage 1	-	-	-	-	-	-	12	12	-	52	52	-
Stage 2	-	-	-	-	-	-	54	55	-	39	13	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1603	-	-	1608	-	-	927	824	1071	893	826	1069
Stage 1	-	-	-	-	-	-	1009	886	-	961	852	-
Stage 2	-	-	-	-	-	-	958	849	-	976	885	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1603	-	-	1608	-	-	913	812	1071	839	814	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	853	758	-	805	759	-
Stage 1	-	-	-	-	-	-	1008	885	-	960	841	-
Stage 2	-	-	-	-	-	-	942	838	-	926	884	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	4.2	8.6	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1051	1603	-	-	1608	-	-	840
HCM Lane V/C Ratio	0.056	0.001	-	-	0.012	-	-	0.031
HCM Control Delay (s)	8.6	7.2	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	7	5	59	8	16	3	0	34	10	0	2
Future Vol, veh/h	3	7	5	59	8	16	3	0	34	10	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	8	5	64	9	17	3	0	37	11	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	26	0	0	13	0	0	164	171	11	181	165	18
Stage 1	-	-	-	-	-	-	17	17	-	146	146	-
Stage 2	-	-	-	-	-	-	147	154	-	35	19	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1588	-	-	1606	-	-	801	722	1070	781	728	1061
Stage 1	-	-	-	-	-	-	1002	881	-	857	776	-
Stage 2	-	-	-	-	-	-	856	770	-	981	880	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1588	-	-	1606	-	-	773	691	1070	729	697	1061
Mov Cap-2 Maneuver	-	-	-	-	-	-	739	663	-	728	667	-
Stage 1	-	-	-	-	-	-	1000	879	-	855	744	-
Stage 2	-	-	-	-	-	-	819	738	-	945	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	5.2	8.6	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1033	1588	-	-	1606	-	-	768
HCM Lane V/C Ratio	0.039	0.002	-	-	0.04	-	-	0.017
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	8	2	18	7	6	4	0	50	20	0	4
Future Vol, veh/h	1	8	2	18	7	6	4	0	50	20	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	9	2	20	8	7	4	0	54	22	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	15	0	0	11	0	0	66	67	10	91	65	12
Stage 1	-	-	-	-	-	-	12	12	-	52	52	-
Stage 2	-	-	-	-	-	-	54	55	-	39	13	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1603	-	-	1608	-	-	927	824	1071	893	826	1069
Stage 1	-	-	-	-	-	-	1009	886	-	961	852	-
Stage 2	-	-	-	-	-	-	958	849	-	976	885	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1603	-	-	1608	-	-	913	812	1071	839	814	1069
Mov Cap-2 Maneuver	-	-	-	-	-	-	853	758	-	805	759	-
Stage 1	-	-	-	-	-	-	1008	885	-	960	841	-
Stage 2	-	-	-	-	-	-	942	838	-	926	884	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	4.2	8.6	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1051	1603	-	-	1608	-	-	840
HCM Lane V/C Ratio	0.056	0.001	-	-	0.012	-	-	0.031
HCM Control Delay (s)	8.6	7.2	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	7	5	59	8	16	3	0	34	10	0	2
Future Vol, veh/h	3	7	5	59	8	16	3	0	34	10	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	8	5	64	9	17	3	0	37	11	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	26	0	0	13	0	0	164	171	11	181	165	18
Stage 1	-	-	-	-	-	-	17	17	-	146	146	-
Stage 2	-	-	-	-	-	-	147	154	-	35	19	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1588	-	-	1606	-	-	801	722	1070	781	728	1061
Stage 1	-	-	-	-	-	-	1002	881	-	857	776	-
Stage 2	-	-	-	-	-	-	856	770	-	981	880	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1588	-	-	1606	-	-	773	691	1070	729	697	1061
Mov Cap-2 Maneuver	-	-	-	-	-	-	739	663	-	728	667	-
Stage 1	-	-	-	-	-	-	1000	879	-	855	744	-
Stage 2	-	-	-	-	-	-	819	738	-	945	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	5.2	8.6	9.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1033	1588	-	-	1606	-	-	768
HCM Lane V/C Ratio	0.039	0.002	-	-	0.04	-	-	0.017
HCM Control Delay (s)	8.6	7.3	0	-	7.3	0	-	9.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	21	247	1	6	125
Future Vol, veh/h	2	21	247	1	6	125
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	2	23	268	1	7	136

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	419	269	0	0	269	0
Stage 1	269	-	-	-	-	-
Stage 2	150	-	-	-	-	-
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	591	770	-	-	1295	-
Stage 1	776	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	587	770	-	-	1295	-
Mov Cap-2 Maneuver	587	-	-	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	873	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	750	1295	-
HCM Lane V/C Ratio	-	-	0.033	0.005	-
HCM Control Delay (s)	-	-	10	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	153	2	17	141
Future Vol, veh/h	1	11	153	2	17	141
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	1	12	166	2	18	153

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	356	167	0	0	168	0
Stage 1	167	-	-	-	-	-
Stage 2	189	-	-	-	-	-
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	642	877	-	-	1410	-
Stage 1	863	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	633	877	-	-	1410	-
Mov Cap-2 Maneuver	633	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	1410	-
HCM Lane V/C Ratio	-	-	0.015	0.013	-
HCM Control Delay (s)	-	-	9.3	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	31	332	11	16	175
Future Vol, veh/h	12	31	332	11	16	175
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	13	34	361	12	17	190

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	591	367	0	0	373	0
Stage 1	367	-	-	-	-	-
Stage 2	224	-	-	-	-	-
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	470	678	-	-	1185	-
Stage 1	701	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	462	678	-	-	1185	-
Mov Cap-2 Maneuver	462	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	600	1185	-
HCM Lane V/C Ratio	-	-	0.078	0.015	-
HCM Control Delay (s)	-	-	11.5	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	26	208	17	32	186
Future Vol, veh/h	16	26	208	17	32	186
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	17	28	226	18	35	202

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	507	235	0	0	244	0
Stage 1	235	-	-	-	-	-
Stage 2	272	-	-	-	-	-
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	525	804	-	-	1322	-
Stage 1	804	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	509	804	-	-	1322	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	659	1322	-
HCM Lane V/C Ratio	-	-	0.069	0.026	-
HCM Control Delay (s)	-	-	10.9	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	6	242	8	3	125
Future Vol, veh/h	8	6	242	8	3	125
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	9	7	263	9	3	136

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	410	268	0	0	272	0
Stage 1	268	-	-	-	-	-
Stage 2	142	-	-	-	-	-
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	598	771	-	-	1291	-
Stage 1	777	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	596	771	-	-	1291	-
Mov Cap-2 Maneuver	596	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	882	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	660	1291	-
HCM Lane V/C Ratio	-	-	0.023	0.003	-
HCM Control Delay (s)	-	-	10.6	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	4	151	7	7	136
Future Vol, veh/h	8	4	151	7	7	136
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	9	4	164	8	8	148

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	332	168	0	0	172	0
Stage 1	168	-	-	-	-	-
Stage 2	164	-	-	-	-	-
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	663	876	-	-	1405	-
Stage 1	862	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	659	876	-	-	1405	-
Mov Cap-2 Maneuver	659	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	860	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	718	1405	-
HCM Lane V/C Ratio	-	-	0.018	0.005	-
HCM Control Delay (s)	-	-	10.1	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	6	317	8	3	160
Future Vol, veh/h	8	6	317	8	3	160
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	9	7	345	9	3	174

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	530	350	0	0	354	0
Stage 1	350	-	-	-	-	-
Stage 2	180	-	-	-	-	-
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	510	693	-	-	1205	-
Stage 1	713	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	508	693	-	-	1205	-
Mov Cap-2 Maneuver	508	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	574	1205	-
HCM Lane V/C Ratio	-	-	0.027	0.003	-
HCM Control Delay (s)	-	-	11.4	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	4	191	7	7	171
Future Vol, veh/h	8	4	191	7	7	171
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	9	4	208	8	8	186

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	414	212	0	0	216	0
Stage 1	212	-	-	-	-	-
Stage 2	202	-	-	-	-	-
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	595	828	-	-	1354	-
Stage 1	823	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	591	828	-	-	1354	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	823	-	-	-	-	-
Stage 2	826	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	653	1354	-
HCM Lane V/C Ratio	-	-	0.02	0.006	-
HCM Control Delay (s)	-	-	10.6	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	25	224	2	9	122
Future Vol, veh/h	4	25	224	2	9	122
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	4	27	243	2	10	133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	397	244	0	0	245	0
Stage 1	244	-	-	-	-	-
Stage 2	153	-	-	-	-	-
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	608	795	-	-	1321	-
Stage 1	797	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	603	795	-	-	1321	-
Mov Cap-2 Maneuver	603	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	762	1321	-
HCM Lane V/C Ratio	-	-	0.041	0.007	-
HCM Control Delay (s)	-	-	9.9	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	17	141	5	29	114
Future Vol, veh/h	3	17	141	5	29	114
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	3	18	153	5	32	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	344	156	0	0	158	0
Stage 1	156	-	-	-	-	-
Stage 2	188	-	-	-	-	-
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	652	890	-	-	1422	-
Stage 1	872	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	636	890	-	-	1422	-
Mov Cap-2 Maneuver	636	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	840	1422	-
HCM Lane V/C Ratio	-	-	0.026	0.022	-
HCM Control Delay (s)	-	-	9.4	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	25	299	2	9	157
Future Vol, veh/h	4	25	299	2	9	157
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	4	27	325	2	10	171

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	517	326	0	0	327	0
Stage 1	326	-	-	-	-	-
Stage 2	191	-	-	-	-	-
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	518	715	-	-	1233	-
Stage 1	731	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	513	715	-	-	1233	-
Mov Cap-2 Maneuver	513	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	678	1233	-
HCM Lane V/C Ratio	-	-	0.046	0.008	-
HCM Control Delay (s)	-	-	10.6	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	17	181	5	29	149
Future Vol, veh/h	3	17	181	5	29	149
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	3	18	197	5	32	162

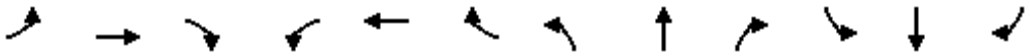
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	426	200	0	0	202	0
Stage 1	200	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	585	841	-	-	1370	-
Stage 1	834	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	570	841	-	-	1370	-
Mov Cap-2 Maneuver	570	-	-	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	785	1370	-
HCM Lane V/C Ratio	-	-	0.028	0.023	-
HCM Control Delay (s)	-	-	9.7	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

APPENDIX E

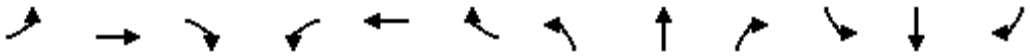
Queueing Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	221	173	293	261	105	34	149	863	112	60	1161	170
v/c Ratio	0.61	0.76	0.19	0.85	0.46	0.02	0.68	0.46	0.13	0.52	0.73	0.21
Control Delay	42.4	74.5	0.3	65.1	61.6	0.0	71.9	22.3	3.0	76.4	34.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	74.5	0.3	65.1	61.6	0.0	71.9	22.3	3.0	76.4	34.9	4.3
Queue Length 50th (ft)	134	150	0	188	87	0	127	261	0	51	438	0
Queue Length 95th (ft)	196	220	0	#297	143	0	193	327	28	93	521	37
Internal Link Dist (ft)		305			842			907			791	
Turn Bay Length (ft)	175			400			625		575	625		600
Base Capacity (vph)	381	263	1583	311	249	1583	367	1867	892	131	1599	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.66	0.19	0.84	0.42	0.02	0.41	0.46	0.13	0.46	0.73	0.21

Intersection Summary

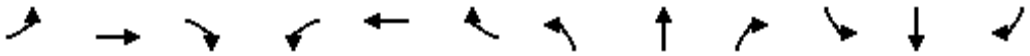
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	200	105	195	148	177	63	405	1833	250	27	912	158
v/c Ratio	0.75	0.44	0.12	0.46	0.79	0.04	0.85	0.86	0.24	0.38	0.75	0.24
Control Delay	60.2	62.4	0.2	48.3	87.9	0.1	67.9	31.3	2.3	84.7	49.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	62.4	0.2	48.3	87.9	0.1	67.9	31.3	2.3	84.7	49.7	6.9
Queue Length 50th (ft)	141	96	0	114	169	0	377	847	0	26	425	0
Queue Length 95th (ft)	194	152	0	121	173	0	408	804	26	62	#630	58
Internal Link Dist (ft)		305			842			907			791	
Turn Bay Length (ft)	175			400			625		575	625		600
Base Capacity (vph)	272	244	1583	358	254	1583	672	2136	1054	74	1213	646
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.43	0.12	0.41	0.70	0.04	0.60	0.86	0.24	0.36	0.75	0.24

Intersection Summary

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

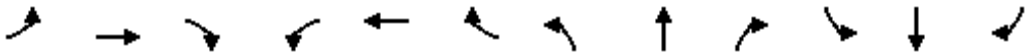


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	200	301	332	127	38	160	1171	149	71	1440	166
v/c Ratio	0.63	0.80	0.19	1.09	0.48	0.02	0.83	0.65	0.17	0.54	0.90	0.21
Control Delay	46.1	79.6	0.3	116.3	60.0	0.0	91.9	28.3	3.6	74.9	43.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	79.6	0.3	116.3	60.0	0.0	91.9	28.3	3.6	74.9	43.2	3.8
Queue Length 50th (ft)	156	170	0	~268	103	0	139	420	0	61	621	0
Queue Length 95th (ft)	233	#273	0	#432	171	0	#258	513	39	113	#778	42
Internal Link Dist (ft)		305			842			907			791	
Turn Bay Length (ft)	175			400			625		575	625		600
Base Capacity (vph)	373	276	1583	305	276	1583	199	1791	874	157	1604	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.72	0.19	1.09	0.46	0.02	0.80	0.65	0.17	0.45	0.90	0.21

Intersection Summary

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	199	117	195	136	150	54	415	2199	293	38	1217	167
v/c Ratio	0.76	0.55	0.12	0.48	0.79	0.03	0.93	1.03	0.27	0.53	0.91	0.24
Control Delay	66.9	73.2	0.2	51.6	93.3	0.0	82.8	56.3	2.1	95.7	55.2	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	73.2	0.2	51.6	93.3	0.0	82.8	56.3	2.1	95.7	55.2	5.3
Queue Length 50th (ft)	164	109	0	107	144	0	392	~1252	0	37	617	0
Queue Length 95th (ft)	#264	181	0	171	#247	0	#578	#1380	40	#88	#771	51
Internal Link Dist (ft)		305			842			907			791	
Turn Bay Length (ft)	175			400			625		575	625		600
Base Capacity (vph)	268	215	1583	313	204	1583	472	2144	1074	73	1342	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.54	0.12	0.43	0.74	0.03	0.88	1.03	0.27	0.52	0.91	0.24

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

City of Commerce City Engineering Construction Standards and Specifications for Auxiliary Turn Lanes

3.04.1 AUXILIARY LANES

Auxiliary lanes provide for the acceleration or deceleration of turning traffic onto or off of a major roadway. Auxiliary lanes improve the safety at intersections by reducing the accident potential between turning traffic and through traffic.

3.04.1.1 DECELERATION LANES

Deceleration lanes provide vehicles a safe area in which to slow prior to turning into an intersection. Deceleration lengths are based off of calculations that provide for 20 mph speed differential between turning and through traffic and a deceleration rate of 6 ft/s^2.

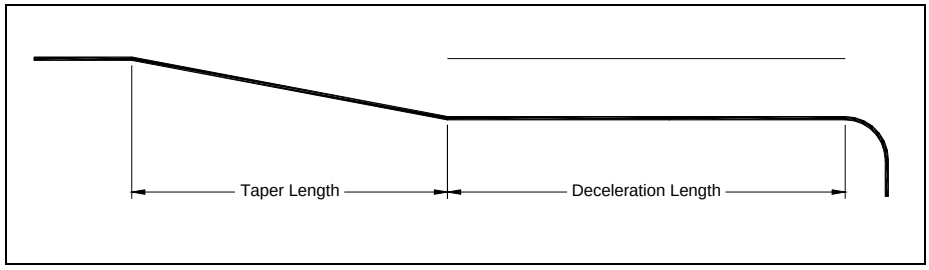
Right-Turn Deceleration Lanes

Right-turn deceleration lanes consist of two components: the deceleration length and the taper length. The criteria and the geometric requirements for right-turn deceleration lanes are shown in Table 3-6. For clarification, Figure 3-1 shows the geometric components of right-turn deceleration lanes.

TABLE 3-6 RIGHT-TURN DECELERATION LANES

	Minimum # of Major Street Right Turns to Require Right-Turn Deceleration Lane on Major Street (vph)	Deceleration Lane Length (ft)	Taper Rate	Taper Length (ft) for 12' Lane
Principal Arterial	15	185	18.5:1	222
Minor/Multimodal Arterial	20	135	15:1	180
Major Collector	25	90	13.5:1	162
Minor Collector	30	50	12:1	144

FIGURE 3-1: GEOMETRIC COMPONENTS OF RIGHT-TURN DECELERATION LANES



Left-Turn Deceleration Lanes

Left-turn deceleration lanes consist of three components:

- deceleration length
- taper length
- storage length

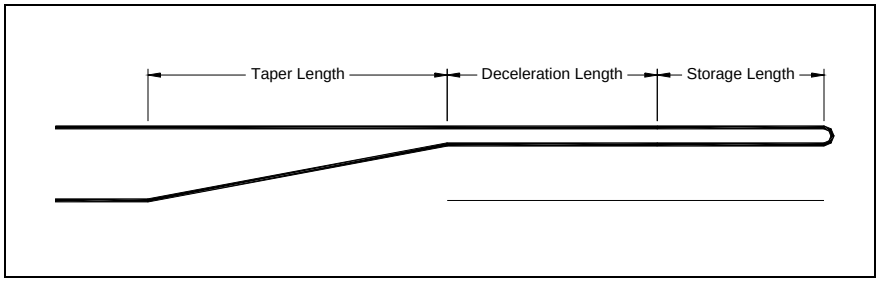
The criteria and the geometric requirements for left-turn deceleration lanes are shown in Table 3-7. Storage length criteria is discussed in Section 3.04.2. For clarification, Figure 3-2 shows the geometric components of left-turn deceleration lanes.

TABLE 3-7 LEFT-TURN DECELERATION LANES

Description	Minimum # of Major Street Left Turns to Require Left-Turn Decel Lane on Major Street (vph)	Deceleration Lane Length (ft)	Taper Rate	Taper Length (ft) for 12' Lane
Principal Arterial	Always	185	18.5:1	222
Minor/Multimodal Arterial	Always	135	15:1	180
Major Collector	Always	90	13.5:1	162
Minor Collector	**	50	12:1	144

** The need for a left-turn deceleration lane on a minor collector shall be determined by the City Engineer on an individual basis.

FIGURE 3-2: GEOMETRIC COMPONENTS OF LEFT-TURN DECELERATION LANES



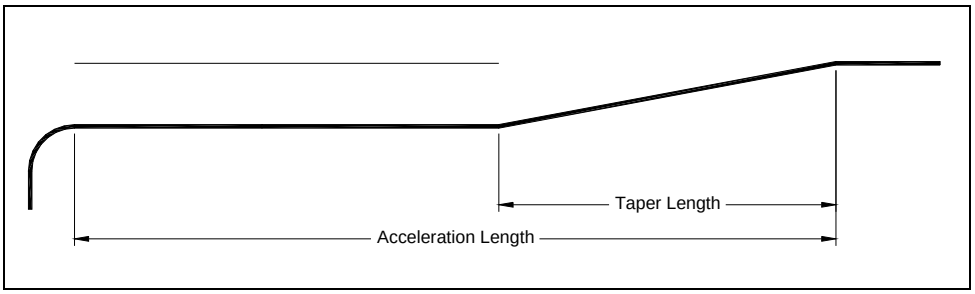
3.04.1.2 Acceleration Lanes

Acceleration lanes are required to provide distance for vehicles to accelerate up to reasonable speeds before merging into the flow of traffic on a major street when turning from minor roadways or private properties. Acceleration lengths are calculated based on speed differentials of 10 mph between turning and through traffic. Table 3-8 shows acceleration lane requirements. Figure 3-3 shows the geometric components of acceleration lanes.

TABLE 3-8 ACCELERATION LANE REQUIREMENTS

Description	Minimum # of Minor Street Right Turns to Require Accel Lane on Major Street	Acceleration Lane Length (Including taper) (ft)	Taper Rate	Taper Length (ft) for 12' Lane
Principal Arterial	85	730	18.5:1	222
Minor/Multimodal Arterial	24	575	15:1	180
Major Collector	10	440	13.5:1	162
Minor Collector	35	325	12:1	144

FIGURE 3-3: GEOMETRIC COMPONENTS OF ACCELERATION LANES



3.04.2 STORAGE LENGTH

The auxiliary lane should be sufficiently long in order to store the number of vehicles that accumulate during a critical period. Sufficient storage length should be provided such that the queue length does not compromise the deceleration length provided. Additionally, the storage length shall be sufficiently long so that the entrance to the auxiliary lane is not blocked by vehicles queued in the through lanes at a signal.

Storage lengths for signalized intersections may be determined from capacity nomographs in the Highway Capacity Manual (HCM) or the traffic impact study. The minimum storage length for left-turn lanes at signalized intersections shall be 100 feet.

At unsignalized intersections, the storage length, exclusive of taper and deceleration length, may be based on the number of turning vehicles likely to arrive in an average 2-minute period within the peak hour. The 2-minute waiting time may need to be adjusted based on the volume of opposing traffic. The required storage length for an unsignalized intersection is presented in Table 3-9.

TABLE 3-9 STORAGE LENGTHS FOR AUXILIARY LANES AT UNSIGNALIZED INTERSECTIONS

Left-Turning Vehicles per Hour (peak hour)	0-30	31-60	61-100	101-200	201+
Required Storage Length (feet)	40*	50	100	175	250
*50 feet when trucks equal or exceed 10% of turning traffic					

3.04.3 TRANSITION TAPERS

Transition tapers are necessary to redirect traffic when the roadway is widened to accommodate auxiliary lanes (left- and right-turn lanes, lane drops, median transitions, etc.). Table 3-10 shows the required taper ratios by design speed.

APPENDIX G

Crash Data

CanAm Development: Vehicle Crash Data

112th Avenue and Brighton Road

#	AccidentDateTime	CrashFirstHarmfulEvent	CrashLightingCondition	CrashMostHarmfulEvent	CrashRoadCondition	CrashRoadDescription	FatalSupEMSNotifiedDate	NumberOfVehicles
1	11/21/2021 17:09	Overturning/Rollover	Dark - Unlighted	Overturning/Rollover	Dry	Non-Intersection		
2	2/3/2021 20:10	LIGHT POLE/UTILITY POLE	DARK - UNLIGHTED	LIGHT POLE/UTILITY POLE	DRY	NON-INTERSECTION		1
3	7/15/2019 16:12	SIDE TO SIDE-SAME DIRECTI	DAYLIGHT	SIDE TO SIDE-SAME DIRECTI	DRY	INTERSECTION RELATED		2

112th Avenue and Florence Street

#	AccidentDateTime	CrashFirstHarmfulEvent	CrashLightingCondition	CrashMostHarmfulEvent	CrashRoadCondition	CrashRoadDescription	FatalSupEMSNotifiedDate	NumberOfVehicles
1	6/28/2021 19:50	Other Fixed Object (Describe	Dawn or Dusk	Other Fixed Object (Describe	Dry	Non-Intersection		
2	3/2/2020 10:03	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2
3	2/8/2020 14:06	FRONT TO SIDE	DAYLIGHT	FRONT TO SIDE	WET	NON-INTERSECTION		2
4	5/10/2019 17:55	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2

112th Avenue and US-85

#	AccidentDateTime	CrashFirstHarmfulEvent	CrashLightingCondition	CrashMostHarmfulEvent	CrashRoadCondition	CrashRoadDescription	FatalSupEMSNotifiedDate	NumberOfVehicles
1	2/25/2022 21:18	Front to Side	Dark - Lighted	Front to Side	Dry	At Intersection	2/25/2022 21:18	
2	2/19/2022 22:44	Front to Side	Dark - Lighted	Fence	Dry	Non-Intersection		
3	1/18/2022 15:06	Front to Rear	Daylight	Front to Rear	Dry	Intersection Related		
4	11/9/2021 6:54	Side to Side-Same Direction	Daylight	Side to Side-Same Direction	Dry	Non-Intersection		
5	9/17/2021 17:36	Front to Rear	Daylight	Front to Rear		Non-Intersection		
6	7/12/2021 16:11	Front to Rear	Daylight	Front to Rear	Dry	At Intersection		
7	5/13/2021 1:47	Sign	Dark - Lighted	Sign	Dry	Non-Intersection		
8	4/19/2021 11:12	Front to Rear	Daylight	Front to Rear	Wet	At Intersection		
9	3/27/2021 14:16	Cable Rail	Daylight	Cable Rail	Dry	Non-Intersection		
10	1/22/2021 22:01	FRONT TO REAR	DARK - UNLIGHTED	FRONT TO REAR	DRY	NON-INTERSECTION		2
11	12/31/2020 12:38	OTHER NON-COLLISION	DARK - LIGHTED	SIGN	DRY	NON-INTERSECTION		1
12	10/22/2020 10:02	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	WET	NON-INTERSECTION		2
13	10/8/2020 13:48	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	INTERSECTION RELATED		2
14	9/22/2020 15:57	FRONT TO FRONT	DAYLIGHT	FRONT TO FRONT	DRY	NON-INTERSECTION		5
15	8/17/2020 8:53	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2
16	8/4/2020 15:50	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2
17	7/25/2020 15:43	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	AT INTERSECTION		2
18	7/16/2020 15:40	SIDE TO SIDE-SAME DIRECTI	DAYLIGHT	SIDE TO SIDE-SAME DIRECTI	DRY	NON-INTERSECTION		2
19	3/18/2020 3:56	FRONT TO REAR	DARK - LIGHTED	FRONT TO REAR	DRY	NON-INTERSECTION		2
20	2/11/2020 9:53	FRONT TO SIDE	DAYLIGHT	FRONT TO SIDE	WET W/VISIBLE ICY RO/	AT INTERSECTION		3
21	1/7/2020 16:15	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		3
22	12/5/2019 8:11	REAR TO SIDE	DAYLIGHT	REAR TO SIDE	DRY	NON-INTERSECTION		2
23	10/10/2019 10:00	OTHER NON-COLLISION	DAYLIGHT	OTHER NON-COLLISION	SNOWY W/VISIBLE ICY R	NON-INTERSECTION		2
24	10/6/2019 19:52	VEH DEBRIS OR CARGO	DARK - LIGHTED	VEH DEBRIS OR CARGO	DRY	NON-INTERSECTION		2
25	9/6/2019 9:15	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2
26	9/3/2019 7:35	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	INTERSECTION RELATED		5
27	9/3/2019 7:35	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	INTERSECTION RELATED		5
28	8/24/2019 13:03	FRONT TO FRONT	DAYLIGHT	FRONT TO FRONT	DRY	NON-INTERSECTION		3
29	8/9/2019 7:56	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	INTERSECTION RELATED		12
30	6/25/2019 7:55	SIDE TO SIDE-SAME DIRECTI	DAYLIGHT	SIDE TO SIDE-SAME DIRECTI	DRY	NON-INTERSECTION		2
31	5/13/2019 8:54	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	NON-INTERSECTION		2
32	3/31/2019 18:07	OTHER FIXED OBJECT	DAYLIGHT	OTHER FIXED OBJECT	DRY	NON-INTERSECTION		1
33	2/26/2019 12:20	FRONT TO REAR	DAYLIGHT	FRONT TO REAR	DRY	AT INTERSECTION		2

https://www.mass.gov/service-details/intersection-and-roadway-crash-rate-data-for-analysis

Intersection Crash Rates

The intersection average crash rates are based upon a database of signalized and unsignalized intersection crash rates that are compiled by MassDOT. The database contains intersection crash rates, obtained from crash rate worksheets that have been submitted to MassDOT as part of the review process for an Environmental Impact Report or Functional Design Report. MassDOT enters the information directly from the crash rate worksheet into the database. The statewide average crash rates merely reflect the average of those rates contained in the database and the district-wide crash rates reflect the average of those crash rates in the particular district, calculated for both signalized and unsignalized locations. The most recent average crash rates, which are updated on a nearly yearly basis, are based on all entries in the database not just those entries made within the past year.

Average Crash Rates, per Million Entering Vehicles, by Intersection Type
(Based upon crash information queried on June 26, 2018)

Location	Signalized Intersections	Unsignalized Intersections
Statewide	0.78	0.57
District 1*	0.80*	0.44*
District 2	0.89	0.62
District 3	0.89	0.61
District 4	0.73	0.57
District 5	0.75	0.57
District 6	0.71	0.52

Location	Signalized Intersections	Unsignalized Intersections

* - District 1 should use Statewide Rates due to low sample total

APPENDIX H

All-Way Stop-Control Warrant Worksheet

All Way Stop Control Warrants: CanAm Project

112th Avenue & Florence Street (Buildout 2022 Volumes: Ped/Bike/Vehicle)						
Hour	Minor Volume	Minor Threshold	Met	Major Volume	Major Threshold	Met
7:00 AM - 8:00 AM	345	200	X	663	300	X
8:00 AM - 9:00 AM	311	200	X	597	300	X
9:00 AM - 10:00 AM	311*	200	X	597*	300	X
10:00 AM - 11:00 AM	280*	200	X	537*	300	X
2:00 PM - 3:00 PM	202*	200	X	623*	300	X
3:00 PM - 4:00 PM	224*	200	X	692*	300	X
4:00 PM - 5:00 PM	224	200	X	692	300	X
5:00 PM - 6:00 PM	248	200	X	769	300	X

* = 90 Percent Factor Applied