Traffic Impact Study

Porteos Industrial
Aurora, Colorado

Prepared for:

DIA Property Trust V, LLC

Kimley»Horn

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

Porteos Industrial

Aurora, Colorado

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1.0 EXECUTIVE SUMMARY

Porteos Industrial is proposed to be located on the southeast corner of the 64th Avenue and Powhaton Road intersection in Aurora, Colorado. The proposed development is anticipated to include approximately 1,653,000 square feet of industrial building space. It is expected that the project will be completed within the next couple of years; therefore, analysis was conducted for the 2023 short term horizon as well as the 2040 long-term horizon.

The purpose of this traffic study is to identify project traffic generation, trip distribution, and traffic assignment to assess the traffic related impacts on the local street system. This traffic study develops the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with City of Aurora standards and requirements:

- 64th Avenue and Jackson Gap Way
- 64th Avenue and Powhaton Road
- 56th Avenue and Jackson Gap Way
- 56th Avenue and Powhaton Road
- 64th Avenue and Valley Head Street (2040 horizon only)

In addition, the proposed project accesses along 64th Avenue and Powhaton Road were included for evaluation.

Regional access will be provided by Interstate 70 (I-70), Interstate 225 (I-225), E-470, and Pena Boulevard. Primary access to the site will be provided by 56th Avenue, 64th Avenue, Jackson Gap Way, and Powhaton Road. Direct access to the project is proposed from two full movement accesses along the south side of 64th Avenue and three full movement accesses along the east side of Powhaton Road. All driveways will allow for passenger vehicle and truck access.

The Porteos Industrial project is expected to generate approximately 5,572 daily weekday trips, with 661 trips occurring during the morning peak hour and 662 trips occurring during the afternoon peak hour. Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, anticipated surrounding development in the area, and the proposed access system for the project. The surrounding roadway network is

expected to change by 2040; therefore, two separate project trip distributions were developed for both horizon years. 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 the proposed Porteos Industrial project will be successfully incorporated into the existing and future roadway network. The proposed project development and expected traffic volumes resulted in the following recommendations and conclusions:

2023 Recommendations

- With completion of the Porteos Industrial development, the site proposes two full movement accesses along the south side of 64th Avenue and three full movement accesses along the east side of Powhaton Road. The two accesses along 64th Avenue are recommended to have R1-1 "STOP" signs installed for the northbound exiting approaches. One exiting lane should be sufficient at both project accesses along 64th Avenue. All three accesses along Powhaton Road should provide two exiting lane approaches for separate left and right turn lanes. The three accesses along Powhaton Road should provide stop control with installation of R1-1 "STOP" signs for the westbound exiting approaches.

- All three accesses along Powhaton Road are anticipated to warrant southbound left turn lanes and northbound right turn lanes. The taper length for all new auxiliary turn lanes will be 145 feet (12:1) based on the speed limit of 40 miles per hour. All new auxiliary turn lanes should be constructed and designated with the lengths based on the CDOT SHAC guidelines of storage plus taper. The southbound left turn lanes at the project accesses along Powhaton Road are recommended to provide 150 feet of length within the two-way left turn lane. In addition, the northbound right turn lane at the north access is recommended to provide 120 feet of length with a 145-foot taper, the northbound right turn lane at the middle access is recommended to provide 110 feet of length with a 145-foot taper, and the northbound right turn lane at the south access is recommended to provide 160 feet of length with a 145-foot taper.

- The east leg of the 64th Avenue and Powhaton Road intersection will be constructed with the buildout of the project. It is anticipated that the westbound approach will provide a left turn

lane, a through lane, and a right turn lane. In addition, a southbound left turn lane and a northbound right turn lane will be designated. The eastbound left turn lane, westbound left turn lane, westbound right turn lane, and southbound left turn lane are all recommended to provide 100 feet of length with a 145-foot taper. The northbound right turn lane is recommended to be a continuous lane in the interim condition.

- Northbound right turn and southbound left turn lanes are warranted at the intersection of 64th Avenue and Jackson Gap Way. Therefore, it is recommended that a northbound right turn lane with 120 feet of length and a 145-foot taper be provided. Likewise, the southbound left turn lane would require a length of 250 feet of plus a 145-foot taper. Construction of these left turn lanes should be coordinated with the numerous development projects occurring in the area.

- The existing 75-foot eastbound left turn lane at the intersection of 56th Avenue and Powhaton Road is recommended to be extended to a length of 500 feet plus a 145-foot taper. It is believed that this left turn lane extension will only require striping modifications of 56th Avenue on approach to this intersection.

<u>2040 Recommendations</u>

- By 2040, it has been identified in NEATS and the supplemental studies that 64th Avenue, Powhaton Road, Jackson Gap Street, and 56th Avenue will all provide two through lanes in each direction. Therefore, the accesses along 64th Avenue are anticipated to provide left turn lanes within the proposed two-way left turn lane. These auxiliary turn lanes are recommended to provide storage plus taper length based on the 2040 volumes.

- It is assumed that a west leg of the 64th Avenue and Jackson Gap Way intersection will be constructed by 2040. In addition, it was identified that the intersection be signalized with dual left turn lanes on all four approaches. The eastbound dual left turn lanes may need to be planned to provide 150 feet of length with a 145-foot taper while the eastbound right turn lane may need to provide 425 feet of length with a 145-foot taper. The northbound dual left turn lanes may need to provide a length of 225 feet plus a 145-foot taper, while the northbound right turn lane may need to provide 180 feet of length with a 145-foot taper. The westbound dual left turn lanes may need to provide 210 feet of length with a 145-foot taper,

while the westbound right turn lane was identified to possibly need a length of 925 feet with a 145-foot taper. The southbound dual left turn lanes may need to provide 400 feet of length with a 145-foot taper while the southbound right turn lane may need to provide 325 feet of length with a 145-foot taper. Since these turn lane lengths are based on traffic volumes, these should be further evaluated by the City based on queuing needs as the area develops in the future.

- The intersection of 64th Avenue and Powhaton Road was identified to require signalization and dual northbound left turn lanes. The eastbound left turn lane may need to provide 200 feet of length with a 145-foot taper. The northbound dual left turn lanes may need to a length of 400 feet plus 145-foot taper while the northbound right turn lane may need to provide a length of 100 feet with a 145-foot taper.

- The intersection of 56th Avenue and Jackson Gap Way was identified to require signalization and construction of the south leg was anticipated by 2040. The eastbound left turn lane may need to provide 175 feet of length with a 145-foot taper while the eastbound right turn lane may need to provide a length of 135 feet plus 145-foot taper. The northbound left turn lane may need to provide 125 feet of length while the northbound right turn lane may need a length of 100 feet with tapers of 145 feet. The westbound left and right turn lanes may need to provide lengths of 100 feet with 145 feet of taper. The southbound left turn may need to provide 120 feet of length while the southbound right turn lane may need to provide 195 feet of length, both lanes with tapers of 145 feet.

- The intersection of 56th Avenue and Powhaton Road was identified to require signalization and dual eastbound left turn lanes. The eastbound dual left turn lanes may need to provide 290 feet of length with a 145-foot taper while the eastbound right turn lane may need a length of 110 feet with a 145-foot taper. A northbound left turn lane of 140 feet with a 145-foot taper and a northbound right turn lane of 100 feet of storage with a 145-foot taper may be needed. The westbound right turn lane may need a length of 205 feet with a 145-foot taper. The southbound left turn lane may need to be provided within the proposed two-way left turn lane with a length of 225 feet while the southbound right turn lane could be continuous from the two southbound through lanes to the north.

- By 2040, the intersection of 64th Avenue and Valley Head Street is anticipated to only require single lane approaches. The northbound and southbound approaches may have lower traffic volumes, and therefore operate with two-way stop control.

- Any on-site and off-site signing and striping improvements should be incorporated into the Civil Drawings and conform to City of Aurora Standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

2.0 INTRODUCTION

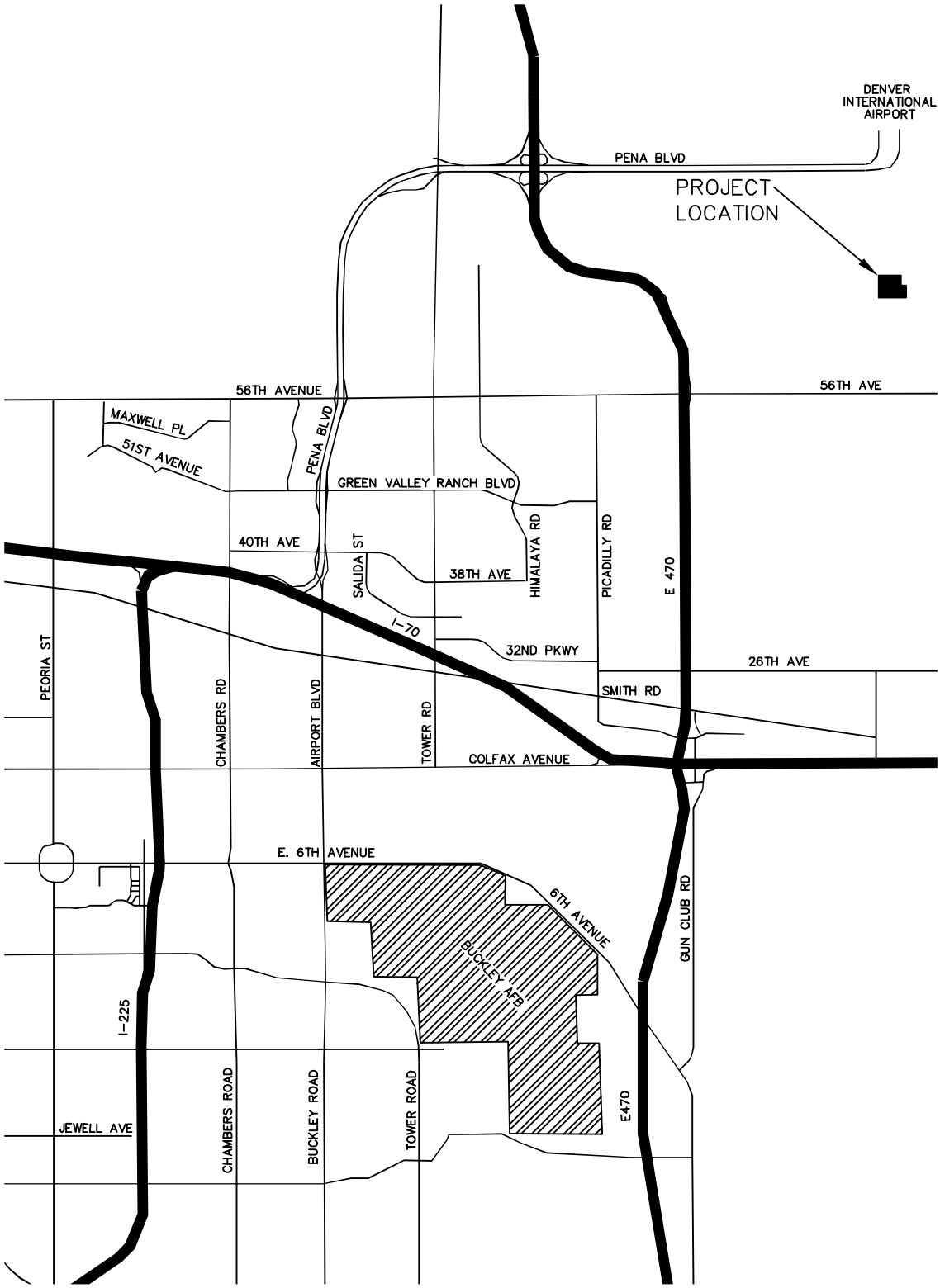
Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study associated with the proposed Porteos Industrial project to be located on the southeast corner of the 64th Avenue and Powhaton Road intersection in Aurora, Colorado. A vicinity map is shown in **Figure 1**. The proposed development is anticipated to include approximately 1,653,000 square feet of industrial building space. A conceptual site plan illustrating the development is shown in **Appendix E**. It is expected that the project will be completed within the next couple of years; therefore, analysis was conducted for the 2023 short term horizon as well as the 2040 long-term horizon per City of Aurora requirements.

The purpose of this traffic study is to identify project traffic generation, trip distribution, and traffic assignment to assess the traffic related impacts on the local street system. This traffic study develops the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with City of Aurora standards and requirements:

- 64th Avenue and Jackson Gap Way
- 64th Avenue and Powhaton Road
- 56th Avenue and Jackson Gap Way
- 56th Avenue and Powhaton Road
- 64th Avenue and Valley Head Street (2040 horizon only)

In addition, the proposed project accesses along 64th Avenue and Powhaton Road were included for evaluation.

Regional access will be provided by Interstate 70 (I-70), Interstate 225 (I-225), E-470, and Pena Boulevard. Primary access to the site will be provided by 56th Avenue, 64th Avenue, Jackson Gap Way, and Powhaton Road. Direct access to the project is proposed from two full movement accesses along the south side of 64th Avenue and three full movement accesses along the east side of Powhaton Road. All driveways will allow for passenger vehicle and truck access.



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VICINITY MAP

FIGURE 1

3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

The existing site is comprised of vacant land. The Project Groot development was recently constructed to the west of the project while the Fine Airport Parking Lot and the Ace Car Rental agency are located southwest of the project. Further north of the project site is the Denver International Airport. The extended area surrounding the project site is mainly comprised of vacant land. The land uses and roadway network surrounding the site are shown in the aerial of **Figure 2**.

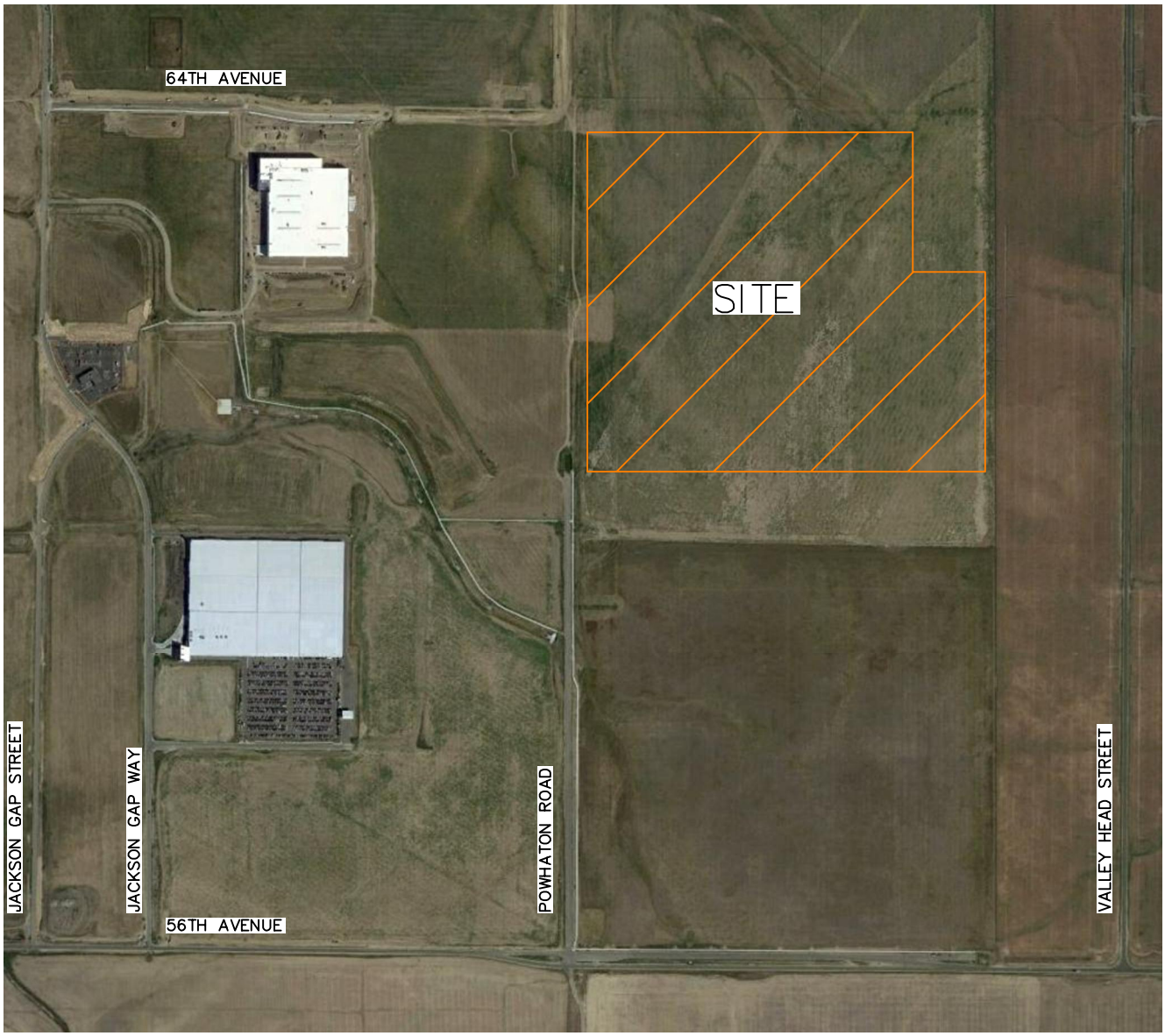
3.2 Existing and Future Roadway Network

Jackson Gap Way provides a single lane of travel in both directions, northbound and southbound, with a 40 mile per hour posted speed limit, and solid yellow centerline striping. It is anticipated that this portion of Jackson Gap Way through the study area will be improved to be a five-lane roadway sometime in the future, likely within the next five years. Powhaton Road extends north-south with one through lane in each direction with a solid yellow centerline striping and has a posted speed limit of 40 miles per hours. Within the study area, Powhaton Road extends from the south property line of the project to 56th Avenue. 56th Avenue and 64th Avenue both extend eastbound and westbound with one through lane of travel in each direction with striped center medians. 56th Avenue provides a speed limit of 40 miles per hour. Valley Head Street extends north-south with one through lane of travel in each direction with a speed limit of 55 miles per hour.

64th Avenue and Jackson Gap Way is an unsignalized “T”-intersection with stop control along the westbound 64th Avenue approach. The westbound approach provides separate left and right turn lanes. The northbound and southbound approaches at this intersection provide a single approach lane for shared movements.

The 64th Avenue and Powhaton Road intersection operates with stop control along the eastbound approach. The eastbound approach provides separate left and right turn lanes. The northbound approach provides a left turn lane and a through lane and the southbound approach provides a shared left/through lane and a shared through/right turn lane. The east leg of the intersection has not been constructed yet and will be constructed with the buildout of the project.

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SITE AREA

FIGURE 2

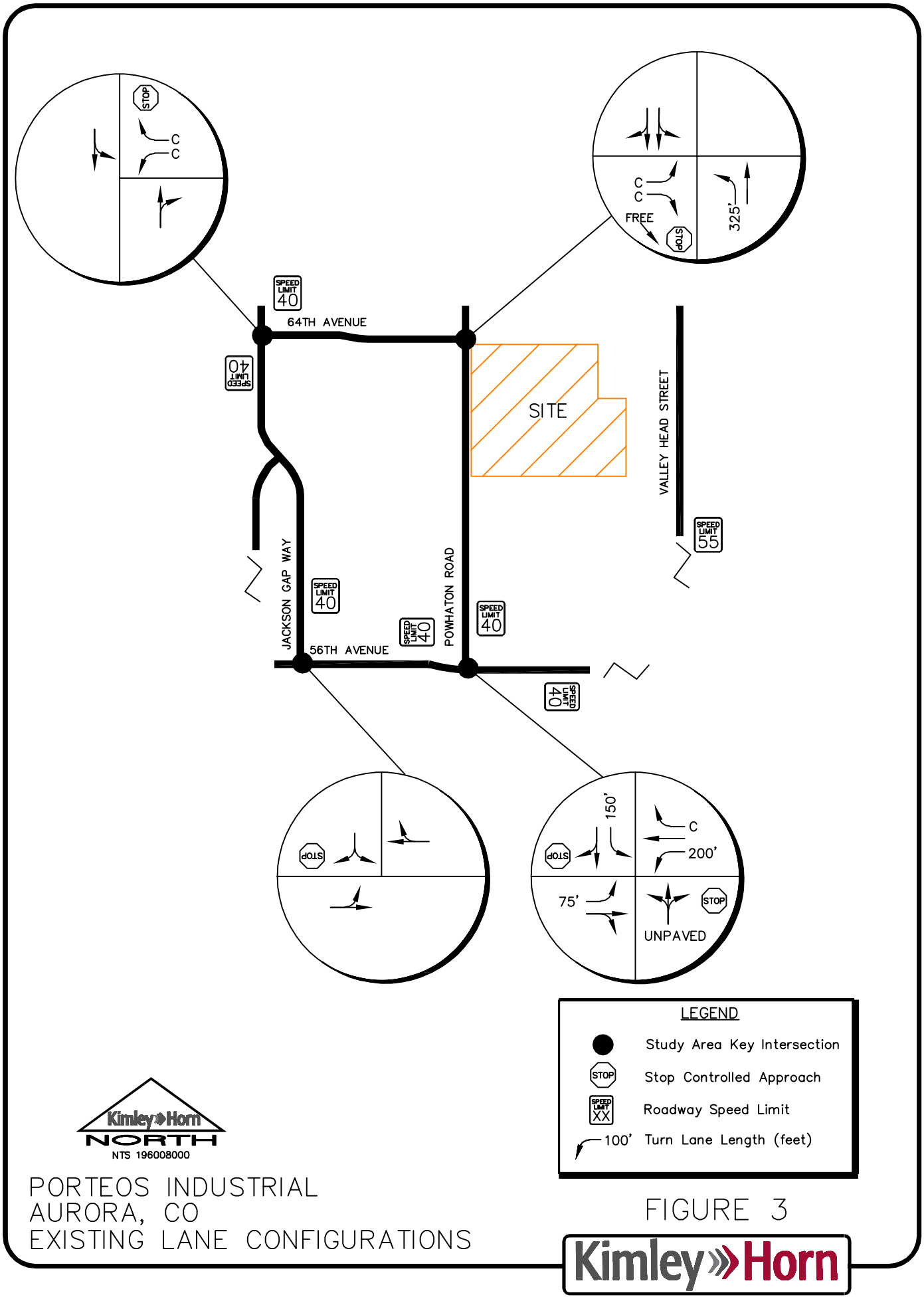
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The "T"-intersection of 56th Avenue and Jackson Gap Way is unsignalized with stop control along the southbound Jackson Gap Way approach. All three approaches at this intersection provide a single lane for shared movements.

The 56th Avenue and Powhaton Road intersection operates with stop control along the northbound and southbound approaches. The eastbound and southbound approach of this intersection provide a designated left turn lane and a shared through/right turn lane. The northbound approach includes a single lane for all movements while the westbound approach provides a left turn lane, one through lane, and a right turn lane. The south leg of this intersection is unpaved. This intersection contains a wide grassy median.

In the long-term future, 64th Avenue will extend west of Jackson Gap Way and tie into the existing 64th Avenue at E-470. In addition, 64th Avenue will extend east to Monaghan Road in the future. In the long-term future, Jackson Gap Way will extend south of 56th Avenue while 60th Avenue will be constructed west of Jackson Gap Way.

The intersection lane configuration and control for the study area key intersections are shown in **Figure 3**.



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EXISTING LANE CONFIGURATIONS

FIGURE 3

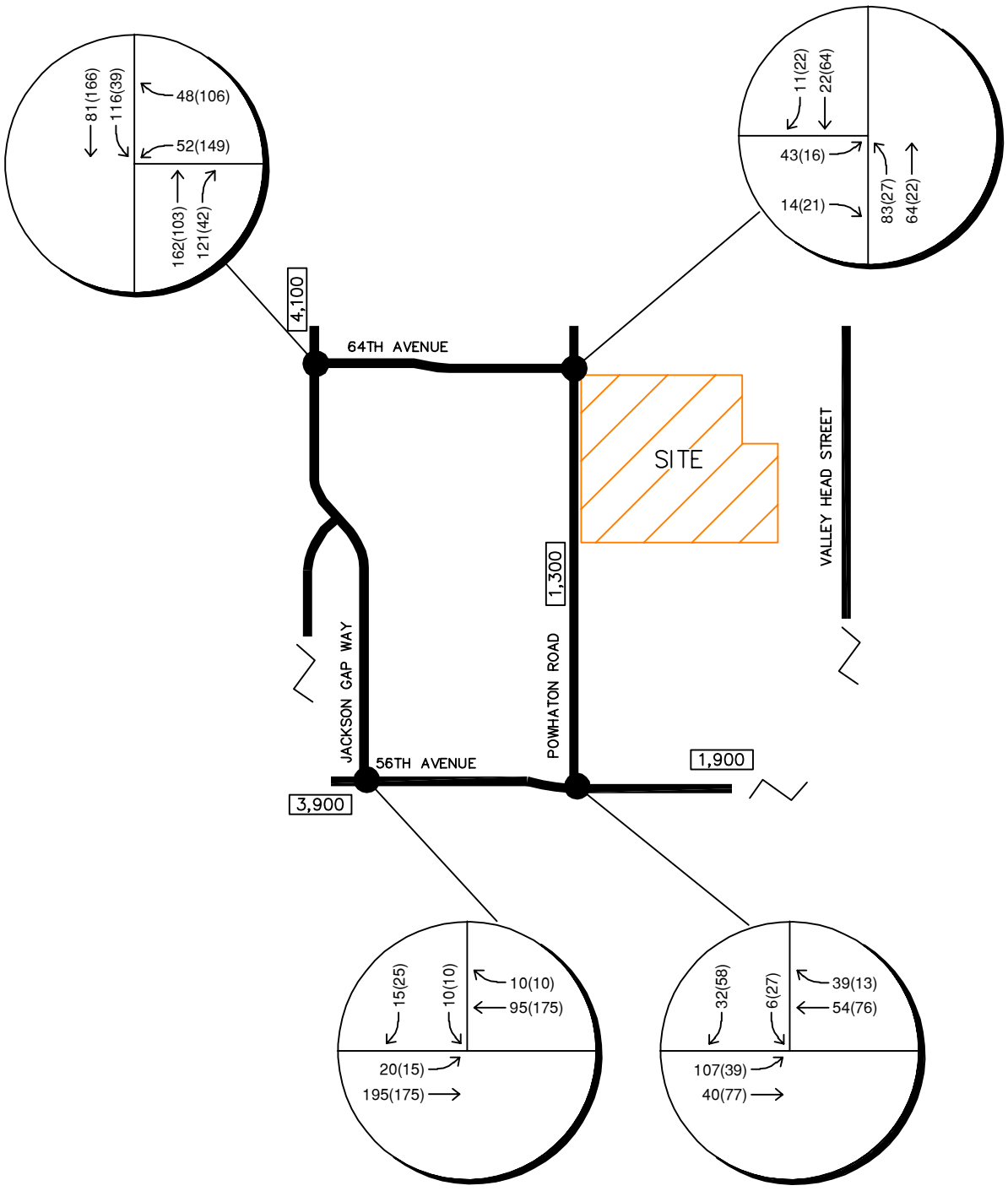
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3.3 Unspecified Development Traffic Growth

To generate year 2023 volumes, the City of Aurora standard annual growth rate of two (2) percent was applied to study area intersections that were derived from the following studies in 2020:

- "Aurora Costco Depot Transportation Impact Study" prepared by Kittelson & Associates, Inc.
- "Porteos ISP Traffic Analysis" prepared by Felsburg Holt & Ullevig
- "Porteos PA 7 – Groot Property Transportation Impact Study" prepared by Felsburg Holt & Ullevig
- "Porteos PA 5 – JAG Logistics Center at DIA Transportation Impact Study" prepared by Felsburg Holt & Ullevig
- "Porteos – Project Pearly in Aurora Transportation Impact Study" prepared by Felsburg Holt & Ullevig
- "Porteos Distribution Facility Traffic Impact Study" prepared by Kimley-Horn and Associates, Inc.
- "Porteos Traffic Impact Study" prepared by Felsburg Holt & Ullevig
- "Porteos – 60th Avenue" prepared by Felsburg Holt & Ullevig
- "Northeast Area Transportation Study Refresh" prepared for City of Aurora

To generate long-term year 2040 background volumes, the above-mentioned studies were utilized. The seven (7) studies are included in **Appendix A**. The calculated background traffic volumes for 2023 are shown in **Figure 4**. The calculated background traffic volumes for 2040 are shown in **Figure 5**.



LEGEND

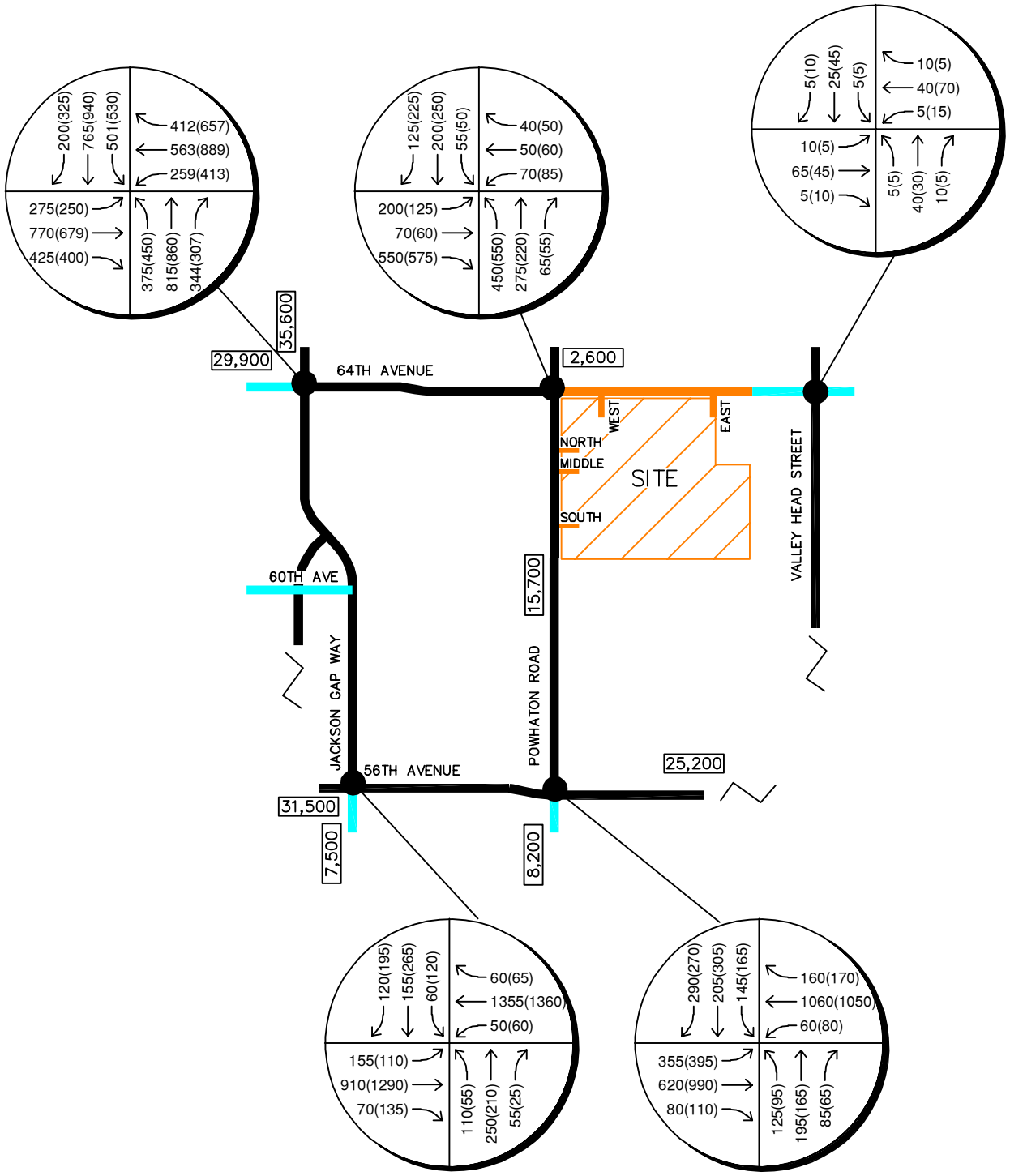
- ● Study Area Key Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Daily Traffic Volume

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2023 BACKGROUND TRAFFIC VOLUMES

FIGURE 4

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LEGEND

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

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2040 BACKGROUND TRAFFIC VOLUMES

FIGURE 5

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4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land uses 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 average rates that applies to Industrial Park (ITE Code 130) for traffic associated with the development.

For the purposes of this analysis, the project is anticipated to include approximately 1,653,000 square feet of industrial building space. The Porteos Industrial project is expected to generate approximately 5,572 daily weekday trips, with 661 trips occurring during the morning peak hour and 662 trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 10th Edition – Volume 1: User's Guide and Handbook*, 2017. **Table 1** summarizes the estimated trip generation for the proposed development. The trip generation worksheets are included in **Appendix B**.

Table 1 – Porteos Industrial Traffic Generation

Land Use	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Industrial Park (ITE 130) – 1,653,000 Square Feet	5,572	535	126	661	139	523	662

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Tenth Edition, Washington DC, 2017.

4.2 Trip Distribution

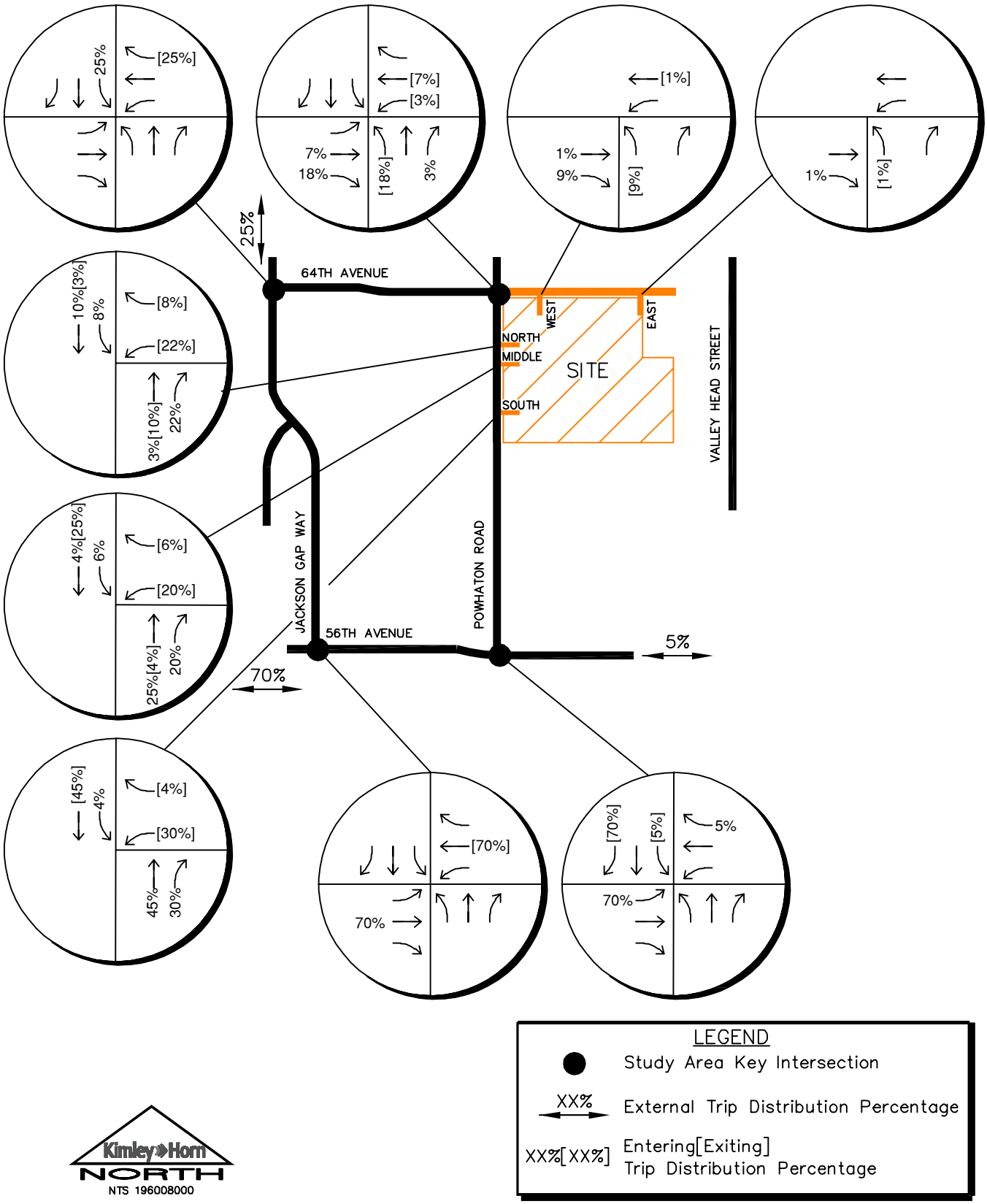
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, expected roadway improvements, and the proposed access system for the project. The directional distribution of 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 trip distribution has been appropriately aligned to future roadway network and future traffic volume projections identified in NEATS. Therefore, because the surrounding roadway network is expected to change by 2040 per NEATS, two separate project trip distributions were developed for both horizon analysis years. The project buildout 2023 trip distribution is illustrated in **Figure 6** while the 2040 trip distribution is shown in **Figure 7**.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Site traffic assignment for the proposed Porteos Industrial project is shown in **Figure 8** for 2023 and in **Figure 9** for 2040.

4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short term 2023 horizon and long term 2040 horizon. These total traffic volumes for the site are illustrated for the 2023 and 2040 horizon years in **Figures 10** and **11**, respectively.



LEGEND

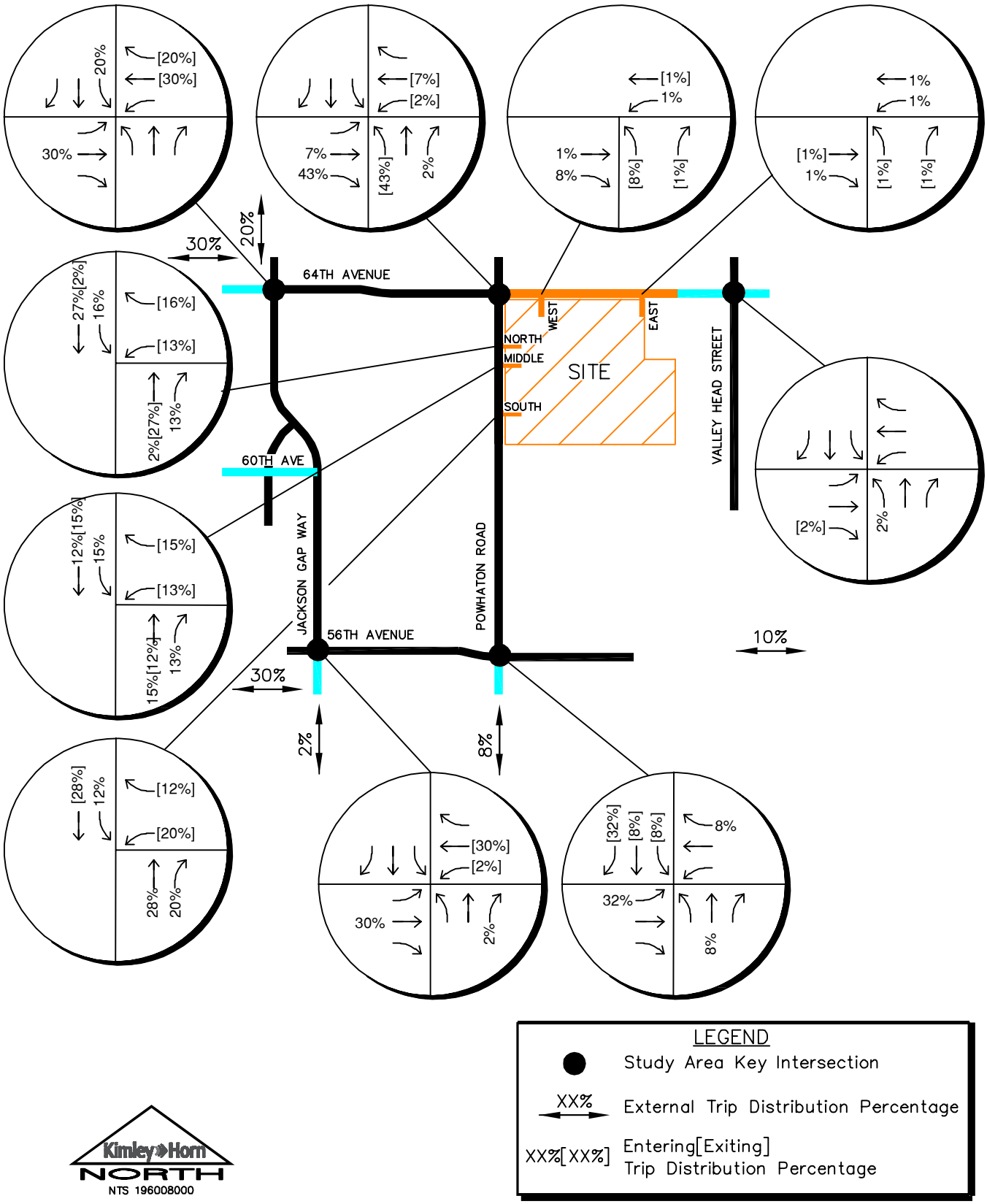
- ● Study Area Key Intersection
- XX% External Trip Distribution Percentage
- XX%[XX%] Entering[Exiting] Trip Distribution Percentage

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2023 PROJECT TRIP DISTRIBUTION

FIGURE 6

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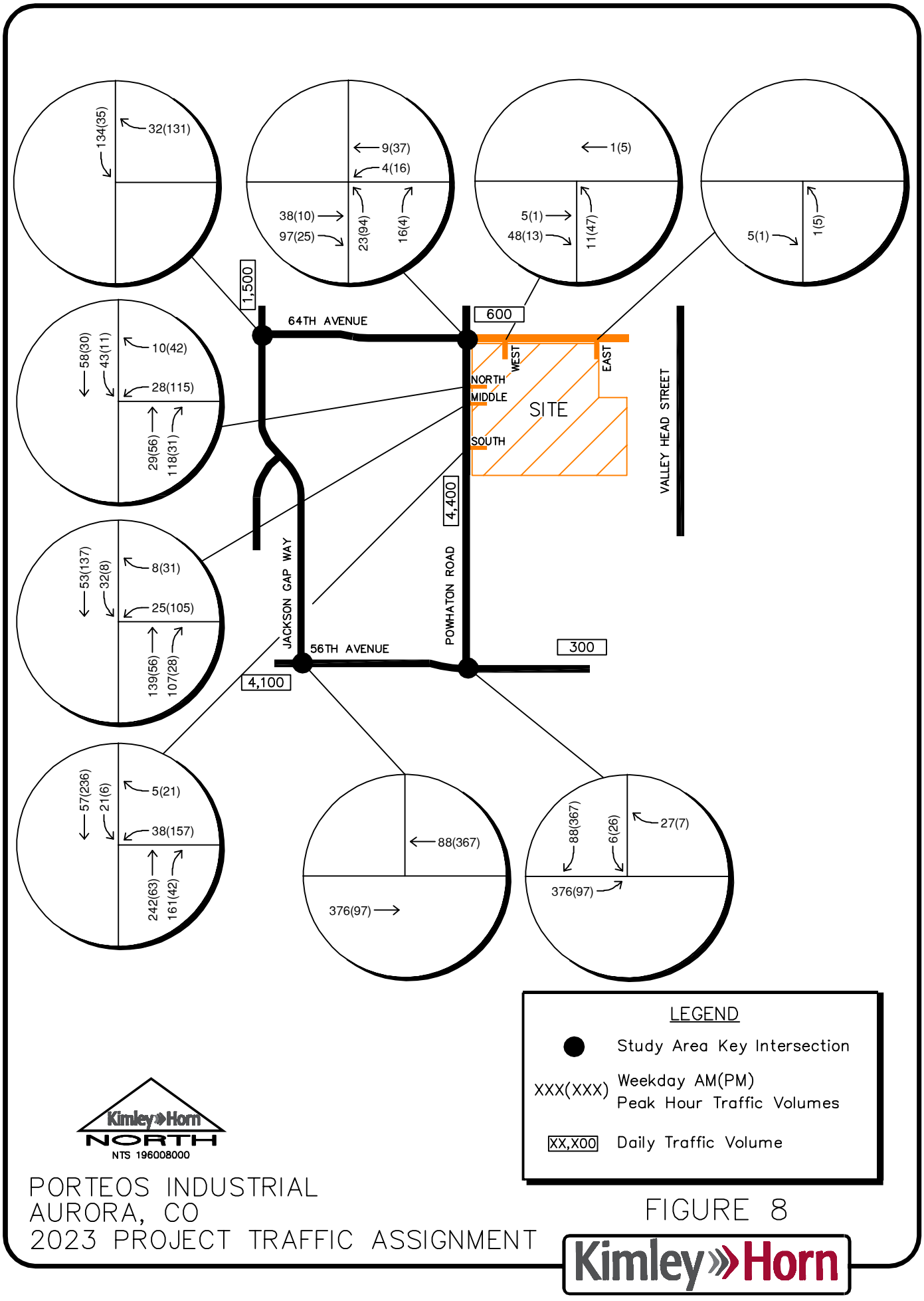


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2040 PROJECT TRIP DISTRIBUTION

FIGURE 7

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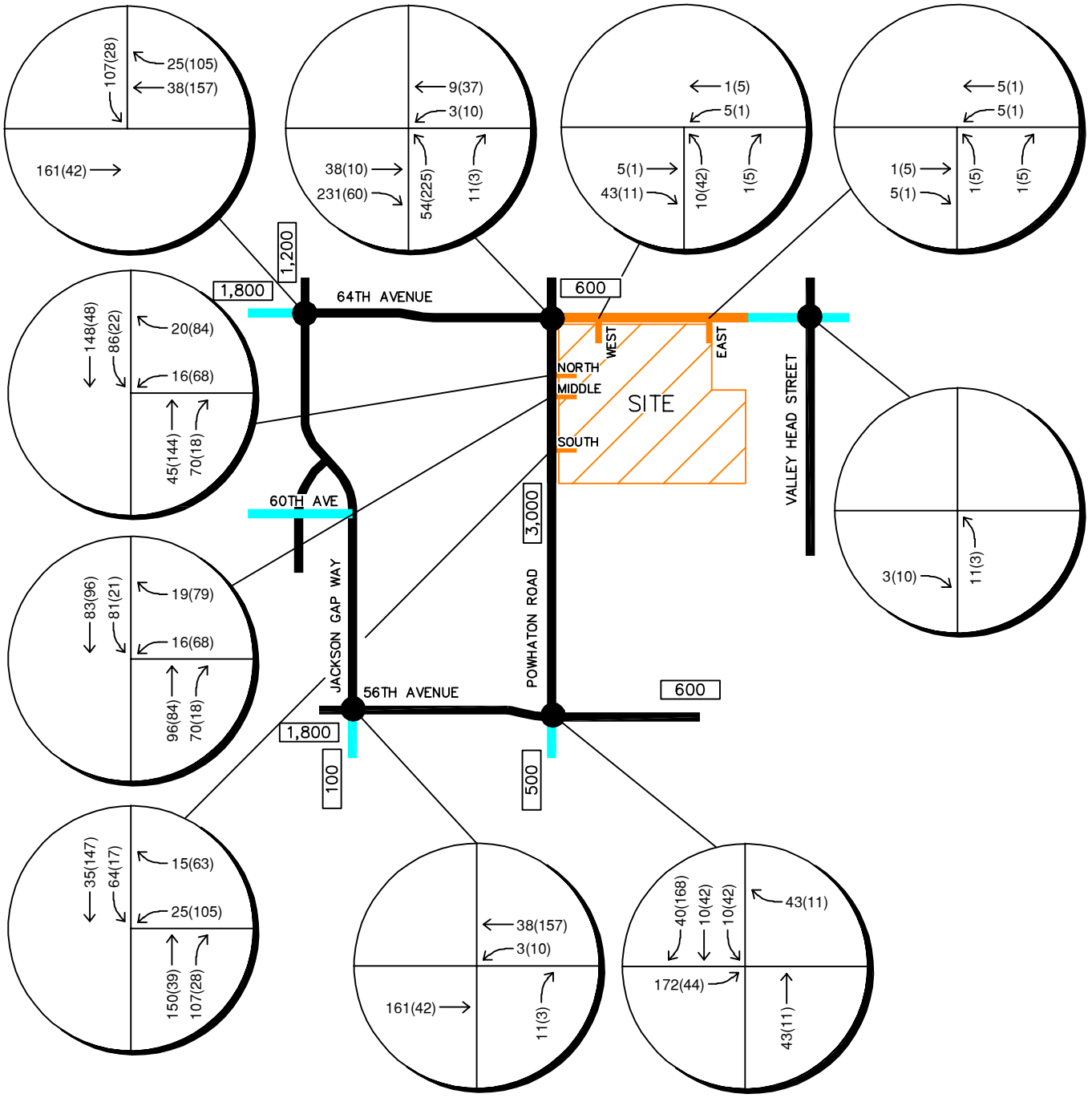


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2023 PROJECT TRAFFIC ASSIGNMENT

FIGURE 8

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LEGEND

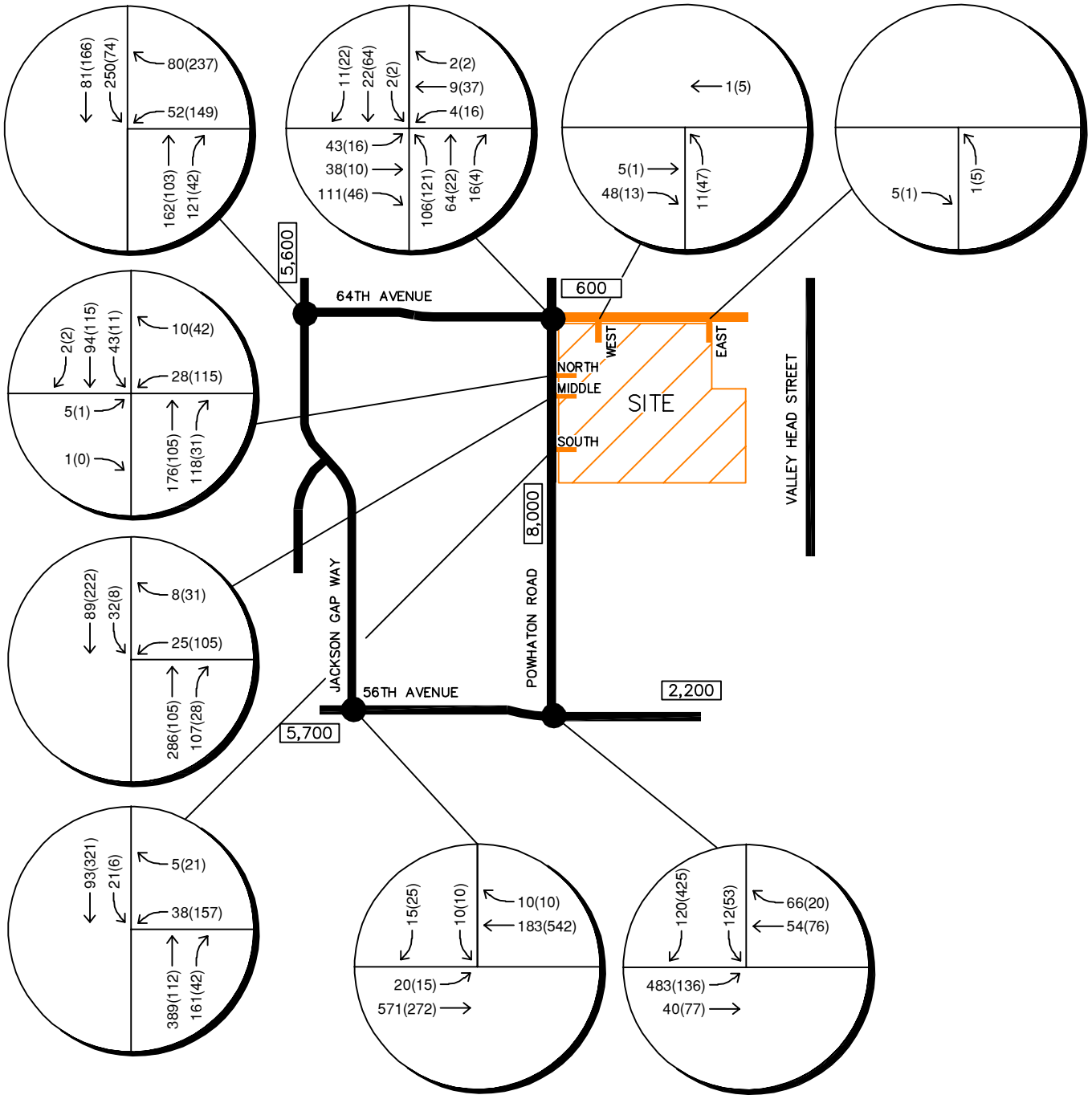
- Study Area Key Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Daily Traffic Volume

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2040 PROJECT TRAFFIC ASSIGNMENT

FIGURE 9

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LEGEND

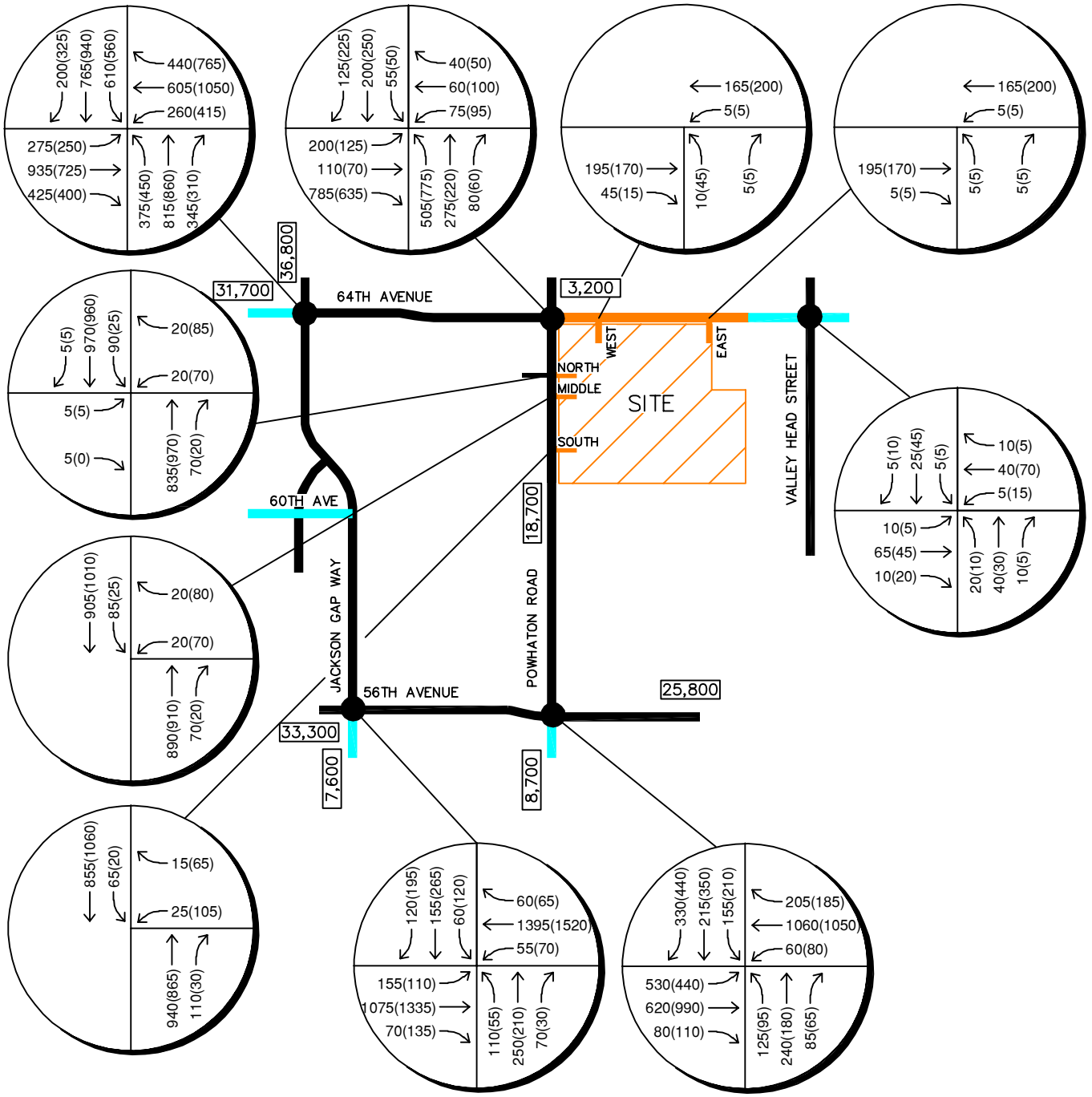
- ● Study Area Key Intersection
- XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 Daily Traffic Volume

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2023 TOTAL TRAFFIC VOLUMES

FIGURE 10

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LEGEND

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

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2040 TOTAL TRAFFIC VOLUMES

FIGURE 11

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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 2023 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). According to City of Aurora guidelines for signalized intersections, individual movements may be allowed to fall to LOS E, but in most cases the overall intersection must operate (or be projected to operate) at a LOS D or better during AM and PM peak periods. If the existing LOS for an intersection is less than LOS D, potential alternatives to improve the intersection should be provided to achieve LOS D or maintain the existing critical lane volume with the addition of site generated traffic. Minor movements at unsignalized intersections, such as left turns onto a major arterial from a side street, may be allowed to fall below LOS D pending the specific conditions. Movements which have a light traffic demand and a viable travel alternative may be allowed to fall below LOS D**. 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.

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

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for a signalized and all-way stop controlled intersection is defined for each approach and for the overall intersection. In addition, based on the industrial park use, a heavy vehicle percent of 12% during the morning peak hour and 10% during the afternoon peak hour were applied to the study intersections.

5.2 Key Intersection Operational Analysis

Calculations for the level of service at the key intersections and project access driveways for the study area are provided in **Appendix C**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 3**. Synchro traffic analysis software was used to analyze the study area intersections and access driveways. The Synchro Highway Capacity Manual (HCM) methodology reports were used to analyze intersection delay and level of service.

64th Avenue and Jackson Gap Way

The existing T-intersection of 64th Avenue and Jackson Gap Way is unsignalized with stop control along the westbound approach. A southbound left turn lane and a southbound right turn lane is warranted with the 2023 background volumes. With this control and the lane configurations, all movements at this intersection currently operate acceptably with LOS C or better during morning and afternoon peak hours through the short-term horizon.

By the 2040 long term horizon, Jackson Gap Way is anticipated to be improved to be a five-lane roadway. In addition, it has been identified that dual left turn lane will be required on all approaches and right turn lanes as identified in the "Aurora Costco Depot Transportation Impact Study" by Kittelson & Associates, Inc. When this improvement occurs, this intersection is expected to operate acceptably with LOS D during the peak hours throughout the 2040 horizon. **Table 3** provides the results of the level of service at this intersection.

Table 3 – 64th Avenue and Jackson Gap Way LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Background #				
Westbound Left	14.2	B	13.4	B
Westbound Right	9.6	A	9.5	A
Southbound Left	8.4	A	7.7	A
2023 Background Plus Project #				
Westbound Left	22.6	C	15.1	B
Westbound Right	9.8	A	10.4	B
Southbound Left	8.9	A	7.8	A
2040 Background #$	42.1	D	49.2	D
2040 Background Plus Project #$	49.9	D	37.9	D

= SB Left Turn and NB Right Turn Lane
$ = Signalization and Full Intersection Configuration

64th Avenue and Powhaton Road

The 64th Avenue and Powhaton Road intersection operates with stop control along the eastbound approach. With buildout of the project, the east leg of the intersection will be constructed. From the current aerial, it is assumed that an eastbound through lane would be designated with the buildout of the east leg. A northbound right turn lane will be warranted based on the 2023 total volumes and a southbound left turn lane will be warranted based on the 2040 background volumes. With this control and the lane configurations, all movements at this intersection will operate at LOS B or better during both peak hours for the short-term horizon with project traffic.

By the 2040 long term horizon, it has been identified by the "Porteos ISP Traffic Analysis" by Felsburg Holt & Ullevig that dual northbound left turn lanes will be required. When this improvement occurs, this intersection is expected to operate acceptably with LOS D or better during the morning and afternoon peak hours throughout the 2040 horizon. **Table 4** provides the results of the level of service at this intersection.

Table 4 – 64th Avenue and Powhaton Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Background				
Northbound Left	7.5	A	7.5	A
Eastbound Left	11.1	B	9.7	A
Eastbound Right	0.0	A	0.0	A
2023 Background Plus Project #				
Northbound Left	7.6	A		A
Eastbound Left	12.3	B	7.7	B
Eastbound Through	12.5	B	13.0	B
Eastbound Right	0.0	A	12.5	A
Westbound Left	12.1	B	11.9	B
Westbound Through	12.1	B	13.1	B
Westbound Right	8.7	A	8.5	A
Southbound Left	7.5	A	7.3	A
2040 Background #$	34.4	C	35.0	C
2040 Background Plus Project #$	35.3	D	38.3	D

= Addition of East Leg and Associated Lanes
$ = Signalization and Dual Northbound Left Turn Lanes

56th Avenue and Jackson Gap Way

The "T"-intersection of 56th Avenue and Jackson Gap Way is unsignalized with stop control along the southbound Jackson Gap Way approach. With this control and the existing lane configurations, all movements at this intersection currently operate acceptably with LOS B or better during morning and afternoon peak hours throughout the short-term horizon.

By the 2040 long term horizon, it has been identified by NEATS that the intersection will include a south leg and two through lanes on the eastbound and westbound approaches. In addition, auxiliary turn lanes will be warranted with the projected 2040 volumes and signalization is anticipated to be needed. When this improvement occurs, this intersection is expected to operate acceptably with LOS C during the morning and afternoon peak hours throughout the 2040 horizon. **Table 5** provides the results of the level of service at this intersection.

Table 5 – 56th Avenue and Jackson Gap Way LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Background				
Eastbound Left	7.6	A	7.8	A
Southbound Approach	9.9	A	10.2	B
2023 Background Plus Project				
Northbound Left	7.8	A	8.9	A
Eastbound Approach	12.9	B	14.8	B
2040 Background $	28.9	C	30.0	C
2040 Background Plus Project $	29.0	C	31.0	C

$ = Signalization with Addition of South Leg and Full Intersection Configuration

56th Avenue and Powhaton Road

64th Avenue and Jackson Gap Way is an unsignalized "T"-intersection with stop control along the westbound 64th Avenue approach. With this control and the existing lane configurations, all movements at this intersection currently operate acceptably with LOS B or better during morning and afternoon peak hours throughout the short-term horizon.

By the 2040 long term horizon, it has been identified by NEATS that Powhaton Road will provide two lanes in each direction. In addition, auxiliary turn lanes will be warranted with the projected 2040 volumes and the "Aurora Costco Depot Transportation Impact Study" by Kittelson & Associates, Inc. identified the intersection to become signalized. When this improvement occurs, this intersection is expected to operate acceptably with LOS D or better during the morning and afternoon peak hours throughout the 2040 horizon. **Table 6** provides the results of the level of service at this intersection.

Table 6 – 56th Avenue and Powhaton Road LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Background				
Eastbound Left	7.7	A	7.6	A
Southbound Approach	9.1	A	9.5	A
2023 Background Plus Project				
Northbound Approach	0.0	A	0.0	A
Eastbound Left	9.1	A	7.8	A
Westbound Left	0.0	A	0.0	A
Southbound Left	31.9	D	12.7	B
Southbound Through/Right	9.2	A	12.2	B
2040 Background $	32.4	C	29.5	C
2040 Background Plus Project $	37.7	D	33.6	C

$ = Signalization with Full Intersection Configuration

64th Avenue and Valley Head Street

The future 64th Avenue and Valley Head Street intersection is anticipated to be built out by 2040 and is assumed to operate with stop control on the northbound and southbound approaches. With this control the intersection movements are anticipated to operate acceptably with LOS B or better during peak hours with or without project traffic. **Table 7** provides the results of the level of service at this intersection.

Table 7 – 64th Avenue and Valley Head Street LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2040 Background *				
Northbound Approach	10.1	B	10.2	B
Eastbound Left	7.3	A	7.4	A
Westbound Left	7.4	A	7.4	A
Southbound Approach	10.0	B	10.3	B
2040 Background Plus Project				
Northbound Approach	10.4	B	10.5	B
Eastbound Left	7.4	A	7.5	A
Westbound Left	7.5	A	7.5	A
Southbound Approach	10.2	B	10.5	B

5.3 Project Access Operational Analysis

With completion of the Porteos Industrial development, the site proposes two full movement accesses along the south side of 64th Avenue and three full movement accesses along the east side of Powhaton Road. The west access along 64th Avenue is located approximately 600 feet east of Powhaton Road and 1,575 feet west of the 64th Avenue East Access. The north access along Powhaton Road is located approximately 825 feet south of 64th Avenue and 275 feet north of the Powhaton Road Middle Access. The south access along Powhaton Road is located approximately 1,000 feet south of the Powhaton Road Middle Access. The north building and the south building have one internal connection that will provide cross-access and will be gated.

The two accesses along 64th Avenue are recommended to have R1-1 “STOP” signs installed for the northbound exiting approaches. One exiting lane should be sufficient at both project accesses along 64th Avenue.

All three accesses along Powhaton Road should provide two exiting lane approaches for separate left and right turn lanes. The three accesses along Powhaton Road should provide stop control with installation of R1-1 “STOP” signs for the westbound exiting approaches.

With the recommended lane configurations and control, all movements at both proposed project accesses are expected to operate acceptably during the peak hours throughout the 2040 horizon. If 2040 volumes are realized, the westbound left movement at the north and south accesses along Powhaton Road may operate with LOS E. The north access can re-route to the accesses along 64th Avenue and the south access can re-route to the middle access which both provide additional capacity. The operational analysis at the proposed project driveways is summarized in **Table 8** for the short-term 2023 horizon and for the long-term 2040 horizon. Detailed results of the operational analysis are also provided in **Appendix C**.

Table 8 – Project Access LOS Results

Access and Movement	2023 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
64th Ave West Access								
Northbound Approach	8.7	A	8.8	A	10.1	B	10.5	B
Westbound Left	0.0	A	0.0	A	7.8	A	7.6	A
64th Ave East Access								
Northbound Approach	8.5	A	8.5	A	9.7	A	9.6	A
Westbound Left	0.0	A	0.0	A	7.7	A	7.6	A
Powhaton Rd North Access								
Northbound Left	0.0	A	0.0	A	0.0	A	0.0	A
Eastbound Approach	10.5	B	10.2	B	24.3	C	31.4	D
Westbound Left	11.3	B	11.0	B	31.8	D	46.4	E
Westbound Through/Right	9.0	A	8.9	A	12.1	B	14.4	B
Southbound Left	8.2	A	7.6	A	11.6	B	11.3	B
Powhaton Rd Middle Access								
Westbound Left	11.3	B	10.9	B	25.2	D	30.3	D
Westbound Right	9.2	A	8.7	A	12.1	B	13.3	B
Southbound Left	8.3	A	7.5	A	11.3	B	10.5	B
Powhaton Rd South Access								
Westbound Left	12.4	B	13.8	B	27.5	D	39.9	E
Westbound Right	11.0	B	9.1	A	12.7	B	13.0	B
Southbound Left	9.0	A	7.7	A	12.5	B	10.7	B

Includes two EB and WB through lanes

5.4 Auxiliary Turn Lane Analysis

The City of Aurora has directed Kimley-Horn to use the Colorado Department of Transportation (CDOT) State Highway Access Code (SHAC) guidelines to determine if turn lanes are warranted for access into all of the project accesses. CDOT classifies their state highways based on roadway types. The following classifications were given to the roadway applicable with this turn lane requirement analysis based on matching the characteristics of the CDOT roadways. It is believed that Jackson Gap Way, 64th Avenue, and Powhaton Road and would have a Category NR-C: 56th Avenue is believed to be classified as NR-B.

According to the State Highway Access Code for category NR-C and NR-B roadways, the following threshold applies for determining the need for a turn lane:

- A left turn lane with storage length plus taper length is required for any access with a projected peak hour left ingress turning volume greater than 25 vehicles per hour. If the posted speed is greater than 40 mph, a deceleration lane and taper is required for any access with a projected peak hour left ingress turning volume greater than 10 vehicles per hour.
- A right turn lane with storage length plus taper is required for any access with a projected peak hour right ingress turning volume greater than 50 vehicles per hour. If the posted speed limit is greater than 40 miles per hour, a right turn lane deceleration lane and taper is required for any access with a project peak hour right ingress turning volume greater than 25 vehicles per hour.

Powhaton Road currently has a posted speed limit of 40 miles per hour while it is assumed that 64th Avenue will have a posted speed limit of 40 miles per hour. Based on the ultimate speed limits and 2040 traffic volume projections, turn lane requirements at all of the project accesses are as follows:

- A westbound left turn lane **is not** warranted at the **64th Avenue West Access** based on projected 2040 background plus project traffic volumes being 5 westbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- An eastbound right turn lane **is not** warranted at the **64th Avenue West Access** based on projected 2040 background plus project traffic volumes being 45 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour.

- A westbound left turn lane **is not** warranted at the **64th Avenue East Access** based on projected 2040 background plus project traffic volumes being 5 westbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- An eastbound right turn lane **is not** warranted at the **64th Avenue East Access** based on projected 2040 background plus project traffic volumes being 5 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour
- A southbound left turn lane **is** warranted at the **Powhaton Road North Access** based on projected 2040 background plus project traffic volumes being 90 southbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- A northbound right turn lane **is** warranted at the **Powhaton Road North Access** based on projected 2040 background plus project traffic volumes being 70 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- A southbound left turn lane **is** warranted at the **Powhaton Road Middle Access** based on projected 2040 background plus project traffic volumes being 85 southbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- A northbound right turn lane **is** warranted at the **Powhaton Road Middle Access** based on projected 2040 background plus project traffic volumes being 70 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- A southbound left turn lane **is** warranted at the **Powhaton Road South Access** based on projected 2040 background plus project traffic volumes being 65 southbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- A northbound right turn lane **is** warranted at the **Powhaton Road South Access** based on projected 2040 background plus project traffic volumes being 110 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.

Although left turn lanes are not warranted at either access intersection along 64th Avenue, the Northeast Area Transportation Study (NEATS) Refresh Final Report identifies 64th Avenue as a five-lane roadway that will include left turn lanes by 2040. Although the turn lane length would be based on storage for the number of vehicles, a recommended minimum 150-foot length was applied. In addition, Powhaton Road is a five-lane roadway and is recommended to provide 150 feet of turn lane length at the accesses.

56th Avenue Jackson Gap Way, and Powhaton Road currently has a posted speed limit of 40 miles per hour while it is assumed that 64th Avenue will have a posted speed limit of 40 miles per hour. Based on the ultimate speed limits and 2023 traffic volume projections, turn lane requirements at all of the study intersection are as follows:

64th Avenue and Jackson Gap Way

- A southbound left turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 250 southbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- A northbound right turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 121 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.

64th Avenue and Powhaton Road

- A southbound left turn lane **is** warranted based on projected 2040 background plus project traffic volumes being 55 southbound left turns during the peak hour and the threshold being 25 vehicles per hour. Of note, a southbound left turn lane will be constructed
- A southbound right turn lane **is not** warranted based on projected 2023 background plus project traffic volumes being 22 southbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- A northbound left turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 121 northbound left turns during the peak hour and the threshold being 25 vehicles per hour. Of note, a northbound left turn lane is already provided.
- A northbound right turn lane **is** warranted based on projected 2040 background plus project traffic volumes being 80 northbound right turns during the peak hour and the threshold being 50 vehicles per hour.
- An eastbound left turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 43 eastbound left turns during the peak hour and the threshold being 25 vehicles per hour. Of note, an eastbound left turn lane is already provided.

- An eastbound right turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 111 eastbound right turns during the peak hour and the threshold being 50 vehicles per hour. Of note, an eastbound right turn lane is already provided.
- A westbound left turn lane **is** warranted based on projected 2040 background plus project traffic volumes being 95 westbound left turns during the peak hour and the threshold being 25 vehicles per hour.
- A westbound right turn lane **is not** warranted based on projected 2040 background plus project traffic volumes being 50 westbound right turns during the peak hour and the threshold being 50 vehicles per hour.

56th Avenue and Jackson Gap Way

- An eastbound left turn lane **is not** warranted based on projected 2023 background plus project traffic volumes being 20 eastbound left turns during the peak hour and the threshold being 25 vehicles per hour. Of note, an eastbound left turn lane is already provided.
- A westbound right turn lane **is not** warranted based on projected 2023 background plus project traffic volumes being 10 westbound right turns during the peak hour and the threshold being 50 vehicles per hour.

56th Avenue and Powhaton Road

- An eastbound left turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 483 eastbound left turns during the peak hour and the threshold being 25 vehicles per hour. Of note, an eastbound left turn lane is already provided.
- A westbound right turn lane **is** warranted based on projected 2023 background plus project traffic volumes being 66 westbound right turns during the peak hour and the threshold being 50 vehicles per hour. Of note, a westbound right turn lane is already provided.

If 2040 volumes are realized, there will be major improvements to the study intersections with the full buildout of the overall Portoes development that will require auxiliary turn lanes at all the study intersections.

5.5 Turn Bay Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for turn lanes at the study area intersections. The queuing analysis was performed using the Synchro analysis software presenting the results of the 95th percentile queue length. Results of the vehicle queuing analysis are shown in the following **Table 9** with calculations provided in the intersection operational outputs located in **Appendix C** and vehicle queuing analysis worksheets in **Appendix D** for signalized locations.

Table 9 – Turn Lane Length Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2023 Calculated Queue Length (feet)	2023 Recommended Turn Lane Length (feet)	2040 Calculated Queue Length (feet)	2040 Recommended Turn Lane Length (feet)
64th Ave & Jackson Gap Way					
Eastbound Left	DNE	-	DNE	141' DL	150'+145'T DL
Eastbound Right	DNE	-	DNE	322'	425'+145'T
Westbound Left	C	25'	C	180' DL	210'+145'T DL
Westbound Right	C	25'	C	909'	925'+145'T
Northbound Left	DNE	-	DNE	250' DL	225'+145'T DL
Northbound Right	DNE	-	120'+145'T	177'	180'+145'T
Southbound Left	DNE	-	250'+145'T	379' DL	400'+145'T DL
Southbound Right	DNE	-	DNE	231'	325'+145'T
64th Ave & Powhaton Rd					
Eastbound Left	C	25'	100'+145'T	113'	200'+145'T
Eastbound Right	C	25'	C	6'	C
Westbound Left	DNE	25'	100'+145'T	111'	**100'+145'T**
Westbound Right	DNE	25'	100'+145'T	9'	C
Northbound Left	325'	25'	325'	251' DL	400'+145'T DL
Northbound Right	DNE	25'	C	0'	100'+145'T
Southbound Left	DNE	25'	100'+145'T	70'	**100'+145'T**
56th Ave & Jackson Gap Way					
Eastbound Left	DNE	-	DNE	175'	175'+145'T
Eastbound Right	DNE	-	DNE	32'	135'+145'T
Westbound Left	DNE	-	DNE	22'	100'+145'T
Westbound Right	DNE	-	DNE	0'	100'+145'T
Northbound Left	DNE	-	DNE	125'	125'+145'T
Northbound Right	DNE	-	DNE	3'	100'+145'T
Southbound Left	DNE	-	DNE	78'	120'+145'T
Southbound Right	DNE	-	DNE	50'	195'+145'T
56th Ave & Powhaton Rd					
Eastbound Left	75'	25'	500'+145'T	287' DL	290'+145'T DL
Eastbound Right	DNE	-	DNE	2'	110'+145'T
Westbound Left	200'	25'	200'	51'	200'
Westbound Right	C	-	C	64'	205'+145'T
Northbound Left	DNE	-	DNE	133'	140'+145'T
Northbound Right	DNE	-	DNE	16'	100'+145'T
Southbound Left	150'	25'	150'	226'	225' TWLTL
Southbound Right	DNE	-	DNE	442'	C
Powhaton Rd North Access					
Southbound Left	DNE	25'	150' TWLTL	25'	**150' TWLTL**
Northbound Right	DNE	25'	120'+145'T	25'	**120'+145'T**
Powhaton Rd Middle Access					
Southbound Left	DNE	25'	150' TWLTL	25'	**150' TWLTL**
Northbound Right	DNE	25'	110'+145'T	25'	**110'+145'T**
Powhaton Rd South Access					
Southbound Left	DNE	25'	150' TWLTL	25'	**150' TWLTL**
Northbound Right	DNE	25'	160'+145'T	25'	**160'+145'T**

DNE = Does Not Exist; C = Continuous Turn Lane

The taper length for all new auxiliary turn lanes will be 145 feet (12:1) based on the speed limit of 40 miles per hour. All new auxiliary turn lanes should be constructed and designated with the lengths reported in **Table 9**.

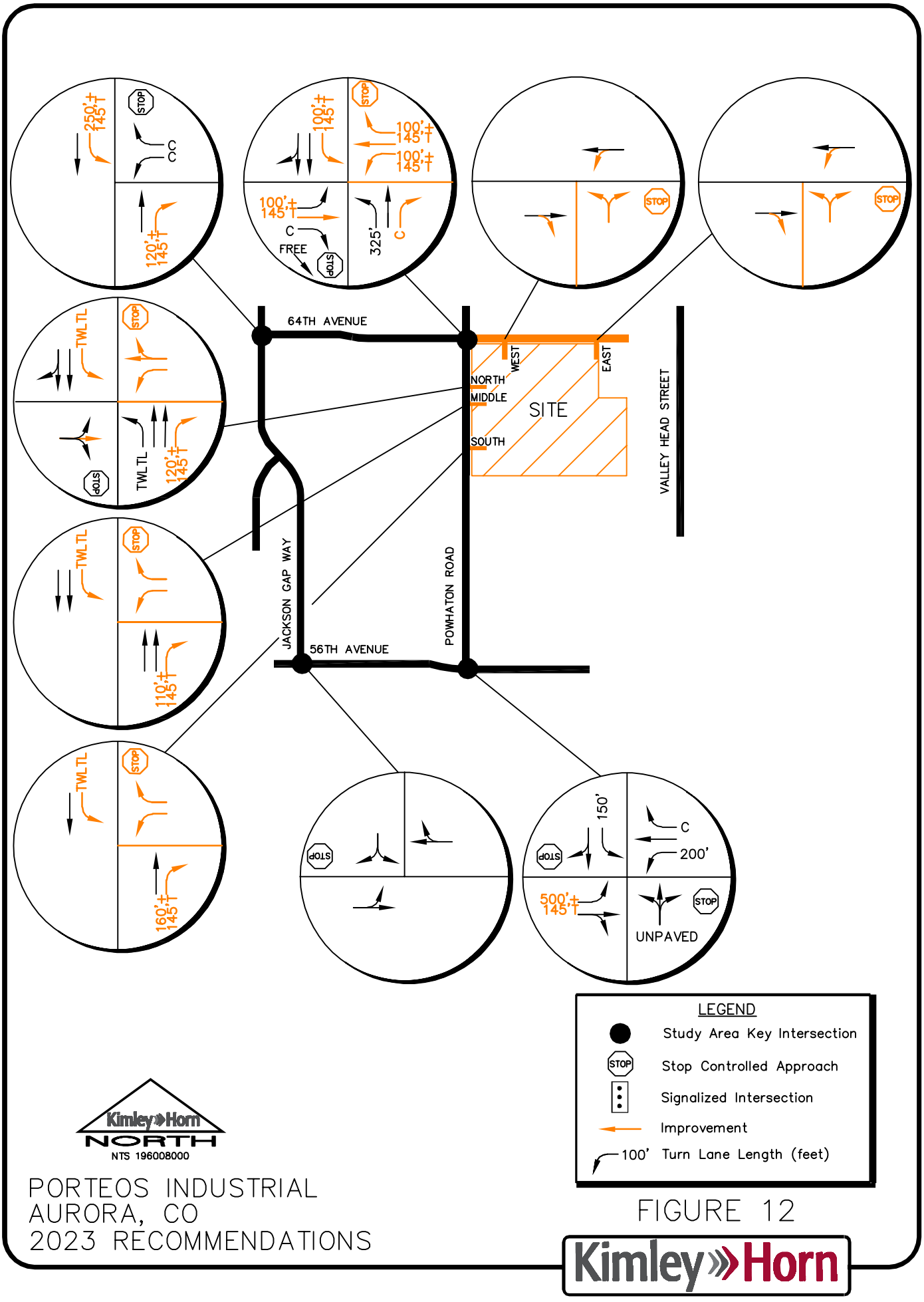
5.6 Pedestrian Safety and Traffic Calming

The surrounding area is currently not built out but there are pedestrian sidewalks along the east and west sides of Powhaton Road and along the north and south sides of 64th Avenue. The project will construct sidewalks along the north and south sides of 64th Avenue that fronts the site. It is anticipated by 2040, the signalized intersections in the surrounding area will provide crosswalks and pedestrian signals.

Internal to the site there will be sidewalks to the entrance of the building from the employee parking lots that is recommended to provide crosswalk striping. In addition, W11-2 Pedestrian Warming signs with W16-7P Downward Diagonal Arrow plaques could be provided at the crosswalks.

5.7 Summary of Improvements

Based on the results of the intersection operational and turn lane analysis, the recommended lane configurations and control of the study key intersections are shown for the 2023 project buildout year in **Figure 12** and for the 2040 long term horizon in **Figure 13**.

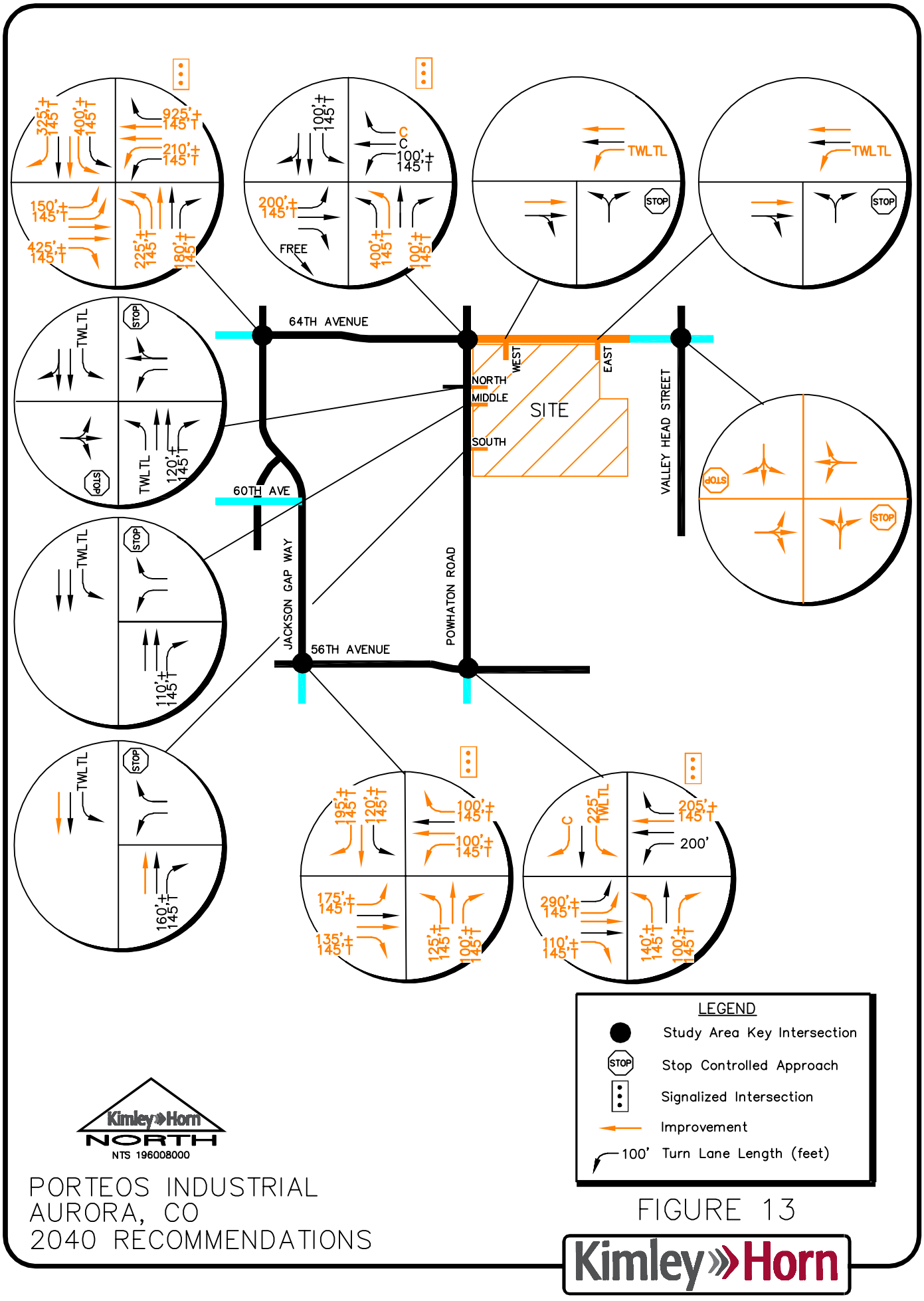


Kimley»Horn NORTH
NTS 196008000

PORTEOS INDUSTRIAL
AURORA, CO
2023 RECOMMENDATIONS

FIGURE 12

Kimley»Horn



PORTEOS INDUSTRIAL
AURORA, CO
2040 RECOMMENDATIONS

FIGURE 13

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

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

2023 Recommendations

- With completion of the Porteos Industrial development, the site proposes two full movement accesses along the south side of 64th Avenue and three full movement accesses along the east side of Powhaton Road. The two accesses along 64th Avenue are recommended to have R1-1 "STOP" signs installed for the northbound exiting approaches. One exiting lane should be sufficient at both project accesses along 64th Avenue. All three accesses along Powhaton Road should provide two exiting lane approaches for separate left and right turn lanes. The three accesses along Powhaton Road should provide stop control with installation of R1-1 "STOP" signs for the westbound exiting approaches.

- All three accesses along Powhaton Road are anticipated to warrant southbound left turn lanes and northbound right turn lanes. The taper length for all new auxiliary turn lanes will be 145 feet (12:1) based on the speed limit of 40 miles per hour. All new auxiliary turn lanes should be constructed and designated with the lengths based on the CDOT SHAC guidelines of storage plus taper. The southbound left turn lanes at the project accesses along Powhaton Road are recommended to provide 150 feet of length within the two-way left turn lane. In addition, the northbound right turn lane at the north access is recommended to provide 120 feet of length with a 145-foot taper, the northbound right turn lane at the middle access is recommended to provide 110 feet of length with a 145-foot taper, and the northbound right turn lane at the south access is recommended to provide 160 feet of length with a 145-foot taper.

- The east leg of the 64th Avenue and Powhaton Road intersection will be constructed with the buildout of the project. It is anticipated that the westbound approach will provide a left turn lane, a through lane, and a right turn lane. In addition, a southbound left turn lane and a northbound right turn lane will be designated. The eastbound left turn lane, westbound left

turn lane, westbound right turn lane, and southbound left turn lane are all recommended to provide 100 feet of length with a 145-foot taper. The northbound right turn lane is recommended to be a continuous lane in the interim condition.

- Northbound right turn and southbound left turn lanes are warranted at the intersection of 64th Avenue and Jackson Gap Way. Therefore, it is recommended that a northbound right turn lane with 120 feet of length and a 145-foot taper be provided. Likewise, the southbound left turn lane would require a length of 250 feet of plus a 145-foot taper. Construction of these left turn lanes should be coordinated with the numerous development projects occurring in the area.

- The existing 75-foot eastbound left turn lane at the intersection of 56th Avenue and Powhaton Road is recommended to be extended to a length of 500 feet plus a 145-foot taper. It is believed that this left turn lane extension will only require striping modifications of 56th Avenue on approach to this intersection.

2040 Recommendations

- By 2040, it has been identified in NEATS and the supplemental studies that 64th Avenue, Powhaton Road, Jackson Gap Street, and 56th Avenue will all provide two through lanes in each direction. Therefore, the accesses along 64th Avenue are anticipated to provide left turn lanes within the proposed two-way left turn lane. These auxiliary turn lanes are recommended to provide storage plus taper length based on the 2040 volumes.

- It is assumed that a west leg of the 64th Avenue and Jackson Gap Way intersection will be constructed by 2040. In addition, it was identified that the intersection be signalized with dual left turn lanes on all four approaches. The eastbound dual left turn lanes may need to be planned to provide 150 feet of length with a 145-foot taper while the eastbound right turn lane may need to provide 425 feet of length with a 145-foot taper. The northbound dual left turn lanes may need to provide a length of 225 feet plus a 145-foot taper, while the northbound right turn lane may need to provide 180 feet of length with a 145-foot taper. The westbound dual left turn lanes may need to provide 210 feet of length with a 145-foot taper, while the westbound right turn lane was identified to possibly need a length of 925 feet with a 145-foot taper. The southbound dual left turn lanes may need to provide 400 feet of length

with a 145-foot taper while the southbound right turn lane may need to provide 325 feet of length with a 145-foot taper. Since these turn lane lengths are based on traffic volumes, these should be further evaluated by the City based on queuing needs as the area develops in the future.

- The intersection of 64th Avenue and Powhaton Road was identified to require signalization and dual northbound left turn lanes. The eastbound left turn lane may need to provide 200 feet of length with a 145-foot taper. The northbound dual left turn lanes may need to a length of 400 feet plus 145-foot taper while the northbound right turn lane may need to provide a length of 100 feet with a 145-foot taper.

- The intersection of 56th Avenue and Jackson Gap Way was identified to require signalization and construction of the south leg was anticipated by 2040. The eastbound left turn lane may need to provide 175 feet of length with a 145-foot taper while the eastbound right turn lane may need to provide a length of 135 feet plus 145-foot taper. The northbound left turn lane may need to provide 125 feet of length while the northbound right turn lane may need a length of 100 feet with tapers of 145 feet. The westbound left and right turn lanes may need to provide lengths of 100 feet with 145 feet of taper. The southbound left turn may need to provide 120 feet of length while the southbound right turn lane may need to provide 195 feet of length, both lanes with tapers of 145 feet.

- The intersection of 56th Avenue and Powhaton Road was identified to require signalization and dual eastbound left turn lanes. The eastbound dual left turn lanes may need to provide 290 feet of length with a 145-foot taper while the eastbound right turn lane may need a length of 110 feet with a 145-foot taper. A northbound left turn lane of 140 feet with a 145-foot taper and a northbound right turn lane of 100 feet of storage with a 145-foot taper may be needed. The westbound right turn lane may need a length of 205 feet with a 145-foot taper. The southbound left turn lane may need to be provided within the proposed two-way left turn lane with a length of 225 feet while the southbound right turn lane could be continuous from the two southbound through lanes to the north.

- By 2040, the intersection of 64th Avenue and Valley Head Street is anticipated to only require single lane approaches. The northbound and southbound approaches may have lower traffic volumes, and therefore operate with two-way stop control.

- Any on-site and off-site signing and striping improvements should be incorporated into the Civil Drawings and conform to City of Aurora Standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

APPENDICES

APPENDIX A

Background Projects

Transportation Impact Study

Aurora Costco Depot

Aurora, Colorado

Prepared For:
Peter Kahn
AVP of Real Estate Corporation
Costco Wholesale Corporation
999 Lake Drive
Issaquah, WA 98027

Prepared By:
Kittelson & Associates, Inc.
101 South Capitol Boulevard, Suite 600
Boise, ID 83702
(208) 338-2683

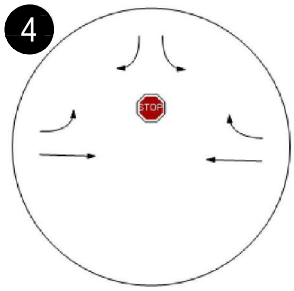
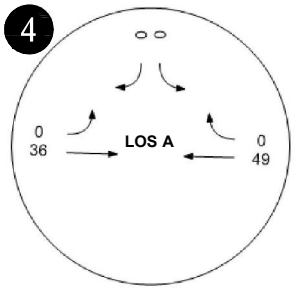
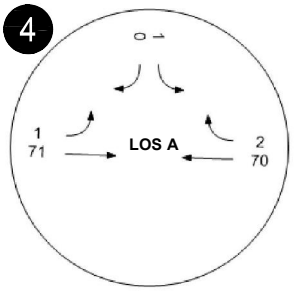
Project Principal: Brian Ray, PE
Project Manager: Andy Daleiden, PE
Project Team: Lauren Hunt, Alicia Hunter, and Yihang Sui



Project No. 24055

August 2019



Lane Configurations	Weekday AM Peak Hour	Weekday PM Peak Hour
Powhaton & 56th	Powhaton & 56th	Powhaton & 56th
		

STOP - Stop Sign

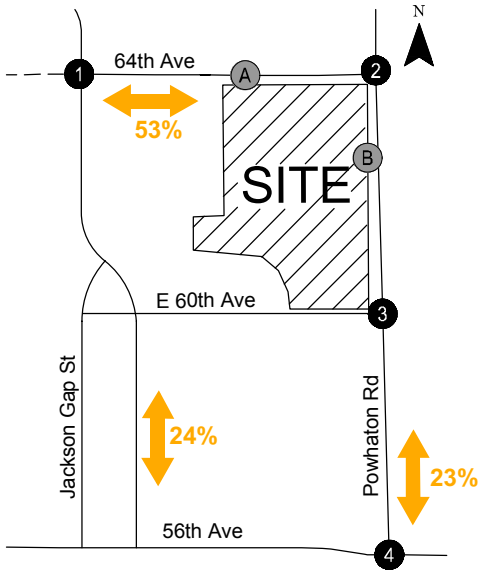
---- - Future Roadway

Existing Traffic Conditions
Weekday AM and PM Peak Hour
Aurora, Colorado

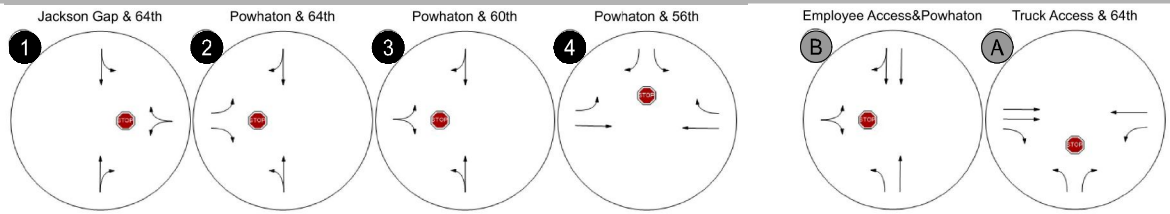
Figure
3

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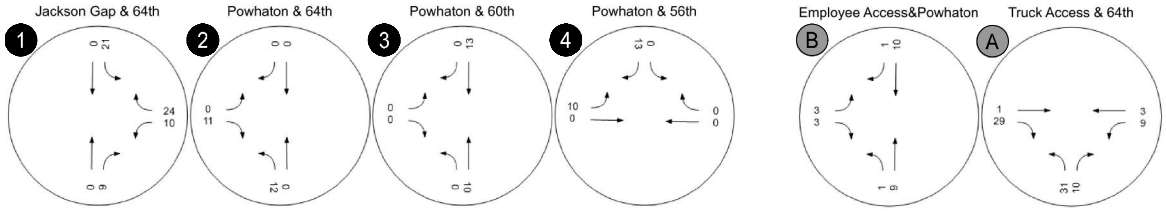
KITTELSON & ASSOCIATES



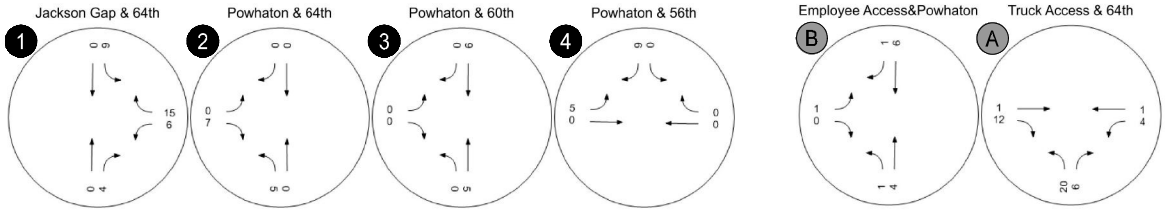
Lane Configurations



Weekday AM Peak Hour



Weekday PM Peak Hour



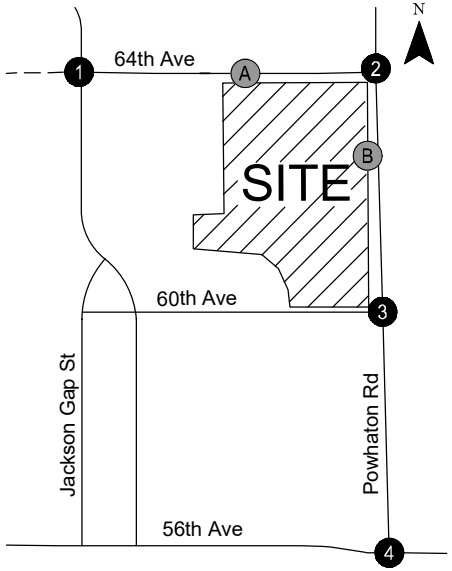
STOP - Stop Sign
---- - Future Roadway
↔ - Trip Distribution

Costco Depot Trip Assignment Volumes
Weekday AM and PM Peak Hour
Aurora, Colorado

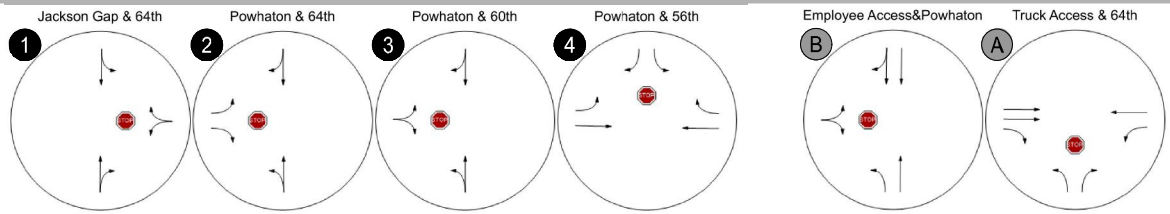
Figure 9

KITTELSON & ASSOCIATES

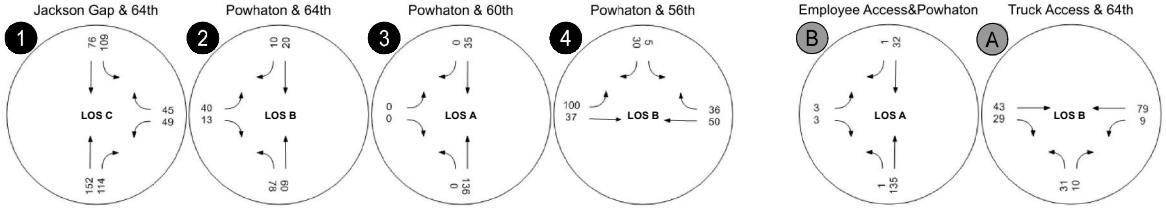
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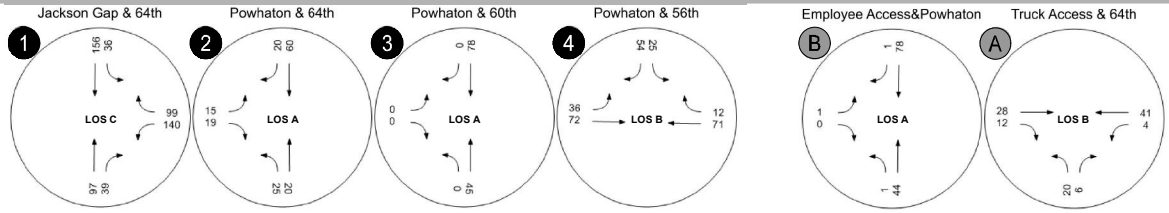
Lane Configurations



Weekday AM Peak Hour



Weekday PM Peak Hour



STOP - Stop Sign

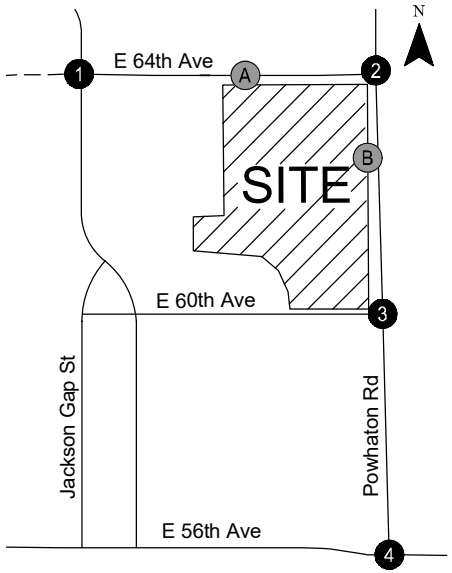
---- - Future Roadway

Year 2020 Total Traffic Conditions
Weekday AM and PM Peak Hour
Aurora, Colorado

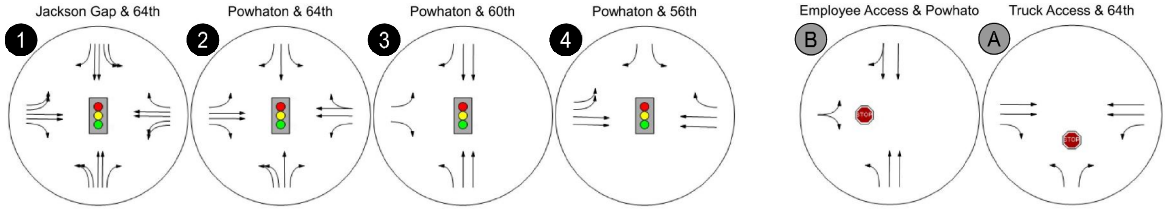
Figure
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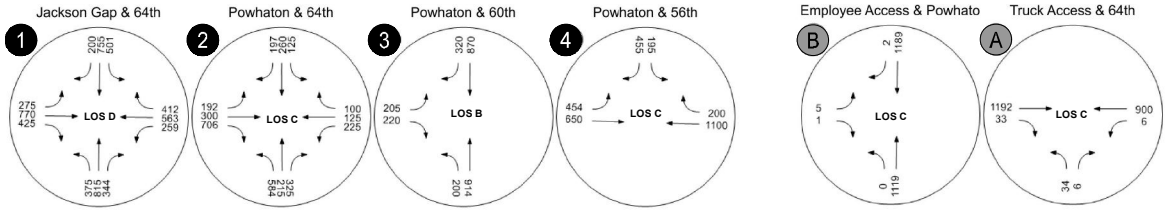
KITTELSON & ASSOCIATES



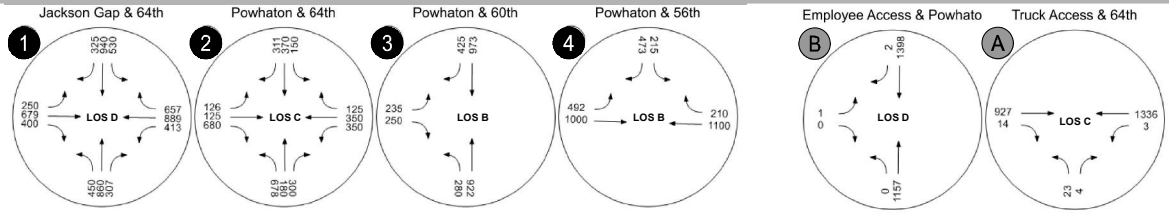
Lane Configurations



Weekday AM Peak Hour



Weekday PM Peak Hour



- Traffic Signal

---- - Future Roadway

Year 2040 Total Traffic Conditions
Weekday AM and PM Peak Hour
Aurora, Colorado

Figure
15

H:\24\24055 - Aurora Costco Depot\report\fig\AutoCAD\24055 Figure 001_street edit.dwg Aug 09, 2019 - 8:57am - ahunter Layout Tab: 2040 Total Traffic

KITTELSON & ASSOCIATES

FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

MEMORANDUM

TO: Chris Fellows, Velocity Metropolitan District No. 1

FROM: Philip J. Dunham, PE

DATE: January 7th, 2020

SUBJECT: **Porteos ISP Traffic Analysis (64th Avenue & Powhaton Road)**
(FHU No. 119296-01)

The purpose of this memorandum is to summarize future traffic projections for the intersection of 64th Avenue & Powhaton Road in the Porteos development of Aurora, Colorado, and to update lane geometry recommendations compared to the previous Porteos traffic studies. Information from new development plans and recent transportation studies were utilized to develop a "blended" forecast of traffic volumes and operations at this intersection. Intersection operations analyses were conducted using methodology outlined in the 6th Edition of the *Highway Capacity Manual* (HCM, 2017). Levels of Service (LOS) and 95th percentile queue lengths were referenced to provide lane geometry recommendations.

2040 Traffic Projections

Several studies were referenced in developing the forecasts shown in this memorandum. One of the foundation studies used in this analysis is the Aurora Northeast Area Transportation Study (NEATS) Refresh. This study presented results of travel demand modeling for the area. Traffic impact studies prepared to consider specific impacts of a maximum build out scenario were also used to develop "blended" traffic forecasts. These "blended" forecasts begin with the master Porteos Traffic Study information and then refines the numbers by adjusting to trip generation for known land uses as they compare to those presented in the master studies. These traffic studies include:

- Porteos Master Traffic Impact Study Update
- Porteos PA-7 Groot Distribution Center
- Porteos PA-5 JAG Logistics Center
- 64th Avenue ISP

NEATS results were not available at the time the master study was completed, so this approach produces very different projections than shown in the master Porteos Traffic Study. All subsequent Porteos traffic studies utilized the NEATS Refresh study to aid in determining background traffic volumes. The Groot and JAG studies refined traffic forecasts for specific planning areas within the larger Porteos development area. These two studies were used primarily as the basis for determining traffic volumes on Powhaton Road. The more recent 64th Avenue ISP has informed a reduction in through traffic expected along 64th Avenue which reflects reduced development plans from properties to the west of Porteos. These volumes also consider that that 60th Avenue is no longer planned to continue east beyond Jackson Gap Street.

Figure 1 presents the final set of 2040 traffic volume projections for the intersection 64th Avenue & Powhaton Road intersection. Daily and peak hour traffic volumes on each approach leg are lower than the

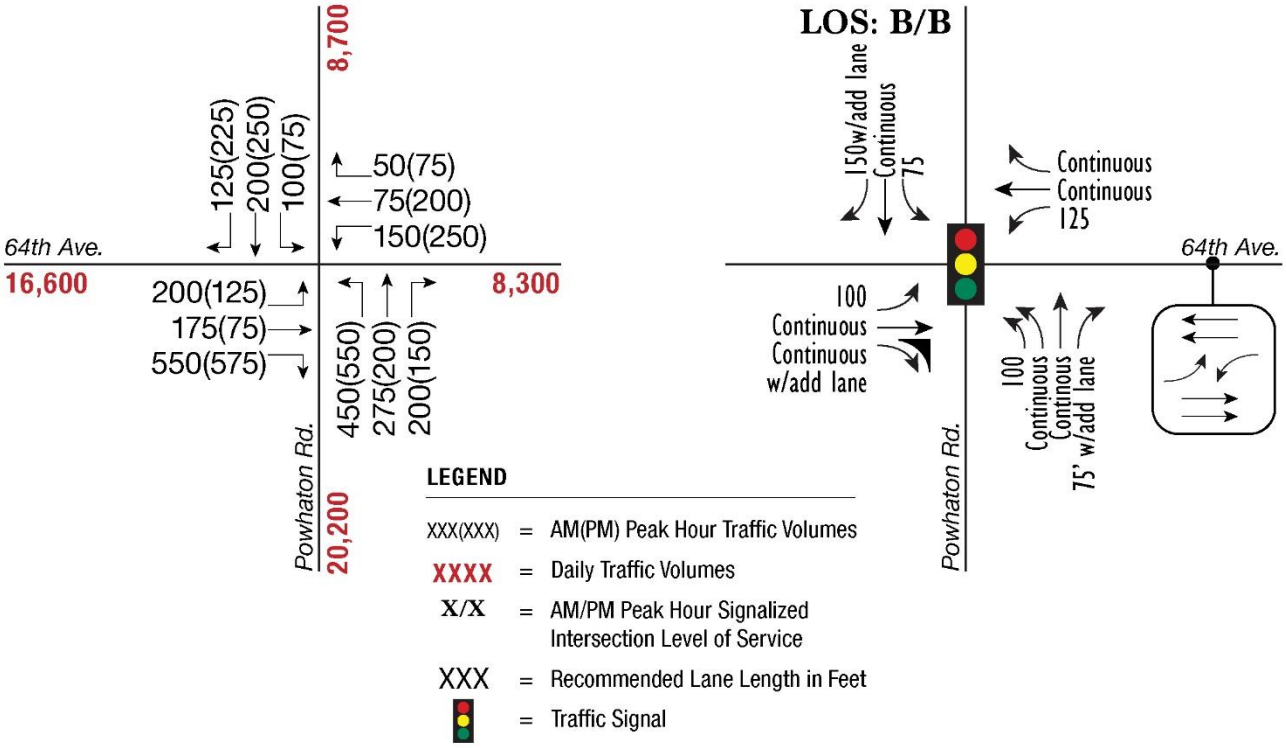
previous Porteos studies, but they are generally higher than 2040 volumes presented in the NEATS refresh study.

2040 Traffic Analysis

Using peak hour projections from **Figure 1**, intersection LOS were calculated to help identify appropriate lane geometry and are attached for reference. Additionally, the Colorado State Highway Access Code (CDOT SHAC) was referenced to determine the need for left-turn and right-turn storage lanes. The 95th percentile queue lengths associated with peak hour operations were used to inform storage lane length recommendations.

Figure 1 also displays peak hour traffic operations and geometry recommendations for the 64th Avenue & Powhaton Road; 64th Avenue will be a four-lane roadway west and east of Powhaton Road. Traffic analysis worksheets are attached to this memorandum.

Figure 1. Year 2040 Traffic Conditions



As shown, the intersection will operate at LOS B during both peak hours. Dedicated turn lanes should be provided for all turning movements on each approach. Dual left-turn lanes should be installed on the northbound approach. Each turn lane should have its own storage length with two exceptions; the eastbound right-turn and outside northbound left-turn lanes should be continuous to allow transition between the 4-lane roads (64th Avenue west of Powhaton Road and Powhaton Road south of 64th Avenue) and the 2-lane roads (north and east legs). The eastbound right-turn lane should be channelized and given an acceleration lane onto southbound Powhaton Road to create a free operating condition.

TRANSPORTATION IMPACT STUDY

Porteos PA 7 – Groot Property; Karcher Facility
64th Avenue in Aurora

Prepared for:

SunCap Property Group
6101 Carnegie Boulevard, Suite 180
Charlotte, NC 28209

Prepared by:

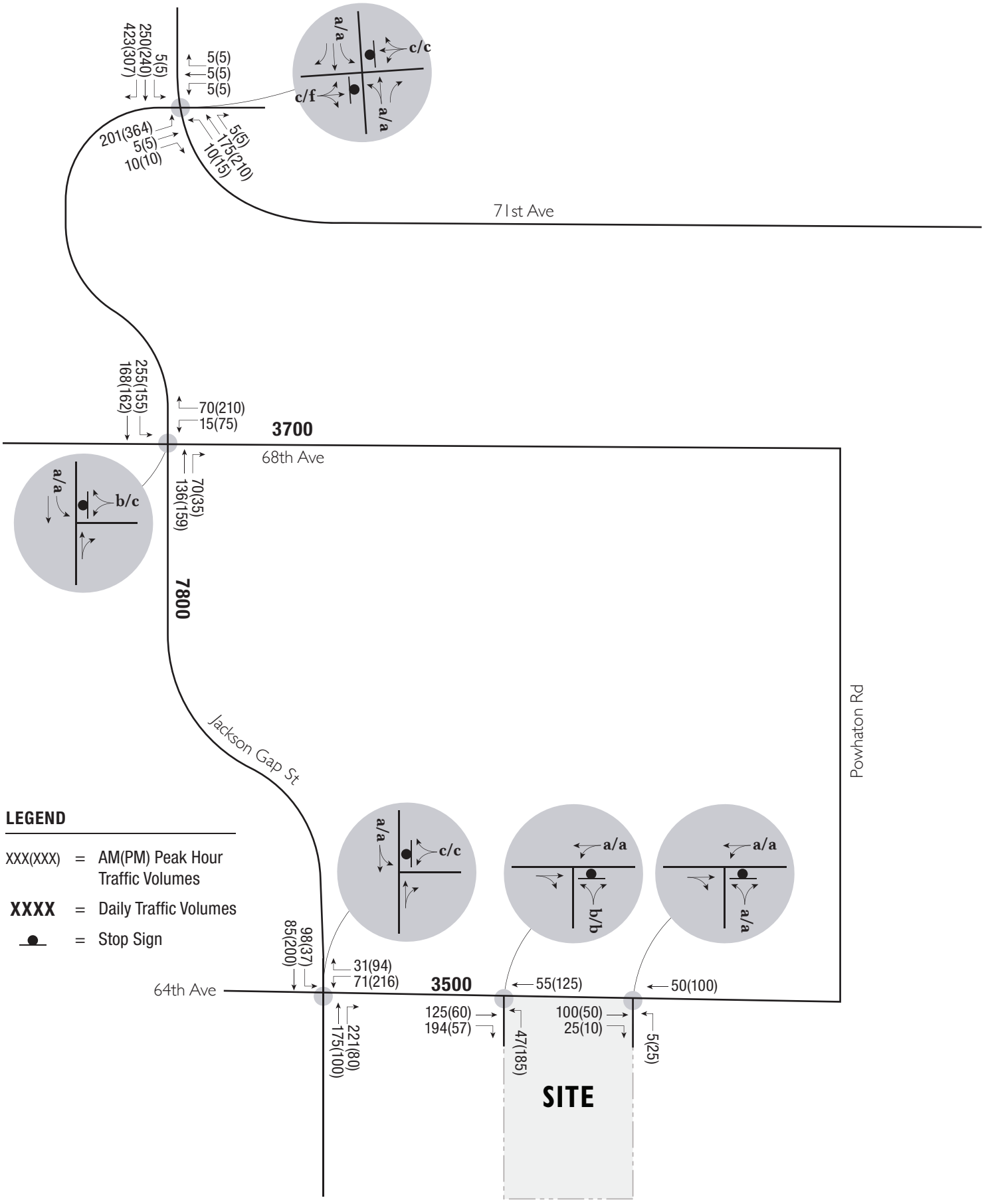
Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111
303.721.1440

Project Manager: Christopher J. Fasching, PE, PTOE
Project Manager: Philip Dunham, PE



FHU Reference No. 118348-01

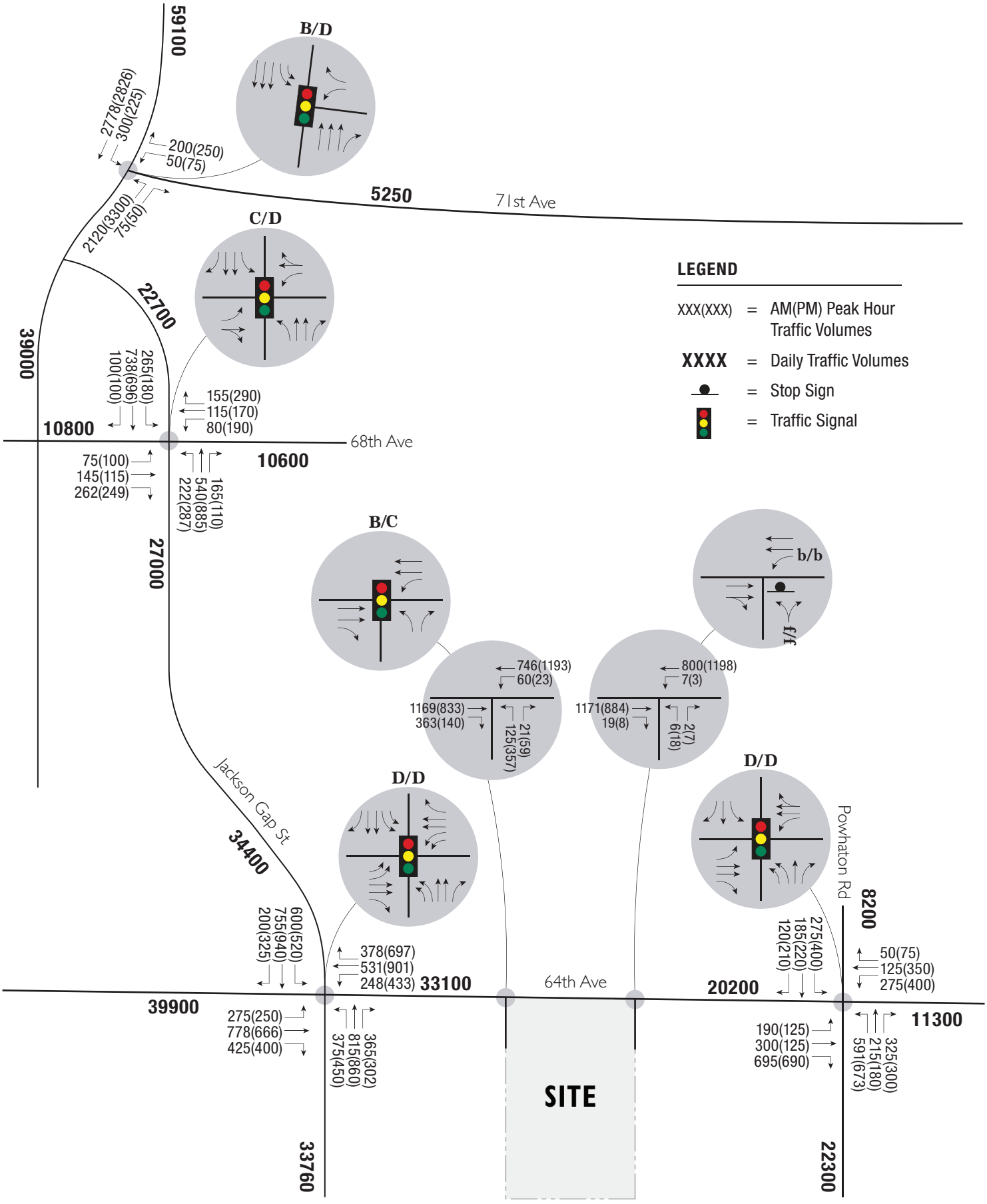
February 2019



FELSBURG HOLT & ULLEVIG

Short Range Future (2020) Total Traffic Conditions | FIGURE 6

Porteos Groot Distribution Center 18348-01 12/10/18



FELSBURG HOLT & ULLEVIG

Long Range Future (2040) Total Traffic Conditions

Porteos Groot Distribution Center 18348-01 12/10/18

FIGURE 7

TRANSPORTATION IMPACT STUDY

Porteos PA 5 – JAG Logistics Center at DIA
68th Avenue and Powhaton Road in Aurora

Prepared for:

Green Industrial Development Group, LLC
10 Glenville Street
Greenwich, CT 06831

Prepared by:

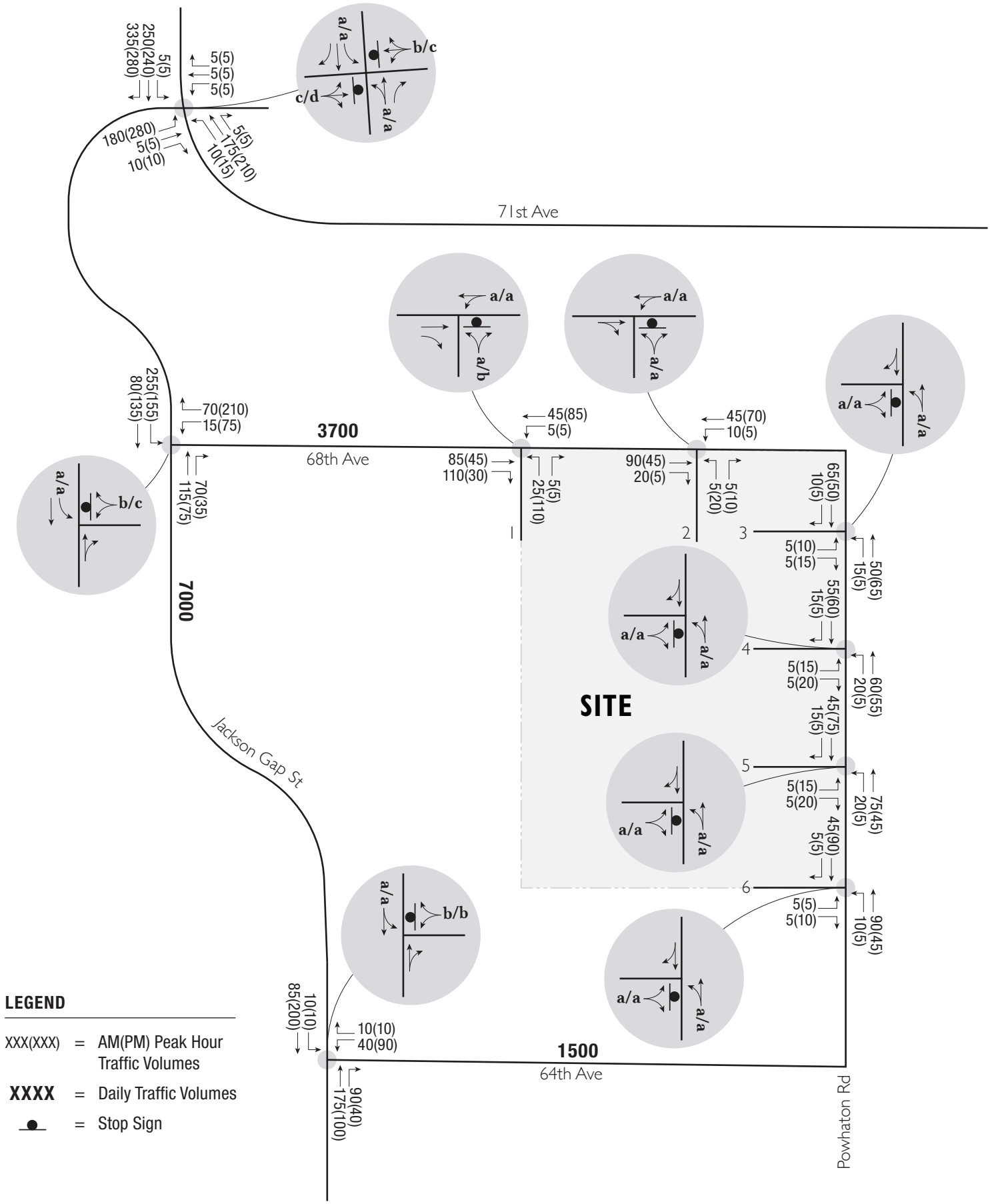
Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111
303.721.1440

Project Manager: Christopher J. Fasching, PE, PTOE
Project Manager: Philip Dunham, PE

FELSBURG HOLT & ULLEVIG
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FHU Reference No. 118232-03

June 2019



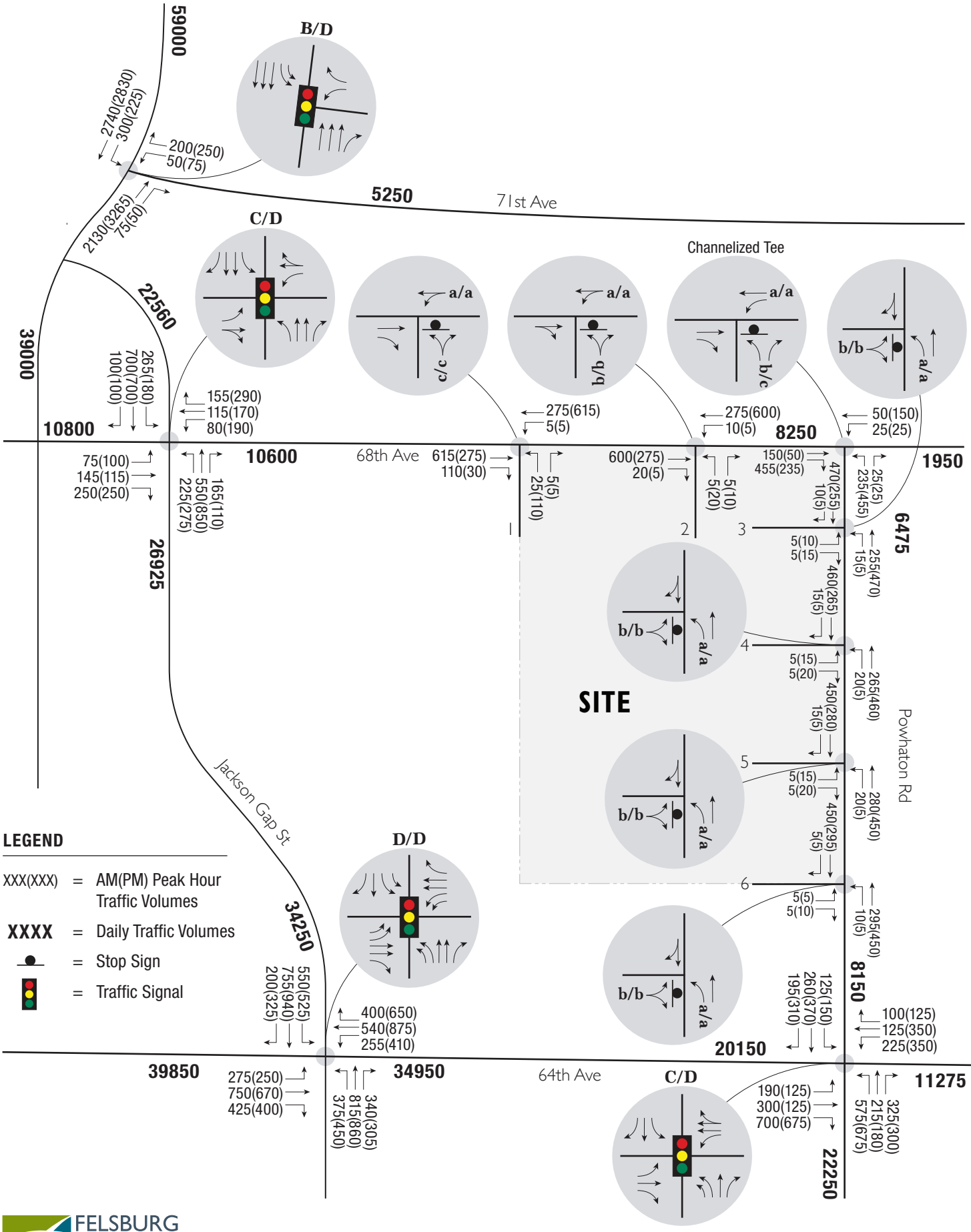
LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
●	=	Stop Sign

FELSBURG HOLT & ULLEVIG

Short Range Future (2020) Total Traffic Conditions | **FIGURE 6**

Porteos PA-5 Distribustion Building 18232-03 11/8/18



FELSBURG HOLT & ULLEVIG

Long Range Future (2040) Total Traffic Conditions

Porteos PA-5 Distribustion Building 18232-03 1/24/19

FIGURE 7

TRANSPORTATION IMPACT STUDY

Porteos – Project Pearl in Aurora

Prepared for:

Ryan Companies
533 South Third Street, Suite 100
Minneapolis, MN 55415

Prepared by:

Felsburg Holt & Ullevig
6400 S Fiddlers Green Circle, Suite 1500
Greenwood Village, CO 80111
303.721.1440

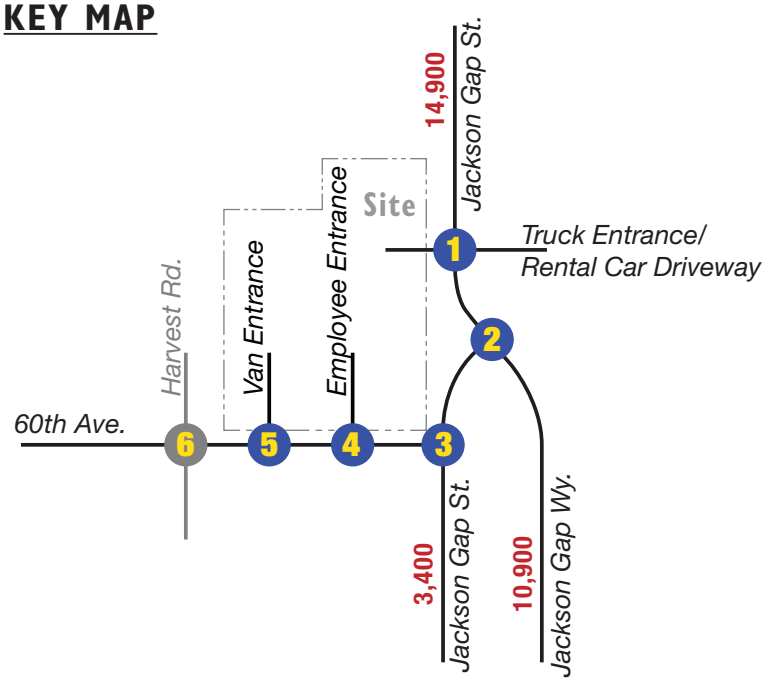
Principal: Christopher J. Fasching, PE, PTOE
Project Manager: Philip Dunham, PE, PTOE

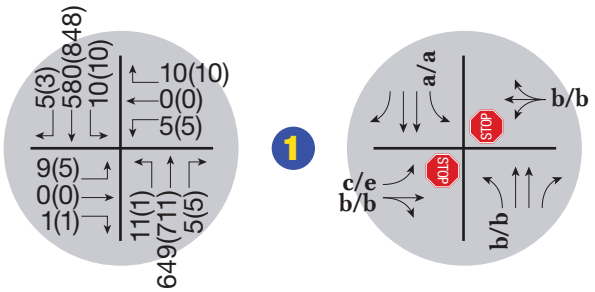


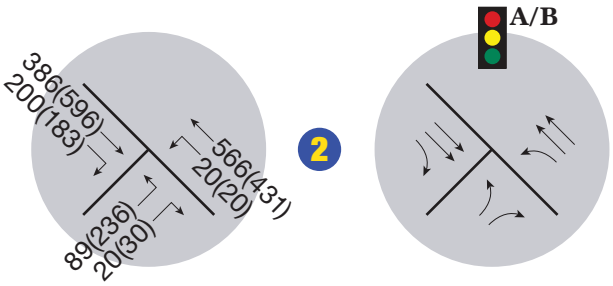
FHU Reference No. 120196-01

September 2020

KEY MAP

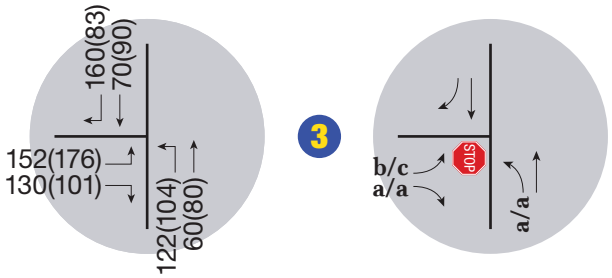


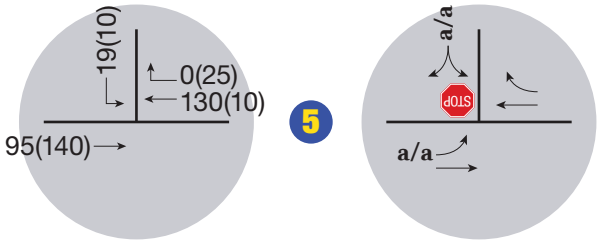


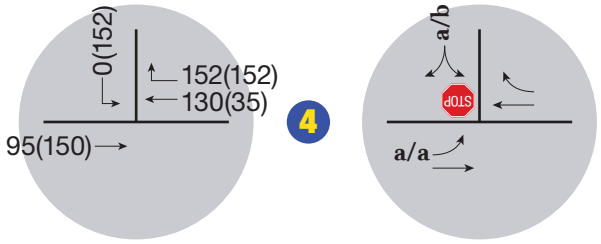


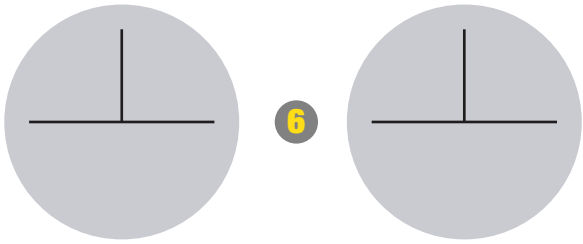
LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signal









NORTH

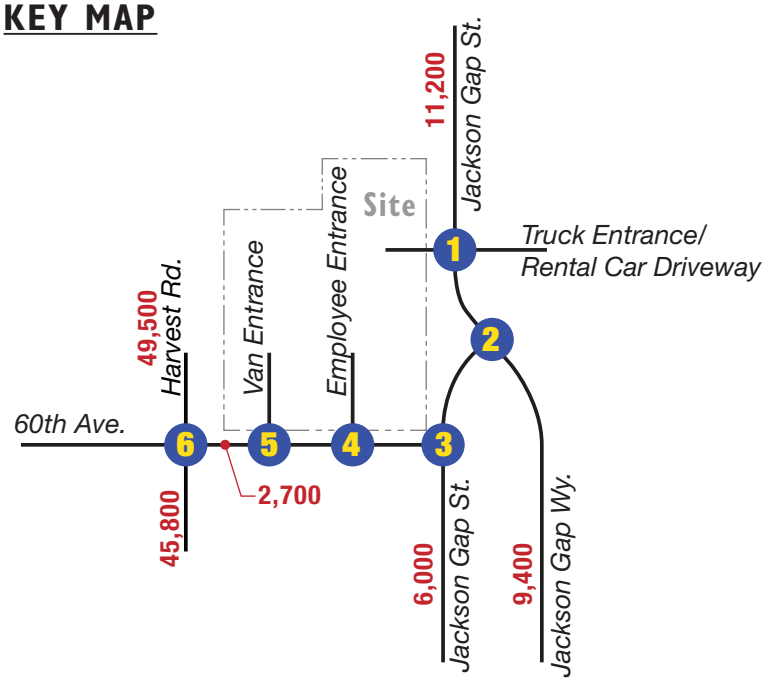
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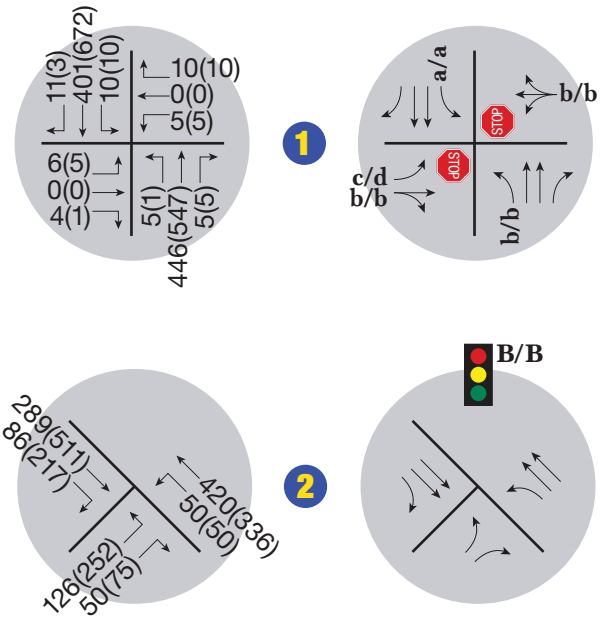
FELSBURG HOLT & ULLEVIG

FIGURE 6
Short-Term (2025) Total Traffic Volumes and Operations

Project Pearl 20-196 8/31/20

KEY MAP





LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signal

NOTE: Drawing Not to Scale

FELSBURG HOLT & ULLEVIG

NORTH

FIGURE 7

Long-Term (2040) Total Traffic Volumes and Operations

Project Pearl 20-196 8/31/20

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

Porteos Distribution Facility (Lot 10B)

Aurora, Colorado

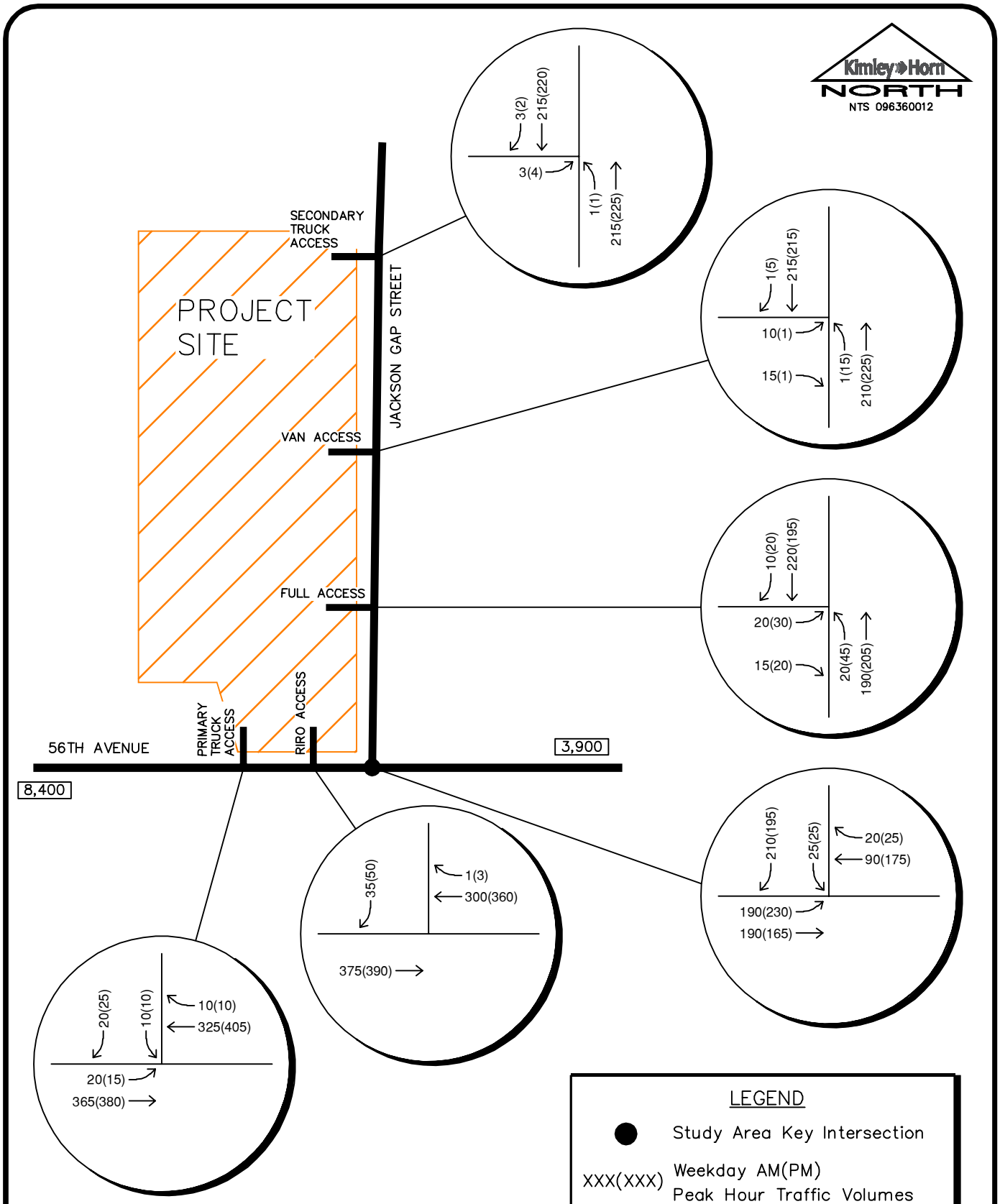
Prepared for
SunCap Poperty Group, LLC
1125 17th Street
Suite 800
Denver, CO 80202

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



January 2021

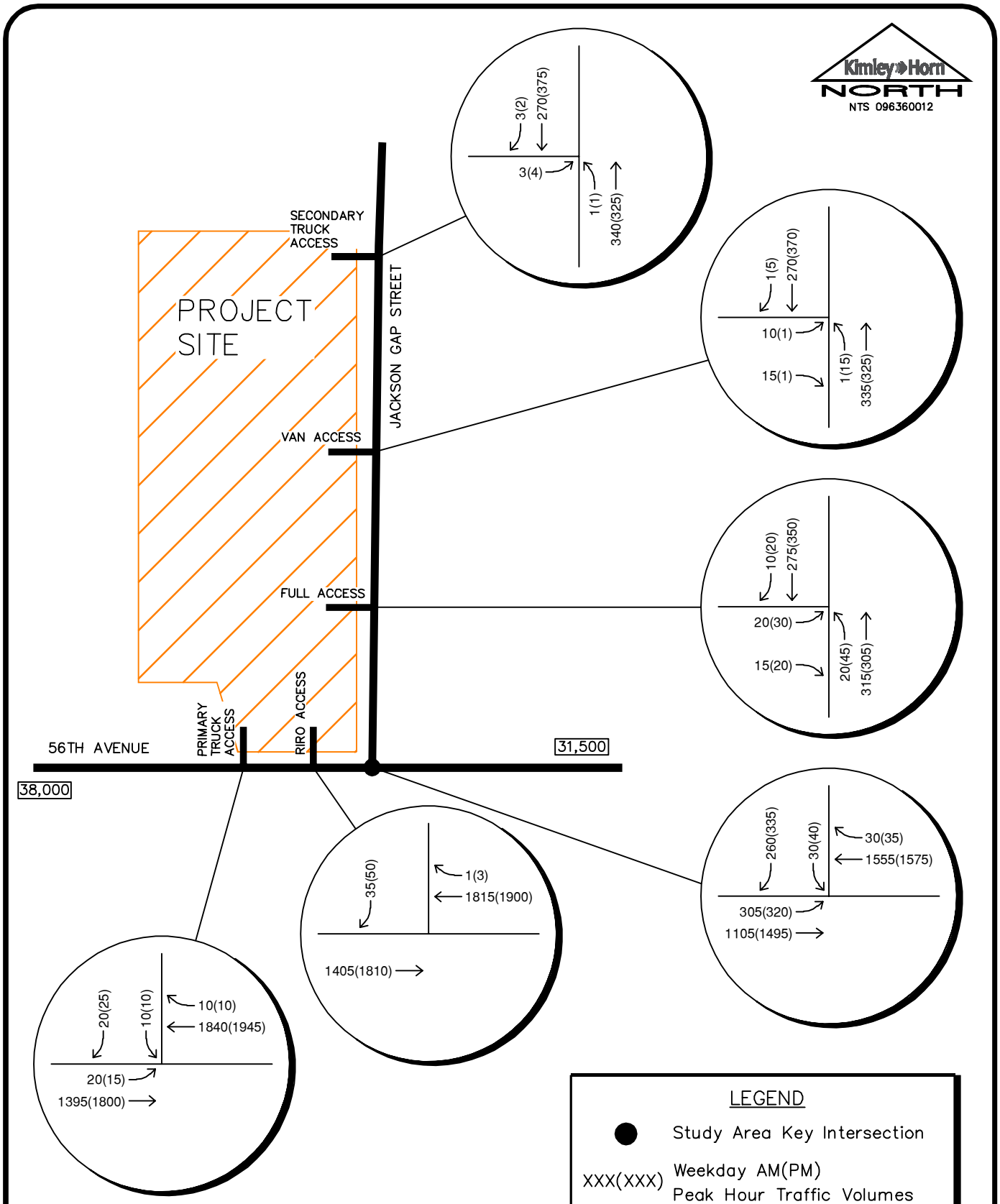
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates,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



PORTEOS DISTRIBUTION FACILITY
AURORA, CO
2023 BACKGROUND
PLUS PROJECT TRAFFIC VOLUMES

FIGURE 9

Kimley»Horn



PORTEOS DISTRIBUTION FACILITY
AURORA, CO
2040 BACKGROUND
PLUS PROJECT TRAFFIC VOLUMES

FIGURE 9

Kimley»Horn

PORTEOS TRAFFIC IMPACT STUDY

AURORA, COLORADO

Prepared for:

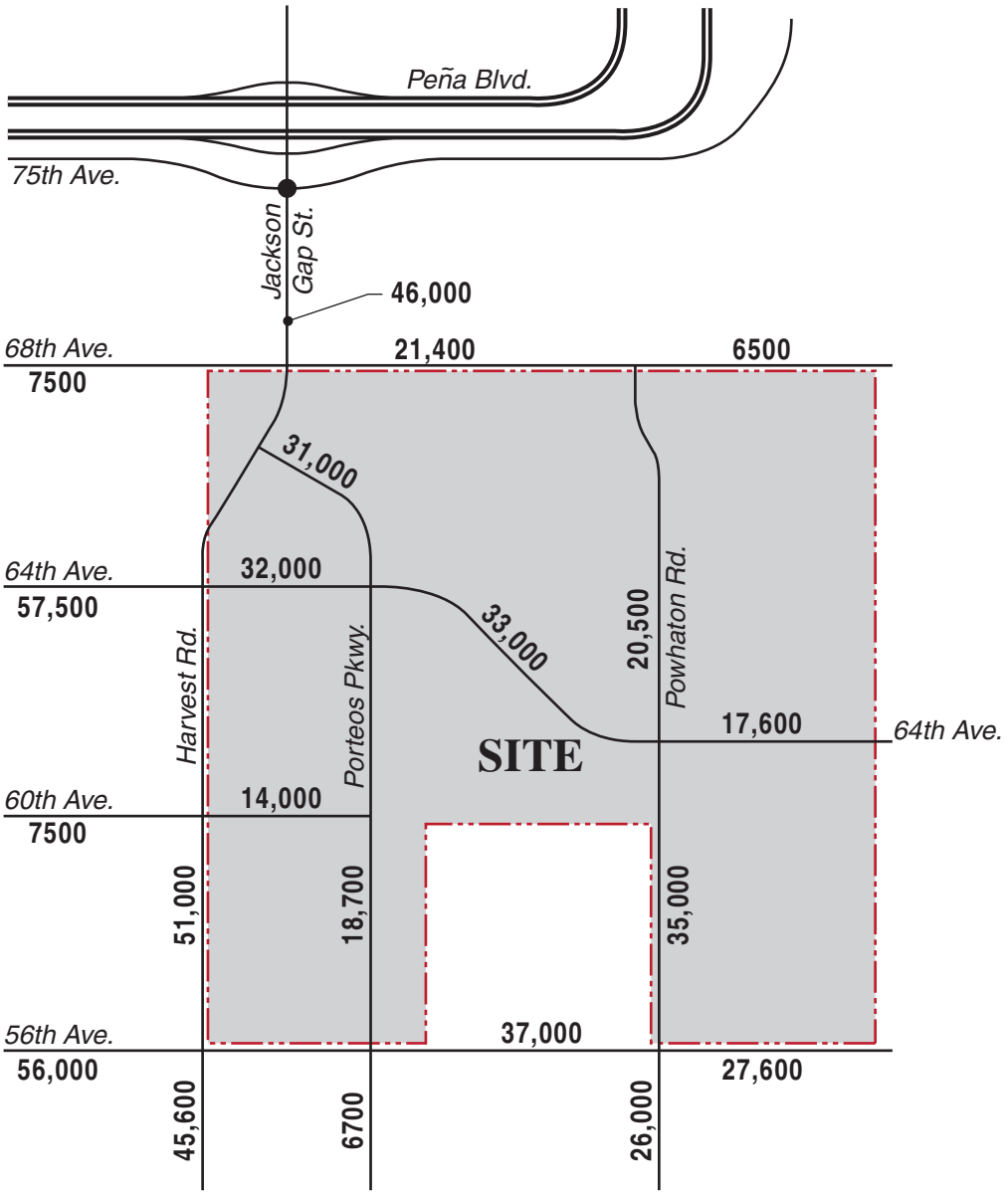
ACP DIA 1287 Investors, LLC
4530 E. Shea Boulevard, Suite 100
Phoenix, AZ 8502801619

Prepared by:

Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111
303/721-1440

Project Manager: Christopher J. Fasching, PE
Project Planner: Shea Suski

FHU Reference No. 11-161-01
January 2012



LEGEND

XXXX = Daily Traffic Volumes

Figure 10
Long-Term Total Projected Traffic

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NORTH

FELSBURG HOLT & ULLEVIG
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MEMORANDUM

TO: Bill Wichterman

FROM: Chris Fasching

DATE: September 10th, 2019

SUBJECT: **Porteos – 60th Avenue**
FHU Reference Number 119440-01

This memorandum provides insight with respect to roadway planning within the Porteos master plan. Specifically, the notion of eliminating 60th Avenue between Jackson Gap Street and Powhaton Road from the Framework Master Plan (FDP) is being proposed in light of development proposals that have evolved adjacent to the 60th Avenue land line and these developments not utilizing a 60th Avenue roadway for access.

The Porteos Traffic Impact Study Update, prepared by FHU in April 2017, addressed the entire Porteos Master Plan (approximately 1,288 acres) relative to the daily traffic loadings onto the major roadways within and along the perimeter of the FDP master plan. This segment of 60th Avenue was included in that study, and a total of 7,200 vehicles per day (vpd) were projected to use that segment of 60th Avenue given full buildout of Porteos and assuming Porteos would reach its maximum allowed density. Information is presented here that illustrates the changes in daily traffic along other roadways without this segment of 60th Avenue as well as providing a sense of potential auxiliary lane needs as a result.

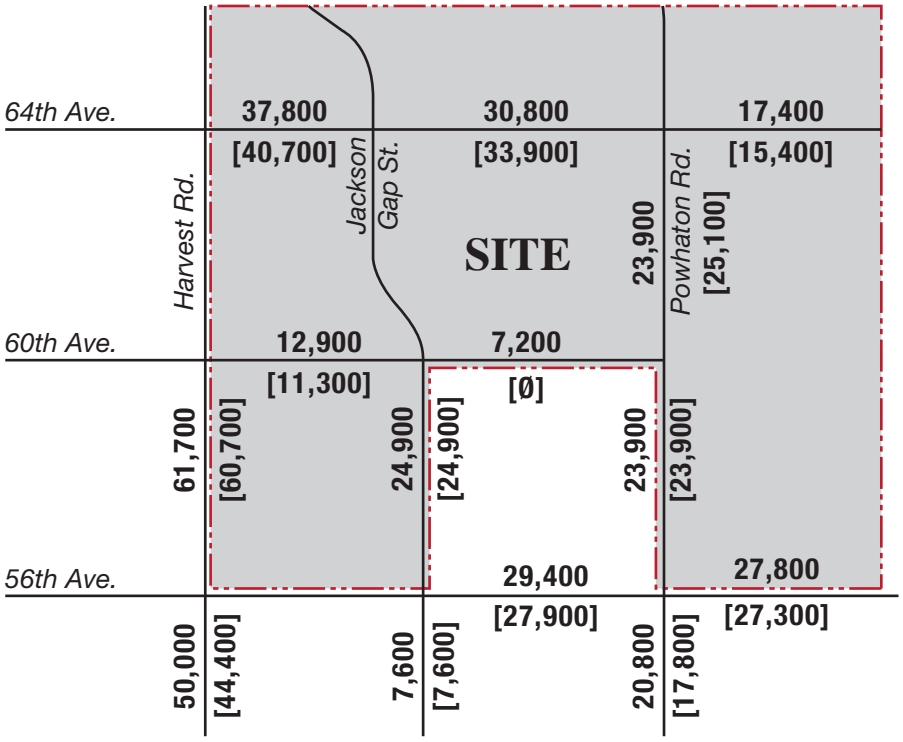
TRAFFIC PROJECTIONS

Since the completion of the April 2017 study, several large parcels within the Porteos development have undergone an entitlement process or are currently working through an entitlement process. These include:

- JAG Distribution Center located southwest of 68th Avenue and Powhaton Road
- Karcher Industries (Groot) located along the south side of 64th Avenue halfway between Jackson Gap Street and Powhaton Road
- Costco Distribution Center located southwest of 64th Avenue and Powhaton Road

These three developments collectively represent approximately 160 acres, and actual proposed uses have been estimated to generate 35 percent fewer daily trip estimates as compared to the same 160 acres as represented in the Porteos master plan traffic study (7,460 trips per day per actual site plans versus 11,560 estimated associated with the FDP). The 35 percent reduction provides a sense of how conservative the master plan traffic study might be with respect to the FDP's trip-making (the April 2017 study reflects the maximum allowed build out of every acre within Porteos, so the resulting traffic projections should be considered conservatively high). For purposes of this memorandum, land use information was not updated relative to the April 2017 study, which will allow for a more direct comparison between a "with" and "without" 60th Avenue scenario, but an update would yield lower traffic projections based on known development proposals.

Also, since the completion of the April 2017 master study update, the City has completed a refresh of the NEATS Transportation Plan. This resource was used in adjusting the background traffic along the Porteos



LEGEND

XXXX = Daily Traffic Volumes With 60th Ave. per April 2017 Study

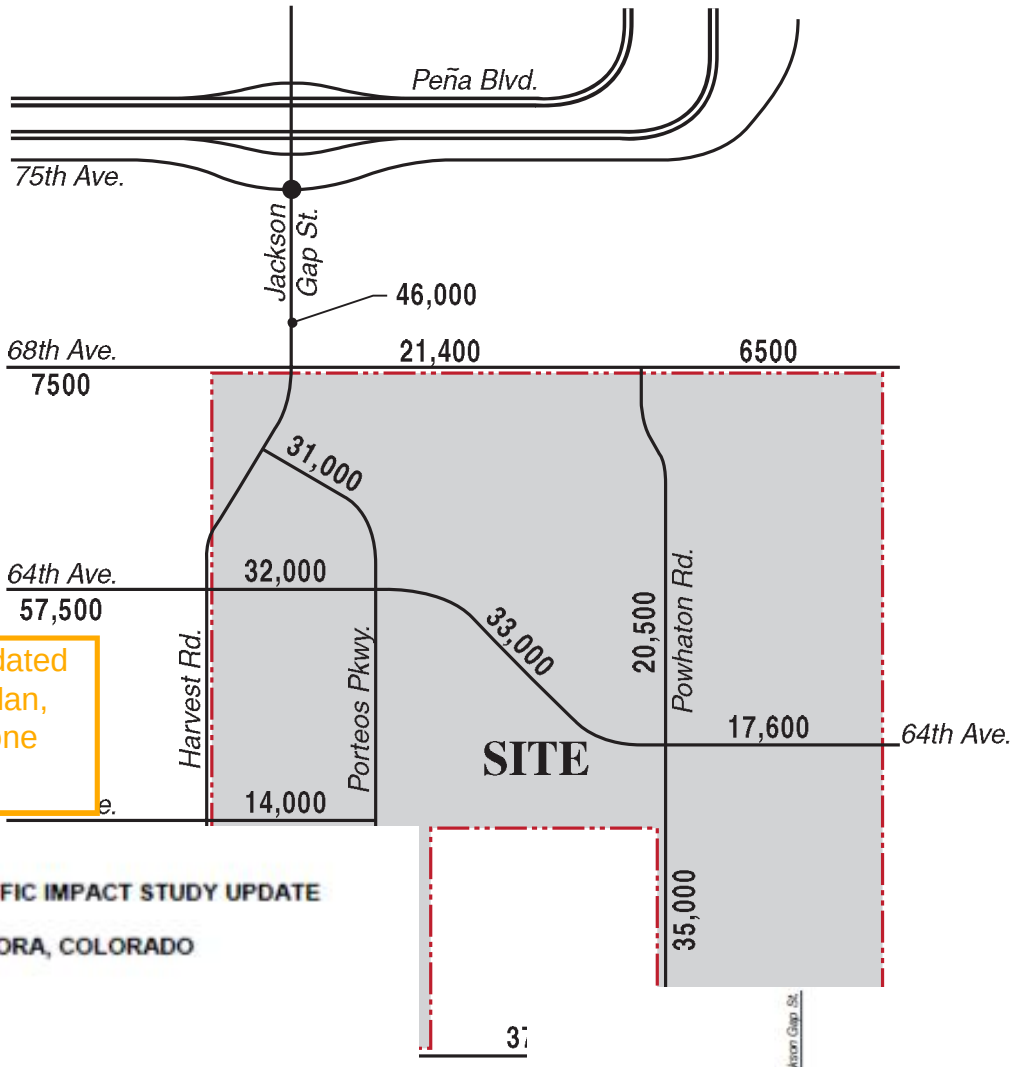
[XXXX] = Daily Traffic Volumes Without 60th Ave. & Updated per NEATS including Refresh Projections (see text)

FELSBURG HOLT & ULLEVIG

NORTH

Long-Term Total Projected Traffic | FIGURE 3

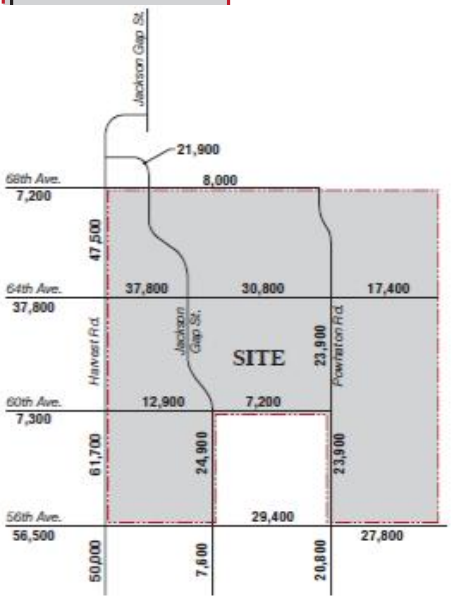
Porteos 60th Avenue Asessment 19440 9/09/19



There was an updated Porteos Master Plan, please use later one

PORTEOS TRAFFIC IMPACT STUDY UPDATE

AURORA, COLORADO



LEGEND

XXXX – Daily Traffic Volumes

NOTE:
This report includes 60th Avenue extending east to Powhaton Road. Construction of the segment between Jackson Gap Road and Powhaton Road is subject to future agreements. See text.

Figure 5
Long-Term Total Projected Traffic

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Project Planner: Shea Suski

FHU Reference No. 115-464
April 2017

Northeast Area Transportation Study Refresh

October 2018

Submitted to

City of Aurora
Planning & Development Services Department

15151 E. Alameda Parkway, 2nd Floor, Suite 2300
Aurora, CO 80012

Submitted by

David Evans and Associates, Inc.

1600 Broadway, Suite 800
Denver, CO 80202

Figure ES-3.
Recommended Roadway Network

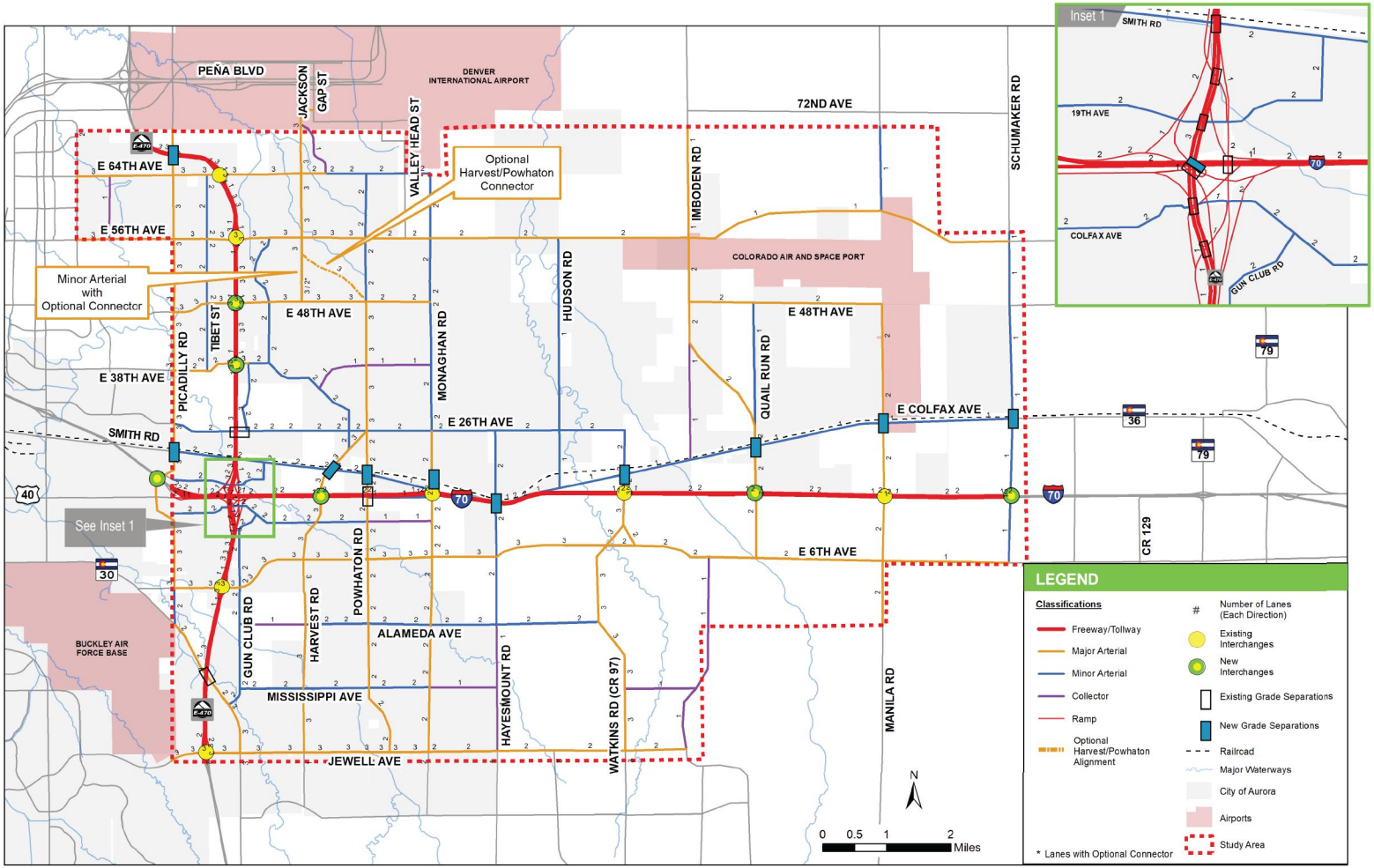
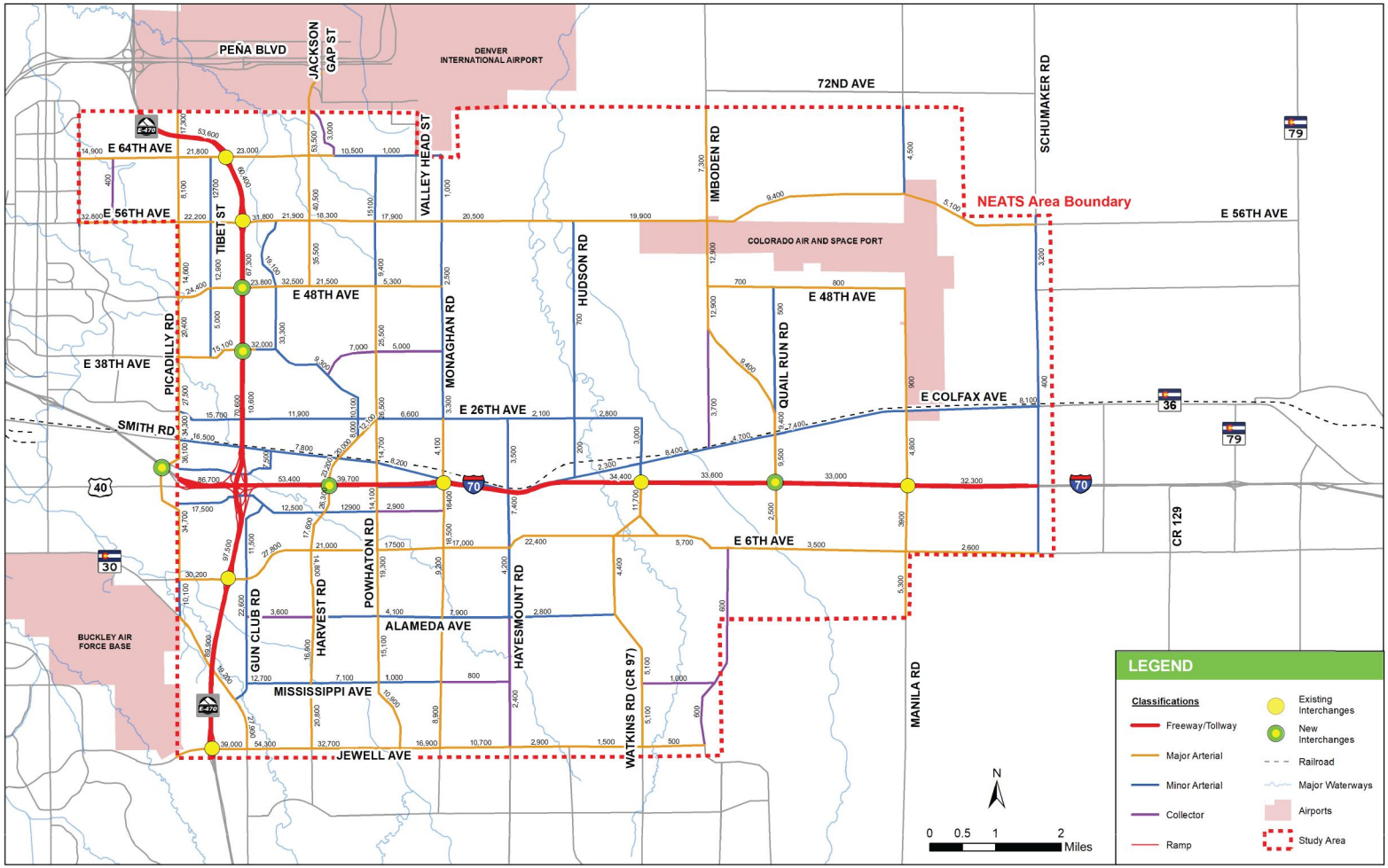


Figure 11.
2040 Daily Traffic Volumes



APPENDIX B

Trip Generation Worksheets

Kimley»Horn

Project	Porteos Industrial (SEC 64th Ave & Powhaton Rd)				
Subject	Trip Generation for Industrial Park				
Designed by	JRP	*Date*	June 07, 2021	*Job No.*	196008000
Checked by		*Date*		*Sheet No.*	1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Industrial Park (130)

Independant Variable - 1000 Square Feet Gross Floor Feet (X)
Gross Floor Area = 1,653,000
X = 1653.0
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (100 Series Page 22)

Directional Distribution: 81% ent. 19% exit.
T = 0.40 (X) T = 661 Average Vehicle Trip Ends
T = 0.40 * 1653 535 entering 126 exiting

535 + 126 = 661

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (100 Series Page 23)

Directional Distribution: 21% ent. 79% exit.
T = 0.40 (X) T = 662 Average Vehicle Trip Ends
T = 0.40 * 1653 139 entering 523 exiting

139 + 523 = 662

Weekday (100 Series Page 21)

Directional Distribution: 50% entering, 50% exiting
T = 3.37 (X) T = 5572 Average Vehicle Trip Ends
T = 3.37 * 1653 2786 entering 2786 exiting

2786 + 2786 = 5572

APPENDIX C

Intersection Analysis Worksheets

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	48	162	121	116	81
Future Vol, veh/h	52	48	162	121	116	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	57	52	176	132	126	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	516	176	0	0	308	0
Stage 1	176	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	502	842	-	-	1198	-
Stage 1	831	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	449	842	-	-	1198	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	4.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	449	842	1198	-
HCM Lane V/C Ratio	-	-	0.126	0.062	0.105	-
HCM Control Delay (s)	-	-	14.2	9.6	8.4	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.4	-

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	149	106	103	42	39	166
Future Vol, veh/h	149	106	103	42	39	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	162	115	112	46	42	180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	376	112	0	0	158	0
Stage 1	112	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	610	920	-	-	1374	-
Stage 1	893	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	591	920	-	-	1374	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	591	920	1374	-
HCM Lane V/C Ratio	-	-	0.274	0.125	0.031	-
HCM Control Delay (s)	-	-	13.4	9.5	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.4	0.1	-

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	80	162	121	250	81
Future Vol, veh/h	52	80	162	121	250	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	57	87	176	132	272	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	808	176	0	0	308	0
Stage 1	176	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	337	842	-	-	1198	-
Stage 1	831	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	261	842	-	-	1198	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	6.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	261	842	1198	-
HCM Lane V/C Ratio	-	-	0.217	0.103	0.227	-
HCM Control Delay (s)	-	-	22.6	9.8	8.9	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	0.9	-

Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	149	237	103	42	74	166
Future Vol, veh/h	149	237	103	42	74	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	162	258	112	46	80	180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	452	112	0	0	158	0
Stage 1	112	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	551	920	-	-	1374	-
Stage 1	893	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	519	920	-	-	1374	-
Mov Cap-2 Maneuver	519	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	662	-	-	-	-	-

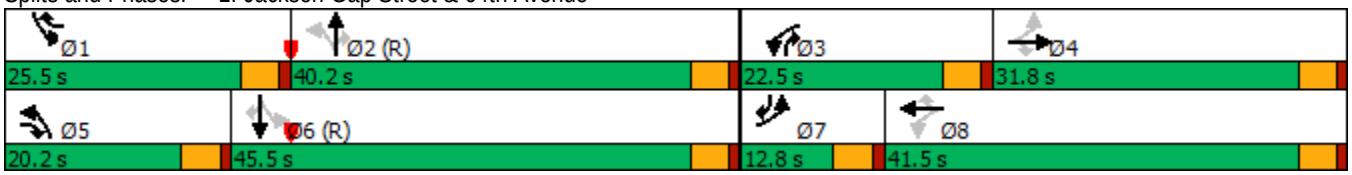
Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	2.4
HCM LOS	B		

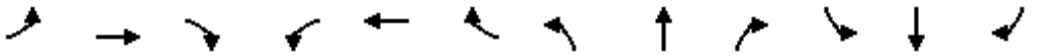
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	519	920	1374	-
HCM Lane V/C Ratio	-	-	0.312	0.28	0.059	-
HCM Control Delay (s)	-	-	15.1	10.4	7.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.3	1.2	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	679	400	413	889	657	450	860	307	530	940	325
Future Volume (vph)	250	679	400	413	889	657	450	860	307	530	940	325
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	12.8	31.8	20.2	22.5	41.5	25.5	20.2	40.2	22.5	25.5	45.5	12.8
Total Split (%)	10.7%	26.5%	16.8%	18.8%	34.6%	21.3%	16.8%	33.5%	18.8%	21.3%	37.9%	10.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	37.1	28.8	48.9	49.8	37.0	61.8	51.9	36.4	57.3	60.9	41.2	54.0
Actuated g/C Ratio	0.31	0.24	0.41	0.42	0.31	0.52	0.43	0.30	0.48	0.51	0.34	0.45
v/c Ratio	0.82	0.94	0.64	0.82	0.96	0.91	0.93	0.94	0.45	0.89	0.91	0.50
Control Delay	47.0	65.2	24.4	36.5	59.0	48.5	59.9	56.1	13.3	48.1	50.3	19.4
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	47.0	65.2	24.4	36.5	59.0	48.5	59.9	56.1	13.3	48.1	50.3	19.4
LOS	D	E	C	D	E	D	E	E	B	D	D	B
Approach Delay		49.5			50.7			49.1			44.1	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 48.3	Intersection LOS: D
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Jackson Gap Street & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	679	400	413	889	657	450	860	307	530	940	325
Future Volume (veh/h)	250	679	400	413	889	657	450	860	307	530	940	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	272	738	381	449	966	497	489	935	334	576	1022	353
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	359	849	555	549	1020	671	554	1096	668	643	1185	631
Arrive On Green	0.07	0.26	0.26	0.12	0.31	0.31	0.12	0.33	0.33	0.15	0.36	0.36
Sat Flow, veh/h	3237	3328	1485	3237	3328	1485	3237	3328	1485	3237	3328	1485
Grp Volume(v), veh/h	272	738	381	449	966	497	489	935	334	576	1022	353
Grp Sat Flow(s),veh/h/ln	1618	1664	1485	1618	1664	1485	1618	1664	1485	1618	1664	1485
Q Serve(g_s), s	7.4	25.5	26.0	11.7	34.0	33.1	11.8	31.4	19.2	14.4	34.2	21.5
Cycle Q Clear(g_c), s	7.4	25.5	26.0	11.7	34.0	33.1	11.8	31.4	19.2	14.4	34.2	21.5
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	359	849	555	549	1020	671	554	1096	668	643	1185	631
V/C Ratio(X)	0.76	0.87	0.69	0.82	0.95	0.74	0.88	0.85	0.50	0.90	0.86	0.56
Avail Cap(c_a), veh/h	359	849	555	645	1026	673	594	1096	668	740	1185	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	42.8	31.7	29.9	40.7	27.1	27.6	37.5	23.4	28.7	35.9	26.0
Incr Delay (d2), s/veh	9.0	9.6	3.5	4.0	10.8	2.4	14.0	8.5	2.7	12.4	8.4	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	11.5	9.8	4.8	15.3	11.9	5.5	13.9	7.2	6.6	15.1	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	52.4	35.2	34.0	51.5	29.6	41.6	46.0	26.1	41.1	44.3	29.6
LnGrp LOS	D	D	D	C	D	C	D	D	C	D	D	C
Approach Vol, veh/h		1391			1912			1758			1951	
Approach Delay, s/veh		45.8			41.7			41.0			40.7	
Approach LOS		D			D			D			D	

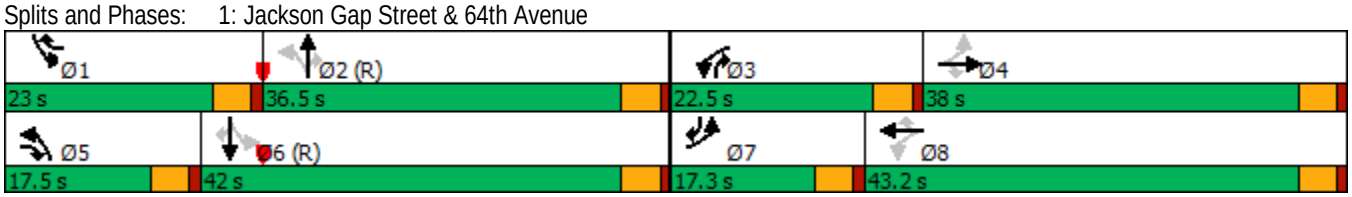
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	44.0	19.0	35.1	18.7	47.2	12.8	41.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.0	35.7	18.0	27.3	15.7	41.0	8.3	37.0
Max Q Clear Time (g_c+I1), s	16.4	33.4	13.7	28.0	13.8	36.2	9.4	36.0
Green Ext Time (p_c), s	1.0	1.6	0.7	0.0	0.4	3.2	0.0	0.8

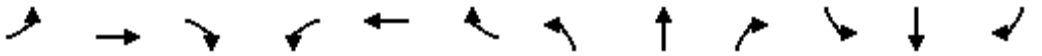
Intersection Summary	
HCM 6th Ctrl Delay	42.1
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	935	425	260	605	440	375	815	345	610	765	200
Future Volume (vph)	275	935	425	260	605	440	375	815	345	610	765	200
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	17.3	38.0	17.5	22.5	43.2	23.0	17.5	36.5	22.5	23.0	42.0	17.3
Total Split (%)	14.4%	31.7%	14.6%	18.8%	36.0%	19.2%	14.6%	30.4%	18.8%	19.2%	35.0%	14.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	50.5	38.9	56.2	52.5	39.9	62.9	44.8	32.0	49.1	55.0	37.7	53.8
Actuated g/C Ratio	0.42	0.32	0.47	0.44	0.33	0.52	0.37	0.27	0.41	0.46	0.31	0.45
v/c Ratio	0.51	0.97	0.62	0.65	0.61	0.61	0.85	1.03	0.58	1.12	0.82	0.31
Control Delay	22.6	62.8	21.1	23.0	35.9	30.3	43.7	81.2	20.1	107.1	46.2	12.6
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	22.6	62.8	21.1	23.0	35.9	30.3	43.7	81.2	20.1	107.1	46.2	12.6
LOS	C	E	C	C	D	C	D	F	C	F	D	B
Approach Delay		45.2			31.4			58.3			65.5	
Approach LOS		D			C			E			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 88.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Jackson Gap Street & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	935	425	260	605	440	375	815	345	610	765	200
Future Volume (veh/h)	275	935	425	260	605	440	375	815	345	610	765	200
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	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	299	1016	408	283	658	261	408	886	375	663	832	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	496	913	555	388	910	631	611	1088	608	677	1260	686
Arrive On Green	0.09	0.28	0.28	0.08	0.28	0.28	0.10	0.33	0.33	0.15	0.39	0.39
Sat Flow, veh/h	3182	3272	1459	3182	3272	1459	3182	3272	1459	3182	3272	1459
Grp Volume(v), veh/h	299	1016	408	283	658	261	408	886	375	663	832	217
Grp Sat Flow(s),veh/h/ln	1591	1636	1459	1591	1636	1459	1591	1636	1459	1591	1636	1459
Q Serve(g_s), s	7.9	33.5	28.8	7.5	21.8	14.8	10.0	29.7	24.2	17.8	25.2	11.1
Cycle Q Clear(g_c), s	7.9	33.5	28.8	7.5	21.8	14.8	10.0	29.7	24.2	17.8	25.2	11.1
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	496	913	555	388	910	631	611	1088	608	677	1260	686
V/C Ratio(X)	0.60	1.11	0.73	0.73	0.72	0.41	0.67	0.81	0.62	0.98	0.66	0.32
Avail Cap(c_a), veh/h	564	913	555	597	1055	696	633	1088	608	677	1260	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	43.3	32.0	31.4	39.1	23.5	24.6	36.7	27.5	30.7	30.4	19.8
Incr Delay (d2), s/veh	1.4	65.6	5.0	1.5	1.2	0.2	2.6	6.7	4.6	29.4	2.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	21.7	10.8	2.9	8.9	5.1	4.0	12.8	9.1	9.4	10.3	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	108.8	37.0	32.9	40.3	23.8	27.2	43.4	32.1	60.1	33.1	21.0
LnGrp LOS	C	F	D	C	D	C	C	D	C	E	C	C
Approach Vol, veh/h		1723			1202			1669			1712	
Approach Delay, s/veh		78.3			35.0			36.9			42.0	
Approach LOS		E			C			D			D	

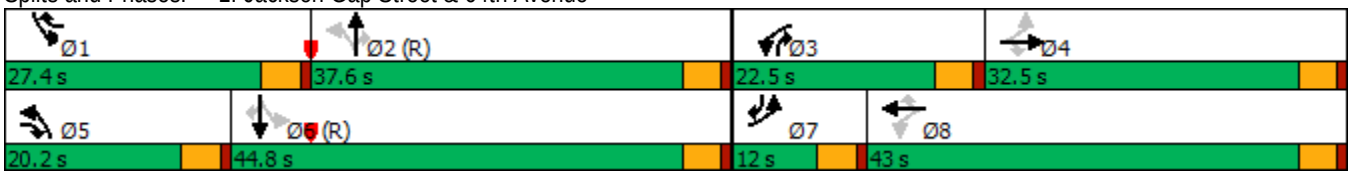
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	44.4	14.6	38.0	16.7	50.7	14.7	37.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	32.0	18.0	33.5	13.0	37.5	12.8	38.7
Max Q Clear Time (g_c+I1), s	19.8	31.7	9.5	35.5	12.0	27.2	9.9	23.8
Green Ext Time (p_c), s	0.0	0.2	0.6	0.0	0.2	4.8	0.3	4.9

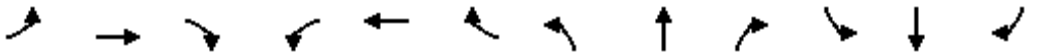
Intersection Summary	
HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	725	400	415	1050	765	450	860	310	560	940	325
Future Volume (vph)	250	725	400	415	1050	765	450	860	310	560	940	325
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	12.0	32.5	20.2	22.5	43.0	27.4	20.2	37.6	22.5	27.4	44.8	12.0
Total Split (%)	10.0%	27.1%	16.8%	18.8%	35.8%	22.8%	16.8%	31.3%	18.8%	22.8%	37.3%	10.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	37.1	29.6	49.7	50.5	38.5	65.9	48.7	33.1	54.0	60.5	40.4	52.4
Actuated g/C Ratio	0.31	0.25	0.41	0.42	0.32	0.55	0.41	0.28	0.45	0.50	0.34	0.44
v/c Ratio	0.88	0.98	0.63	0.83	1.08	1.00	0.93	1.03	0.47	0.85	0.93	0.51
Control Delay	54.9	71.5	23.8	36.3	89.6	64.5	59.2	80.7	14.7	42.9	53.1	20.4
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	54.9	71.5	23.8	36.3	89.6	64.5	59.2	80.7	14.7	42.9	53.1	20.4
LOS	D	E	C	D	F	E	E	F	B	D	D	C
Approach Delay		54.6			71.0			62.1			44.2	
Approach LOS		D			E			E			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 58.8	Intersection LOS: E
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Jackson Gap Street & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	725	400	415	1050	765	450	860	310	560	940	325
Future Volume (veh/h)	250	725	400	415	1050	765	450	860	310	560	940	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	272	788	435	451	1141	560	489	935	337	609	1022	353
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	322	877	572	537	1068	720	553	1007	627	675	1148	605
Arrive On Green	0.06	0.26	0.26	0.12	0.32	0.32	0.12	0.30	0.30	0.16	0.34	0.34
Sat Flow, veh/h	3237	3328	1485	3237	3328	1485	3237	3328	1485	3237	3328	1485
Grp Volume(v), veh/h	272	788	435	451	1141	560	489	935	337	609	1022	353
Grp Sat Flow(s),veh/h/ln	1618	1664	1485	1618	1664	1485	1618	1664	1485	1618	1664	1485
Q Serve(g_s), s	7.4	27.4	30.6	11.7	38.5	37.4	12.3	32.7	20.4	16.7	34.8	22.2
Cycle Q Clear(g_c), s	7.4	27.4	30.6	11.7	38.5	37.4	12.3	32.7	20.4	16.7	34.8	22.2
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	322	877	572	537	1068	720	553	1007	627	675	1148	605
V/C Ratio(X)	0.84	0.90	0.76	0.84	1.07	0.78	0.88	0.93	0.54	0.90	0.89	0.58
Avail Cap(c_a), veh/h	322	877	572	634	1068	720	583	1007	627	761	1148	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	42.6	32.1	29.7	40.8	25.5	28.7	40.6	25.9	32.2	37.2	27.6
Incr Delay (d2), s/veh	18.1	12.1	5.9	4.3	40.4	2.7	14.5	15.7	3.3	13.0	10.5	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	12.6	11.8	4.8	21.5	13.4	5.8	15.4	7.7	7.6	15.7	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	54.7	38.0	34.0	81.2	28.2	43.2	56.3	29.2	45.2	47.6	31.7
LnGrp LOS	D	D	D	C	F	C	D	E	C	D	D	C
Approach Vol, veh/h		1495			2152			1761			1984	
Approach Delay, s/veh		49.4			57.5			47.4			44.1	
Approach LOS		D			E			D			D	

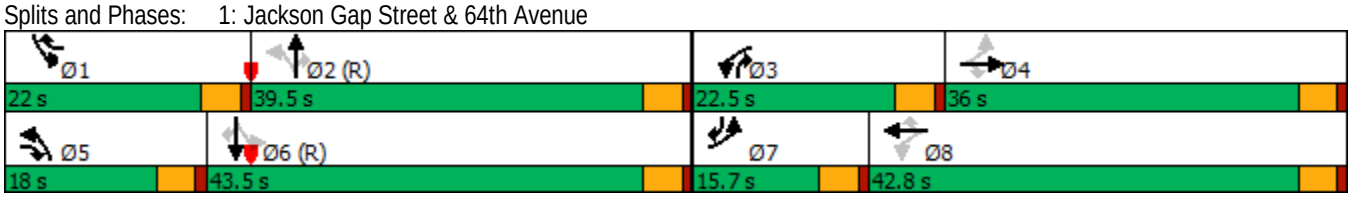
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.2	40.8	18.9	36.1	19.1	45.9	12.0	43.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.9	33.1	18.0	28.0	15.7	40.3	7.5	38.5
Max Q Clear Time (g_c+I1), s	18.7	34.7	13.7	32.6	14.3	36.8	9.4	40.5
Green Ext Time (p_c), s	1.0	0.0	0.7	0.0	0.3	2.4	0.0	0.0

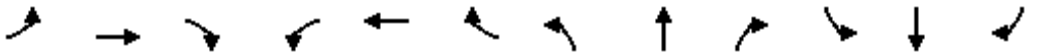
Intersection Summary	
HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	770	425	259	563	412	375	815	344	501	765	200
Future Volume (vph)	275	770	425	259	563	412	375	815	344	501	765	200
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	15.7	36.0	18.0	22.5	42.8	22.0	18.0	39.5	22.5	22.0	43.5	15.7
Total Split (%)	13.1%	30.0%	15.0%	18.8%	35.7%	18.3%	15.0%	32.9%	18.8%	18.3%	36.3%	13.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	46.9	36.0	53.6	50.2	37.8	60.0	48.7	35.6	52.7	57.4	40.3	55.7
Actuated g/C Ratio	0.39	0.30	0.45	0.42	0.32	0.50	0.41	0.30	0.44	0.48	0.34	0.46
v/c Ratio	0.53	0.86	0.66	0.62	0.60	0.60	0.79	0.93	0.56	0.96	0.77	0.30
Control Delay	24.4	50.5	26.1	23.4	37.1	30.5	34.5	54.9	19.4	61.2	41.8	12.4
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	24.4	50.5	26.1	23.4	37.1	30.5	34.5	54.9	19.4	61.2	41.8	12.4
LOS	C	D	C	C	D	C	C	D	B	E	D	B
Approach Delay		38.6			32.0			41.9			44.5	
Approach LOS		D			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Jackson Gap Street & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	275	770	425	259	563	412	375	815	344	501	765	200
Future Volume (veh/h)	275	770	425	259	563	412	375	815	344	501	765	200
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	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	299	837	408	282	612	231	408	886	374	545	832	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	500	859	525	399	859	565	623	1236	676	631	1326	716
Arrive On Green	0.09	0.26	0.26	0.09	0.26	0.26	0.10	0.38	0.38	0.12	0.41	0.41
Sat Flow, veh/h	3182	3272	1459	3182	3272	1459	3182	3272	1459	3182	3272	1459
Grp Volume(v), veh/h	299	837	408	282	612	231	408	886	374	545	832	217
Grp Sat Flow(s),veh/h/ln	1591	1636	1459	1591	1636	1459	1591	1636	1459	1591	1636	1459
Q Serve(g_s), s	8.1	30.4	29.8	7.6	20.4	13.8	9.3	27.7	22.2	12.2	24.3	10.7
Cycle Q Clear(g_c), s	8.1	30.4	29.8	7.6	20.4	13.8	9.3	27.7	22.2	12.2	24.3	10.7
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	500	859	525	399	859	565	623	1236	676	631	1326	716
V/C Ratio(X)	0.60	0.97	0.78	0.71	0.71	0.41	0.65	0.72	0.55	0.86	0.63	0.30
Avail Cap(c_a), veh/h	525	859	525	604	1044	647	672	1236	676	699	1326	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	43.9	34.2	32.1	40.1	26.8	22.2	31.9	23.3	24.5	28.5	18.3
Incr Delay (d2), s/veh	1.7	24.5	7.3	1.4	1.1	0.3	2.1	3.6	3.2	10.1	2.3	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	3.2	15.1	11.5	3.0	8.3	4.9	3.6	11.5	8.2	5.3	9.9	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	68.4	41.4	33.5	41.2	27.1	24.3	35.4	26.5	34.6	30.7	19.4
LnGrp LOS	C	E	D	C	D	C	C	D	C	C	C	B
Approach Vol, veh/h		1544			1125			1668			1594	
Approach Delay, s/veh		54.2			36.4			30.7			30.5	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	49.8	14.7	36.0	16.1	53.1	14.7	36.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	35.0	18.0	31.5	13.5	39.0	11.2	38.3
Max Q Clear Time (g_c+I1), s	14.2	29.7	9.6	32.4	11.3	26.3	10.1	22.4
Green Ext Time (p_c), s	0.7	3.3	0.6	0.0	0.4	5.4	0.1	4.6

Intersection Summary	
HCM 6th Ctrl Delay	37.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	14	83	64	22	11
Future Vol, veh/h	43	14	83	64	22	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Free	-	None
Storage Length	200	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	47	15	90	70	24	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	280	-	36	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.78	-	4.28	-	-	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.614	-	2.314	-	-	-
Pot Cap-1 Maneuver	674	0	1508	-	-	-
Stage 1	962	0	-	-	-	-
Stage 2	765	0	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	634	-	1508	-	-	-
Mov Cap-2 Maneuver	634	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	4.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1508	-	634	-	-	-
HCM Lane V/C Ratio	0.06	-	0.074	-	-	-
HCM Control Delay (s)	7.5	-	11.1	0	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	21	27	22	64	22
Future Vol, veh/h	16	21	27	22	64	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Free	-	None
Storage Length	200	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	17	23	29	24	70	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	-	94	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	6.75	-	4.25	-	-	-
Critical Hdwy Stg 1	5.95	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.595	-	2.295	-	-	-
Pot Cap-1 Maneuver	798	0	1446	-	-	-
Stage 1	911	0	-	-	-	-
Stage 2	919	0	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	782	-	1446	-	-	-
Mov Cap-2 Maneuver	782	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	919	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1446	-	782	-	-	-
HCM Lane V/C Ratio	0.02	-	0.022	-	-	-
HCM Control Delay (s)	7.5	-	9.7	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	38	111	4	9	2	106	64	16	2	22	11
Future Vol, veh/h	43	38	111	4	9	2	106	64	16	2	22	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	Free	-	-	None
Storage Length	200	-	0	100	-	0	0	-	150	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	47	41	121	4	10	2	115	70	17	2	24	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	340	334	-	337	340	70	36	0	-	70	0	0
Stage 1	34	34	-	300	300	-	-	-	-	-	-	-
Stage 2	306	300	-	37	40	-	-	-	-	-	-	-
Critical Hdwy	7.48	6.68	-	7.48	6.68	6.38	4.28	-	-	4.28	-	-
Critical Hdwy Stg 1	6.68	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.68	-	6.68	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.614	4.114	-	3.614	4.114	3.414	2.314	-	-	2.314	-	-
Pot Cap-1 Maneuver	580	566	0	583	562	963	1508	-	0	1464	-	-
Stage 1	951	846	0	684	644	-	-	-	0	-	-	-
Stage 2	678	644	0	947	840	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	537	522	-	515	519	963	1508	-	-	1464	-	-
Mov Cap-2 Maneuver	537	522	-	515	519	-	-	-	-	-	-	-
Stage 1	879	845	-	632	595	-	-	-	-	-	-	-
Stage 2	615	595	-	899	839	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	11.6	4.7	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1508	-	537	522	-	515	519	963	1464	-	-
HCM Lane V/C Ratio	0.076	-	0.087	0.079	-	0.008	0.019	0.002	0.001	-	-
HCM Control Delay (s)	7.6	-	12.3	12.5	0	12.1	12.1	8.7	7.5	-	-
HCM Lane LOS	A	-	B	B	A	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	0.3	-	0	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	10	46	16	37	2	121	22	4	2	64	22
Future Vol, veh/h	16	10	46	16	37	2	121	22	4	2	64	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	Free	-	-	None
Storage Length	200	-	0	100	-	0	0	-	150	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	17	11	50	17	40	2	132	24	4	2	70	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	395	374	-	333	386	24	94	0	-	24	0	0
Stage 1	86	86	-	288	288	-	-	-	-	-	-	-
Stage 2	309	288	-	45	98	-	-	-	-	-	-	-
Critical Hdwy	7.45	6.65	-	7.45	6.65	6.35	4.25	-	-	4.25	-	-
Critical Hdwy Stg 1	6.65	5.65	-	6.25	5.65	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.25	5.65	-	6.65	5.65	-	-	-	-	-	-	-
Follow-up Hdwy	3.595	4.095	-	3.595	4.095	3.395	2.295	-	-	2.295	-	-
Pot Cap-1 Maneuver	535	541	0	591	532	1028	1446	-	0	1537	-	-
Stage 1	892	806	0	699	656	-	-	-	0	-	-	-
Stage 2	681	656	0	942	797	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	465	491	-	540	483	1028	1446	-	-	1537	-	-
Mov Cap-2 Maneuver	465	491	-	540	483	-	-	-	-	-	-	-
Stage 1	811	805	-	635	596	-	-	-	-	-	-	-
Stage 2	576	596	-	928	796	-	-	-	-	-	-	-

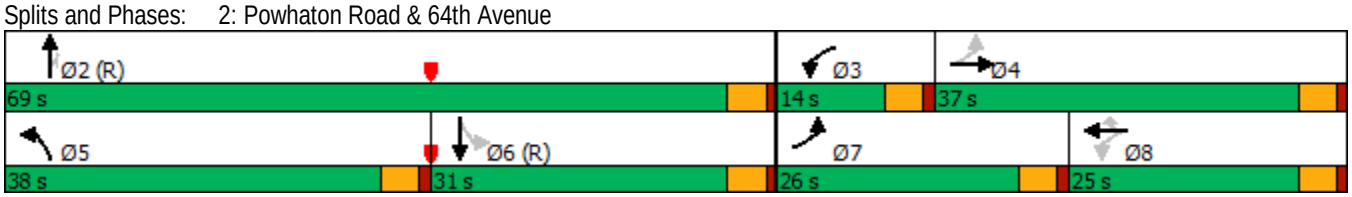
Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	12.6	6.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBL	SBT	SBR
Capacity (veh/h)	1446	-	465	491	-	540	483	1028	1537	-	-
HCM Lane V/C Ratio	0.091	-	0.037	0.022	-	0.032	0.083	0.002	0.001	-	-
HCM Control Delay (s)	7.7	-	13	12.5	0	11.9	13.1	8.5	7.3	-	-
HCM Lane LOS	A	-	B	B	A	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.1	-	0.1	0.3	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	200	70	550	70	50	40	450	275	65	55	200
Future Volume (vph)	200	70	550	70	50	40	450	275	65	55	200
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	Perm	NA
Protected Phases	7	4		3	8		5	2			6
Permitted Phases	4		Free	8		8			2	6	
Detector Phase	7	4		3	8	8	5	2	2	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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	26.0	37.0		14.0	25.0	25.0	38.0	69.0	69.0	31.0	31.0
Total Split (%)	21.7%	30.8%		11.7%	20.8%	20.8%	31.7%	57.5%	57.5%	25.8%	25.8%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	30.6	19.6	120.0	16.8	9.2	9.2	24.1	80.4	80.4	51.9	51.9
Actuated g/C Ratio	0.26	0.16	1.00	0.14	0.08	0.08	0.20	0.67	0.67	0.43	0.43
v/c Ratio	0.66	0.28	0.41	0.39	0.42	0.18	0.78	0.26	0.07	0.14	0.26
Control Delay	30.9	32.0	0.5	39.1	61.7	1.7	61.8	3.0	0.1	27.1	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	32.0	0.5	39.1	61.7	1.7	61.8	3.0	0.1	27.1	18.0
LOS	C	C	A	D	E	A	E	A	A	C	B
Approach Delay		10.6			36.8			36.2			19.3
Approach LOS		B			D			D			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 23.5	Intersection LOS: C
Intersection Capacity Utilization 51.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Powhaton Road & 64th Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	70	550	70	50	40	450	275	65	55	200	125
Future Volume (veh/h)	200	70	550	70	50	40	450	275	65	55	200	125
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	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	217	76	0	76	54	43	489	299	71	60	217	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	312	231		212	86	73	569	1202	1019	509	946	568
Arrive On Green	0.14	0.13	0.00	0.06	0.05	0.05	0.18	0.70	0.70	0.48	0.48	0.48
Sat Flow, veh/h	1640	1722	1459	1640	1722	1459	3182	1722	1459	932	1965	1180
Grp Volume(v), veh/h	217	76	0	76	54	43	489	299	71	60	179	174
Grp Sat Flow(s),veh/h/ln	1640	1722	1459	1640	1722	1459	1591	1722	1459	932	1636	1510
Q Serve(g_s), s	14.5	4.8	0.0	5.2	3.7	3.5	17.9	7.6	1.9	4.3	7.6	8.1
Cycle Q Clear(g_c), s	14.5	4.8	0.0	5.2	3.7	3.5	17.9	7.6	1.9	4.3	7.6	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	312	231		212	86	73	569	1202	1019	509	788	727
V/C Ratio(X)	0.70	0.33		0.36	0.63	0.59	0.86	0.25	0.07	0.12	0.23	0.24
Avail Cap(c_a), veh/h	377	466		250	294	249	888	1202	1019	509	788	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)	0.38	0.38	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	47.1	0.0	50.4	55.9	55.8	47.8	6.6	5.8	17.2	18.1	18.2
Incr Delay (d2), s/veh	1.7	0.3	0.0	1.0	7.4	7.5	5.3	0.5	0.1	0.5	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	2.1	0.0	2.2	1.8	1.4	7.5	2.8	0.6	1.0	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	47.4	0.0	51.4	63.3	63.3	53.1	7.1	5.9	17.7	18.8	19.0
LnGrp LOS	D	D		D	E	E	D	A	A	B	B	B
Approach Vol, veh/h		293	A		173			859			413	
Approach Delay, s/veh		45.9			58.1			33.2			18.7	
Approach LOS		D			E			C			B	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	88.2	11.2	20.6	26.0	62.3	21.3	10.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	64.5	9.5	32.5	33.5	26.5	21.5	20.5
Max Q Clear Time (g_c+I1), s	9.6	7.2	6.8	19.9	10.1	16.5	5.7
Green Ext Time (p_c), s	2.2	0.0	0.3	1.6	2.2	0.3	0.3

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

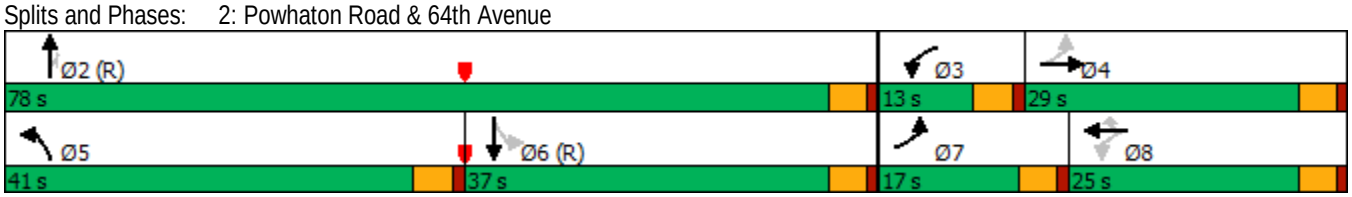
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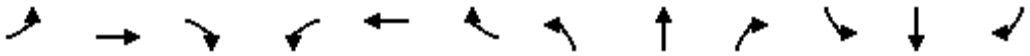
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	125	60	575	85	60	50	550	220	55	50	250
Future Volume (vph)	125	60	575	85	60	50	550	220	55	50	250
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	Perm	NA
Protected Phases	7	4		3	8		5	2			6
Permitted Phases	4		Free	8		8			2	6	
Detector Phase	7	4		3	8	8	5	2	2	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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	17.0	29.0		13.0	25.0	25.0	41.0	78.0	78.0	37.0	37.0
Total Split (%)	14.2%	24.2%		10.8%	20.8%	20.8%	34.2%	65.0%	65.0%	30.8%	30.8%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	23.5	13.0	120.0	17.3	9.9	9.9	28.0	87.0	87.0	54.5	54.5
Actuated g/C Ratio	0.20	0.11	1.00	0.14	0.08	0.08	0.23	0.72	0.72	0.45	0.45
v/c Ratio	0.54	0.35	0.43	0.44	0.46	0.26	0.81	0.19	0.06	0.11	0.35
Control Delay	30.6	35.2	0.7	45.8	62.0	5.0	58.3	2.0	0.1	24.6	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	35.2	0.7	45.8	62.0	5.0	58.3	2.0	0.1	24.6	15.7
LOS	C	D	A	D	E	A	E	A	A	C	B
Approach Delay		8.3			40.3			39.4			16.6
Approach LOS		A			D			D			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Powhaton Road & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	60	575	85	60	50	550	220	55	50	250	225
Future Volume (veh/h)	125	60	575	85	60	50	550	220	55	50	250	225
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	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	136	65	0	92	65	54	598	239	60	54	272	245
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	236	144		227	98	83	685	1297	1099	557	827	721
Arrive On Green	0.09	0.08	0.00	0.06	0.06	0.06	0.21	0.74	0.74	0.49	0.49	0.49
Sat Flow, veh/h	1668	1752	1485	1668	1752	1485	3237	1752	1485	1012	1684	1468
Grp Volume(v), veh/h	136	65	0	92	65	54	598	239	60	54	269	248
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1668	1752	1485	1618	1752	1485	1012	1664	1488
Q Serve(g_s), s	9.0	4.2	0.0	6.2	4.4	4.3	21.4	4.9	1.3	3.4	11.8	12.2
Cycle Q Clear(g_c), s	9.0	4.2	0.0	6.2	4.4	4.3	21.4	4.9	1.3	3.4	11.8	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	236	144		227	98	83	685	1297	1099	557	817	731
V/C Ratio(X)	0.58	0.45		0.41	0.66	0.65	0.87	0.18	0.05	0.10	0.33	0.34
Avail Cap(c_a), veh/h	257	358		237	299	254	984	1297	1099	557	817	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	52.5	0.0	49.1	55.5	55.5	45.7	4.7	4.2	16.4	18.5	18.6
Incr Delay (d2), s/veh	1.1	0.9	0.0	1.2	7.4	8.2	6.3	0.3	0.1	0.3	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.9	0.0	2.6	2.1	1.8	9.2	1.7	0.4	0.9	4.8	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	53.4	0.0	50.2	63.0	63.7	52.0	5.0	4.3	16.8	19.6	19.9
LnGrp LOS	D	D		D	E	E	D	A	A	B	B	B
Approach Vol, veh/h		201	A		211			897			571	
Approach Delay, s/veh		49.8			57.6			36.3			19.5	
Approach LOS		D			E			D			B	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	93.3	12.3	14.4	29.9	63.4	15.5	11.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	73.5	8.5	24.5	36.5	32.5	12.5	20.5
Max Q Clear Time (g_c+I1), s	6.9	8.2	6.2	23.4	14.2	11.0	6.4
Green Ext Time (p_c), s	1.8	0.0	0.2	2.0	3.4	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	35.0
HCM 6th LOS	D

Notes

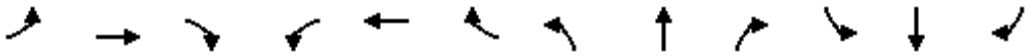
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	200	110	785	75	60	40	505	275	80	55	200
Future Volume (vph)	200	110	785	75	60	40	505	275	80	55	200
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	Perm	NA
Protected Phases	7	4		3	8		5	2			6
Permitted Phases	4		Free	8		8			2	6	
Detector Phase	7	4		3	8	8	5	2	2	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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	25.0	37.0		13.0	25.0	25.0	40.0	70.0	70.0	30.0	30.0
Total Split (%)	20.8%	30.8%		10.8%	20.8%	20.8%	33.3%	58.3%	58.3%	25.0%	25.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	30.8	20.4	120.0	16.9	10.0	10.0	26.5	80.2	80.2	49.2	49.2
Actuated g/C Ratio	0.26	0.17	1.00	0.14	0.08	0.08	0.22	0.67	0.67	0.41	0.41
v/c Ratio	0.66	0.42	0.59	0.42	0.46	0.18	0.80	0.26	0.09	0.15	0.27
Control Delay	29.2	33.4	2.2	40.3	62.2	1.6	55.4	3.3	0.2	29.3	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	33.4	2.2	40.3	62.2	1.6	55.4	3.3	0.2	29.3	19.5
LOS	C	C	A	D	E	A	E	A	A	C	B
Approach Delay		10.3			39.0			33.6			20.9
Approach LOS		B			D			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.9	Intersection LOS: C
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Powhaton Road & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	110	785	75	60	40	505	275	80	55	200	125
Future Volume (veh/h)	200	110	785	75	60	40	505	275	80	55	200	125
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	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	217	120	0	82	65	43	549	299	87	60	217	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	310	234		223	97	82	632	1193	1011	479	897	539
Arrive On Green	0.14	0.14	0.00	0.06	0.06	0.06	0.20	0.69	0.69	0.46	0.46	0.46
Sat Flow, veh/h	1640	1722	1459	1640	1722	1459	3182	1722	1459	918	1965	1180
Grp Volume(v), veh/h	217	120	0	82	65	43	549	299	87	60	179	174
Grp Sat Flow(s),veh/h/ln	1640	1722	1459	1640	1722	1459	1591	1722	1459	918	1636	1510
Q Serve(g_s), s	14.4	7.8	0.0	5.6	4.4	3.4	20.1	7.8	2.3	4.6	8.0	8.5
Cycle Q Clear(g_c), s	14.4	7.8	0.0	5.6	4.4	3.4	20.1	7.8	2.3	4.6	8.0	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	310	234		223	97	82	632	1193	1011	479	746	689
V/C Ratio(X)	0.70	0.51		0.37	0.67	0.52	0.87	0.25	0.09	0.13	0.24	0.25
Avail Cap(c_a), veh/h	363	466		242	294	249	941	1193	1011	479	746	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	48.2	0.0	49.4	55.5	55.1	46.6	6.9	6.0	19.0	19.9	20.0
Incr Delay (d2), s/veh	0.7	0.2	0.0	1.0	7.7	5.1	5.9	0.5	0.2	0.5	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	3.4	0.0	2.4	2.1	1.4	8.4	2.8	0.7	1.0	3.2	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	48.4	0.0	50.4	63.3	60.1	52.5	7.4	6.2	19.5	20.7	20.9
LnGrp LOS	D	D		D	E	E	D	A	A	B	C	C
Approach Vol, veh/h		337	A		190			935			413	
Approach Delay, s/veh		45.5			57.0			33.7			20.6	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	87.6	11.6	20.8	28.3	59.3	21.1	11.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	65.5	8.5	32.5	35.5	25.5	20.5	20.5
Max Q Clear Time (g_c+I1), s	9.8	7.6	9.8	22.1	10.5	16.4	6.4
Green Ext Time (p_c), s	2.3	0.0	0.6	1.8	2.2	0.2	0.3

Intersection Summary	
HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

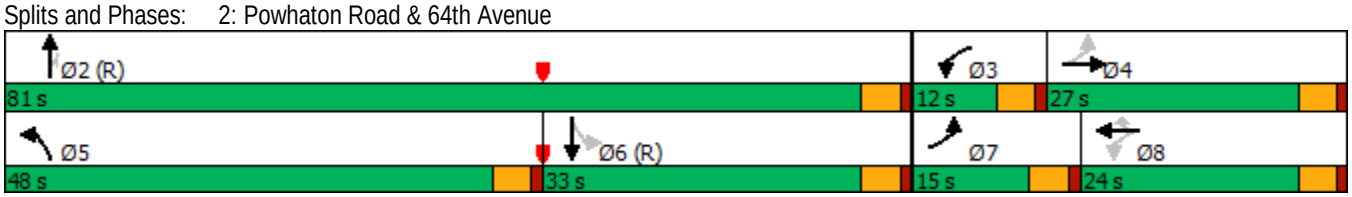
Notes

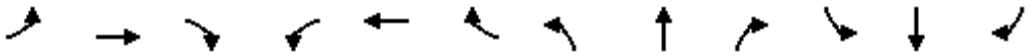
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	125	70	635	95	100	50	775	220	60	50	250
Future Volume (vph)	125	70	635	95	100	50	775	220	60	50	250
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	Perm	NA
Protected Phases	7	4		3	8		5	2			6
Permitted Phases	4		Free	8		8			2	6	
Detector Phase	7	4		3	8	8	5	2	2	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)	9.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	27.0		12.0	24.0	24.0	48.0	81.0	81.0	33.0	33.0
Total Split (%)	12.5%	22.5%		10.0%	20.0%	20.0%	40.0%	67.5%	67.5%	27.5%	27.5%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead			Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes			Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	23.9	15.0	120.0	21.6	12.9	12.9	37.7	83.4	83.4	41.1	41.1
Actuated g/C Ratio	0.20	0.12	1.00	0.18	0.11	0.11	0.31	0.70	0.70	0.34	0.34
v/c Ratio	0.54	0.35	0.47	0.41	0.59	0.22	0.84	0.20	0.06	0.15	0.44
Control Delay	31.8	36.1	0.8	42.7	63.4	3.9	43.3	3.3	0.1	33.5	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	36.1	0.8	42.7	63.4	3.9	43.3	3.3	0.1	33.5	22.6
LOS	C	D	A	D	E	A	D	A	A	C	C
Approach Delay		8.4			43.3			32.5			23.6
Approach LOS		A			D			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Powhaton Road & 64th Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	70	635	95	100	50	775	220	60	50	250	225
Future Volume (veh/h)	125	70	635	95	100	50	775	220	60	50	250	225
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	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	136	76	0	103	109	54	842	239	65	54	272	245
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	230	187		246	143	121	937	1259	1067	454	659	575
Arrive On Green	0.09	0.11	0.00	0.06	0.08	0.08	0.29	0.72	0.72	0.39	0.39	0.39
Sat Flow, veh/h	1668	1752	1485	1668	1752	1485	3237	1752	1485	1007	1684	1468
Grp Volume(v), veh/h	136	76	0	103	109	54	842	239	65	54	269	248
Grp Sat Flow(s),veh/h/ln	1668	1752	1485	1668	1752	1485	1618	1752	1485	1007	1664	1488
Q Serve(g_s), s	8.8	4.9	0.0	6.8	7.3	4.2	30.0	5.3	1.5	4.1	14.1	14.6
Cycle Q Clear(g_c), s	8.8	4.9	0.0	6.8	7.3	4.2	30.0	5.3	1.5	4.1	14.1	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	230	187		246	143	121	937	1259	1067	454	652	582
V/C Ratio(X)	0.59	0.41		0.42	0.76	0.45	0.90	0.19	0.06	0.12	0.41	0.43
Avail Cap(c_a), veh/h	230	328		246	285	241	1173	1259	1067	454	652	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	50.1	0.0	46.9	54.0	52.5	40.9	5.5	5.0	23.5	26.5	26.7
Incr Delay (d2), s/veh	1.8	0.6	0.0	1.1	8.2	2.6	8.1	0.3	0.1	0.5	1.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	2.2	0.0	2.9	3.5	1.6	12.9	1.9	0.5	1.1	5.9	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	50.7	0.0	48.0	62.1	55.1	49.0	5.8	5.1	24.0	28.4	28.9
LnGrp LOS	D	D		D	E	E	D	A	A	C	C	C
Approach Vol, veh/h		212	A		266			1146			571	
Approach Delay, s/veh		48.2			55.2			37.5			28.2	
Approach LOS		D			E			D			C	

Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		90.7	12.0	17.3	39.2	51.5	15.0	14.3				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		76.5	7.5	22.5	43.5	28.5	10.5	19.5				
Max Q Clear Time (g_c+I1), s		7.3	8.8	6.9	32.0	16.6	10.8	9.3				
Green Ext Time (p_c), s		1.8	0.0	0.3	2.8	2.8	0.0	0.5				

Intersection Summary												
HCM 6th Ctrl Delay			38.3									
HCM 6th LOS			D									

Notes

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

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	195	95	10	10	15
Future Vol, veh/h	20	195	95	10	10	15
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, %	12	12	12	12	12	12
Mvmt Flow	22	212	103	11	11	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	114	0	-	0	365	109
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	256	-
Critical Hdwy	4.22	-	-	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	2.308	-	-	-	3.608	3.408
Pot Cap-1 Maneuver	1415	-	-	-	615	918
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	764	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1415	-	-	-	604	918
Mov Cap-2 Maneuver	-	-	-	-	604	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1415	-	-	-	760
HCM Lane V/C Ratio	0.015	-	-	-	0.036
HCM Control Delay (s)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	175	175	10	10	25
Future Vol, veh/h	15	175	175	10	10	25
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, %	10	10	10	10	10	10
Mvmt Flow	16	190	190	11	11	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	201	0	-	0	418	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	222	-
Critical Hdwy	4.2	-	-	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.29	-	-	-	3.59	3.39
Pot Cap-1 Maneuver	1325	-	-	-	577	825
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	796	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1325	-	-	-	569	825
Mov Cap-2 Maneuver	-	-	-	-	569	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	796	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1325	-	-	-	731
HCM Lane V/C Ratio	0.012	-	-	-	0.052
HCM Control Delay (s)	7.8	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	571	183	10	10	15
Future Vol, veh/h	20	571	183	10	10	15
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, %	12	12	12	12	12	12
Mvmt Flow	22	621	199	11	11	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	210	0	-	0	870	205
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	665	-
Critical Hdwy	4.22	-	-	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	2.308	-	-	-	3.608	3.408
Pot Cap-1 Maneuver	1303	-	-	-	309	811
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	493	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1303	-	-	-	301	811
Mov Cap-2 Maneuver	-	-	-	-	301	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	493	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1303	-	-	-	483
HCM Lane V/C Ratio	0.017	-	-	-	0.056
HCM Control Delay (s)	7.8	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	272	542	10	10	25
Future Vol, veh/h	15	272	542	10	10	25
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, %	10	10	10	10	10	10
Mvmt Flow	16	296	589	11	11	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	600	0	-	0	923	595
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	328	-
Critical Hdwy	4.2	-	-	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.29	-	-	-	3.59	3.39
Pot Cap-1 Maneuver	939	-	-	-	290	490
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	939	-	-	-	284	490
Mov Cap-2 Maneuver	-	-	-	-	284	-
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	712	-

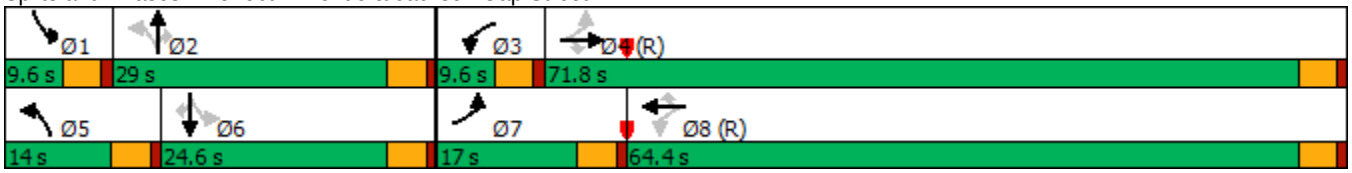
Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	14.8
HCM LOS			B

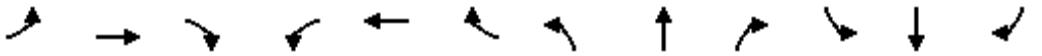
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	939	-	-	-	406
HCM Lane V/C Ratio	0.017	-	-	-	0.094
HCM Control Delay (s)	8.9	0	-	-	14.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	910	70	50	1355	60	110	250	55	60	155	120
Future Volume (vph)	155	910	70	50	1355	60	110	250	55	60	155	120
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	17.0	71.8	71.8	9.6	64.4	64.4	14.0	29.0	29.0	9.6	24.6	24.6
Total Split (%)	14.2%	59.8%	59.8%	8.0%	53.7%	53.7%	11.7%	24.2%	24.2%	8.0%	20.5%	20.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	76.9	69.2	69.2	66.1	61.0	61.0	34.0	26.4	26.4	25.5	20.4	20.4
Actuated g/C Ratio	0.64	0.58	0.58	0.55	0.51	0.51	0.28	0.22	0.22	0.21	0.17	0.17
v/c Ratio	0.80	0.53	0.09	0.19	0.90	0.08	0.46	0.73	0.14	0.36	0.58	0.36
Control Delay	53.8	17.2	1.7	6.5	22.9	0.1	39.6	57.0	0.7	31.4	44.3	6.2
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	53.8	17.2	1.7	6.5	22.9	0.1	39.6	57.0	0.7	31.4	44.3	6.2
LOS	D	B	A	A	C	A	D	E	A	C	D	A
Approach Delay		21.3			21.4			44.9			28.4	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 57 (48%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: 56th Avenue & Jackson Gap Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	910	70	50	1355	60	110	250	55	60	155	120
Future Volume (veh/h)	155	910	70	50	1355	60	110	250	55	60	155	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	168	989	76	54	1473	65	120	272	60	65	168	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	214	1860	830	303	1770	789	264	352	298	183	297	252
Arrive On Green	0.06	0.57	0.57	0.03	0.54	0.54	0.07	0.20	0.20	0.04	0.17	0.17
Sat Flow, veh/h	1640	3272	1459	1640	3272	1459	1640	1722	1459	1640	1722	1459
Grp Volume(v), veh/h	168	989	76	54	1473	65	120	272	60	65	168	130
Grp Sat Flow(s),veh/h/ln	1640	1636	1459	1640	1636	1459	1640	1722	1459	1640	1722	1459
Q Serve(g_s), s	5.3	22.4	2.8	1.7	45.1	2.6	7.0	17.9	4.1	3.9	10.7	9.7
Cycle Q Clear(g_c), s	5.3	22.4	2.8	1.7	45.1	2.6	7.0	17.9	4.1	3.9	10.7	9.7
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	214	1860	830	303	1770	789	264	352	298	183	297	252
V/C Ratio(X)	0.79	0.53	0.09	0.18	0.83	0.08	0.45	0.77	0.20	0.36	0.57	0.52
Avail Cap(c_a), veh/h	282	1860	830	316	1770	789	273	352	298	183	297	252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	16.0	11.8	12.9	23.0	13.2	36.4	45.1	39.6	39.4	45.5	45.1
Incr Delay (d2), s/veh	10.2	1.1	0.2	0.2	2.8	0.1	1.2	15.2	1.5	1.2	7.6	7.4
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	3.2	8.4	1.0	0.6	17.3	0.9	2.9	9.1	1.6	1.6	5.2	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	17.1	12.0	13.0	25.8	13.4	37.6	60.3	41.1	40.5	53.1	52.5
LnGrp LOS	D	B	B	B	C	B	D	E	D	D	D	D
Approach Vol, veh/h		1233			1592			452			363	
Approach Delay, s/veh		19.3			24.9			51.8			50.6	
Approach LOS		B			C			D			D	

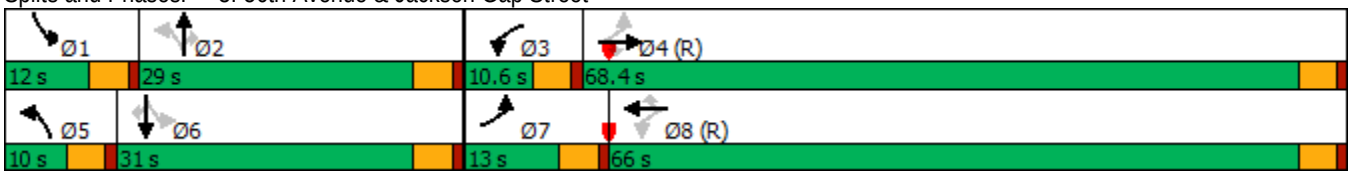
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	29.0	8.7	72.7	13.4	25.2	12.0	69.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	24.5	5.1	67.3	9.5	20.1	12.5	59.9
Max Q Clear Time (g_c+I1), s	5.9	19.9	3.7	24.4	9.0	12.7	7.3	47.1
Green Ext Time (p_c), s	0.0	0.7	0.0	9.6	0.0	0.8	0.2	8.6

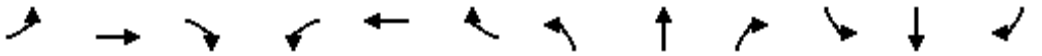
Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	1290	135	60	1360	65	55	210	25	120	265	195
Future Volume (vph)	110	1290	135	60	1360	65	55	210	25	120	265	195
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	13.0	68.4	68.4	10.6	66.0	66.0	10.0	29.0	29.0	12.0	31.0	31.0
Total Split (%)	10.8%	57.0%	57.0%	8.8%	55.0%	55.0%	8.3%	24.2%	24.2%	10.0%	25.8%	25.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	72.8	66.0	66.0	67.8	61.8	61.8	30.0	24.5	24.5	34.5	28.5	28.5
Actuated g/C Ratio	0.61	0.55	0.55	0.56	0.52	0.52	0.25	0.20	0.20	0.29	0.24	0.24
v/c Ratio	0.71	0.78	0.17	0.39	0.87	0.09	0.30	0.65	0.07	0.55	0.70	0.46
Control Delay	44.0	25.6	3.0	15.2	20.0	0.3	34.8	53.4	0.4	32.2	42.6	11.3
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	44.0	25.6	3.0	15.2	20.0	0.3	34.8	53.4	0.4	32.2	42.6	11.3
LOS	D	C	A	B	B	A	C	D	A	C	D	B
Approach Delay		25.0			18.9			45.3			29.9	
Approach LOS		C			B			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 57 (48%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 24.9	Intersection LOS: C
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: 56th Avenue & Jackson Gap Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1290	135	60	1360	65	55	210	25	120	265	195
Future Volume (veh/h)	110	1290	135	60	1360	65	55	210	25	120	265	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	120	1402	147	65	1478	71	60	228	27	130	288	212
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	192	1819	811	189	1780	794	189	358	303	254	399	338
Arrive On Green	0.05	0.55	0.55	0.04	0.53	0.53	0.04	0.20	0.20	0.06	0.23	0.23
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	1668	1752	1485	1668	1752	1485
Grp Volume(v), veh/h	120	1402	147	65	1478	71	60	228	27	130	288	212
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1668	1752	1485	1668	1752	1485
Q Serve(g_s), s	3.9	39.6	6.0	2.1	44.6	2.8	3.4	14.3	1.8	7.4	18.2	15.4
Cycle Q Clear(g_c), s	3.9	39.6	6.0	2.1	44.6	2.8	3.4	14.3	1.8	7.4	18.2	15.4
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	192	1819	811	189	1780	794	189	358	303	254	399	338
V/C Ratio(X)	0.62	0.77	0.18	0.34	0.83	0.09	0.32	0.64	0.09	0.51	0.72	0.63
Avail Cap(c_a), veh/h	229	1819	811	212	1780	794	200	358	303	254	399	338
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	21.3	13.7	19.1	23.4	13.6	36.7	43.7	38.7	35.7	42.8	41.7
Incr Delay (d2), s/veh	3.9	3.2	0.5	0.6	2.7	0.1	1.0	8.4	0.6	1.7	10.8	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	15.6	2.1	0.8	17.5	1.0	1.4	7.0	0.7	3.1	9.1	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	24.6	14.2	19.7	26.0	13.8	37.7	52.1	39.3	37.5	53.6	50.2
LnGrp LOS	C	C	B	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1669			1614			315			630	
Approach Delay, s/veh		23.9			25.2			48.3			49.1	
Approach LOS		C			C			D			D	

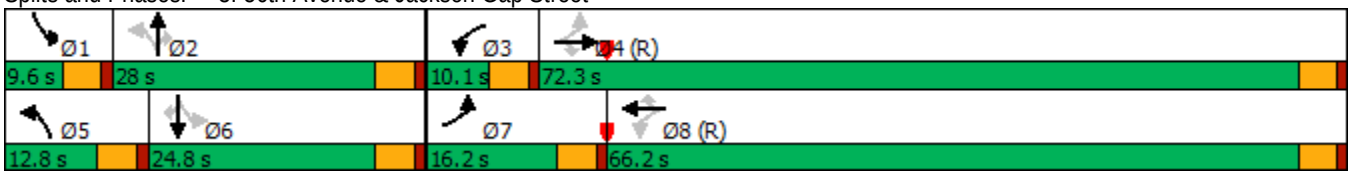
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	29.0	8.9	70.1	9.2	31.8	10.3	68.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	24.5	6.1	63.9	5.5	26.5	8.5	61.5
Max Q Clear Time (g_c+I1), s	9.4	16.3	4.1	41.6	5.4	20.2	5.9	46.6
Green Ext Time (p_c), s	0.0	0.8	0.0	12.2	0.0	1.3	0.1	9.7

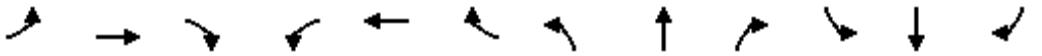
Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1075	70	55	1395	60	110	250	70	60	155	120
Future Volume (vph)	155	1075	70	55	1395	60	110	250	70	60	155	120
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	16.2	72.3	72.3	10.1	66.2	66.2	12.8	28.0	28.0	9.6	24.8	24.8
Total Split (%)	13.5%	60.3%	60.3%	8.4%	55.2%	55.2%	10.7%	23.3%	23.3%	8.0%	20.7%	20.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	77.9	69.8	69.8	67.9	62.3	62.3	32.1	25.4	25.4	25.5	20.4	20.4
Actuated g/C Ratio	0.65	0.58	0.58	0.57	0.52	0.52	0.27	0.21	0.21	0.21	0.17	0.17
v/c Ratio	0.82	0.62	0.09	0.26	0.91	0.08	0.49	0.76	0.18	0.38	0.59	0.36
Control Delay	56.9	18.8	1.7	7.3	23.2	0.1	41.9	60.0	1.1	30.9	43.3	5.7
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	56.9	18.8	1.7	7.3	23.2	0.1	41.9	60.0	1.1	30.9	43.3	5.7
LOS	E	B	A	A	C	A	D	E	A	C	D	A
Approach Delay		22.4			21.7			45.8			27.6	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 57 (48%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: 56th Avenue & Jackson Gap Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1075	70	55	1395	60	110	250	70	60	155	120
Future Volume (veh/h)	155	1075	70	55	1395	60	110	250	70	60	155	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	168	1168	76	60	1516	65	120	272	76	65	168	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	209	1884	840	259	1800	803	252	337	286	173	291	247
Arrive On Green	0.06	0.58	0.58	0.04	0.55	0.55	0.07	0.20	0.20	0.04	0.17	0.17
Sat Flow, veh/h	1640	3272	1459	1640	3272	1459	1640	1722	1459	1640	1722	1459
Grp Volume(v), veh/h	168	1168	76	60	1516	65	120	272	76	65	168	130
Grp Sat Flow(s),veh/h/ln	1640	1636	1459	1640	1636	1459	1640	1722	1459	1640	1722	1459
Q Serve(g_s), s	5.3	28.3	2.8	1.9	46.6	2.5	7.2	18.1	5.3	3.9	10.8	9.7
Cycle Q Clear(g_c), s	5.3	28.3	2.8	1.9	46.6	2.5	7.2	18.1	5.3	3.9	10.8	9.7
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	209	1884	840	259	1800	803	252	337	286	173	291	247
V/C Ratio(X)	0.80	0.62	0.09	0.23	0.84	0.08	0.48	0.81	0.27	0.38	0.58	0.53
Avail Cap(c_a), veh/h	268	1884	840	277	1800	803	252	337	286	173	291	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	16.8	11.4	13.8	22.6	12.7	37.6	46.1	40.9	39.8	45.9	45.5
Incr Delay (d2), s/veh	12.7	1.5	0.2	0.2	2.4	0.1	1.4	18.4	2.3	1.4	8.1	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	10.6	1.0	0.7	17.7	0.8	3.0	9.4	2.1	1.6	5.3	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	18.3	11.6	14.0	25.1	12.8	39.0	64.4	43.2	41.2	54.0	53.3
LnGrp LOS	D	B	B	B	C	B	D	E	D	D	D	D
Approach Vol, veh/h		1412			1641			468			363	
Approach Delay, s/veh		20.4			24.2			54.5			51.4	
Approach LOS		C			C			D			D	

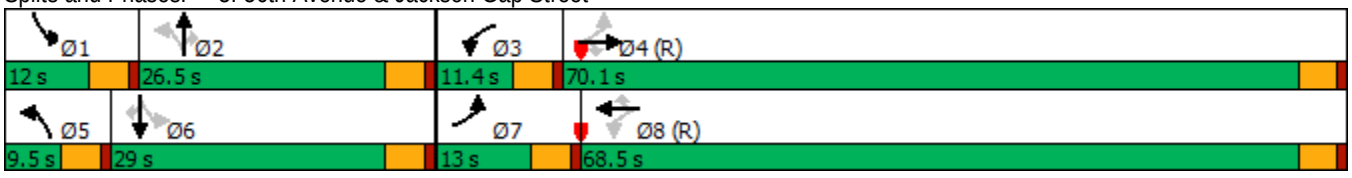
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	28.0	8.8	73.6	12.8	24.8	11.9	70.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	23.5	5.6	67.8	8.3	20.3	11.7	61.7
Max Q Clear Time (g_c+I1), s	5.9	20.1	3.9	30.3	9.2	12.8	7.3	48.6
Green Ext Time (p_c), s	0.0	0.6	0.0	11.8	0.0	0.8	0.2	9.0

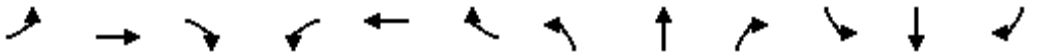
Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	1335	135	70	1520	65	55	210	30	120	265	195
Future Volume (vph)	110	1335	135	70	1520	65	55	210	30	120	265	195
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	13.0	70.1	70.1	11.4	68.5	68.5	9.5	26.5	26.5	12.0	29.0	29.0
Total Split (%)	10.8%	58.4%	58.4%	9.5%	57.1%	57.1%	7.9%	22.1%	22.1%	10.0%	24.2%	24.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effct Green (s)	74.7	67.9	67.9	71.0	64.3	64.3	27.0	22.0	22.0	32.4	26.4	26.4
Actuated g/C Ratio	0.62	0.57	0.57	0.59	0.54	0.54	0.22	0.18	0.18	0.27	0.22	0.22
v/c Ratio	0.71	0.78	0.16	0.44	0.94	0.09	0.35	0.72	0.10	0.61	0.76	0.49
Control Delay	44.1	24.8	2.9	17.0	29.7	0.2	38.7	60.2	0.5	36.8	47.5	13.2
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	44.1	24.8	2.9	17.0	29.7	0.2	38.7	60.2	0.5	36.8	47.5	13.2
LOS	D	C	A	B	C	A	D	E	A	D	D	B
Approach Delay		24.2			28.0			50.1			33.7	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 57 (48%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 81.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: 56th Avenue & Jackson Gap Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1335	135	70	1520	65	55	210	30	120	265	195
Future Volume (veh/h)	110	1335	135	70	1520	65	55	210	30	120	265	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	120	1451	147	76	1652	71	60	228	33	130	288	212
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	170	1883	840	193	1854	827	168	321	272	228	361	306
Arrive On Green	0.05	0.57	0.57	0.04	0.56	0.56	0.04	0.18	0.18	0.06	0.21	0.21
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	1668	1752	1485	1668	1752	1485
Grp Volume(v), veh/h	120	1451	147	76	1652	71	60	228	33	130	288	212
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1668	1752	1485	1668	1752	1485
Q Serve(g_s), s	3.7	40.3	5.7	2.3	52.4	2.7	3.5	14.7	2.2	7.5	18.7	15.9
Cycle Q Clear(g_c), s	3.7	40.3	5.7	2.3	52.4	2.7	3.5	14.7	2.2	7.5	18.7	15.9
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	170	1883	840	193	1854	827	168	321	272	228	361	306
V/C Ratio(X)	0.70	0.77	0.18	0.39	0.89	0.09	0.36	0.71	0.12	0.57	0.80	0.69
Avail Cap(c_a), veh/h	210	1883	840	225	1854	827	172	321	272	228	361	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.45	0.45	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	20.1	12.6	18.9	23.4	12.4	38.7	46.0	40.9	38.1	45.2	44.1
Incr Delay (d2), s/veh	7.8	3.1	0.5	0.6	3.3	0.1	1.3	12.5	0.9	3.3	16.5	12.1
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	2.3	15.7	2.0	0.9	20.3	0.9	1.5	7.5	0.9	3.3	9.8	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	23.2	13.0	19.5	26.7	12.5	40.0	58.5	41.8	41.4	61.8	56.2
LnGrp LOS	C	C	B	B	C	B	D	E	D	D	E	E
Approach Vol, veh/h		1718			1799			321			630	
Approach Delay, s/veh		23.1			25.8			53.3			55.7	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	26.5	9.1	72.4	9.2	29.3	10.1	71.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	22.0	6.9	65.6	5.0	24.5	8.5	64.0
Max Q Clear Time (g_c+I1), s	9.5	16.7	4.3	42.3	5.5	20.7	5.7	54.4
Green Ext Time (p_c), s	0.0	0.6	0.0	13.0	0.0	0.9	0.1	7.5

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	107	40	54	39	6	32
Future Vol, veh/h	107	40	54	39	6	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	0	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	116	43	59	42	7	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	101	0	-	0	334	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	275	-
Critical Hdwy	4.22	-	-	-	6.52	6.32
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	2.308	-	-	-	3.608	3.408
Pot Cap-1 Maneuver	1431	-	-	-	641	979
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	749	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1431	-	-	-	589	979
Mov Cap-2 Maneuver	-	-	-	-	684	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1431	-	-	-	917
HCM Lane V/C Ratio	0.081	-	-	-	0.045
HCM Control Delay (s)	7.7	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	77	76	13	27	58
Future Vol, veh/h	39	77	76	13	27	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	0	-	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	42	84	83	14	29	63

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	97	0	-	0	251	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	4.2	-	-	-	6.5	6.3
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.29	-	-	-	3.59	3.39
Pot Cap-1 Maneuver	1448	-	-	-	720	955
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	843	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1448	-	-	-	699	955
Mov Cap-2 Maneuver	-	-	-	-	767	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1448	-	-	-	886
HCM Lane V/C Ratio	0.029	-	-	-	0.104
HCM Control Delay (s)	7.6	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	483	40	0	0	54	66	0	0	0	12	0	120
Future Vol, veh/h	483	40	0	0	54	66	0	0	0	12	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	200	-	0	-	-	-	150	-	-
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, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	525	43	0	0	59	72	0	0	0	13	0	130

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	131	0	0	43	0	0	1253	1224	43	1152	1152	59
Stage 1	-	-	-	-	-	-	1093	1093	-	59	59	-
Stage 2	-	-	-	-	-	-	160	131	-	1093	1093	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1395	-	-	1504	-	-	142	171	1000	167	189	979
Stage 1	-	-	-	-	-	-	248	278	-	928	826	-
Stage 2	-	-	-	-	-	-	819	769	-	248	278	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1395	-	-	1504	-	-	87	107	1000	118	118	979
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	156	-	147	164	-
Stage 1	-	-	-	-	-	-	155	173	-	579	826	-
Stage 2	-	-	-	-	-	-	710	769	-	155	173	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	0	0	11.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	1395	-	-	1504	-	-	147	979
HCM Lane V/C Ratio	-	0.376	-	-	-	-	-	0.089	0.133
HCM Control Delay (s)	0	9.1	-	-	0	-	-	31.9	9.2
HCM Lane LOS	A	A	-	-	A	-	-	D	A
HCM 95th %tile Q(veh)	-	1.8	-	-	0	-	-	0.3	0.5

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	136	77	0	0	76	20	0	0	0	53	0	425
Future Vol, veh/h	136	77	0	0	76	20	0	0	0	53	0	425
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	200	-	0	-	-	-	150	-	-
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, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	148	84	0	0	83	22	0	0	0	58	0	462

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	84	0	0	705	485	84	463	463	83
Stage 1	-	-	-	-	-	-	380	380	-	83	83	-
Stage 2	-	-	-	-	-	-	325	105	-	380	380	-
Critical Hdwy	4.2	-	-	4.2	-	-	7.2	6.6	6.3	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	5.6	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	5.6	-	6.2	5.6	-
Follow-up Hdwy	2.29	-	-	2.29	-	-	3.59	4.09	3.39	3.59	4.09	3.39
Pot Cap-1 Maneuver	1438	-	-	1464	-	-	341	471	954	496	484	955
Stage 1	-	-	-	-	-	-	626	600	-	906	811	-
Stage 2	-	-	-	-	-	-	671	793	-	626	600	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1464	-	-	162	422	954	457	434	955
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	494	-	527	505	-
Stage 1	-	-	-	-	-	-	562	538	-	813	811	-
Stage 2	-	-	-	-	-	-	346	793	-	562	538	-

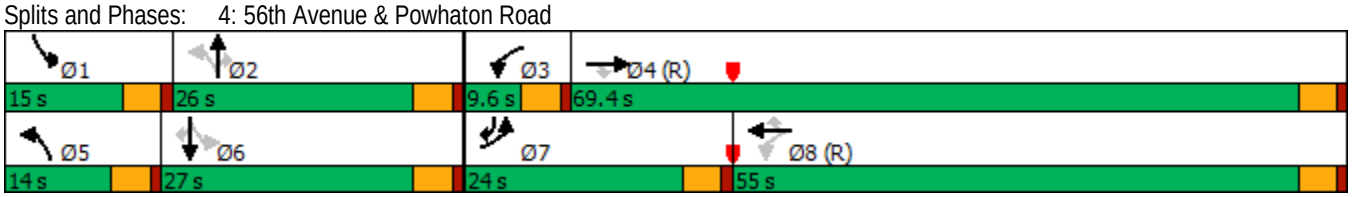
Approach	EB	WB	NB	SB
HCM Control Delay, s	5	0	0	12.3
HCM LOS			A	B

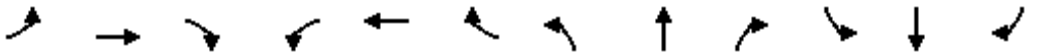
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	1438	-	-	1464	-	-	527	955
HCM Lane V/C Ratio	-	0.103	-	-	-	-	-	0.109	0.484
HCM Control Delay (s)	0	7.8	-	-	0	-	-	12.7	12.2
HCM Lane LOS	A	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	-	0.3	-	-	0	-	-	0.4	2.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	620	80	60	1060	160	125	195	85	145	205	290
Future Volume (vph)	355	620	80	60	1060	160	125	195	85	145	205	290
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	24.0	69.4	69.4	9.6	55.0	55.0	14.0	26.0	26.0	15.0	27.0	24.0
Total Split (%)	20.0%	57.8%	57.8%	8.0%	45.8%	45.8%	11.7%	21.7%	21.7%	12.5%	22.5%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	18.3	66.8	66.8	56.8	51.7	51.7	31.0	21.8	21.8	33.0	22.7	45.5
Actuated g/C Ratio	0.15	0.56	0.56	0.47	0.43	0.43	0.26	0.18	0.18	0.28	0.19	0.38
v/c Ratio	0.81	0.38	0.10	0.18	0.83	0.24	0.56	0.69	0.25	0.62	0.69	0.53
Control Delay	77.6	5.8	0.3	11.9	36.9	4.8	42.4	59.0	3.6	43.8	57.5	26.9
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	77.6	5.8	0.3	11.9	36.9	4.8	42.4	59.0	3.6	43.8	57.5	26.9
LOS	E	A	A	B	D	A	D	E	A	D	E	C
Approach Delay		29.6			31.7			42.3			40.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 34.0	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: 56th Avenue & Powhaton Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	355	620	80	60	1060	160	125	195	85	145	205	290
Future Volume (veh/h)	355	620	80	60	1060	160	125	195	85	145	205	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	386	674	87	65	1152	174	136	212	92	158	223	315
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	436	1788	798	410	1460	651	243	309	261	267	323	474
Arrive On Green	0.27	1.00	1.00	0.04	0.45	0.45	0.08	0.18	0.18	0.09	0.19	0.19
Sat Flow, veh/h	3182	3272	1459	1640	3272	1459	1640	1722	1459	1640	1722	1459
Grp Volume(v), veh/h	386	674	87	65	1152	174	136	212	92	158	223	315
Grp Sat Flow(s),veh/h/ln	1591	1636	1459	1640	1636	1459	1640	1722	1459	1640	1722	1459
Q Serve(g_s), s	13.9	0.0	0.0	2.6	36.1	9.0	8.0	13.8	6.6	9.4	14.5	22.3
Cycle Q Clear(g_c), s	13.9	0.0	0.0	2.6	36.1	9.0	8.0	13.8	6.6	9.4	14.5	22.3
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	436	1788	798	410	1460	651	243	309	261	267	323	474
V/C Ratio(X)	0.88	0.38	0.11	0.16	0.79	0.27	0.56	0.69	0.35	0.59	0.69	0.66
Avail Cap(c_a), veh/h	517	1788	798	419	1460	651	243	309	261	267	323	474
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	0.0	16.7	28.4	20.9	36.9	46.1	43.1	36.7	45.5	34.9
Incr Delay (d2), s/veh	13.1	0.5	0.2	0.2	4.4	1.0	2.9	11.8	3.7	3.5	11.5	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.1	0.1	1.0	14.7	3.3	3.4	6.9	2.7	4.0	7.2	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	0.5	0.2	16.9	32.8	21.9	39.8	57.9	46.8	40.1	57.0	42.1
LnGrp LOS	E	A	A	B	C	C	D	E	D	D	E	D
Approach Vol, veh/h		1147			1391			440			696	
Approach Delay, s/veh		19.1			30.7			50.0			46.4	
Approach LOS		B			C			D			D	

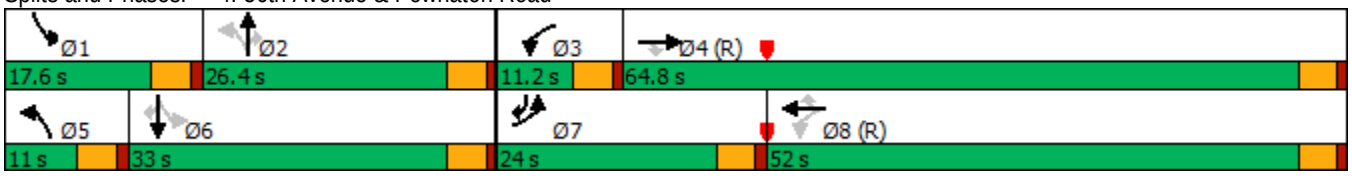
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	26.0	8.9	70.1	14.0	27.0	21.0	58.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	21.5	5.1	64.9	9.5	22.5	19.5	50.5
Max Q Clear Time (g_c+I1), s	11.4	15.8	4.6	2.0	10.0	24.3	15.9	38.1
Green Ext Time (p_c), s	0.0	0.7	0.0	6.0	0.0	0.0	0.5	7.0

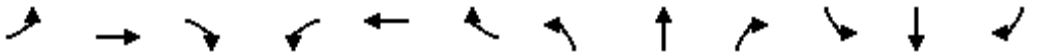
Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	990	110	80	1050	170	95	165	65	165	305	270
Future Volume (vph)	395	990	110	80	1050	170	95	165	65	165	305	270
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	24.0	64.8	64.8	11.2	52.0	52.0	11.0	26.4	26.4	17.6	33.0	24.0
Total Split (%)	20.0%	54.0%	54.0%	9.3%	43.3%	43.3%	9.2%	22.0%	22.0%	14.7%	27.5%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	18.9	60.4	60.4	54.7	48.1	48.1	29.1	22.6	22.6	39.3	28.5	51.9
Actuated g/C Ratio	0.16	0.50	0.50	0.46	0.40	0.40	0.24	0.19	0.19	0.33	0.24	0.43
v/c Ratio	0.86	0.65	0.15	0.37	0.87	0.27	0.55	0.55	0.17	0.56	0.81	0.44
Control Delay	84.2	10.7	0.5	16.8	41.6	5.0	42.7	51.8	0.9	35.6	58.1	24.2
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	84.2	10.7	0.5	16.8	41.6	5.0	42.7	51.8	0.9	35.6	58.1	24.2
LOS	F	B	A	B	D	A	D	D	A	D	E	C
Approach Delay		29.3			35.3			38.9			40.7	
Approach LOS		C			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: 56th Avenue & Powhaton Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	395	990	110	80	1050	170	95	165	65	165	305	270
Future Volume (veh/h)	395	990	110	80	1050	170	95	165	65	165	305	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	429	1076	120	87	1141	185	103	179	71	179	332	293
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	477	1711	763	314	1368	610	195	336	285	332	416	571
Arrive On Green	0.29	1.00	1.00	0.04	0.41	0.41	0.05	0.19	0.19	0.10	0.24	0.24
Sat Flow, veh/h	3237	3328	1485	1668	3328	1485	1668	1752	1485	1668	1752	1485
Grp Volume(v), veh/h	429	1076	120	87	1141	185	103	179	71	179	332	293
Grp Sat Flow(s),veh/h/ln	1618	1664	1485	1668	1664	1485	1668	1752	1485	1668	1752	1485
Q Serve(g_s), s	15.3	0.0	0.0	3.6	36.9	10.1	6.0	11.0	4.9	10.0	21.4	18.2
Cycle Q Clear(g_c), s	15.3	0.0	0.0	3.6	36.9	10.1	6.0	11.0	4.9	10.0	21.4	18.2
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	477	1711	763	314	1368	610	195	336	285	332	416	571
V/C Ratio(X)	0.90	0.63	0.16	0.28	0.83	0.30	0.53	0.53	0.25	0.54	0.80	0.51
Avail Cap(c_a), veh/h	526	1711	763	333	1368	610	195	336	285	348	416	571
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.59	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	0.0	18.8	31.7	23.8	37.6	43.7	41.2	33.0	43.0	28.3
Incr Delay (d2), s/veh	11.4	1.0	0.3	0.5	6.1	1.3	2.7	6.0	2.1	1.5	14.7	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.2	0.1	1.4	15.7	3.8	2.6	5.3	2.0	4.2	10.9	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	1.0	0.3	19.3	37.8	25.0	40.3	49.6	43.3	34.5	57.8	31.6
LnGrp LOS	D	A	A	B	D	C	D	D	D	C	E	C
Approach Vol, veh/h		1625			1413			353			804	
Approach Delay, s/veh		14.7			35.0			45.6			43.0	
Approach LOS		B			C			D			D	

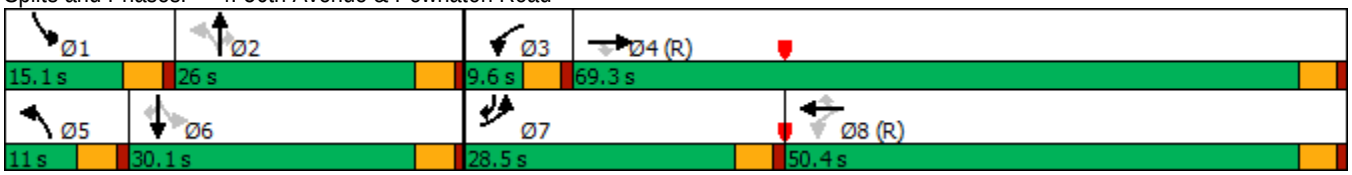
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	27.5	9.8	66.2	11.0	33.0	22.2	53.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.1	21.9	6.7	60.3	6.5	28.5	19.5	47.5
Max Q Clear Time (g_c+I1), s	12.0	13.0	5.6	2.0	8.0	23.4	17.3	38.9
Green Ext Time (p_c), s	0.1	0.8	0.0	11.5	0.0	1.5	0.4	5.4

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	620	80	60	1060	205	125	240	85	155	215	330
Future Volume (vph)	530	620	80	60	1060	205	125	240	85	155	215	330
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	28.5	69.3	69.3	9.6	50.4	50.4	11.0	26.0	26.0	15.1	30.1	28.5
Total Split (%)	23.8%	57.8%	57.8%	8.0%	42.0%	42.0%	9.2%	21.7%	21.7%	12.6%	25.1%	23.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	23.7	66.7	66.7	51.3	46.2	46.2	28.0	21.5	21.5	36.2	25.6	53.8
Actuated g/C Ratio	0.20	0.56	0.56	0.43	0.38	0.38	0.23	0.18	0.18	0.30	0.21	0.45
v/c Ratio	0.93	0.38	0.10	0.20	0.93	0.33	0.60	0.86	0.25	0.76	0.65	0.53
Control Delay	84.8	7.5	0.4	13.2	49.2	6.4	46.9	74.3	3.7	50.2	47.3	25.6
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	84.8	7.5	0.4	13.2	49.2	6.4	46.9	74.3	3.7	50.2	47.3	25.6
LOS	F	A	A	B	D	A	D	E	A	D	D	C
Approach Delay		40.3			41.0			53.4			37.7	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: 56th Avenue & Powhaton Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	620	80	60	1060	205	125	240	85	155	215	330
Future Volume (veh/h)	530	620	80	60	1060	205	125	240	85	155	215	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722	1722
Adj Flow Rate, veh/h	576	674	87	65	1152	223	136	261	92	168	234	359
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	12	12	12	12	12	12	12	12	12	12	12	12
Cap, veh/h	615	1785	796	373	1274	568	217	309	261	236	367	593
Arrive On Green	0.39	1.00	1.00	0.04	0.39	0.39	0.05	0.18	0.18	0.09	0.21	0.21
Sat Flow, veh/h	3182	3272	1459	1640	3272	1459	1640	1722	1459	1640	1722	1459
Grp Volume(v), veh/h	576	674	87	65	1152	223	136	261	92	168	234	359
Grp Sat Flow(s),veh/h/ln	1591	1636	1459	1640	1636	1459	1640	1722	1459	1640	1722	1459
Q Serve(g_s), s	20.9	0.0	0.0	2.8	39.8	13.2	6.5	17.6	6.6	9.8	14.8	23.2
Cycle Q Clear(g_c), s	20.9	0.0	0.0	2.8	39.8	13.2	6.5	17.6	6.6	9.8	14.8	23.2
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	615	1785	796	373	1274	568	217	309	261	236	367	593
V/C Ratio(X)	0.94	0.38	0.11	0.17	0.90	0.39	0.63	0.85	0.35	0.71	0.64	0.60
Avail Cap(c_a), veh/h	636	1785	796	382	1274	568	217	309	261	236	367	593
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	0.0	20.6	34.5	26.4	41.5	47.6	43.1	36.4	43.0	28.0
Incr Delay (d2), s/veh	17.7	0.5	0.2	0.2	10.7	2.0	5.6	23.8	3.7	9.7	8.2	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	0.1	0.0	1.1	17.4	4.9	1.3	9.6	2.7	4.6	7.2	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.5	0.2	20.8	45.3	28.5	47.1	71.5	46.8	46.1	51.2	32.5
LnGrp LOS	D	A	A	C	D	C	D	E	D	D	D	C
Approach Vol, veh/h		1337			1440			489			761	
Approach Delay, s/veh		23.4			41.6			60.1			41.3	
Approach LOS		C			D			E			D	

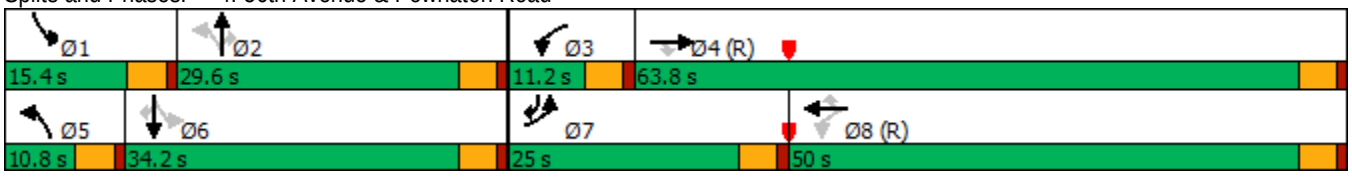
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	26.0	8.9	70.0	11.0	30.1	27.7	51.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.6	21.5	5.1	64.8	6.5	25.6	24.0	45.9
Max Q Clear Time (g_c+I1), s	11.8	19.6	4.8	2.0	8.5	25.2	22.9	41.8
Green Ext Time (p_c), s	0.0	0.4	0.0	6.0	0.0	0.1	0.3	2.9

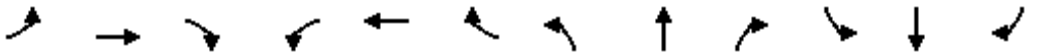
Intersection Summary	
HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	990	110	80	1050	185	95	180	65	210	350	440
Future Volume (vph)	440	990	110	80	1050	185	95	180	65	210	350	440
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	7
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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	25.0	63.8	63.8	11.2	50.0	50.0	10.8	29.6	29.6	15.4	34.2	25.0
Total Split (%)	20.8%	53.2%	53.2%	9.3%	41.7%	41.7%	9.0%	24.7%	24.7%	12.8%	28.5%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	20.1	59.4	59.4	52.5	45.9	45.9	31.4	25.1	25.1	40.5	29.7	54.3
Actuated g/C Ratio	0.17	0.50	0.50	0.44	0.38	0.38	0.26	0.21	0.21	0.34	0.25	0.45
v/c Ratio	0.90	0.66	0.15	0.38	0.91	0.30	0.63	0.54	0.16	0.73	0.89	0.69
Control Delay	86.1	12.9	1.0	17.8	46.9	6.4	48.5	48.8	0.8	44.6	66.0	35.2
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	86.1	12.9	1.0	17.8	46.9	6.4	48.5	48.8	0.8	44.6	66.0	35.2
LOS	F	B	A	B	D	A	D	D	A	D	E	D
Approach Delay		33.0			39.4			39.5			48.0	
Approach LOS		C			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 39.1	Intersection LOS: D
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: 56th Avenue & Powhaton Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	990	110	80	1050	185	95	180	65	210	350	440
Future Volume (veh/h)	440	990	110	80	1050	185	95	180	65	210	350	440
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	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	478	1076	120	87	1141	201	103	196	71	228	380	478
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	522	1680	749	306	1294	577	171	366	311	326	434	607
Arrive On Green	0.32	1.00	1.00	0.05	0.39	0.39	0.05	0.21	0.21	0.09	0.25	0.25
Sat Flow, veh/h	3237	3328	1485	1668	3328	1485	1668	1752	1485	1668	1752	1485
Grp Volume(v), veh/h	478	1076	120	87	1141	201	103	196	71	228	380	478
Grp Sat Flow(s),veh/h/ln	1618	1664	1485	1668	1664	1485	1668	1752	1485	1668	1752	1485
Q Serve(g_s), s	17.0	0.0	0.0	3.7	38.3	11.5	5.8	12.0	4.8	10.9	25.0	29.7
Cycle Q Clear(g_c), s	17.0	0.0	0.0	3.7	38.3	11.5	5.8	12.0	4.8	10.9	25.0	29.7
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	522	1680	749	306	1294	577	171	366	311	326	434	607
V/C Ratio(X)	0.92	0.64	0.16	0.28	0.88	0.35	0.60	0.53	0.23	0.70	0.88	0.79
Avail Cap(c_a), veh/h	553	1680	749	324	1294	577	171	366	311	326	434	607
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.57	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	0.0	0.0	20.3	34.1	25.9	37.0	42.3	39.4	35.5	43.4	30.9
Incr Delay (d2), s/veh	12.6	1.1	0.3	0.5	8.9	1.7	5.8	5.5	1.7	6.5	21.3	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.3	0.1	1.5	16.8	4.3	2.7	5.7	1.9	1.9	13.3	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	1.1	0.3	20.8	43.0	27.6	42.7	47.8	41.1	42.1	64.7	40.9
LnGrp LOS	D	A	A	C	D	C	D	D	D	D	E	D
Approach Vol, veh/h		1674			1429			370			1086	
Approach Delay, s/veh		15.7			39.5			45.1			49.5	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	29.6	9.9	65.1	10.8	34.2	23.9	51.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.9	25.1	6.7	59.3	6.3	29.7	20.5	45.5
Max Q Clear Time (g_c+I1), s	12.9	14.0	5.7	2.0	7.8	31.7	19.0	40.3
Green Ext Time (p_c), s	0.0	1.0	0.0	11.5	0.0	0.0	0.3	3.6

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

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	65	5	5	40	10	5	40	10	5	25	5
Future Vol, veh/h	10	65	5	5	40	10	5	40	10	5	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	71	5	5	43	11	5	43	11	5	27	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	76	0	0	171	160	74	182	157	49
Stage 1	-	-	-	-	-	-	96	96	-	59	59	-
Stage 2	-	-	-	-	-	-	75	64	-	123	98	-
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	1551	-	-	1523	-	-	792	732	988	779	735	1020
Stage 1	-	-	-	-	-	-	911	815	-	953	846	-
Stage 2	-	-	-	-	-	-	934	842	-	881	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1523	-	-	760	725	988	730	728	1020
Mov Cap-2 Maneuver	-	-	-	-	-	-	760	725	-	730	728	-
Stage 1	-	-	-	-	-	-	905	809	-	946	843	-
Stage 2	-	-	-	-	-	-	896	839	-	819	808	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.7	10.1	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	765	1551	-	-	1523	-	-	759
HCM Lane V/C Ratio	0.078	0.007	-	-	0.004	-	-	0.05
HCM Control Delay (s)	10.1	7.3	0	-	7.4	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	45	10	15	70	5	5	30	5	5	45	10
Future Vol, veh/h	5	45	10	15	70	5	5	30	5	5	45	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	49	11	16	76	5	5	33	5	5	49	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	81	0	0	60	0	0	206	178	55	195	181	79
Stage 1	-	-	-	-	-	-	65	65	-	111	111	-
Stage 2	-	-	-	-	-	-	141	113	-	84	70	-
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	1517	-	-	1544	-	-	752	716	1012	764	713	981
Stage 1	-	-	-	-	-	-	946	841	-	894	804	-
Stage 2	-	-	-	-	-	-	862	802	-	924	837	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1517	-	-	1544	-	-	696	706	1012	725	703	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	696	706	-	725	703	-
Stage 1	-	-	-	-	-	-	943	838	-	891	795	-
Stage 2	-	-	-	-	-	-	791	793	-	881	834	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.2	10.2	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	732	1517	-	-	1544	-	-	740
HCM Lane V/C Ratio	0.059	0.004	-	-	0.011	-	-	0.088
HCM Control Delay (s)	10.2	7.4	0	-	7.4	0	-	10.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	65	10	5	40	10	20	40	10	5	25	5
Future Vol, veh/h	10	65	10	5	40	10	20	40	10	5	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	11	71	11	5	43	11	22	43	11	5	27	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	82	0	0	174	163	77	185	163	49
Stage 1	-	-	-	-	-	-	99	99	-	59	59	-
Stage 2	-	-	-	-	-	-	75	64	-	126	104	-
Critical Hdwy	4.22	-	-	4.22	-	-	7.22	6.62	6.32	7.22	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.62	-	6.22	5.62	-
Follow-up Hdwy	2.308	-	-	2.308	-	-	3.608	4.108	3.408	3.608	4.108	3.408
Pot Cap-1 Maneuver	1490	-	-	1454	-	-	767	712	957	754	712	992
Stage 1	-	-	-	-	-	-	883	794	-	928	826	-
Stage 2	-	-	-	-	-	-	910	822	-	854	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1490	-	-	1454	-	-	733	703	957	703	703	992
Mov Cap-2 Maneuver	-	-	-	-	-	-	733	703	-	703	703	-
Stage 1	-	-	-	-	-	-	876	788	-	921	823	-
Stage 2	-	-	-	-	-	-	872	819	-	791	784	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.7	10.4	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	740	1490	-	-	1454	-	-	734
HCM Lane V/C Ratio	0.103	0.007	-	-	0.004	-	-	0.052
HCM Control Delay (s)	10.4	7.4	0	-	7.5	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	45	20	15	70	5	10	30	5	5	45	10
Future Vol, veh/h	5	45	20	15	70	5	10	30	5	5	45	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	5	49	22	16	76	5	11	33	5	5	49	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	81	0	0	71	0	0	211	183	60	200	192	79
Stage 1	-	-	-	-	-	-	70	70	-	111	111	-
Stage 2	-	-	-	-	-	-	141	113	-	89	81	-
Critical Hdwy	4.2	-	-	4.2	-	-	7.2	6.6	6.3	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	5.6	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	5.6	-	6.2	5.6	-
Follow-up Hdwy	2.29	-	-	2.29	-	-	3.59	4.09	3.39	3.59	4.09	3.39
Pot Cap-1 Maneuver	1467	-	-	1480	-	-	729	697	983	741	689	960
Stage 1	-	-	-	-	-	-	920	821	-	875	788	-
Stage 2	-	-	-	-	-	-	843	787	-	899	812	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1467	-	-	1480	-	-	674	687	983	702	679	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	674	687	-	702	679	-
Stage 1	-	-	-	-	-	-	916	818	-	872	779	-
Stage 2	-	-	-	-	-	-	773	778	-	855	809	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.2	10.5	10.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	708	1467	-	-	1480	-	-	716
HCM Lane V/C Ratio	0.069	0.004	-	-	0.011	-	-	0.091
HCM Control Delay (s)	10.5	7.5	0	-	7.5	0	-	10.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	5	48	0	1	11	0
Future Vol, veh/h	5	48	0	1	11	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	2	2	12	2	2
Mvmt Flow	5	52	0	1	12	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	32	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	1	-
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	-	-	1547	-	982	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	982	1043
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	1022	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1547	-
HCM Lane V/C Ratio	0.012	-	-	-	-
HCM Control Delay (s)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	13	0	5	47	0
Future Vol, veh/h	1	13	0	5	47	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	2	2	10	2	2
Mvmt Flow	1	14	0	5	51	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	15	0	13	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	5	-
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	-	-	1603	-	1006	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1018	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1603	-	1006	1074
Mov Cap-2 Maneuver	-	-	-	-	1006	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1006	-	-	1603	-
HCM Lane V/C Ratio	0.051	-	-	-	-
HCM Control Delay (s)	8.8	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	45	5	165	10	5
Future Vol, veh/h	195	45	5	165	10	5
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	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	2	2	12	2	2
Mvmt Flow	212	49	5	179	11	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	261	0	337	131
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1300	-	633	894
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	913	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1300	-	630	894
Mov Cap-2 Maneuver	-	-	-	-	664	-
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	726	-	-	1300	-
HCM Lane V/C Ratio	0.022	-	-	0.004	-
HCM Control Delay (s)	10.1	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	170	15	5	200	45	5
Future Vol, veh/h	170	15	5	200	45	5
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	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	2	2	10	2	2
Mvmt Flow	185	16	5	217	49	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	201	0	312	101
Stage 1	-	-	-	-	193	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1368	-	656	935
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1368	-	653	935
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	705	-	-	1368	-
HCM Lane V/C Ratio	0.077	-	-	0.004	-
HCM Control Delay (s)	10.5	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	0	1	0
Future Vol, veh/h	0	5	0	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	2	2	12	2	2
Mvmt Flow	0	5	0	0	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	4	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	1	-
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	-	-	1616	-	1018	1081
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1616	-	1018	1081
Mov Cap-2 Maneuver	-	-	-	-	1018	-
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	1022	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1616	-
HCM Lane V/C Ratio	0.001	-	-	-	-
HCM Control Delay (s)	8.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	0	5	0
Future Vol, veh/h	0	1	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	2	2	10	2	2
Mvmt Flow	0	1	0	0	5	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
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	-	-	1622	-	1021	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1022	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	1021	1084
Mov Cap-2 Maneuver	-	-	-	-	1021	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1022	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1021	-	-	1622	-
HCM Lane V/C Ratio	0.005	-	-	-	-
HCM Control Delay (s)	8.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	5	5	165	5	5
Future Vol, veh/h	195	5	5	165	5	5
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	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	2	2	12	2	2
Mvmt Flow	212	5	5	179	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	217	0	315	109
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	100	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1350	-	653	924
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	913	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1350	-	650	924
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	783	-	-	1350	-
HCM Lane V/C Ratio	0.014	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.7	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	170	5	5	200	5	5
Future Vol, veh/h	170	5	5	200	5	5
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	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	2	2	10	2	2
Mvmt Flow	185	5	5	217	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	190	0	307	95
Stage 1	-	-	-	-	188	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1381	-	661	943
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	658	943
Mov Cap-2 Maneuver	-	-	-	-	689	-
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	796	-	-	1381	-
HCM Lane V/C Ratio	0.014	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.6	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	1	28	0	10	0	176	118	43	94	2
Future Vol, veh/h	5	0	1	28	0	10	0	176	118	43	94	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	150	-	150	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	5	0	1	30	0	11	0	191	128	47	102	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	293	516	52	336	389	96	104	0	0	319	0	0
Stage 1	197	197	-	191	191	-	-	-	-	-	-	-
Stage 2	96	319	-	145	198	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.34	-	-	4.34	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.32	-	-	2.32	-	-
Pot Cap-1 Maneuver	612	440	973	569	523	910	1415	-	-	1169	-	-
Stage 1	758	713	-	764	717	-	-	-	-	-	-	-
Stage 2	872	627	-	815	712	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	586	422	973	551	502	910	1415	-	-	1169	-	-
Mov Cap-2 Maneuver	625	475	-	604	548	-	-	-	-	-	-	-
Stage 1	758	684	-	764	717	-	-	-	-	-	-	-
Stage 2	862	627	-	781	684	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	10.7	0	2.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1415	-	-	665	604	910	1169	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.05	0.012	0.04	-	-
HCM Control Delay (s)	0	-	-	10.5	11.3	9	8.2	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	0.1	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	115	0	42	0	105	31	11	115	2
Future Vol, veh/h	1	0	0	115	0	42	0	105	31	11	115	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	150	-	150	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	1	0	0	125	0	46	0	114	34	12	125	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	207	298	64	201	265	57	127	0	0	148	0	0
Stage 1	150	150	-	114	114	-	-	-	-	-	-	-
Stage 2	57	148	-	87	151	-	-	-	-	-	-	-
Critical Hdwy	7.7	6.7	7.1	7.7	6.7	7.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.7	5.7	-	6.7	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.7	-	6.7	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.6	4.1	3.4	3.6	4.1	3.4	2.3	-	-	2.3	-	-
Pot Cap-1 Maneuver	711	595	962	718	621	972	1400	-	-	1375	-	-
Stage 1	815	753	-	856	782	-	-	-	-	-	-	-
Stage 2	925	755	-	888	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	673	590	962	713	615	972	1400	-	-	1375	-	-
Mov Cap-2 Maneuver	690	609	-	721	628	-	-	-	-	-	-	-
Stage 1	815	746	-	856	782	-	-	-	-	-	-	-
Stage 2	882	755	-	880	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.4	0	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1400	-	-	690	721	972	1375	-	-
HCM Lane V/C Ratio	-	-	-	0.002	0.173	0.047	0.009	-	-
HCM Control Delay (s)	0	-	-	10.2	11	8.9	7.6	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	5	20	0	20	0	835	70	90	970	5
Future Vol, veh/h	5	0	5	20	0	20	0	835	70	90	970	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	150	-	150	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12	12	12	12	12	12	12
Mvmt Flow	5	0	5	22	0	22	0	908	76	98	1054	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1707	2237	530	1631	2163	454	1059	0	0	984	0	0
Stage 1	1253	1253	-	908	908	-	-	-	-	-	-	-
Stage 2	454	984	-	723	1255	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.34	-	-	4.34	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.32	-	-	2.32	-	-
Pot Cap-1 Maneuver	53	37	468	61	41	527	597	-	-	640	-	-
Stage 1	168	223	-	277	330	-	-	-	-	-	-	-
Stage 2	529	303	-	361	223	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	31	468	53	35	527	597	-	-	640	-	-
Mov Cap-2 Maneuver	125	104	-	156	124	-	-	-	-	-	-	-
Stage 1	168	189	-	277	330	-	-	-	-	-	-	-
Stage 2	507	303	-	302	189	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.3	22	0	1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	597	-	-	197	156	527	640	-	-
HCM Lane V/C Ratio	-	-	-	0.055	0.139	0.041	0.153	-	-
HCM Control Delay (s)	0	-	-	24.3	31.8	12.1	11.6	-	-
HCM Lane LOS	A	-	-	C	D	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.1	0.5	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	0	70	0	85	0	970	20	25	960	5
Future Vol, veh/h	5	0	0	70	0	85	0	970	20	25	960	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	150	-	150	150	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	5	0	0	76	0	92	0	1054	22	27	1043	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1627	2176	524	1630	2156	527	1048	0	0	1076	0	0
Stage 1	1100	1100	-	1054	1054	-	-	-	-	-	-	-
Stage 2	527	1076	-	576	1102	-	-	-	-	-	-	-
Critical Hdwy	7.7	6.7	7.1	7.7	6.7	7.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.7	5.7	-	6.7	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.7	-	6.7	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3.6	4.1	3.4	3.6	4.1	3.4	2.3	-	-	2.3	-	-
Pot Cap-1 Maneuver	62	41	478	~ 62	43	475	614	-	-	599	-	-
Stage 1	213	270	-	228	284	-	-	-	-	-	-	-
Stage 2	482	277	-	450	269	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	48	39	478	~ 60	41	475	614	-	-	599	-	-
Mov Cap-2 Maneuver	142	134	-	160	142	-	-	-	-	-	-	-
Stage 1	213	258	-	228	284	-	-	-	-	-	-	-
Stage 2	388	277	-	430	257	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.4	28.9	0	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	614	-	-	142	160	475	599	-	-
HCM Lane V/C Ratio	-	-	-	0.038	0.476	0.195	0.045	-	-
HCM Control Delay (s)	0	-	-	31.4	46.4	14.4	11.3	-	-
HCM Lane LOS	A	-	-	D	E	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	2.2	0.7	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	8	286	107	32	89
Future Vol, veh/h	25	8	286	107	32	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	12	2	2	12
Mvmt Flow	27	9	311	116	35	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	430	156	0	0	427	0
Stage 1	311	-	-	-	-	-
Stage 2	119	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	553	862	-	-	1129	-
Stage 1	716	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	536	862	-	-	1129	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	865	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	595	862	1129	-
HCM Lane V/C Ratio	-	-	0.046	0.01	0.031	-
HCM Control Delay (s)	-	-	11.3	9.2	8.3	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0.1	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	105	31	105	28	8	222
Future Vol, veh/h	105	31	105	28	8	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	10	2	2	10
Mvmt Flow	114	34	114	30	9	241

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	253	57	0	0	144	0
Stage 1	114	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	714	997	-	-	1436	-
Stage 1	898	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	710	997	-	-	1436	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	726	997	1436	-
HCM Lane V/C Ratio	-	-	0.157	0.034	0.006	-
HCM Control Delay (s)	-	-	10.9	8.7	7.5	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	20	890	70	85	905
Future Vol, veh/h	20	20	890	70	85	905
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	12	2	2	12
Mvmt Flow	22	22	967	76	92	984

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1643	484	0	0	1043	0
Stage 1	967	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	91	529	-	-	663	-
Stage 1	329	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	529	-	-	663	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	329	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	200	529	663	-
HCM Lane V/C Ratio	-	-	0.109	0.041	0.139	-
HCM Control Delay (s)	-	-	25.2	12.1	11.3	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0.5	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	80	910	20	25	1010
Future Vol, veh/h	70	80	910	20	25	1010
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	10	2	2	10
Mvmt Flow	76	87	989	22	27	1098

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1592	495	0	0	1011	0
Stage 1	989	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	98	520	-	-	681	-
Stage 1	321	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	94	520	-	-	681	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	321	-	-	-	-	-
Stage 2	489	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	217	520	681	-
HCM Lane V/C Ratio	-	-	0.351	0.167	0.04	-
HCM Control Delay (s)	-	-	30.3	13.3	10.5	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.6	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	5	389	161	21	93
Future Vol, veh/h	38	5	389	161	21	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	41	5	423	175	23	101

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	570	423	0	0	598	0
Stage 1	423	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.52	6.32	-	-	4.22	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.408	-	-	2.308	-
Pot Cap-1 Maneuver	467	610	-	-	932	-
Stage 1	640	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	455	610	-	-	932	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	529	610	932	-
HCM Lane V/C Ratio	-	-	0.078	0.009	0.024	-
HCM Control Delay (s)	-	-	12.4	11	9	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	0.1	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	157	21	112	42	6	321
Future Vol, veh/h	157	21	112	42	6	321
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	171	23	122	46	7	349

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	485	122	0	0	168	0
Stage 1	122	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.5	6.3	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	-	-	2.29	-
Pot Cap-1 Maneuver	527	908	-	-	1363	-
Stage 1	884	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	908	-	-	1363	-
Mov Cap-2 Maneuver	579	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	579	908	1363	-
HCM Lane V/C Ratio	-	-	0.295	0.025	0.005	-
HCM Control Delay (s)	-	-	13.8	9.1	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	15	940	110	65	855
Future Vol, veh/h	25	15	940	110	65	855
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	12	12	12	12	12
Mvmt Flow	27	16	1022	120	71	929

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1629	511	0	0	1142	0
Stage 1	1022	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	7.04	7.14	-	-	4.34	-
Critical Hdwy Stg 1	6.04	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.62	3.42	-	-	2.32	-
Pot Cap-1 Maneuver	84	482	-	-	553	-
Stage 1	287	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	73	482	-	-	553	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	287	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	187	482	553	-
HCM Lane V/C Ratio	-	-	0.145	0.034	0.128	-
HCM Control Delay (s)	-	-	27.5	12.7	12.5	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	0.4	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	105	65	865	30	20	1060
Future Vol, veh/h	105	65	865	30	20	1060
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	150	150	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	114	71	940	33	22	1152

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1560	470	0	0	973	0
Stage 1	940	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	7	7.1	-	-	4.3	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	-	-	2.3	-
Pot Cap-1 Maneuver	~ 95	519	-	-	657	-
Stage 1	322	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 92	519	-	-	657	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	322	-	-	-	-	-
Stage 2	461	-	-	-	-	-

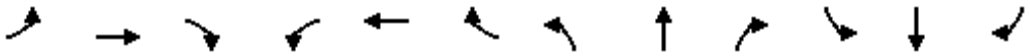
Approach	WB	NB	SB
HCM Control Delay, s	29.6	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	213	519	657	-
HCM Lane V/C Ratio	-	-	0.536	0.136	0.033	-
HCM Control Delay (s)	-	-	39.9	13	10.7	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	2.8	0.5	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX D

Queue Analysis Worksheets



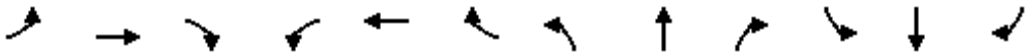
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	299	1016	462	283	658	478	408	886	375	663	832	217
v/c Ratio	0.51	0.97	0.62	0.65	0.61	0.61	0.85	1.03	0.58	1.12	0.82	0.31
Control Delay	22.6	62.8	21.1	23.0	35.9	30.3	43.7	81.2	20.1	107.1	46.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	62.8	21.1	23.0	35.9	30.3	43.7	81.2	20.1	107.1	46.2	12.6
Queue Length 50th (ft)	68	403	181	71	256	310	105	~378	128	~258	313	55
Queue Length 95th (ft)	97	#603	322	82	318	431	m#178	#512	m177	#379	395	111
Internal Link Dist (ft)		318			3146			1587			421	
Turn Bay Length (ft)	200		200	200		200	200		200	250		200
Base Capacity (vph)	611	1044	749	573	1071	781	485	859	706	592	1011	712
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	0.49	0.97	0.62	0.49	0.61	0.61	0.84	1.03	0.53	1.12	0.82	0.30

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.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	272	788	435	451	1141	832	489	935	337	609	1022	353
v/c Ratio	0.88	0.98	0.63	0.83	1.08	1.00	0.93	1.03	0.47	0.85	0.93	0.51
Control Delay	54.9	71.5	23.8	36.3	89.6	64.5	59.2	80.7	14.7	42.9	53.1	20.4
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	54.9	71.5	23.8	36.3	89.6	64.5	59.2	80.7	14.7	42.9	53.1	20.4
Queue Length 50th (ft)	67	~343	186	126	~529	~648	149	~399	93	186	400	140
Queue Length 95th (ft)	#141	#470	305	180	#663	#909	#250	#536	158	#275	#532	231
Internal Link Dist (ft)		318			3146			1587			421	
Turn Bay Length (ft)	200		200	200		200	200		200	250		200
Base Capacity (vph)	310	808	688	583	1052	830	528	905	731	718	1104	694
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	0.88	0.98	0.63	0.77	1.08	1.00	0.93	1.03	0.46	0.85	0.93	0.51

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
Lane Group Flow (vph)	217	120	853	82	65	43	549	299	87	60	353
v/c Ratio	0.62	0.40	0.54	0.40	0.44	0.17	0.78	0.24	0.08	0.13	0.23
Control Delay	31.2	35.3	1.3	39.6	61.1	1.5	59.3	3.0	0.2	26.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	35.3	1.3	39.6	61.1	1.5	59.3	3.0	0.2	26.7	17.7
Queue Length 50th (ft)	124	81	0	49	49	0	216	24	0	29	63
Queue Length 95th (ft)	m113	m81	m6	85	93	0	m196	m46	m0	70	116
Internal Link Dist (ft)		3146			1070			863			396
Turn Bay Length (ft)	200			100					150	50	
Base Capacity (vph)	379	504	1583	213	318	383	1015	1262	1102	467	1506
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.24	0.54	0.38	0.20	0.11	0.54	0.24	0.08	0.13	0.23

Intersection Summary

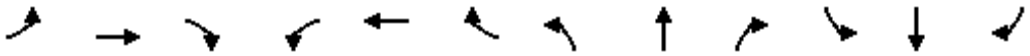
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	136	76	690	103	109	54	842	239	65	54	517
v/c Ratio	0.51	0.34	0.44	0.39	0.57	0.22	0.83	0.18	0.06	0.13	0.39
Control Delay	31.6	36.3	0.6	42.3	62.5	3.8	47.6	3.1	0.1	30.8	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	36.3	0.6	42.3	62.5	3.8	47.6	3.1	0.1	30.8	20.5
Queue Length 50th (ft)	74	48	0	66	82	0	292	24	0	28	98
Queue Length 95th (ft)	m90	m62	m0	111	137	9	251	m36	m0	68	171
Internal Link Dist (ft)		3146			1070			863			396
Turn Bay Length (ft)	200			100					150	50	
Base Capacity (vph)	270	349	1583	266	302	336	1244	1303	1127	415	1315
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.22	0.44	0.39	0.36	0.16	0.68	0.18	0.06	0.13	0.39

Intersection Summary

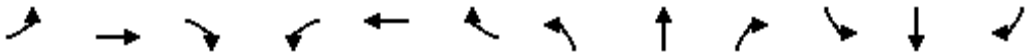
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	1168	76	60	1516	65	120	272	76	65	168	130
v/c Ratio	0.77	0.57	0.08	0.23	0.82	0.07	0.45	0.69	0.17	0.34	0.53	0.34
Control Delay	47.7	17.5	1.6	7.4	19.2	0.1	39.8	54.8	0.9	30.8	42.8	6.2
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	47.7	17.5	1.6	7.4	19.2	0.1	39.8	54.8	0.9	30.8	42.8	6.2
Queue Length 50th (ft)	75	294	0	10	588	0	72	200	0	25	113	12
Queue Length 95th (ft)	#175	358	15	m16	708	m0	125	#317	3	m38	m156	m16
Internal Link Dist (ft)		386			2532			285			2425	
Turn Bay Length (ft)	200											
Base Capacity (vph)	234	2059	960	256	1850	892	270	394	442	190	317	382
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	0.72	0.57	0.08	0.23	0.82	0.07	0.44	0.69	0.17	0.34	0.53	0.34

Intersection Summary

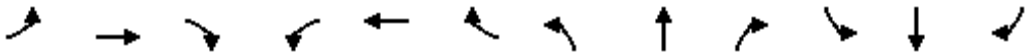
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	120	1451	147	76	1652	71	60	228	33	130	288	212
v/c Ratio	0.66	0.72	0.15	0.41	0.87	0.08	0.32	0.67	0.09	0.57	0.70	0.46
Control Delay	37.5	22.4	2.8	15.8	24.8	0.4	37.5	56.3	0.5	36.1	46.4	13.5
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	37.5	22.4	2.8	15.8	24.8	0.4	37.5	56.3	0.5	36.1	46.4	13.5
Queue Length 50th (ft)	39	435	2	15	677	0	35	166	0	61	217	27
Queue Length 95th (ft)	#115	525	32	m22	769	m0	70	254	0	m78	m258	m50
Internal Link Dist (ft)		386			2532			285			2425	
Turn Bay Length (ft)	200											
Base Capacity (vph)	188	2002	956	190	1901	894	187	341	367	230	409	463
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	0.64	0.72	0.15	0.40	0.87	0.08	0.32	0.67	0.09	0.57	0.70	0.46

Intersection Summary

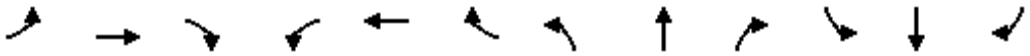
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	576	674	87	65	1152	223	136	261	92	168	234	359
v/c Ratio	0.87	0.34	0.09	0.18	0.84	0.30	0.55	0.78	0.23	0.70	0.59	0.49
Control Delay	77.7	7.4	0.4	12.8	40.0	6.1	42.9	63.6	3.4	44.1	45.6	24.6
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	77.7	7.4	0.4	12.8	40.0	6.1	42.9	63.6	3.4	44.1	45.6	24.6
Queue Length 50th (ft)	217	51	1	19	425	13	79	195	0	99	176	137
Queue Length 95th (ft)	#287	62	m2	37	518	64	133	#321	16	#179	263	294
Internal Link Dist (ft)		2532			1341			266			2778	
Turn Bay Length (ft)	75			200						150		
Base Capacity (vph)	686	1968	922	361	1377	736	248	336	398	244	397	743
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	0.84	0.34	0.09	0.18	0.84	0.30	0.55	0.78	0.23	0.69	0.59	0.48

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	478	1076	120	87	1141	201	103	196	71	228	380	478
v/c Ratio	0.85	0.61	0.14	0.35	0.84	0.28	0.59	0.50	0.15	0.67	0.82	0.64
Control Delay	83.3	11.6	0.4	16.8	40.4	6.2	43.8	47.2	0.7	40.8	58.1	32.5
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	83.3	11.6	0.4	16.8	40.4	6.2	43.8	47.2	0.7	40.8	58.1	32.5
Queue Length 50th (ft)	202	101	0	28	421	11	56	135	0	149	294	272
Queue Length 95th (ft)	#267	118	m2	51	515	61	99	212	0	226	#440	442
Internal Link Dist (ft)		2532			1341			266			2778	
Turn Bay Length (ft)	75			200						150		
Base Capacity (vph)	586	1752	852	247	1362	718	176	389	471	338	461	751
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	0.82	0.61	0.14	0.35	0.84	0.28	0.59	0.50	0.15	0.67	0.82	0.64

Intersection Summary

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

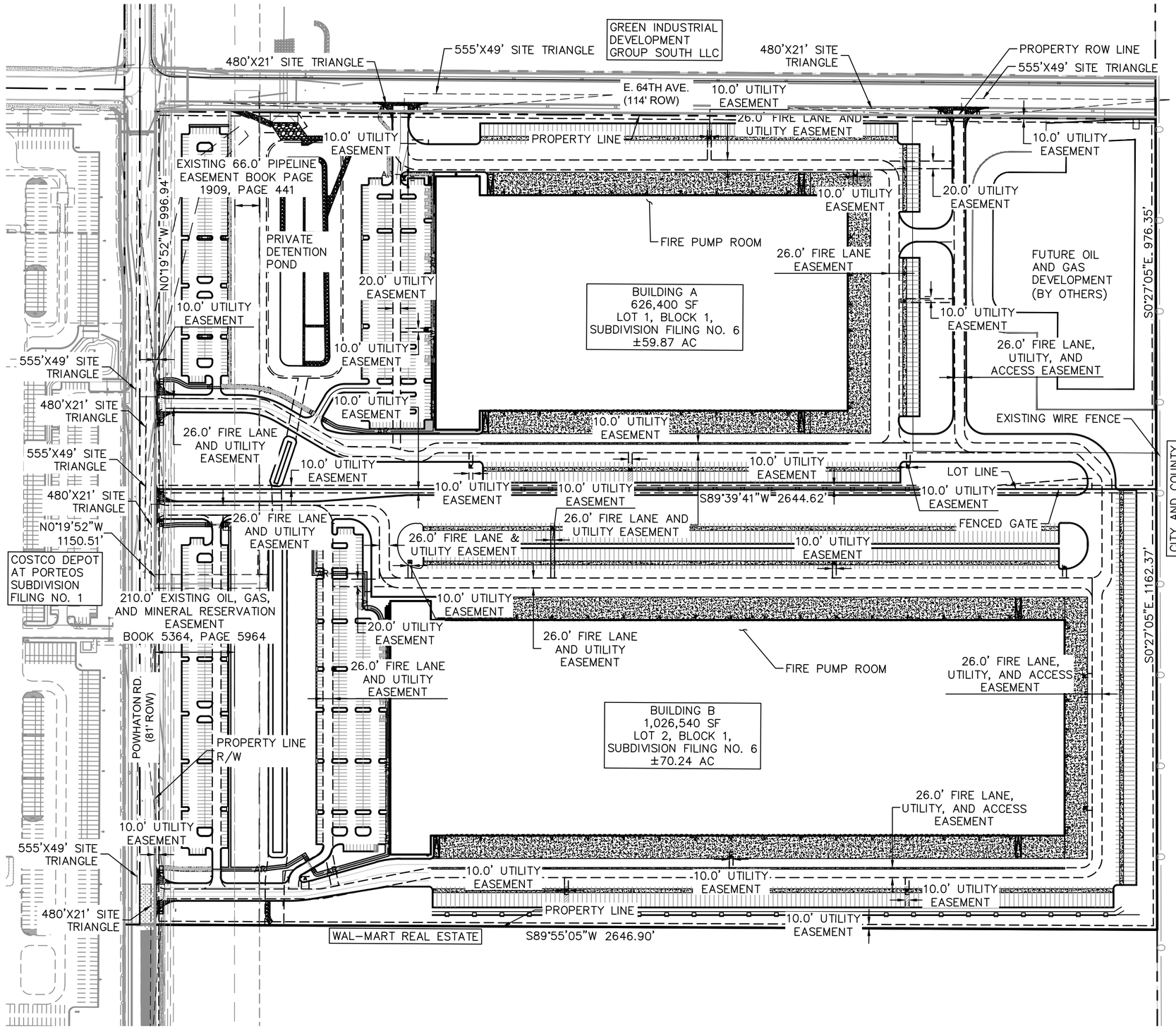
APPENDIX E

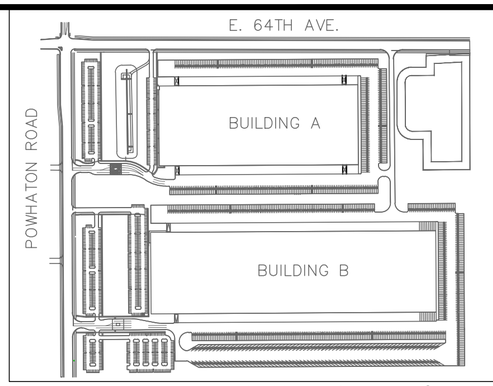
Conceptual Site Plan

PORTEOS INDUSTRIAL AT PORTEOS

SITE PLAN WITH ADJUSTMENTS

LOCATED IN THE NW $\frac{1}{4}$ OF SECTION 9,
TOWNSHIP 3 SOUTH, RANGE 65 WEST OF THE 6TH P.M.,
CITY OF AURORA, ADAMS COUNTY, STATE OF COLORADO





KEYMAP
NTS

NORTH

LEGEND

- PROPERTY LINE
- PHASE LINE
- EASEMENT LINE
- (15) PARKING COUNT
- CONCRETE SIDEWALK
- HEAVY DUTY ASPHALT
- LIGHT DUTY ASPHALT
- HEAVY DUTY CONCRETE
- AR ACCESSIBLE ROUTE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- FDC WITH KNOX HARDWARE
- KNOX BOX

NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

SCALE: 1"=200'

NO.	REVISION	BY	DATE
2	REV PER AHJ COMMENTS	FSA	8/11/21
1	REV PER AHJ COMMENTS	FSA	6/30/21
			BJC
			BJC
			APPR

Kimley»Horn
KIMLEY-HORN AND ASSOCIATES, INC.
4582 South Ulster Street, Suite 1500
Denver, Colorado 80237 (303) 228-2300

PORTEOS INDUSTRIAL AT PORTEOS
CITY OF AURORA, COUNTY OF ADAMS
SITE PLAN WITH ADJUSTMENTS
OVERALL SITE PLAN

DATE: 5/20/2020
DESIGNED BY:
DRAWN BY:
CHECKED BY: RJP

FILE NO. 196008000SP_OV
PROJECT NO. 196008000

SHEET NO.
3

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