

LANSING COUNTRY CLUB REDEVELOPMENT

Traffic Impact Study

Munster, Indiana

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Prepared for:

Saxon Partners, LLC

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1. INTRODUCTION

Kimley-Horn and Associates, Inc., (Kimley-Horn) was retained by Saxon Partners, LLC to prepare a traffic impact study for a proposed development located at the western terminus of Fisher Street in Munster, Indiana. For purposes of this traffic impact study, the proposed development was assumed to include up to 1 million square feet of office use to be constructed in three phases as summarized below.

- Phase A: 300,000 square feet (Year 2025)
- Phase B: 500,000 square feet (Year 2029)
- Phase C: 1 million square feet (Year 2035)

In order to accommodate the development, the existing Lansing Country Club would be removed. Note that the western portion of the golf course, located within the boundary of Lansing, Illinois, is not included as part of the proposed development plan. An aerial view of the study location and the surrounding roadway network is presented in **Exhibit 1**.

Access to the development would be provided via a connection to Fisher Street at its western terminus (referred to herein as North Access). With the proposed development, Timrick Drive would be realigned to form a “T-intersection” with Manor Avenue north of Fisher Street. Timrick Drive would operate under minor-leg stop control at its intersection with Manor Avenue. At the intersection of Fisher Street/Manor Avenue/North Access/Commercial Driveway A, dedicated left-turn lanes would be provided on the east and west legs of Fisher Street. Manor Avenue and Commercial Driveway would continue to operate under minor-leg stop control; Fisher Street and North Access would operate under a free-flow condition.

In addition, access would be provided via Maple Leaf Boulevard, a new east-west roadway located along the northern boundary of Maple Leaf Crossing. Maple Leaf Boulevard would provide access to the existing northwest-southeast roadway located on the west side of the Pepsi facility. As part of the proposed development, this roadway would be improved to public road standards. In order to provide connectivity to the development, an underpass is planned for the Northern Indiana Transit Commuter District’s (NITCD) West Lake Corridor rail alignment (referred to herein as South Access).

As a part of this study, the existing network was analyzed to determine the current operations at the study intersections. In order to assess the site’s impact on the area roadway network, site-generated trips were established and added to background traffic volumes. Consistent with Indiana Department of Transportation (INDOT) requirements, future traffic conditions were evaluated for anticipated occupancy of each phase of development.

This report presents and documents Kimley-Horn’s data collection, summarizes the evaluation of existing and projected future traffic conditions on the surrounding roadways, and identifies recommendations to address the potential impact of site-generated traffic on the adjacent roadway network. A summary of the offsite improvements identified through this analysis are provided in the *Recommendations & Conclusion* section of this report.



2. EXISTING CONDITIONS

Kimley-Horn conducted a field visit to collect relevant information pertaining to existing land uses in the surrounding area, the adjacent street system, current traffic volumes and operating conditions, lane configurations and traffic controls at nearby intersections, and other key roadway characteristics. This section of the report details information on these existing conditions.

2.1 Area Connectivity & Land Uses

The proposed development is located at the western terminus of Fisher Street in Munster, Indiana. The existing Lansing Country Club would be removed to accommodate the proposed development. The western portion of the existing golf course, located in Lansing, Illinois, is not included in the development plan.

The subject property is bounded by Canadian National Railroad on the southwest and the Pennsy Greenway on the northeast. Northern Indiana Transit Commuter District's (NITCD) proposed West Lake Corridor rail alignment is also located on the east side of the subject property. Access to the site is currently provided via an access driveway to Wentworth Avenue in Lansing, Illinois.

Through the study area, Calumet Avenue provides north-south access through the Town of Munster. Located approximately one-half mile east of the subject property, Calumet Avenue provides a full interchange with Interstate 94 approximately one and one-half miles to the north. Interstate 94 provides east-west access across the State of Indiana.

The Town of Munster is currently constructing an underpass for 45th Street below the Canadian National Railroad. As part of this project, the east leg of 45th Street at Calumet Avenue will be realigned to meet the existing west leg of the intersection, located south of the Canadian National Railroad. The Pennsy Greenway will be extended to provide a continuous multiuse trail through the intersection of Calumet Avenue/45th Street.

The area surrounding the subject property is developed with a mix of resident, commercial, and industrial uses. Residential uses are located north, south, and west of the site. Industrial uses are primarily located south of the Canadian National Railroad. Commercial uses front Calumet Avenue through the study area. A mixed-use development, referred to as Maple Leaf Crossing, is currently under construction at the northwest quadrant of the former intersection of Calumet Avenue/45th Street.

2.2 Roadway Characteristics

A field investigation was conducted within the study area. As a result of this visit, the following information was obtained about the existing roadway network.

Calumet Avenue is a four-lane, north-south roadway classified by INDOT as a Principal Arterial in the study area. North of Fran Lin Parkway, Calumet Avenue provides two travel lanes in each direction with dedicated left-turn lanes provided at intersections and driveways. South of Fran Lin Parkway, Calumet Avenue provides two travel lanes in each direction with a continuous two-way left-

turn lane (TWLTL) in the center median. At its signalized intersection with Fisher Street, Calumet Avenue provides a dedicated left-turn lane, one through lane, and a shared through/right-turn lane on both the north and south legs. Striped crosswalks and pedestrian pushbuttons are provided on both legs of Calumet Avenue at Fisher Street. At its intersection with Maple Leaf Boulevard, Calumet Avenue provides two travel lanes in each direction and a TWLTL in the center median. Calumet Avenue operates under a free-flow condition with minor-leg stop control posted on Maple Leaf Boulevard. A 35-mile per hour (MPH) speed limit is posted within the vicinity of the project area. Calumet Avenue is under the Town of Munster jurisdiction through the study area.

Fisher Street is a two-lane, east-west roadway classified by INDOT as a Major Collector. The typical section of the existing roadway includes one travel lane in each direction. The Pennsy Greenway is located on the south side of Fisher Street from Timrick Drive to Calumet Avenue. At its signalized intersection with Calumet Avenue, Fisher Street provides a dedicated left-turn lane and one shared through/right-turn lane on the east and west legs. Striped crosswalks and pedestrian pushbuttons are provided on both legs of Fisher Street at Calumet Avenue. A 35 MPH speed limit is posted on Fisher Street. Fisher Street is under the Town of Munster jurisdiction.

Fran Lin Parkway extends east from Calumet Avenue. Classified by INDOT as a Major Collector, Fran Lin Parkway provides a single travel lane in each direction. Near its intersection with Calumet Avenue, Fran Lin Parkway is a divided roadway with a landscaped center median. Dedicated bike lanes are provided on both the north and south sides of the street. At its signalized intersection with Calumet Avenue, Fran Lin Parkway provides a dedicated left-turn lane and a shared through/right-turn lane on the east leg. A striped crosswalk and pedestrian pushbuttons are provided on Fran Lin Parkway. The west leg of the intersection is Commercial Driveway B. A 35 MPH speed limit is posted on Fran Lin Parkway in the study area.

Commercial Driveway A extends south of Fisher Street near its western terminus. This private driveway provides access to an existing office building. Commercial Driveway A provides a single lane in each direction and was assumed to operate under minor-leg stop control. For purposes of this analysis, a 25 MPH speed limit was assumed for Commercial Driveway A.

Commercial Driveway B extends west of Calumet Avenue aligned opposite Fran Lin Parkway. At its signalized intersection with Calumet Avenue, Commercial Driveway B provides a shared left-turn/through lane and a dedicated right-turn lane. A striped crosswalk and pedestrian pushbuttons are provided on Commercial Driveway B. Commercial Driveway B is a private driveway. For purposes of this analysis, a 25 MPH speed limit was assumed.

Timrick Drive is a two-lane, northwest-southwest roadway which extends northwest from Fisher Street. Classified by INDOT as a Major Collector, Timrick Drive operates under a free-flow condition at Fisher Street. A 25 MPH speed limit is posted on Timrick Drive in the study area. Timrick Drive is under the Town of Munster jurisdiction.

Manor Avenue extends north from Fisher Street and provides north-south access through the study area. At its intersection with Fisher Street, Manor Avenue operates under minor-leg stop control and provides a single shared lane. Classified by INDOT as a Minor Collector, Manor Avenue is under the

Town of Munster jurisdiction. A residential speed limit of 25 MPH is posted on Manor Avenue through the study area.

Maple Leaf Boulevard was recently dedicated as public right-of-way as part of the Maple Leaf Crossing development, located on the west side of Calumet Avenue north of the former 45th Street intersection. The Maple Leaf Crossing development is currently under construction; and therefore, Maple Leaf Boulevard was assumed for the analysis of future conditions only. Upon completion, Maple Leaf Boulevard will provide a single travel lane in each direction and will operate under minor-leg stop control. Maple Leaf Boulevard is under the Town of Munster jurisdiction. For purposes of this analysis, a 25 MPH speed limit was assumed.

2.3 Data Collection

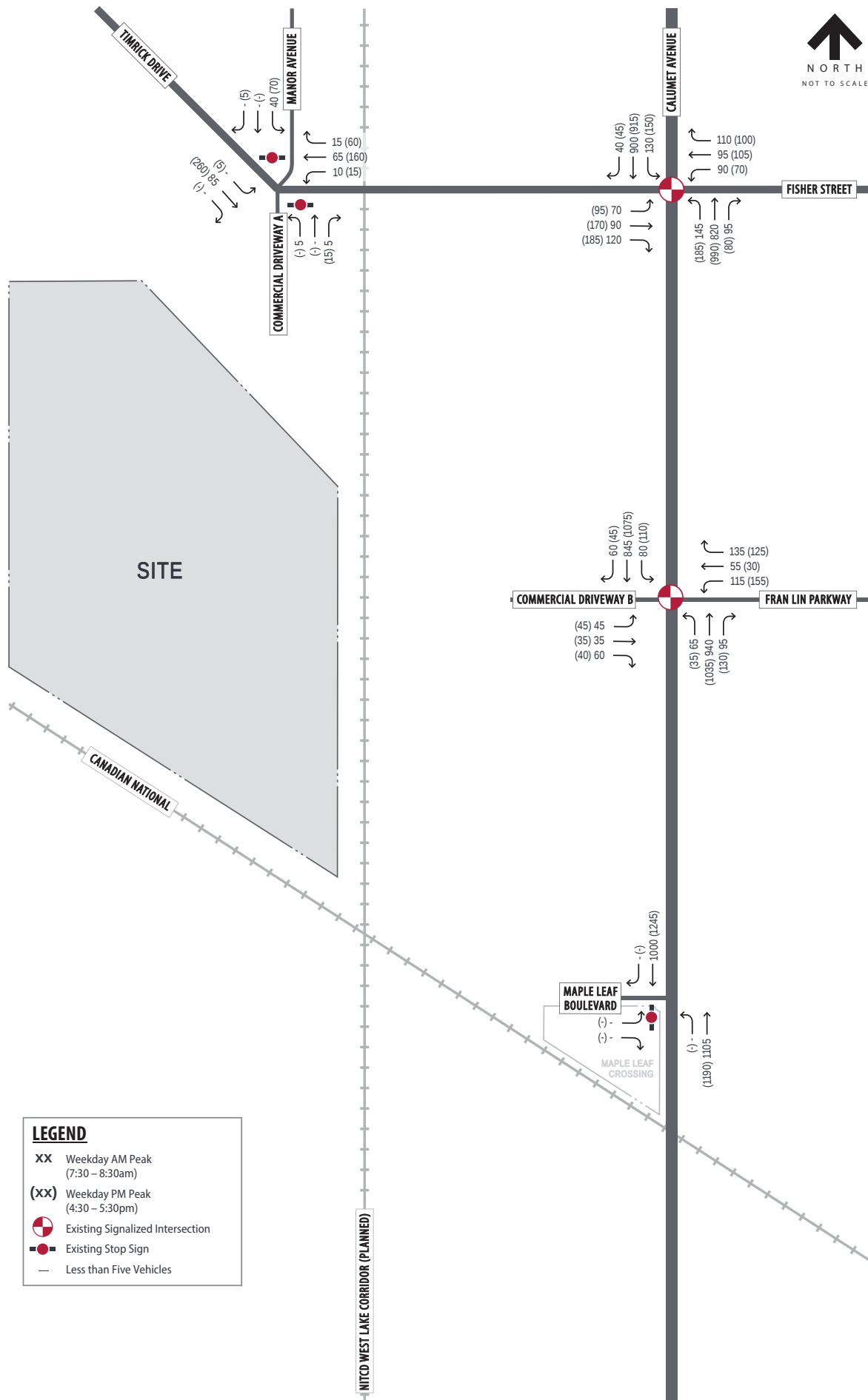
Turning movement count data was collected in September 2021 at the intersections listed below. The counts were conducted on a typical weekday from 7:00 to 9:00AM and 4:00 to 6:00PM. These time periods coincide with the typical peak traffic periods of the surrounding street system.

- Calumet Avenue / Fisher Street
- Calumet Avenue / Fran Lin Parkway / Commercial Driveway B
- Fisher Street / Timrick Drive / Manor Avenue / Commercial Driveway A

During the same period, a bi-directional segment count was conducted on Calumet Avenue at the future Maple Leaf Boulevard.

The traffic count data reveals that traffic on Calumet Avenue is generally evenly distributed with a slightly higher northbound volume in the morning peak hour. Traffic on Fisher Street is generally evenly distributed in the morning peak hour. In the evening peak hour, the traffic volume is slightly higher in the eastbound direction.

Although the COVID-19 public health crisis resulted in atypically low traffic volumes beginning in Mid-March, traffic has slowly increased towards normal in some areas over the past several months. Based on COVID-19 conditions in September 2021, and a review of the area development pattern, the traffic count data was assumed to represent generally typical conditions; a COVID-19 adjustment factor was not applied. The existing peak hour traffic counts, rounded to the nearest multiple of five, are presented in **Exhibit 2**. For purposes of this analysis, traffic volumes were not balanced between study intersections due to the presence of side streets and driveways along both Calumet Avenue and Fisher Street.



2.4 Existing Capacity Analysis

Capacity analyses were conducted to assess existing and future build operating conditions at the study intersections during the weekday peak hours. The capacity of an intersection quantifies its ability to accommodate traffic volumes and is expressed in terms of level of service (LOS), measured in average delay per vehicle. LOS grades range from A to F, with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions).

The LOS grades shown below, which are provided in the Transportation Research Board's Highway Capacity Manual (HCM), quantify and categorize the driver's discomfort, frustration, fuel consumption, and travel times experienced as a result of intersection control and the resulting traffic queuing. A detailed description of each LOS rating can be found in **Table 2.1**.

Table 2.1. Level of Service Grading Descriptions¹

Level of Service	Description
A	Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream.
B	Minor control delay at signalized intersections; traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream.
C	Moderate control delay; movement within traffic stream more restricted than at LOS B; formation of queues contributes to lower average travel speeds.
D	Considerable control delay that may be substantially increased by small increases in flow; average travel speeds continue to decrease.
E	High control delay; average travel speed no more than 33 percent of free flow speed.
F	Extremely high control delay; extensive queuing and high volumes create exceedingly restricted traffic flow.

¹Highway Capacity Manual, 6th Edition

The range of control delay for each rating (as detailed in the HCM) is shown in **Table 2.2**. Because signalized intersections are expected to carry a larger volume of vehicles and stopping is required during red time, higher delays are tolerated for the corresponding LOS ratings.

Table 2.2. Level of Service Grading Criteria¹

Level of Service	Average Control Delay (s/veh) at:	
	Unsignalized Intersections	Signalized Intersections
A	0 – 10	0 – 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F ²	> 50	> 80

¹Highway Capacity Manual, 6th Edition

²All movements with a Volume to Capacity (v/C) ratio greater than 1 receive a rating of LOS F.

Synchro software was utilized to evaluate capacity of the study intersections. Signal timing data for typical conditions (i.e., before COVID-19 and absent area construction activity) was obtained from *Traffic Impact Study for Country Club Business Park*, prepared by Garcia Consulting Engineers (dated April 26, 2017).

Table 2.3 summarizes the capacity analysis results for existing peak hour traffic conditions. In this table, operation on each approach is quantified according to the average delay per vehicle and the corresponding level of service. Overall intersection operations are reported for all signalized intersections but not reported for minor-leg stop-controlled intersections, since the majority of vehicles are able to move through the intersection with little to no delay. The results presented in Table 2.4 are based on Synchro's HCM 6th Edition reports. Copies of the capacity analysis reports are provided in the appendix.

Table 2.3. Existing (2021) Levels of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Fisher Street / Timrick Drive / Manor Avenue / Commercial Driveway A $\triangle$				
Eastbound (Left)	7	A	8	A
Westbound (Left)	7	A	8	A
Northbound	9	A	10+	B
Southbound	10+	B	15-	B
Calumet Avenue / Fisher Street $\star$				
Eastbound	37	D	54	D ¹
Westbound	32	C	31	C
Northbound	15	B	23	C
Southbound	16	B	22	C
Intersection	19	B	28	C
Calumet Avenue / Fran Lin Parkway / Commercial Driveway B $\star$				
Eastbound	35+	D	33	C
Westbound	30	C	25	C
Northbound	15-	B	20-	B
Southbound	14	B	16	B
Intersection	18	B	19	B

$\star$ - Signalized Intersection

$\triangle$ - Two-Way Stop Control Intersection

¹Right-turn operates at LOS E

As shown in Table 2.3 the signalized intersections are expected to operate at an overall LOS C or better during the peak hours. At the study intersections, the turn movements and approaches generally operate at LOS D or better during both peak hours with one exception. At the intersection of Calumet Avenue/Fisher Street, the eastbound right-turn movement operates at LOS E in the evening peak hour. This is, in part, attributable to the signal timing priority given to north-south traffic

on Calumet Avenue. Long periods of green time (67% or $52G + 3.5Y + 0.5R / 90$ seconds in morning peak hour; 73% or $58G + 3.5Y + 0.5R / 90$ in evening peak hour) are allocated to Calumet Avenue and the minor street approaches (i.e., Fisher Street) receive relatively short green times (38% or $30G + 3.5Y + 0.5R / 90$ in morning peak hour; 27% or $24G + 3.5Y + 0.5R / 90$ in evening peak hour). At each signalized intersection, the estimated 95th percentile queues are accommodated within the storage provided in both the morning and evening peak hours.

Minimal delay (LOS C or better) is estimated for all approaches and movements at the unsignalized intersection of Fisher Street/Timrick Drive/Manor Avenue. During the peak hours, the 95th percentile queues are approximately 25 feet (1 vehicle) or less.

3. FUTURE CONDITIONS – PHASE A

This section of the report outlines Phase A of the development plan, summarizes site-specific traffic characteristics, and develops future traffic projections for analysis of Year 2025 traffic conditions.

3.1 Development Characteristics & Site Access

Phase A is assumed to include 300,000 square feet of office use. For purposes of this analysis, occupancy of Phase A was assumed to occur in Year 2025.

Access to the development would be provided via a connection to Fisher Street at its western terminus (referred to herein as North Access). With the proposed development, Timrick Drive would be realigned to form a “T-intersection” with Manor Avenue approximately 90 feet north of Fisher Street. In addition, access would be provided via Maple Leaf Boulevard, a new east-west roadway located along the northern boundary of Maple Leaf Crossing. Maple Leaf Boulevard would provide access to the existing northwest-southeast roadway located on the west side of the Pepsi facility. As part of the proposed development, this roadway would be improved to public road standards. In order to provide connectivity to the development, an underpass is planned for the Northern Indiana Transit Commuter District’s (NITCD) West Lake Corridor rail alignment (referred to herein as South Access).

The development plan does not include connectivity to Wentworth Avenue; however, the site layout does not preclude future connectivity.

3.2 Trip Generation

In order to calculate trips generated by the proposed development, data was referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. The trip generation equations used for the analysis are shown in **Table 3.1**. Copies of the ITE data are provided in the appendix.

Table 3.1. ITE Trip Generation Data by Land Use

ITE Land Use	Unit	Daily	AM Peak Hour	PM Peak Hour
General Office (LUC 710)	Per 1,000 sq. ft.	$\ln(T) = 0.97\ln(X) + 2.50$ 50% in/50% out	$\ln(T) = 0.94\ln(X) + 26.49$ 86% in/14% out	$\ln(T) = 0.95\ln(X) + 0.36$ 16% in/84% out

T - Number of site-generated trips

X - 1,000 square feet gross floor area

Site-generated traffic projections for the proposed development are presented in **Table 3.2**.

Table 3.2. Site-Generated Traffic Projections – Phase A¹

Land Use	Unit	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
General Office (LUC 710)	300,000 sq. ft.	3,080	265	45	310	50	275	325
Total Site-Generated Trips		3,080	265	45	310	50	275	325

¹In/Out volumes are rounded to the nearest multiple of five. For rounding purposes, total volumes are a sum of in and out.

3.3 Directional Distribution

The estimated distribution of site-generated traffic on the surrounding roadway network as it approaches and departs the site is a function of several variables, such as the nature of surrounding land uses, prevailing traffic volumes/patterns, and the ease with which motorists can travel various sections of the area roadway network. The anticipated directional distribution of site-generated trips is presented in **Table 3.3**.

Table 3.3. Directional Distribution Percentages

Traveling to/from	Site-Generated Trips
North via Calumet Avenue	30%
North via Timrick Drive	10%
South via Calumet Avenue	50%
East via Fisher Street	10%
Total	100%

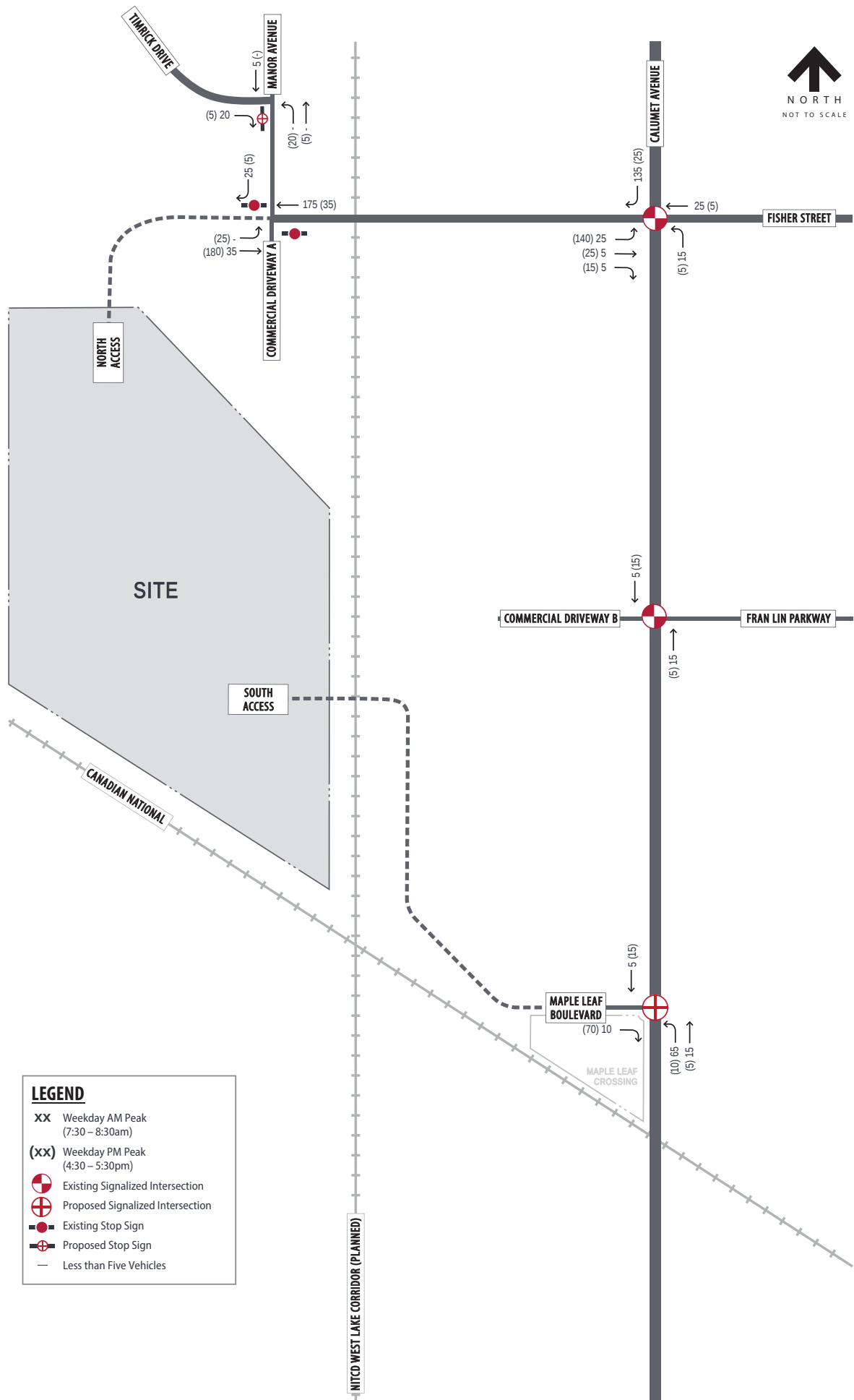
For purposes of the analysis, site-generated traffic traveling to/from the north via Timrick Drive was assumed to predominantly use Timrick Drive; however, a portion of this traffic (20 percent) was assumed to use Manor Avenue.

3.4. Site Traffic Assignment

The site traffic assignment, representing traffic volumes associated with the proposed redevelopment at the study intersections, is a function of the estimated trip generation (Table 3.2) and the directional distribution (Table 3.3). The total trip assignment for Phase A is provided in **Exhibit 3**.

3.5 Future Traffic Projections

Consistent with INDOT *Applicant's Guide to Traffic Impact Studies (May 2015)*, the future year analysis reflects the anticipated completion date of the proposed development, assuming full buildout and occupancy. Based on information obtained from Saxon Partners, LLC, Phase A is assumed to be completed and occupied by Year 2025.



Background Traffic

Background traffic was assumed to be comprised of two main parts: overall background traffic growth (applied in the form of an annual growth rate) and development-specific traffic projections. In order to estimate overall background traffic growth, historical traffic count data was obtained from the INDOT Traffic Count Database System (TCDS). Based traffic count data from 2015 to 2019 for Calumet Avenue (Location ID 45X221), Fisher Street (Location ID 45W226), and Timrick Drive (Location ID 45W241), a negative annual growth rate was calculated for each roadway segment. However, for purposes of a conservative analysis, and consistent with INDOT guidelines, a 0.50 percent annual growth rate was assumed. This annual growth rate was applied to existing traffic volumes (Exhibit 2) through Year 2025 in order to estimate overall background traffic growth.

In addition to Year 2025 background traffic, trips estimated for the Maple Leaf Crossing development were added to the roadway network based on the trip generation and assignment presented in the *Technical Memorandum Maple Leaf Crossing Traffic and Parking Study (dated June 2020)*, prepared by Ciorba Group. A summary of the estimated trip generation and assignment for Maple Leaf Crossing is included in the appendix. The Year 2025 background traffic volumes are presented in **Exhibit 4**.

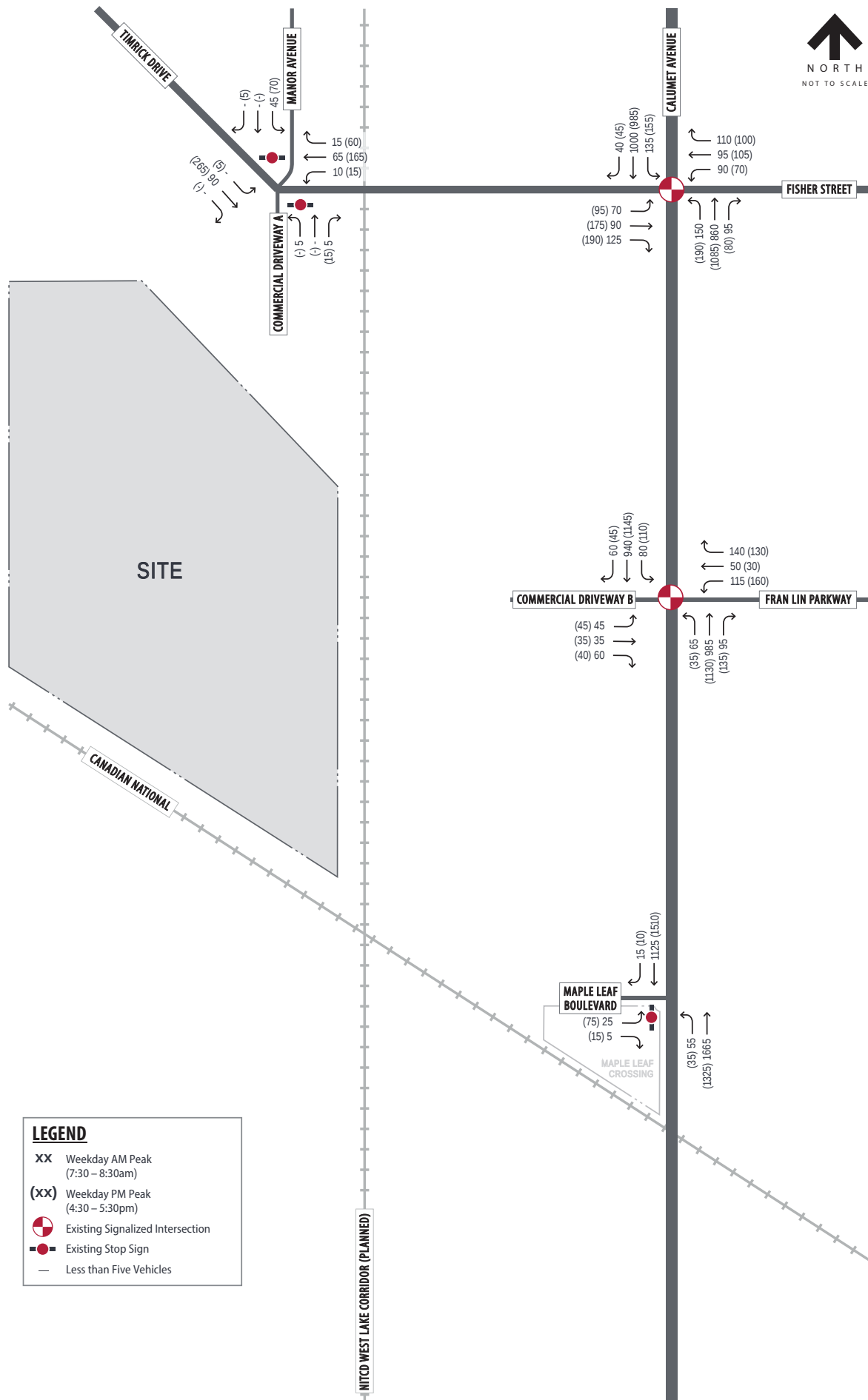
Future (2025) Build Traffic Projections

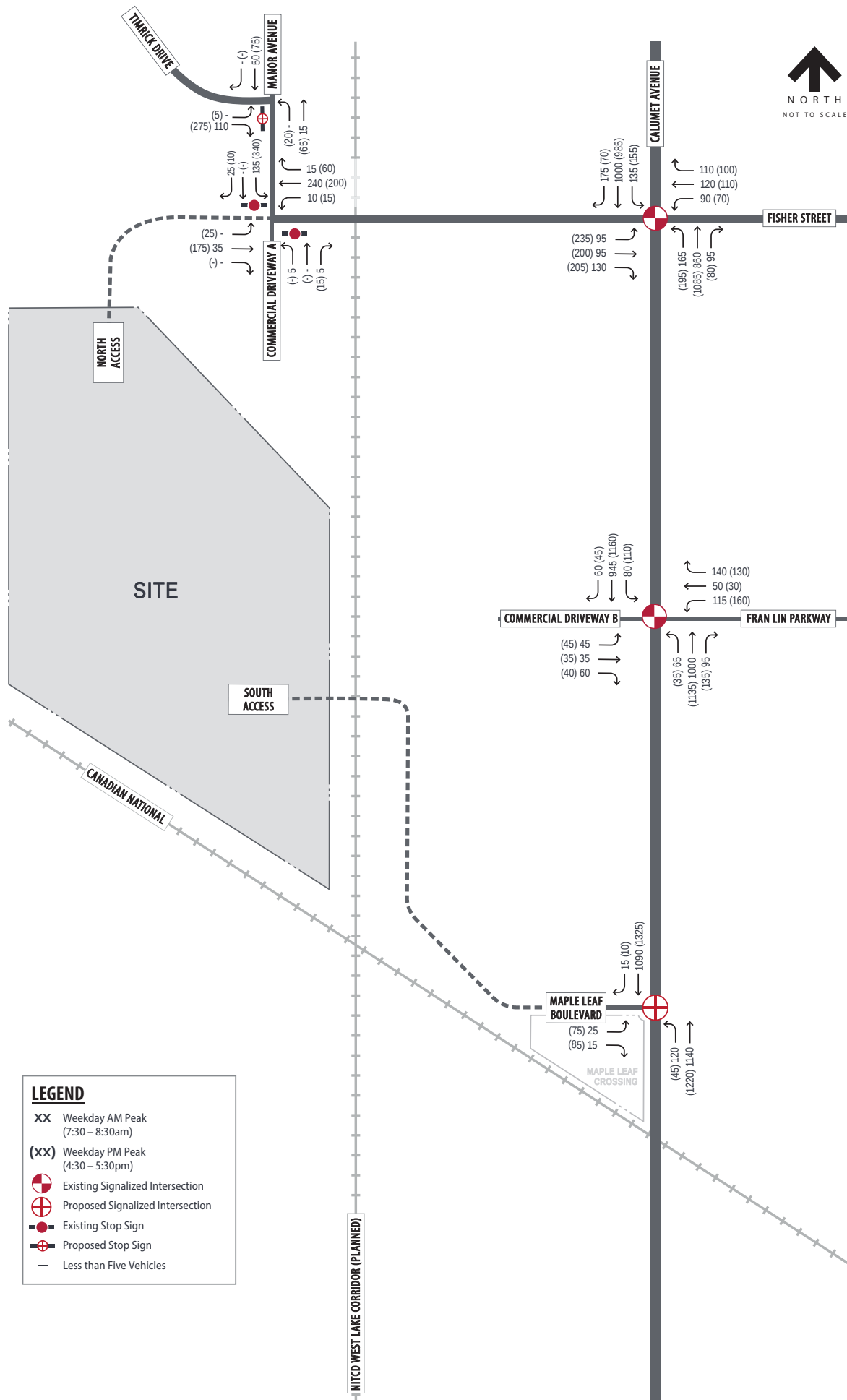
Future (2025) Build traffic projections represent the sum of site-generated traffic (Exhibit 3) and background traffic projections (Exhibit 4). Future (2025) Build traffic projections are depicted in **Exhibit 5**.

Future Geometry

For the analysis of future traffic conditions, turn lane warrants were evaluated for the study intersections using guidelines in Chapter 46 of the INDOT *Indiana Design Manual (IDM)*. Dedicated left-turn lanes are currently provided along Calumet Avenue at Fisher Street and Fran Lin Parkway. At the intersection of Calumet Avenue/Maple Leaf Boulevard, a TWLTL is currently provided. Based on current geometry, left-turn lane warrants were not conducted for the signalized intersections.

Projected traffic volumes at the intersection of Fisher Street/Manor Avenue/Commercial Driveway A/North Access were also reviewed relative to INDOT criteria for a left-turn lane at an unsignalized intersection on a two-lane roadway. INDOT does not provide turn lane criteria for a roadway with an operating speed of 35 MPH (posted speed limit on Fisher Street is 35 MPH); and therefore, the criteria for a roadway with an operating speed of 40 MPH was assumed. Although projected traffic volumes do not meet warrant criteria with development of Phase A, full buildout of the site is expected to warrant left-turn lanes on the east and west legs of Fisher Street at Manor Avenue/Commercial Driveway A. For purposes of this analysis, the left-turn lanes were assumed to be installed with initial construction of North Access and realignment of Timrick Drive under Phase A. The left-turn lanes were assumed to provide a storage length of 50 feet with a 100-foot taper.





Right-turn warrants were reviewed for the signalized intersections of Calumet Avenue/Fisher Street and Calumet Avenue/Fran Lin Parkway. According to the INDOT *IDM*, for signalized intersections, a right-turn lane may be warranted where a capacity analysis determines the turn lane is needed to meet the level-of-service criteria; for uniformity of intersection design along a corridor; or where significant conflicts (e.g., accidents, sight distance, etc.) are noted. Based on this criteria, right-turn lanes were not included in the analysis of future conditions at Calumet Avenue/Fisher Street and Calumet Avenue/Maple Leaf Boulevard.

Based on the INDOT criteria for a right-turn lane at an unsignalized intersection on a two-lane roadway, projected traffic volumes do not meet the minimum criteria for right-turn lanes at Fisher Street/North Access/Manor Avenue/Commercial Driveway A. Therefore, right-turn lanes were not included in the analysis of future conditions.

Signal Warrant Analysis

In addition to the turn lane warrants, a signal warrant analysis was performed according to criteria set by the *Indiana Manual for Uniform Traffic Control Devices (IMUTCD)* (2011) for future traffic volumes at the intersections of Calumet Avenue/Maple Leaf Boulevard and Fisher Street/North Access/Manor Avenue/Commercial Driveway A.

The four-hour (7:00 to 9:00AM, 4:00 to 6:00PM) peak turning movement and roadway counts were used as the baseline for the signal warrant analysis. In order to estimate future traffic volumes, background traffic growth was applied at an annual rate of 0.5 percent as described under *Section 3.5 Background Traffic Projections*. Maple Leaf Crossing traffic was also added using the same methodology applied to estimate four-hour traffic for the proposed development (see below). Site-generated traffic was added to the background traffic volumes in order to develop the Future (2025) Build traffic projections.

In order to obtain hourly site-generated traffic projections for the four-hour period, hourly trip generation data from Appendix A of the *ITE Trip Generation Manual, 10th Edition* was applied to the daily trips presented in Table 3.2. For purposes of the analysis, the peak hour directional distribution percentages were applied to the hourly trip generation estimate. The projected traffic volumes were then compared to the *IMUTCD* criteria for Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak-Hour Vehicular Volume). Copies of the signal warrant analysis figures are included in the appendix.

As shown in the figures in the appendix, at the intersection of Calumet Avenue/Maple Leaf Boulevard, a signal is warranted under Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak-Hour Vehicular Volume). Therefore, a traffic signal was assumed under the Future (2025) Build condition. A cycle length of 90 seconds was assumed for consistency with other signals on the Calumet Avenue corridor. The splits were optimized for purposes of the analysis.

With development of Phase A, projected traffic volumes at the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A do not warrant installation of a traffic signal. For purposes of the analysis, Manor Avenue and Commercial Driveway A were assumed to continue to operate under minor-leg stop control; Fisher Street/North Access would operate under a free-flow

condition. The future “T-intersection” of Timrick Drive/Manor Avenue, Timrick Avenue was assumed to operate under minor-leg stop control; Manor Avenue would operate under a free-flow condition.

Based on the lane geometry and traffic control recommendations, the capacity results for the Future (2025) Build condition are provided in **Table 3.4**. Consistent with existing conditions, the results are based on Synchro’s HCM 6th Edition reports. Copies of the capacity analysis reports are provided in the appendix.

Table 3.4. Future (2025) Build Levels of Service (Phase A)

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Timrick Drive / Manor Avenue △				
Eastbound	9	A	10+	B
Northbound (Left)	7	A	7	A
Fisher Street / North Access / Manor Avenue / Commercial Driveway A △				
Eastbound (Left)	8	A	8	A
Westbound (Left)	7	A	8	A
Northbound	10+	B	10-	A
Southbound	13	B	48	E
Calumet Avenue / Fisher Street ★				
Eastbound	45	D	43	D
Westbound	46	D	37	D
Northbound	15	B	31	C
Southbound	18	B	29	C
Intersection	23	C	33	C
Calumet Avenue / Fran Lin Parkway / Commercial Driveway B ★				
Eastbound	35+	D	33	C
Westbound	30	C	33	C
Northbound	15	B	25	C
Southbound	15	B	11	B
Intersection	18	B	22	C
Calumet Avenue / Maple Leaf Boulevard ★				
Eastbound	19	B	34	C
Northbound	2	A	25	C
Southbound	2	A	24	C
Intersection	3	A	19	B

★ - Signalized Intersection

△ - Two-Way Stop Control Intersection

With the addition of background traffic, site-generated trips, and the recommended improvements, the study intersections are expected to operate with acceptable delay and queues. The signalized intersections are projected to operate at an overall LOS C or better during the peak hours. The projected 95th percentile queues would be accommodated within the existing storage lanes.

The future signalized intersection of Calumet Avenue/Maple Leaf Boulevard is projected to operate at an overall LOS B or better during the peak hours. The eastbound approach is projected to operate at LOS B during the morning peak hour and LOS C during the evening peak hour. The 95th percentile queues estimated for the eastbound left- and right-turn movements are approximately 75 feet (3 vehicles) during the evening peak hour; limited queues are anticipated during the morning peak hour. The 95th percentile queue projected for the northbound left-turn movement is approximately 25 feet (1 vehicle) or less during both peak hours.

At the unsignalized intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A, the approaches and movements are projected to operate at LOS B or better with one exception. During the evening peak hour, the southbound approach is projected to operate at LOS E. The projected delay is not uncommon for a minor-leg stop-controlled roadway at its intersection with a major collector or arterial roadway. The 95th percentile queues are projected to be 25 feet (1 vehicle) and 225 feet (9 vehicles) in the morning and evening peak hours, respectively. Based on the capacity analysis, the 95th percentile queue would extend north of Timrick Drive in the evening peak hour. Therefore, continued monitoring of traffic conditions at the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A is suggested in order to evaluate alternate traffic control solutions such as a traffic signal.

4. FUTURE CONDITIONS – PHASE B

This section of the report outlines the proposed site plan, summarizes site-specific traffic characteristics, and develops future traffic projections for analysis of Phase B.

4.1 Development Characteristics & Site Access

For purposes of this analysis, Phase B was assumed to include up to 500,000 square feet of office use. No changes to site access are planned as part of Phase B. Phase B was assumed to be completed and occupied in 2029.

4.2 Trip Generation & Assignment

In order to calculate trips generated by Phase B, data was referenced from the ITE *Trip Generation Manual, 10th Edition*. A summary of the ITE trip generation rates is presented in Table 3.1. Site-generated traffic projections for Phase B are presented in **Table 4.1**. The trip generation is inclusive of trips estimated for Phase A (Table 3.2).

Table 4.1. Site-Generated Traffic Projections – Phase B¹

Land Use	Unit	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
General Office (LUC 710)	500,000 sq. ft.	5,060	425	70	495	85	440	525
Total Site-Generated Trips		5,060	425	70	495	85	440	525

¹In/Out volumes are rounded to the nearest multiple of five. For rounding purposes, total volumes are a sum of in and out.

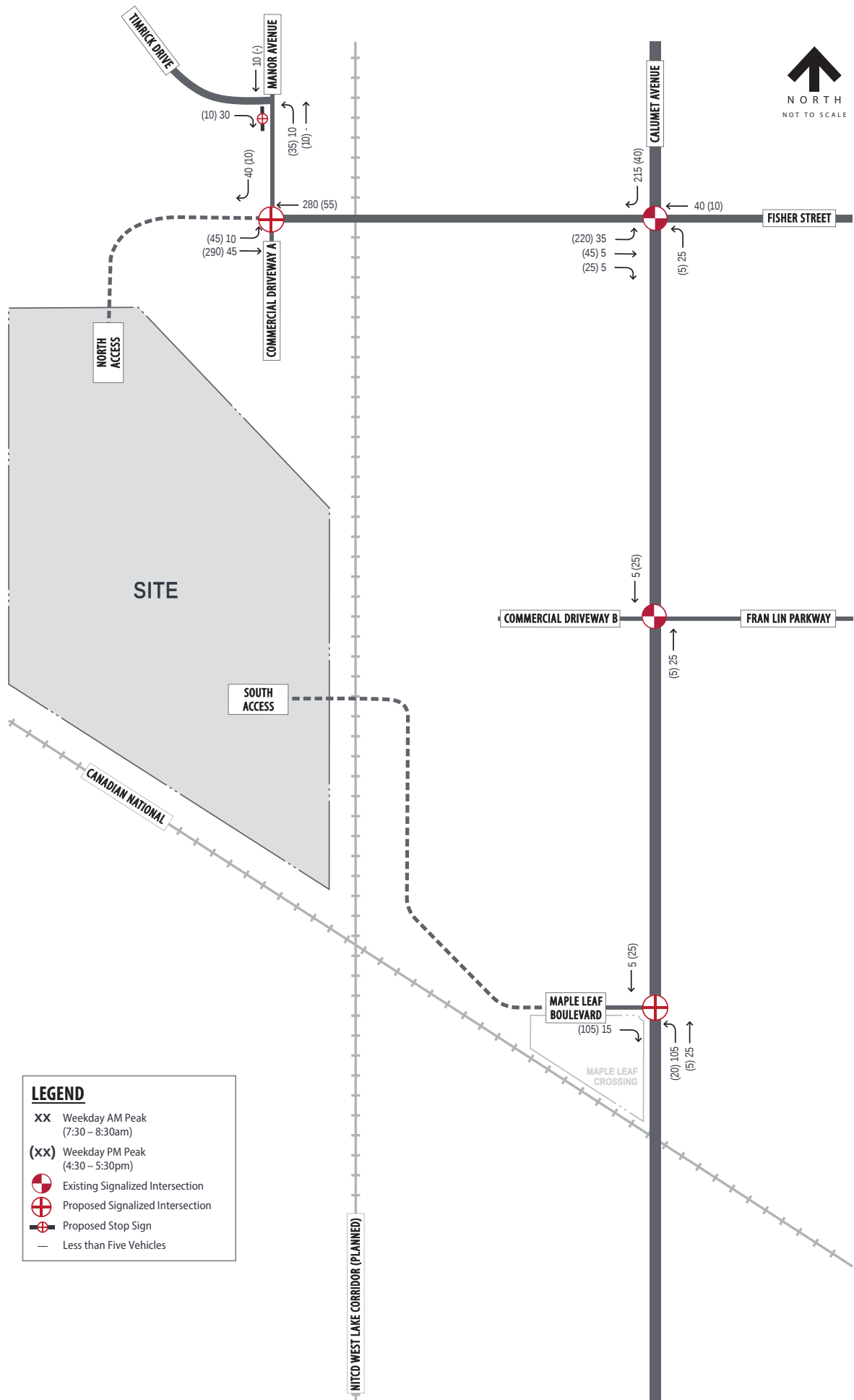
Consistent with Phase A, the anticipated directional distribution of site-generated trips is presented in Table 3.3. The site traffic assignment, representing traffic volumes associated with Phase B at the study intersections, is a function of the estimated trip generation (Table 4.1) and the directional distribution (Table 3.3). The total trip assignment for Phase B is provided in **Exhibit 6**.

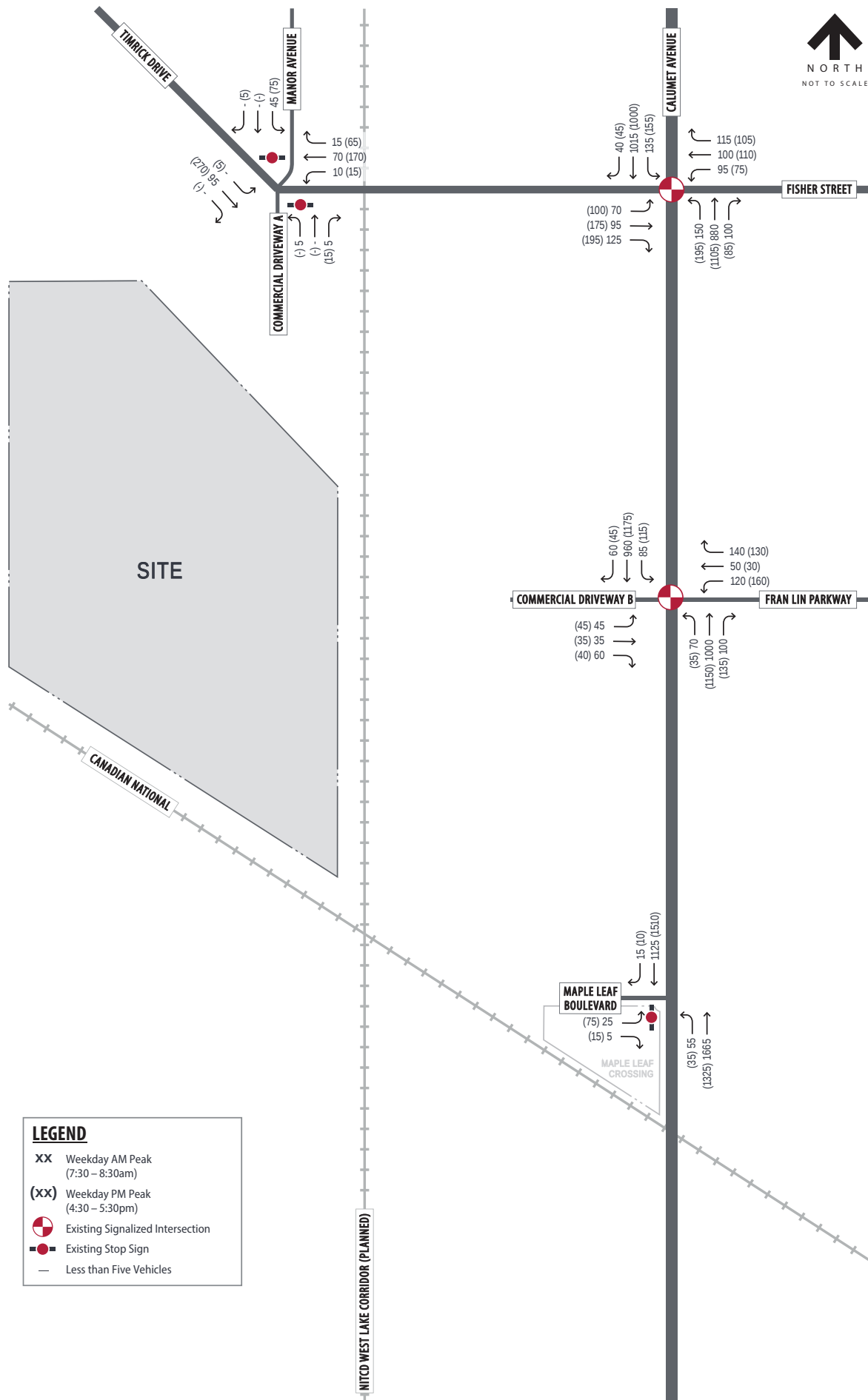
4.3 Future Traffic Projections

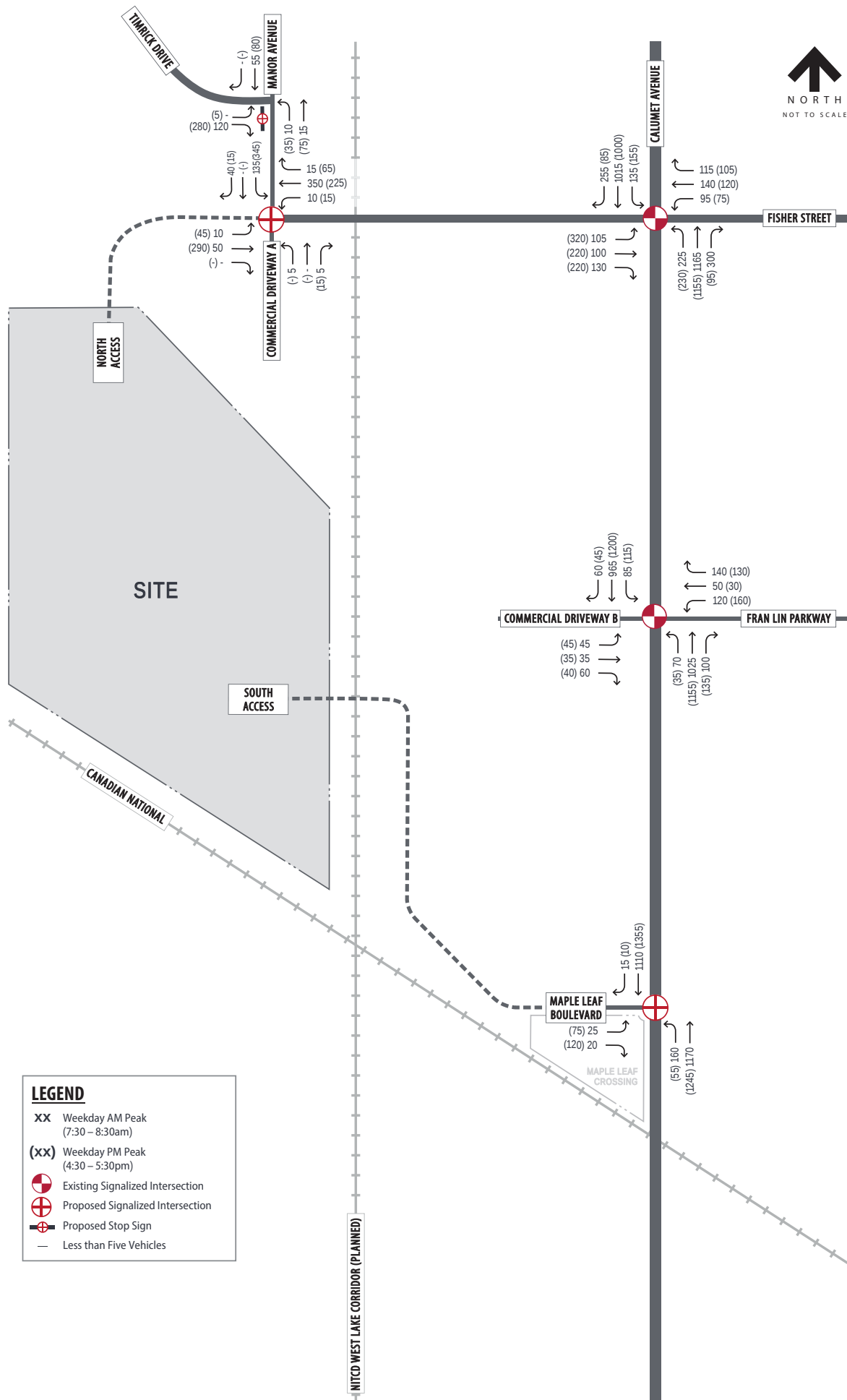
For purposes of this analysis, Phase B was assumed to be constructed and occupied by Year 2029. Consistent with the methodology applied to Phase A, background traffic projections were calculated based on overall background traffic growth (0.5 percent annual growth rate); and development-specific traffic projections. The annual growth rate was applied to existing traffic estimates (Exhibit 2) through Year 2029 in order to estimate overall background traffic growth. In addition, trips estimated for the Maple Leaf Crossing development were added to the roadway network as depicted in the exhibit in the appendix. The Year 2029 background traffic volumes are presented in **Exhibit 7**.

Future (2029) Build Traffic Projections

Future (2029) Build traffic projections represent the sum of site-generated traffic (Exhibit 6) and background traffic projections (Exhibit 7). Future (2029) Build traffic projections are depicted in **Exhibit 8**.







Future Geometry

For the analysis of Phase B, turn lane warrants were evaluated for the study intersections using guidelines in Chapter 46 of the INDOT *IDM*. According to the INDOT *IDM*, for signalized intersections, a right-turn lane may be warranted where a capacity analysis determines the turn lane is needed to meet the level-of-service criteria; for uniformity of intersection design along a corridor; or where significant conflicts (e.g., accidents, sight distance, etc.) are noted. Based on this criteria, the following improvement was identified in addition to those recommended for the Future (2025) Build scenario.

- Install a right-turn lane on the west leg of Fisher Street at its intersection with Calumet Avenue. Based on the projected 95th percentile queues, the turn lane should provide 175 feet of storage with a 100-foot taper.

With the addition of the turn lane, signal modifications are suggested in order to accommodate a right-turn overlap phase. The right-turn overlap phase was included in the analysis of Future (2029) Build conditions.

Signal Warrant Analysis

The signal warrant analysis for the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A was updated to reflect Future (2029) Build traffic projections using the same methodology described under Phase A. Copies of the signal warrant analysis figures are included in the appendix.

With development of Phase B, projected traffic volumes at the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A meet the *IMUTCD* criteria for Warrant 3 (Peak-Hour Vehicular Volume). Therefore, a traffic signal was included in the analysis of Future (2029) Build conditions. For purposes of the analysis, the signal was assumed to provide a cycle length of 90 seconds with side-street split phasing on the northbound and southbound approaches. Continued monitoring of traffic conditions at the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A is suggested in order to review future traffic volumes and determine the timing for signal installation.

The capacity results for the Future (2029) Build condition are provided in **Table 4.2**. Consistent with existing conditions, the results are based on Synchro's HCM 6th Edition reports. Copies of the capacity analysis reports are provided in the appendix.

Table 4.2. Future (2029) Build Levels of Service (Phase B)

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Timrick Drive / Manor Avenue △				
Eastbound	9	A	11	B
Northbound (Left)	7	A	7	A
Fisher Street / North Access / Manor Avenue / Commercial Driveway A ★				
Eastbound	5	A	10-	A
Westbound	7	A	10-	A
Northbound	33	C	33	C
Southbound	12	B	11	B
Intersection	8	A	10+	B
Calumet Avenue / Fisher Street ★				
Eastbound	29	C	34	C
Westbound	46	D	46	D
Northbound	18	B	33	C
Southbound	25	C	32	C
Intersection	25	C	34	C
Calumet Avenue / Fran Lin Parkway / Commercial Driveway B ★				
Eastbound	35	D	34	C
Westbound	31	C	25	C
Northbound	16	B	26	C
Southbound	15	B ¹	19	B
Intersection	18	B	23	C
Calumet Avenue / Maple Leaf Boulevard ★				
Eastbound	22	C	37	D
Northbound	2	A	4	A
Southbound	2	A	4	A
Intersection	3	A	6	A

★ - Signalized Intersection

△ - Two-Way Stop Control Intersection

¹Left-turn operates at LOS E

With the addition of background traffic, site-generated trips, and the recommended improvements, the study intersections are expected to operate with acceptable delay and queues. The signalized intersections are projected to operate at an overall LOS C or better during each peak hour.

The intersection of Calumet Avenue/Fisher Street is projected to operate at LOS C during both peak hours. The analysis assumes signal modifications to provide an eastbound right-turn overlap phase and additional green time to Fisher Street. With the signal modifications, and addition of a right-turn lane on the west leg, the projected 95th percentile queues would be accommodated within the existing and proposed storage with one exception. During the evening peak hour, the projected 95th percentile

queue for the eastbound left-turn movement is 300 feet (13 vehicles), which would exceed the 240 storage lane. The projected queue spillback is minimal (approximately 2 vehicles); and therefore, additional signal timing modifications should be explored to minimize queues during the evening peak hour.

At the signalized intersection of Calumet Avenue/Fran Lin Parkway/Commercial Driveway B, the southbound left-turn movement is projected to operate at LOS E. The 95th percentile queue would be accommodated within the existing storage lane. The proposed development is not expected to materially impact operations at this intersection.

With installation of a traffic signal at Fisher Street/North Access/Manor Avenue/Commercial Driveway A, delays and queues would be minimal. Overall, the intersection is projected to operate at LOS A in the morning peak hour and LOS B in the evening peak hour.

The future signalized intersection of Calumet Avenue/Maple Leaf Boulevard is projected to operate at an overall LOS A during each peak hour. The eastbound approach is projected to operate at LOS C during the morning peak hour and LOS D during the evening peak hour. The 95th percentile queues estimated for the eastbound left- and right-turn movements are approximately 75 feet (3 vehicles) and 125 feet (5 vehicles) during the evening peak hour; limited queues are anticipated during the morning peak hour. The 95th percentile queue projected for the northbound left-turn movement is approximately 25 feet (1 vehicle) or less during both peak hours.

5. FUTURE CONDITIONS – PHASE C (FULL BUILDOUT)

This section of the report outlines the proposed site plan, summarizes site-specific traffic characteristics, and develops future traffic projections for analysis of full buildout of the site (Phase C).

5.1 Development Characteristics & Site Access

For purposes of this analysis, Phase C (full buildout) was assumed to include up to 1 million square feet of office use. No changes to site access are planned as part of Phase C. Phase C was assumed to be completed and occupied in 2035.

5.2 Trip Generation & Assignment

In order to calculate trips generated by Phase B, data was referenced from the ITE *Trip Generation Manual, 10th Edition*. A summary of the ITE trip generation rates is presented in Table 3.1. Site-generated traffic projections for the full buildout scenario are presented in **Table 5.1**.

Table 5.1. Site-Generated Traffic Projections – Phase C (Full Buildout)¹

Land Use	Unit	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
General Office (LUC 710)	1,000,000 sq. ft.	9,900	830	135	965	160	855	1,015
Total Site-Generated Trips		9,900	830	135	965	160	855	1,015

¹In/Out volumes are rounded to the nearest multiple of five. For rounding purposes, total volumes are a sum of in and out.

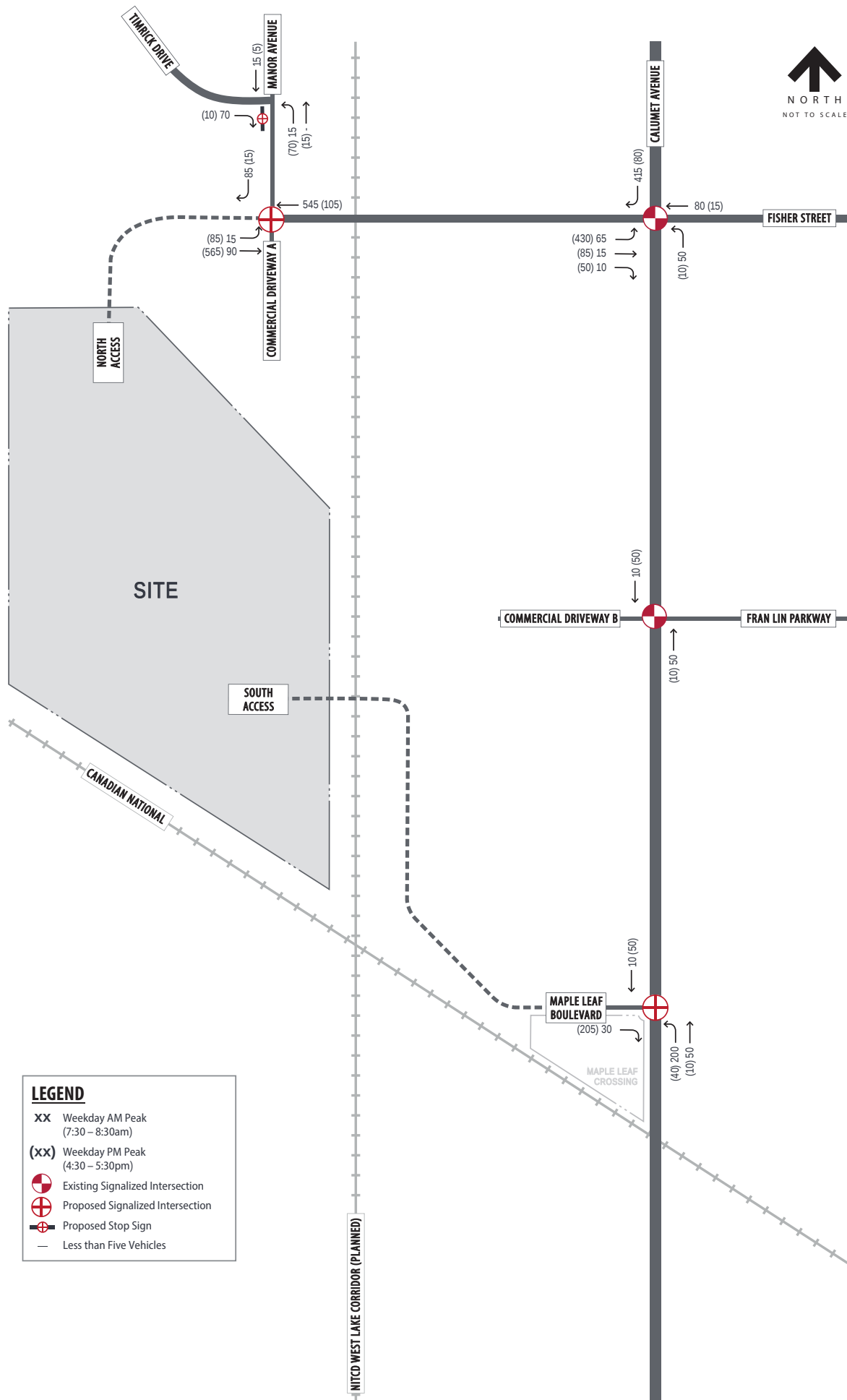
The anticipated directional distribution of site-generated trips is presented in Table 3.3. The site traffic assignment, representing traffic volumes associated with the development at the study intersections, is a function of the estimated trip generation (Table 5.1) and the directional distribution (Table 3.3). The total trip assignment for Phase C, representing full buildout of the site, is provided in **Exhibit 9**.

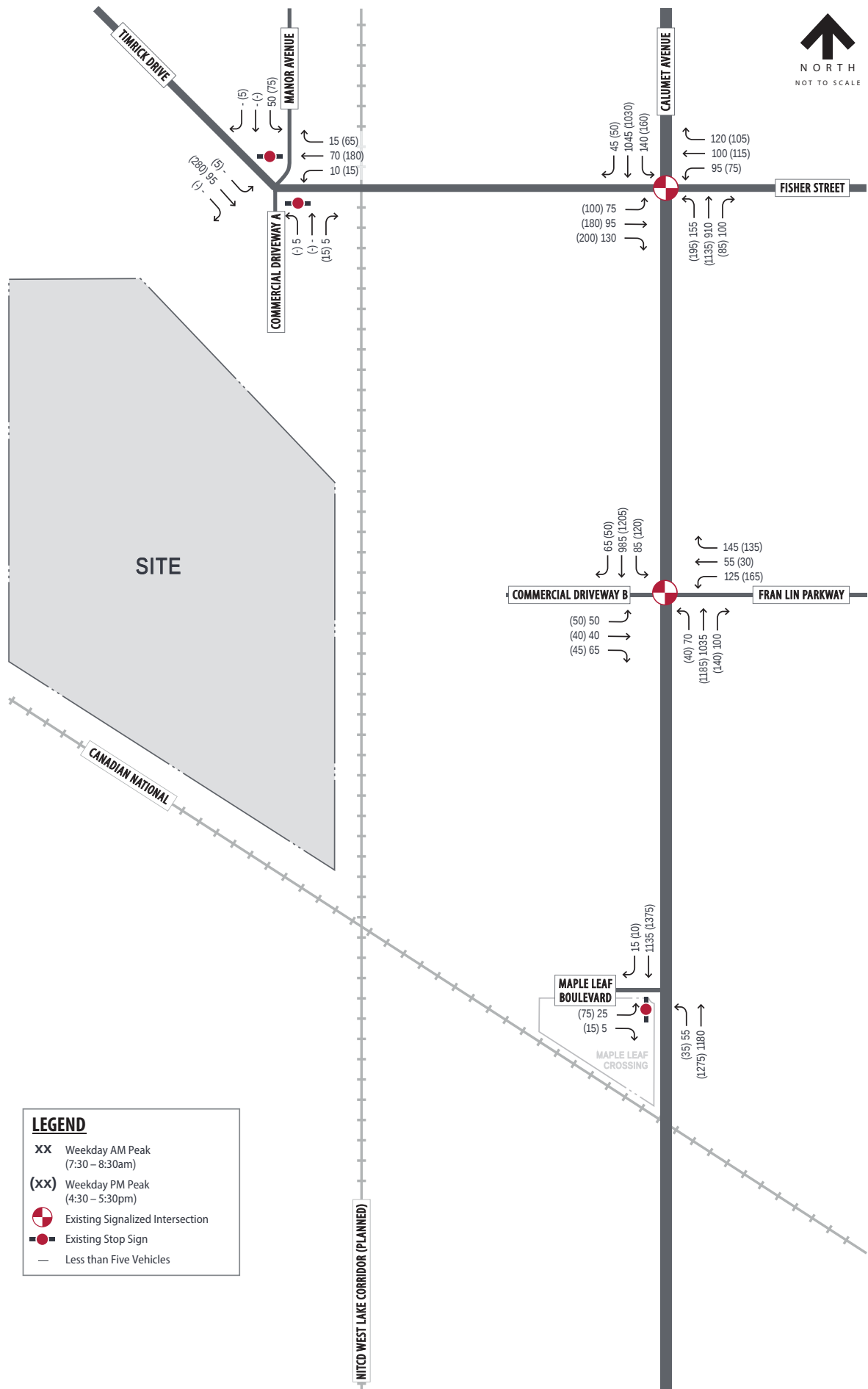
5.3 Future Traffic Projections

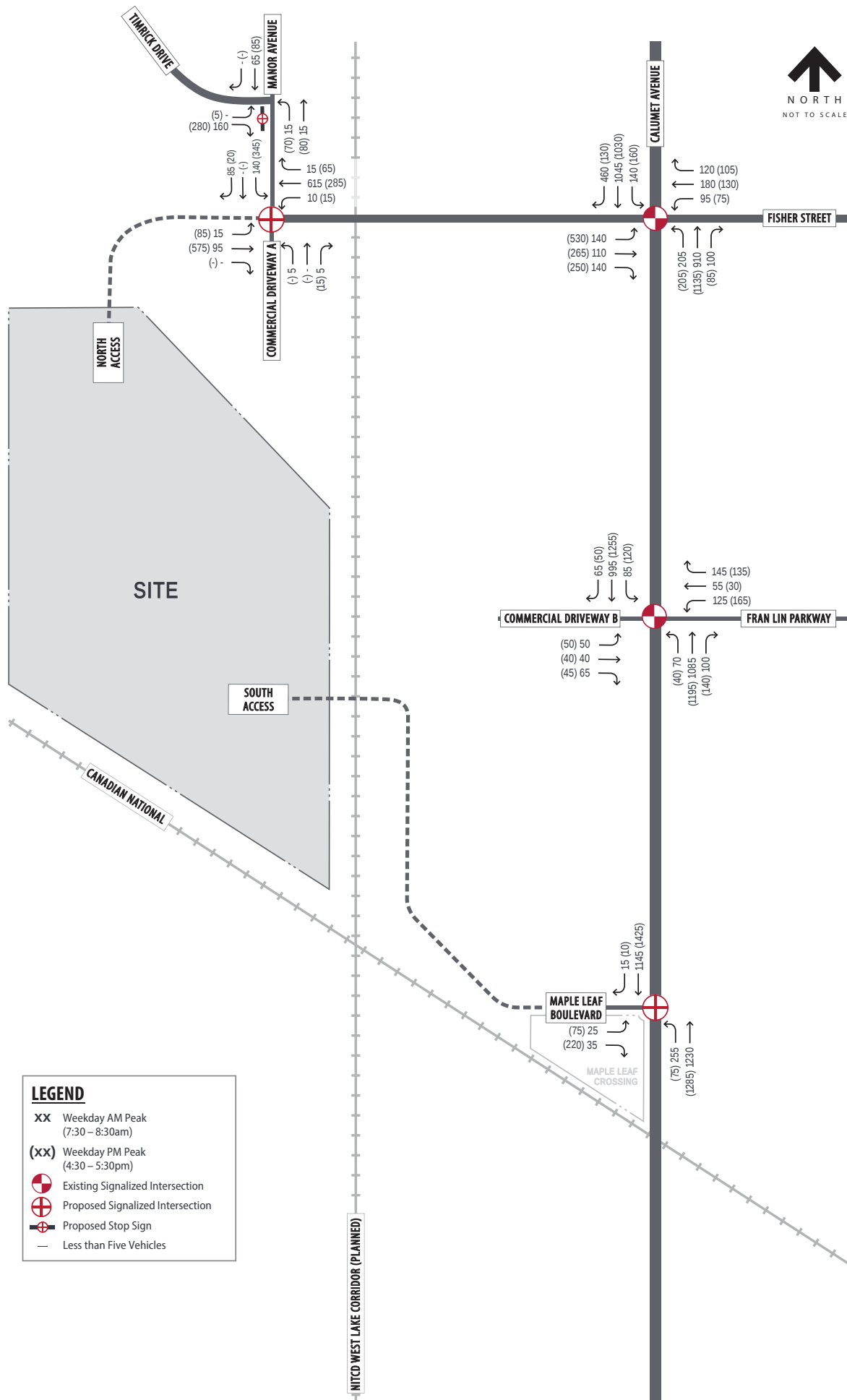
For purposes of this analysis, full buildout was assumed to be constructed and occupied by Year 2035. Background traffic projections were calculated based on overall background traffic growth (0.5 percent annual growth rate); and development-specific traffic projections. The annual growth rate was applied to existing traffic estimates (Exhibit 2) through Year 2035 in order to estimate overall background traffic growth. In addition, trips estimated for the Maple Leaf Crossing development were added to the roadway network as depicted in the exhibit in the appendix. The Year 2035 background traffic volumes are presented in **Exhibit 10**.

Future (2035) Build Traffic Projections

Future (2035) Build traffic projections represent the sum of site-generated traffic (Exhibit 9) and background traffic projections (Exhibit 10). Future (2035) Build traffic projections are depicted in **Exhibit 11**.







Future Geometry

Based on projected traffic volumes and results of the capacity analysis, the following improvement was identified in addition to those recommended for Phase A and Phase B. As previously mentioned, turn lane warrants were evaluated at the study intersections using volume criteria in Chapter 46 of the INDOT *IDM*.

- Install dual left-turn lanes on the west leg of Fisher Street at Calumet Avenue. Dual left-turn lanes are also recommended on the east leg to mirror the west leg and accommodate the projected traffic volume.
- Install a right-turn lane on the east leg of Fisher Street at Calumet Avenue. The turn lane should provide 150 feet of storage with a 100-foot taper.

With the dual left-turn lanes, the existing permitted/protected left-turn signal phase should be modified to reflect a protected-only left-turn phase. For the analysis of future conditions with the dual left-turn lanes, the signal timing splits were optimized.

Signal Warrant Analysis

The analysis of Future (2035) Build conditions assumes installation of traffic signals at the intersections of Calumet Avenue/Maple Leaf Boulevard and Fisher Street/North Access/Manor Avenue/Commercial Driveway A. For purposes of the analysis, each signal was assumed to provide a cycle length of 90 seconds for both peak hours. At the intersection of Fisher Street/North Access/Manor Avenue/Commercial Driveway A, side-street split phasing was assumed for the northbound and southbound approaches.

The results of the capacity analysis for the Future (2035) Build condition are provided in **Table 5.2**. Consistent with existing conditions, the results are based on Synchro's HCM 6th Edition reports. Copies of the capacity analysis reports are provided in the appendix.

Table 5.2. Future (2035) Build Levels of Service (Phase C / Full Buildout)

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Timrick Drive / Manor Avenue △				
Eastbound	9	A	11	B
Northbound (Left)	7	A	8	A
Fisher Street / North Access / Manor Avenue / Commercial Driveway A ★				
Eastbound	6	A	12	B
Westbound	9	A	9	A
Northbound	40	D	41	D
Southbound	16	B	16	B
Overall	10+	B	13	B
Calumet Avenue / Fisher Street ★				
Eastbound	43	D ¹	37	D
Westbound	38	D	41	D
Northbound	17	B	29	C
Southbound	26	C	31	C
Intersection	26	C	32	C
Calumet Avenue / Fran Lin Parkway / Commercial Driveway B ★				
Eastbound	35	D	34	C
Westbound	31	C	25	C
Northbound	17	B	30	C
Southbound	16	B ¹	21	C
Intersection	19	B	26	C
Calumet Avenue / Maple Leaf Boulevard ★				
Eastbound	32	C	41	D
Northbound	3	A	7	A
Southbound	2	A	7	A
Intersection	3	A	10+	B

★ - Signalized Intersection

△ - Two-Way Stop Control Intersection

¹Left-turn operates at LOS E

With development of up to 1 million square feet of office use and implementation of the recommended offsite improvements, the study intersections are expected to operate with acceptable delay and queues with a few exceptions. At the intersection of Calumet Avenue/Fisher Street, the eastbound left-turn is projected to operate at LOS E in the morning peak hour. The projected delay is attributable to the signal priority given to north-south through traffic on Calumet Avenue. As a result, the protected left-turn movement receives relatively limited green time. The 95th percentile queue projected for the eastbound left-turn movement would be accommodated within the proposed storage lane.

At the signalized intersections of Calumet Avenue/Fran Lin Parkway/Commercial Driveway B, the southbound left-turn movement is projected to operate at LOS E in the morning peak hour. The projected delay is due to the signal priority given to north-south through traffic on Calumet Avenue, and the relatively limited green time allocated to the protected left-turn movement. The projected 95th percentile queue is approximately 100 feet (4 vehicles), which would be accommodated within the existing 205-foot storage lane.

The future signalized intersection of Calumet Avenue/Maple Leaf Boulevard is projected to operate at an overall LOS A during each peak hour. The eastbound approach is projected to operate at LOS C during the morning peak hour and LOS D during the evening peak hour. The 95th percentile queues estimated for the eastbound left- and right-turn movements are approximately 75 feet (3 vehicles) and 225 feet (9 vehicles) during the evening peak hour; limited queues are anticipated during the morning peak hour. The 95th percentile queue projected for the northbound left-turn movement is approximately 75 feet (3 vehicles) or less during both peak hours.

As the development progresses and area transit improvements and background traffic growth are realized, additional review of future traffic conditions is suggested. The additional review will provide an opportunity to assess mobility options for area employees (e.g., transit, sidewalk and trail connectivity) as well as the unique trip generation characteristics of future tenants.

6. RECOMMENDATIONS & CONCLUSION

Based on Kimley-Horn's review of the proposed site plan and evaluation of existing and future traffic conditions, the study intersections are projected to adequately accommodate the proposed redevelopment with the implementation of the following improvements:

Future (2025) Build Scenario – Phase A (300,000 square feet)

The following improvements are recommended to facilitate access to Phase A.

- Improve the existing northwest-southeast roadway along the west side of the Pepsi facility to the Town of Munster public road standards.
- Provide an underpass at the Northern Indiana Transit Commuter District's (NITCD) West Lake Corridor rail alignment (South Access) in order to facilitate secondary access to the proposed development.
- Realign Timrick Drive to form a "T-intersection" with Manor Avenue approximately 90 feet north of Fisher Street. At the intersection of Timrick Drive/Manor Avenue, install minor-leg stop control on Timrick Drive. Install a "Do Not Block Intersection" sign per IMUTCD standards. The sign should be posted on the northwest quadrant of the intersection, visible to southbound traffic.
- With construction of North Access, install dedicated left-turn lanes on the east and west legs of Fisher Street at its intersection with Manor Avenue/Commercial Driveway A. The turn lanes should provide 50 feet of storage with a 100-foot taper.
- Install a new traffic signal at the intersection of Calumet Avenue/Maple Leaf Boulevard per INDOT and Town of Munster requirements.

Future (2029) Build Scenario – Phase B (500,000 square feet)

The following improvements are recommended to mitigate impacts attributable to site-generated traffic. These improvements are in addition to those identified for Phase A.

- Install a dedicated right-turn lane on the west leg of the intersection of Calumet Avenue/Fisher Street. Based on the projected 95th percentile queues, the turn lane on the west leg should provide 175 feet of storage with a 100-foot taper. With the addition of the right-turn lane, the traffic signal should be modified to accommodate a right-turn overlap phase.
- Install a new traffic signal at the intersection of Fisher Street/Timrick Drive/Manor Avenue/Commercial Driveway A/North Access per INDOT and Town of Munster requirements. Based on projected traffic volumes, side-street split phasing should be considered for the north (Manor Avenue) and south legs (Commercial Driveway A).

Future (2035) Build Scenario – Phase C / Full Buildout (1 million square feet)

With full buildout, the following improvements were identified to manage projected traffic demand with the addition of background traffic growth and site-generated traffic volumes. These improvements are in addition to those identified for Phase A and Phase B.

- Install dual left-turn lanes on the east and west legs of Fisher Street at Calumet Avenue. The existing permitted/protected left-turn phase should be modified to reflect a protected left-turn phase on both legs of Fisher Street.
- Install a right-turn lane on the east leg of Fisher Street at Calumet Avenue. The turn lane should provide 150 feet of storage with a 100-foot taper.

Regardless of the final configuration of the intersection geometrics, several additional items should be taken into consideration when preparing site and roadway improvement plans for the subject development. As the site design progresses, care should be taken with landscaping, signage, and monumentation at the site access locations to ensure that adequate horizontal sight distance is maintained. If alterations to the site plan or land use should occur, changes to the analysis provided within this traffic impact study may be needed.

APPENDIX

Data from the ITE *Trip Generation Manual*, 10th Edition

Maple Leaf Crossing Trip Assignment

Existing (2021) Capacity Reports

Future (2025) Build Capacity Reports

Future (2029) Build Capacity Reports

Future (2035) Build Capacity Reports

Signal Warrant Analysis

Traffic Count Data

DATA FROM THE ITE *TRIP GENERATION MANUAL*, 10TH EDITION

Land Use: 710

General Office Building

Description

A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. A general office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use 712). Corporate headquarters building (Land Use 714), single tenant office building (Land Use 715), office park (Land Use 750), research and development center (Land Use 760), and business park (Land Use 770) are additional related uses.

If information is known about individual buildings, it is suggested that the general office building category be used rather than office parks when estimating trip generation for one or more office buildings in a single development. The office park category is more general and should be used when a breakdown of individual or different uses is not known. If the general office building category is used and if additional buildings, such as banks, restaurants, or retail stores are included in the development, the development should be treated as a multiuse project. On the other hand, if the office park category is used, internal trips are already reflected in the data and do not need to be considered.

When the buildings are interrelated (defined by shared parking facilities or the ability to easily walk between buildings) or house one tenant, it is suggested that the total area or employment of all the buildings be used for calculating the trip generation. When the individual buildings are isolated and not related to one another, it is suggested that trip generation be calculated for each building separately and then summed.

Additional Data

The average building occupancy varied considerably within the studies for which occupancy data were provided. The reported occupied gross floor area was 88 for general urban/suburban sites and 96 percent for the center city core and dense multi-use urban sites.

Time-of-day distribution data for this land use for a weekday, Saturday, and Sunday are presented in Appendix A. For the 16 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:30 and 8:30 a.m. and 4:30 and 5:30 p.m., respectively.

For the three general urban/suburban sites with person trip data, the overall highest volumes during the AM and PM on a weekday were counted between 8:45 and 9:45 a.m. and 12:45 and 1:45 p.m., respectively. For the three dense multi-use urban sites with person trip data, the overall highest volumes during the AM and PM on a weekday were counted between 8:30 and 9:30 a.m. and 4:45 and 5:45 p.m., respectively. For the four center city core sites with person trip data, the overall highest volumes during the AM and PM on a weekday were counted between 9:00 and 10:00 a.m. and 12:45 and 1:45 p.m., respectively.

The average numbers of person trips per vehicle trip at the eight center city core sites at which both person trip and vehicle trip data were collected were as follows:

- 2.76 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 2.90 during Weekday, AM Peak Hour of Generator
- 2.91 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 3.02 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 18 dense multi-use urban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.47 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.47 during Weekday, AM Peak Hour of Generator
- 1.46 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.53 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 23 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.30 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.34 during Weekday, AM Peak Hour of Generator
- 1.32 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.41 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Colorado, Connecticut, Georgia, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, Pennsylvania, Texas, Utah, Virginia, and Washington.

Source Numbers

161, 175, 183, 184, 185, 207, 212, 217, 247, 253, 257, 260, 262, 273, 279, 297, 298, 300, 301, 302, 303, 304, 321, 322, 323, 324, 327, 404, 407, 408, 418, 419, 423, 562, 734, 850, 859, 862, 867, 869, 883, 884, 890, 891, 904, 940, 944, 946, 964, 965, 972

General Office Building (710)

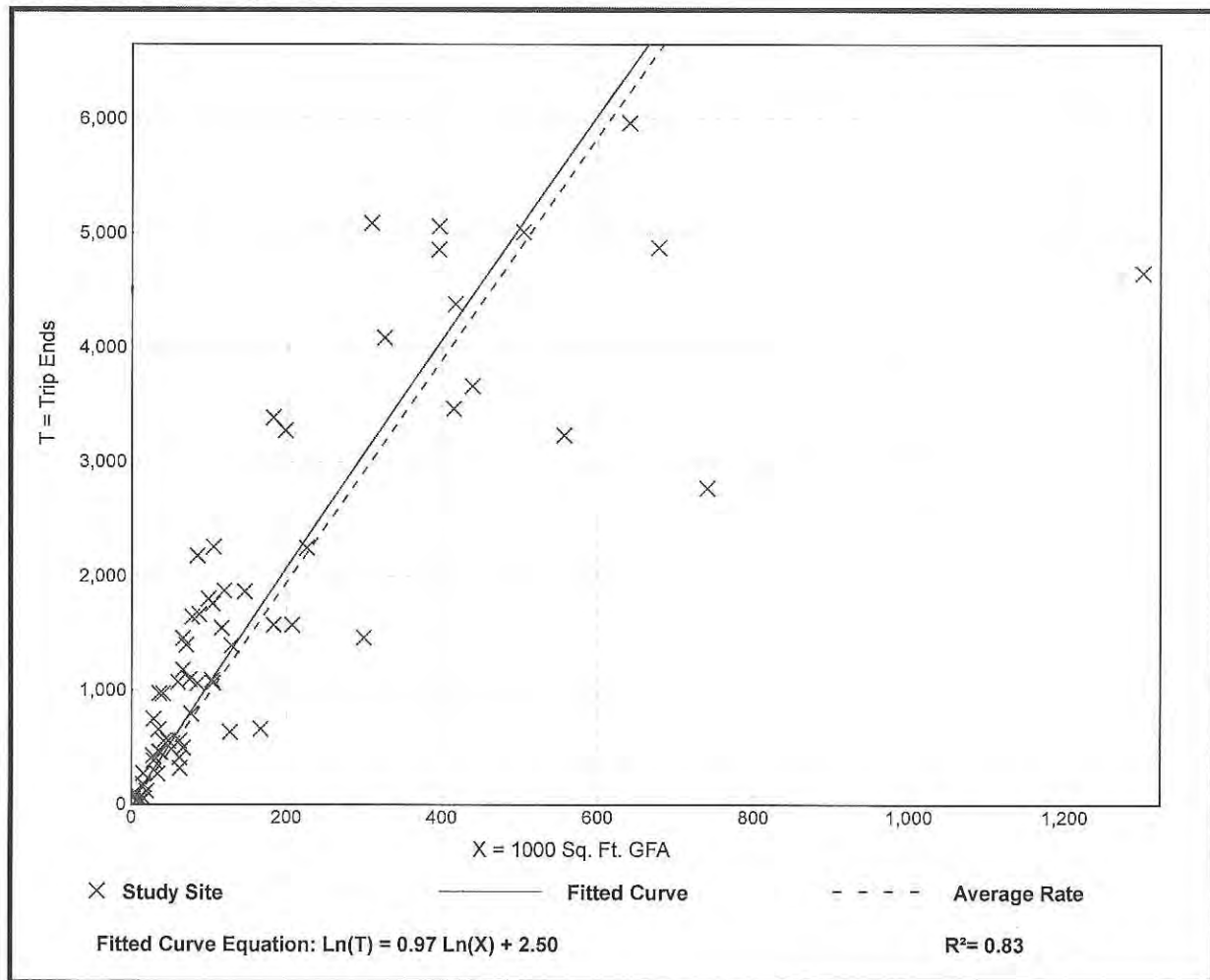
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 66
1000 Sq. Ft. GFA: 171
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.74	2.71 - 27.56	5.15

Data Plot and Equation



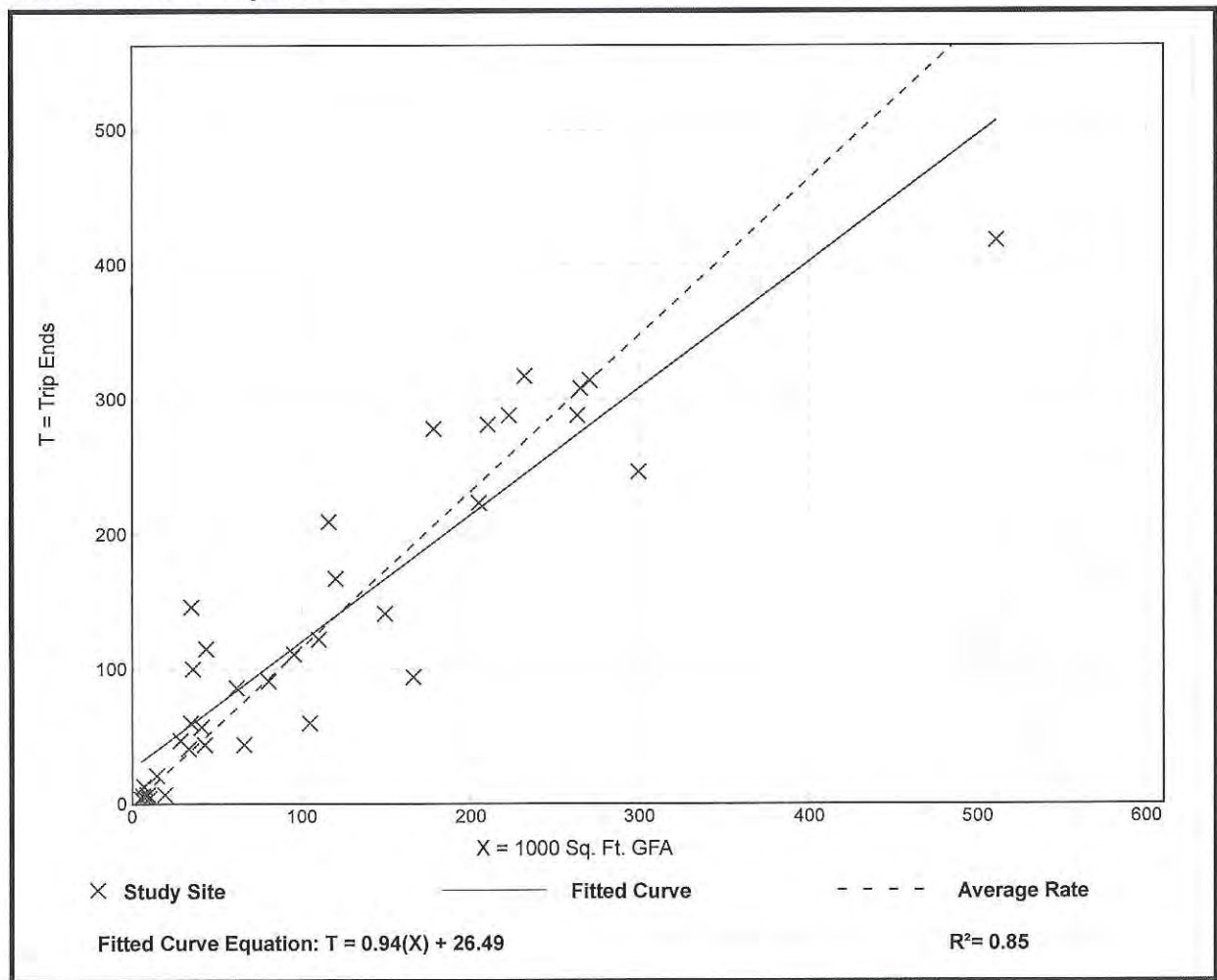
General Office Building (710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 35
 1000 Sq. Ft. GFA: 117
 Directional Distribution: 86% entering, 14% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.16	0.37 - 4.23	0.47

Data Plot and Equation



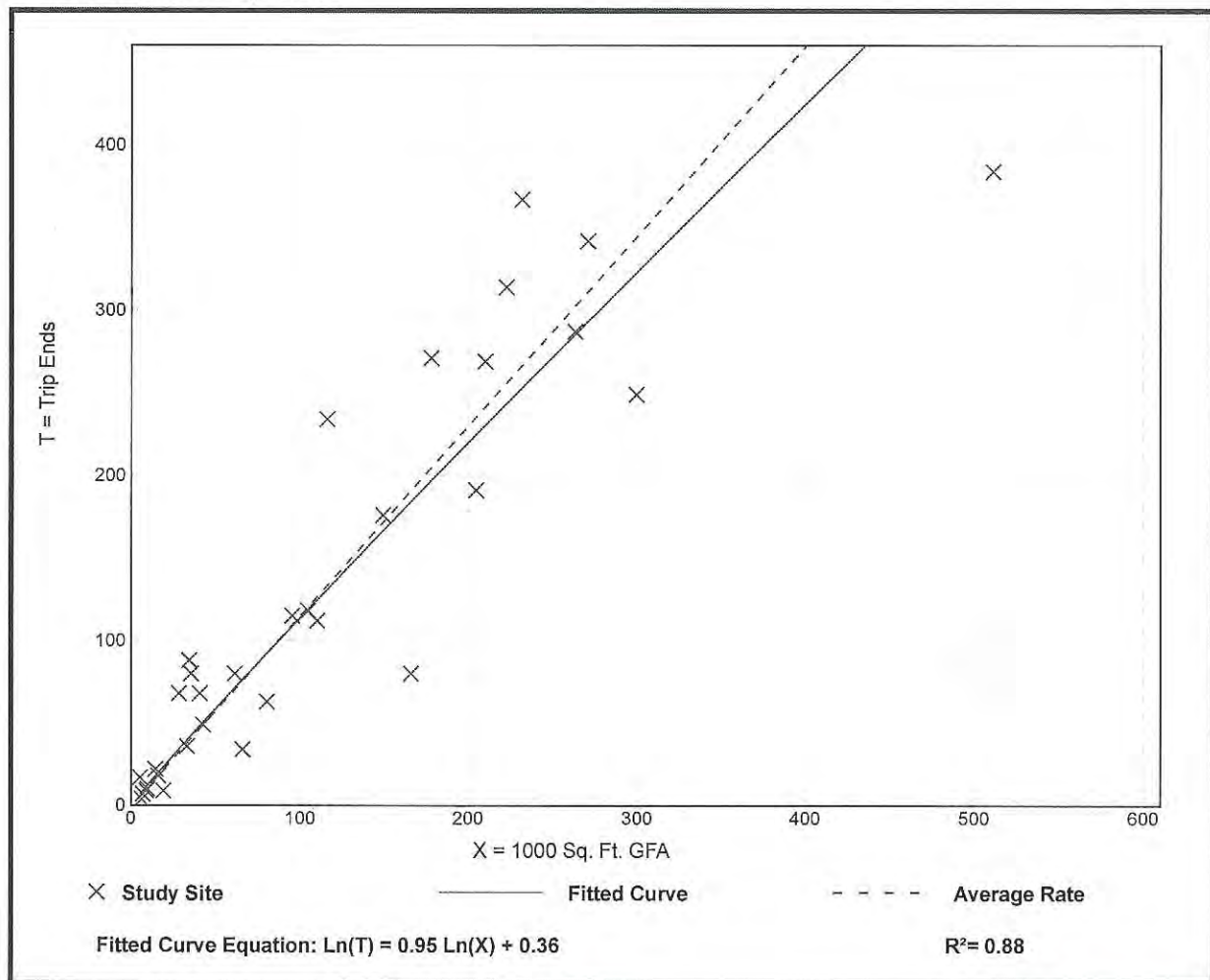
General Office Building (710)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 32
 1000 Sq. Ft. GFA: 114
 Directional Distribution: 16% entering, 84% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.15	0.47 - 3.23	0.42

Data Plot and Equation



MAPLE LEAF CROSSING TRIP ASSIGNMENT



EXISTING (2021) CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday Evening Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	85	1	10	65	15	5	1	5	40	2	1
Future Vol, veh/h	2	85	1	10	65	15	5	1	5	40	2	1
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	3	23	2	2	2	2	2	100
Mvmt Flow	2	92	1	11	71	16	5	1	5	43	2	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	93	0	0	200	206	93	201	198	79
Stage 1	-	-	-	-	-	-	97	97	-	101	101	-
Stage 2	-	-	-	-	-	-	103	109	-	100	97	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	7.2
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	4.2
Pot Cap-1 Maneuver	1509	-	-	1501	-	-	759	691	964	757	698	766
Stage 1	-	-	-	-	-	-	910	815	-	905	811	-
Stage 2	-	-	-	-	-	-	903	805	-	906	815	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1509	-	-	1501	-	-	751	685	964	746	692	766
Mov Cap-2 Maneuver	-	-	-	-	-	-	751	685	-	746	692	-
Stage 1	-	-	-	-	-	-	909	814	-	904	805	-
Stage 2	-	-	-	-	-	-	892	799	-	899	814	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.8			9.4			10.2		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	827	1509	-	-	1501	-	-	744				
HCM Lane V/C Ratio	0.014	0.001	-	-	0.007	-	-	0.063				
HCM Control Delay (s)	9.4	7.4	0	-	7.4	0	-	10.2				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2				

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	90	120	90	95	110	145	820	95	130	900	40
Future Volume (veh/h)	70	90	120	90	95	110	145	820	95	130	900	40
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	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	76	98	130	98	103	120	158	891	103	141	978	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	238	119	158	239	139	163	378	1632	189	377	1725	76
Arrive On Green	0.05	0.16	0.16	0.06	0.18	0.18	0.07	0.51	0.51	0.06	0.51	0.51
Sat Flow, veh/h	1767	729	967	1767	788	918	1767	3184	368	1753	3412	150
Grp Volume(v), veh/h	76	0	228	98	0	223	158	493	501	141	501	520
Grp Sat Flow(s),veh/h/ln	1767	0	1696	1767	0	1705	1767	1763	1789	1753	1749	1814
Q Serve(g_s), s	2.8	0.0	10.4	3.6	0.0	9.9	3.3	15.1	15.1	3.0	15.9	15.9
Cycle Q Clear(g_c), s	2.8	0.0	10.4	3.6	0.0	9.9	3.3	15.1	15.1	3.0	15.9	15.9
Prop In Lane	1.00		0.57	1.00		0.54	1.00		0.21	1.00		0.08
Lane Grp Cap(c), veh/h	238	0	278	239	0	302	378	904	917	377	884	917
V/C Ratio(X)	0.32	0.00	0.82	0.41	0.00	0.74	0.42	0.55	0.55	0.37	0.57	0.57
Avail Cap(c_a), veh/h	262	0	424	261	0	448	590	904	917	424	884	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	32.3	26.1	0.0	31.2	10.2	13.2	13.2	10.0	13.7	13.7
Incr Delay (d2), s/veh	0.8	0.0	7.4	1.1	0.0	3.5	0.7	2.4	2.3	0.6	2.6	2.5
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(95%),veh/ln	2.1	0.0	8.2	2.8	0.0	7.5	2.1	9.9	10.0	1.9	10.3	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	0.0	39.8	27.2	0.0	34.7	10.9	15.6	15.5	10.6	16.3	16.2
LnGrp LOS	C	A	D	C	A	C	B	B	B	B	B	B
Approach Vol, veh/h	304			321			1152			1162		
Approach Delay, s/veh	36.6			32.4			14.9			15.6		
Approach LOS	D			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	45.0	9.0	17.1	9.4	44.4	7.9	18.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	41.0	6.0	20.0	15.0	33.0	5.0	21.0				
Max Q Clear Time (g_c+I1), s	5.0	17.1	5.6	12.4	5.3	17.9	4.8	11.9				
Green Ext Time (p_c), s	0.1	6.8	0.0	0.7	0.3	5.8	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay	19.3											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	90	120	90	95	110	145	820	95	130	900	40
Future Volume (veh/h)	70	90	120	90	95	110	145	820	95	130	900	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	76	98	130	98	103	120	158	891	103	141	978	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	238	119	158	239	139	163	378	1632	189	377	1725	76
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.05	0.16	0.16	0.06	0.18	0.18	0.07	0.51	0.51	0.06	0.51	0.51
Unsig. Movement Delay												
Ln Grp Delay, s/veh	27.2	0.0	39.8	27.2	0.0	34.7	10.9	15.6	15.5	10.6	16.3	16.2
Ln Grp LOS	C	A	D	C	A	C	B	B	B	B	B	B
Approach Vol, veh/h	304			321			1152			1162		
Approach Delay, s/veh	36.6			32.4			14.9			15.6		
Approach LOS	D			C			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	8.9	45.0	9.0	17.1	9.4	44.4	7.9	18.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green (Gmax), s	7.0	41.0	6.0	20.0	15.0	33.0	5.0	21.0				
Max Allow Headway (MAH), s	3.8	5.2	3.8	5.3	3.8	5.1	3.8	5.3				
Max Q Clear (g_c+I1), s	5.0	17.1	5.6	12.4	5.3	17.9	4.8	11.9				
Green Ext Time (g_e), s	0.1	6.8	0.0	0.7	0.3	5.8	0.0	0.8				
Prob of Phs Call (p_c)	0.96	1.00	0.89	1.00	0.97	1.00	0.82	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.35	0.01	0.00	1.00	0.18				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1753	1767	1767	1767								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3184	729	3412	788								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	368	967	150	918								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)								

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	141	0	98	0	158	0	76	0
Grp Sat Flow (s), veh/h/ln	1753	0	1767	0	1767	0	1767	0
Q Serve Time (g_s), s	3.0	0.0	3.6	0.0	3.3	0.0	2.8	0.0
Cycle Q Clear Time (g_c), s	3.0	0.0	3.6	0.0	3.3	0.0	2.8	0.0
Perm LT Sat Flow (s_l), veh/h/ln	558	0	1143	0	548	0	1149	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	40.4	0.0	13.1	0.0	40.4	0.0	13.1	0.0
Perm LT Serve Time (g_u), s	25.9	0.0	2.7	0.0	24.5	0.0	4.3	0.0
Perm LT Q Serve Time (g_ps), s	4.9	0.0	1.0	0.0	6.4	0.0	0.6	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	377	0	239	0	378	0	238	0
V/C Ratio (X)	0.37	0.00	0.41	0.00	0.42	0.00	0.32	0.00
Avail Cap (c_a), veh/h	424	0	261	0	590	0	262	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	10.0	0.0	26.1	0.0	10.2	0.0	26.4	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.0	0.7	0.0	0.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	10.6	0.0	27.2	0.0	10.9	0.0	27.2	0.0
1st-Term Q (Q1), veh/ln	1.0	0.0	1.5	0.0	1.1	0.0	1.1	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	1.9	0.0	2.8	0.0	2.1	0.0	2.1	0.0
%ile Storage Ratio (RQ%)	0.33	0.00	0.50	0.00	0.13	0.00	0.23	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T				T			
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	493	0	0	0	501	0	0
Grp Sat Flow (s), veh/h/ln	0	1763	0	0	0	1749	0	0
Q Serve Time (g_s), s	0.0	15.1	0.0	0.0	0.0	15.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	15.1	0.0	0.0	0.0	15.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	904	0	0	0	884	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.57	0.00	0.00
Avail Cap (c_a), veh/h	0	904	0	0	0	884	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	13.2	0.0	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	0.0	0.0	0.0	2.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.6	0.0	0.0	0.0	16.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.3	0.0	0.0	0.0	5.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.68	0.00	1.00	0.00	1.66	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	9.9	0.0	0.0	0.0	10.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.00	0.00	0.08	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	501	0	228	0	520	0	223
Grp Sat Flow (s), veh/h/ln	0	1789	0	1696	0	1814	0	1705
Q Serve Time (g_s), s	0.0	15.1	0.0	10.4	0.0	15.9	0.0	9.9
Cycle Q Clear Time (g_c), s	0.0	15.1	0.0	10.4	0.0	15.9	0.0	9.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.21	0.00	0.57	0.00	0.08	0.00	0.54
Lane Grp Cap (c), veh/h	0	917	0	278	0	917	0	302
V/C Ratio (X)	0.00	0.55	0.00	0.82	0.00	0.57	0.00	0.74
Avail Cap (c_a), veh/h	0	917	0	424	0	917	0	448
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	13.2	0.0	32.3	0.0	13.7	0.0	31.2
Incr Delay (d2), s/veh	0.0	2.3	0.0	7.4	0.0	2.5	0.0	3.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.5	0.0	39.8	0.0	16.2	0.0	34.7
1st-Term Q (Q1), veh/ln	0.0	5.4	0.0	4.1	0.0	5.7	0.0	3.9
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.6	0.0	0.6	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.67	0.00	1.76	0.00	1.65	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	10.0	0.0	8.2	0.0	10.5	0.0	7.5
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.08	0.00	0.08	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	60	115	50	135	65	940	95	80	845	60
Future Volume (veh/h)	45	35	60	115	50	135	65	940	95	80	845	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	125	54	147	71	1022	103	87	918	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	136	67	141	232	90	246	91	1842	186	112	1924	136
Arrive On Green	0.09	0.09	0.09	0.07	0.21	0.21	0.05	0.57	0.57	0.06	0.59	0.59
Sat Flow, veh/h	705	754	1585	1555	437	1190	1781	3208	323	1781	3286	233
Grp Volume(v), veh/h	87	0	65	125	0	201	71	557	568	87	485	498
Grp Sat Flow(s),veh/h/ln	1459	0	1585	1555	0	1627	1781	1749	1783	1781	1735	1784
Q Serve(g_s), s	3.6	0.0	3.0	5.0	0.0	8.6	3.0	15.3	15.3	3.7	12.3	12.3
Cycle Q Clear(g_c), s	4.3	0.0	3.0	5.0	0.0	8.6	3.0	15.3	15.3	3.7	12.3	12.3
Prop In Lane	0.56		1.00	1.00		0.73	1.00		0.18	1.00		0.13
Lane Grp Cap(c), veh/h	204	0	141	232	0	336	91	1004	1023	112	1016	1045
V/C Ratio(X)	0.43	0.00	0.46	0.54	0.00	0.60	0.78	0.55	0.56	0.78	0.48	0.48
Avail Cap(c_a), veh/h	427	0	393	232	0	594	139	1004	1023	139	1016	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	33.1	28.8	0.0	27.5	35.9	10.2	10.2	35.4	9.1	9.1
Incr Delay (d2), s/veh	1.4	0.0	2.3	2.5	0.0	1.7	14.1	2.2	2.2	19.6	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	0.0	2.2	3.8	0.0	6.1	2.9	9.3	9.5	3.9	7.7	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	35.5	31.3	0.0	29.2	50.0	12.4	12.4	55.0	10.7	10.7
LnGrp LOS	D	A	D	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	152			326			1196			1070		
Approach Delay, s/veh	35.2			30.0			14.6			14.3		
Approach LOS	D			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	8.8	48.0	9.0	10.8	7.9	48.9	19.8					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	6.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Q Clear Time (g_c+I1), s	17.3	17.3	7.0	6.3	5.0	14.3	10.6					
Green Ext Time (p_c), s	0.0	8.3	0.0	0.5	0.0	7.1	1.1					

Intersection Summary

HCM 6th Ctrl Delay 17.5

HCM 6th LOS B

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	60	115	50	135	65	940	95	80	845	60
Future Volume (veh/h)	45	35	60	115	50	135	65	940	95	80	845	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	125	54	147	71	1022	103	87	918	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	136	67	141	232	90	246	91	1842	186	112	1924	136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.07	0.21	0.21	0.05	0.57	0.57	0.06	0.59	0.59
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.1	0.0	35.5	31.3	0.0	29.2	50.0	12.4	12.4	55.0	10.7	10.7
Ln Grp LOS	D	A	D	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	152			326			1196			1070		
Approach Delay, s/veh	35.2			30.0			14.6			14.3		
Approach LOS	D			C			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	8.8	48.0	9.0	10.8	7.9	48.9	19.8					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	6.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.0	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	5.7	17.3	7.0	6.3	5.0	14.3	10.6					
Green Ext Time (g_e), s	0.0	8.3	0.0	0.5	0.0	7.1	1.1					
Prob of Phs Call (p_c)	0.84	1.00	0.93	1.00	0.78	1.00	1.00					
Prob of Max Out (p_x)	1.00	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		705	1781							
Through Movement Data												
Assigned Mvmt	2			4			6			8		
Mvmt Sat Flow, veh/h	3208			754			3286			437		
Right-Turn Movement Data												
Assigned Mvmt	12			14			16			18		
Mvmt Sat Flow, veh/h	323			1585			233			1190		
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	87	0	125	87	71	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1459	1781	0	0	0
Q Serve Time (g_s), s	3.7	0.0	5.0	3.6	3.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.7	0.0	5.0	4.3	3.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1128	1200	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.8	6.8	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.5	6.8	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.5	3.6	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	112	0	232	204	91	0	0	0
V/C Ratio (X)	0.78	0.00	0.54	0.43	0.78	0.00	0.00	0.00
Avail Cap (c_a), veh/h	139	0	232	427	139	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	35.4	0.0	28.8	33.7	35.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	19.6	0.0	2.5	1.4	14.1	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	55.0	0.0	31.3	35.1	50.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.5	0.0	2.0	1.5	1.3	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.6	0.0	0.2	0.1	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	3.9	0.0	3.8	2.9	2.9	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.48	0.00	2.19	0.38	0.51	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	557	0	0	0	485	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	15.3	0.0	0.0	0.0	12.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	15.3	0.0	0.0	0.0	12.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	1004	0	0	0	1016	0	0
V/C Ratio (X)	0.00	0.55	0.00	0.00	0.00	0.48	0.00	0.00
Avail Cap (c_a), veh/h	0	1004	0	0	0	1016	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.2	0.0	0.0	0.0	9.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	0.0	0.0	1.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.4	0.0	0.0	0.0	10.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	4.9	0.0	0.0	0.0	3.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.70	0.00	1.00	0.00	1.79	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	9.3	0.0	0.0	0.0	7.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	568	0	65	0	498	0	201
Grp Sat Flow (s), veh/h/ln	0	1783	0	1585	0	1784	0	1627
Q Serve Time (g_s), s	0.0	15.3	0.0	3.0	0.0	12.3	0.0	8.6
Cycle Q Clear Time (g_c), s	0.0	15.3	0.0	3.0	0.0	12.3	0.0	8.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.18	0.00	1.00	0.00	0.13	0.00	0.73
Lane Grp Cap (c), veh/h	0	1023	0	141	0	1045	0	336
V/C Ratio (X)	0.00	0.56	0.00	0.46	0.00	0.48	0.00	0.60
Avail Cap (c_a), veh/h	0	1023	0	393	0	1045	0	594
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	10.2	0.0	33.1	0.0	9.1	0.0	27.5
Incr Delay (d2), s/veh	0.0	2.2	0.0	2.3	0.0	1.6	0.0	1.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.4	0.0	35.5	0.0	10.7	0.0	29.2
1st-Term Q (Q1), veh/ln	0.0	5.0	0.0	1.1	0.0	3.9	0.0	3.2
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	0.5	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.69	0.00	1.80	0.00	1.78	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	9.5	0.0	2.2	0.0	7.8	0.0	6.1
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.28	0.00	0.11	0.00	0.21
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	260	1	15	160	60	1	1	13	70	2	5
Future Vol, veh/h	5	260	1	15	160	60	1	1	13	70	2	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, %	40	2	2	7	2	2	2	2	2	2	2	2
Mvmt Flow	5	283	1	16	174	65	1	1	14	76	2	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	284	0	0	536	565	284	540	533	207
Stage 1	-	-	-	-	-	-	294	294	-	239	239	-
Stage 2	-	-	-	-	-	-	242	271	-	301	294	-
Critical Hdwy	4.5	-	-	4.17	-	-	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	2.56	-	-	2.263	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1134	-	-	1250	-	-	455	434	755	453	453	833
Stage 1	-	-	-	-	-	-	714	670	-	764	708	-
Stage 2	-	-	-	-	-	-	762	685	-	708	670	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1134	-	-	1250	-	-	444	425	755	437	444	833
Mov Cap-2 Maneuver	-	-	-	-	-	-	444	425	-	437	444	-
Stage 1	-	-	-	-	-	-	710	667	-	760	697	-
Stage 2	-	-	-	-	-	-	743	675	-	690	667	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.5			10.4			14.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	687	1134	-	-	1250	-	-	451				
HCM Lane V/C Ratio	0.024	0.005	-	-	0.013	-	-	0.186				
HCM Control Delay (s)	10.4	8.2	0	-	7.9	0	-	14.8				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile O(veh)	0.1	0	-	-	0	-	-	0.7				

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	170	185	70	105	100	185	990	80	150	915	45
Future Volume (veh/h)	95	170	185	70	105	100	185	990	80	150	915	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	103	185	201	76	114	109	201	1076	87	163	995	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	2	2	2	2	2	3	2
Cap, veh/h	318	197	214	183	196	188	351	1527	123	306	1522	75
Arrive On Green	0.06	0.24	0.24	0.05	0.23	0.23	0.09	0.46	0.46	0.07	0.44	0.44
Sat Flow, veh/h	1781	820	890	1767	872	834	1781	3330	269	1781	3420	168
Grp Volume(v), veh/h	103	0	386	76	0	223	201	574	589	163	513	531
Grp Sat Flow(s),veh/h/ln	1781	0	1710	1767	0	1705	1781	1777	1822	1781	1763	1825
Q Serve(g_s), s	3.8	0.0	19.3	2.9	0.0	10.2	5.2	22.5	22.6	4.2	19.9	19.9
Cycle Q Clear(g_c), s	3.8	0.0	19.3	2.9	0.0	10.2	5.2	22.5	22.6	4.2	19.9	19.9
Prop In Lane	1.00		0.52	1.00		0.49	1.00		0.15	1.00		0.09
Lane Grp Cap(c), veh/h	318	0	412	183	0	384	351	815	835	306	784	812
V/C Ratio(X)	0.32	0.00	0.94	0.42	0.00	0.58	0.57	0.70	0.71	0.53	0.65	0.65
Avail Cap(c_a), veh/h	331	0	412	183	0	384	465	815	835	363	784	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	32.5	26.2	0.0	30.1	14.5	18.9	18.9	15.2	19.0	19.0
Incr Delay (d2), s/veh	0.6	0.0	29.1	1.5	0.0	2.2	1.5	5.1	5.0	1.4	4.2	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(95%),veh/ln	2.9	0.0	16.4	2.2	0.0	7.6	3.6	14.7	15.0	3.0	13.2	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	0.0	61.6	27.7	0.0	32.3	15.9	24.0	23.9	16.6	23.2	23.0
LnGrp LOS	C	A	E	C	A	C	B	C	C	B	C	C
Approach Vol, veh/h	489			299			1364			1207		
Approach Delay, s/veh	53.8			31.1			22.7			22.2		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	44.0	8.0	25.0	11.4	42.8	9.3	23.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	40.0	4.0	21.0	13.0	36.0	6.0	19.0				
Max Q Clear Time (g_c+I1), s	6.2	24.6	4.9	21.3	7.2	21.9	5.8	12.2				
Green Ext Time (p_c), s	0.1	6.8	0.0	0.0	0.3	5.7	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay	27.8											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	170	185	70	105	100	185	990	80	150	915	45
Future Volume (veh/h)	95	170	185	70	105	100	185	990	80	150	915	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	103	185	201	76	114	109	201	1076	87	163	995	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	2	2	2	2	2	3	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	318	197	214	183	196	188	351	1527	123	306	1522	75
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.06	0.24	0.24	0.05	0.23	0.23	0.09	0.46	0.46	0.07	0.44	0.44
Unsig. Movement Delay												
Ln Grp Delay, s/veh	24.8	0.0	61.6	27.7	0.0	32.3	15.9	24.0	23.9	16.6	23.2	23.0
Ln Grp LOS	C	A	E	C	A	C	B	C	C	B	C	C
Approach Vol, veh/h	489			299			1364			1207		
Approach Delay, s/veh	53.8			31.1			22.7			22.2		
Approach LOS	D			C			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	10.2	44.0	8.0	25.0	11.4	42.8	9.3	23.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green (Gmax), s	9.0	40.0	4.0	21.0	13.0	36.0	6.0	19.0				
Max Allow Headway (MAH), s	3.8	5.1	3.8	5.3	3.8	5.1	3.8	5.3				
Max Q Clear (g_c+I1), s	6.2	24.6	4.9	21.3	7.2	21.9	5.8	12.2				
Green Ext Time (g_e), s	0.1	6.8	0.0	0.0	0.3	5.7	0.0	0.6				
Prob of Phs Call (p_c)	0.98	1.00	0.84	1.00	0.99	1.00	0.92	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	1.00	0.20	0.00	1.00	0.49				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1781	1767	1781	1781								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3330	820	3420	872								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	269	890	168	834								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)								

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	163	0	76	0	201	0	103	0
Grp Sat Flow (s), veh/h/ln	1781	0	1767	0	1781	0	1781	0
Q Serve Time (g_s), s	4.2	0.0	2.9	0.0	5.2	0.0	3.8	0.0
Cycle Q Clear Time (g_c), s	4.2	0.0	2.9	0.0	5.2	0.0	3.8	0.0
Perm LT Sat Flow (s_l), veh/h/ln	483	0	990	0	540	0	1158	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	38.8	0.0	19.7	0.0	38.8	0.0	19.7	0.0
Perm LT Serve Time (g_u), s	17.4	0.0	1.7	0.0	18.9	0.0	9.5	0.0
Perm LT Q Serve Time (g_ps), s	10.9	0.0	1.5	0.0	11.8	0.0	1.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	306	0	183	0	351	0	318	0
V/C Ratio (X)	0.53	0.00	0.42	0.00	0.57	0.00	0.32	0.00
Avail Cap (c_a), veh/h	363	0	183	0	465	0	331	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	15.2	0.0	26.2	0.0	14.5	0.0	24.2	0.0
Incr Delay (d2), s/veh	1.4	0.0	1.5	0.0	1.5	0.0	0.6	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	16.6	0.0	27.7	0.0	15.9	0.0	24.8	0.0
1st-Term Q (Q1), veh/ln	1.5	0.0	1.2	0.0	1.9	0.0	1.5	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	3.0	0.0	2.2	0.0	3.6	0.0	2.9	0.0
%ile Storage Ratio (RQ%)	0.51	0.00	0.40	0.00	0.22	0.00	0.30	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T				T			
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	574	0	0	0	513	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1763	0	0
Q Serve Time (g_s), s	0.0	22.5	0.0	0.0	0.0	19.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	22.5	0.0	0.0	0.0	19.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	815	0	0	0	784	0	0
V/C Ratio (X)	0.00	0.70	0.00	0.00	0.00	0.65	0.00	0.00
Avail Cap (c_a), veh/h	0	815	0	0	0	784	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	18.9	0.0	0.0	0.0	19.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.1	0.0	0.0	0.0	4.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.0	0.0	0.0	0.0	23.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.5	0.0	0.0	0.0	7.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.9	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.53	0.00	1.00	0.00	1.57	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	14.7	0.0	0.0	0.0	13.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.20	0.00	0.00	0.00	0.10	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	589	0	386	0	531	0	223
Grp Sat Flow (s), veh/h/ln	0	1822	0	1710	0	1825	0	1705
Q Serve Time (g_s), s	0.0	22.6	0.0	19.3	0.0	19.9	0.0	10.2
Cycle Q Clear Time (g_c), s	0.0	22.6	0.0	19.3	0.0	19.9	0.0	10.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	0.52	0.00	0.09	0.00	0.49
Lane Grp Cap (c), veh/h	0	835	0	412	0	812	0	384
V/C Ratio (X)	0.00	0.71	0.00	0.94	0.00	0.65	0.00	0.58
Avail Cap (c_a), veh/h	0	835	0	412	0	812	0	384
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	18.9	0.0	32.5	0.0	19.0	0.0	30.1
Incr Delay (d2), s/veh	0.0	5.0	0.0	29.1	0.0	4.1	0.0	2.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.9	0.0	61.6	0.0	23.0	0.0	32.3
1st-Term Q (Q1), veh/ln	0.0	8.7	0.0	7.6	0.0	7.8	0.0	4.0
2nd-Term Q (Q2), veh/ln	0.0	1.2	0.0	3.3	0.0	0.9	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.52	0.00	1.50	0.00	1.56	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	15.0	0.0	16.4	0.0	13.5	0.0	7.6
%ile Storage Ratio (RQ%)	0.00	0.21	0.00	0.15	0.00	0.10	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗		↖	↕↗		↖	↕↗	
Traffic Volume (veh/h)	45	35	40	155	30	125	35	1035	130	110	1075	45
Future Volume (veh/h)	45	35	40	155	30	125	35	1035	130	110	1075	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	38	43	168	33	136	38	1125	141	120	1168	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	68	141	331	80	328	66	1585	198	155	1907	80
Arrive On Green	0.09	0.09	0.09	0.11	0.25	0.25	0.04	0.50	0.50	0.09	0.55	0.55
Sat Flow, veh/h	722	761	1585	1781	319	1315	1781	3178	398	1781	3475	146
Grp Volume(v), veh/h	87	0	43	168	0	169	38	628	638	120	597	620
Grp Sat Flow(s),veh/h/ln	1482	0	1585	1781	0	1634	1781	1777	1799	1781	1777	1844
Q Serve(g_s), s	3.4	0.0	1.9	5.9	0.0	6.3	1.5	20.0	20.1	4.8	16.6	16.7
Cycle Q Clear(g_c), s	4.1	0.0	1.9	5.9	0.0	6.3	1.5	20.0	20.1	4.8	16.6	16.7
Prop In Lane	0.56		1.00	1.00		0.80	1.00		0.22	1.00		0.08
Lane Grp Cap(c), veh/h	209	0	141	331	0	408	66	886	897	155	975	1012
V/C Ratio(X)	0.42	0.00	0.30	0.51	0.00	0.41	0.58	0.71	0.71	0.77	0.61	0.61
Avail Cap(c_a), veh/h	456	0	413	387	0	740	122	886	897	342	975	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.1	24.6	0.0	22.9	34.5	14.2	14.2	32.6	11.2	11.2
Incr Delay (d2), s/veh	1.3	0.0	1.2	1.2	0.0	0.7	7.8	4.8	4.8	8.0	2.9	2.8
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(95%),veh/ln	2.8	0.0	1.3	4.5	0.0	4.3	1.4	12.7	12.8	4.2	10.3	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	32.3	25.8	0.0	23.6	42.4	18.9	19.0	40.6	14.0	14.0
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	130		337			1304			1337			
Approach Delay, s/veh	33.0		24.7			19.6			16.4			
Approach LOS	C		C			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	10.3	40.3	11.7	10.5	6.7	44.0	22.2					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Q Clear Time (g_c+I), s	10.8	22.1	7.9	6.1	3.5	18.7	8.3					
Green Ext Time (p_c), s	0.1	5.2	0.1	0.4	0.0	8.4	1.0					

Intersection Summary

HCM 6th Ctrl Delay 19.3

HCM 6th LOS B

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	40	155	30	125	35	1035	130	110	1075	45
Future Volume (veh/h)	45	35	40	155	30	125	35	1035	130	110	1075	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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			
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	38	43	168	33	136	38	1125	141	120	1168	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	141	68	141	331	80	328	66	1585	198	155	1907	80
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.11	0.25	0.25	0.04	0.50	0.50	0.09	0.55	0.55
Unsig. Movement Delay												
Ln Grp Delay, s/veh	33.3	0.0	32.3	25.8	0.0	23.6	42.4	18.9	19.0	40.6	14.0	14.0
Ln Grp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	130				337				1304			
Approach Delay, s/veh	33.0				24.7				19.6			
Approach LOS	C				C				B			
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	10.3	40.3	11.7	10.5	6.7	44.0	22.2					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Allow Headway (MAH), s	3.8	5.2	3.8	5.1	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	6.8	22.1	7.9	6.1	3.5	18.7	8.3					
Green Ext Time (g_e), s	0.1	5.2	0.1	0.4	0.0	8.4	1.0					
Prob of Phs Call (p_c)	0.91	1.00	0.97	1.00	0.54	1.00	1.00					
Prob of Max Out (p_x)	0.03	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1781		722	1781							
Through Movement Data												
Assigned Mvmt	2			4		6	8					
Mvmt Sat Flow, veh/h	3178			761		3475	319					
Right-Turn Movement Data												
Assigned Mvmt	12			14		16	18					
Mvmt Sat Flow, veh/h	398			1585		146	1315					
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)	L (Pr/Pm)		L+T	L (Prot)							

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	120	0	168	87	38	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1781	1482	1781	0	0	0
Q Serve Time (g_s), s	4.8	0.0	5.9	3.4	1.5	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	4.8	0.0	5.9	4.1	1.5	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1317	1236	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.5	6.5	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.4	6.5	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.9	3.4	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	155	0	331	209	66	0	0	0
V/C Ratio (X)	0.77	0.00	0.51	0.42	0.58	0.00	0.00	0.00
Avail Cap (c_a), veh/h	342	0	387	456	122	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	32.6	0.0	24.6	32.0	34.5	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	1.2	1.3	7.8	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.6	0.0	25.8	33.3	42.4	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.0	0.0	2.4	1.5	0.6	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.2	0.0	4.5	2.8	1.4	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.52	0.00	2.28	0.36	0.25	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	628	0	0	0	597	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	20.0	0.0	0.0	0.0	16.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	20.0	0.0	0.0	0.0	16.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	886	0	0	0	975	0	0
V/C Ratio (X)	0.00	0.71	0.00	0.00	0.00	0.61	0.00	0.00
Avail Cap (c_a), veh/h	0	886	0	0	0	975	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.2	0.0	0.0	0.0	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.8	0.0	0.0	0.0	2.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	18.9	0.0	0.0	0.0	14.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	6.8	0.0	0.0	0.0	5.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.2	0.0	0.0	0.0	0.8	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.58	0.00	1.00	0.00	1.66	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	12.7	0.0	0.0	0.0	10.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.06	0.00	0.00	0.00	0.14	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	638	0	43	0	620	0	169
Grp Sat Flow (s), veh/h/ln	0	1799	0	1585	0	1844	0	1634
Q Serve Time (g_s), s	0.0	20.1	0.0	1.9	0.0	16.7	0.0	6.3
Cycle Q Clear Time (g_c), s	0.0	20.1	0.0	1.9	0.0	16.7	0.0	6.3
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.22	0.00	1.00	0.00	0.08	0.00	0.80
Lane Grp Cap (c), veh/h	0	897	0	141	0	1012	0	408
V/C Ratio (X)	0.00	0.71	0.00	0.30	0.00	0.61	0.00	0.41
Avail Cap (c_a), veh/h	0	897	0	413	0	1012	0	740
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	14.2	0.0	31.1	0.0	11.2	0.0	22.9
Incr Delay (d2), s/veh	0.0	4.8	0.0	1.2	0.0	2.8	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	19.0	0.0	32.3	0.0	14.0	0.0	23.6
1st-Term Q (Q1), veh/ln	0.0	7.0	0.0	0.7	0.0	5.6	0.0	2.3
2nd-Term Q (Q2), veh/ln	0.0	1.2	0.0	0.0	0.0	0.8	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.57	0.00	1.80	0.00	1.65	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	12.8	0.0	1.3	0.0	10.5	0.0	4.3
%ile Storage Ratio (RQ%)	0.00	0.06	0.00	0.17	0.00	0.14	0.00	0.15
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

FUTURE (2025) BUILD CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	110	1	15	50	1
Future Vol, veh/h	1	110	1	15	50	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	120	1	16	54	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	73	55	55	0	-	0
Stage 1	55	-	-	-	-	-
Stage 2	18	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	931	1012	1550	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	1005	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	930	1012	1550	-	-	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	1005	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9	0.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1550	-	1011	-	-	
HCM Lane V/C Ratio	0.001	-	0.119	-	-	
HCM Control Delay (s)	7.3	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

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	1	35	1	10	240	15	5	1	5	135	1	25
Future Vol, veh/h	1	35	1	10	240	15	5	1	5	135	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	23	2	2	2	2	2	100
Mvmt Flow	1	38	1	11	261	16	5	1	5	147	1	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	277	0	0	39	0	0	346	340	39	335	332	269
Stage 1	-	-	-	-	-	-	41	41	-	291	291	-
Stage 2	-	-	-	-	-	-	305	299	-	44	41	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	7.2
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	4.2
Pot Cap-1 Maneuver	1286	-	-	1571	-	-	608	582	1033	619	588	583
Stage 1	-	-	-	-	-	-	974	861	-	717	672	-
Stage 2	-	-	-	-	-	-	705	666	-	970	861	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1286	-	-	1571	-	-	575	577	1033	611	583	583
Mov Cap-2 Maneuver	-	-	-	-	-	-	575	577	-	611	583	-
Stage 1	-	-	-	-	-	-	973	860	-	716	667	-
Stage 2	-	-	-	-	-	-	666	661	-	963	860	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			10.1			13.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	720	1286	-	-	1571	-	-	606				
HCM Lane V/C Ratio	0.017	0.001	-	-	0.007	-	-	0.289				
HCM Control Delay (s)	10.1	7.8	-	-	7.3	-	-	13.3				
HCM Lane LOS	B	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	1.2				

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	95	130	90	120	110	165	860	95	135	1000	175
Future Volume (veh/h)	95	95	130	90	120	110	165	860	95	135	1000	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	103	103	141	98	130	120	179	935	103	147	1087	190
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	208	121	165	210	151	140	317	1721	190	375	1570	274
Arrive On Green	0.05	0.17	0.17	0.05	0.17	0.17	0.07	0.54	0.54	0.06	0.53	0.53
Sat Flow, veh/h	1767	715	979	1767	895	826	1767	3202	353	1753	2977	519
Grp Volume(v), veh/h	103	0	244	98	0	250	179	515	523	147	637	640
Grp Sat Flow(s),veh/h/ln	1767	0	1694	1767	0	1722	1767	1763	1792	1753	1749	1747
Q Serve(g_s), s	4.1	0.0	12.0	3.9	0.0	12.1	3.9	16.3	16.3	3.2	23.2	23.4
Cycle Q Clear(g_c), s	4.1	0.0	12.0	3.9	0.0	12.1	3.9	16.3	16.3	3.2	23.2	23.4
Prop In Lane	1.00		0.58	1.00		0.48	1.00		0.20	1.00		0.30
Lane Grp Cap(c), veh/h	208	0	286	210	0	291	317	947	963	375	922	921
V/C Ratio(X)	0.49	0.00	0.85	0.47	0.00	0.86	0.56	0.54	0.54	0.39	0.69	0.69
Avail Cap(c_a), veh/h	208	0	337	210	0	342	421	947	963	413	922	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	34.5	28.4	0.0	34.6	13.2	12.9	12.9	9.9	15.0	15.1
Incr Delay (d2), s/veh	1.8	0.0	16.6	1.6	0.0	17.2	1.6	2.2	2.2	0.7	4.2	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.0	10.1	3.0	0.0	10.4	2.5	10.4	10.6	2.0	14.2	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	51.1	30.0	0.0	51.8	14.8	15.2	15.1	10.5	19.3	19.4
LnGrp LOS	C	A	D	C	A	D	B	B	B	B	B	B
Approach Vol, veh/h	347			348			1217			1424		
Approach Delay, s/veh	44.9			45.7			15.1			18.4		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	50.0	8.0	18.5	10.0	49.1	8.0	18.5				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	7.0	46.0	4.5	17.0	11.0	42.0	4.5	17.0				
Max Q Clear Time (g_c+I1), s	5.2	18.3	5.9	14.0	5.9	25.4	6.1	14.1				
Green Ext Time (p_c), s	0.1	7.5	0.0	0.4	0.2	8.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	22.8											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	95	130	90	120	110	165	860	95	135	1000	175
Future Volume (veh/h)	95	95	130	90	120	110	165	860	95	135	1000	175
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	103	103	141	98	130	120	179	935	103	147	1087	190
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	208	121	165	210	151	140	317	1721	190	375	1570	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.05	0.17	0.17	0.05	0.17	0.17	0.07	0.54	0.54	0.06	0.53	0.53
Unsig. Movement Delay												
Ln Grp Delay, s/veh	30.3	0.0	51.1	30.0	0.0	51.8	14.8	15.2	15.1	10.5	19.3	19.4
Ln Grp LOS	C	A	D	C	A	D	B	B	B	B	B	B
Approach Vol, veh/h	347			348			1217			1424		
Approach Delay, s/veh	44.9			45.7			15.1			18.4		
Approach LOS	D			D			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	9.1	50.0	8.0	18.5	10.0	49.1	8.0	18.5				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	7.0	46.0	4.5	17.0	11.0	42.0	4.5	17.0				
Max Allow Headway (MAH), s	3.8	5.2	3.8	5.3	3.8	5.2	3.8	5.3				
Max Q Clear (g_c+I1), s	5.2	18.3	5.9	14.0	5.9	25.4	6.1	14.1				
Green Ext Time (g_e), s	0.1	7.5	0.0	0.4	0.2	8.0	0.0	0.4				
Prob of Phs Call (p_c)	0.97	1.00	0.90	1.00	0.99	1.00	0.91	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	1.00	0.33	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1753	1767	1767	1767								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3202	715	2977	895								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	353	979	519	826								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)								

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	147	0	98	0	179	0	103	0
Grp Sat Flow (s), veh/h/ln	1753	0	1767	0	1767	0	1767	0
Q Serve Time (g_s), s	3.2	0.0	3.9	0.0	3.9	0.0	4.1	0.0
Cycle Q Clear Time (g_c), s	3.2	0.0	3.9	0.0	3.9	0.0	4.1	0.0
Perm LT Sat Flow (s_l), veh/h/ln	535	0	1127	0	430	0	1121	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	45.1	0.0	14.5	0.0	45.1	0.0	14.5	0.0
Perm LT Serve Time (g_u), s	29.7	0.0	2.5	0.0	21.8	0.0	2.4	0.0
Perm LT Q Serve Time (g_ps), s	5.9	0.0	1.1	0.0	16.7	0.0	1.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	375	0	210	0	317	0	208	0
V/C Ratio (X)	0.39	0.00	0.47	0.00	0.56	0.00	0.49	0.00
Avail Cap (c_a), veh/h	413	0	210	0	421	0	208	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	9.9	0.0	28.4	0.0	13.2	0.0	28.5	0.0
Incr Delay (d2), s/veh	0.7	0.0	1.6	0.0	1.6	0.0	1.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	10.5	0.0	30.0	0.0	14.8	0.0	30.3	0.0
1st-Term Q (Q1), veh/ln	1.1	0.0	1.6	0.0	1.3	0.0	1.7	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	2.0	0.0	3.0	0.0	2.5	0.0	3.2	0.0
%ile Storage Ratio (RQ%)	0.35	0.00	0.56	0.00	0.16	0.00	0.34	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T				T			
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	515	0	0	0	637	0	0
Grp Sat Flow (s), veh/h/ln	0	1763	0	0	0	1749	0	0
Q Serve Time (g_s), s	0.0	16.3	0.0	0.0	0.0	23.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	16.3	0.0	0.0	0.0	23.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	947	0	0	0	922	0	0
V/C Ratio (X)	0.00	0.54	0.00	0.00	0.00	0.69	0.00	0.00
Avail Cap (c_a), veh/h	0	947	0	0	0	922	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	12.9	0.0	0.0	0.0	15.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	0.0	0.0	4.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.2	0.0	0.0	0.0	19.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.7	0.0	0.0	0.0	8.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	1.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.65	0.00	1.00	0.00	1.54	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	10.4	0.0	0.0	0.0	14.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.00	0.00	0.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	523	0	244	0	640	0	250
Grp Sat Flow (s), veh/h/ln	0	1792	0	1694	0	1747	0	1722
Q Serve Time (g_s), s	0.0	16.3	0.0	12.0	0.0	23.4	0.0	12.1
Cycle Q Clear Time (g_c), s	0.0	16.3	0.0	12.0	0.0	23.4	0.0	12.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.20	0.00	0.58	0.00	0.30	0.00	0.48
Lane Grp Cap (c), veh/h	0	963	0	286	0	921	0	291
V/C Ratio (X)	0.00	0.54	0.00	0.85	0.00	0.69	0.00	0.86
Avail Cap (c_a), veh/h	0	963	0	337	0	921	0	342
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.9	0.0	34.5	0.0	15.1	0.0	34.6
Incr Delay (d2), s/veh	0.0	2.2	0.0	16.6	0.0	4.3	0.0	17.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.1	0.0	51.1	0.0	19.4	0.0	51.8
1st-Term Q (Q1), veh/ln	0.0	5.8	0.0	4.7	0.0	8.2	0.0	4.9
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	1.3	0.0	1.1	0.0	1.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.65	0.00	1.67	0.00	1.54	0.00	1.66
%ile Back of Q (95%), veh/ln	0.0	10.6	0.0	10.1	0.0	14.3	0.0	10.4
%ile Storage Ratio (RQ%)	0.00	0.15	0.00	0.09	0.00	0.11	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗		↖	↕↗		↖	↕↗	
Traffic Volume (veh/h)	45	35	60	115	50	140	65	1000	95	80	945	60
Future Volume (veh/h)	45	35	60	115	50	140	65	1000	95	80	945	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	125	54	152	71	1087	103	87	1027	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	136	67	142	232	88	248	91	1853	175	112	1940	123
Arrive On Green	0.09	0.09	0.09	0.07	0.21	0.21	0.05	0.57	0.57	0.06	0.59	0.59
Sat Flow, veh/h	703	753	1585	1555	426	1199	1781	3229	306	1781	3313	210
Grp Volume(v), veh/h	87	0	65	125	0	206	71	588	602	87	538	554
Grp Sat Flow(s),veh/h/ln	1455	0	1585	1555	0	1625	1781	1749	1786	1781	1735	1788
Q Serve(g_s), s	3.6	0.0	3.0	5.0	0.0	8.8	3.0	16.6	16.6	3.7	14.3	14.3
Cycle Q Clear(g_c), s	4.3	0.0	3.0	5.0	0.0	8.8	3.0	16.6	16.6	3.7	14.3	14.3
Prop In Lane	0.56		1.00	1.00		0.74	1.00		0.17	1.00		0.12
Lane Grp Cap(c), veh/h	203	0	142	232	0	336	91	1004	1025	112	1016	1047
V/C Ratio(X)	0.43	0.00	0.46	0.54	0.00	0.61	0.78	0.59	0.59	0.78	0.53	0.53
Avail Cap(c_a), veh/h	426	0	393	232	0	594	139	1004	1025	139	1016	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	33.1	28.8	0.0	27.6	35.9	10.5	10.5	35.4	9.5	9.5
Incr Delay (d2), s/veh	1.4	0.0	2.3	2.5	0.0	1.8	14.1	2.5	2.5	19.6	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	0.0	2.2	3.8	0.0	6.3	2.9	10.0	10.2	3.9	8.7	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	35.4	31.3	0.0	29.4	50.0	13.0	13.0	55.0	11.5	11.5
LnGrp LOS	D	A	D	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	152		331			1261			1179			
Approach Delay, s/veh	35.2		30.1			15.1			14.7			
Approach LOS	D		C			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	8.8	48.0	9.0	10.9	7.9	48.9	19.9					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	4.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Q Clear Time (g_c+1.5), s	4.0	18.6	7.0	6.3	5.0	16.3	10.8					
Green Ext Time (p_c), s	0.0	8.9	0.0	0.5	0.0	8.1	1.1					
Intersection Summary												
HCM 6th Ctrl Delay	17.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	60	115	50	140	65	1000	95	80	945	60
Future Volume (veh/h)	45	35	60	115	50	140	65	1000	95	80	945	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	125	54	152	71	1087	103	87	1027	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	136	67	142	232	88	248	91	1853	175	112	1940	123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.07	0.21	0.21	0.05	0.57	0.57	0.06	0.59	0.59
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.1	0.0	35.4	31.3	0.0	29.4	50.0	13.0	13.0	55.0	11.5	11.5
Ln Grp LOS	D	A	D	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h	152			331			1261			1179		
Approach Delay, s/veh	35.2			30.1			15.1			14.7		
Approach LOS	D			C			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	8.8	48.0	9.0	10.9	7.9	48.9	19.9					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	6.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.0	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	5.7	18.6	7.0	6.3	5.0	16.3	10.8					
Green Ext Time (g_e), s	0.0	8.9	0.0	0.5	0.0	8.1	1.1					
Prob of Phs Call (p_c)	0.84	1.00	0.93	1.00	0.78	1.00	1.00					
Prob of Max Out (p_x)	1.00	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		703	1781							
Through Movement Data												
Assigned Mvmt	2			4			6			8		
Mvmt Sat Flow, veh/h	3229			753			3313			426		
Right-Turn Movement Data												
Assigned Mvmt	12			14			16			18		
Mvmt Sat Flow, veh/h	306			1585			210			1199		
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	87	0	125	87	71	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1455	1781	0	0	0
Q Serve Time (g_s), s	3.7	0.0	5.0	3.6	3.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.7	0.0	5.0	4.3	3.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1128	1195	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.9	6.9	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.5	6.9	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.5	3.6	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	112	0	232	203	91	0	0	0
V/C Ratio (X)	0.78	0.00	0.54	0.43	0.78	0.00	0.00	0.00
Avail Cap (c_a), veh/h	139	0	232	426	139	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	35.4	0.0	28.8	33.7	35.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	19.6	0.0	2.5	1.4	14.1	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	55.0	0.0	31.3	35.1	50.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.5	0.0	2.0	1.5	1.3	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.6	0.0	0.2	0.1	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	3.9	0.0	3.8	2.9	2.9	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.48	0.00	2.19	0.38	0.51	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	588	0	0	0	538	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	16.6	0.0	0.0	0.0	14.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	16.6	0.0	0.0	0.0	14.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	1004	0	0	0	1016	0	0
V/C Ratio (X)	0.00	0.59	0.00	0.00	0.00	0.53	0.00	0.00
Avail Cap (c_a), veh/h	0	1004	0	0	0	1016	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.5	0.0	0.0	0.0	9.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.5	0.0	0.0	0.0	2.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.0	0.0	0.0	0.0	11.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.3	0.0	0.0	0.0	4.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.0	0.0	0.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.67	0.00	1.00	0.00	1.73	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	10.0	0.0	0.0	0.0	8.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.24	0.00	0.00	0.00	0.12	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	602	0	65	0	554	0	206
Grp Sat Flow (s), veh/h/ln	0	1786	0	1585	0	1788	0	1625
Q Serve Time (g_s), s	0.0	16.6	0.0	3.0	0.0	14.3	0.0	8.8
Cycle Q Clear Time (g_c), s	0.0	16.6	0.0	3.0	0.0	14.3	0.0	8.8
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.17	0.00	1.00	0.00	0.12	0.00	0.74
Lane Grp Cap (c), veh/h	0	1025	0	142	0	1047	0	336
V/C Ratio (X)	0.00	0.59	0.00	0.46	0.00	0.53	0.00	0.61
Avail Cap (c_a), veh/h	0	1025	0	393	0	1047	0	594
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	10.5	0.0	33.1	0.0	9.5	0.0	27.6
Incr Delay (d2), s/veh	0.0	2.5	0.0	2.3	0.0	1.9	0.0	1.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.0	0.0	35.4	0.0	11.5	0.0	29.4
1st-Term Q (Q1), veh/ln	0.0	5.4	0.0	1.1	0.0	4.6	0.0	3.3
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.1	0.0	0.6	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.66	0.00	1.80	0.00	1.72	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	10.2	0.0	2.2	0.0	8.9	0.0	6.3
%ile Storage Ratio (RQ%)	0.00	0.25	0.00	0.28	0.00	0.12	0.00	0.22
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	15	120	1140	1090	15
Future Volume (veh/h)	25	15	120	1140	1090	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870
Adj Flow Rate, veh/h	27	16	130	1239	1185	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	85	76	475	2778	2667	36
Arrive On Green	0.05	0.05	0.74	0.74	0.74	0.74
Sat Flow, veh/h	1781	1585	466	3839	3684	48
Grp Volume(v), veh/h	27	16	130	1239	586	615
Grp Sat Flow(s), veh/h/ln	1781	1585	466	1870	1777	1862
Q Serve(g_s), s	0.6	0.4	5.7	4.9	4.8	4.8
Cycle Q Clear(g_c), s	0.6	0.4	10.5	4.9	4.8	4.8
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	85	76	475	2778	1320	1383
V/C Ratio(X)	0.32	0.21	0.27	0.45	0.44	0.44
Avail Cap(c_a), veh/h	979	871	873	5969	2835	2971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	17.5	3.9	1.9	1.9	1.9
Incr Delay (d2), s/veh	2.1	1.4	0.3	0.1	0.2	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	0.5	0.3	0.4	0.1	0.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	19.7	18.9	4.2	2.0	2.1	2.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	43			1369	1201	
Approach Delay, s/veh	19.4			2.2	2.1	
Approach LOS	B			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	32.4			5.8		32.4
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	12.5			2.6		6.8
Green Ext Time (p_c), s	15.9			0.1		10.5
Intersection Summary						
HCM 6th Ctrl Delay			2.5			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	25	15	120	1140	1090	15			
Future Volume (veh/h)	25	15	120	1140	1090	15			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870			
Adj Flow Rate, veh/h	27	16	130	1239	1185	16			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	85	76	475	2778	2667	36			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.05	0.74	0.74	0.74	0.74			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	19.7	18.9	4.2	2.0	2.1	2.1			
Ln Grp LOS	B	B	A	A	A	A			
Approach Vol, veh/h	43			1369	1201				
Approach Delay, s/veh	19.4			2.2	2.1				
Approach LOS	B			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			32.4		5.8		32.4		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.4		3.9		5.1		
Max Q Clear (g_c+I1), s			12.5		2.6		6.8		
Green Ext Time (g_e), s			15.9		0.1		10.5		
Prob of Phs Call (p_c)			1.00		0.37		1.00		
Prob of Max Out (p_x)			0.07		0.00		0.02		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			466		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3839		0		3684		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		48		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022

Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	130	0	27	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	466	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	5.7	0.0	0.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.5	0.0	0.6	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	466	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	28.4	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	23.5	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	475	0	85	0	0	0	0
V/C Ratio (X)	0.00	0.27	0.00	0.32	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	873	0	979	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	3.9	0.0	17.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	2.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.2	0.0	19.7	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.4	0.0	0.5	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.10	0.00	0.02	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1239	0	0	0	586	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	4.9	0.0	0.0	0.0	4.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	4.9	0.0	0.0	0.0	4.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	2778	0	0	0	1320	0	0
V/C Ratio (X)	0.00	0.45	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	5969	0	0	0	2835	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.0	0.0	0.0	0.0	2.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment	R				T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	16	0	615	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1862	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.4	0.0	4.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.4	0.0	4.8	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.03	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	76	0	1383	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.21	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	871	0	2971	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	17.5	0.0	1.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	18.9	0.0	2.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.80	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	2.5
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	6.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	275	20	65	75	1
Future Vol, veh/h	5	275	20	65	75	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	299	22	71	82	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	198	83	83	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	791	976	1514	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	779	976	1514	-	-	-
Mov Cap-2 Maneuver	779	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	1.7		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1514	-	972	-	-	
HCM Lane V/C Ratio	0.014	-	0.313	-	-	
HCM Control Delay (s)	7.4	0	10.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	1.3	-	-	

Intersection												
Int Delay, s/veh	20.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	175	1	15	200	60	1	1	15	340	1	10
Future Vol, veh/h	25	175	1	15	200	60	1	1	15	340	1	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	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	23	2	2	2	2	2	100
Mvmt Flow	27	190	1	16	217	65	1	1	16	370	1	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	282	0	0	191	0	0	533	559	191	535	527	250
Stage 1	-	-	-	-	-	-	245	245	-	282	282	-
Stage 2	-	-	-	-	-	-	288	314	-	253	245	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	7.2
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	4.2
Pot Cap-1 Maneuver	1280	-	-	1383	-	-	458	438	851	456	456	599
Stage 1	-	-	-	-	-	-	759	703	-	725	678	-
Stage 2	-	-	-	-	-	-	720	656	-	751	703	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1280	-	-	1383	-	-	438	424	851	435	441	599
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	424	-	435	441	-
Stage 1	-	-	-	-	-	-	743	688	-	710	670	-
Stage 2	-	-	-	-	-	-	698	648	-	720	688	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.4			9.8			48		
HCM LOS							A			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	763	1280	-	-	1383	-	-	438
HCM Lane V/C Ratio	0.024	0.021	-	-	0.012	-	-	0.871
HCM Control Delay (s)	9.8	7.9	-	-	7.6	-	-	48
HCM Lane LOS	A	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	8.9

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	200	205	70	110	100	195	1085	80	155	985	70
Future Volume (veh/h)	235	200	205	70	110	100	195	1085	80	155	985	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	255	217	223	76	120	109	212	1179	87	168	1071	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	397	235	242	194	173	157	290	1432	106	251	1388	98
Arrive On Green	0.13	0.28	0.28	0.05	0.19	0.19	0.08	0.43	0.43	0.07	0.42	0.42
Sat Flow, veh/h	1767	845	869	1767	903	820	1767	3329	245	1753	3312	235
Grp Volume(v), veh/h	255	0	440	76	0	229	212	624	642	168	565	582
Grp Sat Flow(s),veh/h/ln	1767	0	1714	1767	0	1723	1767	1763	1811	1753	1749	1798
Q Serve(g_s), s	9.7	0.0	22.0	3.0	0.0	10.9	6.0	27.5	27.6	4.8	24.5	24.5
Cycle Q Clear(g_c), s	9.7	0.0	22.0	3.0	0.0	10.9	6.0	27.5	27.6	4.8	24.5	24.5
Prop In Lane	1.00		0.51	1.00		0.48	1.00		0.14	1.00		0.13
Lane Grp Cap(c), veh/h	397	0	477	194	0	330	290	759	779	251	733	754
V/C Ratio(X)	0.64	0.00	0.92	0.39	0.00	0.69	0.73	0.82	0.82	0.67	0.77	0.77
Avail Cap(c_a), veh/h	449	0	505	199	0	330	290	759	779	251	733	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	30.9	27.9	0.0	33.3	18.4	22.2	22.2	19.0	22.0	22.0
Incr Delay (d2), s/veh	2.6	0.0	22.1	1.3	0.0	6.1	9.0	9.8	9.6	6.7	7.7	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.4	0.0	17.1	2.3	0.0	8.6	5.3	18.4	18.8	4.0	16.3	16.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	0.0	53.0	29.2	0.0	39.4	27.4	32.0	31.8	25.7	29.7	29.6
LnGrp LOS	C	A	D	C	A	D	C	C	C	C	C	C
Approach Vol, veh/h	695			305			1478			1315		
Approach Delay, s/veh	43.0			36.9			31.2			29.1		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	42.0	7.7	28.6	11.0	41.0	15.4	20.9				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	6.0	38.0	4.5	26.0	7.0	37.0	14.5	16.0				
Max Q Clear Time (g_c+I1), s	6.8	29.6	5.0	24.0	8.0	26.5	11.7	12.9				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.6	0.0	5.3	0.2	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	33.1											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	200	205	70	110	100	195	1085	80	155	985	70
Future Volume (veh/h)	235	200	205	70	110	100	195	1085	80	155	985	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1870	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	255	217	223	76	120	109	212	1179	87	168	1071	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	397	235	242	194	173	157	290	1432	106	251	1388	98
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.13	0.28	0.28	0.05	0.19	0.19	0.08	0.43	0.43	0.07	0.42	0.42
Unsig. Movement Delay												
Ln Grp Delay, s/veh	25.7	0.0	53.0	29.2	0.0	39.4	27.4	32.0	31.8	25.7	29.7	29.6
Ln Grp LOS	C	A	D	C	A	D	C	C	C	C	C	C
Approach Vol, veh/h	695			305			1478			1315		
Approach Delay, s/veh	43.0			36.9			31.2			29.1		
Approach LOS	D			D			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	10.0	42.0	7.7	28.6	11.0	41.0	15.4	20.9				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	6.0	38.0	4.5	26.0	7.0	37.0	14.5	16.0				
Max Allow Headway (MAH), s	3.8	5.1	3.8	5.3	3.8	5.1	3.8	5.3				
Max Q Clear (g_c+I1), s	6.8	29.6	5.0	24.0	8.0	26.5	11.7	12.9				
Green Ext Time (g_e), s	0.0	4.9	0.0	0.6	0.0	5.3	0.2	0.3				
Prob of Phs Call (p_c)	0.98	1.00	0.84	1.00	0.99	1.00	1.00	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3		5		7						
Mvmt Sat Flow, veh/h	1753	1767		1767		1767						
Through Movement Data												
Assigned Mvmt	2			4			6			8		
Mvmt Sat Flow, veh/h	3329			845			3312			903		
Right-Turn Movement Data												
Assigned Mvmt	12			14			16			18		
Mvmt Sat Flow, veh/h	245			869			235			820		
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)					

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	168	0	76	0	212	0	255	0
Grp Sat Flow (s), veh/h/ln	1753	0	1767	0	1767	0	1767	0
Q Serve Time (g_s), s	4.8	0.0	3.0	0.0	6.0	0.0	9.7	0.0
Cycle Q Clear Time (g_c), s	4.8	0.0	3.0	0.0	6.0	0.0	9.7	0.0
Perm LT Sat Flow (s_l), veh/h/ln	431	0	942	0	486	0	1142	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	37.0	0.0	16.9	0.0	37.0	0.0	18.9	0.0
Perm LT Serve Time (g_u), s	10.4	0.0	2.6	0.0	12.5	0.0	6.0	0.0
Perm LT Q Serve Time (g_ps), s	10.4	0.0	1.3	0.0	12.5	0.0	3.7	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	251	0	194	0	290	0	397	0
V/C Ratio (X)	0.67	0.00	0.39	0.00	0.73	0.00	0.64	0.00
Avail Cap (c_a), veh/h	251	0	199	0	290	0	449	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	19.0	0.0	27.9	0.0	18.4	0.0	23.1	0.0
Incr Delay (d2), s/veh	6.7	0.0	1.3	0.0	9.0	0.0	2.6	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	25.7	0.0	29.2	0.0	27.4	0.0	25.7	0.0
1st-Term Q (Q1), veh/ln	1.8	0.0	1.2	0.0	2.2	0.0	3.8	0.0
2nd-Term Q (Q2), veh/ln	0.5	0.0	0.1	0.0	0.7	0.0	0.3	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	4.0	0.0	2.3	0.0	5.3	0.0	7.4	0.0
%ile Storage Ratio (RQ%)	0.69	0.00	0.43	0.00	0.32	0.00	0.79	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T				T			
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	624	0	0	0	565	0	0
Grp Sat Flow (s), veh/h/ln	0	1763	0	0	0	1749	0	0
Q Serve Time (g_s), s	0.0	27.5	0.0	0.0	0.0	24.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	27.5	0.0	0.0	0.0	24.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	759	0	0	0	733	0	0
V/C Ratio (X)	0.00	0.82	0.00	0.00	0.00	0.77	0.00	0.00
Avail Cap (c_a), veh/h	0	759	0	0	0	733	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	22.2	0.0	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.8	0.0	0.0	0.0	7.7	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.0	0.0	0.0	0.0	29.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	10.5	0.0	0.0	0.0	9.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	0.0	0.0	1.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.46	0.00	1.00	0.00	1.50	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	18.4	0.0	0.0	0.0	16.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.25	0.00	0.00	0.00	0.12	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	642	0	440	0	582	0	229
Grp Sat Flow (s), veh/h/ln	0	1811	0	1714	0	1798	0	1723
Q Serve Time (g_s), s	0.0	27.6	0.0	22.0	0.0	24.5	0.0	10.9
Cycle Q Clear Time (g_c), s	0.0	27.6	0.0	22.0	0.0	24.5	0.0	10.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.14	0.00	0.51	0.00	0.13	0.00	0.48
Lane Grp Cap (c), veh/h	0	779	0	477	0	754	0	330
V/C Ratio (X)	0.00	0.82	0.00	0.92	0.00	0.77	0.00	0.69
Avail Cap (c_a), veh/h	0	779	0	505	0	754	0	330
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.2	0.0	30.9	0.0	22.0	0.0	33.3
Incr Delay (d2), s/veh	0.0	9.6	0.0	22.1	0.0	7.5	0.0	6.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	31.8	0.0	53.0	0.0	29.6	0.0	39.4
1st-Term Q (Q1), veh/ln	0.0	10.8	0.0	8.6	0.0	9.6	0.0	4.4
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	2.9	0.0	1.6	0.0	0.6
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.46	0.00	1.48	0.00	1.49	0.00	1.74
%ile Back of Q (95%), veh/ln	0.0	18.8	0.0	17.1	0.0	16.7	0.0	8.6
%ile Storage Ratio (RQ%)	0.00	0.26	0.00	0.16	0.00	0.13	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↔		↖	↕		↖	↕	
Traffic Volume (veh/h)	45	35	40	160	30	130	35	1135	135	110	1160	45
Future Volume (veh/h)	45	35	40	160	30	130	35	1135	135	110	1160	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	43	174	33	141	38	1234	147	120	1261	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	140	67	140	322	80	342	65	1538	183	155	1835	71
Arrive On Green	0.09	0.09	0.09	0.12	0.26	0.26	0.04	0.49	0.49	0.09	0.54	0.54
Sat Flow, veh/h	720	759	1585	1555	305	1302	1781	3148	374	1781	3405	132
Grp Volume(v), veh/h	87	0	43	174	0	174	38	683	698	120	642	668
Grp Sat Flow(s),veh/h/ln	1478	0	1585	1555	0	1606	1781	1749	1773	1781	1735	1802
Q Serve(g_s), s	3.4	0.0	1.9	7.1	0.0	6.6	1.6	24.3	24.6	4.9	20.1	20.2
Cycle Q Clear(g_c), s	4.1	0.0	1.9	7.1	0.0	6.6	1.6	24.3	24.6	4.9	20.1	20.2
Prop In Lane	0.56		1.00	1.00		0.81	1.00		0.21	1.00		0.07
Lane Grp Cap(c), veh/h	207	0	140	322	0	422	65	855	867	155	935	971
V/C Ratio(X)	0.42	0.00	0.31	0.54	0.00	0.41	0.58	0.80	0.80	0.78	0.69	0.69
Avail Cap(c_a), veh/h	446	0	406	344	0	714	120	855	867	336	935	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	31.7	24.7	0.0	22.6	35.2	15.9	16.0	33.2	12.5	12.5
Incr Delay (d2), s/veh	1.4	0.0	1.2	1.5	0.0	0.6	8.0	7.7	7.9	8.0	4.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.0	1.3	4.8	0.0	4.5	1.4	15.4	15.7	4.3	12.1	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	32.9	26.2	0.0	23.3	43.2	23.7	23.9	41.2	16.6	16.5
LnGrp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h		130			348			1419			1430	
Approach Delay, s/veh		33.6			24.7			24.3			18.6	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	40.3	12.9	10.6	6.7	44.0		23.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0		33.0				
Max Q Clear Time (g_c+I), s	10.9	26.6	9.1	6.1	3.6	22.2		8.6				
Green Ext Time (p_c), s	0.1	3.1	0.0	0.4	0.0	8.5		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	40	160	30	130	35	1135	135	110	1160	45
Future Volume (veh/h)	45	35	40	160	30	130	35	1135	135	110	1160	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	43	174	33	141	38	1234	147	120	1261	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	140	67	140	322	80	342	65	1538	183	155	1835	71
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.12	0.26	0.26	0.04	0.49	0.49	0.09	0.54	0.54
Unsig. Movement Delay												
Ln Grp Delay, s/veh	34.0	0.0	32.9	26.2	0.0	23.3	43.2	23.7	23.9	41.2	16.6	16.5
Ln Grp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h	130		348				1419		1430			
Approach Delay, s/veh	33.6		24.7				24.3		18.6			
Approach LOS	C		C				C		B			
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	10.4	40.3	12.9	10.6	6.7	44.0	23.5					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.1	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	6.9	26.6	9.1	6.1	3.6	22.2	8.6					
Green Ext Time (g_e), s	0.1	3.1	0.0	0.4	0.0	8.5	1.0					
Prob of Phs Call (p_c)	0.92	1.00	0.97	1.00	0.54	1.00	1.00					
Prob of Max Out (p_x)	0.04	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		720	1781							
Through Movement Data												
Assigned Mvmt	2			4			6			8		
Mvmt Sat Flow, veh/h	3148			759			3405			305		
Right-Turn Movement Data												
Assigned Mvmt	12			14			16			18		
Mvmt Sat Flow, veh/h	374			1585			132			1302		
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	120	0	174	87	38	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1478	1781	0	0	0
Q Serve Time (g_s), s	4.9	0.0	7.1	3.4	1.6	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	4.9	0.0	7.1	4.1	1.6	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1150	1230	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.6	6.6	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.4	6.6	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.1	3.4	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	155	0	322	207	65	0	0	0
V/C Ratio (X)	0.78	0.00	0.54	0.42	0.58	0.00	0.00	0.00
Avail Cap (c_a), veh/h	336	0	344	446	120	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	33.2	0.0	24.7	32.6	35.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	1.5	1.4	8.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	41.2	0.0	26.2	34.0	43.2	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.0	0.0	2.5	1.5	0.7	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.3	0.0	4.8	2.8	1.4	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.53	0.00	2.72	0.37	0.25	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	683	0	0	0	642	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	24.3	0.0	0.0	0.0	20.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	24.3	0.0	0.0	0.0	20.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	855	0	0	0	935	0	0
V/C Ratio (X)	0.00	0.80	0.00	0.00	0.00	0.69	0.00	0.00
Avail Cap (c_a), veh/h	0	855	0	0	0	935	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	15.9	0.0	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.7	0.0	0.0	0.0	4.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.7	0.0	0.0	0.0	16.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.3	0.0	0.0	0.0	6.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.8	0.0	0.0	0.0	1.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.51	0.00	1.00	0.00	1.60	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	15.4	0.0	0.0	0.0	12.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.38	0.00	0.00	0.00	0.17	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	698	0	43	0	668	0	174
Grp Sat Flow (s), veh/h/ln	0	1773	0	1585	0	1802	0	1606
Q Serve Time (g_s), s	0.0	24.6	0.0	1.9	0.0	20.2	0.0	6.6
Cycle Q Clear Time (g_c), s	0.0	24.6	0.0	1.9	0.0	20.2	0.0	6.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.21	0.00	1.00	0.00	0.07	0.00	0.81
Lane Grp Cap (c), veh/h	0	867	0	140	0	971	0	422
V/C Ratio (X)	0.00	0.80	0.00	0.31	0.00	0.69	0.00	0.41
Avail Cap (c_a), veh/h	0	867	0	406	0	971	0	714
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	16.0	0.0	31.7	0.0	12.5	0.0	22.6
Incr Delay (d2), s/veh	0.0	7.9	0.0	1.2	0.0	4.0	0.0	0.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.9	0.0	32.9	0.0	16.5	0.0	23.3
1st-Term Q (Q1), veh/ln	0.0	8.5	0.0	0.7	0.0	6.8	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	1.9	0.0	0.0	0.0	1.1	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.51	0.00	1.80	0.00	1.58	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	15.7	0.0	1.3	0.0	12.5	0.0	4.5
%ile Storage Ratio (RQ%)	0.00	0.38	0.00	0.18	0.00	0.18	0.00	0.16
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	85	45	1220	1325	10
Future Volume (veh/h)	75	85	45	1220	1325	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	92	49	1326	1440	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	153	136	345	2872	2921	22
Arrive On Green	0.09	0.09	0.81	0.81	0.81	0.81
Sat Flow, veh/h	1781	1585	367	3647	3708	28
Grp Volume(v), veh/h	82	92	49	1326	708	743
Grp Sat Flow(s), veh/h/ln	1781	1585	367	1777	1777	1865
Q Serve(g_s), s	3.3	4.3	3.7	8.6	9.6	9.6
Cycle Q Clear(g_c), s	3.3	4.3	13.3	8.6	9.6	9.6
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	153	136	345	2872	1436	1507
V/C Ratio(X)	0.54	0.68	0.14	0.46	0.49	0.49
Avail Cap(c_a), veh/h	496	441	345	2872	1436	1507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	33.5	4.4	2.2	2.3	2.3
Incr Delay (d2), s/veh	2.9	5.7	0.9	0.5	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	3.3	0.5	2.1	2.8	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.9	39.2	5.3	2.8	3.5	3.5
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	174			1375	1451	
Approach Delay, s/veh	37.7			2.8	3.5	
Approach LOS	D			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	65.0			10.5		65.0
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	15.3			6.3		11.6
Green Ext Time (p_c), s	15.3			0.4		14.5
Intersection Summary						
HCM 6th Ctrl Delay			5.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	75	85	45	1220	1325	10			
Future Volume (veh/h)	75	85	45	1220	1325	10			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	82	92	49	1326	1440	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	153	136	345	2872	2921	22			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.09	0.09	0.81	0.81	0.81	0.81			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	35.9	39.2	5.3	2.8	3.5	3.5			
Ln Grp LOS	D	D	A	A	A	A			
Approach Vol, veh/h	174			1375	1451				
Approach Delay, s/veh	37.7			2.8	3.5				
Approach LOS	D			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			65.0		10.5		65.0		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.3		3.9		5.1		
Max Q Clear (g_c+I1), s			15.3		6.3		11.6		
Green Ext Time (g_e), s			15.3		0.4		14.5		
Prob of Phs Call (p_c)			1.00		0.97		1.00		
Prob of Max Out (p_x)			0.00		0.00		0.00		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			367		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3647		0		3708		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		28		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022

Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	49	0	82	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	367	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	3.7	0.0	3.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	13.3	0.0	3.3	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	367	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	51.4	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	345	0	153	0	0	0	0
V/C Ratio (X)	0.00	0.14	0.00	0.54	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	345	0	496	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.4	0.0	33.1	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	2.9	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.3	0.0	35.9	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	1.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.5	0.0	2.7	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.13	0.00	0.10	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1326	0	0	0	708	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	8.6	0.0	0.0	0.0	9.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	8.6	0.0	0.0	0.0	9.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	2872	0	0	0	1436	0	0
V/C Ratio (X)	0.00	0.46	0.00	0.00	0.00	0.49	0.00	0.00
Avail Cap (c_a), veh/h	0	2872	0	0	0	1436	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	2.2	0.0	0.0	0.0	2.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	2.8	0.0	0.0	0.0	3.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.0	0.0	0.0	0.0	1.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/06/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	2.1	0.0	0.0	0.0	2.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.07	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment				R	T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	92	0	743	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1865	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	4.3	0.0	9.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	4.3	0.0	9.6	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.01	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	136	0	1507	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.68	0.00	0.49	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	441	0	1507	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	33.5	0.0	2.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.7	0.0	1.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	39.2	0.0	3.5	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.6	0.0	1.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.80	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	3.3	0.0	2.9	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	1.65	0.00	0.07	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

FUTURE (2029) BUILD CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	120	10	15	55	1
Future Vol, veh/h	1	120	10	15	55	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	130	11	16	60	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	99	61	61	0	-	0
Stage 1	61	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	900	1004	1542	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	894	1004	1542	-	-	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	2.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1542	-	1003	-	-	
HCM Lane V/C Ratio	0.007	-	0.131	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

HCM 6th Signalized Intersection Summary

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	50	1	10	350	15	5	1	5	135	1	40
Future Volume (veh/h)	10	50	1	10	350	15	5	1	5	135	1	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	11	54	1	11	380	16	5	1	5	147	1	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Cap, veh/h	506	672	12	782	654	28	9	2	9	221	2	65
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.01	0.01	0.01	0.17	0.17	0.17
Sat Flow, veh/h	988	1830	34	1349	1782	75	770	154	770	1334	9	390
Grp Volume(v), veh/h	11	0	55	11	0	396	11	0	0	191	0	0
Grp Sat Flow(s),veh/h/ln	988	0	1864	1349	0	1857	1693	0	0	1733	0	0
Q Serve(g_s), s	0.2	0.0	0.4	0.1	0.0	4.0	0.1	0.0	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	0.4	0.6	0.0	4.0	0.1	0.0	0.0	2.4	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.04	0.45		0.45	0.77		0.23
Lane Grp Cap(c), veh/h	506	0	685	782	0	682	20	0	0	287	0	0
V/C Ratio(X)	0.02	0.00	0.08	0.01	0.00	0.58	0.55	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	1664	0	2869	2362	0	2858	1578	0	0	1691	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	4.8	4.9	0.0	5.9	11.3	0.0	0.0	9.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.8	21.5	0.0	0.0	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	0.2	0.0	0.0	1.1	0.3	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	0.0	4.8	4.9	0.0	6.7	32.9	0.0	0.0	11.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	B	A	A
Approach Vol, veh/h	66			407				11			191	
Approach Delay, s/veh	5.3			6.6				32.9			11.7	
Approach LOS	A			A				C			B	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	3.8			12.0			7.3			12.0		
Change Period (Y+Rc), s	3.5			3.5			3.5			3.5		
Max Green Setting (Gmax), s	21.5			35.5			22.5			35.5		
Max Q Clear Time (g_c+I1), s	2.1			6.2			4.4			6.0		
Green Ext Time (p_c), s	0.0			0.3			1.0			2.5		
Intersection Summary												
HCM 6th Ctrl Delay	8.3											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	50	1	10	350	15	5	1	5	135	1	40
Future Volume (veh/h)	10	50	1	10	350	15	5	1	5	135	1	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	11	54	1	11	380	16	5	1	5	147	1	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	506	672	12	782	654	28	9	2	9	221	2	65
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.01	0.01	0.01	0.17	0.17	0.17
Unsig. Movement Delay												
Ln Grp Delay, s/veh	7.6	0.0	4.8	4.9	0.0	6.7	32.9	0.0	0.0	11.7	0.0	0.0
Ln Grp LOS	A	A	A	A	A	A	C	A	A	B	A	A
Approach Vol, veh/h	66			407			11			191		
Approach Delay, s/veh	5.3			6.6			32.9			11.7		
Approach LOS	A			A			C			B		
Timer:	1		2	3	4	5	6	7	8			
Assigned Phs	6		2	4				8				
Case No	12.0		12.0	6.0				6.0				
Phs Duration (G+Y+Rc), s	7.3		3.8	12.0				12.0				
Change Period (Y+Rc), s	3.5		3.5	3.5				3.5				
Max Green (Gmax), s	22.5		21.5	35.5				35.5				
Max Allow Headway (MAH), s	5.5		5.6	5.3				5.1				
Max Q Clear (g_c+I1), s	4.4		2.1	6.2				6.0				
Green Ext Time (g_e), s	1.0		0.0	0.3				2.5				
Prob of Phs Call (p_c)	0.71		0.07	1.00				1.00				
Prob of Max Out (p_x)	0.00		0.00	0.00				0.00				
Left-Turn Movement Data												
Assigned Mvmt	1		5	7				3				
Mvmt Sat Flow, veh/h	1334		770	988				1349				
Through Movement Data												
Assigned Mvmt	6		2	4				8				
Mvmt Sat Flow, veh/h	9		154	1830				1782				
Right-Turn Movement Data												
Assigned Mvmt	16		12	14				18				
Mvmt Sat Flow, veh/h	390		770	34				75				
Left Lane Group Data												
Assigned Mvmt	1		5	0	7	0	0	0	3			
Lane Assignment	L+T+R		L+T+R	L				L				

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Lanes in Grp	1	1	0	1	0	0	0	1
Grp Vol (v), veh/h	191	11	0	11	0	0	0	11
Grp Sat Flow (s), veh/h/ln	1733	1693	0	988	0	0	0	1349
Q Serve Time (g_s), s	2.4	0.1	0.0	0.2	0.0	0.0	0.0	0.1
Cycle Q Clear Time (g_c), s	2.4	0.1	0.0	4.2	0.0	0.0	0.0	0.6
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	988	0	0	0	1349
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	8.5	0.0	0.0	0.0	8.5
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	4.5	0.0	0.0	0.0	8.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.77	0.45	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	287	20	0	506	0	0	0	782
V/C Ratio (X)	0.66	0.55	0.00	0.02	0.00	0.00	0.00	0.01
Avail Cap (c_a), veh/h	1691	1578	0	1664	0	0	0	2362
Upstream Filter (I)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	9.0	11.3	0.0	7.5	0.0	0.0	0.0	4.9
Incr Delay (d2), s/veh	2.6	21.5	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	11.7	32.9	0.0	7.6	0.0	0.0	0.0	4.9
1st-Term Q (Q1), veh/ln	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	1.80	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	1.4	0.3	0.0	0.1	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.11	0.02	0.00	0.03	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	6	2	0	4	0	0	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	16	12	0	14	0	0	0	18
Lane Assignment	T+R				T+R			
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	55	0	0	0	396
Grp Sat Flow (s), veh/h/ln	0	0	0	1864	0	0	0	1857
Q Serve Time (g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.23	0.45	0.00	0.02	0.00	0.00	0.00	0.04
Lane Grp Cap (c), veh/h	0	0	0	685	0	0	0	682
V/C Ratio (X)	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.58
Avail Cap (c_a), veh/h	0	0	0	2869	0	0	0	2858
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	4.8	0.0	0.0	0.0	5.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	4.8	0.0	0.0	0.0	6.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	8.3
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	100	130	95	140	115	175	880	100	135	1015	255
Future Volume (veh/h)	105	100	130	95	140	115	175	880	100	135	1015	255
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	1856	1969	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	114	109	141	103	152	125	190	957	109	147	1103	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	227	361	411	348	174	143	281	1629	185	349	1378	343
Arrive On Green	0.06	0.18	0.18	0.06	0.18	0.18	0.08	0.51	0.51	0.06	0.50	0.50
Sat Flow, veh/h	1767	1969	1585	1767	949	781	1767	3190	363	1753	2774	691
Grp Volume(v), veh/h	114	109	141	103	0	277	190	529	537	147	692	688
Grp Sat Flow(s),veh/h/ln	1767	1969	1585	1767	0	1730	1767	1763	1790	1753	1749	1716
Q Serve(g_s), s	4.5	4.1	6.2	4.0	0.0	13.4	4.4	18.1	18.1	3.5	28.4	29.0
Cycle Q Clear(g_c), s	4.5	4.1	6.2	4.0	0.0	13.4	4.4	18.1	18.1	3.5	28.4	29.0
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.20	1.00		0.40
Lane Grp Cap(c), veh/h	227	361	411	348	0	317	281	900	914	349	869	853
V/C Ratio(X)	0.50	0.30	0.34	0.30	0.00	0.87	0.68	0.59	0.59	0.42	0.80	0.81
Avail Cap(c_a), veh/h	227	388	433	369	0	361	372	900	914	383	869	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	30.4	25.9	26.0	0.0	34.2	17.2	14.7	14.7	11.4	18.1	18.2
Incr Delay (d2), s/veh	1.8	0.5	0.5	0.5	0.0	18.7	3.1	2.8	2.8	0.8	7.5	8.1
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(95%),veh/ln	8.5	3.5	4.2	3.0	0.0	11.4	3.4	11.6	11.7	2.3	17.8	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	30.9	26.4	26.5	0.0	52.9	20.2	17.5	17.5	12.3	25.6	26.3
LnGrp LOS	C	C	C	C	A	D	C	B	B	B	C	C
Approach Vol, veh/h	364			380			1256			1527		
Approach Delay, s/veh	28.6			45.7			17.9			24.6		
Approach LOS	C			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	48.0	9.0	19.8	10.6	46.8	9.0	19.8				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	44.0	44.0	6.5	17.0	11.0	40.0	5.5	18.0				
Max Q Clear Time (g_c+I), s	20.1	20.1	6.0	8.2	6.4	31.0	6.5	15.4				
Green Ext Time (p_c), s	0.1	7.5	0.0	0.6	0.2	5.7	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	100	130	95	140	115	175	880	100	135	1015	255
Future Volume (veh/h)	105	100	130	95	140	115	175	880	100	135	1015	255
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1969	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	114	109	141	103	152	125	190	957	109	147	1103	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	227	361	411	348	174	143	281	1629	185	349	1378	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.06	0.18	0.18	0.06	0.18	0.18	0.08	0.51	0.51	0.06	0.50	0.50
Unsig. Movement Delay												
Ln Grp Delay, s/veh	29.0	30.9	26.4	26.5	0.0	52.9	20.2	17.5	17.5	12.3	25.6	26.3
Ln Grp LOS	C	C	C	C	A	D	C	B	B	B	C	C
Approach Vol, veh/h	364			380			1256			1527		
Approach Delay, s/veh	28.6			45.7			17.9			24.6		
Approach LOS	C			D			B			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	9.4	48.0	9.0	19.8	10.6	46.8	9.0	19.8				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	7.0	44.0	6.5	17.0	11.0	40.0	5.5	18.0				
Max Allow Headway (MAH), s	3.8	5.2	3.8	4.5	3.8	5.2	3.8	5.3				
Max Q Clear (g_c+I1), s	5.5	20.1	6.0	8.2	6.4	31.0	6.5	15.4				
Green Ext Time (g_e), s	0.1	7.5	0.0	0.6	0.2	5.7	0.0	0.4				
Prob of Phs Call (p_c)	0.97	1.00	0.92	1.00	0.99	1.00	0.93	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.09	0.53	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1753	1767	1767	1767								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3190	1969	2774	949								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	363	1585	691	781								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)	L (Pr/Pm)								

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	147	0	103	0	190	0	114	0
Grp Sat Flow (s), veh/h/ln	1753	0	1767	0	1767	0	1767	0
Q Serve Time (g_s), s	3.5	0.0	4.0	0.0	4.4	0.0	4.5	0.0
Cycle Q Clear Time (g_c), s	3.5	0.0	4.0	0.0	4.4	0.0	4.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	521	0	1121	0	390	0	1093	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	42.8	0.0	15.8	0.0	42.8	0.0	15.8	0.0
Perm LT Serve Time (g_u), s	25.9	0.0	11.7	0.0	13.8	0.0	2.4	0.0
Perm LT Q Serve Time (g_ps), s	6.6	0.0	0.4	0.0	13.8	0.0	1.6	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	349	0	348	0	281	0	227	0
V/C Ratio (X)	0.42	0.00	0.30	0.00	0.68	0.00	0.50	0.00
Avail Cap (c_a), veh/h	383	0	369	0	372	0	227	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	11.4	0.0	26.0	0.0	17.2	0.0	27.3	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.5	0.0	3.1	0.0	1.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	12.3	0.0	26.5	0.0	20.2	0.0	29.0	0.0
1st-Term Q (Q1), veh/ln	1.2	0.0	1.6	0.0	1.7	0.0	1.8	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	2.3	0.0	3.0	0.0	3.4	0.0	3.5	0.0
%ile Storage Ratio (RQ%)	0.39	0.00	0.55	0.00	0.21	0.00	0.37	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T			
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	529	0	109	0	692	0	0
Grp Sat Flow (s), veh/h/ln	0	1763	0	1969	0	1749	0	0
Q Serve Time (g_s), s	0.0	18.1	0.0	4.1	0.0	28.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	18.1	0.0	4.1	0.0	28.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	900	0	361	0	869	0	0
V/C Ratio (X)	0.00	0.59	0.00	0.30	0.00	0.80	0.00	0.00
Avail Cap (c_a), veh/h	0	900	0	388	0	869	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	14.7	0.0	30.4	0.0	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.8	0.0	0.5	0.0	7.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	17.5	0.0	30.9	0.0	25.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	6.5	0.0	1.9	0.0	10.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.0	0.0	1.8	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.61	0.00	1.80	0.00	1.47	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	11.6	0.0	3.5	0.0	17.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.16	0.00	0.03	0.00	0.13	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	537	0	141	0	688	0	277
Grp Sat Flow (s), veh/h/ln	0	1790	0	1585	0	1716	0	1730
Q Serve Time (g_s), s	0.0	18.1	0.0	6.2	0.0	29.0	0.0	13.4
Cycle Q Clear Time (g_c), s	0.0	18.1	0.0	6.2	0.0	29.0	0.0	13.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1585.1	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.20	0.00	1.00	0.00	0.40	0.00	0.45
Lane Grp Cap (c), veh/h	0	914	0	411	0	853	0	317
V/C Ratio (X)	0.00	0.59	0.00	0.34	0.00	0.81	0.00	0.87
Avail Cap (c_a), veh/h	0	914	0	433	0	853	0	361
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	14.7	0.0	25.9	0.0	18.2	0.0	34.2
Incr Delay (d2), s/veh	0.0	2.8	0.0	0.5	0.0	8.1	0.0	18.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	17.5	0.0	26.4	0.0	26.3	0.0	52.9
1st-Term Q (Q1), veh/ln	0.0	6.6	0.0	2.3	0.0	10.3	0.0	5.4
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.1	0.0	1.9	0.0	1.6
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.61	0.00	1.80	0.00	1.47	0.00	1.62
%ile Back of Q (95%), veh/ln	0.0	11.7	0.0	4.2	0.0	17.9	0.0	11.4
%ile Storage Ratio (RQ%)	0.00	0.16	0.00	0.61	0.00	0.14	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗		↖	↕↗		↖	↕↗	
Traffic Volume (veh/h)	45	35	60	120	50	140	70	1025	100	85	965	60
Future Volume (veh/h)	45	35	60	120	50	140	70	1025	100	85	965	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	130	54	152	76	1114	109	92	1049	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	136	67	141	231	88	247	98	1840	180	118	1935	120
Arrive On Green	0.09	0.09	0.09	0.06	0.21	0.21	0.05	0.57	0.57	0.07	0.58	0.58
Sat Flow, veh/h	703	752	1585	1555	426	1199	1781	3218	315	1781	3318	206
Grp Volume(v), veh/h	87	0	65	130	0	206	76	605	618	92	548	566
Grp Sat Flow(s),veh/h/ln	1455	0	1585	1555	0	1625	1781	1749	1784	1781	1735	1789
Q Serve(g_s), s	3.6	0.0	3.0	5.0	0.0	8.9	3.2	17.4	17.5	3.9	14.8	14.8
Cycle Q Clear(g_c), s	4.4	0.0	3.0	5.0	0.0	8.9	3.2	17.4	17.5	3.9	14.8	14.8
Prop In Lane	0.56		1.00	1.00		0.74	1.00		0.18	1.00		0.11
Lane Grp Cap(c), veh/h	203	0	141	231	0	335	98	1000	1020	118	1011	1043
V/C Ratio(X)	0.43	0.00	0.46	0.56	0.00	0.61	0.78	0.60	0.61	0.78	0.54	0.54
Avail Cap(c_a), veh/h	424	0	391	231	0	591	139	1000	1020	139	1011	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	0.0	33.3	29.3	0.0	27.8	35.9	10.8	10.8	35.4	9.8	9.8
Incr Delay (d2), s/veh	1.4	0.0	2.3	3.1	0.0	1.8	16.2	2.7	2.7	21.1	2.1	2.0
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(95%),veh/ln	2.9	0.0	2.2	4.1	0.0	6.3	3.2	10.5	10.7	4.2	9.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	0.0	35.6	32.4	0.0	29.6	52.1	13.5	13.5	56.5	11.9	11.8
LnGrp LOS	D	A	D	C	A	C	D	B	B	E	B	B
Approach Vol, veh/h	152		336			1299			1206			
Approach Delay, s/veh	35.4		30.7			15.7			15.2			
Approach LOS	D		C			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	48.0	9.0	10.9	8.2	48.9	19.9						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	44.0	5.0	19.0	6.0	44.0	28.0						
Max Q Clear Time (g_c+I1), s	19.5	7.0	6.4	5.2	16.8	10.9						
Green Ext Time (p_c), s	0.0	9.1	0.0	0.5	0.0	8.2	1.1					
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	60	120	50	140	70	1025	100	85	965	60
Future Volume (veh/h)	45	35	60	120	50	140	70	1025	100	85	965	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	65	130	54	152	76	1114	109	92	1049	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	136	67	141	231	88	247	98	1840	180	118	1935	120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.06	0.21	0.21	0.05	0.57	0.57	0.07	0.58	0.58
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.2	0.0	35.6	32.4	0.0	29.6	52.1	13.5	13.5	56.5	11.9	11.8
Ln Grp LOS	D	A	D	C	A	C	D	B	B	E	B	B
Approach Vol, veh/h	152			336			1299			1206		
Approach Delay, s/veh	35.4			30.7			15.7			15.2		
Approach LOS	D			C			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Case No	2.0	4.0	1.2	7.3	2.0	4.0		4.0				
Phs Duration (G+Y+Rc), s	9.1	48.0	9.0	10.9	8.2	48.9		19.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0		4.0				
Max Green (Gmax), s	6.0	44.0	5.0	19.0	6.0	44.0		28.0				
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.0	3.8	5.1		5.5				
Max Q Clear (g_c+I1), s	5.9	19.5	7.0	6.4	5.2	16.8		10.9				
Green Ext Time (g_e), s	0.0	9.1	0.0	0.5	0.0	8.2		1.1				
Prob of Phs Call (p_c)	0.86	1.00	0.94	1.00	0.80	1.00		1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.01	1.00	0.00		0.01				
Left-Turn Movement Data												
Assigned Mvmt	1		3	7	5							
Mvmt Sat Flow, veh/h	1781		1555	703	1781							
Through Movement Data												
Assigned Mvmt		2		4		6		8				
Mvmt Sat Flow, veh/h		3218		752		3318		426				
Right-Turn Movement Data												
Assigned Mvmt		12		14		16		18				
Mvmt Sat Flow, veh/h		315		1585		206		1199				
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)	L+T	L (Prot)							

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	92	0	130	87	76	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1455	1781	0	0	0
Q Serve Time (g_s), s	3.9	0.0	5.0	3.6	3.2	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.9	0.0	5.0	4.4	3.2	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1128	1195	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.9	6.9	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.5	6.9	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.9	3.6	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	118	0	231	203	98	0	0	0
V/C Ratio (X)	0.78	0.00	0.56	0.43	0.78	0.00	0.00	0.00
Avail Cap (c_a), veh/h	139	0	231	424	139	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	35.4	0.0	29.3	33.8	35.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	21.1	0.0	3.1	1.4	16.2	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	56.5	0.0	32.4	35.2	52.1	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.6	0.0	2.1	1.6	1.4	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.7	0.0	0.2	0.1	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.2	0.0	4.1	2.9	3.2	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.52	0.00	2.33	0.38	0.57	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	605	0	0	0	548	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	17.4	0.0	0.0	0.0	14.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	17.4	0.0	0.0	0.0	14.8	0.0	0.0
Lane Grp Cap (c), veh/h	0	1000	0	0	0	1011	0	0
V/C Ratio (X)	0.00	0.60	0.00	0.00	0.00	0.54	0.00	0.00
Avail Cap (c_a), veh/h	0	1000	0	0	0	1011	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.8	0.0	0.0	0.0	9.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.7	0.0	0.0	0.0	2.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.5	0.0	0.0	0.0	11.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.6	0.0	0.0	0.0	4.6	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	0.6	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.65	0.00	1.00	0.00	1.72	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	10.5	0.0	0.0	0.0	9.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.26	0.00	0.00	0.00	0.13	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	618	0	65	0	566	0	206
Grp Sat Flow (s), veh/h/ln	0	1784	0	1585	0	1789	0	1625
Q Serve Time (g_s), s	0.0	17.5	0.0	3.0	0.0	14.8	0.0	8.9
Cycle Q Clear Time (g_c), s	0.0	17.5	0.0	3.0	0.0	14.8	0.0	8.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.18	0.00	1.00	0.00	0.11	0.00	0.74
Lane Grp Cap (c), veh/h	0	1020	0	141	0	1043	0	335
V/C Ratio (X)	0.00	0.61	0.00	0.46	0.00	0.54	0.00	0.61
Avail Cap (c_a), veh/h	0	1020	0	391	0	1043	0	591
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	10.8	0.0	33.3	0.0	9.8	0.0	27.8
Incr Delay (d2), s/veh	0.0	2.7	0.0	2.3	0.0	2.0	0.0	1.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.5	0.0	35.6	0.0	11.8	0.0	29.6
1st-Term Q (Q1), veh/ln	0.0	5.7	0.0	1.1	0.0	4.8	0.0	3.3
2nd-Term Q (Q2), veh/ln	0.0	0.8	0.0	0.1	0.0	0.6	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.64	0.00	1.80	0.00	1.71	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	10.7	0.0	2.2	0.0	9.2	0.0	6.3
%ile Storage Ratio (RQ%)	0.00	0.26	0.00	0.28	0.00	0.13	0.00	0.22
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	20	160	1170	1110	15
Future Volume (veh/h)	25	20	160	1170	1110	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870
Adj Flow Rate, veh/h	27	22	174	1272	1207	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	91	81	459	2875	2760	37
Arrive On Green	0.05	0.05	0.77	0.77	0.77	0.77
Sat Flow, veh/h	1781	1585	456	3839	3685	48
Grp Volume(v), veh/h	27	22	174	1272	597	626
Grp Sat Flow(s), veh/h/ln	1781	1585	456	1870	1777	1862
Q Serve(g_s), s	0.6	0.6	9.5	5.3	5.2	5.2
Cycle Q Clear(g_c), s	0.6	0.6	14.7	5.3	5.2	5.2
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	91	81	459	2875	1366	1431
V/C Ratio(X)	0.30	0.27	0.38	0.44	0.44	0.44
Avail Cap(c_a), veh/h	843	750	736	5143	2443	2560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	20.3	4.4	1.8	1.8	1.8
Incr Delay (d2), s/veh	1.8	1.8	0.5	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.4	0.7	0.1	0.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	22.0	4.9	1.9	2.0	2.0
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	49			1446	1223	
Approach Delay, s/veh	22.1			2.3	2.0	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	38.1			6.3		38.1
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	16.7			2.6		7.2
Green Ext Time (p_c), s	17.4			0.1		10.8
Intersection Summary						
HCM 6th Ctrl Delay			2.5			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

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Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	25	20	160	1170	1110	15			
Future Volume (veh/h)	25	20	160	1170	1110	15			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870			
Adj Flow Rate, veh/h	27	22	174	1272	1207	16			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	91	81	459	2875	2760	37			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.05	0.77	0.77	0.77	0.77			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	22.1	22.0	4.9	1.9	2.0	2.0			
Ln Grp LOS	C	C	A	A	A	A			
Approach Vol, veh/h	49			1446	1223				
Approach Delay, s/veh	22.1			2.3	2.0				
Approach LOS	C			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			38.1		6.3		38.1		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.6		4.0		5.1		
Max Q Clear (g_c+I1), s			16.7		2.6		7.2		
Green Ext Time (g_e), s			17.4		0.1		10.8		
Prob of Phs Call (p_c)			1.00		0.45		1.00		
Prob of Max Out (p_x)			0.14		0.00		0.02		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			456		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3839		0		3685		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		48		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	174	0	27	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	456	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	9.5	0.0	0.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.7	0.0	0.6	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	456	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	34.1	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	28.9	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	34.1	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	459	0	91	0	0	0	0
V/C Ratio (X)	0.00	0.38	0.00	0.30	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	736	0	843	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	4.4	0.0	20.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	1.8	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	4.9	0.0	22.1	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.18	0.00	0.02	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1272	0	0	0	597	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	5.3	0.0	0.0	0.0	5.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	5.3	0.0	0.0	0.0	5.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	2875	0	0	0	1366	0	0
V/C Ratio (X)	0.00	0.44	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	5143	0	0	0	2443	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	1.8	0.0	0.0	0.0	1.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.9	0.0	0.0	0.0	2.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment	R				T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	22	0	626	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1862	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.6	0.0	5.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.6	0.0	5.2	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.03	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	81	0	1431	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.27	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	750	0	2560	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	20.3	0.0	1.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.8	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	22.0	0.0	2.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.80	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	2.5
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	6.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	280	35	75	80	1
Future Vol, veh/h	5	280	35	75	80	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	304	38	82	87	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	246	88	88	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	158	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	742	970	1508	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	723	970	1508	-	-	-
Mov Cap-2 Maneuver	723	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.5	2.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1508	-	964	-	-	
HCM Lane V/C Ratio	0.025	-	0.321	-	-	
HCM Control Delay (s)	7.4	0	10.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-	

HCM 6th Signalized Intersection Summary

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	290	1	15	225	65	1	1	15	345	1	15
Future Volume (veh/h)	45	290	1	15	225	65	1	1	15	345	1	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	49	315	1	16	245	71	1	1	16	375	1	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Cap, veh/h	417	596	2	424	446	129	2	2	26	552	1	24
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.02	0.02	0.02	0.33	0.33	0.33
Sat Flow, veh/h	1064	1863	6	1064	1394	404	89	89	1430	1696	5	72
Grp Volume(v), veh/h	49	0	316	16	0	316	18	0	0	392	0	0
Grp Sat Flow(s),veh/h/ln	1064	0	1869	1064	0	1798	1609	0	0	1773	0	0
Q Serve(g_s), s	1.2	0.0	4.3	0.4	0.0	4.5	0.3	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	0.0	4.3	4.7	0.0	4.5	0.3	0.0	0.0	6.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.22	0.06		0.89	0.96		0.04
Lane Grp Cap(c), veh/h	417	0	598	424	0	575	30	0	0	577	0	0
V/C Ratio(X)	0.12	0.00	0.53	0.04	0.00	0.55	0.60	0.00	0.00	0.68	0.00	0.00
Avail Cap(c_a), veh/h	1148	0	1884	1155	0	1812	1055	0	0	1560	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	0.0	8.7	10.6	0.0	8.8	15.2	0.0	0.0	9.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.0	0.0	0.8	18.1	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	2.4	0.1	0.0	2.2	0.5	0.0	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	9.4	10.7	0.0	9.6	33.3	0.0	0.0	10.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	A
Approach Vol, veh/h	365			332			18			392		
Approach Delay, s/veh	9.7			9.6			33.3			10.5		
Approach LOS	A			A			C			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	4.1			13.5			13.7			13.5		
Change Period (Y+Rc), s	3.5			3.5			3.5			3.5		
Max Green Setting (Gmax), s	20.5			31.5			27.5			31.5		
Max Q Clear Time (g_c+I1), s	2.3			7.8			8.0			6.7		
Green Ext Time (p_c), s	0.0			2.2			2.5			1.9		
Intersection Summary												
HCM 6th Ctrl Delay	10.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	290	1	15	225	65	1	1	15	345	1	15
Future Volume (veh/h)	45	290	1	15	225	65	1	1	15	345	1	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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			
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	49	315	1	16	245	71	1	1	16	375	1	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	417	596	2	424	446	129	2	2	26	552	1	24
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.02	0.02	0.02	0.33	0.33	0.33
Unsig. Movement Delay												
Ln Grp Delay, s/veh	11.3	0.0	9.4	10.7	0.0	9.6	33.3	0.0	0.0	10.5	0.0	0.0
Ln Grp LOS	B	A	A	B	A	A	C	A	A	B	A	A
Approach Vol, veh/h	365				332		18				392	
Approach Delay, s/veh	9.7				9.6		33.3				10.5	
Approach LOS	A				A		C				B	
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	6		2	4				8				
Case No	12.0		12.0	6.0				6.0				
Phs Duration (G+Y+Rc), s	13.7		4.1	13.5				13.5				
Change Period (Y+Rc), s	3.5		3.5	3.5				3.5				
Max Green (Gmax), s	27.5		20.5	31.5				31.5				
Max Allow Headway (MAH), s	5.5		5.7	5.3				5.2				
Max Q Clear (g_c+I1), s	8.0		2.3	7.8				6.7				
Green Ext Time (g_e), s	2.5		0.0	2.2				1.9				
Prob of Phs Call (p_c)	0.97		0.14	1.00				1.00				
Prob of Max Out (p_x)	0.02		0.00	0.00				0.00				
Left-Turn Movement Data												
Assigned Mvmt	1		5	7				3				
Mvmt Sat Flow, veh/h	1696		89	1064				1064				
Through Movement Data												
Assigned Mvmt	6		2	4				8				
Mvmt Sat Flow, veh/h	5		89	1863				1394				
Right-Turn Movement Data												
Assigned Mvmt	16		12	14				18				
Mvmt Sat Flow, veh/h	72		1430	6				404				
Left Lane Group Data												
Assigned Mvmt	1		5	0	7	0	0	0	3			
Lane Assignment	L+T+R		L+T+R	L				L				

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

Lanes in Grp	1	1	0	1	0	0	0	1
Grp Vol (v), veh/h	392	18	0	49	0	0	0	16
Grp Sat Flow (s), veh/h/ln	1773	1609	0	1064	0	0	0	1064
Q Serve Time (g_s), s	6.0	0.3	0.0	1.2	0.0	0.0	0.0	0.4
Cycle Q Clear Time (g_c), s	6.0	0.3	0.0	5.8	0.0	0.0	0.0	4.7
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	1064	0	0	0	1064
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	10.0	0.0	0.0	0.0	10.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	5.5	0.0	0.0	0.0	5.7
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.96	0.06	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	577	30	0	417	0	0	0	424
V/C Ratio (X)	0.68	0.60	0.00	0.12	0.00	0.00	0.00	0.04
Avail Cap (c_a), veh/h	1560	1055	0	1148	0	0	0	1155
Upstream Filter (I)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	9.1	15.2	0.0	11.1	0.0	0.0	0.0	10.6
Incr Delay (d2), s/veh	1.4	18.1	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	10.5	33.3	0.0	11.3	0.0	0.0	0.0	10.7
1st-Term Q (Q1), veh/ln	1.6	0.1	0.0	0.2	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	1.80	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	3.3	0.5	0.0	0.4	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.27	0.04	0.00	0.22	0.00	0.00	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	6	2	0	4	0	0	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	16	12	0	14	0	0	0	18
Lane Assignment	T+R				T+R			
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	316	0	0	0	316
Grp Sat Flow (s), veh/h/ln	0	0	0	1869	0	0	0	1798
Q Serve Time (g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	4.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	4.3	0.0	0.0	0.0	4.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.04	0.89	0.00	0.00	0.00	0.00	0.00	0.22
Lane Grp Cap (c), veh/h	0	0	0	598	0	0	0	575
V/C Ratio (X)	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.55
Avail Cap (c_a), veh/h	0	0	0	1884	0	0	0	1812
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	8.7	0.0	0.0	0.0	8.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	9.4	0.0	0.0	0.0	9.6
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	2.4	0.0	0.0	0.0	2.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	220	220	75	120	105	200	1105	85	155	1000	85
Future Volume (veh/h)	320	220	220	75	120	105	200	1105	85	155	1000	85
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	1856	1969	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	348	239	239	82	130	114	217	1201	92	168	1087	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	388	526	571	326	152	133	300	1412	108	258	1334	113
Arrive On Green	0.16	0.27	0.27	0.05	0.16	0.16	0.09	0.43	0.43	0.08	0.41	0.41
Sat Flow, veh/h	1767	1969	1585	1767	919	806	1767	3319	254	1753	3264	276
Grp Volume(v), veh/h	348	239	239	82	0	244	217	637	656	168	582	597
Grp Sat Flow(s),veh/h/ln	1767	1969	1585	1767	0	1725	1767	1763	1810	1753	1749	1791
Q Serve(g_s), s	13.5	8.8	9.9	3.3	0.0	12.0	6.1	28.3	28.4	4.7	25.7	25.7
Cycle Q Clear(g_c), s	13.5	8.8	9.9	3.3	0.0	12.0	6.1	28.3	28.4	4.7	25.7	25.7
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.14	1.00		0.15
Lane Grp Cap(c), veh/h	388	526	571	326	0	284	300	750	770	258	715	732
V/C Ratio(X)	0.90	0.45	0.42	0.25	0.00	0.86	0.72	0.85	0.85	0.65	0.81	0.82
Avail Cap(c_a), veh/h	388	526	571	385	0	337	319	750	770	265	715	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	26.6	21.0	27.9	0.0	35.3	18.4	22.5	22.5	19.0	22.8	22.8
Incr Delay (d2), s/veh	22.8	0.6	0.5	0.4	0.0	17.1	7.3	11.6	11.5	5.3	9.9	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.6	7.3	6.4	2.5	0.0	10.3	5.1	19.1	19.6	3.8	17.3	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	27.2	21.5	28.3	0.0	52.4	25.7	34.1	34.0	24.3	32.7	32.5
LnGrp LOS	D	C	C	C	A	D	C	C	C	C	C	C
Approach Vol, veh/h	826			326			1510			1347		
Approach Delay, s/veh	34.3			46.4			32.8			31.5		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	41.0	8.1	27.2	12.1	39.6	17.0	18.3				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	37.0	7.5	23.0	9.0	35.0	13.5	17.0					
Max Q Clear Time (g_c+I), s	30.4	5.3	11.9	8.1	27.7	15.5	14.0					
Green Ext Time (p_c), s	0.0	4.2	0.0	1.7	0.1	4.2	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 33.8

HCM 6th LOS C

Notes

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

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	220	220	75	120	105	200	1105	85	155	1000	85
Future Volume (veh/h)	320	220	220	75	120	105	200	1105	85	155	1000	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1969	1870	1856	1870	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	348	239	239	82	130	114	217	1201	92	168	1087	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	388	526	571	326	152	133	300	1412	108	258	1334	113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.16	0.27	0.27	0.05	0.16	0.16	0.09	0.43	0.43	0.08	0.41	0.41
Unsig. Movement Delay												
Ln Grp Delay, s/veh	48.0	27.2	21.5	28.3	0.0	52.4	25.7	34.1	34.0	24.3	32.7	32.5
Ln Grp LOS	D	C	C	C	A	D	C	C	C	C	C	C
Approach Vol, veh/h	826			326			1510			1347		
Approach Delay, s/veh	34.3			46.4			32.8			31.5		
Approach LOS	C			D			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0				
Phs Duration (G+Y+Rc), s	10.6	41.0	8.1	27.2	12.1	39.6	17.0	18.3				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	7.0	37.0	7.5	23.0	9.0	35.0	13.5	17.0				
Max Allow Headway (MAH), s	3.8	5.1	3.8	4.6	3.8	5.1	3.8	5.3				
Max Q Clear (g_c+I1), s	6.7	30.4	5.3	11.9	8.1	27.7	15.5	14.0				
Green Ext Time (g_e), s	0.0	4.2	0.0	1.7	0.1	4.2	0.0	0.4				
Prob of Phs Call (p_c)	0.98	1.00	0.86	1.00	0.99	1.00	1.00	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.11	1.00	0.00	1.00	1.00				
Left-Turn Movement Data												
Assigned Mvmt	1	3		5		7						
Mvmt Sat Flow, veh/h	1753	1767		1767		1767						
Through Movement Data												
Assigned Mvmt	2			4		6		8				
Mvmt Sat Flow, veh/h	3319			1969		3264		919				
Right-Turn Movement Data												
Assigned Mvmt	12			14		16		18				
Mvmt Sat Flow, veh/h	254			1585		276		806				
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)					

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	168	0	82	0	217	0	348	0
Grp Sat Flow (s), veh/h/ln	1753	0	1767	0	1767	0	1767	0
Q Serve Time (g_s), s	4.7	0.0	3.3	0.0	6.1	0.0	13.5	0.0
Cycle Q Clear Time (g_c), s	4.7	0.0	3.3	0.0	6.1	0.0	13.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	420	0	909	0	472	0	1127	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	35.6	0.0	14.3	0.0	35.6	0.0	16.3	0.0
Perm LT Serve Time (g_u), s	8.6	0.0	14.3	0.0	9.9	0.0	2.4	0.0
Perm LT Q Serve Time (g_ps), s	8.6	0.0	0.0	0.0	9.9	0.0	2.4	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	258	0	326	0	300	0	388	0
V/C Ratio (X)	0.65	0.00	0.25	0.00	0.72	0.00	0.90	0.00
Avail Cap (c_a), veh/h	265	0	385	0	319	0	388	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	19.0	0.0	27.9	0.0	18.4	0.0	25.2	0.0
Incr Delay (d2), s/veh	5.3	0.0	0.4	0.0	7.3	0.0	22.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	24.3	0.0	28.3	0.0	25.7	0.0	48.0	0.0
1st-Term Q (Q1), veh/ln	1.7	0.0	1.4	0.0	2.2	0.0	5.5	0.0
2nd-Term Q (Q2), veh/ln	0.4	0.0	0.0	0.0	0.6	0.0	2.5	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.58	0.00
%ile Back of Q (95%), veh/ln	3.8	0.0	2.5	0.0	5.1	0.0	12.6	0.0
%ile Storage Ratio (RQ%)	0.65	0.00	0.46	0.00	0.31	0.00	1.34	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T			
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	637	0	239	0	582	0	0
Grp Sat Flow (s), veh/h/ln	0	1763	0	1969	0	1749	0	0
Q Serve Time (g_s), s	0.0	28.3	0.0	8.8	0.0	25.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	28.3	0.0	8.8	0.0	25.7	0.0	0.0
Lane Grp Cap (c), veh/h	0	750	0	526	0	715	0	0
V/C Ratio (X)	0.00	0.85	0.00	0.45	0.00	0.81	0.00	0.00
Avail Cap (c_a), veh/h	0	750	0	526	0	715	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	22.5	0.0	26.6	0.0	22.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.6	0.0	0.6	0.0	9.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.1	0.0	27.2	0.0	32.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	10.7	0.0	4.0	0.0	9.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	2.4	0.0	0.1	0.0	2.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.45	0.00	1.80	0.00	1.48	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	19.1	0.0	7.3	0.0	17.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.27	0.00	0.07	0.00	0.13	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	656	0	239	0	597	0	244
Grp Sat Flow (s), veh/h/ln	0	1810	0	1585	0	1791	0	1725
Q Serve Time (g_s), s	0.0	28.4	0.0	9.9	0.0	25.7	0.0	12.0
Cycle Q Clear Time (g_c), s	0.0	28.4	0.0	9.9	0.0	25.7	0.0	12.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1585.1	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	8.1	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.14	0.00	1.00	0.00	0.15	0.00	0.47
Lane Grp Cap (c), veh/h	0	770	0	571	0	732	0	284
V/C Ratio (X)	0.00	0.85	0.00	0.42	0.00	0.82	0.00	0.86
Avail Cap (c_a), veh/h	0	770	0	571	0	732	0	337
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.5	0.0	21.0	0.0	22.8	0.0	35.3
Incr Delay (d2), s/veh	0.0	11.5	0.0	0.5	0.0	9.7	0.0	17.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.0	0.0	21.5	0.0	32.5	0.0	52.4
1st-Term Q (Q1), veh/ln	0.0	11.1	0.0	3.5	0.0	10.0	0.0	4.9
2nd-Term Q (Q2), veh/ln	0.0	2.5	0.0	0.1	0.0	2.0	0.0	1.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.45	0.00	1.80	0.00	1.47	0.00	1.66
%ile Back of Q (95%), veh/ln	0.0	19.6	0.0	6.4	0.0	17.7	0.0	10.3
%ile Storage Ratio (RQ%)	0.00	0.27	0.00	0.93	0.00	0.13	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗		↖	↕↗		↖	↕↗	
Traffic Volume (veh/h)	45	35	40	160	30	130	35	1155	135	115	1200	45
Future Volume (veh/h)	45	35	40	160	30	130	35	1155	135	115	1200	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	43	174	33	141	38	1255	147	125	1304	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	140	67	140	322	80	342	65	1531	179	161	1837	69
Arrive On Green	0.09	0.09	0.09	0.12	0.26	0.26	0.04	0.49	0.49	0.09	0.54	0.54
Sat Flow, veh/h	720	759	1585	1555	305	1302	1781	3155	368	1781	3409	128
Grp Volume(v), veh/h	87	0	43	174	0	174	38	693	709	125	663	690
Grp Sat Flow(s),veh/h/ln	1478	0	1585	1555	0	1606	1781	1749	1774	1781	1735	1803
Q Serve(g_s), s	3.4	0.0	1.9	7.1	0.0	6.6	1.6	25.1	25.4	5.1	21.2	21.2
Cycle Q Clear(g_c), s	4.1	0.0	1.9	7.1	0.0	6.6	1.6	25.1	25.4	5.1	21.2	21.2
Prop In Lane	0.56		1.00	1.00		0.81	1.00		0.21	1.00		0.07
Lane Grp Cap(c), veh/h	207	0	140	322	0	422	65	849	861	161	935	972
V/C Ratio(X)	0.42	0.00	0.31	0.54	0.00	0.41	0.58	0.82	0.82	0.78	0.71	0.71
Avail Cap(c_a), veh/h	446	0	406	344	0	714	120	849	861	336	935	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	31.7	24.7	0.0	22.6	35.2	16.3	16.4	33.0	12.8	12.8
Incr Delay (d2), s/veh	1.4	0.0	1.2	1.5	0.0	0.6	8.0	8.6	8.7	7.9	4.5	4.4
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(95%),veh/ln	2.8	0.0	1.3	4.8	0.0	4.5	1.4	16.0	16.4	4.4	12.7	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	32.9	26.2	0.0	23.3	43.2	24.9	25.1	40.9	17.3	17.2
LnGrp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h	130		348			1440			1478			
Approach Delay, s/veh	33.6		24.7			25.5			19.2			
Approach LOS	C		C			C			B			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	10.7	40.0	12.9	10.6	6.7	44.0	23.5					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Q Clear Time (g_c+I), s	17.1	27.4	9.1	6.1	3.6	23.2	8.6					
Green Ext Time (p_c), s	0.2	2.7	0.0	0.4	0.0	8.5	1.0					
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	40	160	30	130	35	1155	135	115	1200	45
Future Volume (veh/h)	45	35	40	160	30	130	35	1155	135	115	1200	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	49	38	43	174	33	141	38	1255	147	125	1304	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes	Yes			Yes			Yes				
Cap, veh/h	140	67	140	322	80	342	65	1531	179	161	1837	69
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.09	0.09	0.09	0.12	0.26	0.26	0.04	0.49	0.49	0.09	0.54	0.54
Unsig. Movement Delay												
Ln Grp Delay, s/veh	34.0	0.0	32.9	26.2	0.0	23.3	43.2	24.9	25.1	40.9	17.3	17.2
Ln Grp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h	130			348			1440			1478		
Approach Delay, s/veh	33.6			24.7			25.5			19.2		
Approach LOS	C			C			C			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	10.7	40.0	12.9	10.6	6.7	44.0	23.5					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.1	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	7.1	27.4	9.1	6.1	3.6	23.2	8.6					
Green Ext Time (g_e), s	0.2	2.7	0.0	0.4	0.0	8.5	1.0					
Prob of Phs Call (p_c)	0.92	1.00	0.97	1.00	0.54	1.00	1.00					
Prob of Max Out (p_x)	0.05	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		720	1781							
Through Movement Data												
Assigned Mvmt	2			4			6			8		
Mvmt Sat Flow, veh/h	3155			759			3409			305		
Right-Turn Movement Data												
Assigned Mvmt	12			14			16			18		
Mvmt Sat Flow, veh/h	368			1585			128			1302		
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	125	0	174	87	38	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1478	1781	0	0	0
Q Serve Time (g_s), s	5.1	0.0	7.1	3.4	1.6	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.1	0.0	7.1	4.1	1.6	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1150	1230	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	8.6	6.6	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.4	6.6	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.1	3.4	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	161	0	322	207	65	0	0	0
V/C Ratio (X)	0.78	0.00	0.54	0.42	0.58	0.00	0.00	0.00
Avail Cap (c_a), veh/h	336	0	344	446	120	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	33.0	0.0	24.7	32.6	35.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	7.9	0.0	1.5	1.4	8.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.9	0.0	26.2	34.0	43.2	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.1	0.0	2.5	1.5	0.7	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.4	0.0	0.1	0.1	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.4	0.0	4.8	2.8	1.4	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.55	0.00	2.72	0.37	0.25	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	693	0	0	0	663	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	25.1	0.0	0.0	0.0	21.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	25.1	0.0	0.0	0.0	21.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	849	0	0	0	935	0	0
V/C Ratio (X)	0.00	0.82	0.00	0.00	0.00	0.71	0.00	0.00
Avail Cap (c_a), veh/h	0	849	0	0	0	935	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	16.3	0.0	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.6	0.0	0.0	0.0	4.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.9	0.0	0.0	0.0	17.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.6	0.0	0.0	0.0	6.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	2.0	0.0	0.0	0.0	1.2	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.50	0.00	1.00	0.00	1.58	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	16.0	0.0	0.0	0.0	12.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.39	0.00	0.00	0.00	0.18	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	709	0	43	0	690	0	174
Grp Sat Flow (s), veh/h/ln	0	1774	0	1585	0	1803	0	1606
Q Serve Time (g_s), s	0.0	25.4	0.0	1.9	0.0	21.2	0.0	6.6
Cycle Q Clear Time (g_c), s	0.0	25.4	0.0	1.9	0.0	21.2	0.0	6.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.21	0.00	1.00	0.00	0.07	0.00	0.81
Lane Grp Cap (c), veh/h	0	861	0	140	0	972	0	422
V/C Ratio (X)	0.00	0.82	0.00	0.31	0.00	0.71	0.00	0.41
Avail Cap (c_a), veh/h	0	861	0	406	0	972	0	714
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	16.4	0.0	31.7	0.0	12.8	0.0	22.6
Incr Delay (d2), s/veh	0.0	8.7	0.0	1.2	0.0	4.4	0.0	0.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	25.1	0.0	32.9	0.0	17.2	0.0	23.3
1st-Term Q (Q1), veh/ln	0.0	8.9	0.0	0.7	0.0	7.2	0.0	2.4
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	0.0	0.0	1.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.50	0.00	1.80	0.00	1.57	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	16.4	0.0	1.3	0.0	13.1	0.0	4.5
%ile Storage Ratio (RQ%)	0.00	0.40	0.00	0.18	0.00	0.19	0.00	0.16
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	120	55	1245	1355	10
Future Volume (veh/h)	75	120	55	1245	1355	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	130	60	1353	1473	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	197	175	320	2794	2843	21
Arrive On Green	0.11	0.11	0.79	0.79	0.79	0.79
Sat Flow, veh/h	1781	1585	355	3647	3709	27
Grp Volume(v), veh/h	82	130	60	1353	724	760
Grp Sat Flow(s), veh/h/ln	1781	1585	355	1777	1777	1866
Q Serve(g_s), s	3.3	6.2	5.7	10.2	11.4	11.4
Cycle Q Clear(g_c), s	3.3	6.2	17.1	10.2	11.4	11.4
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	197	175	320	2794	1397	1467
V/C Ratio(X)	0.42	0.74	0.19	0.48	0.52	0.52
Avail Cap(c_a), veh/h	482	429	320	2794	1397	1467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	33.4	6.1	2.9	3.0	3.0
Incr Delay (d2), s/veh	1.4	6.1	1.3	0.6	1.4	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	2.7	4.7	0.8	3.4	4.3	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	33.6	39.5	7.4	3.5	4.4	4.3
LnGrp LOS	C	D	A	A	A	A
Approach Vol, veh/h	212			1413	1484	
Approach Delay, s/veh	37.2			3.6	4.3	
Approach LOS	D			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	65.0			12.6		65.0
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	19.1			8.2		13.4
Green Ext Time (p_c), s	15.8			0.5		15.0
Intersection Summary						
HCM 6th Ctrl Delay			6.3			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	75	120	55	1245	1355	10			
Future Volume (veh/h)	75	120	55	1245	1355	10			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	82	130	60	1353	1473	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	197	175	320	2794	2843	21			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.11	0.11	0.79	0.79	0.79	0.79			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	33.6	39.5	7.4	3.5	4.4	4.3			
Ln Grp LOS	C	D	A	A	A	A			
Approach Vol, veh/h	212			1413	1484				
Approach Delay, s/veh	37.2			3.6	4.3				
Approach LOS	D			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			65.0		12.6		65.0		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.4		4.0		5.1		
Max Q Clear (g_c+I1), s			19.1		8.2		13.4		
Green Ext Time (g_e), s			15.8		0.5		15.0		
Prob of Phs Call (p_c)			1.00		0.99		1.00		
Prob of Max Out (p_x)			0.00		0.00		0.00		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			355		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3647		0		3709		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		27		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

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Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	60	0	82	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	355	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	5.7	0.0	3.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	17.1	0.0	3.3	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	355	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	49.6	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	320	0	197	0	0	0	0
V/C Ratio (X)	0.00	0.19	0.00	0.42	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	320	0	482	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.1	0.0	32.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	1.4	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.4	0.0	33.6	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	1.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.8	0.0	2.7	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.21	0.00	0.10	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1353	0	0	0	724	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	10.2	0.0	0.0	0.0	11.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.2	0.0	0.0	0.0	11.4	0.0	0.0
Lane Grp Cap (c), veh/h	0	2794	0	0	0	1397	0	0
V/C Ratio (X)	0.00	0.48	0.00	0.00	0.00	0.52	0.00	0.00
Avail Cap (c_a), veh/h	0	2794	0	0	0	1397	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	2.9	0.0	0.0	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	1.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.5	0.0	0.0	0.0	4.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.6	0.0	0.0	0.0	1.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	3.4	0.0	0.0	0.0	4.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.10	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment	R				T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	130	0	760	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1866	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	6.2	0.0	11.4	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	6.2	0.0	11.4	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.01	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	175	0	1467	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.74	0.00	0.52	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	429	0	1467	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	33.4	0.0	3.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.1	0.0	1.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	39.5	0.0	4.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.3	0.0	1.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.3	0.0	0.5	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.80	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	4.7	0.0	4.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	2.38	0.00	0.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

FUTURE (2035) BUILD CAPACITY REPORTS

Weekday Morning Peak Hour

Weekday Evening Peak Hour

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	160	15	15	65	1
Future Vol, veh/h	1	160	15	15	65	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	174	16	16	71	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	120	72	72	0	-	0
Stage 1	72	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	876	990	1528	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	866	990	1528	-	-	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	3.7		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1528	-	989	-	-	
HCM Lane V/C Ratio	0.011	-	0.177	-	-	
HCM Control Delay (s)	7.4	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.6	-	-	

HCM 6th Signalized Intersection Summary

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	95	1	10	615	15	5	1	5	140	1	85
Future Volume (veh/h)	15	95	1	10	615	15	5	1	5	140	1	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	16	103	1	11	668	16	5	1	5	152	1	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Cap, veh/h	346	902	9	792	888	21	9	2	9	218	1	132
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.01	0.01	0.01	0.21	0.21	0.21
Sat Flow, veh/h	757	1849	18	1290	1819	44	770	154	770	1056	7	639
Grp Volume(v), veh/h	16	0	104	11	0	684	11	0	0	245	0	0
Grp Sat Flow(s),veh/h/ln	757	0	1867	1290	0	1863	1693	0	0	1702	0	0
Q Serve(g_s), s	0.6	0.0	1.1	0.2	0.0	10.6	0.2	0.0	0.0	4.8	0.0	0.0
Cycle Q Clear(g_c), s	11.2	0.0	1.1	1.2	0.0	10.6	0.2	0.0	0.0	4.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.02	0.45		0.45	0.62		0.38
Lane Grp Cap(c), veh/h	346	0	911	792	0	909	20	0	0	352	0	0
V/C Ratio(X)	0.05	0.00	0.11	0.01	0.00	0.75	0.56	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	728	0	1854	1444	0	1850	1018	0	0	1072	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.0	0.0	5.0	5.3	0.0	7.4	17.6	0.0	0.0	13.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.0	0.0	1.3	22.7	0.0	0.0	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.5	0.0	0.0	4.4	0.4	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	5.0	5.3	0.0	8.7	40.3	0.0	0.0	15.6	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	D	A	A	B	A	A
Approach Vol, veh/h	120			695			11			245		
Approach Delay, s/veh	5.9			8.6			40.3			15.6		
Approach LOS	A			A			D			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	3.9			20.9			10.9			20.9		
Change Period (Y+Rc), s	3.5			3.5			3.5			3.5		
Max Green Setting (Gmax), s	21.5			35.5			22.5			35.5		
Max Q Clear Time (g_c+I1), s	2.2			13.2			6.8			12.6		
Green Ext Time (p_c), s	0.0			0.6			1.3			4.8		
Intersection Summary												
HCM 6th Ctrl Delay	10.3											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	95	1	10	615	15	5	1	5	140	1	85
Future Volume (veh/h)	15	95	1	10	615	15	5	1	5	140	1	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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			
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	16	103	1	11	668	16	5	1	5	152	1	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	346	902	9	792	888	21	9	2	9	218	1	132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.01	0.01	0.01	0.21	0.21	0.21
Unsig. Movement Delay												
Ln Grp Delay, s/veh	12.0	0.0	5.0	5.3	0.0	8.7	40.3	0.0	0.0	15.6	0.0	0.0
Ln Grp LOS	B	A	A	A	A	A	D	A	A	B	A	A
Approach Vol, veh/h	120				695				11		245	
Approach Delay, s/veh	5.9				8.6				40.3		15.6	
Approach LOS	A				A				D		B	
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	6		2	4				8				
Case No	12.0		12.0	6.0				6.0				
Phs Duration (G+Y+Rc), s	10.9		3.9	20.9				20.9				
Change Period (Y+Rc), s	3.5		3.5	3.5				3.5				
Max Green (Gmax), s	22.5		21.5	35.5				35.5				
Max Allow Headway (MAH), s	5.6		5.6	5.5				5.1				
Max Q Clear (g_c+I1), s	6.8		2.2	13.2				12.6				
Green Ext Time (g_e), s	1.3		0.0	0.6				4.8				
Prob of Phs Call (p_c)	0.91		0.10	1.00				1.00				
Prob of Max Out (p_x)	0.02		0.00	0.00				0.05				
Left-Turn Movement Data												
Assigned Mvmt	1		5	7				3				
Mvmt Sat Flow, veh/h	1056		770	757				1290				
Through Movement Data												
Assigned Mvmt	6		2	4				8				
Mvmt Sat Flow, veh/h	7		154	1849				1819				
Right-Turn Movement Data												
Assigned Mvmt	16		12	14				18				
Mvmt Sat Flow, veh/h	639		770	18				44				
Left Lane Group Data												
Assigned Mvmt	1		5	0	7	0	0	0	3			
Lane Assignment	L+T+R		L+T+R	L				L				

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

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Lanes in Grp	1	1	0	1	0	0	0	1
Grp Vol (v), veh/h	245	11	0	16	0	0	0	11
Grp Sat Flow (s), veh/h/ln	1702	1693	0	757	0	0	0	1290
Q Serve Time (g_s), s	4.8	0.2	0.0	0.6	0.0	0.0	0.0	0.2
Cycle Q Clear Time (g_c), s	4.8	0.2	0.0	11.2	0.0	0.0	0.0	1.2
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	757	0	0	0	1290
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	17.4	0.0	0.0	0.0	17.4
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	6.8	0.0	0.0	0.0	16.4
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.62	0.45	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	352	20	0	346	0	0	0	792
V/C Ratio (X)	0.70	0.56	0.00	0.05	0.00	0.00	0.00	0.01
Avail Cap (c_a), veh/h	1072	1018	0	728	0	0	0	1444
Upstream Filter (I)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	13.1	17.6	0.0	12.0	0.0	0.0	0.0	5.3
Incr Delay (d2), s/veh	2.5	22.7	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	15.6	40.3	0.0	12.0	0.0	0.0	0.0	5.3
1st-Term Q (Q1), veh/ln	1.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	1.80	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	3.1	0.4	0.0	0.2	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.26	0.03	0.00	0.09	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	6	2	0	4	0	0	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	16	12	0	14	0	0	0	18
Lane Assignment	T+R				T+R			
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	104	0	0	0	684
Grp Sat Flow (s), veh/h/ln	0	0	0	1867	0	0	0	1863
Q Serve Time (g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	0.0	10.6
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	1.1	0.0	0.0	0.0	10.6
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.38	0.45	0.00	0.01	0.00	0.00	0.00	0.02
Lane Grp Cap (c), veh/h	0	0	0	911	0	0	0	909
V/C Ratio (X)	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.75
Avail Cap (c_a), veh/h	0	0	0	1854	0	0	0	1850
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	5.0	0.0	0.0	0.0	7.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	5.0	0.0	0.0	0.0	8.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	2.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.4
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	110	140	95	180	120	205	910	100	140	1045	460
Future Volume (veh/h)	140	110	140	95	180	120	205	910	100	140	1045	460
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	1856	1969	1870	1856	1969	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	152	120	152	103	196	130	223	989	109	152	1136	500
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	185	265	338	166	254	301	261	1825	201	384	1320	561
Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.08	0.57	0.57	0.06	0.55	0.55
Sat Flow, veh/h	3428	1969	1585	3428	1969	1585	1767	3202	353	1753	2390	1016
Grp Volume(v), veh/h	152	120	152	103	196	130	223	544	554	152	821	815
Grp Sat Flow(s),veh/h/ln	1714	1969	1585	1714	1969	1585	1767	1763	1792	1753	1749	1658
Q Serve(g_s), s	3.7	4.7	7.0	2.5	8.0	6.0	4.5	16.0	16.0	3.1	33.0	36.1
Cycle Q Clear(g_c), s	3.7	4.7	7.0	2.5	8.0	6.0	4.5	16.0	16.0	3.1	33.0	36.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		0.61
Lane Grp Cap(c), veh/h	185	265	338	166	254	301	261	1005	1021	384	966	915
V/C Ratio(X)	0.82	0.45	0.45	0.62	0.77	0.43	0.85	0.54	0.54	0.40	0.85	0.89
Avail Cap(c_a), veh/h	185	378	429	185	378	401	292	1005	1021	488	966	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	33.2	28.5	38.9	35.1	29.8	18.5	11.1	11.1	8.6	15.7	16.4
Incr Delay (d2), s/veh	24.5	1.2	0.9	5.2	5.5	1.0	19.5	2.1	2.1	0.7	9.3	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.8	4.0	4.7	2.0	7.4	4.1	6.4	10.0	10.1	1.9	19.7	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	34.4	29.5	44.0	40.6	30.7	38.0	13.2	13.2	9.3	25.0	29.2
LnGrp LOS	E	C	C	D	D	C	D	B	B	A	C	C
Approach Vol, veh/h	424			429			1321			1788		
Approach Delay, s/veh	43.1			38.4			17.4			25.6		
Approach LOS	D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	51.5	7.5	15.2	10.5	50.0	8.0	14.8				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	10.0	44.0	4.5	16.0	8.0	46.0	4.5	16.0				
Max Q Clear Time (g_c+1.5), s	15.1	18.0	4.5	9.0	6.5	38.1	5.7	10.0				
Green Ext Time (p_c), s	0.2	8.0	0.0	0.6	0.1	6.0	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	110	140	95	180	120	205	910	100	140	1045	460
Future Volume (veh/h)	140	110	140	95	180	120	205	910	100	140	1045	460
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1969	1870	1856	1969	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	152	120	152	103	196	130	223	989	109	152	1136	500
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	185	265	338	166	254	301	261	1825	201	384	1320	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.05	0.13	0.13	0.05	0.13	0.13	0.08	0.57	0.57	0.06	0.55	0.55
Unsig. Movement Delay												
Ln Grp Delay, s/veh	63.5	34.4	29.5	44.0	40.6	30.7	38.0	13.2	13.2	9.3	25.0	29.2
Ln Grp LOS	E	C	C	D	D	C	D	B	B	A	C	C
Approach Vol, veh/h	424			429			1321			1788		
Approach Delay, s/veh	43.1			38.4			17.4			25.6		
Approach LOS	D			D			B			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	2.0	3.0	1.1	4.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	9.1	51.5	7.5	15.2	10.5	50.0	8.0	14.8				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	10.0	44.0	4.5	16.0	8.0	46.0	4.5	16.0				
Max Allow Headway (MAH), s	3.8	5.2	3.8	4.5	3.8	5.2	3.8	4.7				
Max Q Clear (g_c+I1), s	5.1	18.0	4.5	9.0	6.5	38.1	5.7	10.0				
Green Ext Time (g_e), s	0.2	8.0	0.0	0.6	0.1	6.0	0.0	0.7				
Prob of Phs Call (p_c)	0.97	1.00	0.91	1.00	0.99	1.00	0.97	1.00				
Prob of Max Out (p_x)	0.35	0.00	1.00	0.26	1.00	0.00	1.00	0.57				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1753	3428	1767	3428								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3202	1969	2390	1969								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	353	1585	1016	1585								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Prot)	L (Pr/Pm)	L (Prot)								

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

Lanes in Grp	1	0	2	0	1	0	2	0
Grp Vol (v), veh/h	152	0	103	0	223	0	152	0
Grp Sat Flow (s), veh/h/ln	1753	0	1714	0	1767	0	1714	0
Q Serve Time (g_s), s	3.1	0.0	2.5	0.0	4.5	0.0	3.7	0.0
Cycle Q Clear Time (g_c), s	3.1	0.0	2.5	0.0	4.5	0.0	3.7	0.0
Perm LT Sat Flow (s_l), veh/h/ln	505	0	0	0	304	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	46.0	0.0	0.0	0.0	46.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	31.5	0.0	0.0	0.0	9.9	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	6.3	0.0	0.0	0.0	9.9	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	384	0	166	0	261	0	185	0
V/C Ratio (X)	0.40	0.00	0.62	0.00	0.85	0.00	0.82	0.00
Avail Cap (c_a), veh/h	488	0	185	0	292	0	185	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	8.6	0.0	38.9	0.0	18.5	0.0	39.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	5.2	0.0	19.5	0.0	24.5	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	9.3	0.0	44.0	0.0	38.0	0.0	63.5	0.0
1st-Term Q (Q1), veh/ln	1.0	0.0	1.0	0.0	2.2	0.0	1.5	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.1	0.0	1.4	0.0	0.6	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	1.9	0.0	2.0	0.0	6.4	0.0	3.8	0.0
%ile Storage Ratio (RQ%)	0.32	0.00	0.37	0.00	0.39	0.00	0.41	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	544	0	120	0	821	0	196
Grp Sat Flow (s), veh/h/ln	0	1763	0	1969	0	1749	0	1969
Q Serve Time (g_s), s	0.0	16.0	0.0	4.7	0.0	33.0	0.0	8.0
Cycle Q Clear Time (g_c), s	0.0	16.0	0.0	4.7	0.0	33.0	0.0	8.0
Lane Grp Cap (c), veh/h	0	1005	0	265	0	966	0	254
V/C Ratio (X)	0.00	0.54	0.00	0.45	0.00	0.85	0.00	0.77
Avail Cap (c_a), veh/h	0	1005	0	378	0	966	0	378
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	11.1	0.0	33.2	0.0	15.7	0.0	35.1
Incr Delay (d2), s/veh	0.0	2.1	0.0	1.2	0.0	9.3	0.0	5.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.2	0.0	34.4	0.0	25.0	0.0	40.6
1st-Term Q (Q1), veh/ln	0.0	5.4	0.0	2.2	0.0	11.2	0.0	3.7
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	2.5	0.0	0.4

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.67	0.00	1.80	0.00	1.44	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	10.0	0.0	4.0	0.0	19.7	0.0	7.4
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.04	0.00	0.15	0.00	0.05
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	554	0	152	0	815	0	130
Grp Sat Flow (s), veh/h/ln	0	1792	0	1585	0	1658	0	1585
Q Serve Time (g_s), s	0.0	16.0	0.0	7.0	0.0	36.1	0.0	6.0
Cycle Q Clear Time (g_c), s	0.0	16.0	0.0	7.0	0.0	36.1	0.0	6.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1585.1	0.0	0.0	0.0	1585.1
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	6.5	0.0	0.0	0.0	5.1
Prop RT Outside Lane (P_R)	0.00	0.20	0.00	1.00	0.00	0.61	0.00	1.00
Lane Grp Cap (c), veh/h	0	1021	0	338	0	915	0	301
V/C Ratio (X)	0.00	0.54	0.00	0.45	0.00	0.89	0.00	0.43
Avail Cap (c_a), veh/h	0	1021	0	429	0	915	0	401
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	11.1	0.0	28.5	0.0	16.4	0.0	29.8
Incr Delay (d2), s/veh	0.0	2.1	0.0	0.9	0.0	12.7	0.0	1.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.2	0.0	29.5	0.0	29.2	0.0	30.7
1st-Term Q (Q1), veh/ln	0.0	5.5	0.0	2.5	0.0	11.6	0.0	2.2
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.1	0.0	3.2	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.67	0.00	1.80	0.00	1.43	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	10.1	0.0	4.7	0.0	21.2	0.0	4.1
%ile Storage Ratio (RQ%)	0.00	0.14	0.00	0.80	0.00	0.16	0.00	0.60
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	40	65	125	55	145	70	1085	100	85	995	65
Future Volume (veh/h)	50	40	65	125	55	145	70	1085	100	85	995	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	54	43	71	136	60	158	76	1179	109	92	1082	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	139	73	153	230	95	251	98	1834	169	118	1910	125
Arrive On Green	0.10	0.10	0.10	0.06	0.21	0.21	0.05	0.57	0.57	0.07	0.58	0.58
Sat Flow, veh/h	694	754	1585	1555	448	1180	1781	3237	299	1781	3305	217
Grp Volume(v), veh/h	97	0	71	136	0	218	76	636	652	92	568	585
Grp Sat Flow(s),veh/h/ln	1448	0	1585	1555	0	1628	1781	1749	1787	1781	1735	1787
Q Serve(g_s), s	4.1	0.0	3.3	5.0	0.0	9.4	3.3	19.2	19.3	3.9	15.9	16.0
Cycle Q Clear(g_c), s	4.9	0.0	3.3	5.0	0.0	9.4	3.3	19.2	19.3	3.9	15.9	16.0
Prop In Lane	0.56		1.00	1.00		0.72	1.00		0.17	1.00		0.12
Lane Grp Cap(c), veh/h	212	0	153	230	0	346	98	991	1013	118	1003	1033
V/C Ratio(X)	0.46	0.00	0.46	0.59	0.00	0.63	0.78	0.64	0.64	0.78	0.57	0.57
Avail Cap(c_a), veh/h	419	0	388	230	0	587	138	991	1013	138	1003	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	0.0	33.2	29.6	0.0	27.8	36.2	11.5	11.5	35.7	10.3	10.3
Incr Delay (d2), s/veh	1.5	0.0	2.2	4.0	0.0	1.9	16.6	3.2	3.2	21.5	2.3	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(95%),veh/ln	8.3	0.0	2.4	1.0	0.0	6.7	3.3	11.5	11.7	4.2	9.6	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	0.0	35.3	33.6	0.0	29.7	52.8	14.6	14.6	57.2	12.6	12.5
LnGrp LOS	D	A	D	C	A	C	D	B	B	E	B	B
Approach Vol, veh/h	168		354			1364			1245			
Approach Delay, s/veh	35.3		31.2			16.8			15.9			
Approach LOS	D		C			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	9.1	48.0	9.0	11.5	8.3	48.9	20.5					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	4.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Q Clear Time (g_c+I), s	11.9	21.3	7.0	6.9	5.3	18.0	11.4					
Green Ext Time (p_c), s	0.0	9.4	0.0	0.6	0.0	8.5	1.2					

Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	40	65	125	55	145	70	1085	100	85	995	65
Future Volume (veh/h)	50	40	65	125	55	145	70	1085	100	85	995	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	54	43	71	136	60	158	76	1179	109	92	1082	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	139	73	153	230	95	251	98	1834	169	118	1910	125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.10	0.10	0.10	0.06	0.21	0.21	0.05	0.57	0.57	0.07	0.58	0.58
Unsig. Movement Delay												
Ln Grp Delay, s/veh	35.3	0.0	35.3	33.6	0.0	29.7	52.8	14.6	14.6	57.2	12.6	12.5
Ln Grp LOS	D	A	D	C	A	C	D	B	B	E	B	B
Approach Vol, veh/h	168			354			1364			1245		
Approach Delay, s/veh	35.3			31.2			16.8			15.9		
Approach LOS	D			C			B			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	9.1	48.0	9.0	11.5	8.3	48.9	20.5					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	6.0	44.0	5.0	19.0	6.0	44.0	28.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.0	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	5.9	21.3	7.0	6.9	5.3	18.0	11.4					
Green Ext Time (g_e), s	0.0	9.4	0.0	0.6	0.0	8.5	1.2					
Prob of Phs Call (p_c)	0.86	1.00	0.95	1.00	0.81	1.00	1.00					
Prob of Max Out (p_x)	1.00	0.00	1.00	0.02	1.00	0.00	0.01					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		694	1781							
Through Movement Data												
Assigned Mvmt	2		4		6		8					
Mvmt Sat Flow, veh/h	3237		754		3305		448					
Right-Turn Movement Data												
Assigned Mvmt	12		14		16		18					
Mvmt Sat Flow, veh/h	299		1585		217		1180					
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	92	0	136	97	76	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1448	1781	0	0	0
Q Serve Time (g_s), s	3.9	0.0	5.0	4.1	3.3	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	3.9	0.0	5.0	4.9	3.3	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1116	1182	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	9.5	7.5	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.6	7.1	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	2.5	4.1	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	118	0	230	212	98	0	0	0
V/C Ratio (X)	0.78	0.00	0.59	0.46	0.78	0.00	0.00	0.00
Avail Cap (c_a), veh/h	138	0	230	419	138	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	35.7	0.0	29.6	33.8	36.2	0.0	0.0	0.0
Incr Delay (d2), s/veh	21.5	0.0	4.0	1.5	16.6	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	57.2	0.0	33.6	35.3	52.8	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	1.7	0.0	0.3	1.7	1.4	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.7	0.0	0.3	0.1	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.2	0.0	1.0	3.3	3.3	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.53	0.00	0.59	0.43	0.57	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	636	0	0	0	568	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	19.2	0.0	0.0	0.0	15.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	19.2	0.0	0.0	0.0	15.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	991	0	0	0	1003	0	0
V/C Ratio (X)	0.00	0.64	0.00	0.00	0.00	0.57	0.00	0.00
Avail Cap (c_a), veh/h	0	991	0	0	0	1003	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	11.5	0.0	0.0	0.0	10.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.0	0.0	2.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	14.6	0.0	0.0	0.0	12.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	6.2	0.0	0.0	0.0	5.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.0	0.0	0.6	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.61	0.00	1.00	0.00	1.69	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	11.5	0.0	0.0	0.0	9.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.28	0.00	0.00	0.00	0.14	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	652	0	71	0	585	0	218
Grp Sat Flow (s), veh/h/ln	0	1787	0	1585	0	1787	0	1628
Q Serve Time (g_s), s	0.0	19.3	0.0	3.3	0.0	16.0	0.0	9.4
Cycle Q Clear Time (g_c), s	0.0	19.3	0.0	3.3	0.0	16.0	0.0	9.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.17	0.00	1.00	0.00	0.12	0.00	0.72
Lane Grp Cap (c), veh/h	0	1013	0	153	0	1033	0	346
V/C Ratio (X)	0.00	0.64	0.00	0.46	0.00	0.57	0.00	0.63
Avail Cap (c_a), veh/h	0	1013	0	388	0	1033	0	587
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	11.5	0.0	33.2	0.0	10.3	0.0	27.8
Incr Delay (d2), s/veh	0.0	3.2	0.0	2.2	0.0	2.3	0.0	1.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	14.6	0.0	35.3	0.0	12.5	0.0	29.7
1st-Term Q (Q1), veh/ln	0.0	6.4	0.0	1.2	0.0	5.2	0.0	3.5
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.1	0.0	0.6	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.61	0.00	1.80	0.00	1.68	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	11.7	0.0	2.4	0.0	9.8	0.0	6.7
%ile Storage Ratio (RQ%)	0.00	0.29	0.00	0.31	0.00	0.14	0.00	0.23
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	35	255	1230	1145	15
Future Volume (veh/h)	25	35	255	1230	1145	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870
Adj Flow Rate, veh/h	27	38	277	1337	1245	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	95	85	432	3075	2953	38
Arrive On Green	0.05	0.05	0.82	0.82	0.82	0.82
Sat Flow, veh/h	1781	1585	440	3839	3686	46
Grp Volume(v), veh/h	27	38	277	1337	616	645
Grp Sat Flow(s), veh/h/ln	1781	1585	440	1870	1777	1862
Q Serve(g_s), s	0.9	1.5	29.7	6.4	6.1	6.1
Cycle Q Clear(g_c), s	0.9	1.5	35.8	6.4	6.1	6.1
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	95	85	432	3075	1461	1531
V/C Ratio(X)	0.28	0.45	0.64	0.43	0.42	0.42
Avail Cap(c_a), veh/h	582	518	488	3553	1687	1768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.5	6.4	1.6	1.6	1.6
Incr Delay (d2), s/veh	1.6	3.7	2.4	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	1.2	2.9	0.2	0.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	33.2	8.8	1.7	1.8	1.7
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	65			1614	1261	
Approach Delay, s/veh	32.2			2.9	1.7	
Approach LOS	C			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	56.8			7.4		56.8
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	37.8			3.5		8.1
Green Ext Time (p_c), s	15.0			0.1		11.4
Intersection Summary						
HCM 6th Ctrl Delay			3.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	25	35	255	1230	1145	15			
Future Volume (veh/h)	25	35	255	1230	1145	15			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1969	1870	1870			
Adj Flow Rate, veh/h	27	38	277	1337	1245	16			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	95	85	432	3075	2953	38			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.05	0.05	0.82	0.82	0.82	0.82			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	30.8	33.2	8.8	1.7	1.8	1.7			
Ln Grp LOS	C	C	A	A	A	A			
Approach Vol, veh/h	65			1614	1261				
Approach Delay, s/veh	32.2			2.9	1.7				
Approach LOS	C			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			56.8		7.4		56.8		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.8		4.0		5.1		
Max Q Clear (g_c+I1), s			37.8		3.5		8.1		
Green Ext Time (g_e), s			15.0		0.1		11.4		
Prob of Phs Call (p_c)			1.00		0.69		1.00		
Prob of Max Out (p_x)			0.55		0.00		0.03		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			440		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3839		0		3686		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		46		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	277	0	27	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	440	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	29.7	0.0	0.9	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	35.8	0.0	0.9	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	440	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	52.8	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	46.7	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	29.7	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	52.8	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	432	0	95	0	0	0	0
V/C Ratio (X)	0.00	0.64	0.00	0.28	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	488	0	582	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	6.4	0.0	29.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	0.0	1.6	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	30.8	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.3	0.0	0.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	2.9	0.0	0.8	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.73	0.00	0.03	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1337	0	0	0	616	0	0
Grp Sat Flow (s), veh/h/ln	0	1870	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	6.4	0.0	0.0	0.0	6.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.4	0.0	0.0	0.0	6.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	3075	0	0	0	1461	0	0
V/C Ratio (X)	0.00	0.43	0.00	0.00	0.00	0.42	0.00	0.00
Avail Cap (c_a), veh/h	0	3553	0	0	0	1687	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	1.6	0.0	0.0	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	1.7	0.0	0.0	0.0	1.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment	R				T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	38	0	645	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1862	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	1.5	0.0	6.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	1.5	0.0	6.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.02	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	85	0	1531	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.45	0.00	0.42	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	518	0	1768	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	29.5	0.0	1.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.7	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	33.2	0.0	1.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.6	0.0	0.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.80	0.00	1.80	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	1.2	0.0	0.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.58	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	3.1
HCM 6th LOS	A

Intersection						
Int Delay, s/veh	6.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	280	70	80	85	1
Future Vol, veh/h	5	280	70	80	85	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	304	76	87	92	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	332	93	93	0	-	0
Stage 1	93	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	663	964	1501	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	628	964	1501	-	-	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.6	3.5		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1501	-	955	-	-	
HCM Lane V/C Ratio	0.051	-	0.324	-	-	
HCM Control Delay (s)	7.5	0	10.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-	

HCM 6th Signalized Intersection Summary

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	575	1	15	285	65	1	1	15	345	1	20
Future Volume (veh/h)	85	575	1	15	285	65	1	1	15	345	1	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	92	625	1	16	310	71	1	1	16	375	1	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Cap, veh/h	460	827	1	295	652	149	2	2	26	497	1	29
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.02	0.02	0.02	0.30	0.30	0.30
Sat Flow, veh/h	1002	1867	3	799	1472	337	89	89	1430	1667	4	98
Grp Volume(v), veh/h	92	0	626	16	0	381	18	0	0	398	0	0
Grp Sat Flow(s),veh/h/ln	1002	0	1870	799	0	1810	1609	0	0	1769	0	0
Q Serve(g_s), s	3.1	0.0	12.2	0.7	0.0	6.5	0.5	0.0	0.0	8.9	0.0	0.0
Cycle Q Clear(g_c), s	9.6	0.0	12.2	13.0	0.0	6.5	0.5	0.0	0.0	8.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.19	0.06		0.89	0.94		0.06
Lane Grp Cap(c), veh/h	460	0	828	295	0	801	29	0	0	527	0	0
V/C Ratio(X)	0.20	0.00	0.76	0.05	0.00	0.48	0.62	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	834	0	1525	593	0	1476	721	0	0	996	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	10.2	15.6	0.0	8.6	21.2	0.0	0.0	13.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.4	0.1	0.0	0.4	19.9	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.0	7.5	0.2	0.0	3.3	0.6	0.0	0.0	6.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	11.6	15.7	0.0	9.0	41.1	0.0	0.0	16.1	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	D	A	A	B	A	A
Approach Vol, veh/h	718			397			18			398		
Approach Delay, s/veh	11.7			9.3			41.1			16.1		
Approach LOS	B			A			D			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	4.3			22.8			16.5			22.8		
Change Period (Y+Rc), s	3.5			3.5			3.5			3.5		
Max Green Setting (Gmax), s	19.5			35.5			24.5			35.5		
Max Q Clear Time (g_c+I1), s	2.5			14.2			10.9			15.0		
Green Ext Time (p_c), s	0.0			5.1			2.2			2.3		
Intersection Summary												
HCM 6th Ctrl Delay	12.5											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Capacity Analysis

100: Commercial Driveway A/Manor Avenue & North Access/Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	575	1	15	285	65	1	1	15	345	1	20
Future Volume (veh/h)	85	575	1	15	285	65	1	1	15	345	1	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1559	1870	1870	1870	1870	1870	418
Adj Flow Rate, veh/h	92	625	1	16	310	71	1	1	16	375	1	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	23	2	2	2	2	2	100
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	460	827	1	295	652	149	2	2	26	497	1	29
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.02	0.02	0.02	0.30	0.30	0.30
Unsig. Movement Delay												
Ln Grp Delay, s/veh	12.1	0.0	11.6	15.7	0.0	9.0	41.1	0.0	0.0	16.1	0.0	0.0
Ln Grp LOS	B	A	B	B	A	A	D	A	A	B	A	A
Approach Vol, veh/h	718			397			18			398		
Approach Delay, s/veh	11.7			9.3			41.1			16.1		
Approach LOS	B			A			D			B		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	6		2	4				8				
Case No	12.0		12.0	6.0				6.0				
Phs Duration (G+Y+Rc), s	16.5		4.3	22.8				22.8				
Change Period (Y+Rc), s	3.5		3.5	3.5				3.5				
Max Green (Gmax), s	24.5		19.5	35.5				35.5				
Max Allow Headway (MAH), s	5.5		5.7	5.3				5.2				
Max Q Clear (g_c+I1), s	10.9		2.5	14.2				15.0				
Green Ext Time (g_e), s	2.2		0.0	5.1				2.3				
Prob of Phs Call (p_c)	0.99		0.20	1.00				1.00				
Prob of Max Out (p_x)	0.10		0.00	0.08				0.01				
Left-Turn Movement Data												
Assigned Mvmt	1		5	7				3				
Mvmt Sat Flow, veh/h	1667		89	1002				799				
Through Movement Data												
Assigned Mvmt	6		2	4				8				
Mvmt Sat Flow, veh/h	4		89	1867				1472				
Right-Turn Movement Data												
Assigned Mvmt	16		12	14				18				
Mvmt Sat Flow, veh/h	98		1430	3				337				
Left Lane Group Data												
Assigned Mvmt	1		5	0	7	0	0	0	3			
Lane Assignment	L+T+R		L+T+R	L				L				

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	1	0	1	0	0	0	1
Grp Vol (v), veh/h	398	18	0	92	0	0	0	16
Grp Sat Flow (s), veh/h/ln	1769	1609	0	1002	0	0	0	799
Q Serve Time (g_s), s	8.9	0.5	0.0	3.1	0.0	0.0	0.0	0.7
Cycle Q Clear Time (g_c), s	8.9	0.5	0.0	9.6	0.0	0.0	0.0	13.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	1002	0	0	0	799
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	19.3	0.0	0.0	0.0	19.3
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	12.8	0.0	0.0	0.0	7.1
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.94	0.06	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	527	29	0	460	0	0	0	295
V/C Ratio (X)	0.75	0.62	0.00	0.20	0.00	0.00	0.00	0.05
Avail Cap (c_a), veh/h	996	721	0	834	0	0	0	593
Upstream Filter (I)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	13.8	21.2	0.0	11.9	0.0	0.0	0.0	15.6
Incr Delay (d2), s/veh	2.2	19.9	0.0	0.2	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	16.1	41.1	0.0	12.1	0.0	0.0	0.0	15.7
1st-Term Q (Q1), veh/ln	3.0	0.2	0.0	0.6	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	1.80	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	6.0	0.6	0.0	1.1	0.0	0.0	0.0	0.2
%ile Storage Ratio (RQ%)	0.49	0.05	0.00	0.57	0.00	0.00	0.00	0.11
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	6	2	0	4	0	0	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	16	12	0	14	0	0	0	18
Lane Assignment	T+R				T+R			
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	626	0	0	0	381
Grp Sat Flow (s), veh/h/ln	0	0	0	1870	0	0	0	1810
Q Serve Time (g_s), s	0.0	0.0	0.0	12.2	0.0	0.0	0.0	6.5
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	12.2	0.0	0.0	0.0	6.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.06	0.89	0.00	0.00	0.00	0.00	0.00	0.19
Lane Grp Cap (c), veh/h	0	0	0	828	0	0	0	801
V/C Ratio (X)	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.48
Avail Cap (c_a), veh/h	0	0	0	1525	0	0	0	1476
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	10.2	0.0	0.0	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	11.6	0.0	0.0	0.0	9.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	3.8	0.0	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.80	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	7.5	0.0	0.0	0.0	3.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

200: Calumet Avenue & Fisher Street

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	265	250	75	130	105	205	1135	85	160	1030	130
Future Volume (veh/h)	530	265	250	75	130	105	205	1135	85	160	1030	130
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	1856	1969	1870	1856	1969	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	576	288	272	82	141	114	223	1234	92	174	1120	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Cap, veh/h	645	490	542	141	201	162	299	1494	111	265	1341	168
Arrive On Green	0.19	0.25	0.25	0.04	0.10	0.10	0.09	0.45	0.45	0.07	0.43	0.43
Sat Flow, veh/h	3428	1969	1585	3428	1969	1585	1767	3326	248	1753	3126	393
Grp Volume(v), veh/h	576	288	272	82	141	114	223	653	673	174	626	635
Grp Sat Flow(s),veh/h/ln	1714	1969	1585	1714	1969	1585	1767	1763	1811	1753	1749	1770
Q Serve(g_s), s	13.5	10.6	11.2	1.9	5.7	5.7	5.7	26.7	26.8	4.5	26.2	26.4
Cycle Q Clear(g_c), s	13.5	10.6	11.2	1.9	5.7	5.7	5.7	26.7	26.8	4.5	26.2	26.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.22
Lane Grp Cap(c), veh/h	645	490	542	141	201	162	299	792	813	265	750	759
V/C Ratio(X)	0.89	0.59	0.50	0.58	0.70	0.71	0.75	0.82	0.83	0.66	0.83	0.84
Avail Cap(c_a), veh/h	645	621	648	229	382	308	307	792	813	265	750	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	27.2	21.5	38.8	35.8	35.8	17.4	19.9	19.9	17.5	20.9	21.0
Incr Delay (d2), s/veh	14.8	1.1	0.7	3.8	4.4	5.5	9.3	9.6	9.5	5.8	10.6	10.6
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(95%),veh/ln	10.9	8.5	7.3	1.6	5.2	4.3	5.0	17.6	18.1	3.6	17.6	17.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	28.3	22.3	42.6	40.2	41.3	26.7	29.4	29.4	23.2	31.5	31.6
LnGrp LOS	D	C	C	D	D	D	C	C	C	C	C	C
Approach Vol, veh/h	1136			337			1549			1435		
Approach Delay, s/veh	36.6			41.2			29.0			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	10.0	41.0	6.9	24.5	11.7	39.3	19.0	12.4				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green Setting (Gmax), s	37.0	37.0	5.5	26.0	8.0	35.0	15.5	16.0				
Max Q Clear Time (g_c+I), s	10.5	28.8	3.9	13.2	7.7	28.4	15.5	7.7				
Green Ext Time (p_c), s	0.0	5.1	0.0	2.1	0.0	4.1	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Capacity Analysis

200: Calumet Avenue & Fisher Street

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	265	250	75	130	105	205	1135	85	160	1030	130
Future Volume (veh/h)	530	265	250	75	130	105	205	1135	85	160	1030	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1856	1969	1870	1856	1969	1870	1856	1856	1856	1841	1841	1722
Adj Flow Rate, veh/h	576	288	272	82	141	114	223	1234	92	174	1120	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	2	2	3	3	3	4	4	12
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	645	490	542	141	201	162	299	1494	111	265	1341	168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.19	0.25	0.25	0.04	0.10	0.10	0.09	0.45	0.45	0.07	0.43	0.43
Unsig. Movement Delay												
Ln Grp Delay, s/veh	47.5	28.3	22.3	42.6	40.2	41.3	26.7	29.4	29.4	23.2	31.5	31.6
Ln Grp LOS	D	C	C	D	D	D	C	C	C	C	C	C
Approach Vol, veh/h	1136			337			1549			1435		
Approach Delay, s/veh	36.6			41.2			29.0			30.5		
Approach LOS	D			D			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Case No	1.1	4.0	2.0	3.0	1.1	4.0	2.0	3.0				
Phs Duration (G+Y+Rc), s	10.0	41.0	6.9	24.5	11.7	39.3	19.0	12.4				
Change Period (Y+Rc), s	4.0	4.0	3.5	4.0	4.0	4.0	3.5	4.0				
Max Green (Gmax), s	6.0	37.0	5.5	26.0	8.0	35.0	15.5	16.0				
Max Allow Headway (MAH), s	3.8	5.1	3.8	4.6	3.8	5.2	3.8	4.6				
Max Q Clear (g_c+I1), s	6.5	28.8	3.9	13.2	7.7	28.4	15.5	7.7				
Green Ext Time (g_e), s	0.0	5.1	0.0	2.1	0.0	4.1	0.0	0.7				
Prob of Phs Call (p_c)	0.98	1.00	0.85	1.00	0.99	1.00	1.00	1.00				
Prob of Max Out (p_x)	1.00	0.00	1.00	0.09	1.00	0.00	1.00	0.15				
Left-Turn Movement Data												
Assigned Mvmt	1	3	5	7								
Mvmt Sat Flow, veh/h	1753	3428	1767	3428								
Through Movement Data												
Assigned Mvmt	2	4	6	8								
Mvmt Sat Flow, veh/h	3326	1969	3126	1969								
Right-Turn Movement Data												
Assigned Mvmt	12	14	16	18								
Mvmt Sat Flow, veh/h	248	1585	393	1585								
Left Lane Group Data												
Assigned Mvmt	1	0	3	0	5	0	7	0				
Lane Assignment	L (Pr/Pm)	L (Prot)	L (Pr/Pm)	L (Prot)								

HCM 6th Signalized Intersection Capacity Analysis

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Lanes in Grp	1	0	2	0	1	0	2	0
Grp Vol (v), veh/h	174	0	82	0	223	0	576	0
Grp Sat Flow (s), veh/h/ln	1753	0	1714	0	1767	0	1714	0
Q Serve Time (g_s), s	4.5	0.0	1.9	0.0	5.7	0.0	13.5	0.0
Cycle Q Clear Time (g_c), s	4.5	0.0	1.9	0.0	5.7	0.0	13.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	407	0	0	0	436	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	35.3	0.0	0.0	0.0	35.3	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	10.2	0.0	0.0	0.0	9.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	10.2	0.0	0.0	0.0	9.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	265	0	141	0	299	0	645	0
V/C Ratio (X)	0.66	0.00	0.58	0.00	0.75	0.00	0.89	0.00
Avail Cap (c_a), veh/h	265	0	229	0	307	0	645	0
Upstream Filter (I)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d1), s/veh	17.5	0.0	38.8	0.0	17.4	0.0	32.6	0.0
Incr Delay (d2), s/veh	5.8	0.0	3.8	0.0	9.3	0.0	14.8	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	23.2	0.0	42.6	0.0	26.7	0.0	47.5	0.0
1st-Term Q (Q1), veh/ln	1.6	0.0	0.8	0.0	2.0	0.0	5.4	0.0
2nd-Term Q (Q2), veh/ln	0.4	0.0	0.1	0.0	0.8	0.0	1.3	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.63	0.00
%ile Back of Q (95%), veh/ln	3.6	0.0	1.6	0.0	5.0	0.0	10.9	0.0
%ile Storage Ratio (RQ%)	0.62	0.00	0.28	0.00	0.30	0.00	1.16	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T		T		T		T	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	653	0	288	0	626	0	141
Grp Sat Flow (s), veh/h/ln	0	1763	0	1969	0	1749	0	1969
Q Serve Time (g_s), s	0.0	26.7	0.0	10.6	0.0	26.2	0.0	5.7
Cycle Q Clear Time (g_c), s	0.0	26.7	0.0	10.6	0.0	26.2	0.0	5.7
Lane Grp Cap (c), veh/h	0	792	0	490	0	750	0	201
V/C Ratio (X)	0.00	0.82	0.00	0.59	0.00	0.83	0.00	0.70
Avail Cap (c_a), veh/h	0	792	0	621	0	750	0	382
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	19.9	0.0	27.2	0.0	20.9	0.0	35.8
Incr Delay (d2), s/veh	0.0	9.6	0.0	1.1	0.0	10.6	0.0	4.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.4	0.0	28.3	0.0	31.5	0.0	40.2
1st-Term Q (Q1), veh/ln	0.0	9.8	0.0	4.7	0.0	9.7	0.0	2.6
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	0.2	0.0	2.2	0.0	0.2

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.47	0.00	1.74	0.00	1.48	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	17.6	0.0	8.5	0.0	17.6	0.0	5.2
%ile Storage Ratio (RQ%)	0.00	0.25	0.00	0.08	0.00	0.13	0.00	0.04
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	673	0	272	0	635	0	114
Grp Sat Flow (s), veh/h/ln	0	1811	0	1585	0	1770	0	1585
Q Serve Time (g_s), s	0.0	26.8	0.0	11.2	0.0	26.4	0.0	5.7
Cycle Q Clear Time (g_c), s	0.0	26.8	0.0	11.2	0.0	26.4	0.0	5.7
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1585.1	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.14	0.00	1.00	0.00	0.22	0.00	1.00
Lane Grp Cap (c), veh/h	0	813	0	542	0	759	0	162
V/C Ratio (X)	0.00	0.83	0.00	0.50	0.00	0.84	0.00	0.71
Avail Cap (c_a), veh/h	0	813	0	648	0	759	0	308
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	19.9	0.0	21.5	0.0	21.0	0.0	35.8
Incr Delay (d2), s/veh	0.0	9.5	0.0	0.7	0.0	10.6	0.0	5.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.4	0.0	22.3	0.0	31.6	0.0	41.3
1st-Term Q (Q1), veh/ln	0.0	10.2	0.0	3.9	0.0	9.9	0.0	2.1
2nd-Term Q (Q2), veh/ln	0.0	2.1	0.0	0.1	0.0	2.2	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.47	0.00	1.80	0.00	1.47	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	18.1	0.0	7.3	0.0	17.8	0.0	4.3
%ile Storage Ratio (RQ%)	0.00	0.25	0.00	1.23	0.00	0.14	0.00	0.62
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗		↖	↕↗		↖	↕↗	
Traffic Volume (veh/h)	50	40	45	165	30	135	40	1195	140	120	1255	50
Future Volume (veh/h)	50	40	45	165	30	135	40	1195	140	120	1255	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	54	43	49	179	33	147	43	1299	152	130	1364	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Cap, veh/h	142	73	151	323	80	355	70	1504	175	166	1805	71
Arrive On Green	0.10	0.10	0.10	0.12	0.27	0.27	0.04	0.48	0.48	0.09	0.53	0.53
Sat Flow, veh/h	713	763	1585	1555	294	1311	1781	3156	367	1781	3402	134
Grp Volume(v), veh/h	97	0	49	179	0	180	43	717	734	130	695	723
Grp Sat Flow(s),veh/h/ln	1476	0	1585	1555	0	1605	1781	1749	1775	1781	1735	1802
Q Serve(g_s), s	4.0	0.0	2.2	7.4	0.0	6.9	1.8	27.4	27.8	5.4	23.6	23.7
Cycle Q Clear(g_c), s	4.7	0.0	2.2	7.4	0.0	6.9	1.8	27.4	27.8	5.4	23.6	23.7
Prop In Lane	0.56		1.00	1.00		0.82	1.00		0.21	1.00		0.07
Lane Grp Cap(c), veh/h	215	0	151	323	0	435	70	833	846	166	920	956
V/C Ratio(X)	0.45	0.00	0.32	0.55	0.00	0.41	0.61	0.86	0.87	0.78	0.75	0.76
Avail Cap(c_a), veh/h	439	0	399	339	0	702	118	833	846	331	920	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	31.8	24.7	0.0	22.6	35.6	17.5	17.6	33.4	13.9	13.9
Incr Delay (d2), s/veh	1.5	0.0	1.2	1.8	0.0	0.6	8.4	11.3	11.7	7.8	5.7	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.2	0.0	1.6	5.0	0.0	4.7	1.6	17.9	18.4	4.7	14.2	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	33.0	26.5	0.0	23.2	44.0	28.8	29.3	41.2	19.6	19.5
LnGrp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h	146		359			1494			1548			
Approach Delay, s/veh	33.9		24.8			29.5			21.3			
Approach LOS	C		C			C			C			
Timer - Assigned Phs	1	2	3	4	5	6	8					
Phs Duration (G+Y+Rc), s	11.0	39.9	13.2	11.2	7.0	44.0	24.4					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Q Clear Time (g_c+I), s	17.4	29.8	9.4	6.7	3.8	25.7	8.9					
Green Ext Time (p_c), s	0.2	0.9	0.0	0.5	0.0	8.1	1.1					
Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Capacity Analysis

400: Calumet Avenue & Commercial Driveway B/Fran Lin Parkway

03/07/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	40	45	165	30	135	40	1195	140	120	1255	50
Future Volume (veh/h)	50	40	45	165	30	135	40	1195	140	120	1255	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, 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		
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1633	1841	1870	1870	1841	1841	1870	1826	1870
Adj Flow Rate, veh/h	54	43	49	179	33	147	43	1299	152	130	1364	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	18	4	2	2	4	4	2	5	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	142	73	151	323	80	355	70	1504	175	166	1805	71
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.10	0.10	0.10	0.12	0.27	0.27	0.04	0.48	0.48	0.09	0.53	0.53
Unsig. Movement Delay												
Ln Grp Delay, s/veh	34.3	0.0	33.0	26.5	0.0	23.2	44.0	28.8	29.3	41.2	19.6	19.5
Ln Grp LOS	C	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h	146			359			1494			1548		
Approach Delay, s/veh	33.9			24.8			29.5			21.3		
Approach LOS	C			C			C			C		
Timer:	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	8					
Case No	2.0	4.0	1.2	7.3	2.0	4.0	4.0					
Phs Duration (G+Y+Rc), s	11.0	39.9	13.2	11.2	7.0	44.0	24.4					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green (Gmax), s	14.0	31.0	10.0	19.0	5.0	40.0	33.0					
Max Allow Headway (MAH), s	3.8	5.2	3.9	5.1	3.8	5.1	5.5					
Max Q Clear (g_c+I1), s	7.4	29.8	9.4	6.7	3.8	25.7	8.9					
Green Ext Time (g_e), s	0.2	0.9	0.0	0.5	0.0	8.1	1.1					
Prob of Phs Call (p_c)	0.93	1.00	0.98	1.00	0.59	1.00	1.00					
Prob of Max Out (p_x)	0.06	0.00	1.00	0.01	1.00	0.00	0.00					
Left-Turn Movement Data												
Assigned Mvmt	1	3		7	5							
Mvmt Sat Flow, veh/h	1781	1555		713	1781							
Through Movement Data												
Assigned Mvmt	2			4		6	8					
Mvmt Sat Flow, veh/h	3156			763		3402	294					
Right-Turn Movement Data												
Assigned Mvmt	12			14		16	18					
Mvmt Sat Flow, veh/h	367			1585		134	1311					
Left Lane Group Data												
Assigned Mvmt	1	0	3	7	5	0	0	0				
Lane Assignment	L (Prot)		L (Pr/Pm)		L+T	L (Prot)						

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Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	130	0	179	97	43	0	0	0
Grp Sat Flow (s), veh/h/ln	1781	0	1555	1476	1781	0	0	0
Q Serve Time (g_s), s	5.4	0.0	7.4	4.0	1.8	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.4	0.0	7.4	4.7	1.8	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1139	1223	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	9.2	7.2	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	2.5	7.2	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	1.3	4.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.56	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	166	0	323	215	70	0	0	0
V/C Ratio (X)	0.78	0.00	0.55	0.45	0.61	0.00	0.00	0.00
Avail Cap (c_a), veh/h	331	0	339	439	118	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	33.4	0.0	24.7	32.9	35.6	0.0	0.0	0.0
Incr Delay (d2), s/veh	7.8	0.0	1.8	1.5	8.4	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	41.2	0.0	26.5	34.3	44.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	2.2	0.0	2.6	1.7	0.8	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.4	0.0	0.2	0.1	0.2	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	1.80	1.80	0.00	0.00	0.00
%ile Back of Q (95%), veh/ln	4.7	0.0	5.0	3.2	1.6	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.58	0.00	2.85	0.42	0.29	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment	T			T				
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	717	0	0	0	695	0	0
Grp Sat Flow (s), veh/h/ln	0	1749	0	0	0	1735	0	0
Q Serve Time (g_s), s	0.0	27.4	0.0	0.0	0.0	23.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	27.4	0.0	0.0	0.0	23.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	833	0	0	0	920	0	0
V/C Ratio (X)	0.00	0.86	0.00	0.00	0.00	0.75	0.00	0.00
Avail Cap (c_a), veh/h	0	833	0	0	0	920	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	17.5	0.0	0.0	0.0	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.3	0.0	0.0	0.0	5.7	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	28.8	0.0	0.0	0.0	19.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.5	0.0	0.0	0.0	7.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	2.6	0.0	0.0	0.0	1.5	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.47	0.00	1.00	0.00	1.54	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	17.9	0.0	0.0	0.0	14.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.44	0.00	0.00	0.00	0.20	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	T+R		R		T+R		T+R	
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	734	0	49	0	723	0	180
Grp Sat Flow (s), veh/h/ln	0	1775	0	1585	0	1802	0	1605
Q Serve Time (g_s), s	0.0	27.8	0.0	2.2	0.0	23.7	0.0	6.9
Cycle Q Clear Time (g_c), s	0.0	27.8	0.0	2.2	0.0	23.7	0.0	6.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.21	0.00	1.00	0.00	0.07	0.00	0.82
Lane Grp Cap (c), veh/h	0	846	0	151	0	956	0	435
V/C Ratio (X)	0.00	0.87	0.00	0.32	0.00	0.76	0.00	0.41
Avail Cap (c_a), veh/h	0	846	0	399	0	956	0	702
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.6	0.0	31.8	0.0	13.9	0.0	22.6
Incr Delay (d2), s/veh	0.0	11.7	0.0	1.2	0.0	5.6	0.0	0.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.3	0.0	33.0	0.0	19.5	0.0	23.2
1st-Term Q (Q1), veh/ln	0.0	9.8	0.0	0.8	0.0	8.1	0.0	2.5
2nd-Term Q (Q2), veh/ln	0.0	2.7	0.0	0.1	0.0	1.5	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.46	0.00	1.80	0.00	1.53	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	18.4	0.0	1.6	0.0	14.7	0.0	4.7
%ile Storage Ratio (RQ%)	0.00	0.45	0.00	0.20	0.00	0.21	0.00	0.16
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	220	75	1285	1425	10
Future Volume (veh/h)	75	220	75	1285	1425	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	239	82	1397	1549	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	315	281	259	2586	2632	19
Arrive On Green	0.18	0.18	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1781	1585	330	3647	3710	26
Grp Volume(v), veh/h	82	239	82	1397	761	799
Grp Sat Flow(s), veh/h/ln	1781	1585	330	1777	1777	1866
Q Serve(g_s), s	3.3	12.3	13.2	14.8	17.1	17.1
Cycle Q Clear(g_c), s	3.3	12.3	30.3	14.8	17.1	17.1
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	315	281	259	2586	1293	1357
V/C Ratio(X)	0.26	0.85	0.32	0.54	0.59	0.59
Avail Cap(c_a), veh/h	446	397	259	2586	1293	1357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	33.4	12.7	5.1	5.4	5.4
Incr Delay (d2), s/veh	0.4	11.8	3.2	0.8	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	9.3	2.0	7.2	8.7	9.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.2	45.2	15.9	5.9	7.4	7.3
LnGrp LOS	C	D	B	A	A	A
Approach Vol, veh/h	321			1479	1560	
Approach Delay, s/veh	41.4			6.5	7.4	
Approach LOS	D			A	A	
Timer - Assigned Phs	2			4		6
Phs Duration (G+Y+Rc), s	65.0			18.8		65.0
Change Period (Y+Rc), s	4.0			4.0		4.0
Max Green Setting (Gmax), s	61.0			21.0		61.0
Max Q Clear Time (g_c+I1), s	32.3			14.3		19.1
Green Ext Time (p_c), s	14.7			0.6		15.9
Intersection Summary						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022



Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	75	220	75	1285	1425	10			
Future Volume (veh/h)	75	220	75	1285	1425	10			
Number	7	14	5	2	6	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	82	239	82	1397	1549	11			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	2	2	2	2			
Opposing Right Turn Influence	Yes		Yes						
Cap, veh/h	315	281	259	2586	2632	19			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.18	0.18	0.73	0.73	0.73	0.73			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	30.2	45.2	15.9	5.9	7.4	7.3			
Ln Grp LOS	C	D	B	A	A	A			
Approach Vol, veh/h	321			1479	1560				
Approach Delay, s/veh	41.4			6.5	7.4				
Approach LOS	D			A	A				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4		6		
Case No			6.0		9.0		8.0		
Phs Duration (G+Y+Rc), s			65.0		18.8		65.0		
Change Period (Y+Rc), s			4.0		4.0		4.0		
Max Green (Gmax), s			61.0		21.0		61.0		
Max Allow Headway (MAH), s			5.5		4.0		5.1		
Max Q Clear (g_c+I1), s			32.3		14.3		19.1		
Green Ext Time (g_e), s			14.7		0.6		15.9		
Prob of Phs Call (p_c)			1.00		1.00		1.00		
Prob of Max Out (p_x)			0.00		0.21		0.00		
Left-Turn Movement Data									
Assigned Mvmt			5		7		1		
Mvmt Sat Flow, veh/h			330		1781		0		
Through Movement Data									
Assigned Mvmt			2		4		6		
Mvmt Sat Flow, veh/h			3647		0		3710		
Right-Turn Movement Data									
Assigned Mvmt			12		14		16		
Mvmt Sat Flow, veh/h			0		1585		26		
Left Lane Group Data									
Assigned Mvmt		0	5	0	7	0	1	0	0
Lane Assignment			L		L				

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	82	0	82	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	330	0	1781	0	0	0	0
Q Serve Time (g_s), s	0.0	13.2	0.0	3.3	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	30.3	0.0	3.3	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	330	0	1781	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	43.9	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	259	0	315	0	0	0	0
V/C Ratio (X)	0.00	0.32	0.00	0.26	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	259	0	446	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	12.7	0.0	29.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.4	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.9	0.0	30.2	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.9	0.0	1.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	2.0	0.0	2.6	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.50	0.00	0.10	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Mvmt	0	2	0	4	0	6	0	0
Lane Assignment	T				T			
Lanes in Grp	0	2	0	0	0	1	0	0
Grp Vol (v), veh/h	0	1397	0	0	0	761	0	0
Grp Sat Flow (s), veh/h/ln	0	1777	0	0	0	1777	0	0
Q Serve Time (g_s), s	0.0	14.8	0.0	0.0	0.0	17.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.8	0.0	0.0	0.0	17.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	2586	0	0	0	1293	0	0
V/C Ratio (X)	0.00	0.54	0.00	0.00	0.00	0.59	0.00	0.00
Avail Cap (c_a), veh/h	0	2586	0	0	0	1293	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	5.1	0.0	0.0	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	2.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.9	0.0	0.0	0.0	7.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.7	0.0	0.0	0.0	4.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

500: Calumet Avenue & Maple Leaf Boulevard

03/07/2022

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.00	0.00	1.73	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	7.2	0.0	0.0	0.0	8.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.21	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

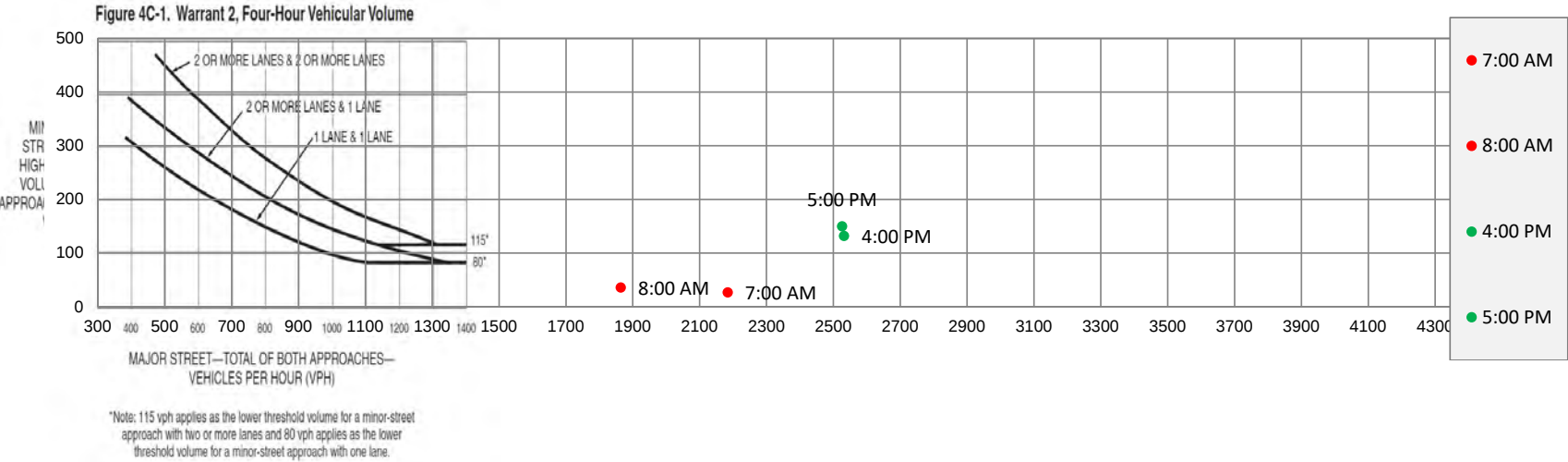
Assigned Mvmt	0	12	0	14	0	16	0	0
Lane Assignment	R				T+R			
Lanes in Grp	0	0	0	1	0	1	0	0
Grp Vol (v), veh/h	0	0	0	239	0	799	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	1866	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	12.3	0.0	17.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	12.3	0.0	17.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.00	1.00	0.00	0.01	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	281	0	1357	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.85	0.00	0.59	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	397	0	1357	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	33.4	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	11.8	0.0	1.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	45.2	0.0	7.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	4.6	0.0	4.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.9	0.0	0.7	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.70	0.00	1.72	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	9.3	0.0	9.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	4.75	0.00	0.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

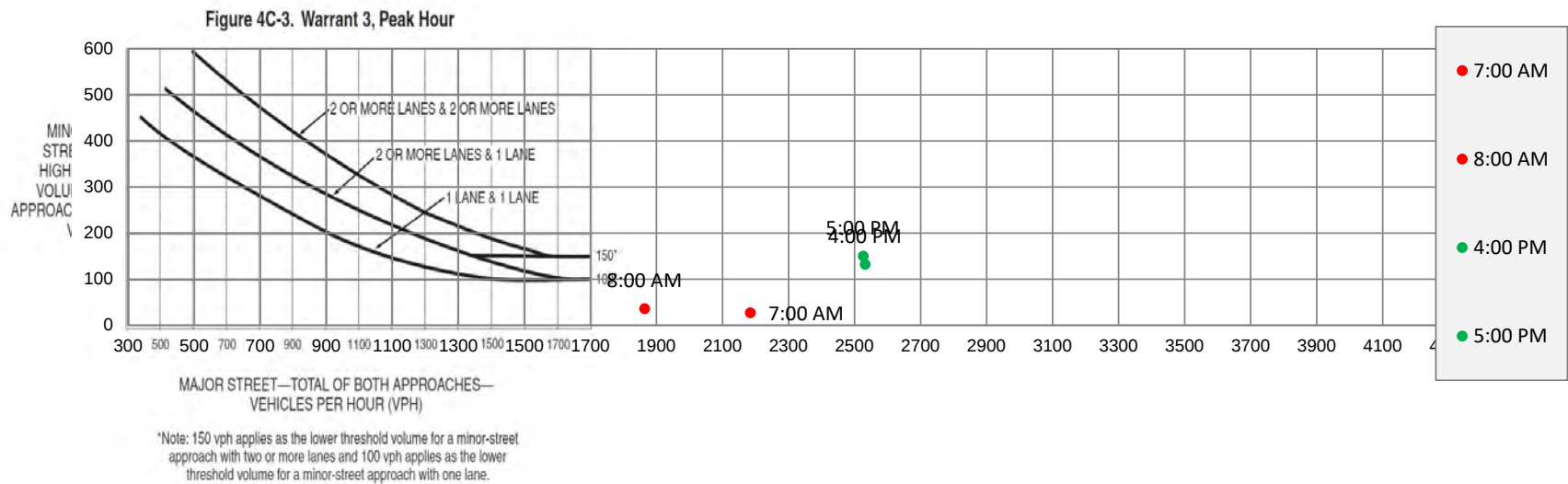
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

SIGNAL WARRANT ANALYSIS

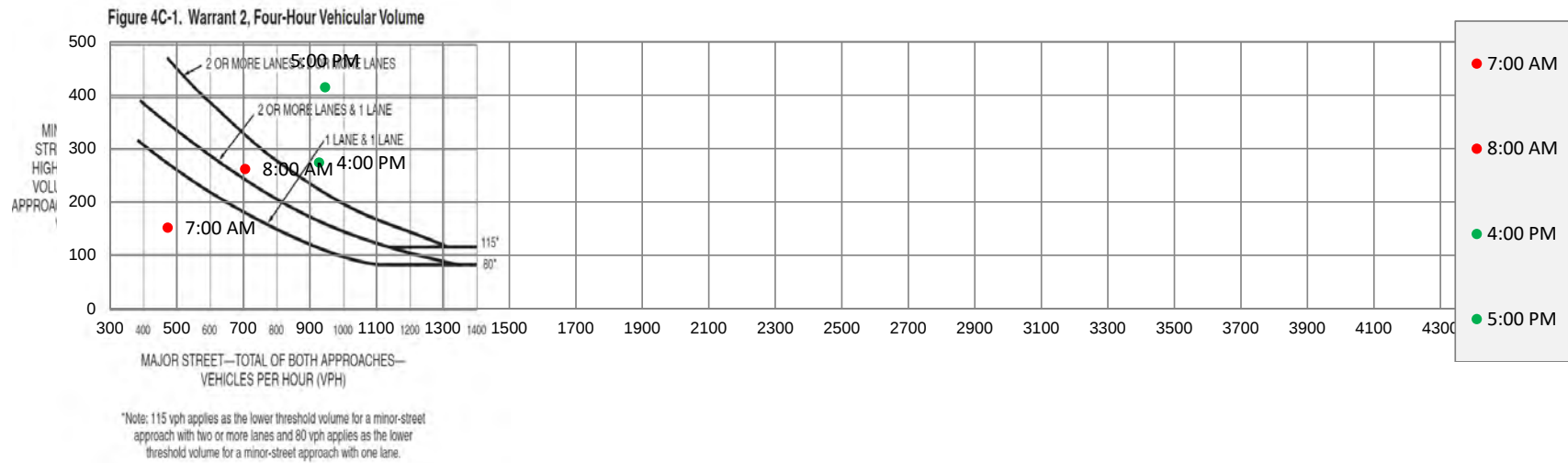
Future (2025) Build Traffic Projections (Phase A) - Calumet Avenue/Maple Leaf Boulevard
Signal Warrant Analysis - Warrant 2 (Warrant NOT Satisfied)



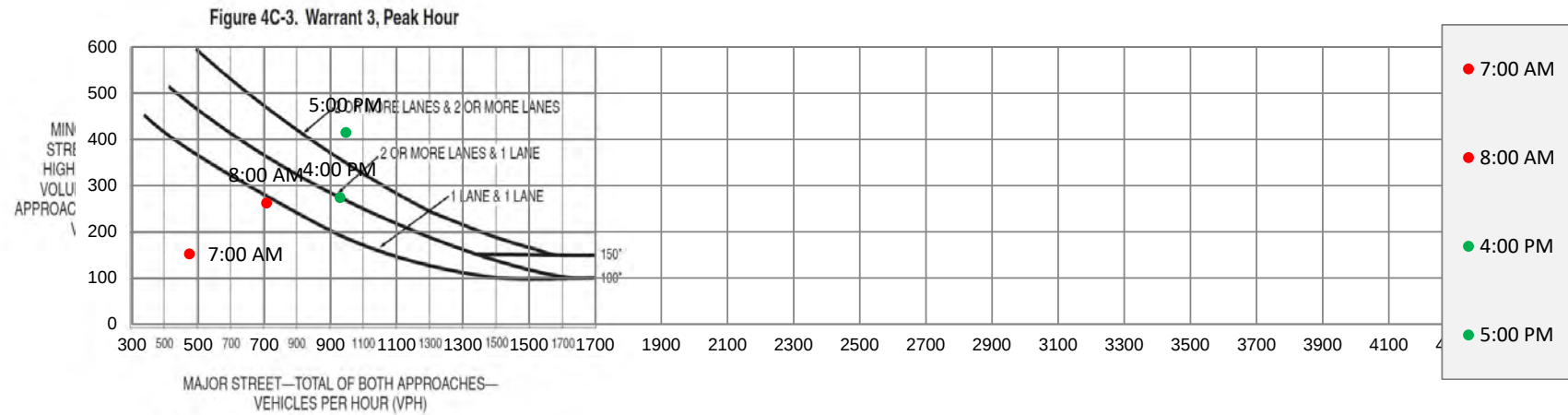
Future (2025) Build Traffic Projections (Phase A) - Calumet Avenue/Maple Leaf Boulevard
Signal Warrant Analysis - Warrant 3 (Warrant Satisfied)



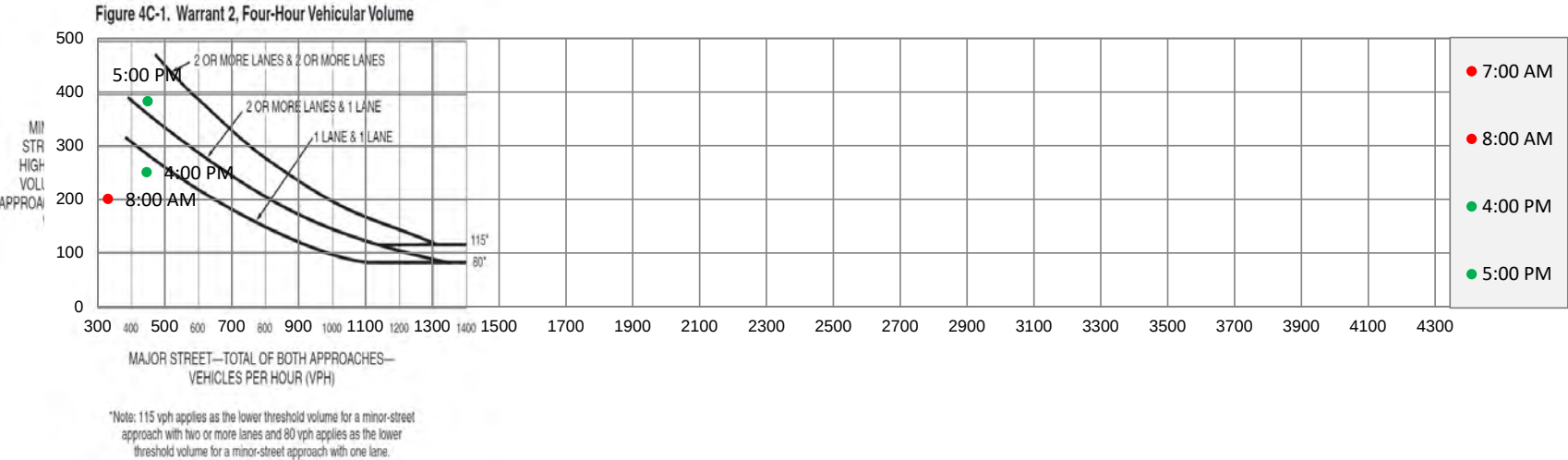
Future (2035) Build Traffic Projections (Phase C) - Calumet Avenue/Maple Leaf Boulevard
Signal Warrant Analysis - Warrant 2 (Warrant NOT Satisfied)



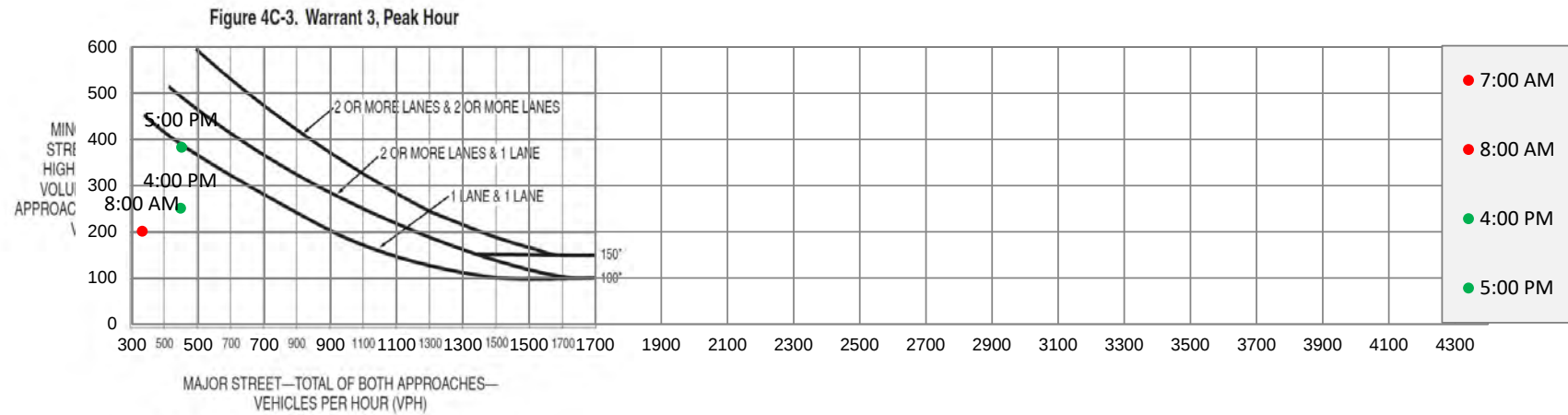
Future (2035) Build Traffic Projections (Phase C) - Calumet Avenue/Maple Leaf Boulevard
Signal Warrant Analysis - Warrant 3 (Warrant Satisfied)



Future (2025) Build Traffic Projections (Phase A) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 2 (Warrant NOT Satisfied)

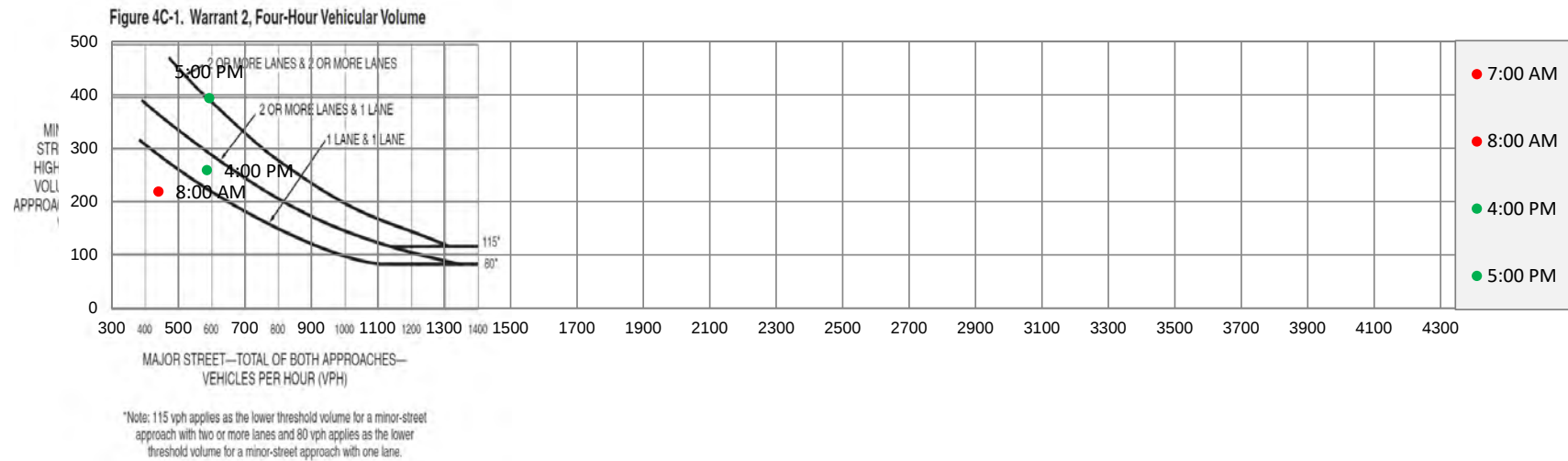


Future (2025) Build Traffic Projections (Phase A) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 3 (Warrant NOT Satisfied)

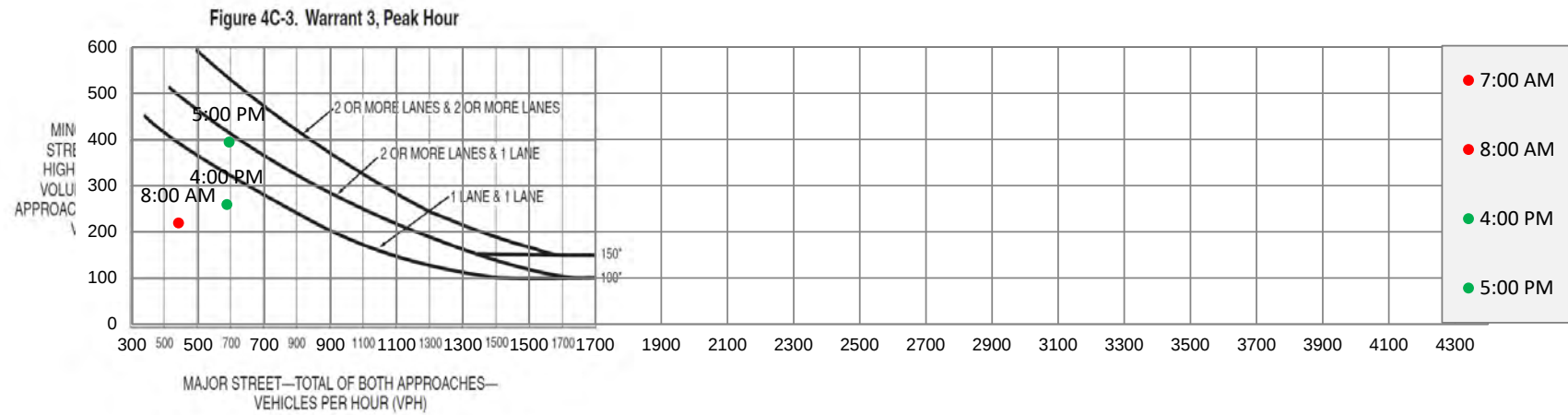


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Future (2029) Build Traffic Projections (Phase B) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 3 (Warrant NOT Satisfied)

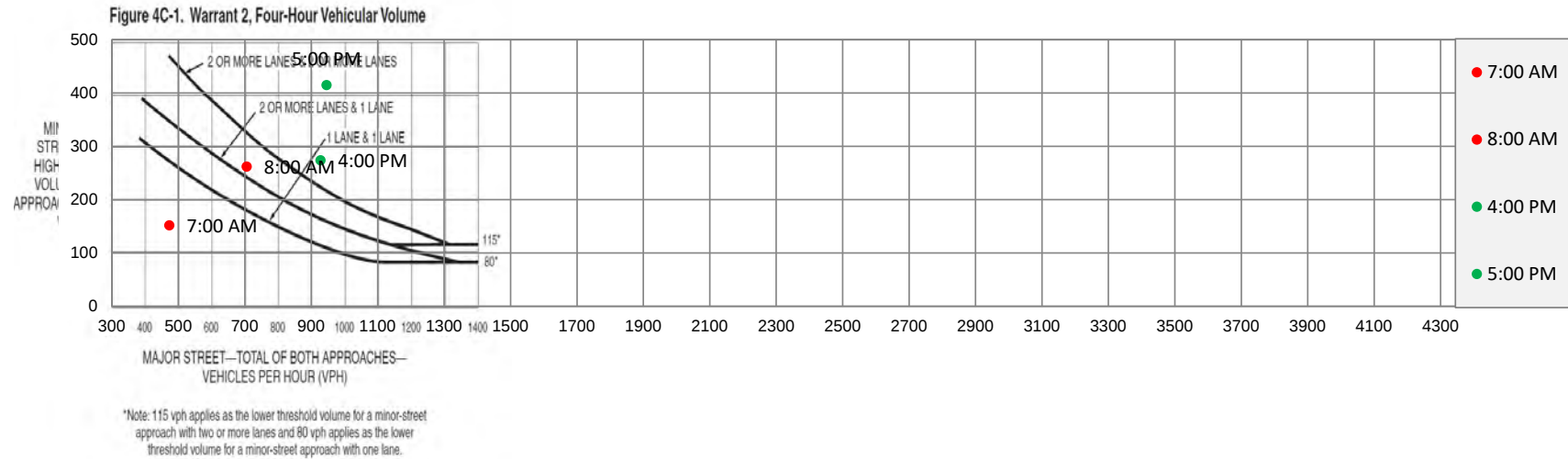


Future (2029) Build Traffic Projections (Phase B) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 3 (Warrant Satisfied)

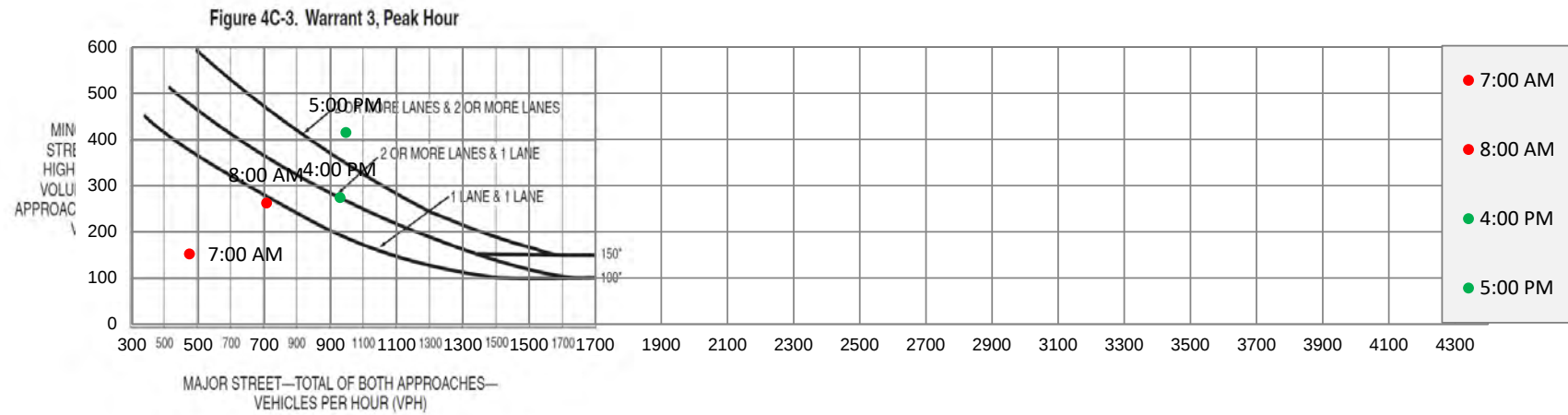


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Future (2035) Build Traffic Projections (Phase C) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 3 (Warrant NOT Satisfied)



Future (2035) Build Traffic Projections (Phase C) - Fisher Street/Manor Avenue/Commercial Driveway A/North Access
Signal Warrant Analysis - Warrant 3 (Warrant Satisfied)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

TRAFFIC COUNT DATA

02 Calumet Avenue & Fran-lin Parkway																					
AM Peak Hour																					
Leg	ACCESS					FRAN-LIN					CALUMET					CALUMET					
Direction	Eastbound					Westbound					Northbound					Southbound					
Start Time	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Int Total
2021-09-16 07:30:00	11	3	11	0	25	34	18	18	0	70	36	286	11	0	333	17	222	20	0	259	687
2021-09-16 07:45:00	20	13	11	0	44	46	13	51	0	110	29	253	27	0	309	21	259	25	0	305	768
2021-09-16 08:00:00	15	5	15	0	35	24	12	25	0	61	22	199	15	0	236	11	196	23	0	230	562
2021-09-16 08:15:00	14	12	8	0	34	32	9	19	0	60	10	203	12	0	225	10	170	15	0	195	514
Grand Total	60	33	45	0	138	136	52	113	0	301	97	941	65	0	1103	59	847	83	0	989	2531
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Lights	60	33	45	0	138	134	50	93	0	277	93	906	65	0	1064	58	807	82	0	947	2426
Single-Unit Trucks	0	0	0	0	0	0	1	2	0	3	0	18	0	0	18	0	26	0	0	26	47
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	15	0	0	15	1	12	1	0	14	30
Buses	0	0	0	0	0	2	0	18	0	20	4	1	0	0	5	0	2	0	0	2	27
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HV%	0%	0%	0%	0%	0%	1%	4%	18%	0%	8%	4%	4%	0%	0%	3%	2%	5%	1%	0%	4%	4%

PM Peak Hour																					
Leg	ACCESS					FRAN-LIN					CALUMET					CALUMET					
Direction	Eastbound					Westbound					Northbound					Southbound					
Start Time	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Int Total
2021-09-16 16:30:00	16	10	8	0	34	24	7	43	0	74	31	292	7	0	330	13	272	20	0	305	743
2021-09-16 16:45:00	10	10	5	0	25	25	5	32	0	62	31	224	4	0	259	14	235	34	0	283	629
2021-09-16 17:00:00	8	5	15	0	28	36	13	46	0	95	39	246	6	0	291	11	298	25	0	334	748
2021-09-16 17:15:00	11	8	10	0	29	40	5	34	0	79	27	275	16	0	318	7	272	29	0	308	734
Grand Total	45	33	38	0	116	125	30	155	0	310	128	1037	33	0	1198	45	1077	108	0	1230	2854
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	0	0	3	6
Lights	45	33	38	0	116	125	30	155	0	310	128	1009	33	0	1170	45	1051	108	0	1204	2800
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	0	5	0	0	5	17
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	0	18	0	0	18	31
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HV%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%	2%	0%	0%	2%	2%

03 Fisher Street & Timrick Drive & Manor Avenue & Commercial Driveway

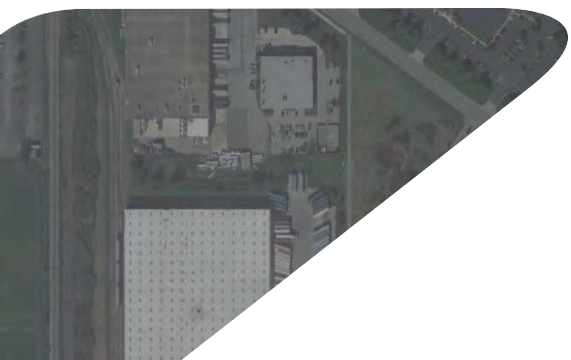
AM Peak Hour																						
Leg	TIMRICK					FISHER					ROAD					MANOR						
Direction	Eastbound					Westbound					Northbound					Southbound						
Start Time	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Int Total	
2021-09-16 07:30:00	0	12	0	0	12	2	12	0	0	14	1	0	0	0	1	0	0	12	0	12	39	
2021-09-16 07:45:00	0	23	0	0	23	3	14	1	0	18	4	0	2	0	6	0	0	10	0	10	57	
2021-09-16 08:00:00	0	27	1	0	28	0	21	1	0	22	1	0	0	0	1	0	0	6	0	6	57	
2021-09-16 08:15:00	1	23	1	0	25	8	19	7	0	34	1	0	1	0	2	1	2	10	0	13	74	
Grand Total	1	85	2	0	88	13	66	9	0	88	7	0	3	0	10	1	2	38	0	41	227	
Lights	0	85	2	0	87	9	63	9	0	81	7	0	3	0	10	0	1	38	0	39	217	
Single-Unit Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	1	0	0	0	1	5	
Bicycles on Road	1	0	0	0	1	1	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4	
HV%	0%	0%	0%	0%	0%	23%	3%	0%	0%	6%	0%	0%	0%	0%	0%	100%	0%	0%	0%	2%	3%	

PM Peak Hour																									
Leg	TIMRICK						FISHER						ROAD						MANOR						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total	Int Total	
2021-09-16 16:30:00		0	50	1	0	51		13	45	3	0	61		7	0	1	0	8		1	2	18	0	21	141
2021-09-16 16:45:00		0	55	1	0	56		15	39	0	0	54		0	1	0	0	1		1	0	13	0	14	125
2021-09-16 17:00:00		0	79	1	0	80		16	46	3	0	65		3	0	1	0	4		1	0	16	0	17	166
2021-09-16 17:15:00		1	78	2	0	81		14	31	9	0	54		3	0	0	0	3		0	25	0	25	163	
Grand Total		1	262	5	0	268		58	161	15	0	234		13	1	2	0	16		3	2	72	0	77	595
Motorcycles		0	0	0	0	0		1	0	0	0	1		0	0	0	0	0		0	1	0	0	1	2
Lights		1	257	3	0	261		57	160	13	0	230		13	0	1	0	14		3	2	70	0	75	580
Single-Unit Trucks		0	1	0	0	1		0	1	1	0	2		0	0	0	0	0		0	0	0	0	0	3
Articulated Trucks		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
Buses		0	4	2	0	6		0	0	0	0	0		0	0	0	0	0		0	0	1	0	1	7
Bicycles on Road		0	0	0	0	0		0	0	1	0	1		0	1	1	0	2		0	0	0	0	0	3
HV%		0%	2%	40%	0%	3%		0%	1%	7%	0%	1%		0%	0%	0%	0%	0%		0%	0%	1%	0%	1%	2%

04 Calumet Avenue & Fisher Street

AM Peak Hour																												
Leg	FISHER							FISHER							CALUMET							CALUMET						
Direction	Eastbound							Westbound							Northbound							Southbound						
Start Time	Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total		Int Total			
2021-09-16 07:30:00	20	37	15	0	72		30	19	27	0	76		44	238	30	0	312		6	263	29	0	298		758			
2021-09-16 07:45:00	44	25	24	0	93		44	38	49	0	131		25	214	51	0	290		10	240	44	0	294		808			
2021-09-16 08:00:00	23	13	11	0	47		24	18	13	0	55		16	193	30	0	239		11	221	24	0	256		597			
2021-09-16 08:15:00	35	15	18	0	68		14	20	3	0	37		10	173	33	0	216		14	174	33	0	221		542			
Grand Total	122	90	68	0	280		112	95	92	0	299		95	818	144	0	1057		41	898	130	0	1069		2705			
Motorcycles	0	0	0	0	0		0	0	0	0	0		0	1	0	0	1		0	0	0	0	0		1			
Lights	119	89	66	0	274		111	95	89	0	295		92	790	140	0	1022		36	862	125	0	1023		2614			
Single-Unit Trucks	2	1	1	0	4		1	0	2	0	3		2	15	2	0	19		3	19	3	0	25		51			
Articulated Trucks	1	0	0	0	1		0	0	1	0	1		1	12	1	0	14		1	16	1	0	18		34			
Buses	0	0	1	0	1		0	0	0	0	0		0	0	1	0	1		1	1	1	0	3		5			
Bicycles on Road	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0			
HV%	2%	1%	3%	0%	2%		1%	0%	3%	0%	1%		3%	3%	3%	0%	3%		12%	4%	4%	0%	4%		3%			

PM Peak Hour																								
Leg	FISHER						FISHER						CALUMET						CALUMET					
Direction	Eastbound						Westbound						Northbound						Southbound					
Start Time	Right	Thru	Left	U-Turn	App Total		Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Right	Thru	Left	U-Turn	App Total	Int Total		
2021-09-16 16:30:00	43	44	27	0	114		27	26	27	0	80	16	262	48	0	326	11	208	33	0	252	772		
2021-09-16 16:45:00	49	44	24	0	117		31	36	14	0	81	16	213	40	0	269	12	213	31	0	256	723		
2021-09-16 17:00:00	48	37	21	0	106		19	18	16	0	53	22	256	50	0	328	12	246	38	0	296	783		
2021-09-16 17:15:00	46	47	23	0	116		24	24	13	0	61	27	257	46	0	330	9	249	50	0	308	815		
Grand Total	186	172	95	0	453		101	104	70	0	275	81	988	184	0	1253	44	916	152	0	1112	3093		
Motorcycles	1	2	0	0	3		0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	6		
Lights	185	169	93	0	447		99	100	68	0	267	79	963	183	0	1225	44	892	151	0	1087	3026		
Single-Unit Trucks	0	0	2	0	2		2	3	2	0	7	2	10	1	0	13	0	5	1	0	6	28		
Articulated Trucks	0	0	0	0	0		0	0	0	0	0	0	13	0	0	13	0	18	0	0	18	31		
Buses	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bicycles on Road	0	1	0	0	1		0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2		
HV%	0%	0%	2%	0%	0%		2%	3%	3%	0%	3%	2%	2%	1%	0%	2%	0%	3%	1%	0%	2%	2%		



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