

TRAFFIC IMPACT STUDY

Green Valley Ranch East
Filing 7

(April 28, 2021)

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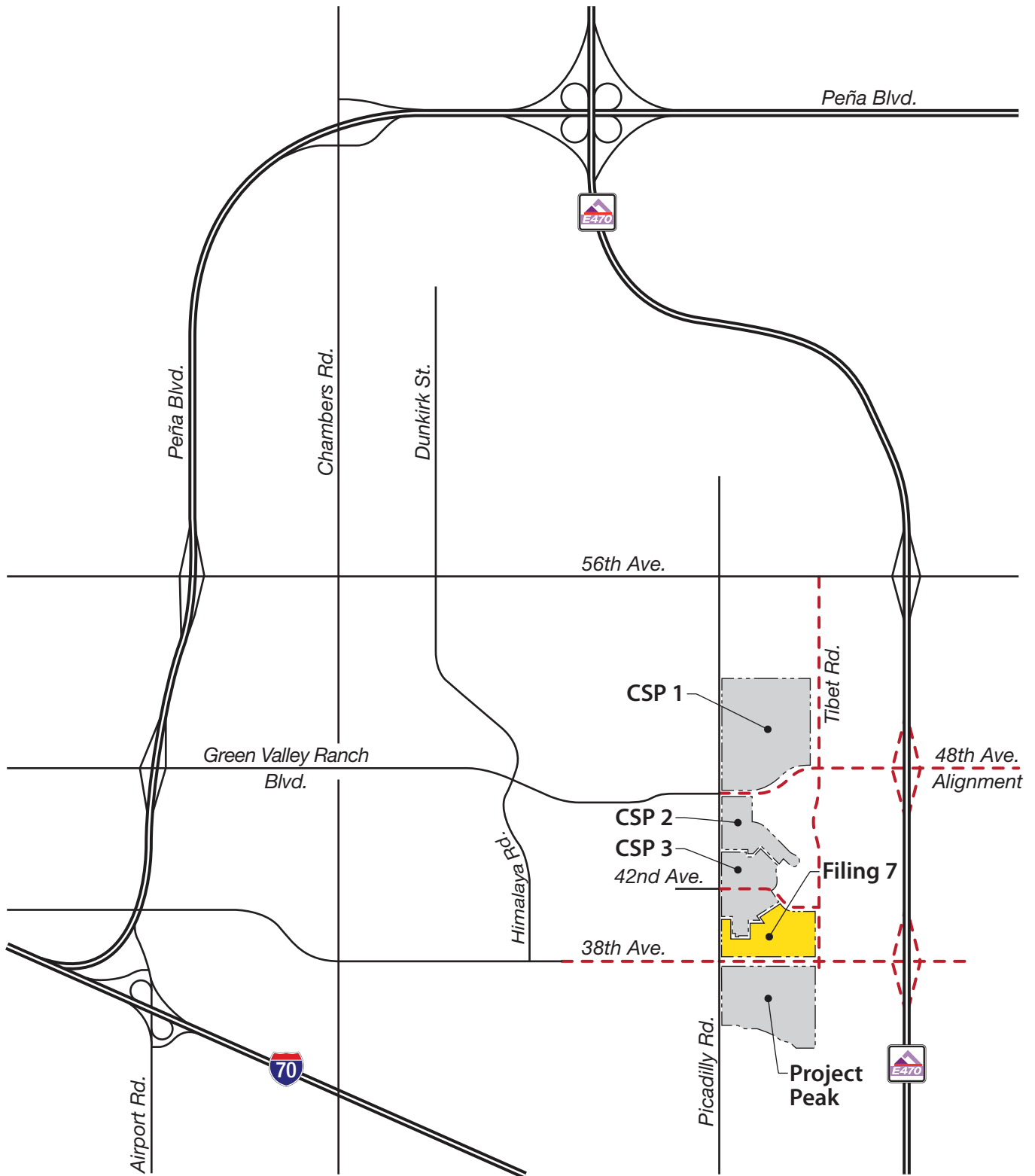
I. INTRODUCTION

Green Valley Ranch East Filing 7 consists of 327 single family detached residential dwelling units, to be developed within the Green Valley Ranch East master plan. As shown on **Figure 1**, the site is located in the northeast quadrant of the Picadilly Road/38th Avenue (future alignment) in Aurora, Colorado. Filing 7 would have vehicular access via connection to Picadilly Road at 42nd Avenue (full-movement) and 40th Place (³/₄-movement); to 38th Avenue via Riviera Court (right-in/right-out) and Tibet Street, via 42nd Avenue and 39th Avenue (both full-movement). **Figure 2** depicts the current site plan concept.

Four previous traffic analyses have been conducted for Green Valley Ranch East, as documented in the following reports:

- *Transportation Analysis, Green Valley Ranch East*, Felsburg Holt & Ullevig, July 2018.
- *Green Valley Ranch East CSP 1, Active Adult Residential, Traffic Impact Study*, Felsburg Holt & Ullevig, August 2018.
- *Traffic Impact Study, Green Valley Ranch East CSP 2*, Felsburg Holt & Ullevig, September 2018.
- *Traffic Impact Study, Green Valley Ranch East CSP 3*, January 2019.

By incorporating the above documents, as well as more recent analyses conducted within the surrounding area, this traffic study identifies the potential impacts specific to the Filing 7 development at Green Valley Ranch East and identifies the resultant roadway and traffic control improvements required. Both Short-Range (year 2025) and Long-Range (year 2040) planning horizons were evaluated for the site.

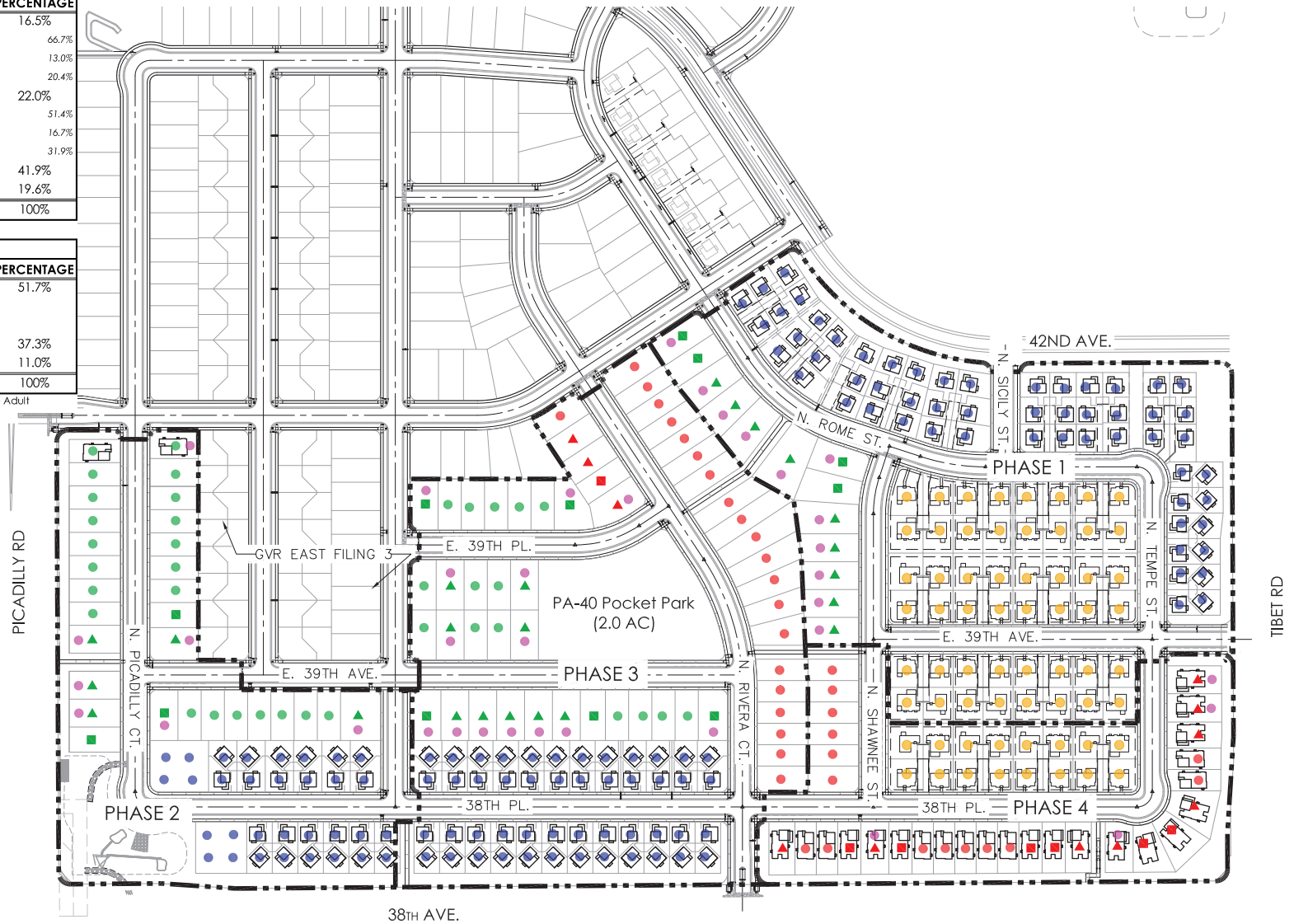


DEVELOPMENT SUMMARY			
LOT TYPE		UNITS	PERCENTAGE
MERIDIAN		54	16.5%
STANDARD GARAGE (46' MIN WIDTH)		36	66.7%
EXPANDED GARAGE (50' MIN WIDTH)		7	13.0%
THREE-CAR GARAGE (56' MIN WIDTH)		11	20.4%
HORIZON		72	22.0%
STANDARD GARAGE (50' MIN WIDTH)		37	51.4%
EXPANDED GARAGE (54' MIN WIDTH)		12	16.7%
THREE-CAR GARAGE (60' MIN WIDTH)		23	31.9%
CARRIAGE HOUSE		137	41.9%
PORCHLIGHT		64	19.6%
TOTAL		327	100%

LOT TYPE PERCENTAGES			
LOT TYPE		UNITS	PERCENTAGE
SMALL (45-50' WIDTH or <4,500 SF)		169	51.7%
STANDARD GARAGE (46' MIN WIDTH)		32	
CARRIAGE HOUSE		137	
STANDARD (50' MIN WIDTH, >4,500 SF)		122	37.3%
STANDARD (60' MIN WIDTH, >6,000 SF)		36	11.0%
TOTAL		327	100%

* 6 Small lots are re-allocated from GVR East Active Adult

PHASING SUMMARY			
LOT TYPE		UNITS	PERCENTAGE
PHASE 1			
MERIDIAN		0	0.0%
HORIZON		13	11.0%
CARRIAGE HOUSE		57	48.3%
PORCHLIGHT		48	40.7%
SUBTOTAL		118	100%
PHASE 2			
MERIDIAN		0	0.0%
HORIZON		30	48.4%
CARRIAGE HOUSE		32	51.6%
PORCHLIGHT		0	0.0%
SUBTOTAL		62	100%
PHASE 3			
MERIDIAN		25	24.5%
HORIZON		29	28.4%
CARRIAGE HOUSE		48	47.1%
PORCHLIGHT		0	0.0%
SUBTOTAL		102	100%
PHASE 4			
MERIDIAN		29	64.4%
HORIZON		0	0.0%
CARRIAGE HOUSE		0	0.0%
PORCHLIGHT		16	35.6%
SUBTOTAL		45	100%



II. EXISTING CONDITIONS

II.A. Roadways

The primary existing study area includes:

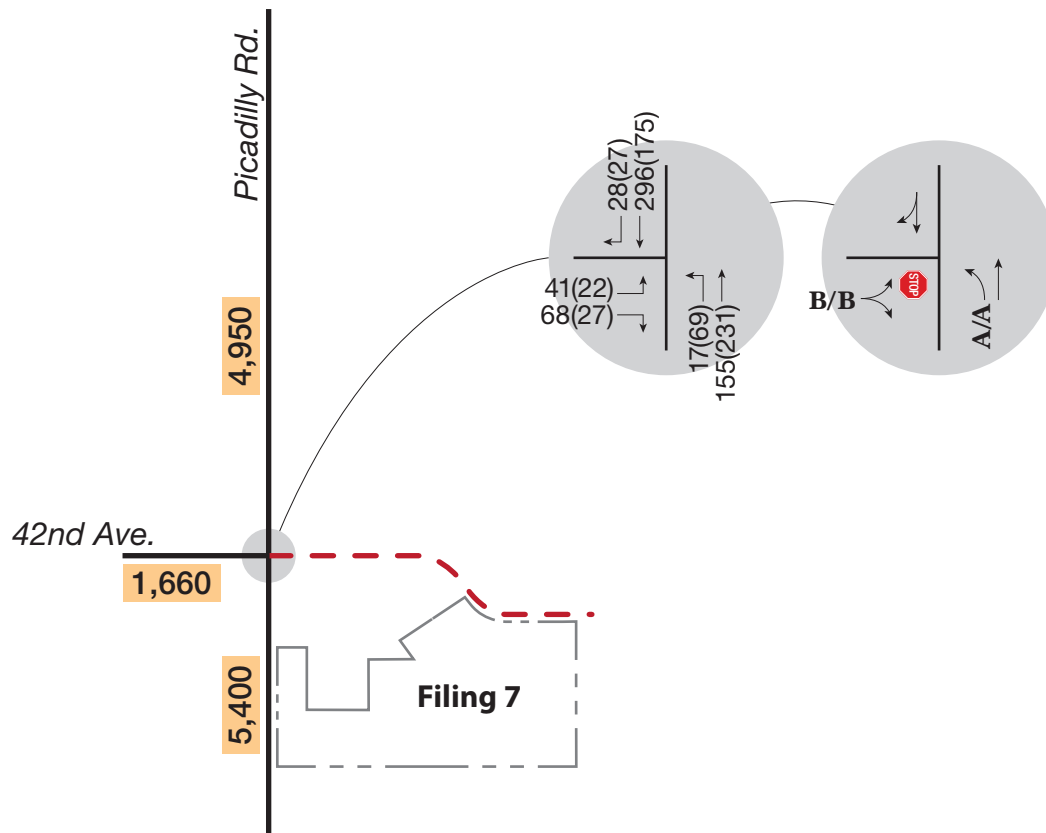
- **Picadilly Road.** This north-south roadway extends along the west side of the Filing 7 single family residential site. The roadway consists of a basic two-lane cross section with a striped center median area to provide left-turn lanes at intersections. The posted speed limit is 40 miles per hour (MPH). The City of Aurora's NEATS identifies Picadilly Road as a future six-lane arterial.
- **42nd Avenue.** This east-west collector roadway extends west from Picadilly Road into the City and County of Denver, posted with a 25 MPH speed limit. East of Picadilly Road, the roadway is planned to be extended to intersect the future Tibet Road. The intersection of 42nd Avenue and Picadilly Road is currently unsignalized, with STOP sign control on the eastbound approach.

II.B. Traffic Volumes and Operations


Weekday 72-hour automated roadway traffic counts were recently conducted on Picadilly Road and 42nd Avenue, from which average daily traffic volumes were calculated. Turning movement counts, previously conducted for the CSP 3 analysis, were used to develop AM and PM peak hour turning movements for the intersection. **Appendix A** contains the count data.

Figure 3 depicts the existing traffic volumes. As shown, Picadilly Road currently serves approximately 5,400 vehicles per day (VPD) adjacent to the site.

Level of Service (LOS) is a qualitative measure of traffic operational conditions, based on roadway capacity and motorist delay. The *6th Edition Highway Capacity Manual* defines six levels of service, ranging from A to F, with LOS A representing the best possible operating conditions and LOS F representing over-capacity, or congested conditions. In developed areas, LOS D is typically considered to be acceptable for peak hour traffic operations. **Figure 3** includes the existing intersection geometrics, traffic control, and intersection LOS results; and **Appendix B** contains Synchro LOS worksheets. As indicated, existing traffic operations at the intersection of Picadilly Road and 42nd Avenue are acceptable, at LOS B or better during peak times.



LEGEND

- XXX** = Daily Traffic Volumes
- XXX(XXX) = AM(PM) Peak Hour Traffic Volumes
- X/X** = AM/PM Peak Hour Intersection Level of Service
-  = Stop Sign
- - -** = Future Roadway

III. PROPOSED FUTURE CONDITIONS

III.A. Trip Generation

As previously noted, the planned residential uses within Filing 7 would consist of 327 single family residential units. The proposed development is in general conformance with the planning data previously used for the *Transportation Analysis, Green Valley Ranch East* master report. The trip generation analysis, summarized in **Table I**, was conducted using the fitted curve equations contained in *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), 2017.

Table I. Green Valley Ranch East Filing 7 Trip Generation Analysis

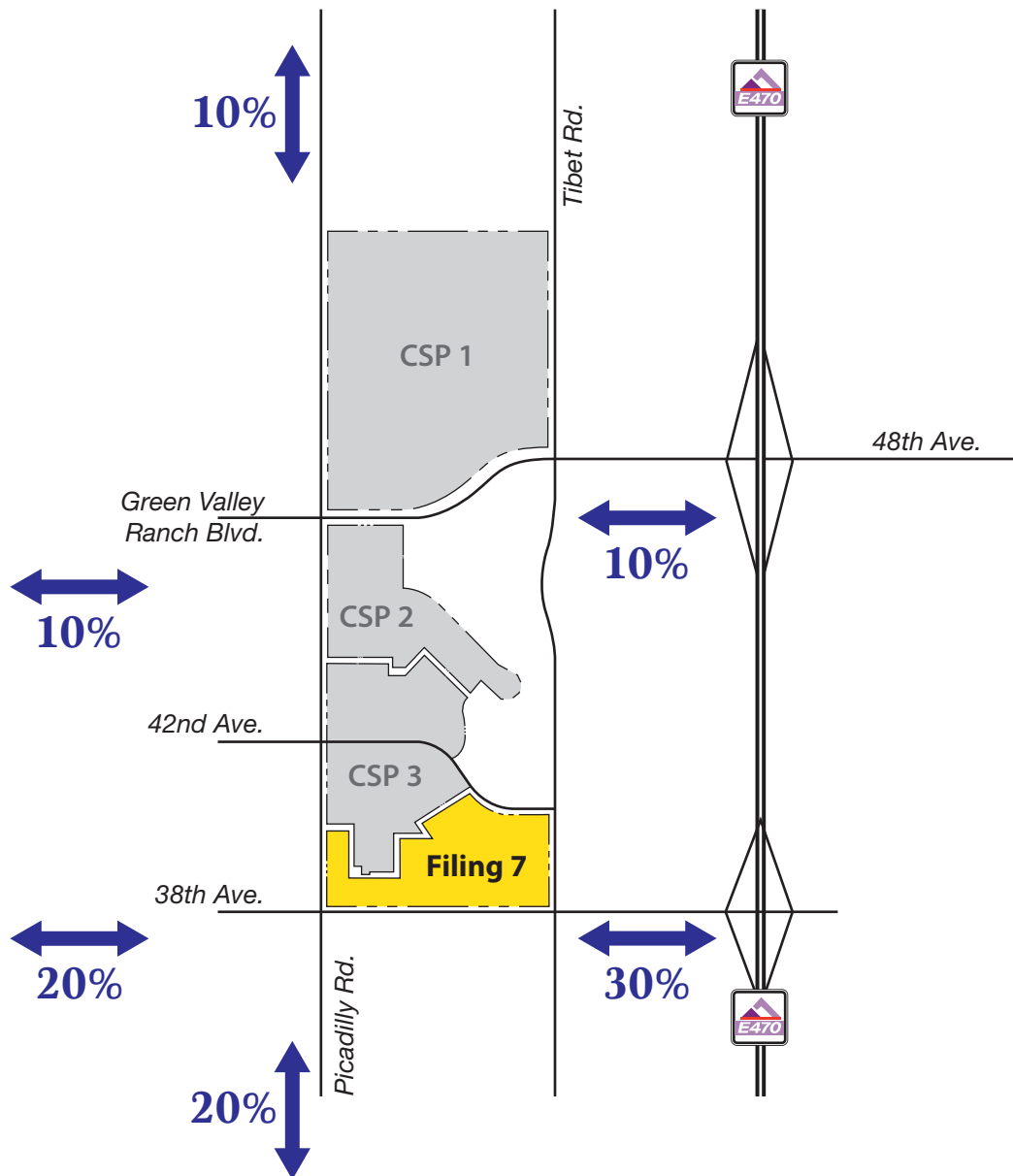
Land Use	Quantity	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Residential (I)	327 DU	3100	60	175	235	200	115	315
I. ITE Land Use Code 210 Single Family Detached Housing. Fitted curve equations applied.								

As shown in the table, Filing 7 would have a trip generation potential of about 3,100 trips per day, with 235 AM peak hour trips and 315 PM peak hour trips.

III.B. Site Trip Distribution and Site-Generated Traffic Assignment

For both future scenarios, it is projected that the adjacent study area roadway system would be built, including the planned E-470 interchanges at 38th Avenue and at Green Valley Ranch Boulevard (48th Avenue). Tibet Road is expected to be constructed between 38th Avenue and 48th Avenue. The trip distribution, as depicted on **Figure 4**, is based on the location of the site relative to regional connections as well as travel pattern results from the City's recently updated NEATS model.

Figure 5 shows the resultant site-generated traffic associated with the proposed Filing 7 development. As shown, Picadilly Road would carry 360 to 670 VPD in site-related volumes. 38th Avenue would carry 480 to 910 VPD, and Tibet Road would carry about 450 VPD north of the site to about 1,110 VPD immediately north of 38th Avenue.



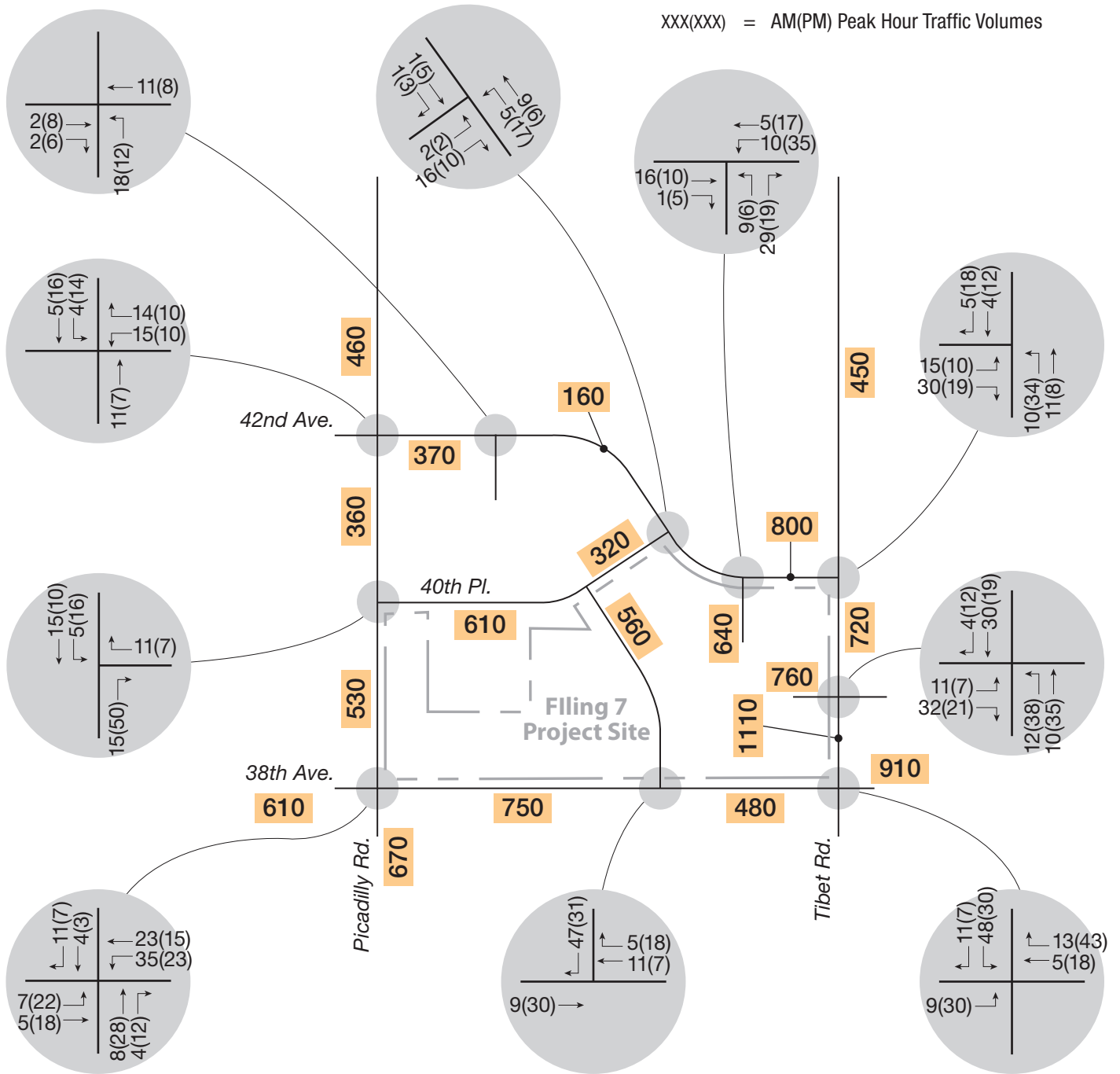
LEGEND

 = Site Trip Distribution

LEGEND

XXX = Daily Traffic Volumes

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



IV. FUTURE CONDITIONS

IV.A. Background Traffic Volumes

Short Range (2025)

For the Short-Range Future scenario (year 2025), background volumes were based on the following:

- Other Green Valley Ranch East development per the Final Development Plan (FDP), and the CSP 1, CSP 2, and CSP 3 Traffic Impact Studies.
- Development of Project Peak, per the Traffic Impact Study for this site dated April 2019, by Kimley-Horn and Associates, Inc.
- Background growth of existing traffic using a 2 percent annual growth rate.
- Traffic shifts associated with the extension of 38th Avenue from its current terminus at Himalaya Road east to E-470.

Figure 6 illustrates the resultant Short-Range future background projections. As shown, background volumes on Picadilly Road would be approximately 6,730 to 9,140 VPD within the study area. 38th Avenue would experience approximately 5,390 to 7,700 VPD. Daily volumes on Tibet Road would be about 1,030 to 2,010 VPD north of 38th Avenue and about 4,110 VPD to the south (due to Project Peak generated volumes).

Long Range (2040)

The Long-Range future background traffic volumes are based on the 2018 NEATS refresh project. The development of 2040 background projections includes anticipated development in the surrounding area, as follows:

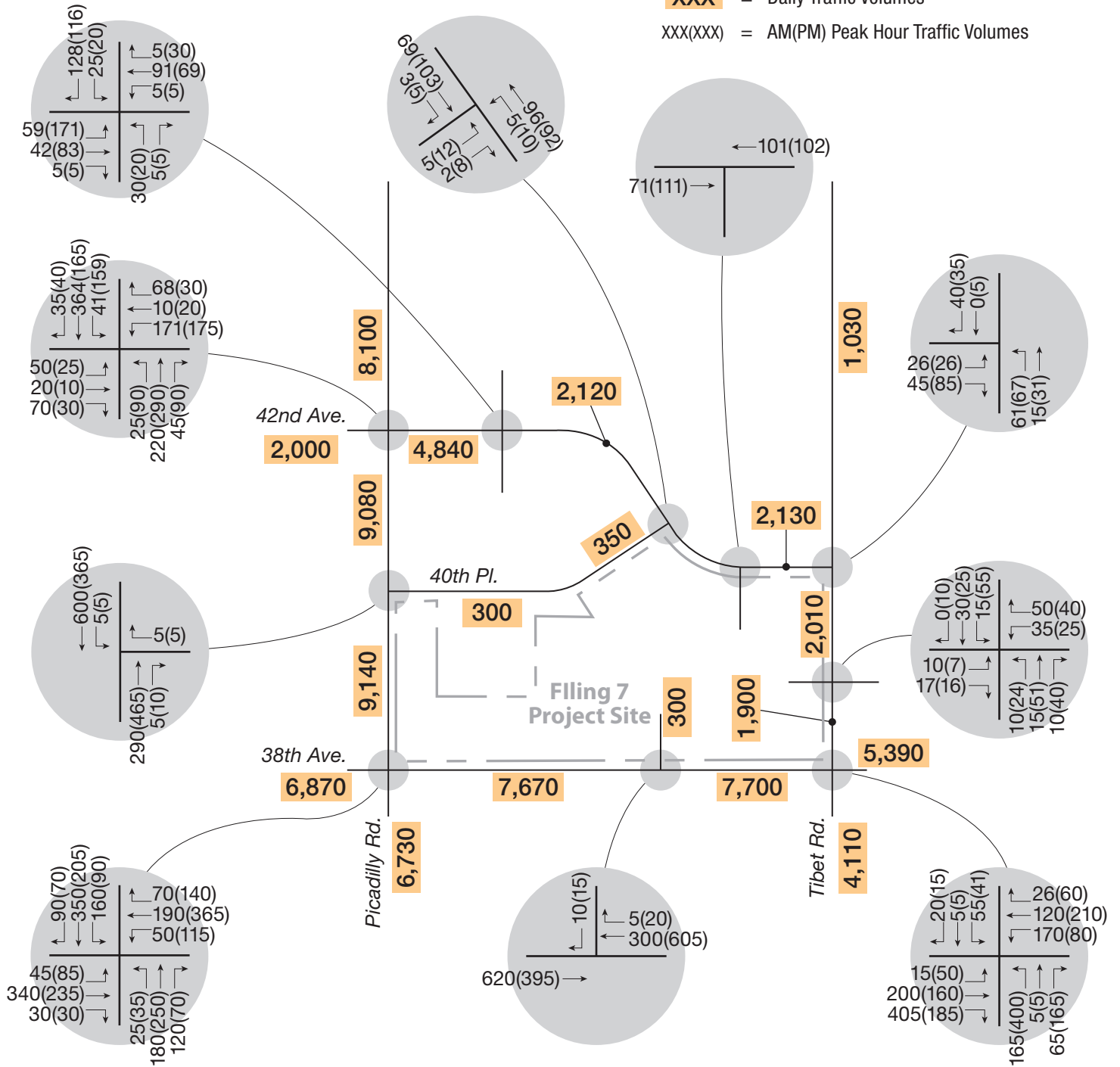
- The Aurora Highlands 3,500 acres east of E-470 and The Aurora Highlands 310 located at Picadilly Road and 56th Avenue.
- Porteos – Estimated to generate approximately 120,000 trips per day when built out, based on the DRCOG model (this master plan's traffic impact study shows more given a maximum buildout scenario).
- Windler and Cardon properties that straddle E-470.
- Majestic (southwest of E-470 and 38th Avenue). Project Peak is a portion of this overall development.

Figure 77 illustrates the resultant Long-Range future background projections. As shown, background volumes on Picadilly Road would be between approximately 33,430 and 34,670 VPD within the study area. 38th Avenue would experience approximately 25,940 to 31,490 VPD. Daily volumes on Tibet Road adjacent to Filing 7 would be about 5,830 to 6,490 VPD.

LEGEND

XXX = Daily Traffic Volumes

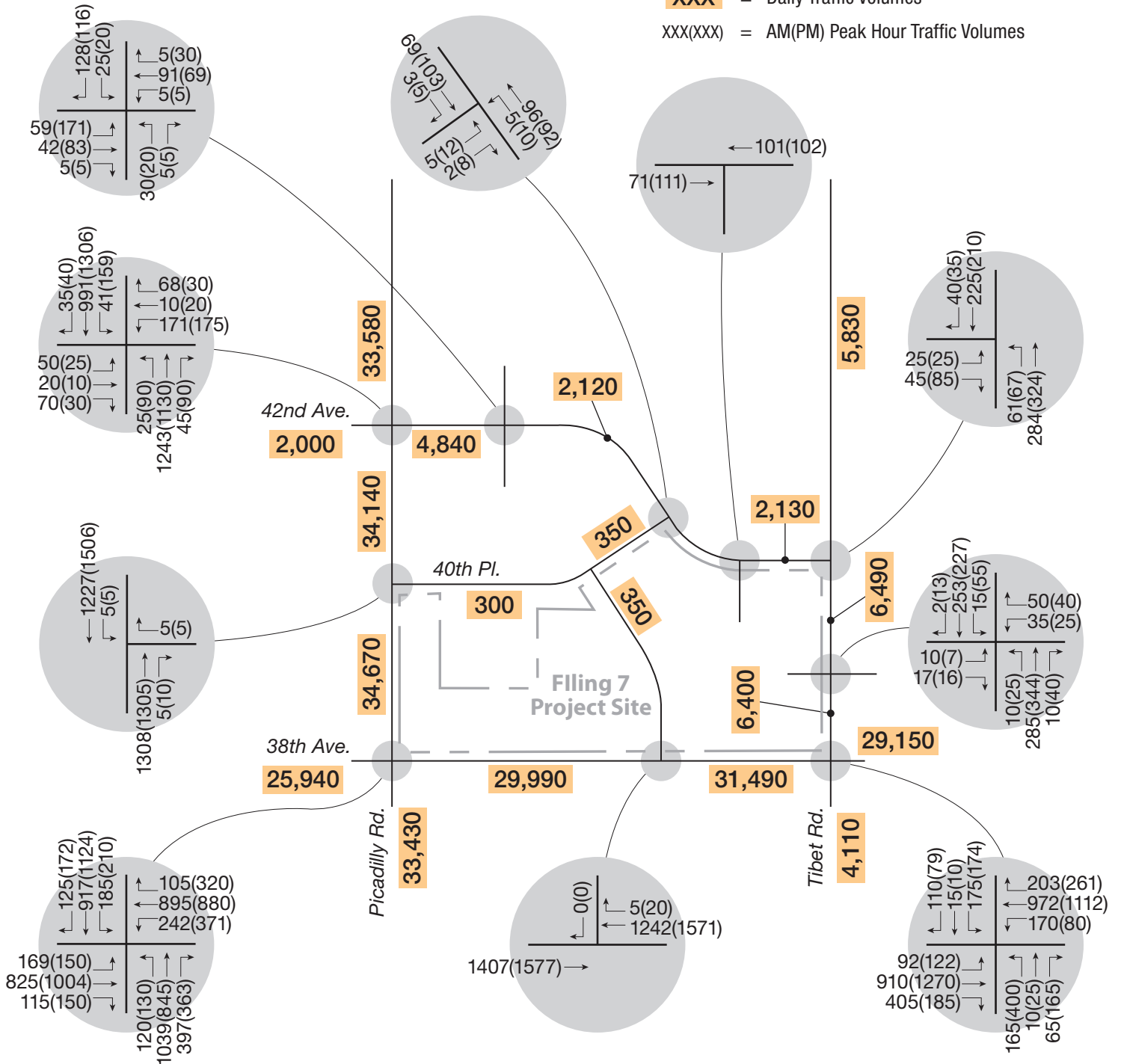
XXX(XXX) = AM(PM) Peak Hour Traffic Volumes



LEGEND

XXX = Daily Traffic Volumes

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



IV.B. Background Traffic Operations

Short Range (2025)

The Short-Range future peak hour background volumes were used as the basis for intersection LOS analyses, the results of which are graphically depicted on **Figure 8**. As shown, year 2025 background traffic operations are projected to remain generally acceptable at study area intersections (**Appendix C** contains LOS worksheets). The analyses assume the following improvements:

- Picadilly Road, identified as a six-lane arterial in the current NEATS effort, would be constructed to an interim four-lane section.
- The Picadilly Road/38th Avenue intersection is expected to require signalization by 2025. Dual left-turn lanes would be needed on the westbound approach at this intersection.
- The intersection at 38th Avenue/Tibet Street would also require signalization per the Project Peak Traffic Impact Study. Dual left-turn lanes would be needed on the northbound approach at this intersection.

Outbound left-turns from 42nd Avenue at Picadilly Road would experience congestion and delays (LOS F) due to the heavy through-movements expected on Picadilly Road. This intersection is identified for signalization when signal warrants are met.

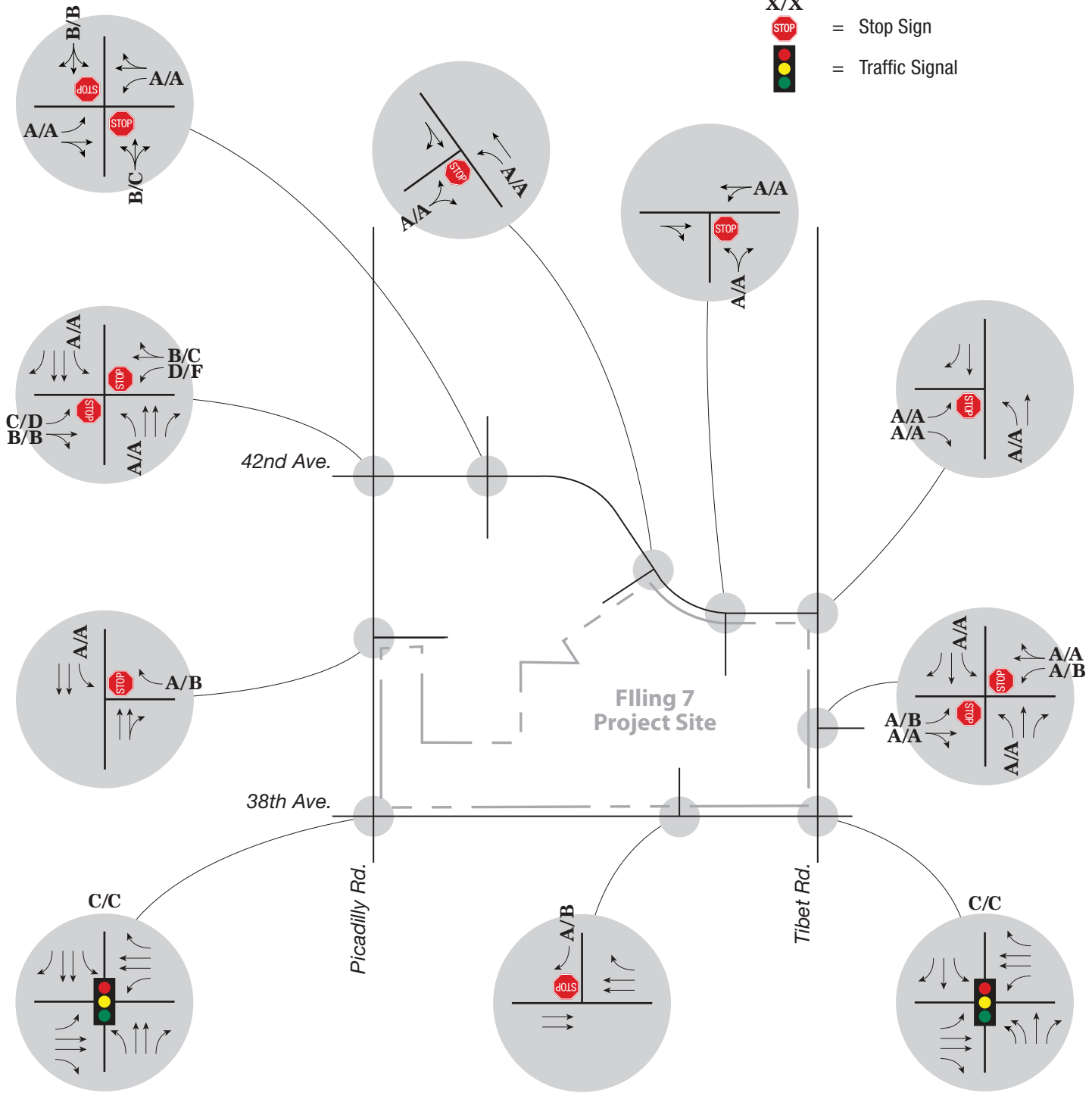
Long Range (2040)

The Long-Range future peak hour background volumes were used as the basis for intersection LOS analyses, the results of which are graphically depicted on **Figure 119**. As shown, year 2040 background traffic operations are projected to remain generally acceptable at study area intersections (**Appendix C** contains LOS worksheets). The analyses assume the following:

- The projected volumes on Picadilly Road adjacent to the site would approach six-lane arterial levels.
- The Picadilly Road/42nd Avenue would operate acceptably (LOS A or B) under signalized traffic control. This intersection is identified as a future traffic signal location.
- The projected traffic volumes along Tibet Road would remain within the general capacity of a two-lane collector roadway.

LEGEND

- XXX(XXX) = AM/PM Peak Hour Intersection Level of Service
- X/X = Stop Sign
- STOP = Stop Sign
- Traffic Signal = Traffic Signal



LEGEND

XXX(XXX) = AM/PM Peak Hour Intersection Level of Service

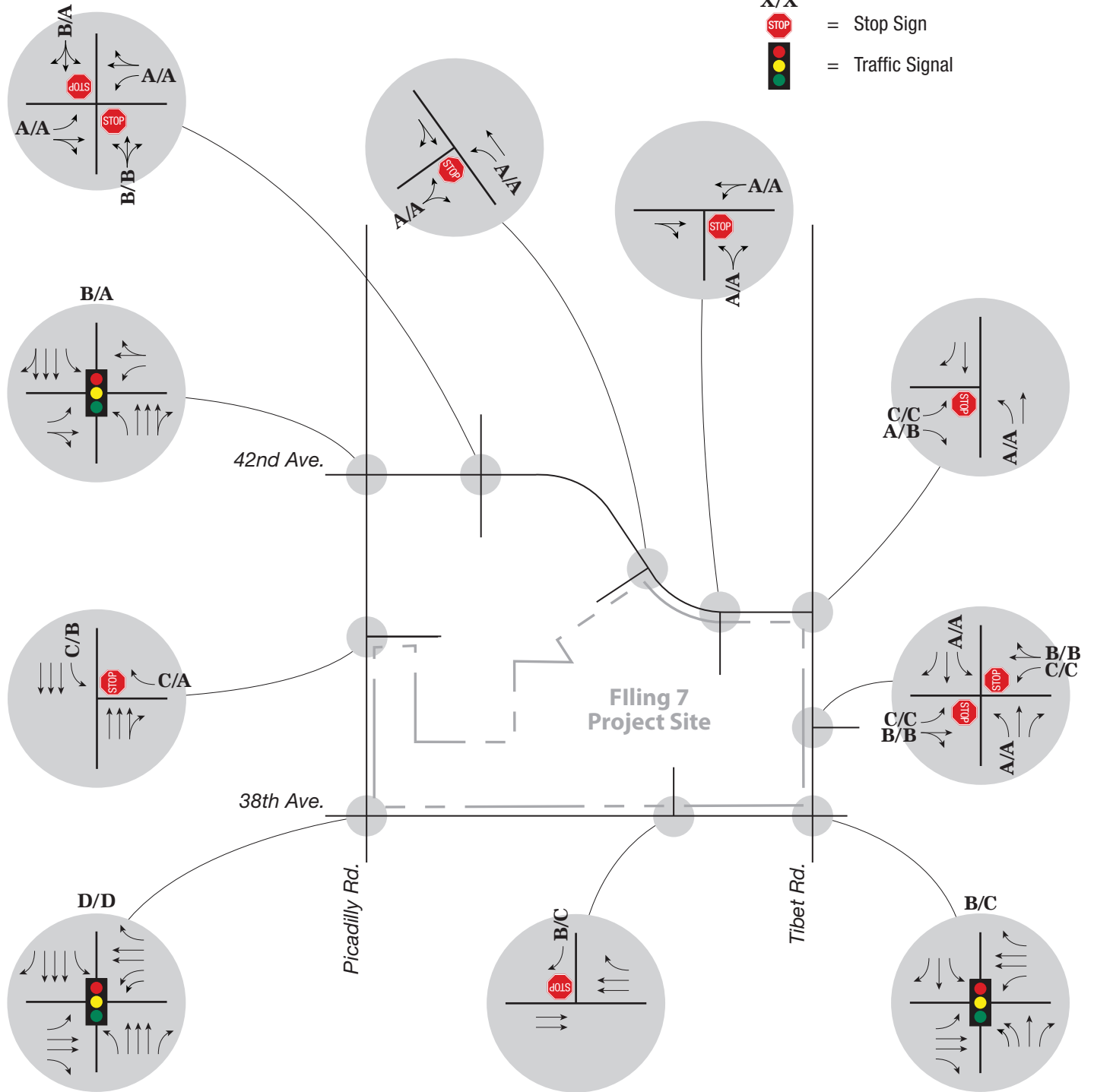
X/X



= Stop Sign



= Traffic Signal



IV.C. Total Future Traffic

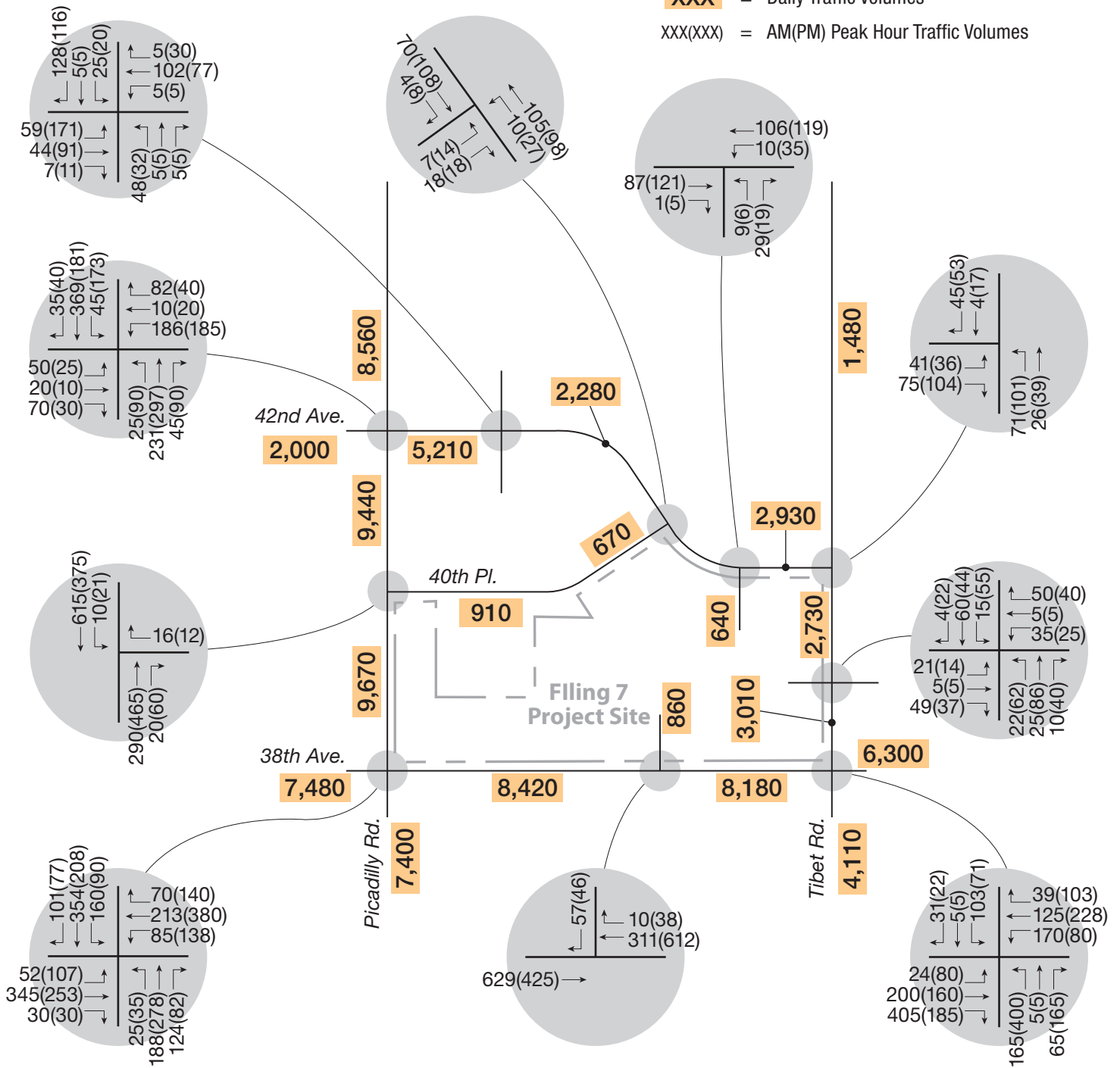
The site-generated traffic volumes (**Figure 5**) were added to the 2025 background traffic volumes (**Figure 6**) to produce the Short-Range future total traffic volumes illustrated on **Figure 10**. As shown, Picadilly Road daily volumes would range between about 7,400 and 9,670 VPD within the study area. 38th Avenue is estimated to serve approximately 6,300 to 8,420 VPD in the vicinity of the site. Tibet Road would carry 1,480 to 3,010 VPD adjacent to the site.

The site-generated traffic volumes (**Figure 5**) were added to the year 2040 background traffic volumes (**Figure 7**) to produce the Long-Range future total traffic volumes illustrated on **Figure 11**. By 2040, Picadilly Road is projected to serve up to 35,200 VPD within the study area. 38th Avenue is estimated to serve approximately 30,060 VPD east of the site and 26,550 VPD west of Picadilly Road. Tibet Road would carry up to 7,510 VPD within the study area. The Filing 7 development would represent less than 2 percent of the Picadilly Road traffic and about 3 percent of the 38th Avenue traffic projections.

LEGEND

XXX = Daily Traffic Volumes

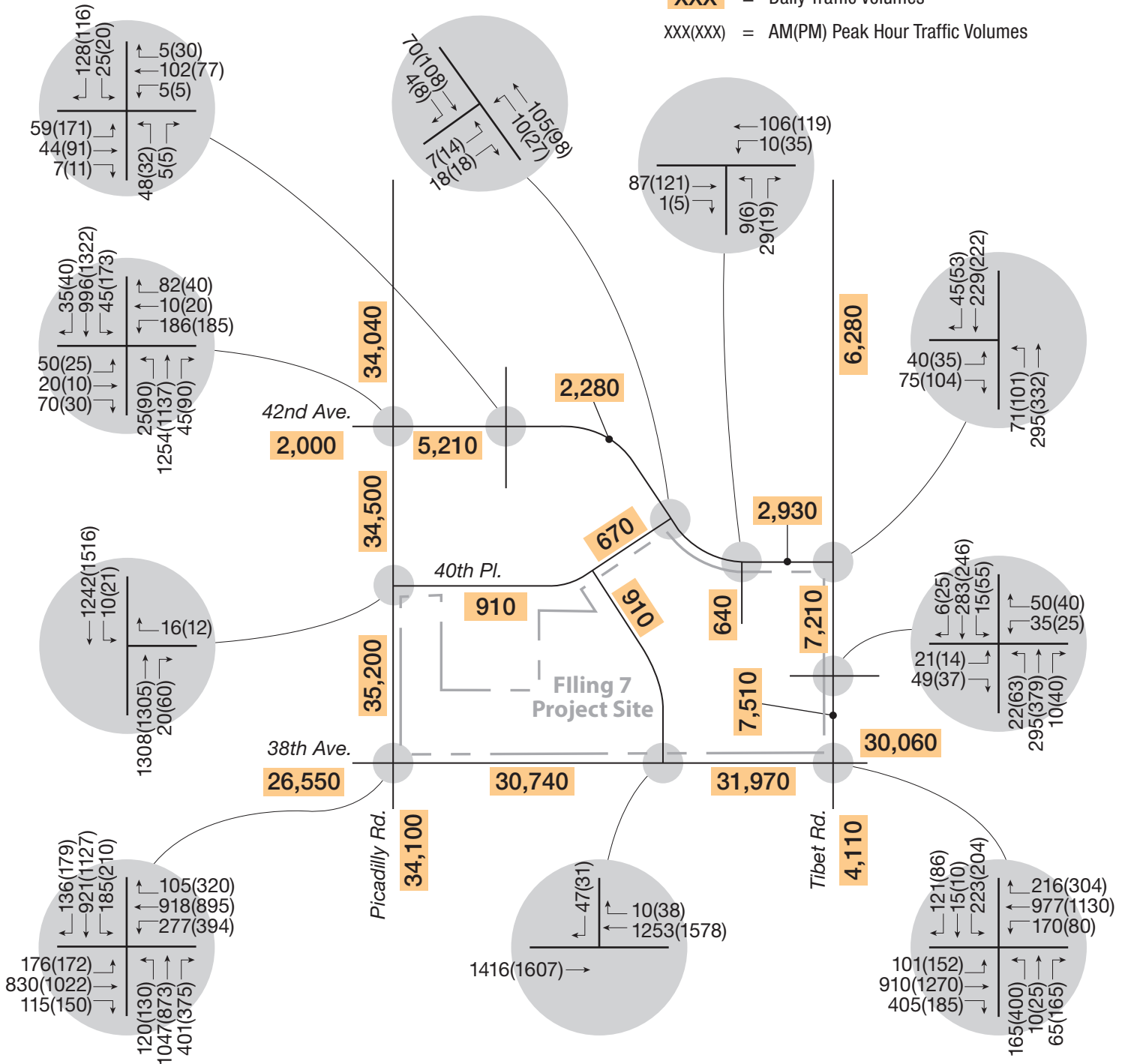
XXX(XXX) = AM(PM) Peak Hour Traffic Volumes



LEGEND

XXX = Daily Traffic Volumes

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



V. EVALUATION

V.A. Level of Service

The Short-Range peak hour traffic volumes, intersection geometrics, and traffic were used as the basis for LOS analyses (**Figure 12**). **Appendix E** contains LOS worksheets. As shown, traffic operations are projected to remain generally acceptable at the study area intersections in the projected year 2025. The exception occurs at 42nd Avenue, where outbound left-turns would experience congestion and delays during peak times. This intersection is identified for signalization when warranted.

The Long-Range peak hour intersection operations are shown on **Figure 13** (**Appendix F** contains LOS worksheets). As shown, study area traffic operations would continue to be acceptable at the study area signalized intersections. The intersection at Picadilly Road/42nd Avenue would warrant signalization by 2040, as described in subsequent sections of this report. A traffic signal at this intersection would operate at LOS B during peak times.

At Tibet Road/42nd Avenue, traffic operations would remain acceptable under STOP sign control on the eastbound approach. This intersection, however, is adjacent to a future school site, and could require a protected pedestrian crossing in the future. Therefore, future traffic and pedestrian conditions should be periodically monitored, and appropriate traffic control measures implemented, when warranted. Particular consideration of Warrant 5, School Crossing, would be anticipated. If signalized, the intersection would operate at LOS A during peak times.

Of note, a mid-block pedestrian crossing of Tibet Road is planned (by others) to the north of the 42nd Avenue intersection and could serve school children in the interim prior to signalization at 42nd Avenue. Other pedestrians would use this crossing to access the planned trail system. The City has requested rectangular rapid flashing beacons (RRFBs) at this crossing.

Traffic control at the internal intersections within Filing 7 would be unsignalized, with STOP sign control on the minor approaches. **Figure 14** depicts the proposed internal traffic control. Given the limited continuity of the internal local streets, additional traffic calming measures are not envisioned. In the future, the aforementioned school could warrant enhanced pedestrian crossing treatment, such as RRFBs at school crossings. This issue should be evaluated when the District comes in with a plan for the school site.

LEGEND

XXX(XXX) = AM/PM Peak Hour Intersection Level of Service

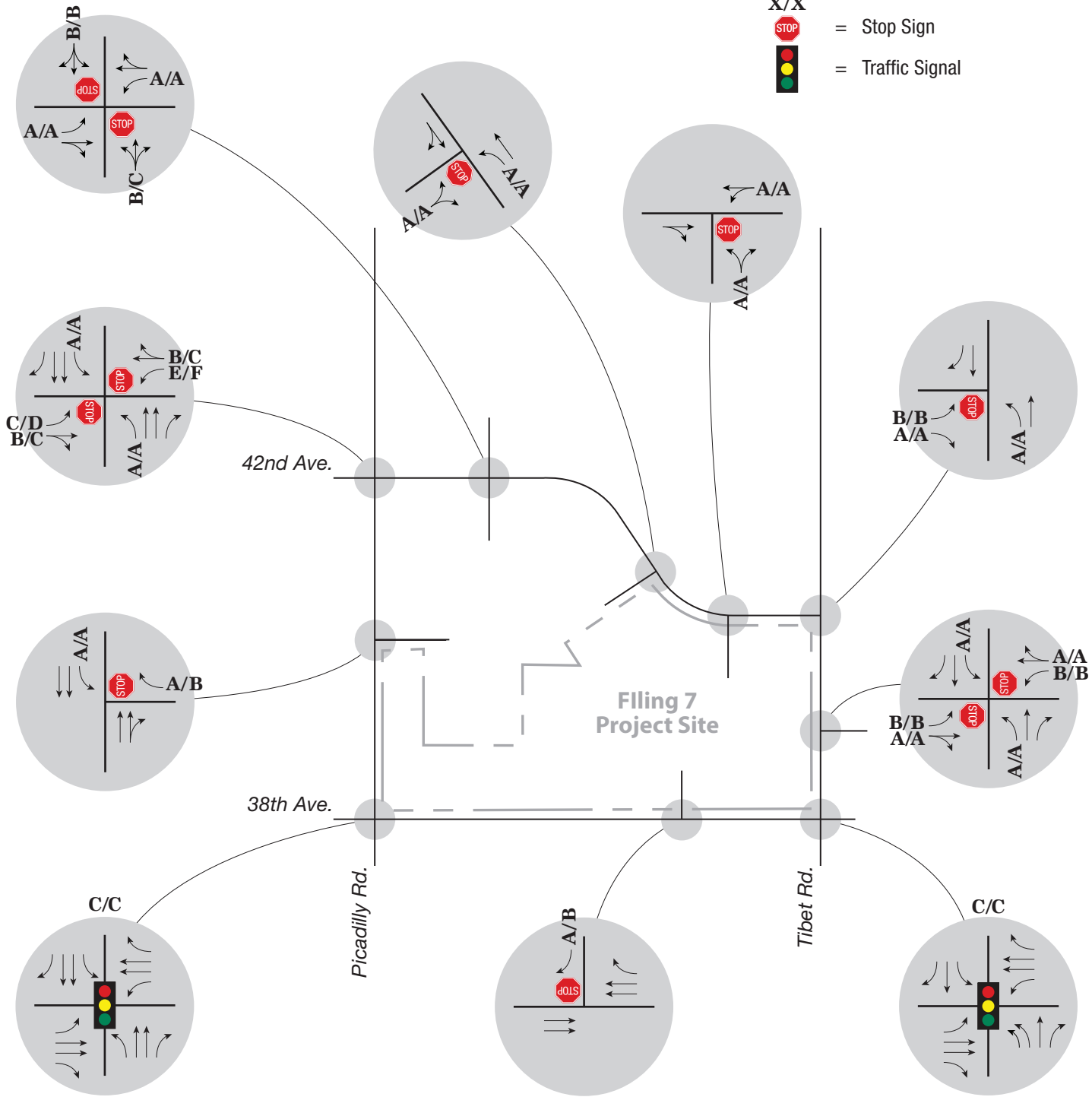
X/X



= Stop Sign




= Traffic Signal




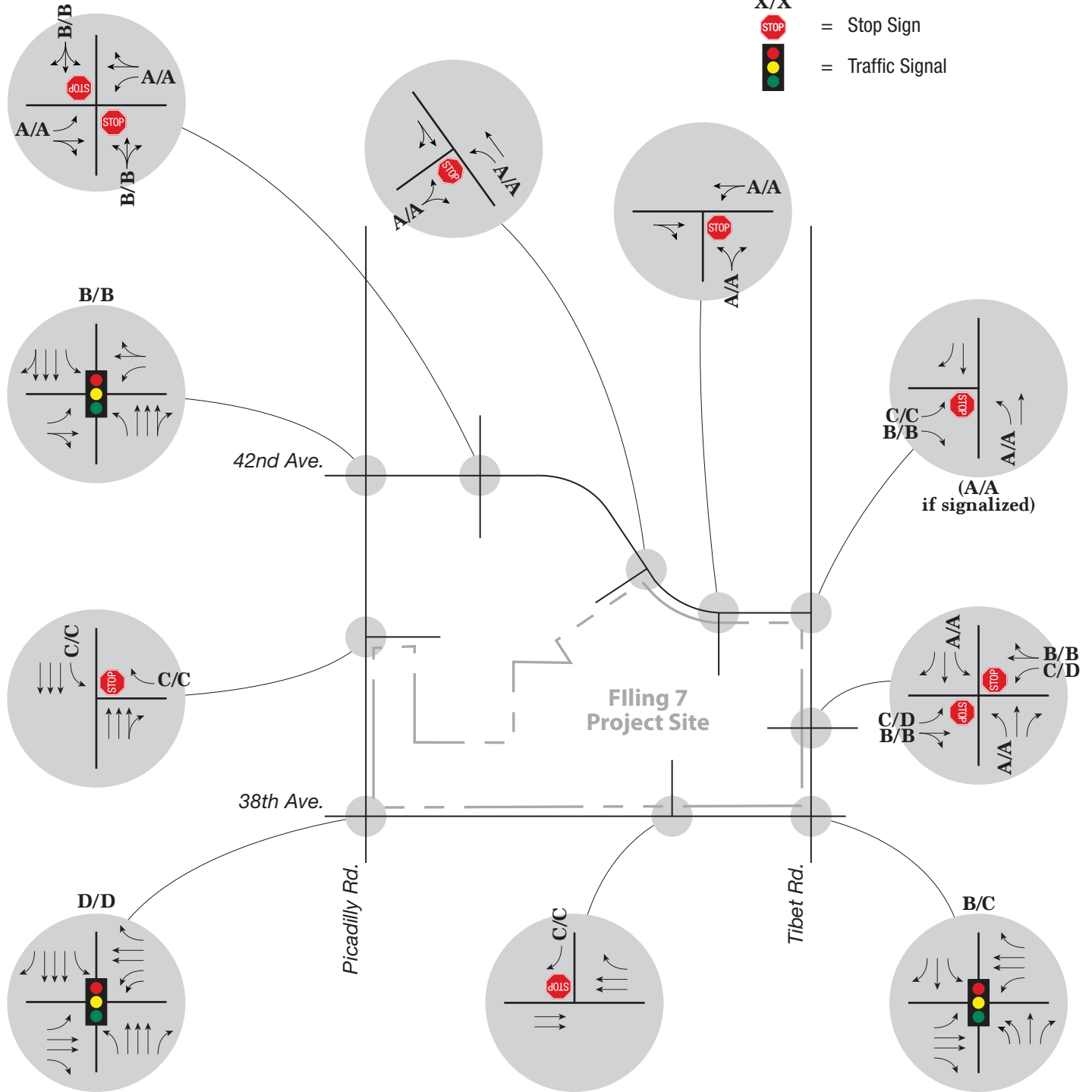
LEGEND

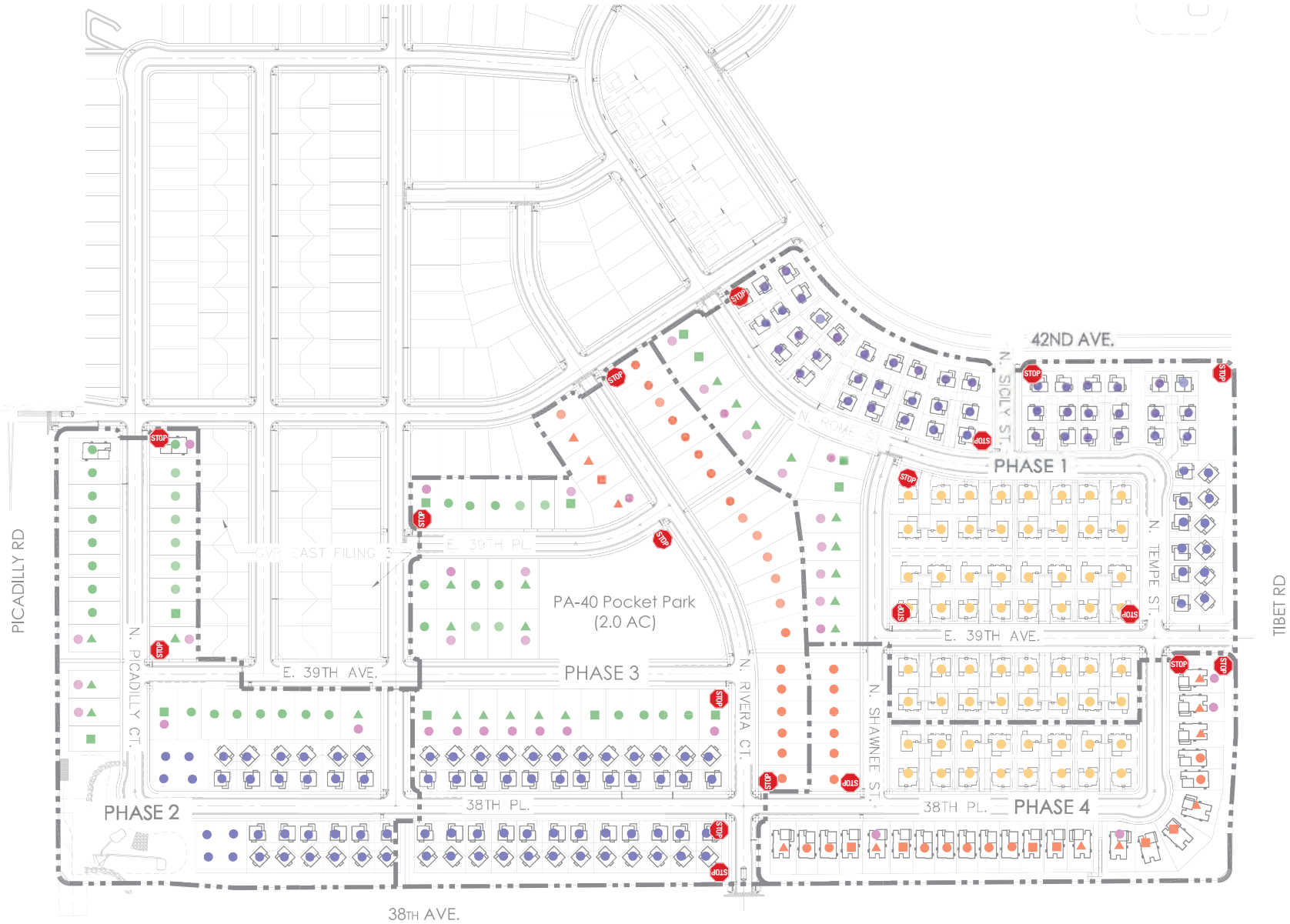
XXX(XXX) = AM/PM Peak Hour Intersection Level of Service

X/X

 = Stop Sign

 = Traffic Signal





LEGEND

 = Stop Sign

V.B. Signal Warrants

The intersections at Picadilly Road/38th Avenue, Picadilly Road/42nd Avenue, and 38th Avenue/Tibet Road were evaluated for signal warrants based on the projected Short-Range Future and Long-Range Future projections. Warrants 1, 2, and 3 were considered.

Hourly volume estimates for Warrant 1, Eight Hour Volume and Warrant 2, Four Hour Volume were estimated based on the 72-hour counts conducted on both Picadilly Road and 42nd Avenue. Directional splits were also extracted from the counts. Signal warrant criteria documented in the *Manual on Uniform Traffic Control Devices*, FHWA, 2009 [MUTCD] were applied. Signal Warrant worksheets are provided in **Appendix G**.

It was determined that a traffic signal at Picadilly Road/38th Avenue would likely be warranted in the near term per Warrant 2, Four Hour Volume. Warrant 3, Peak Hour, would also be met.

The projected conditions at Picadilly Road/42nd Avenue would not meet *MUTCD* criteria in the near term but would meet Warrants 2 and 3 by 2040. The location of this intersection meets City of Aurora signal spacing criteria and would ultimately require a signal to maintain acceptable traffic operations. Conditions should be monitored over time to determine when a traffic signal should be installed.

38th Avenue/Tibet Road would meet Warrant 3, Peak Hour in the near term. Given the types of land uses proposed for Project Peak, the peak hour signal warrant could be appropriately applied. This intersection would likely meet Warrants 2 and 3 by the projected year 2040. Traffic conditions should be periodically monitored to determine when a traffic signal should be installed.

V.C. Street Layout

The proposed street layout at Filing 7 was evaluated relative to Section 4.04.I of the City's Roadway Design and Construction Standards. The proposed street network generally meets the criteria as follows:

- Arterial spacing (Picadilly Road and 38th Avenue) generally meets the one-mile spacing requirement and is consistent with long-range planning efforts.
- Collector spacing (42nd Avenue and Tibet Road) generally meets the half-mile spacing requirement and is consistent with long-range planning.
- Local streets meet the connectivity requirements by providing one connection to each perimeter roadway: to Picadilly Road via 40th Place, to 38th Avenue via Riviera Court, and to Tibet Road via 39th Avenue.
- There are no cul-de-sacs or dead ends proposed.

V.D. Queues

The 95th percentile maximum probable queue lengths for Long-Range Future conditions were extracted from the SYNCHRO LOS worksheets. The queue lengths are converted into feet (assuming a typical length of 25 feet per vehicle) and are summarized in **Table 2**. The table also provides CDOT storage requirements per the State Highway Access Code (SHAC). The recommended storage lengths consider both the CDOT criteria and the queueing projections.

Table 2. Queue Length Summary – Long Range Future

Intersection/Movement	95 % Queue Length (ft)		CDOT Storage Requirement (ft)	Recommended Storage (ft)
	AM Peak Hour	PM Peak Hour		
Picadilly Rd/42 nd Ave	Traffic Signal			
Northbound Left	25	50	90	100
Southbound Left	25	100	173	175
Eastbound Left	75	50	50	75
Eastbound Thru-Right	175	75	90	175
Westbound Left	150	275	186	275
Westbound Thru-Right	150	100	92	150
Picadilly Rd/40 th PI	STOP Sign			
Southbound Left	25	25	40	50
Westbound Right	25	25	40	50
Picadilly Rd/38 th Ave	Traffic Signal			
Northbound Left	150	175	130	175
Northbound Right	500	425	401	500
Southbound Left	275	275	210	275
Southbound Right	150	200	179	200
Eastbound Left	275	275	176	275
Eastbound Right	125	175	150	175
Westbound Left (2-lane)	250	350	394	400
Westbound Right	100	225	320	325
38 th Ave/Riviera Court	STOP Sign			
Southbound Right	25	25	47	50
38 th Ave/Tibet Road	Traffic Signal			
Northbound Left (2-lane)	150	325	400	400
Northbound Right	125	275	165	275
Southbound Left	325	275	223	325
Southbound Right	150	100	121	150
Eastbound Left	100	200	152	200
Eastbound Right	100	25	405	425
Westbound Left	225	100	170	225
Westbound Right	75	125	304	325

Intersection/Movement	95% Queue Length (ft)		CDOT Storage Requirement (ft)	Recommended Storage (ft)
	AM Peak Hour	PM Peak Hour		
Tibet Rd/39 th Ave	STOP Sign			
Northbound Left	25	25	63	75
Southbound Left	25	25	55	75
Eastbound Left	25	25	40	50
Eastbound Thru-Right	25	25	54	75
Westbound Left	25	25	40	50
Westbound Thru-Right	25	25	55	75
Tibet Rd/42 nd Ave	STOP Sign			
Northbound Left	25	25	101	125
Eastbound Left	25	25	40	50
Eastbound Right	25	25	104	125

V.E. Auxiliary Lanes

The site access intersections along Picadilly Road, 38th Avenue, and Tibet Road were evaluated relative to auxiliary lane criteria in the Colorado Department of Transportation's *State Highway Access Code*. The following criteria (for NR-B, Non-Rural Arterial) apply to Picadilly Road and 38th Avenue intersections:

- Left-turn lanes are required where the associated volume exceeds 10 vehicles per hour. The left-turn lane is to consist of storage, deceleration, and taper length (taper is included in the deceleration).
- Right-turn lanes are required where the associated volume exceeds 25 vehicles per hour. The right-turn lane is to consist of deceleration and taper length (taper is included in the deceleration).

Table 3 summarizes the auxiliary lane length requirements for Picadilly Road.

Table 3. Auxiliary Lanes – Picadilly Road Intersections⁽¹⁾

Intersection	Direction	Left-Turn Lane				Right-Turn Lane		
		Storage	Decel	Taper	Total	Decel	Taper	Total
42 nd Avenue	SB	175	226	144	545	226	144	370
	NB	100	226	144	470	226	144	370
40 th Place ⁽²⁾	SB	40	226	144	410			
	NB					226	144	370

1. Lane lengths are given in feet.
2. The ultimate laneage for Picadilly Road is six through-lanes. Right-turn lanes are generally not required where there are already three through-lanes in the direction of travel, per the *State Highway Access Code*. In the interim prior to buildout of Picadilly Road, however, the above right-turn lanes will be required.

Table 4 summarizes the auxiliary lane length requirements for 38th Avenue.

Table 4. Auxiliary Lanes – 38th Avenue Intersections⁽¹⁾

Intersection	Direction	Left-Turn Lane				Right-Turn Lane		
		Storage	Decel	Taper	Total	Decel	Taper	Total
Picadilly Road	SB	275	226	144	645	226	144	370
	NB	175	226	144	545	226	144	370
	EB	275	226	144	645	226	144	370
	WB	400 ⁽²⁾	226	144	770	226	144	370
Riviera Court	WB					226	144	370
Tibet Road	SB	325	226	144	695	226	144	370
	NB	400 ⁽²⁾	226	144	770	226	144	370
	EB	200	226	144	570	226	144	370
	WB	225	226	144	595	226	144	370
<ol style="list-style-type: none"> 1. Lane lengths are given in feet. 2. Dual left-turn lanes have been proposed as part of Project Peak. Storage shown is per-lane; total storage required is 400 feet. 3. The ultimate laneage for Picadilly Road is six through-lanes. Right-turn lanes are generally not required where there are already three through-lanes in the direction of travel, per the <i>State Highway Access Code</i>. In the interim prior to buildout of Picadilly Road, however, the above right-turn lanes will be required. 								

V.F. Recommendations

The roadway and intersection improvements that should ultimately be implemented within the study area include the following:

- Picadilly Road adjacent to the site is identified as a six-lane arterial in NEATS. This roadway is currently two lanes, and its widening to six lanes can be phased as conditions require. Upon the initial development of this site, Picadilly Road should be widened at 42nd Avenue and 40th Place to accommodate a center southbound left-turn lane at each intersection to serve inbound traffic. Install a northbound right-turn deceleration lane at 42nd Avenue.
- Initially install STOP-sign control at Picadilly Road/42nd Avenue (westbound approach). Periodically monitor traffic conditions, and install signalized traffic control, when warranted.
- Install STOP-sign control on the westbound approach at Picadilly Road/40th Place. This intersection is to be restricted to $\frac{3}{4}$ movement.
- Construct 38th Avenue as a four-lane arterial, per NEATS.
- Construct the intersection of Picadilly Road/38th Avenue to include separate left-turn and right-turn lanes along each approach. Dual left-turn lanes will be required on the westbound approach. Periodically monitor this intersection and install a traffic signal, when warranted.
- Construct Tibet Road as a three-lane collector.
- Periodically monitor traffic conditions at the 38th Avenue/Tibet Road intersection and install signalized traffic control, when warranted. Dual Left-turn lanes will be required on the

northbound approach. Additional widening along 38th Avenue could be required to accommodate two extra-wide through-lanes to receive the northbound dual lefts.

- Restrict the 38th Avenue/Riviera Court intersection to R/O movements. Install STOP sign control on the southbound approach.
- Install STOP sign control at the 42nd Avenue/Tibet Road intersection and periodically monitor traffic and pedestrian conditions. This intersection could ultimately warrant a signal due to its proximity to the future school site and the potential need for a protected school crossing. The City has given direction for a midblock refuge and rectangular rapid flashing beacons at a planned pedestrian crossing north of this intersection (to be provided by others).
- Install STOP sign control on the 39th Avenue approaches at Tibet Road. This intersection would not be a candidate for a future traffic signal.
- Install STOP-sign control at the site-internal intersections as previously depicted.

VI. CONCLUSIONS AND RECOMMENDATIONS

Green Valley Ranch East Filing 7 consists of 327 single-family homes to be developed within the Green Valley Ranch East master plan. The site is located along the east side of Picadilly Road, north of the 38th Avenue future alignment. Vehicular access would be via two roadway connections onto Picadilly Road: at 42nd Avenue and 40th Place. Additional roadway connections would also be available via 38th Avenue (at Riviera Court) and Tibet Road (at 39th Avenue and 42nd Avenue).

The proposed Filing 7 residential development would have a trip generation potential of about 3,100 trips per day, with 235 AM peak hour trips and 315 PM peak hour trips. The potential impacts of the site-generated traffic were evaluated under both Short-Range and Long-Range future scenarios. In general, the existing and planned roadway system would have sufficient reserve capacity to accommodate the projected increases. Relative to this, the following findings and recommendations are specific to the Filing 7 site:

- Construct Picadilly Road at 42nd Avenue and 40th Place to four-lane arterial standards. Provide a southbound left-turn lane at each intersection to serve inbound traffic. Install a northbound right-turn deceleration lane at 42nd Avenue. Ultimately, Picadilly Road will be a six-lane arterial per NEATS.
- Restrict 40th Place to $\frac{3}{4}$ -movement at Picadilly Road. Install STOP sign control exiting the site.
- Install STOP-sign control at Picadilly Road/42nd Avenue (westbound approach). Periodically monitor traffic conditions, and install signalized traffic control, when warranted.
- Install STOP-sign control on the westbound approach at Picadilly Road/40th Place.
- Construct 38th Avenue as a four-lane arterial, per NEATS.
- Construct the intersection of Picadilly Road/38th Avenue to include separate left-turn and right-turn lanes along each approach. Dual left-turn lanes will be required on the westbound approach. Periodically monitor this intersection and install a traffic signal, when warranted.
- Construct Tibet Road as a three-lane collector.
- Periodically monitor traffic conditions at the 38th Avenue/Tibet Road intersection and install signalized traffic control, when warranted. Dual left-turn lanes will be required on the northbound approach, with potential widening of westbound 38th Avenue to receive the dual lefts.
- Restrict the 38th Avenue/Riviera Court intersection to RIRO movements. Install STOP sign control on the southbound approach.
- Periodically monitor traffic and pedestrian conditions at the 42nd Avenue/Tibet Road intersection relative to MUTCD signal warrants for school crossings. Take appropriate traffic control measures when warranted.
- Install STOP sign control on the 39th Avenue approaches at Tibet Road.
- Install STOP-sign control at the site-internal intersections as previously depicted (see **Figure I4**).

APPENDIX A. TRAFFIC COUNTS

All Traffic Data Services
Wheat Ridge, CO 80033

Page 1

Site Code: 1
Station ID: 1
PICADILLY RD S.O. 42ND AVE

Start Time	07-Jan-20 Tue	NB	SB							Total
12:00 AM		21	11							32
01:00		5	10							15
02:00		10	11							21
03:00		19	19							38
04:00		29	65							94
05:00		65	133							198
06:00		85	341							426
07:00		172	353							525
08:00		138	190							328
09:00		76	138							214
10:00		82	124							206
11:00		131	124							255
12:00 PM		113	135							248
01:00		131	118							249
02:00		151	138							289
03:00		288	187							475
04:00		312	192							504
05:00		287	179							466
06:00		176	127							303
07:00		94	77							171
08:00		57	59							116
09:00		43	49							92
10:00		49	28							77
11:00		29	22							51
Total		2563	2830							5393
Percent		47.5%	52.5%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	172	353	-	-	-	-	-	-	525
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	312	192	-	-	-	-	-	-	504

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 1
Station ID: 1
PICADILLY RD S.O. 42ND AVE

Start Time	08-Jan-20 Wed	NB	SB							Total
12:00 AM		23	18							41
01:00		8	5							13
02:00		4	8							12
03:00		21	28							49
04:00		29	58							87
05:00		75	146							221
06:00		96	341							437
07:00		165	372							537
08:00		146	181							327
09:00		74	120							194
10:00		89	99							188
11:00		117	132							249
12:00 PM		119	132							251
01:00		134	139							273
02:00		157	177							334
03:00		285	202							487
04:00		289	181							470
05:00		296	209							505
06:00		180	127							307
07:00		125	61							186
08:00		69	54							123
09:00		48	43							91
10:00		47	38							85
11:00		35	17							52
Total		2631	2888							5519
Percent		47.7%	52.3%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	165	372	-	-	-	-	-	-	537
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	296	209	-	-	-	-	-	-	505

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 1
Station ID: 1
PICADILLY RD S.O. 42ND AVE

Start Time	09-Jan-20 Thu	NB	SB							Total
12:00 AM		25	13							38
01:00		6	13							19
02:00		13	16							29
03:00		12	21							33
04:00		25	56							81
05:00		67	149							216
06:00		105	370							475
07:00		179	366							545
08:00		132	185							317
09:00		63	88							151
10:00		95	109							204
11:00		120	110							230
12:00 PM		126	148							274
01:00		129	126							255
02:00		169	153							322
03:00		269	219							488
04:00		287	185							472
05:00		291	205							496
06:00		153	125							278
07:00		109	81							190
08:00		75	48							123
09:00		53	47							100
10:00		36	27							63
11:00		32	32							64
Total		2571	2892							5463
Percent		47.1%	52.9%							
AM Peak	-	07:00	06:00	-	-	-	-	-	-	07:00
Vol.	-	179	370	-	-	-	-	-	-	545
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	291	219	-	-	-	-	-	-	496
Grand Total		7765	8610							16375
Percent		47.4%	52.6%							
ADT		ADT 5,458	AADT 5,458							

All Traffic Data Services
Wheat Ridge, CO 80033

Page 1

Site Code: 2
Station ID: 2
42ND AVE W.O. PICADILLY RD

Start Time	07-Jan-20 Tue	EB	WB							Total
12:00 AM		0	9							9
01:00		4	8							12
02:00		11	4							15
03:00		8	4							12
04:00		23	2							25
05:00		57	11							68
06:00		82	20							102
07:00		107	46							153
08:00		66	43							109
09:00		40	17							57
10:00		39	26							65
11:00		36	24							60
12:00 PM		26	34							60
01:00		26	38							64
02:00		37	53							90
03:00		56	85							141
04:00		43	104							147
05:00		49	81							130
06:00		32	69							101
07:00		31	35							66
08:00		24	27							51
09:00		20	29							49
10:00		5	24							29
11:00		10	11							21
Total		832	804							1636
Percent		50.9%	49.1%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	107	46	-	-	-	-	-	-	153
PM Peak	-	15:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	56	104	-	-	-	-	-	-	147

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 2
Station ID: 2
42ND AVE W.O. PICADILLY RD

Start Time	08-Jan-20 Wed	EB	WB								Total
12:00 AM		3	9								12
01:00		5	6								11
02:00		3	5								8
03:00		13	5								18
04:00		26	7								33
05:00		55	14								69
06:00		97	33								130
07:00		106	39								145
08:00		59	34								93
09:00		33	23								56
10:00		28	21								49
11:00		32	28								60
12:00 PM		32	38								70
01:00		34	38								72
02:00		43	62								105
03:00		50	78								128
04:00		49	80								129
05:00		53	91								144
06:00		38	79								117
07:00		25	37								62
08:00		19	36								55
09:00		21	35								56
10:00		11	33								44
11:00		7	19								26
Total		842	850								1692
Percent		49.8%	50.2%								
AM Peak	-	07:00	07:00	-	-	-	-	-	-	-	07:00
Vol.	-	106	39	-	-	-	-	-	-	-	145
PM Peak	-	17:00	17:00	-	-	-	-	-	-	-	17:00
Vol.	-	53	91	-	-	-	-	-	-	-	144

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 2
Station ID: 2
42ND AVE W.O. PICADILLY RD

Start Time	09-Jan-20 Thu	EB	WB							Total
12:00 AM		7	8							15
01:00		6	13							19
02:00		8	7							15
03:00		13	4							17
04:00		21	5							26
05:00		58	13							71
06:00		99	18							117
07:00		115	51							166
08:00		62	48							110
09:00		30	11							41
10:00		26	16							42
11:00		18	27							45
12:00 PM		37	45							82
01:00		33	42							75
02:00		49	41							90
03:00		54	88							142
04:00		36	89							125
05:00		51	92							143
06:00		34	51							85
07:00		29	43							72
08:00		19	31							50
09:00		22	34							56
10:00		10	19							29
11:00		4	18							22
Total		841	814							1655
Percent		50.8%	49.2%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	115	51	-	-	-	-	-	-	166
PM Peak	-	15:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	54	92	-	-	-	-	-	-	143
Grand Total		2515	2468							4983
Percent		50.5%	49.5%							
ADT		ADT 1,661	AADT 1,661							



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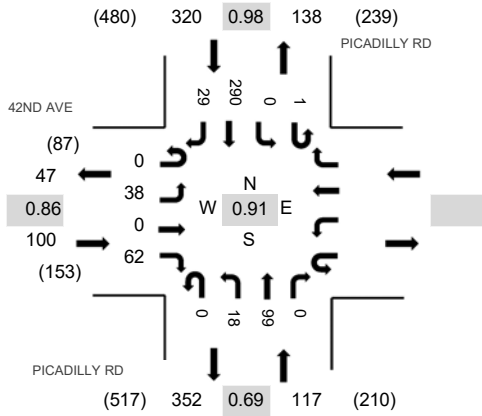
Location: 1 PICADILLY RD & 42ND AVE AM

Date: Thursday, October 25, 2018

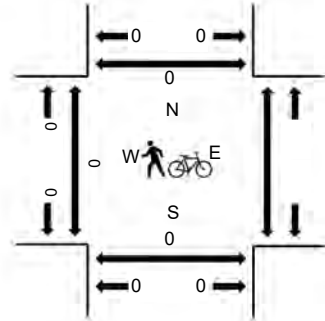
Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	42ND AVE				Westbound		PICADILLY RD				PICADILLY RD				Rolling Pedestrian Crossings				
	Eastbound						Northbound				Southbound								
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour	West	East	South	North	
7:00 AM	0	7	0	14			0	5	20	0	1	0	74	7	128	537	0	0	0
7:15 AM	0	4	0	21			0	2	24	0	0	0	74	6	131	514	0	0	0
7:30 AM	0	11	0	14			0	5	39	0	0	0	71	7	147	454	0	0	0
7:45 AM	0	16	0	13			0	6	16	0	0	0	71	9	131	372	0	0	0
8:00 AM	0	11	0	7			0	2	27	0	0	0	46	12	105	306	0	0	0
8:15 AM	0	1	0	10			0	4	17	0	0	0	34	5	71		0	0	0
8:30 AM	0	5	0	9			0	2	17	0	0	0	27	5	65		0	0	0
8:45 AM	0	3	0	7			0	4	20	0	0	0	25	6	65		0	0	0
Count Total	0	58	0	95			0	30	180	0	1	0	422	57	843		0	0	0
Peak Hour	0	38	0	62			0	18	99	0	1	0	290	29	537		0	0	0



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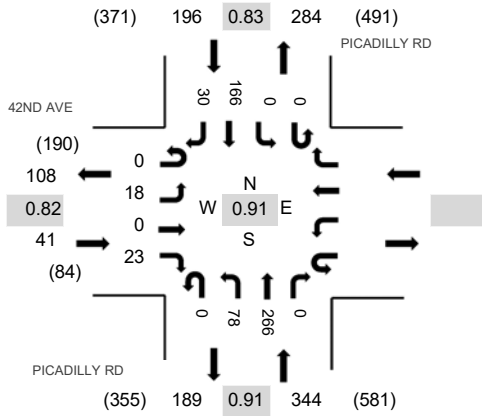
Location: 1 PICADILLY RD & 42ND AVE PM

Date: Thursday, October 25, 2018

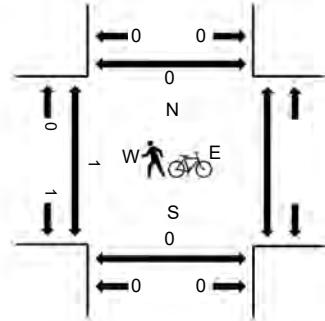
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	42ND AVE				PICADILLY RD				PICADILLY RD				Total	Rolling Hour	Pedestrian Crossings				
	Eastbound		Westbound		Northbound		Southbound		West	East	South	North							
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right							U-Turn	Left	Thru	Right	
4:00 PM	1	2	0	4			0	9	37	0	0	0	33	5	91	459	0	0	0
4:15 PM	0	9	0	6			0	8	45	0	0	0	43	11	122	513	0	0	0
4:30 PM	0	3	0	6			0	12	45	0	0	0	24	11	101	550	0	0	0
4:45 PM	0	7	0	5			0	16	65	0	0	0	44	8	145	581	0	0	0
5:00 PM	0	5	0	8			0	20	66	0	0	0	37	9	145	577	1	0	0
5:15 PM	0	2	0	4			0	20	74	0	0	0	49	10	159		0	0	0
5:30 PM	0	4	0	6			0	22	61	0	0	0	36	3	132		0	0	0
5:45 PM	0	4	0	8			0	19	62	0	0	0	42	6	141		0	0	0
Count Total	1	36	0	47			0	126	455	0	0	0	308	63	1,036		1	0	0
Peak Hour	0	18	0	23			0	78	266	0	0	0	166	30	581		1	0	0

APPENDIX B. EXISTING CONDITIONS LOS





HCM 6th TWSC
1: Picadilly Rd & 42nd Ave

Existing Conditions AM Peak Hour

01/17/2020

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	67	21	151	286	35
Future Vol, veh/h	40	67	21	151	286	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	44	74	23	166	314	38

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	545	333	352
Stage 1	333	-	-
Stage 2	212	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	494	702	1190
Stage 1	719	-	-
Stage 2	816	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	485	702	1190
Mov Cap-2 Maneuver	485	-	-
Stage 1	705	-	-
Stage 2	816	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1190	-	601	-	-
HCM Lane V/C Ratio	0.019	-	0.196	-	-
HCM Control Delay (s)	8.1	-	12.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-






HCM 6th TWSC
1: Picadilly Rd & 42nd Ave

Existing Conditions PM Peak Hour

01/17/2020

Intersection

Int Delay, s/veh 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	27	69	231	175	27
Future Vol, veh/h	22	27	69	231	175	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	24	30	76	254	192	30

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	613	207	222
Stage 1	207	-	-
Stage 2	406	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	451	826	1329
Stage 1	821	-	-
Stage 2	666	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	425	826	1329
Mov Cap-2 Maneuver	425	-	-
Stage 1	774	-	-
Stage 2	666	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	1.8	0
HCM LOS	B		

























Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1329	-	580	-	-
HCM Lane V/C Ratio	0.057	-	0.093	-	-
HCM Control Delay (s)	7.9	-	11.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

APPENDIX C. SHORT-RANGE FUTURE BACKGROUND TRAFFIC LOS

HCM 6th Signalized Intersection Summary 9: Picadilly Rd & 38th Ave

Short Range Background AM Peak Hour

























05/18/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	340	30	50	190	70	25	180	120	160	350	90
Future Volume (veh/h)	45	340	30	50	190	70	25	180	120	160	350	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	49	370	33	54	207	76	27	196	130	174	380	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	594	1604	752	322	1214	676	331	969	483	450	1188	754
Arrive On Green	0.15	0.46	0.46	0.01	0.12	0.12	0.02	0.28	0.28	0.09	0.34	0.34
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	3469	1547	1739	3469	1547
Grp Volume(v), veh/h	49	370	33	54	207	76	27	196	130	174	380	98
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1735	1547	1739	1735	1547
Q Serve(g_s), s	0.0	8.3	1.5	2.8	7.0	2.8	1.4	5.6	8.2	8.9	10.5	0.5
Cycle Q Clear(g_c), s	0.0	8.3	1.5	2.8	7.0	2.8	1.4	5.6	8.2	8.9	10.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	594	1604	752	322	1214	676	331	969	483	450	1188	754
V/C Ratio(X)	0.08	0.23	0.04	0.17	0.17	0.11	0.08	0.20	0.27	0.39	0.32	0.13
Avail Cap(c_a), veh/h	594	1604	752	512	1214	676	416	969	483	653	1188	754
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	23.5	21.0	17.5	31.2	40.5	12.4	32.1	35.8	33.6	27.9	31.6	10.5
Incr Delay (d2), s/veh	0.1	0.3	0.1	0.2	0.3	0.3	0.1	0.5	1.4	0.5	0.7	0.4
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	1.7	6.3	1.0	2.2	5.8	2.3	1.1	4.4	5.9	6.9	8.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	21.4	17.6	31.4	40.8	12.7	32.2	36.3	34.9	28.4	32.3	10.9
LnGrp LOS	C	C	B	C	D	B	C	D	C	C	C	B
Approach Vol, veh/h	452			337			353			652		
Approach Delay, s/veh	21.3			32.9			35.5			28.0		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	64.6	7.6	49.0	23.4	50.0	15.8	40.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	39.5	9.5	44.5	12.5	45.5	26.5	27.5				
Max Q Clear Time (g_c+I1), s	4.8	10.3	3.4	12.5	2.0	9.0	10.9	10.2				
Green Ext Time (p_c), s	0.1	2.7	0.0	3.0	0.1	1.7	0.4	1.5				
Intersection Summary												
HCM 6th Ctrl Delay	28.7											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary 13: Tibet Rd & 38th Ave

Short Range Background AM Peak Hour

05/18/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	200	405	170	120	26	165	5	65	55	5	20
Future Volume (veh/h)	15	200	405	170	120	26	165	5	65	55	5	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	16	217	440	185	130	28	179	5	71	60	5	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	259	761	773	553	1465	706	945	709	601	296	260	246
Arrive On Green	0.03	0.37	0.37	0.22	0.42	0.42	0.28	0.39	0.39	0.03	0.14	0.14
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	16	217	440	185	130	28	179	5	71	60	5	22
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	1.0	5.8	0.0	0.0	2.9	0.1	5.2	0.2	3.8	0.0	0.3	0.9
Cycle Q Clear(g_c), s	1.0	5.8	0.0	0.0	2.9	0.1	5.2	0.2	3.8	0.0	0.3	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	761	773	553	1465	706	945	709	601	296	260	246
V/C Ratio(X)	0.06	0.29	0.57	0.33	0.09	0.04	0.19	0.01	0.12	0.20	0.02	0.09
Avail Cap(c_a), veh/h	357	761	773	553	1465	706	1129	709	601	391	260	246
HCM Platoon Ratio	1.67	1.67	1.67	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	41.6	34.0	17.2	33.4	22.5	12.0	35.6	24.4	25.5	46.4	47.9	20.3
Incr Delay (d2), s/veh	0.1	0.9	3.0	0.4	0.1	0.1	0.1	0.0	0.4	0.3	0.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	4.4	12.3	8.3	2.2	0.7	4.0	0.2	2.7	3.1	0.3	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	34.9	20.2	33.7	22.7	12.1	35.7	24.4	25.9	46.8	48.1	21.0
LnGrp LOS	D	C	C	C	C	B	D	C	C	D	D	C
Approach Vol, veh/h	673			343			255			87		
Approach Delay, s/veh	25.5			27.8			32.7			40.3		
Approach LOS	C			C			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.1	33.0	40.9	23.0	6.7	59.4	8.9	55.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	28.5	43.5	18.5	9.5	40.5	11.5	50.5				
Max Q Clear Time (g_c+I1), s	2.0	7.8	7.2	2.9	3.0	4.9	2.0	5.8				
Green Ext Time (p_c), s	0.5	3.0	0.6	0.0	0.0	0.9	0.1	0.2				

Intersection Summary

HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

























Notes

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

Timings
9: Picadilly Rd & 38th Ave

Short Range Background AM Peak Hour

05/18/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	340	30	50	190	70	25	180	120	160	350	90
Future Volume (vph)	45	340	30	50	190	70	25	180	120	160	350	90
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	17.0	44.0	14.0	23.0	50.0	31.0	14.0	32.0	23.0	31.0	49.0	17.0
Total Split (%)	13.1%	33.8%	10.8%	17.7%	38.5%	23.8%	10.8%	24.6%	17.7%	23.8%	37.7%	13.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	49.8	49.8	60.9	45.5	45.5	59.1	47.0	40.4	53.1	58.5	49.3	62.7
Actuated g/C Ratio	0.38	0.38	0.47	0.35	0.35	0.45	0.36	0.31	0.41	0.45	0.38	0.48
v/c Ratio	0.10	0.28	0.04	0.17	0.17	0.10	0.07	0.18	0.18	0.33	0.29	0.12
Control Delay	27.6	28.8	0.1	35.8	36.6	1.6	21.2	34.2	4.7	23.9	29.7	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	28.8	0.1	35.8	36.6	1.6	21.2	34.2	4.7	23.9	29.7	2.8
LOS	C	C	A	D	D	A	C	C	A	C	C	A
Approach Delay		26.6			28.6			22.4			24.1	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 9: Picadilly Rd & 38th Ave



Timings
13: Tibet Rd & 38th Ave

Short Range Background AM Peak Hour

05/18/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	200	405	170	120	26	165	5	65	55	5	20
Future Volume (vph)	15	200	405	170	120	26	165	5	65	55	5	20
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	33.0	48.0	26.0	45.0	16.0	48.0	55.0	55.0	16.0	23.0	14.0
Total Split (%)	10.8%	25.4%	36.9%	20.0%	34.6%	12.3%	36.9%	42.3%	42.3%	12.3%	17.7%	10.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	35.2	35.2	76.5	54.2	54.2	60.8	36.8	50.5	50.5	25.3	18.5	25.0
Actuated g/C Ratio	0.27	0.27	0.59	0.42	0.42	0.47	0.28	0.39	0.39	0.19	0.14	0.19
v/c Ratio	0.05	0.23	0.41	0.33	0.09	0.04	0.19	0.01	0.11	0.21	0.02	0.06
Control Delay	31.3	30.7	5.2	31.5	25.7	0.1	35.0	24.6	0.4	25.8	48.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	30.7	5.2	31.5	25.7	0.1	35.0	24.6	0.4	25.8	48.4	0.2
LOS	C	C	A	C	C	A	D	C	A	C	D	A
Approach Delay		14.0			26.8			25.2			20.6	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 19.8

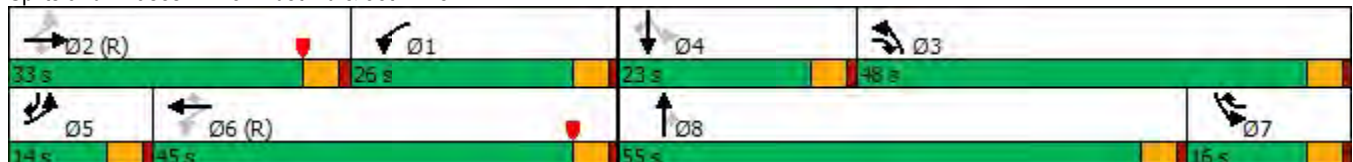
Intersection LOS: B











Intersection Capacity Utilization 49.9%






ICU Level of Service A







Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave



















Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	20	70	171	10	68	6	220	45	41	364	35
Future Vol, veh/h	50	20	70	171	10	68	6	220	45	41	364	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	200	-	200	200	-	200
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	54	22	76	186	11	74	7	239	49	45	396	38
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	625	788	198	552	777	120	434	0	0	288	0	0
Stage 1	486	486	-	253	253	-	-	-	-	-	-	-
Stage 2	139	302	-	299	524	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.6	7	7.6	6.6	7	4.2	-	-	4.2	-	-
Critical Hdwy Stg 1	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	3.55	4.05	3.35	2.25	-	-	2.25	-	-
Pot Cap-1 Maneuver	363	316	801	410	321	899	1101	-	-	1249	-	-
Stage 1	524	542	-	721	689	-	-	-	-	-	-	-
Stage 2	841	655	-	677	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	314	303	801	339	308	899	1101	-	-	1249	-	-
Mov Cap-2 Maneuver	314	303	-	339	308	-	-	-	-	-	-	-
Stage 1	521	522	-	717	685	-	-	-	-	-	-	-
Stage 2	755	651	-	566	502	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	14.7			22.4			0.2			0.7		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1101	-	-	314	587	339	722	1249	-	-		
HCM Lane V/C Ratio	0.006	-	-	0.173	0.167	0.548	0.117	0.036	-	-		
HCM Control Delay (s)	8.3	-	-	18.8	12.4	27.8	10.6	8	-	-		
HCM Lane LOS	A	-	-	C	B	D	B	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.6	0.6	3.1	0.4	0.1	-	-		

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	290	5	5	600
Future Vol, veh/h	0	5	290	5	5	600
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	5	315	5	5	652
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	654	160	0	0	320	0
Stage 1	318	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.9	7	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	-	-	2.25	-
Pot Cap-1 Maneuver	393	847	-	-	1215	-
Stage 1	702	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	391	847	-	-	1215	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.3	0	0.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	847	1215	-	
HCM Lane V/C Ratio	-	-	0.006	0.004	-	
HCM Control Delay (s)	-	-	0	9.3	8	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	0	

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	42	5	5	87	15	25	5	5	25	5	127
Future Vol, veh/h	59	42	5	5	87	15	25	5	5	25	5	127
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	64	46	5	5	95	16	27	5	5	27	5	138
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	111	0	0	51	0	0	362	298	49	295	292	103
Stage 1	-	-	-	-	-	-	177	177	-	113	113	-
Stage 2	-	-	-	-	-	-	185	121	-	182	179	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1460	-	-	1536	-	-	588	609	1011	651	614	944
Stage 1	-	-	-	-	-	-	818	747	-	885	796	-
Stage 2	-	-	-	-	-	-	810	790	-	813	746	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1460	-	-	1536	-	-	480	580	1011	620	585	944
Mov Cap-2 Maneuver	-	-	-	-	-	-	480	580	-	620	585	-
Stage 1	-	-	-	-	-	-	782	714	-	846	794	-
Stage 2	-	-	-	-	-	-	685	788	-	767	713	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.2			0.3			12.3			10.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	533	1460	-	-	1536	-	-	856				
HCM Lane V/C Ratio	0.071	0.044	-	-	0.004	-	-	0.199				
HCM Control Delay (s)	12.3	7.6	-	-	7.4	-	-	10.3				
HCM Lane LOS	B	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.7				

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Vol, veh/h	0	620	300	5	0	10
Future Vol, veh/h	0	620	300	5	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	674	326	5	0	11
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	163
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	-	-	0	844
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	844
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.3		
HCM LOS				A		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	844		
HCM Lane V/C Ratio	-	-	-	0.013		
HCM Control Delay (s)	-	-	-	9.3		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0		




Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	17	35	5	50	10	15	10	15	30	0
Future Vol, veh/h	10	5	17	35	5	50	10	15	10	15	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	11	5	18	38	5	54	11	16	11	16	33	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	138	114	33	115	103	16	33	0	0	27	0	0
Stage 1	65	65	-	38	38	-	-	-	-	-	-	-
Stage 2	73	49	-	77	65	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	826	771	1032	855	781	1055	1560	-	-	1568	-	-
Stage 1	938	835	-	970	857	-	-	-	-	-	-	-
Stage 2	929	848	-	925	835	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	769	758	1032	824	768	1055	1560	-	-	1568	-	-
Mov Cap-2 Maneuver	769	758	-	824	768	-	-	-	-	-	-	-
Stage 1	931	827	-	963	851	-	-	-	-	-	-	-
Stage 2	869	842	-	893	827	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.2			9.1			2.1			2.4		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1560	-	-	769	954	824	1020	1568	-	-		
HCM Lane V/C Ratio	0.007	-	-	0.014	0.025	0.046	0.059	0.01	-	-		
HCM Control Delay (s)	7.3	-	-	9.7	8.9	9.6	8.7	7.3	-	-		
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	0.2	0	-	-		






Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	45	71	15	5	40
Future Vol, veh/h	26	45	71	15	5	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	28	49	77	16	5	43

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	175	5	48	0	-	0
Stage 1	5	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	808	1069	1540	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	768	1069	1540	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	6.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1540	-	768	1069	-	-
HCM Lane V/C Ratio	0.05	-	0.037	0.046	-	-
HCM Control Delay (s)	7.5	-	9.9	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	0.1	-	-

























Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	0	0	111	0	0
Future Vol, veh/h	71	0	0	111	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	77	0	0	121	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	198	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1503	-	784	976
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1503	-	784	976
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	897	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1503	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	69	3	7	104	3	2
Future Vol, veh/h	69	3	7	104	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	75	3	8	113	3	2
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	78	0	206	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	129	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1502	-	776	976
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1502	-	772	976
Mov Cap-2 Maneuver	-	-	-	-	772	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	886	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		9.3	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	842	-	-	1502	-	
HCM Lane V/C Ratio	0.006	-	-	0.005	-	
HCM Control Delay (s)	9.3	-	-	7.4	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th Signalized Intersection Summary 9: Picadilly Rd & 38th Ave

Short Range Background PM Peak Hour

























05/18/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	235	30	115	365	140	35	250	70	90	205	70
Future Volume (veh/h)	85	235	30	115	365	140	35	250	70	90	205	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	92	255	33	125	397	152	38	272	76	98	223	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	586	1621	767	377	1161	603	367	937	525	360	1027	771
Arrive On Green	0.20	0.47	0.47	0.02	0.11	0.11	0.03	0.27	0.27	0.05	0.30	0.30
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	3469	1547	1739	3469	1547
Grp Volume(v), veh/h	92	255	33	125	397	152	38	272	76	98	223	76
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1735	1547	1739	1735	1547
Q Serve(g_s), s	0.0	5.5	1.4	6.9	13.8	5.4	2.0	8.1	4.4	5.2	6.3	0.4
Cycle Q Clear(g_c), s	0.0	5.5	1.4	6.9	13.8	5.4	2.0	8.1	4.4	5.2	6.3	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	586	1621	767	377	1161	603	367	937	525	360	1027	771
V/C Ratio(X)	0.16	0.16	0.04	0.33	0.34	0.25	0.10	0.29	0.14	0.27	0.22	0.10
Avail Cap(c_a), veh/h	586	1621	767	584	1161	603	471	937	525	526	1027	771
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	24.9	19.9	16.9	34.7	44.6	14.8	32.7	37.6	29.8	31.1	34.4	9.6
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.5	0.8	1.0	0.1	0.8	0.6	0.4	0.5	0.3
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	3.4	4.1	1.0	5.7	10.8	4.6	1.6	6.4	3.2	4.0	5.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	20.1	17.0	35.2	45.4	15.8	32.8	38.4	30.4	31.5	34.9	9.8
LnGrp LOS	C	C	B	D	D	B	C	D	C	C	C	A
Approach Vol, veh/h		380			674			386			397	
Approach Delay, s/veh		21.1			36.8			36.3			29.3	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	65.2	8.2	43.0	30.8	48.0	11.6	39.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	24.5	37.5	11.5	38.5	18.5	43.5	19.5	30.5				
Max Q Clear Time (g_c+I1), s	8.9	7.5	4.0	8.3	2.0	15.8	7.2	10.1				
Green Ext Time (p_c), s	0.3	1.8	0.0	1.7	0.2	3.3	0.2	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			31.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary 13: Tibet Rd & 38th Ave

Short Range Background PM Peak Hour

05/18/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	160	185	80	210	60	400	5	165	41	5	15
Future Volume (veh/h)	50	160	185	80	210	60	400	5	165	41	5	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	54	174	201	87	228	65	435	5	179	45	5	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	246	814	792	550	1386	666	935	723	613	283	274	286
Arrive On Green	0.06	0.39	0.39	0.20	0.40	0.40	0.28	0.40	0.40	0.03	0.15	0.15
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	54	174	201	87	228	65	435	5	179	45	5	16
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	3.3	4.3	0.0	0.0	5.5	0.4	13.9	0.2	10.3	0.0	0.3	0.6
Cycle Q Clear(g_c), s	3.3	4.3	0.0	0.0	5.5	0.4	13.9	0.2	10.3	0.0	0.3	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	814	792	550	1386	666	935	723	613	283	274	286
V/C Ratio(X)	0.22	0.21	0.25	0.16	0.16	0.10	0.47	0.01	0.29	0.16	0.02	0.06
Avail Cap(c_a), veh/h	366	814	792	550	1386	666	1155	723	613	396	274	286
HCM Platoon Ratio	1.67	1.67	1.67	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	40.5	31.6	13.7	30.2	25.1	12.9	39.0	23.8	26.8	45.5	47.1	18.8
Incr Delay (d2), s/veh	0.4	0.6	0.8	0.1	0.3	0.3	0.4	0.0	1.2	0.3	0.1	0.4
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	2.5	3.3	5.0	3.6	4.2	1.6	9.8	0.2	7.3	2.3	0.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	32.2	14.5	30.3	25.3	13.2	39.4	23.8	28.0	45.8	47.2	19.1
LnGrp LOS	D	C	B	C	C	B	D	C	C	D	D	B
Approach Vol, veh/h	429			380			619			66		
Approach Delay, s/veh	25.0			24.4			36.0			39.4		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	35.0	40.5	24.0	9.1	56.4	8.5	56.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.5	30.5	44.5	19.5	13.5	34.5	12.5	51.5				
Max Q Clear Time (g_c+I1), s	2.0	6.3	15.9	2.6	5.3	7.5	2.0	12.3				
Green Ext Time (p_c), s	0.2	1.8	1.6	0.0	0.0	1.7	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

























Notes

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

Timings
9: Picadilly Rd & 38th Ave

Short Range Background PM Peak Hour

05/18/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	235	30	115	365	140	35	250	70	90	205	70
Future Volume (vph)	85	235	30	115	365	140	35	250	70	90	205	70
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	23.0	42.0	16.0	29.0	48.0	24.0	16.0	35.0	29.0	24.0	43.0	23.0
Total Split (%)	17.7%	32.3%	12.3%	22.3%	36.9%	18.5%	12.3%	26.9%	22.3%	18.5%	33.1%	17.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	49.7	49.7	61.4	43.5	43.5	53.6	47.1	39.9	56.7	53.5	44.8	64.2
Actuated g/C Ratio	0.38	0.38	0.47	0.33	0.33	0.41	0.36	0.31	0.44	0.41	0.34	0.49
v/c Ratio	0.20	0.19	0.04	0.34	0.35	0.21	0.09	0.26	0.10	0.23	0.19	0.09
Control Delay	30.4	28.0	0.1	45.3	46.0	3.4	23.3	35.3	0.8	24.8	31.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	28.0	0.1	45.3	46.0	3.4	23.3	35.3	0.8	24.8	31.4	2.1
LOS	C	C	A	D	D	A	C	D	A	C	C	A
Approach Delay		26.1			36.3			27.3			24.2	
Approach LOS		C			D			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 29.7

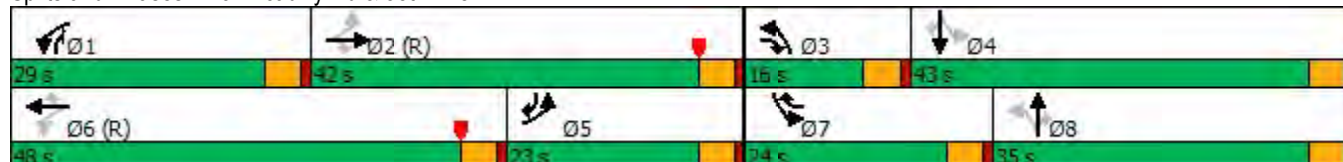
Intersection LOS: C

Intersection Capacity Utilization 41.7%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 9: Picadilly Rd & 38th Ave



Timings
13: Tibet Rd & 38th Ave

Short Range Background PM Peak Hour

05/18/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	160	185	80	210	60	400	5	165	41	5	15
Future Volume (vph)	50	160	185	80	210	60	400	5	165	41	5	15
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	18.0	35.0	49.0	22.0	39.0	17.0	49.0	56.0	56.0	17.0	24.0	18.0
Total Split (%)	13.8%	26.9%	37.7%	16.9%	30.0%	13.1%	37.7%	43.1%	43.1%	13.1%	18.5%	13.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	38.5	38.5	79.5	49.5	49.5	54.9	36.5	51.5	51.5	26.0	19.5	28.0
Actuated g/C Ratio	0.30	0.30	0.61	0.38	0.38	0.42	0.28	0.40	0.40	0.20	0.15	0.22
v/c Ratio	0.17	0.17	0.20	0.17	0.17	0.09	0.47	0.01	0.25	0.16	0.02	0.04
Control Delay	34.2	32.2	3.8	31.4	29.3	1.8	40.0	24.0	4.4	24.6	47.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	32.2	3.8	31.4	29.3	1.8	40.0	24.0	4.4	24.6	47.4	0.1
LOS	C	C	A	C	C	A	D	C	A	C	D	A
Approach Delay		19.2			25.1			29.6			20.4	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 25.0

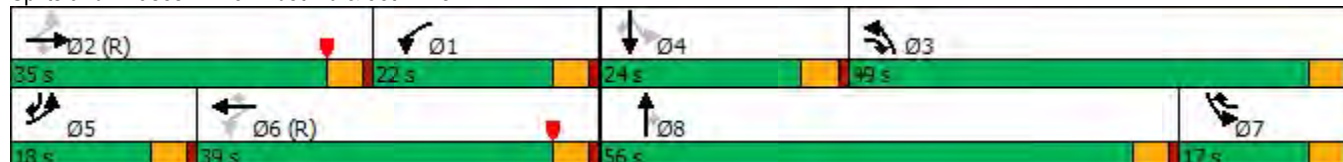
Intersection LOS: C











Intersection Capacity Utilization 39.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave








Intersection												
Int Delay, s/veh	33.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	10	30	175	20	30	90	290	90	159	165	40
Future Vol, veh/h	25	10	30	175	20	30	90	290	90	159	165	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	200	-	200	200	-	200
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	27	11	33	190	22	33	98	315	98	173	179	43







Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	890	1134	90	952	1079	158	222	0	0	413	0	0
Stage 1	525	525	-	511	511	-	-	-	-	-	-	-
Stage 2	365	609	-	441	568	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.6	7	7.6	6.6	7	4.2	-	-	4.2	-	-
Critical Hdwy Stg 1	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	3.55	4.05	3.35	2.25	-	-	2.25	-	-
Pot Cap-1 Maneuver	233	197	940	210	212	850	1323	-	-	1121	-	-
Stage 1	496	520	-	506	528	-	-	-	-	-	-	-
Stage 2	618	476	-	557	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	169	154	940	~ 160	166	850	1323	-	-	1121	-	-
Mov Cap-2 Maneuver	169	154	-	~ 160	166	-	-	-	-	-	-	-
Stage 1	459	440	-	469	489	-	-	-	-	-	-	-
Stage 2	526	441	-	443	420	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.7	150	1.5	3.8
HCM LOS	C	F		











Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1323	-	-	169	413	160	321	1121	-	-
HCM Lane V/C Ratio	0.074	-	-	0.161	0.105	1.189	0.169	0.154	-	-
HCM Control Delay (s)	7.9	-	-	30.3	14.7	187.6	18.5	8.8	-	-
HCM Lane LOS	A	-	-	D	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.3	10.5	0.6	0.5	-	-

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

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	465	10	5	365
Future Vol, veh/h	0	5	465	10	5	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	5	505	11	5	397
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	720	258	0	0	516	0
Stage 1	511	-	-	-	-	-
Stage 2	209	-	-	-	-	-
Critical Hdwy	6.9	7	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	-	-	2.25	-
Pot Cap-1 Maneuver	356	732	-	-	1025	-
Stage 1	559	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	354	732	-	-	1025	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	-	732	1025	-
HCM Lane V/C Ratio	-	-	-	0.007	0.005	-
HCM Control Delay (s)	-	-	0	10	8.5	-
HCM Lane LOS	-	-	A	B	A	-
HCM 95th %tile Q(veh)	-	-	-	0	0	-

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	171	83	5	5	69	30	20	5	5	20	5	116
Future Vol, veh/h	171	83	5	5	69	30	20	5	5	20	5	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	186	90	5	5	75	33	22	5	5	22	5	126
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	108	0	0	95	0	0	632	583	93	572	569	92
Stage 1	-	-	-	-	-	-	465	465	-	102	102	-
Stage 2	-	-	-	-	-	-	167	118	-	470	467	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1464	-	-	1480	-	-	389	420	956	426	428	957
Stage 1	-	-	-	-	-	-	572	558	-	897	805	-
Stage 2	-	-	-	-	-	-	828	792	-	568	557	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1480	-	-	301	365	956	377	372	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	365	-	377	372	-
Stage 1	-	-	-	-	-	-	499	487	-	783	803	-
Stage 2	-	-	-	-	-	-	712	790	-	488	486	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.2			0.4			16.3			11		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	351	1464	-	-	1480	-	-	751				
HCM Lane V/C Ratio	0.093	0.127	-	-	0.004	-	-	0.204				
HCM Control Delay (s)	16.3	7.8	-	-	7.4	-	-	11				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0	-	-	0.8				







Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Vol, veh/h	0	395	605	20	0	15
Future Vol, veh/h	0	395	605	20	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	429	658	22	0	16
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	329
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	-	-	0	658
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		10.6		
HCM LOS				B		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	658		
HCM Lane V/C Ratio	-	-	-	0.025		
HCM Control Delay (s)	-	-	-	10.6		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.1		

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	16	25	5	40	24	51	40	55	25	10
Future Vol, veh/h	7	5	16	25	5	40	24	51	40	55	25	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	8	5	17	27	5	43	26	55	43	60	27	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	300	297	27	271	265	55	38	0	0	98	0	0
Stage 1	147	147	-	107	107	-	-	-	-	-	-	-
Stage 2	153	150	-	164	158	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	646	610	1040	675	635	1003	1553	-	-	1476	-	-
Stage 1	849	770	-	891	801	-	-	-	-	-	-	-
Stage 2	842	767	-	831	761	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	587	575	1040	630	599	1003	1553	-	-	1476	-	-
Mov Cap-2 Maneuver	587	575	-	630	599	-	-	-	-	-	-	-
Stage 1	835	738	-	876	787	-	-	-	-	-	-	-
Stage 2	787	754	-	778	730	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		9.8		1.5		4.6	
HCM LOS	A		A					




Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	587	872	630	933	1476	-	-
HCM Lane V/C Ratio	0.017	-	-	0.013	0.026	0.043	0.052	0.041	-	-
HCM Control Delay (s)	7.4	-	-	11.2	9.2	11	9.1	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0.1	0.2	0.1	-	-

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	85	67	31	5	35
Future Vol, veh/h	26	85	67	31	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	28	92	73	34	5	38

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	185	5	43
Stage 1	5	-	-
Stage 2	180	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	797	1069	1547
Stage 1	1010	-	-
Stage 2	844	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	760	1069	1547
Mov Cap-2 Maneuver	760	-	-
Stage 1	963	-	-
Stage 2	844	-	-





Approach	EB	NB	SB
HCM Control Delay, s	9	5.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1547	-	760	1069	-	-
HCM Lane V/C Ratio	0.047	-	0.037	0.086	-	-
HCM Control Delay (s)	7.4	-	9.9	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.3	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	111	0	0	102	0	0
Future Vol, veh/h	111	0	0	102	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	121	0	0	111	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	121	0	232	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1448	-	750	922
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	750	922
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	906	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1448	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	5	10	92	12	8
Future Vol, veh/h	103	5	10	92	12	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	112	5	11	100	13	9

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	117
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1453
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1453
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	805	-	-	1453	-
HCM Lane V/C Ratio	0.027	-	-	0.007	-
HCM Control Delay (s)	9.6	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-























APPENDIX D. LONG-RANGE FUTURE BACKGROUND TRAFFIC LOS

HCM 6th Signalized Intersection Summary

1: Picadilly Rd & 42nd Ave

Long Range Background AM Peak Hour

05/19/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	20	70	171	10	68	25	1243	45	41	991	35
Future Volume (veh/h)	50	20	70	171	10	68	25	1243	45	41	991	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	54	22	76	186	11	74	27	1351	49	45	1077	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	182	28	98	179	20	136	402	3428	124	370	3466	122
Arrive On Green	0.04	0.08	0.08	0.06	0.10	0.10	0.05	1.00	1.00	0.03	0.70	0.70
Sat Flow, veh/h	1739	360	1243	1739	204	1374	1739	4938	179	1739	4943	174
Grp Volume(v), veh/h	54	0	98	186	0	85	27	909	491	45	724	391
Grp Sat Flow(s),veh/h/ln	1739	0	1602	1739	0	1579	1739	1662	1794	1739	1662	1795
Q Serve(g_s), s	3.7	0.0	7.8	7.5	0.0	6.7	0.6	0.0	0.0	0.9	10.8	10.8
Cycle Q Clear(g_c), s	3.7	0.0	7.8	7.5	0.0	6.7	0.6	0.0	0.0	0.9	10.8	10.8
Prop In Lane	1.00		0.78	1.00		0.87	1.00		0.10	1.00		0.10
Lane Grp Cap(c), veh/h	182	0	126	179	0	156	402	2307	1245	370	2330	1258
V/C Ratio(X)	0.30	0.00	0.78	1.04	0.00	0.55	0.07	0.39	0.39	0.12	0.31	0.31
Avail Cap(c_a), veh/h	217	0	339	179	0	334	461	2307	1245	457	2330	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	58.8	57.0	0.0	55.8	5.5	0.0	0.0	5.0	7.4	7.4
Incr Delay (d2), s/veh	0.9	0.0	9.8	77.3	0.0	2.9	0.1	0.5	0.9	0.1	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	6.3	10.4	0.0	5.0	0.4	0.3	0.6	0.6	6.8	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.4	0.0	68.6	134.3	0.0	58.7	5.6	0.5	0.9	5.2	7.8	8.1
LnGrp LOS	D	A	E	F	A	E	A	A	A	A	A	A
Approach Vol, veh/h	152		271			1427			1160			
Approach Delay, s/veh	63.2		110.6			0.8			7.8			
Approach LOS	E		F			A			A			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	94.8	12.0	14.7	7.6	95.7	9.4	17.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	66.5	7.5	27.5	7.5	69.5	7.5	27.5				
Max Q Clear Time (g_c+I1), s	2.9	2.0	9.5	9.8	2.6	12.8	5.7	8.7				
Green Ext Time (p_c), s	0.0	14.7	0.0	0.4	0.0	10.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	16.5											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

9: Picadilly Rd & 38th Ave

Long Range Background AM Peak Hour

05/19/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	825	115	242	895	105	120	1039	397	185	917	125
Future Volume (veh/h)	169	825	115	242	895	105	120	1039	397	185	917	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	184	897	125	263	973	114	130	1129	432	201	997	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	284	1436	749	326	1454	803	220	1254	539	239	1400	575
Arrive On Green	0.09	0.41	0.41	0.03	0.14	0.14	0.07	0.25	0.25	0.03	0.09	0.09
Sat Flow, veh/h	1739	3469	1547	3374	3469	1547	1739	4985	1547	1739	4985	1547
Grp Volume(v), veh/h	184	897	125	263	973	114	130	1129	432	201	997	136
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1687	1735	1547	1739	1662	1547	1739	1662	1547
Q Serve(g_s), s	3.5	26.6	5.9	10.1	34.6	4.2	7.1	28.5	32.7	10.7	25.3	1.6
Cycle Q Clear(g_c), s	3.5	26.6	5.9	10.1	34.6	4.2	7.1	28.5	32.7	10.7	25.3	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	1436	749	326	1454	803	220	1254	539	239	1400	575
V/C Ratio(X)	0.65	0.62	0.17	0.81	0.67	0.14	0.59	0.90	0.80	0.84	0.71	0.24
Avail Cap(c_a), veh/h	284	1436	749	480	1454	803	278	1254	539	300	1400	575
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
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	50.7	30.1	18.8	61.7	47.4	10.5	34.7	47.1	38.3	36.8	53.9	20.0
Incr Delay (d2), s/veh	5.1	2.1	0.5	6.3	2.5	0.4	2.5	10.5	11.9	15.8	3.1	1.0
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	10.1	17.0	4.0	8.5	23.4	3.4	5.7	18.9	20.3	10.0	17.3	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	32.2	19.3	68.0	49.9	10.9	37.2	57.6	50.2	52.6	57.0	21.0
LnGrp LOS	E	C	B	E	D	B	D	E	D	D	E	C
Approach Vol, veh/h		1206			1350			1691			1334	
Approach Delay, s/veh		34.5			50.1			54.1			52.7	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.1	58.3	13.7	41.0	16.3	59.0	17.4	37.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	43.5	13.5	36.5	7.5	54.5	17.5	32.5				
Max Q Clear Time (g_c+I1), s	12.1	28.6	9.1	27.3	5.5	36.6	12.7	34.7				
Green Ext Time (p_c), s	0.5	6.0	0.1	4.9	0.1	7.1	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			48.6									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

13: Tibet Rd & 38th Ave

Long Range Background AM Peak Hour

















05/19/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	910	405	170	972	203	165	10	65	175	15	110
Future Volume (veh/h)	92	910	405	170	972	203	165	10	65	175	15	110
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	100	989	440	185	1057	221	179	11	71	190	16	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	221	1561	805	516	2053	1024	236	274	232	363	274	309
Arrive On Green	0.10	0.90	0.90	0.19	0.59	0.59	0.07	0.15	0.15	0.07	0.15	0.15
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	100	989	440	185	1057	221	179	11	71	190	16	120
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	4.6	8.6	0.0	0.0	23.3	1.8	6.8	0.7	5.3	0.0	1.0	6.8
Cycle Q Clear(g_c), s	4.6	8.6	0.0	0.0	23.3	1.8	6.8	0.7	5.3	0.0	1.0	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	1561	805	516	2053	1024	236	274	232	363	274	309
V/C Ratio(X)	0.45	0.63	0.55	0.36	0.51	0.22	0.76	0.04	0.31	0.52	0.06	0.39
Avail Cap(c_a), veh/h	275	1561	805	516	2053	1024	454	274	232	476	274	309
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	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	24.2	4.0	2.9	26.7	15.6	3.1	59.4	47.2	49.2	47.0	47.4	28.4
Incr Delay (d2), s/veh	1.5	2.0	2.7	0.4	0.9	0.5	4.9	0.3	3.4	1.2	0.4	3.7
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	3.3	3.7	3.3	8.6	14.3	2.0	5.5	0.6	4.1	9.7	0.9	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	6.0	5.5	27.1	16.5	3.6	64.3	47.5	52.6	48.2	47.8	32.1
LnGrp LOS	C	A	A	C	B	A	E	D	D	D	D	C
Approach Vol, veh/h	1529			1463			261			326		
Approach Delay, s/veh	7.1			15.9			60.4			42.2		
Approach LOS	A			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.4	63.0	13.6	24.0	10.9	81.4	13.6	24.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	58.5	17.5	19.5	10.5	64.5	17.5	19.5				
Max Q Clear Time (g_c+l1), s	2.0	10.6	8.8	8.8	6.6	25.3	2.0	7.3				
Green Ext Time (p_c), s	0.4	12.1	0.4	0.3	0.1	11.1	0.4	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	17.8											
HCM 6th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
1: Picadilly Rd & 42nd Ave

Long Range Background AM Peak Hour

05/19/2020

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	20	171	10	25	1243	41	991
Future Volume (vph)	50	20	171	10	25	1243	41	991
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	12.0	32.0	12.0	32.0	12.0	71.0	15.0	74.0
Total Split (%)	9.2%	24.6%	9.2%	24.6%	9.2%	54.6%	11.5%	56.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	15.3	8.2	16.6	10.6	96.9	92.0	98.4	94.4
Actuated g/C Ratio	0.12	0.06	0.13	0.08	0.75	0.71	0.76	0.73
v/c Ratio	0.31	0.57	1.21	0.44	0.07	0.40	0.16	0.31
Control Delay	51.7	31.7	184.5	22.0	1.8	3.2	5.2	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	31.7	184.5	22.0	1.8	3.2	5.2	7.3
LOS	D	C	F	C	A	A	A	A
Approach Delay		38.8		133.5		3.2		7.2
Approach LOS		D		F		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 18.3

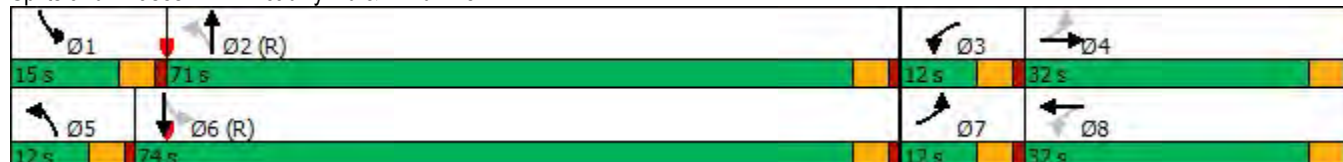
Intersection LOS: B

Intersection Capacity Utilization 56.6%

ICU Level of Service B

Analysis Period (min) 15
































Splits and Phases: 1: Picadilly Rd & 42nd Ave



Timings
9: Picadilly Rd & 38th Ave

Long Range Background AM Peak Hour

05/19/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			  			  	
Traffic Volume (vph)	169	825	115	242	895	105	120	1039	397	185	917	125
Future Volume (vph)	169	825	115	242	895	105	120	1039	397	185	917	125
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	12.0	48.0	18.0	23.0	59.0	22.0	18.0	37.0	23.0	22.0	41.0	12.0
Total Split (%)	9.2%	36.9%	13.8%	17.7%	45.4%	16.9%	13.8%	28.5%	17.7%	16.9%	31.5%	9.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	46.6	46.6	62.3	15.4	54.5	69.5	46.3	35.0	54.9	53.7	38.7	46.2
Actuated g/C Ratio	0.36	0.36	0.48	0.12	0.42	0.53	0.36	0.27	0.42	0.41	0.30	0.36
v/c Ratio	0.78	0.73	0.16	0.66	0.68	0.13	0.58	0.85	0.62	0.79	0.68	0.22
Control Delay	67.1	40.9	12.0	46.6	28.7	5.6	35.1	52.6	27.4	59.8	51.6	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	40.9	12.0	46.6	28.7	5.6	35.1	52.6	27.4	59.8	51.6	14.4
LOS	E	D	B	D	C	A	D	D	C	E	D	B
Approach Delay		41.9			30.3			44.8			49.1	
Approach LOS		D			C			D			D	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 41.7

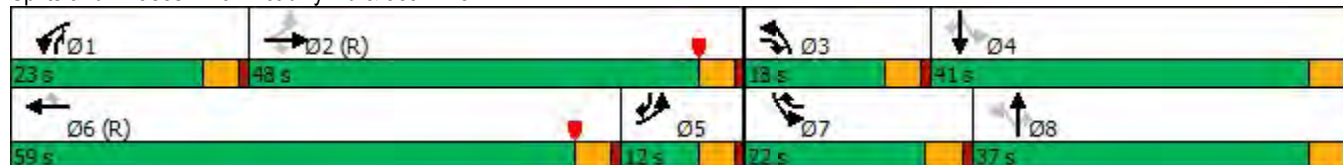
Intersection LOS: D

Intersection Capacity Utilization 79.4%

ICU Level of Service D

Analysis Period (min) 15

























Splits and Phases: 9: Picadilly Rd & 38th Ave



Timings
13: Tibet Rd & 38th Ave

Long Range Background AM Peak Hour

05/19/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	910	405	170	972	203	165	10	65	175	15	110
Future Volume (vph)	92	910	405	170	972	203	165	10	65	175	15	110
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	15.0	63.0	22.0	21.0	69.0	22.0	22.0	24.0	24.0	22.0	24.0	15.0
Total Split (%)	11.5%	48.5%	16.9%	16.2%	53.1%	16.9%	16.9%	18.5%	18.5%	16.9%	18.5%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	63.4	63.4	80.5	70.5	70.5	83.1	12.6	19.5	19.5	32.1	19.5	28.9
Actuated g/C Ratio	0.49	0.49	0.62	0.54	0.54	0.64	0.10	0.15	0.15	0.25	0.15	0.22
v/c Ratio	0.44	0.59	0.39	0.46	0.57	0.21	0.55	0.04	0.21	0.51	0.06	0.29
Control Delay	29.4	27.8	5.0	31.0	21.9	1.1	62.1	47.9	1.7	44.2	48.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	27.8	5.0	31.0	21.9	1.1	62.1	47.9	1.7	44.2	48.2	9.7
LOS	C	C	A	C	C	A	E	D	A	D	D	A
Approach Delay		21.3			19.9			45.1			31.7	
Approach LOS		C			B			D			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 23.4

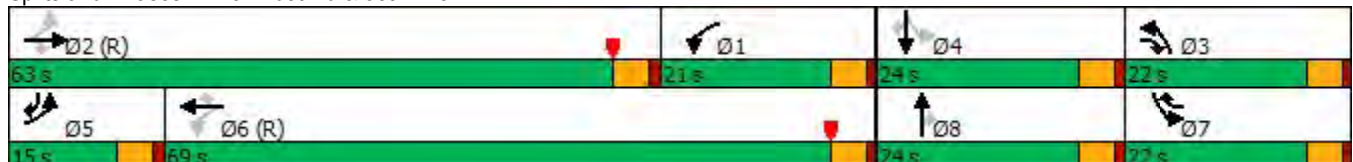
Intersection LOS: C

Intersection Capacity Utilization 62.2%

ICU Level of Service B







Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave



Intersection







Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	1308	5	5	1227
Future Vol, veh/h	0	5	1308	5	5	1227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	5	1422	5	5	1334

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1969	714	0
Stage 1	1425	-	-
Stage 2	544	-	-
Critical Hdwy	5.8	7.2	-
Critical Hdwy Stg 1	6.7	-	-
Critical Hdwy Stg 2	6.1	-	-
Follow-up Hdwy	3.85	3.95	-
Pot Cap-1 Maneuver	94	315	-
Stage 1	128	-	-
Stage 2	491	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	92	315	-
Mov Cap-2 Maneuver	92	-	-
Stage 1	128	-	-
Stage 2	481	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	315	235
HCM Lane V/C Ratio	-	-	0.017	0.023
HCM Control Delay (s)	-	-	0	16.6
HCM Lane LOS	-	-	A	C
HCM 95th %tile Q(veh)	-	-	0.1	0.1











Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	42	5	5	91	5	30	5	5	25	5	128
Future Vol, veh/h	59	42	5	5	91	5	30	5	5	25	5	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	64	46	5	5	99	5	33	5	5	27	5	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	104	0	0	51	0	0	361	291	49	294	291	102
Stage 1	-	-	-	-	-	-	177	177	-	112	112	-
Stage 2	-	-	-	-	-	-	184	114	-	182	179	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1469	-	-	1536	-	-	589	614	1011	652	614	945
Stage 1	-	-	-	-	-	-	818	747	-	886	797	-
Stage 2	-	-	-	-	-	-	811	795	-	813	746	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1469	-	-	1536	-	-	481	585	1011	621	585	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	481	585	-	621	585	-
Stage 1	-	-	-	-	-	-	782	714	-	847	795	-
Stage 2	-	-	-	-	-	-	685	793	-	768	713	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.2			0.4			12.4			10.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	527	1469	-	-	1536	-	-	858
HCM Lane V/C Ratio	0.083	0.044	-	-	0.004	-	-	0.2
HCM Control Delay (s)	12.4	7.6	-	-	7.4	-	-	10.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.7







Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Vol, veh/h	0	1407	1242	5	0	5
Future Vol, veh/h	0	1407	1242	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	1529	1350	5	0	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	675
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	-	-	0	390
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	390
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		14.4		
HCM LOS				B		
Minor Lane/Major Mvmt		EBT	WBT	WBR	SBLn1	
Capacity (veh/h)		-	-	-	390	
HCM Lane V/C Ratio		-	-	-	0.014	
HCM Control Delay (s)		-	-	-	14.4	
HCM Lane LOS		-	-	-	B	
HCM 95th %tile Q(veh)		-	-	-	0	

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	17	35	5	50	10	285	10	15	253	2
Future Vol, veh/h	10	5	17	35	5	50	10	285	10	15	253	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	11	5	18	38	5	54	11	310	11	16	275	2

Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	674	650	275	652	641	310	277	0	0	321	0	0
Stage 1	307	307	-	332	332	-	-	-	-	-	-	-
Stage 2	367	343	-	320	309	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	364	384	757	377	389	723	1269	-	-	1222	-	-
Stage 1	696	656	-	675	639	-	-	-	-	-	-	-
Stage 2	646	632	-	685	654	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	328	376	757	358	380	723	1269	-	-	1222	-	-
Mov Cap-2 Maneuver	328	376	-	358	380	-	-	-	-	-	-	-
Stage 1	690	647	-	669	633	-	-	-	-	-	-	-
Stage 2	587	626	-	654	645	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.8		13		0.3		0.4	
HCM LOS	B		B					




Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1269	-	-	328	615	358	668	1222	-	-
HCM Lane V/C Ratio	0.009	-	-	0.033	0.039	0.106	0.089	0.013	-	-
HCM Control Delay (s)	7.9	-	-	16.4	11.1	16.2	10.9	8	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.4	0.3	0	-	-






Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	45	61	284	225	40
Future Vol, veh/h	26	45	61	284	225	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	28	49	66	309	245	43

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	686	245	288	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	409	786	1257	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	786	1257	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1257	-	387	786	-	-
HCM Lane V/C Ratio	0.053	-	0.073	0.062	-	-
HCM Control Delay (s)	8	-	15	9.9	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.2	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	0	0	101	0	0
Future Vol, veh/h	71	0	0	101	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	77	0	0	110	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	187	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1503	-	795	976
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1503	-	795	976
Mov Cap-2 Maneuver	-	-	-	-	795	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	907	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1503	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	























Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	69	3	5	96	5	2
Future Vol, veh/h	69	3	5	96	5	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	75	3	5	104	5	2
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	78	0	191	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1502	-	791	976
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1502	-	789	976
Mov Cap-2 Maneuver	-	-	-	-	789	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	900	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		9.4	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	835	-	-	1502	-	
HCM Lane V/C Ratio	0.009	-	-	0.004	-	
HCM Control Delay (s)	9.4	-	-	7.4	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th Signalized Intersection Summary

1: Picadilly Rd & 42nd Ave

Long Range Background PM Peak Hour

02/28/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	25	10	30	35	20	25	90	1460	60	45	1480	40
Future Volume (veh/h)	25	10	30	35	20	25	90	1460	60	45	1480	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	27	11	33	38	22	27	98	1587	65	49	1609	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	122	17	52	127	36	44	308	3723	152	333	3756	100
Arrive On Green	0.02	0.04	0.04	0.03	0.05	0.05	0.07	1.00	1.00	0.03	0.75	0.75
Sat Flow, veh/h	1739	402	1207	1739	746	915	1739	4912	201	1739	4992	133
Grp Volume(v), veh/h	27	0	44	38	0	49	98	1074	578	49	1071	581
Grp Sat Flow(s),veh/h/ln	1739	0	1609	1739	0	1661	1739	1662	1790	1739	1662	1802
Q Serve(g_s), s	1.9	0.0	3.5	2.7	0.0	3.8	1.7	0.0	0.0	0.8	15.3	15.3
Cycle Q Clear(g_c), s	1.9	0.0	3.5	2.7	0.0	3.8	1.7	0.0	0.0	0.8	15.3	15.3
Prop In Lane	1.00		0.75	1.00		0.55	1.00		0.11	1.00		0.07
Lane Grp Cap(c), veh/h	122	0	69	127	0	79	308	2519	1357	333	2501	1356
V/C Ratio(X)	0.22	0.00	0.64	0.30	0.00	0.62	0.32	0.43	0.43	0.15	0.43	0.43
Avail Cap(c_a), veh/h	181	0	340	177	0	351	343	2519	1357	418	2501	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	61.2	57.3	0.0	60.7	4.2	0.0	0.0	3.1	5.9	5.9
Incr Delay (d2), s/veh	0.9	0.0	9.3	1.3	0.0	7.6	0.6	0.5	1.0	0.2	0.5	1.0
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	1.6	0.0	2.9	2.2	0.0	3.2	0.9	0.3	0.7	0.5	8.6	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	0.0	70.5	58.6	0.0	68.4	4.8	0.5	1.0	3.3	6.4	6.9
LnGrp LOS	E	A	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h	71			87			1750			1701		
Approach Delay, s/veh	65.9			64.1			0.9			6.5		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	103.0	8.2	10.1	9.4	102.3	7.6	10.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	66.5	7.5	27.5	7.5	69.5	7.5	27.5				
Max Q Clear Time (g_c+I1), s	2.8	2.0	4.7	5.5	3.7	17.3	3.9	5.8				
Green Ext Time (p_c), s	0.0	19.8	0.0	0.2	0.1	18.8	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	6.3											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

9: Picadilly Rd & 38th Ave

Long Range Background PM Peak Hour

02/28/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1015	150	395	890	315	130	1135	365	210	1170	175
Future Volume (veh/h)	165	1015	150	395	890	315	130	1135	365	210	1170	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	179	1103	163	429	967	342	141	1234	397	228	1272	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	253	1191	644	477	1401	795	201	1330	632	255	1515	595
Arrive On Green	0.08	0.34	0.34	0.09	0.27	0.27	0.07	0.27	0.27	0.04	0.10	0.10
Sat Flow, veh/h	1739	3469	1547	3374	3469	1547	1739	4985	1547	1739	4985	1547
Grp Volume(v), veh/h	179	1103	163	429	967	342	141	1234	397	228	1272	190
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1687	1735	1547	1739	1662	1547	1739	1662	1547
Q Serve(g_s), s	4.4	39.8	8.9	16.4	32.5	12.4	7.6	31.4	26.6	12.2	32.6	2.5
Cycle Q Clear(g_c), s	4.4	39.8	8.9	16.4	32.5	12.4	7.6	31.4	26.6	12.2	32.6	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	1191	644	477	1401	795	201	1330	632	255	1515	595
V/C Ratio(X)	0.71	0.93	0.25	0.90	0.69	0.43	0.70	0.93	0.63	0.90	0.84	0.32
Avail Cap(c_a), veh/h	253	1191	644	480	1401	795	201	1330	632	270	1515	595
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	0.33	0.33	0.33
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	52.7	41.1	24.8	57.9	40.1	11.0	35.0	46.4	30.6	38.0	55.4	20.5
Incr Delay (d2), s/veh	8.8	13.5	0.9	19.6	2.8	1.7	10.3	12.6	4.7	28.4	5.8	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.1	26.2	6.3	13.3	21.4	8.6	6.8	20.7	16.0	12.2	21.8	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	54.6	25.7	77.5	42.9	12.7	45.3	59.0	35.3	66.5	61.1	22.0
LnGrp LOS	E	D	C	E	D	B	D	E	D	E	E	C
Approach Vol, veh/h	1445			1738			1772			1690		
Approach Delay, s/veh	52.2			45.5			52.6			57.5		
Approach LOS	D			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.9	49.1	14.0	44.0	15.0	57.0	18.8	39.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	44.5	9.5	39.5	10.5	52.5	15.5	33.5				
Max Q Clear Time (g_c+I1), s	18.4	41.8	9.6	34.6	6.4	34.5	14.2	33.4				
Green Ext Time (p_c), s	0.0	1.9	0.0	3.5	0.2	8.0	0.1	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	51.9											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

13: Tibet Rd & 38th Ave

Long Range Background PM Peak Hour

















02/28/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	1270	185	80	1065	245	400	25	165	175	10	85
Future Volume (veh/h)	135	1270	185	80	1065	245	400	25	165	175	10	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	147	1380	201	87	1158	266	435	27	179	190	11	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	206	1641	958	341	1789	964	492	330	280	391	260	309
Arrive On Green	0.12	0.95	0.95	0.10	0.52	0.52	0.15	0.18	0.18	0.11	0.14	0.14
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	147	1380	201	87	1158	266	435	27	179	190	11	92
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	6.8	13.6	0.0	0.0	31.5	2.5	16.4	1.6	13.9	0.0	0.7	4.5
Cycle Q Clear(g_c), s	6.8	13.6	0.0	0.0	31.5	2.5	16.4	1.6	13.9	0.0	0.7	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	1641	958	341	1789	964	492	330	280	391	260	309
V/C Ratio(X)	0.71	0.84	0.21	0.25	0.65	0.28	0.88	0.08	0.64	0.49	0.04	0.30
Avail Cap(c_a), veh/h	206	1641	958	341	1789	964	558	330	280	425	260	309
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	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	26.4	2.2	1.0	26.8	22.9	4.3	54.4	44.3	49.3	45.1	48.1	23.2
Incr Delay (d2), s/veh	10.9	5.4	0.5	0.4	1.8	0.7	14.3	0.5	10.7	0.9	0.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.7	4.3	0.6	3.7	19.1	3.2	12.6	1.4	10.3	9.6	0.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	7.6	1.5	27.2	24.7	5.0	68.8	44.8	60.1	46.1	48.4	25.6
LnGrp LOS	D	A	A	C	C	A	E	D	E	D	D	C
Approach Vol, veh/h	1728			1511			641			293		
Approach Delay, s/veh	9.4			21.4			65.3			39.7		
Approach LOS	A			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	66.0	23.5	23.0	12.0	71.5	18.5	28.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	61.5	21.5	18.5	7.5	64.5	16.5	23.5				
Max Q Clear Time (g_c+I1), s	2.0	15.6	18.4	6.5	8.8	33.5	2.0	15.9				
Green Ext Time (p_c), s	0.1	16.8	0.5	0.2	0.0	11.9	0.4	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	24.5											
HCM 6th LOS	C											

Timings
1: Picadilly Rd & 42nd Ave

Long Range Background PM Peak Hour

02/28/2020

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	10	35	20	90	1460	45	1480
Future Volume (vph)	25	10	35	20	90	1460	45	1480
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	12.0	32.0	12.0	32.0	12.0	71.0	15.0	74.0
Total Split (%)	9.2%	24.6%	9.2%	24.6%	9.2%	54.6%	11.5%	56.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	13.2	7.5	14.3	9.8	103.3	98.1	100.6	94.3
Actuated g/C Ratio	0.10	0.06	0.11	0.08	0.79	0.75	0.77	0.73
v/c Ratio	0.18	0.36	0.25	0.33	0.40	0.45	0.20	0.46
Control Delay	49.5	32.7	50.7	36.2	16.8	6.1	5.6	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	32.7	50.7	36.2	16.8	6.1	5.6	9.1
LOS	D	C	D	D	B	A	A	A
Approach Delay		39.1		42.6		6.7		9.0
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 9.3

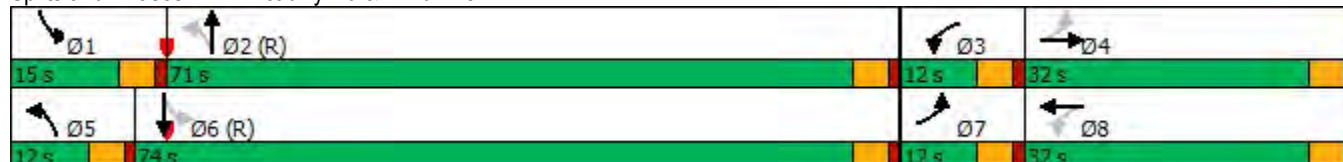
Intersection LOS: A

Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 1: Picadilly Rd & 42nd Ave



Timings
9: Picadilly Rd & 38th Ave

Long Range Background PM Peak Hour

02/28/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1015	150	395	890	315	130	1135	365	210	1170	175
Future Volume (vph)	165	1015	150	395	890	315	130	1135	365	210	1170	175
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	15.0	49.0	14.0	23.0	57.0	20.0	14.0	38.0	23.0	20.0	44.0	15.0
Total Split (%)	11.5%	37.7%	10.8%	17.7%	43.8%	15.4%	10.8%	29.2%	17.7%	15.4%	33.8%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	44.6	44.6	58.5	18.4	52.5	67.6	43.3	33.9	56.7	53.5	39.6	50.1
Actuated g/C Ratio	0.34	0.34	0.45	0.14	0.40	0.52	0.33	0.26	0.44	0.41	0.30	0.39
v/c Ratio	0.67	0.94	0.22	0.91	0.70	0.41	0.78	0.96	0.54	0.89	0.85	0.29
Control Delay	56.9	56.3	10.8	69.4	23.2	11.8	57.7	64.5	20.8	81.8	66.5	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	56.3	10.8	69.4	23.2	11.8	57.7	64.5	20.8	81.8	66.5	25.8
LOS	E	E	B	E	C	B	E	E	C	F	E	C
Approach Delay		51.2			32.4			54.2			64.0	
Approach LOS		D			C			D			E	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 50.3

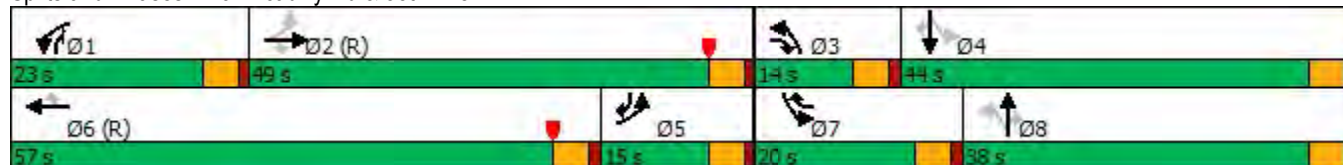
Intersection LOS: D

Intersection Capacity Utilization 87.9%

ICU Level of Service E

Analysis Period (min) 15

























Splits and Phases: 9: Picadilly Rd & 38th Ave



Timings
13: Tibet Rd & 38th Ave

Long Range Background PM Peak Hour

02/28/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	1270	185	80	1065	245	400	25	165	175	10	85
Future Volume (vph)	135	1270	185	80	1065	245	400	25	165	175	10	85
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	12.0	66.0	26.0	15.0	69.0	21.0	26.0	28.0	28.0	21.0	23.0	12.0
Total Split (%)	9.2%	50.8%	20.0%	11.5%	53.1%	16.2%	20.0%	21.5%	21.5%	16.2%	17.7%	9.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	62.7	62.7	87.5	64.9	64.9	80.2	20.3	23.5	23.5	33.8	18.5	26.8
Actuated g/C Ratio	0.48	0.48	0.67	0.50	0.50	0.62	0.16	0.18	0.18	0.26	0.14	0.21
v/c Ratio	0.81	0.83	0.18	0.41	0.67	0.25	0.84	0.08	0.42	0.48	0.04	0.22
Control Delay	58.0	21.3	1.1	42.1	27.1	1.2	68.0	45.2	9.6	39.0	48.8	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	21.3	1.1	42.1	27.1	1.2	68.0	45.2	9.6	39.0	48.8	2.9
LOS	E	C	A	D	C	A	E	D	A	D	D	A
Approach Delay		22.1			23.4			50.7			28.0	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 18 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.4

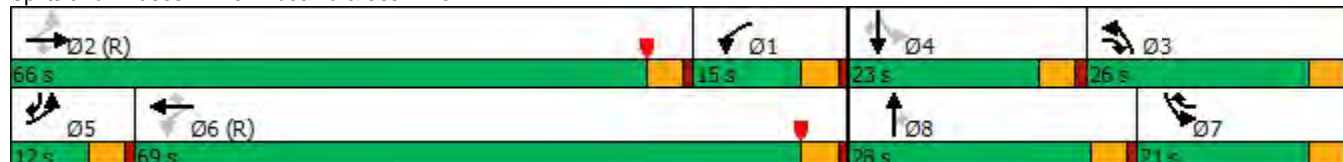
Intersection LOS: C











Intersection Capacity Utilization 68.9%






ICU Level of Service C







Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave













Intersection												
Int Delay, s/veh	33.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	10	30	175	20	30	90	290	90	159	165	40
Future Vol, veh/h	25	10	30	175	20	30	90	290	90	159	165	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	200	-	200	200	-	200
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	27	11	33	190	22	33	98	315	98	173	179	43
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	890	1134	90	952	1079	158	222	0	0	413	0	0
Stage 1	525	525	-	511	511	-	-	-	-	-	-	-
Stage 2	365	609	-	441	568	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.6	7	7.6	6.6	7	4.2	-	-	4.2	-	-
Critical Hdwy Stg 1	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	3.55	4.05	3.35	2.25	-	-	2.25	-	-
Pot Cap-1 Maneuver	233	197	940	210	212	850	1323	-	-	1121	-	-
Stage 1	496	520	-	506	528	-	-	-	-	-	-	-
Stage 2	618	476	-	557	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	169	154	940	~ 160	166	850	1323	-	-	1121	-	-
Mov Cap-2 Maneuver	169	154	-	~ 160	166	-	-	-	-	-	-	-
Stage 1	459	440	-	469	489	-	-	-	-	-	-	-
Stage 2	526	441	-	443	420	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	20.7		150		1.5		3.8					
HCM LOS	C		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1323	-	-	169	413	160	321	1121	-	-		
HCM Lane V/C Ratio	0.074	-	-	0.161	0.105	1.189	0.169	0.154	-	-		
HCM Control Delay (s)	7.9	-	-	30.3	14.7	187.6	18.5	8.8	-	-		
HCM Lane LOS	A	-	-	D	B	F	C	A	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.3	10.5	0.6	0.5	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	465	10	5	365
Future Vol, veh/h	0	5	465	10	5	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	5	505	11	5	397
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	720	258	0	0	516	0
Stage 1	511	-	-	-	-	-
Stage 2	209	-	-	-	-	-
Critical Hdwy	6.9	7	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	-	-	2.25	-
Pot Cap-1 Maneuver	356	732	-	-	1025	-
Stage 1	559	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	354	732	-	-	1025	-
Mov Cap-2 Maneuver	354	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	732	1025	-	
HCM Lane V/C Ratio	-	-	0.007	0.005	-	
HCM Control Delay (s)	-	-	0	10	8.5	
HCM Lane LOS	-	-	A	B	A	
HCM 95th %tile Q(veh)	-	-	-	0	0	

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	171	83	5	5	69	30	20	5	5	20	5	116
Future Vol, veh/h	171	83	5	5	69	30	20	5	5	20	5	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	186	90	5	5	75	33	22	5	5	22	5	126
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	108	0	0	95	0	0	632	583	93	572	569	92
Stage 1	-	-	-	-	-	-	465	465	-	102	102	-
Stage 2	-	-	-	-	-	-	167	118	-	470	467	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1464	-	-	1480	-	-	389	420	956	426	428	957
Stage 1	-	-	-	-	-	-	572	558	-	897	805	-
Stage 2	-	-	-	-	-	-	828	792	-	568	557	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1480	-	-	301	365	956	377	372	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	365	-	377	372	-
Stage 1	-	-	-	-	-	-	499	487	-	783	803	-
Stage 2	-	-	-	-	-	-	712	790	-	488	486	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5.2			0.4			16.3			11		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	351	1464	-	-	1480	-	-	751				
HCM Lane V/C Ratio	0.093	0.127	-	-	0.004	-	-	0.204				
HCM Control Delay (s)	16.3	7.8	-	-	7.4	-	-	11				
HCM Lane LOS	C	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0	-	-	0.8				







Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗		↗
Traffic Vol, veh/h	0	395	605	20	0	15
Future Vol, veh/h	0	395	605	20	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	429	658	22	0	16
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	329
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.35
Pot Cap-1 Maneuver	0	-	-	-	0	658
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		10.6		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	658		
HCM Lane V/C Ratio	-	-	-	0.025		
HCM Control Delay (s)	-	-	-	10.6		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.1		

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	16	25	5	40	24	51	40	55	25	10
Future Vol, veh/h	7	5	16	25	5	40	24	51	40	55	25	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	8	5	17	27	5	43	26	55	43	60	27	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	300	297	27	271	265	55	38	0	0	98	0	0
Stage 1	147	147	-	107	107	-	-	-	-	-	-	-
Stage 2	153	150	-	164	158	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	646	610	1040	675	635	1003	1553	-	-	1476	-	-
Stage 1	849	770	-	891	801	-	-	-	-	-	-	-
Stage 2	842	767	-	831	761	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	587	575	1040	630	599	1003	1553	-	-	1476	-	-
Mov Cap-2 Maneuver	587	575	-	630	599	-	-	-	-	-	-	-
Stage 1	835	738	-	876	787	-	-	-	-	-	-	-
Stage 2	787	754	-	778	730	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.7		9.8		1.5		4.6	
HCM LOS	A		A					




Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	587	872	630	933	1476	-	-
HCM Lane V/C Ratio	0.017	-	-	0.013	0.026	0.043	0.052	0.041	-	-
HCM Control Delay (s)	7.4	-	-	11.2	9.2	11	9.1	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0.1	0.2	0.1	-	-





Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	85	67	31	5	35
Future Vol, veh/h	26	85	67	31	5	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	28	92	73	34	5	38

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	185	5	43
Stage 1	5	-	-
Stage 2	180	-	-
Critical Hdwy	6.45	6.25	4.15
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	2.245
Pot Cap-1 Maneuver	797	1069	1547
Stage 1	1010	-	-
Stage 2	844	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	760	1069	1547
Mov Cap-2 Maneuver	760	-	-
Stage 1	963	-	-
Stage 2	844	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	5.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1547	-	760	1069	-	-
HCM Lane V/C Ratio	0.047	-	0.037	0.086	-	-
HCM Control Delay (s)	7.4	-	9.9	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.3	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	111	0	0	102	0	0
Future Vol, veh/h	111	0	0	102	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	121	0	0	111	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	121	0	232	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1448	-	750	922
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	750	922
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	906	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1448	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

























Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	5	10	92	12	8
Future Vol, veh/h	103	5	10	92	12	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	112	5	11	100	13	9
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	117	0	237	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1453	-	745	929
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1453	-	739	929
Mov Cap-2 Maneuver	-	-	-	-	739	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	889	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		9.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	805	-	-	1453	-	
HCM Lane V/C Ratio	0.027	-	-	0.007	-	
HCM Control Delay (s)	9.6	-	-	7.5	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

APPENDIX E. SHORT-RANGE TOTAL TRAFFIC LOS

HCM 6th Signalized Intersection Summary 9: Picadilly Rd & 38th Ave

Short Range Total AM Peak Hour

























AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	345	30	85	213	70	25	188	124	160	354	101
Future Volume (veh/h)	52	345	30	85	213	70	25	188	124	160	354	101
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	57	375	33	92	232	76	27	204	135	174	385	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	568	1538	723	333	1214	676	326	969	512	445	1188	754
Arrive On Green	0.15	0.44	0.44	0.02	0.12	0.12	0.02	0.28	0.28	0.09	0.34	0.34
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	3469	1547	1739	3469	1547
Grp Volume(v), veh/h	57	375	33	92	232	76	27	204	135	174	385	110
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1735	1547	1739	1735	1547
Q Serve(g_s), s	0.0	8.8	1.5	4.9	7.9	2.8	1.4	5.9	8.3	8.9	10.7	0.6
Cycle Q Clear(g_c), s	0.0	8.8	1.5	4.9	7.9	2.8	1.4	5.9	8.3	8.9	10.7	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	568	1538	723	333	1214	676	326	969	512	445	1188	754
V/C Ratio(X)	0.10	0.24	0.05	0.28	0.19	0.11	0.08	0.21	0.26	0.39	0.32	0.15
Avail Cap(c_a), veh/h	568	1538	723	490	1214	676	412	969	512	648	1188	754
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	25.3	22.6	18.8	32.4	40.8	12.4	32.1	35.9	31.9	27.9	31.6	10.6
Incr Delay (d2), s/veh	0.1	0.4	0.1	0.4	0.3	0.3	0.1	0.5	1.3	0.6	0.7	0.4
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	2.1	6.7	1.0	3.9	6.5	2.3	1.1	4.6	6.0	6.9	8.2	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	23.0	19.0	32.8	41.2	12.7	32.2	36.4	33.1	28.5	32.4	11.0
LnGrp LOS	C	C	B	C	D	B	C	D	C	C	C	B
Approach Vol, veh/h	465			400			366			669		
Approach Delay, s/veh	23.0			33.9			34.9			27.8		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	62.1	7.6	49.0	23.4	50.0	15.8	40.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	39.5	9.5	44.5	12.5	45.5	26.5	27.5				
Max Q Clear Time (g_c+I1), s	6.9	10.8	3.4	12.7	2.0	9.9	10.9	10.3				
Green Ext Time (p_c), s	0.1	2.7	0.0	3.1	0.1	1.8	0.4	1.6				
Intersection Summary												
HCM 6th Ctrl Delay	29.3											
HCM 6th LOS	C											

Timings
9: Picadilly Rd & 38th Ave

Short Range Total AM Peak Hour

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	345	30	85	213	70	25	188	124	160	354	101
Future Volume (vph)	52	345	30	85	213	70	25	188	124	160	354	101
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	17.0	44.0	14.0	23.0	50.0	31.0	14.0	32.0	23.0	31.0	49.0	17.0
Total Split (%)	13.1%	33.8%	10.8%	17.7%	38.5%	23.8%	10.8%	24.6%	17.7%	23.8%	37.7%	13.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	47.7	47.7	58.9	45.5	45.5	59.1	47.0	40.4	55.1	58.5	49.3	62.7
Actuated g/C Ratio	0.37	0.37	0.45	0.35	0.35	0.45	0.36	0.31	0.42	0.45	0.38	0.48
v/c Ratio	0.12	0.30	0.04	0.29	0.19	0.10	0.07	0.19	0.18	0.33	0.30	0.14
Control Delay	29.7	30.5	0.1	35.8	34.3	1.0	21.2	34.3	4.3	23.9	29.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	30.5	0.1	35.8	34.3	1.0	21.2	34.3	4.3	23.9	29.7	2.7
LOS	C	C	A	D	C	A	C	C	A	C	C	A
Approach Delay		28.3			28.3			22.3			23.8	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 25.5

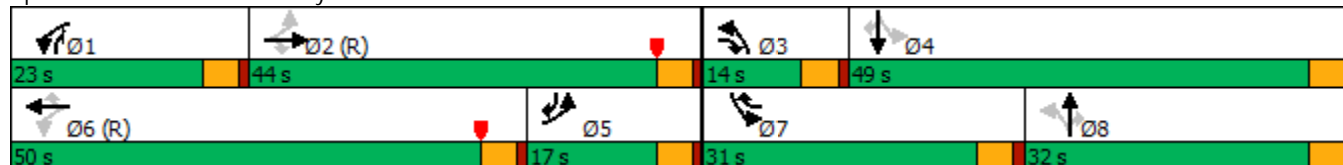
Intersection LOS: C

Intersection Capacity Utilization 43.3%

ICU Level of Service A

























Analysis Period (min) 15

Splits and Phases: 9: Picadilly Rd & 38th Ave



























HCM 6th Signalized Intersection Summary 13: Tibet Rd & 38th Ave

Short Range Total AM Peak Hour
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	200	405	170	125	39	165	5	65	103	5	31
Future Volume (veh/h)	24	200	405	170	125	39	165	5	65	103	5	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	26	217	440	185	136	42	179	5	71	112	5	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	258	761	779	542	1429	696	958	709	601	303	260	256
Arrive On Green	0.04	0.37	0.37	0.22	0.41	0.41	0.28	0.39	0.39	0.04	0.14	0.14
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	26	217	440	185	136	42	179	5	71	112	5	34
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	1.6	5.8	0.0	0.0	3.1	0.2	5.2	0.2	3.8	0.0	0.3	1.3
Cycle Q Clear(g_c), s	1.6	5.8	0.0	0.0	3.1	0.2	5.2	0.2	3.8	0.0	0.3	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	761	779	542	1429	696	958	709	601	303	260	256
V/C Ratio(X)	0.10	0.29	0.57	0.34	0.10	0.06	0.19	0.01	0.12	0.37	0.02	0.13
Avail Cap(c_a), veh/h	344	761	779	542	1429	696	1129	709	601	391	260	256
HCM Platoon Ratio	1.67	1.67	1.67	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	41.7	34.0	16.9	34.3	23.4	12.2	35.2	24.4	25.5	48.0	47.9	20.0
Incr Delay (d2), s/veh	0.2	0.9	3.0	0.4	0.1	0.2	0.1	0.0	0.4	0.8	0.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	4.4	12.2	8.3	2.4	1.0	3.9	0.2	2.7	6.0	0.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	34.9	19.9	34.7	23.5	12.4	35.3	24.4	25.9	48.8	48.1	21.1
LnGrp LOS	D	C	B	C	C	B	D	C	C	D	D	C
Approach Vol, veh/h		683			363			255			151	
Approach Delay, s/veh		25.5			27.9			32.5			42.5	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.6	33.0	41.4	23.0	7.5	58.0	9.4	55.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	28.5	43.5	18.5	9.5	40.5	11.5	50.5				
Max Q Clear Time (g_c+I1), s	2.0	7.8	7.2	3.3	3.6	5.1	2.0	5.8				
Green Ext Time (p_c), s	0.5	3.0	0.6	0.1	0.0	1.0	0.2	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.1									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
13: Tibet Rd & 38th Ave

Short Range Total AM Peak Hour
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	200	405	170	125	39	165	5	65	103	5	31
Future Volume (vph)	24	200	405	170	125	39	165	5	65	103	5	31
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	33.0	48.0	26.0	45.0	16.0	48.0	55.0	55.0	16.0	23.0	14.0
Total Split (%)	10.8%	25.4%	36.9%	20.0%	34.6%	12.3%	36.9%	42.3%	42.3%	12.3%	17.7%	10.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	32.0	32.0	76.5	48.4	48.4	57.3	40.0	50.5	50.5	26.5	18.5	25.6
Actuated g/C Ratio	0.25	0.25	0.59	0.37	0.37	0.44	0.31	0.39	0.39	0.20	0.14	0.20
v/c Ratio	0.09	0.26	0.41	0.36	0.11	0.06	0.17	0.01	0.11	0.37	0.02	0.08
Control Delay	35.0	34.4	6.6	35.2	28.6	0.2	33.2	24.6	0.4	27.9	48.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	34.4	6.6	35.2	28.6	0.2	33.2	24.6	0.4	27.9	48.4	0.4
LOS	C	C	A	D	C	A	C	C	A	C	D	A
Approach Delay		16.5			28.6			23.9			22.4	
Approach LOS		B			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 21.4

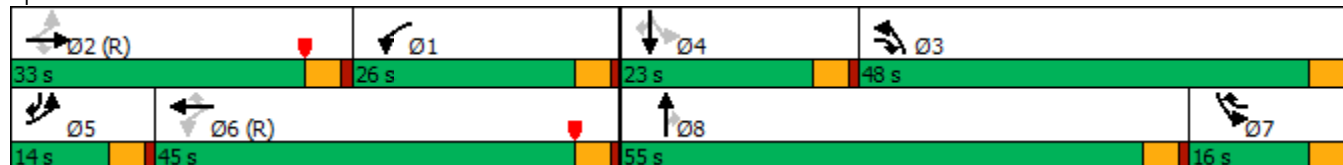
Intersection LOS: C

Intersection Capacity Utilization 49.9%

ICU Level of Service A











Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave








HCM 6th TWSC
1: Picadilly Rd & 42nd Ave

Short Range Total AM Peak Hour
AM Peak

Intersection												
Int Delay, s/veh	9.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	20	70	186	10	82	25	231	45	45	369	35
Future Vol, veh/h	50	20	70	186	10	82	25	231	45	45	369	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	200	-	200	200	-	200
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	54	22	76	202	11	89	27	251	49	49	401	38
Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	684	853	201	615	842	126	439	0	0	300	0	0
Stage 1	499	499	-	305	305	-	-	-	-	-	-	-
Stage 2	185	354	-	310	537	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.6	7	7.6	6.6	7	4.2	-	-	4.2	-	-
Critical Hdwy Stg 1	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	3.55	4.05	3.35	2.25	-	-	2.25	-	-
Pot Cap-1 Maneuver	329	289	797	369	294	891	1096	-	-	1237	-	-
Stage 1	514	535	-	671	653	-	-	-	-	-	-	-
Stage 2	790	621	-	667	514	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	273	271	797	299	275	891	1096	-	-	1237	-	-
Mov Cap-2 Maneuver	273	271	-	299	275	-	-	-	-	-	-	-
Stage 1	501	514	-	654	637	-	-	-	-	-	-	-
Stage 2	682	605	-	555	493	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB		SB		SB	
HCM Control Delay, s	15.9		29.6		0.7		0.8					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1096	-	-	273	557	299	717	1237	-	-		
HCM Lane V/C Ratio	0.025	-	-	0.199	0.176	0.676	0.139	0.04	-	-		
HCM Control Delay (s)	8.4	-	-	21.4	12.8	38.9	10.8	8	-	-		
HCM Lane LOS	A	-	-	C	B	E	B	A	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.6	4.6	0.5	0.1	-	-		







HCM 6th TWSC
4: Picadilly Rd & 40th PI

Short Range Total AM Peak Hour
AM Peak

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	290	20	10	615
Future Vol, veh/h	0	16	290	20	10	615
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	17	315	22	11	668
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	682	169	0	0	337	0
Stage 1	326	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Critical Hdwy	6.9	7	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	-	-	2.25	-
Pot Cap-1 Maneuver	377	836	-	-	1198	-
Stage 1	695	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	374	836	-	-	1198	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	695	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.4	0	0.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	836	1198	-	
HCM Lane V/C Ratio	-	-	0.021	0.009	-	
HCM Control Delay (s)	-	-	0	9.4	8	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	-	0.1	0	

HCM 6th TWSC
6: CSP 3 Internal & 42nd Ave

Short Range Total AM Peak Hour
AM Peak

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	44	7	5	102	5	48	5	5	25	5	128
Future Vol, veh/h	59	44	7	5	102	5	48	5	5	25	5	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	64	48	8	5	111	5	52	5	5	27	5	139
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	116	0	0	56	0	0	376	306	52	309	308	114
Stage 1	-	-	-	-	-	-	180	180	-	124	124	-
Stage 2	-	-	-	-	-	-	196	126	-	185	184	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1454	-	-	1530	-	-	576	603	1007	638	601	931
Stage 1	-	-	-	-	-	-	815	745	-	873	788	-
Stage 2	-	-	-	-	-	-	799	786	-	810	742	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1454	-	-	1530	-	-	469	575	1007	607	573	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	469	575	-	607	573	-
Stage 1	-	-	-	-	-	-	779	712	-	835	786	-
Stage 2	-	-	-	-	-	-	673	784	-	764	709	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.1			0.3			13.2			10.4		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	500	1454	-	-	1530	-	-	843				
HCM Lane V/C Ratio	0.126	0.044	-	-	0.004	-	-	0.204				
HCM Control Delay (s)	13.2	7.6	-	-	7.4	-	-	10.4				
HCM Lane LOS	B	A	-	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.8				

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	629	311	10	0	57
Future Vol, veh/h	0	629	311	10	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	684	338	11	0	62











Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 169
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.35
Pot Cap-1 Maneuver	0	-	- 0 836
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - 836
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -







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




Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	836
HCM Lane V/C Ratio	-	-	-	0.074
HCM Control Delay (s)	-	-	-	9.7
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.2






HCM 6th TWSC
16: Tibet Rd & 39th Ave

Short Range Total AM Peak Hour
AM Peak

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	5	49	35	5	50	22	25	10	15	60	4
Future Vol, veh/h	21	5	49	35	5	50	22	25	10	15	60	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	23	5	53	38	5	54	24	27	11	16	65	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	207	183	65	203	176	27	69	0	0	38	0	0
Stage 1	97	97	-	75	75	-	-	-	-	-	-	-
Stage 2	110	86	-	128	101	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	744	706	991	749	712	1040	1513	-	-	1553	-	-
Stage 1	902	809	-	927	827	-	-	-	-	-	-	-
Stage 2	888	818	-	869	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	687	688	991	691	693	1040	1513	-	-	1553	-	-
Mov Cap-2 Maneuver	687	688	-	691	693	-	-	-	-	-	-	-
Stage 1	888	801	-	912	814	-	-	-	-	-	-	-
Stage 2	823	805	-	808	798	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.4			9.5			2.9			1.4		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1513	-	-	687	952	691	995	1553	-	-		
HCM Lane V/C Ratio	0.016	-	-	0.033	0.062	0.055	0.06	0.01	-	-		
HCM Control Delay (s)	7.4	-	-	10.4	9	10.5	8.8	7.3	-	-		
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	0.2	0	-	-		

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	75	71	26	4	45
Future Vol, veh/h	41	75	71	26	4	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	45	82	77	28	4	49
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	186	4	53	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	796	1071	1534	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	756	1071	1534	-	-	-
Mov Cap-2 Maneuver	756	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	5.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1534	-	756	1071	-	-
HCM Lane V/C Ratio	0.05	-	0.059	0.076	-	-
HCM Control Delay (s)	7.5	-	10.1	8.6	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.2	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	1	10	106	9	29
Future Vol, veh/h	87	1	10	106	9	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	95	1	11	115	10	32
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	96	0	233	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	137	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1479	-	749	952
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	882	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	743	952
Mov Cap-2 Maneuver	-	-	-	-	743	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	875	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.6		9.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	893	-	-	1479	-	
HCM Lane V/C Ratio	0.046	-	-	0.007	-	
HCM Control Delay (s)	9.2	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

























Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	4	10	105	7	18
Future Vol, veh/h	70	4	10	105	7	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	76	4	11	114	8	20
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	80	0	214	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1499	-	768	974
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1499	-	763	974
Mov Cap-2 Maneuver	-	-	-	-	763	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	877	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	904	-	-	1499	-	
HCM Lane V/C Ratio	0.03	-	-	0.007	-	
HCM Control Delay (s)	9.1	-	-	7.4	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th Signalized Intersection Summary

9: Picadilly Rd & 38th Ave

Short Range Total PM Peak Hour

























04/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	251	30	144	380	140	35	274	82	90	208	77
Future Volume (veh/h)	105	251	30	144	380	140	35	274	82	90	208	77
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	114	273	33	157	413	152	38	298	89	98	226	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	571	1566	743	380	1161	603	363	937	550	347	1027	771
Arrive On Green	0.20	0.45	0.45	0.03	0.11	0.11	0.03	0.27	0.27	0.05	0.30	0.30
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	1739	3469	1547	1739	3469	1547
Grp Volume(v), veh/h	114	273	33	157	413	152	38	298	89	98	226	84
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1739	1735	1547	1739	1735	1547
Q Serve(g_s), s	0.0	6.1	1.5	8.8	14.3	5.4	2.0	8.9	5.1	5.2	6.4	0.5
Cycle Q Clear(g_c), s	0.0	6.1	1.5	8.8	14.3	5.4	2.0	8.9	5.1	5.2	6.4	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	571	1566	743	380	1161	603	363	937	550	347	1027	771
V/C Ratio(X)	0.20	0.17	0.04	0.41	0.36	0.25	0.10	0.32	0.16	0.28	0.22	0.11
Avail Cap(c_a), veh/h	571	1566	743	559	1161	603	467	937	550	512	1027	771
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	27.0	21.2	18.0	35.9	44.8	14.8	32.7	37.9	28.7	31.2	34.4	9.6
Incr Delay (d2), s/veh	0.2	0.2	0.1	0.7	0.9	1.0	0.1	0.9	0.6	0.4	0.5	0.3
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	4.5	4.6	1.0	7.4	11.1	4.6	1.6	7.1	3.6	4.0	5.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	21.5	18.1	36.6	45.7	15.8	32.8	38.8	29.3	31.6	34.9	9.9
LnGrp LOS	C	C	B	D	D	B	C	D	C	C	C	A
Approach Vol, veh/h	420			722			425			408		
Approach Delay, s/veh	22.8			37.4			36.3			29.0		
Approach LOS	C			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	63.2	8.2	43.0	30.8	48.0	11.6	39.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	24.5	37.5	11.5	38.5	18.5	43.5	19.5	30.5				
Max Q Clear Time (g_c+I1), s	10.8	8.1	4.0	8.4	2.0	16.3	7.2	10.9				
Green Ext Time (p_c), s	0.3	1.9	0.0	1.8	0.2	3.4	0.2	2.1				
Intersection Summary												
HCM 6th Ctrl Delay	32.3											
HCM 6th LOS	C											

Timings
9: Picadilly Rd & 38th Ave

Short Range Total PM Peak Hour

04/28/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	251	30	144	380	140	35	274	82	90	208	77
Future Volume (vph)	105	251	30	144	380	140	35	274	82	90	208	77
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	23.0	42.0	16.0	29.0	48.0	24.0	16.0	35.0	29.0	24.0	43.0	23.0
Total Split (%)	17.7%	32.3%	12.3%	22.3%	36.9%	18.5%	12.3%	26.9%	22.3%	18.5%	33.1%	17.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	47.7	47.7	59.5	43.5	43.5	53.6	47.1	39.9	58.7	53.5	44.8	64.2
Actuated g/C Ratio	0.37	0.37	0.46	0.33	0.33	0.41	0.36	0.31	0.45	0.41	0.34	0.49
v/c Ratio	0.25	0.22	0.04	0.43	0.36	0.21	0.09	0.28	0.12	0.24	0.19	0.10
Control Delay	33.2	29.6	0.1	44.8	43.5	2.7	23.3	35.6	1.5	24.9	31.5	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	29.6	0.1	44.8	43.5	2.7	23.3	35.6	1.5	24.9	31.5	2.6
LOS	C	C	A	D	D	A	C	D	A	C	C	A
Approach Delay		28.3			35.2			27.4			23.9	
Approach LOS		C			D			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 29.7

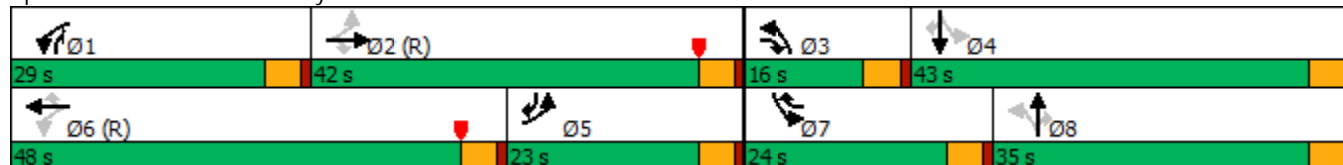
Intersection LOS: C

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 9: Picadilly Rd & 38th Ave



HCM 6th Signalized Intersection Summary 13: Tibet Rd & 38th Ave

Short Range Total PM Peak Hour

04/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	160	185	80	223	101	400	5	165	74	5	26
Future Volume (veh/h)	78	160	185	80	223	101	400	5	165	74	5	26
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	85	174	201	87	242	110	435	5	179	80	5	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	249	814	800	522	1303	637	953	723	613	292	274	315
Arrive On Green	0.09	0.39	0.39	0.19	0.38	0.38	0.28	0.40	0.40	0.04	0.15	0.15
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	85	174	201	87	242	110	435	5	179	80	5	28
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	5.2	4.3	0.0	0.0	6.1	0.9	13.8	0.2	10.3	0.0	0.3	1.0
Cycle Q Clear(g_c), s	5.2	4.3	0.0	0.0	6.1	0.9	13.8	0.2	10.3	0.0	0.3	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	814	800	522	1303	637	953	723	613	292	274	315
V/C Ratio(X)	0.34	0.21	0.25	0.17	0.19	0.17	0.46	0.01	0.29	0.27	0.02	0.09
Avail Cap(c_a), veh/h	336	814	800	522	1303	637	1155	723	613	396	274	315
HCM Platoon Ratio	1.67	1.67	1.67	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	40.7	31.6	13.4	32.4	27.3	13.5	38.4	23.8	26.8	46.4	47.1	17.8
Incr Delay (d2), s/veh	0.8	0.6	0.8	0.1	0.3	0.6	0.3	0.0	1.2	0.5	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	3.3	5.0	3.7	4.7	2.9	9.7	0.2	7.3	4.2	0.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	32.2	14.2	32.6	27.6	14.1	38.8	23.8	28.0	46.9	47.2	18.3
LnGrp LOS	D	C	B	C	C	B	D	C	C	D	D	B
Approach Vol, veh/h		460			439			619			113	
Approach Delay, s/veh		26.0			25.2			35.5			39.8	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.8	35.0	41.2	24.0	11.5	53.3	9.2	56.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.5	30.5	44.5	19.5	13.5	34.5	12.5	51.5				
Max Q Clear Time (g_c+I1), s	2.0	6.3	15.8	3.0	7.2	8.1	2.0	12.3				
Green Ext Time (p_c), s	0.2	1.8	1.6	0.0	0.1	1.9	0.1	0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

























Notes

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

Timings
13: Tibet Rd & 38th Ave

Short Range Total PM Peak Hour

04/28/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	160	185	80	223	101	400	5	165	74	5	26
Future Volume (vph)	78	160	185	80	223	101	400	5	165	74	5	26
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	18.0	35.0	49.0	22.0	39.0	17.0	49.0	56.0	56.0	17.0	24.0	18.0
Total Split (%)	13.8%	26.9%	37.7%	16.9%	30.0%	13.1%	37.7%	43.1%	43.1%	13.1%	18.5%	13.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	35.7	35.7	79.5	42.8	42.8	50.1	39.3	51.5	51.5	26.8	19.5	29.9
Actuated g/C Ratio	0.27	0.27	0.61	0.33	0.33	0.39	0.30	0.40	0.40	0.21	0.15	0.23
v/c Ratio	0.29	0.18	0.20	0.19	0.21	0.17	0.43	0.01	0.25	0.27	0.02	0.06
Control Delay	41.8	38.1	5.9	34.7	33.0	3.6	37.9	24.0	4.4	25.8	47.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	38.1	5.9	34.7	33.0	3.6	37.9	24.0	4.4	25.8	47.4	0.3
LOS	D	D	A	C	C	A	D	C	A	C	D	A
Approach Delay		24.7			25.9			28.1			20.5	
Approach LOS		C			C			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 26.0

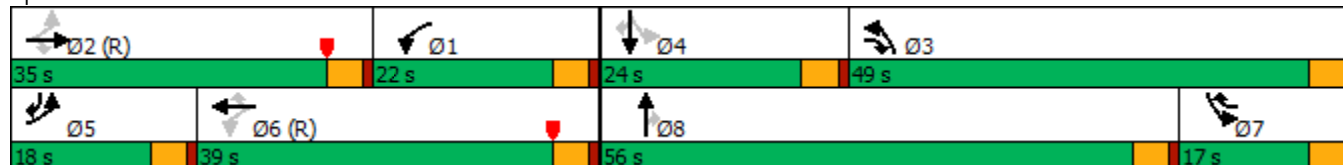
Intersection LOS: C

Intersection Capacity Utilization 39.8%

ICU Level of Service A

Analysis Period (min) 15











Splits and Phases: 13: Tibet Rd & 38th Ave



HCM 6th TWSC
1: Picadilly Rd & 42nd Ave

Short Range Total PM Peak Hour

04/28/2021

Intersection												
Int Delay, s/veh	45											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	10	30	185	20	40	90	296	90	170	181	40
Future Vol, veh/h	25	10	30	185	20	40	90	296	90	170	181	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	200	-	200	200	-	200
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, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	27	11	33	201	22	43	98	322	98	185	197	43

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	935	1183	99	992	1128	161	240	0	0	420	0	0
Stage 1	567	567	-	518	518	-	-	-	-	-	-	-
Stage 2	368	616	-	474	610	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.6	7	7.6	6.6	7	4.2	-	-	4.2	-	-
Critical Hdwy Stg 1	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.6	-	6.6	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.55	4.05	3.35	3.55	4.05	3.35	2.25	-	-	2.25	-	-
Pot Cap-1 Maneuver	216	184	928	~ 196	198	846	1302	-	-	1114	-	-
Stage 1	468	498	-	501	524	-	-	-	-	-	-	-
Stage 2	616	473	-	532	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	151	142	928	~ 147	153	846	1302	-	-	1114	-	-
Mov Cap-2 Maneuver	151	142	-	~ 147	153	-	-	-	-	-	-	-
Stage 1	433	415	-	463	485	-	-	-	-	-	-	-
Stage 2	516	438	-	417	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.6	201.1	1.5	3.9
HCM LOS	C	F		






Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1302	-	-	151	389	147	337	1114	-	-
HCM Lane V/C Ratio	0.075	-	-	0.18	0.112	1.368	0.194	0.166	-	-
HCM Control Delay (s)	8	-	-	34	15.4	260.4	18.2	8.9	-	-
HCM Lane LOS	A	-	-	D	C	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.4	12.7	0.7	0.6	-	-







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

HCM 6th TWSC
4: Picadilly Rd & 40th Pl

Short Range Total PM Peak Hour

04/28/2021

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	11	465	54	21	375
Future Vol, veh/h	0	11	465	54	21	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	12	505	59	23	408
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	785	282	0	0	564	0
Stage 1	535	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.9	7	-	-	4.2	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	-	-	2.25	-
Pot Cap-1 Maneuver	324	706	-	-	983	-
Stage 1	543	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	317	706	-	-	983	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.2	0	0.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	706	983	-	
HCM Lane V/C Ratio	-	-	0.017	0.023	-	
HCM Control Delay (s)	-	-	0	10.2	8.7	
HCM Lane LOS	-	-	A	B	A	
HCM 95th %tile Q(veh)	-	-	-	0.1	0.1	

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	171	90	9	5	51	30	32	5	5	20	5	116
Future Vol, veh/h	171	90	9	5	51	30	32	5	5	20	5	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	186	98	10	5	55	33	35	5	5	22	5	126

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	108	0	0	622	573	103	562	562	72
Stage 1	-	-	-	-	-	-	475	475	-	82	82	-
Stage 2	-	-	-	-	-	-	147	98	-	480	480	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1489	-	-	1464	-	-	395	426	944	433	432	982
Stage 1	-	-	-	-	-	-	565	552	-	919	821	-
Stage 2	-	-	-	-	-	-	849	808	-	561	549	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1489	-	-	1464	-	-	307	371	944	384	377	982
Mov Cap-2 Maneuver	-	-	-	-	-	-	307	371	-	384	377	-
Stage 1	-	-	-	-	-	-	494	483	-	804	819	-
Stage 2	-	-	-	-	-	-	733	806	-	483	480	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.9			0.4			17.2			10.8		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	341	1489	-	-	1464	-	-	769
HCM Lane V/C Ratio	0.134	0.125	-	-	0.004	-	-	0.199
HCM Control Delay (s)	17.2	7.8	-	-	7.5	-	-	10.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0	-	-	0.7

Intersection











Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	423	616	33	0	48
Future Vol, veh/h	0	423	616	33	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	460	670	36	0	52

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 335
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.35
Pot Cap-1 Maneuver	0	-	- 0 652
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - 652
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B







Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	652
HCM Lane V/C Ratio	-	-	-	0.08
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	5	40	25	5	40	60	84	40	55	45	22
Future Vol, veh/h	15	5	40	25	5	40	60	84	40	55	45	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	16	5	43	27	5	43	65	91	43	60	49	24

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	436	433	49	426	414	91	73	0	0	134	0	0
Stage 1	169	169	-	221	221	-	-	-	-	-	-	-
Stage 2	267	264	-	205	193	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	525	511	1011	534	524	958	1508	-	-	1432	-	-
Stage 1	826	753	-	775	715	-	-	-	-	-	-	-
Stage 2	732	685	-	790	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	465	469	1011	474	481	958	1508	-	-	1432	-	-
Mov Cap-2 Maneuver	465	469	-	474	481	-	-	-	-	-	-	-
Stage 1	790	721	-	742	684	-	-	-	-	-	-	-
Stage 2	663	656	-	719	704	-	-	-	-	-	-	-




Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		10.7		2.4		3.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	465	896	474	863	1432	-	-
HCM Lane V/C Ratio	0.043	-	-	0.035	0.055	0.057	0.057	0.042	-	-
HCM Control Delay (s)	7.5	-	-	13	9.3	13.1	9.4	7.6	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0.2	0.2	0.1	-	-

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	105	100	39	17	50
Future Vol, veh/h	35	105	100	39	17	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	38	114	109	42	18	54
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	278	18	72	0	-	0
Stage 1	18	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	705	1052	1509	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	654	1052	1509	-	-	-
Mov Cap-2 Maneuver	654	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.3	5.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1509	-	654	1052	-	-
HCM Lane V/C Ratio	0.072	-	0.058	0.108	-	-
HCM Control Delay (s)	7.6	-	10.8	8.8	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.4	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	121	5	30	120	6	19
Future Vol, veh/h	121	5	30	120	6	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	132	5	33	130	7	21





Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	137
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1429
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1429
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	825	-	-	1429	-
HCM Lane V/C Ratio	0.033	-	-	0.023	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	7	28	98	14	18
Future Vol, veh/h	108	7	28	98	14	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	117	8	30	107	15	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	125
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1443
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1443
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	798	-	-	1443	-
HCM Lane V/C Ratio	0.044	-	-	0.021	-
HCM Control Delay (s)	9.7	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-























APPENDIX F. LONG-RANGE TOTAL TRAFFIC LOS

HCM 6th Signalized Intersection Summary

1: Picadilly Rd & 42nd Ave

















Long Term Total

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	20	70	186	10	82	25	1254	45	45	996	35
Future Volume (veh/h)	50	20	70	186	10	82	25	1254	45	45	996	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	54	22	76	202	11	89	27	1363	49	49	1083	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	209	28	97	232	22	181	381	3275	118	357	3317	116
Arrive On Green	0.04	0.08	0.08	0.09	0.13	0.13	0.05	1.00	1.00	0.03	0.67	0.67
Sat Flow, veh/h	1739	360	1243	1739	173	1401	1739	4940	178	1739	4944	173
Grp Volume(v), veh/h	54	0	98	202	0	100	27	917	495	49	728	393
Grp Sat Flow(s),veh/h/ln	1739	0	1602	1739	0	1574	1739	1662	1794	1739	1662	1795
Q Serve(g_s), s	3.7	0.0	7.8	11.5	0.0	7.7	0.6	0.0	0.0	1.2	12.0	12.0
Cycle Q Clear(g_c), s	3.7	0.0	7.8	11.5	0.0	7.7	0.6	0.0	0.0	1.2	12.0	12.0
Prop In Lane	1.00		0.78	1.00		0.89	1.00		0.10	1.00		0.10
Lane Grp Cap(c), veh/h	209	0	125	232	0	203	381	2203	1189	357	2229	1204
V/C Ratio(X)	0.26	0.00	0.78	0.87	0.00	0.49	0.07	0.42	0.42	0.14	0.33	0.33
Avail Cap(c_a), veh/h	244	0	290	232	0	333	439	2203	1189	442	2229	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	0.0	58.8	51.2	0.0	52.6	6.8	0.0	0.0	6.2	9.0	9.0
Incr Delay (d2), s/veh	0.6	0.0	10.1	27.9	0.0	1.8	0.1	0.6	1.1	0.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	6.3	5.3	0.0	5.7	0.4	0.3	0.6	0.8	7.7	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	68.9	79.1	0.0	54.5	6.9	0.6	1.1	6.4	9.4	9.7
LnGrp LOS	D	A	E	E	A	D	A	A	A	A	A	A
Approach Vol, veh/h	152			302			1439			1170		
Approach Delay, s/veh	63.3			71.0			0.9			9.4		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	90.7	16.0	14.7	7.6	91.7	9.4	21.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	66.5	11.5	23.5	7.5	69.5	7.5	27.5				
Max Q Clear Time (g_c+I1), s	3.2	2.0	13.5	9.8	2.6	14.0	5.7	9.7				
Green Ext Time (p_c), s	0.0	14.9	0.0	0.4	0.0	10.1	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	14.1											
HCM 6th LOS	B											

Timings 1: Picadilly Rd & 42nd Ave

Long Term Total
AM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	20	186	10	25	1254	45	996
Future Volume (vph)	50	20	186	10	25	1254	45	996
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	12.0	28.0	16.0	32.0	12.0	71.0	15.0	74.0
Total Split (%)	9.2%	21.5%	12.3%	24.6%	9.2%	54.6%	11.5%	56.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	15.3	8.1	23.7	14.5	92.8	87.9	94.5	90.3
Actuated g/C Ratio	0.12	0.06	0.18	0.11	0.71	0.68	0.73	0.69
v/c Ratio	0.31	0.57	0.97	0.39	0.08	0.42	0.18	0.33
Control Delay	48.7	31.8	103.5	17.3	2.2	3.8	6.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	31.8	103.5	17.3	2.2	3.8	6.5	8.9
LOS	D	C	F	B	A	A	A	A
Approach Delay		37.8		74.9		3.8		8.8
Approach LOS		D		E		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 14.4





Intersection LOS: B

Intersection Capacity Utilization 57.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Picadilly Rd & 42nd Ave







				
Ø1	Ø2 (R)		Ø3	Ø4
15 s	71 s		16 s	28 s
				
Ø5	Ø6 (R)		Ø7	Ø8
12 s	74 s		12 s	32 s

HCM 6th TWSC
4: Picadilly Rd & 40th PI

Long Term Total
AM Peak

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	1308	20	10	1242
Future Vol, veh/h	0	16	1308	20	10	1242
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	17	1422	22	11	1350







Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1995	722	0
Stage 1	1433	-	-
Stage 2	562	-	-
Critical Hdwy	5.8	7.2	-
Critical Hdwy Stg 1	6.7	-	-
Critical Hdwy Stg 2	6.1	-	-
Follow-up Hdwy	3.85	3.95	-
Pot Cap-1 Maneuver	91	311	-
Stage 1	127	-	-
Stage 2	480	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	87	311	-
Mov Cap-2 Maneuver	87	-	-
Stage 1	127	-	-
Stage 2	457	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	311	231
HCM Lane V/C Ratio	-	-	0.056	0.047
HCM Control Delay (s)	-	-	0	17.3
HCM Lane LOS	-	-	A	C
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
6: CSP 3 Internal & 42nd Ave

Long Term Total
AM Peak

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	44	7	5	102	5	48	5	5	25	5	128
Future Vol, veh/h	59	44	7	5	102	5	48	5	5	25	5	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	64	48	8	5	111	5	52	5	5	27	5	139

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	116	0	0	56	0	0	376	306	52	309	308	114
Stage 1	-	-	-	-	-	-	180	180	-	124	124	-
Stage 2	-	-	-	-	-	-	196	126	-	185	184	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1454	-	-	1530	-	-	576	603	1007	638	601	931
Stage 1	-	-	-	-	-	-	815	745	-	873	788	-
Stage 2	-	-	-	-	-	-	799	786	-	810	742	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1454	-	-	1530	-	-	469	575	1007	607	573	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	469	575	-	607	573	-
Stage 1	-	-	-	-	-	-	779	712	-	835	786	-
Stage 2	-	-	-	-	-	-	673	784	-	764	709	-
































Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.1			0.3			13.2			10.4		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	500	1454	-	-	1530	-	-	843
HCM Lane V/C Ratio	0.126	0.044	-	-	0.004	-	-	0.204
HCM Control Delay (s)	13.2	7.6	-	-	7.4	-	-	10.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.8

HCM 6th Signalized Intersection Summary

























9: Picadilly Rd & 38th Ave

Long Term Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			  			  	
Traffic Volume (veh/h)	176	830	115	277	918	105	120	1047	401	185	921	136
Future Volume (veh/h)	176	830	115	277	918	105	120	1047	401	185	921	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	191	902	125	301	998	114	130	1138	436	201	1001	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	278	1397	732	363	1454	803	219	1254	556	238	1400	575
Arrive On Green	0.09	0.40	0.40	0.04	0.14	0.14	0.07	0.25	0.25	0.03	0.09	0.09
Sat Flow, veh/h	1739	3469	1547	3374	3469	1547	1739	4985	1547	1739	4985	1547
Grp Volume(v), veh/h	191	902	125	301	998	114	130	1138	436	201	1001	148
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1687	1735	1547	1739	1662	1547	1739	1662	1547
Q Serve(g_s), s	4.5	27.3	6.0	11.5	35.6	4.2	7.1	28.8	32.7	10.7	25.4	1.7
Cycle Q Clear(g_c), s	4.5	27.3	6.0	11.5	35.6	4.2	7.1	28.8	32.7	10.7	25.4	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	278	1397	732	363	1454	803	219	1254	556	238	1400	575
V/C Ratio(X)	0.69	0.65	0.17	0.83	0.69	0.14	0.59	0.91	0.78	0.84	0.72	0.26
Avail Cap(c_a), veh/h	278	1397	732	480	1454	803	277	1254	556	299	1400	575
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
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	51.5	31.3	19.6	61.5	47.9	10.5	34.8	47.2	37.1	36.9	53.9	20.2
Incr Delay (d2), s/veh	6.9	2.3	0.5	8.9	2.7	0.4	2.6	11.1	10.6	16.2	3.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.6	17.5	4.1	9.6	24.0	3.4	5.7	19.1	20.0	10.1	17.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	33.7	20.1	70.4	50.5	10.9	37.3	58.3	47.8	53.0	57.1	21.3
LnGrp LOS	E	C	C	E	D	B	D	E	D	D	E	C
Approach Vol, veh/h	1218			1413			1704			1350		
Approach Delay, s/veh	36.1			51.6			54.0			52.6		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.5	56.8	13.7	41.0	16.3	59.0	17.4	37.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	43.5	13.5	36.5	7.5	54.5	17.5	32.5				
Max Q Clear Time (g_c+I1), s	13.5	29.3	9.1	27.4	6.5	37.6	12.7	34.7				
Green Ext Time (p_c), s	0.5	5.9	0.1	4.9	0.1	7.1	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			49.2									
HCM 6th LOS			D									

Timings 9: Picadilly Rd & 38th Ave

Long Term Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	830	115	277	918	105	120	1047	401	185	921	136
Future Volume (vph)	176	830	115	277	918	105	120	1047	401	185	921	136
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	12.0	48.0	18.0	23.0	59.0	22.0	18.0	37.0	23.0	22.0	41.0	12.0
Total Split (%)	9.2%	36.9%	13.8%	17.7%	45.4%	16.9%	13.8%	28.5%	17.7%	16.9%	31.5%	9.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	45.5	45.5	61.3	16.5	54.5	69.5	46.3	35.0	56.0	53.7	38.7	46.2
Actuated g/C Ratio	0.35	0.35	0.47	0.13	0.42	0.53	0.36	0.27	0.43	0.41	0.30	0.36
v/c Ratio	0.84	0.75	0.17	0.71	0.69	0.13	0.58	0.86	0.61	0.79	0.68	0.24
Control Delay	75.3	42.4	12.3	48.6	29.3	5.3	35.3	53.0	26.8	59.5	52.8	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	42.4	12.3	48.6	29.3	5.3	35.3	53.0	26.8	59.5	52.8	16.6
LOS	E	D	B	D	C	A	D	D	C	E	D	B
Approach Delay		44.4			31.5			44.9			49.8	
Approach LOS		D			C			D			D	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 42.6

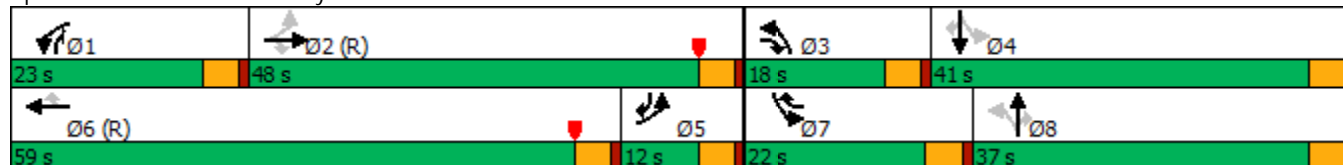
Intersection LOS: D

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 9: Picadilly Rd & 38th Ave



Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1416	1253	10	0	47
Future Vol, veh/h	0	1416	1253	10	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	1539	1362	11	0	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 681
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.35
Pot Cap-1 Maneuver	0	-	- 0 386
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - 386
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

























Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	386
HCM Lane V/C Ratio	-	-	-	0.132
HCM Control Delay (s)	-	-	-	15.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.5

HCM 6th Signalized Intersection Summary

























13: Tibet Rd & 38th Ave

Long Term Total
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	910	405	170	977	216	165	10	65	223	15	121
Future Volume (veh/h)	101	910	405	170	977	216	165	10	65	223	15	121
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	110	989	440	185	1062	235	179	11	71	242	16	132
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	223	1561	805	515	2039	1018	236	274	232	363	274	315
Arrive On Green	0.11	0.90	0.90	0.19	0.59	0.59	0.07	0.15	0.15	0.07	0.15	0.15
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	110	989	440	185	1062	235	179	11	71	242	16	132
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	5.1	8.6	0.0	0.0	23.6	2.1	6.8	0.7	5.3	0.0	1.0	7.5
Cycle Q Clear(g_c), s	5.1	8.6	0.0	0.0	23.6	2.1	6.8	0.7	5.3	0.0	1.0	7.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	223	1561	805	515	2039	1018	236	274	232	363	274	315
V/C Ratio(X)	0.49	0.63	0.55	0.36	0.52	0.23	0.76	0.04	0.31	0.67	0.06	0.42
Avail Cap(c_a), veh/h	270	1561	805	515	2039	1018	454	274	232	476	274	315
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	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	24.4	4.0	2.9	27.1	15.9	3.2	59.4	47.2	49.2	49.0	47.4	28.3
Incr Delay (d2), s/veh	1.7	2.0	2.7	0.4	1.0	0.5	4.9	0.3	3.4	2.2	0.4	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	3.7	3.7	3.3	8.6	14.5	2.1	5.5	0.6	4.1	12.2	0.9	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	6.0	5.5	27.5	16.9	3.7	64.3	47.5	52.6	51.2	47.8	32.3
LnGrp LOS	C	A	A	C	B	A	E	D	D	D	D	C
Approach Vol, veh/h		1539			1482			261			390	
Approach Delay, s/veh		7.3			16.1			60.4			44.7	
Approach LOS		A			B			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.4	63.0	13.6	24.0	11.5	80.9	13.6	24.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	58.5	17.5	19.5	10.5	64.5	17.5	19.5				
Max Q Clear Time (g_c+I1), s	2.0	10.6	8.8	9.5	7.1	25.6	2.0	7.3				
Green Ext Time (p_c), s	0.4	12.1	0.4	0.3	0.1	11.2	0.6	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings
13: Tibet Rd & 38th Ave

Long Term Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	910	405	170	977	216	165	10	65	223	15	121
Future Volume (vph)	101	910	405	170	977	216	165	10	65	223	15	121
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	15.0	63.0	22.0	21.0	69.0	22.0	22.0	24.0	24.0	22.0	24.0	15.0
Total Split (%)	11.5%	48.5%	16.9%	16.2%	53.1%	16.9%	16.9%	18.5%	18.5%	16.9%	18.5%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	63.4	63.4	80.5	70.2	70.2	82.8	12.6	19.5	19.5	32.1	19.5	29.2
Actuated g/C Ratio	0.49	0.49	0.62	0.54	0.54	0.64	0.10	0.15	0.15	0.25	0.15	0.22
v/c Ratio	0.48	0.59	0.39	0.46	0.57	0.22	0.55	0.04	0.21	0.65	0.06	0.32
Control Delay	32.1	29.0	5.4	31.2	22.2	1.1	62.1	47.9	1.7	50.2	48.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	29.0	5.4	31.2	22.2	1.1	62.1	47.9	1.7	50.2	48.2	11.4
LOS	C	C	A	C	C	A	E	D	A	D	D	B
Approach Delay		22.4			20.0			45.1			37.0	
Approach LOS		C			B			D			D	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 124 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 24.6

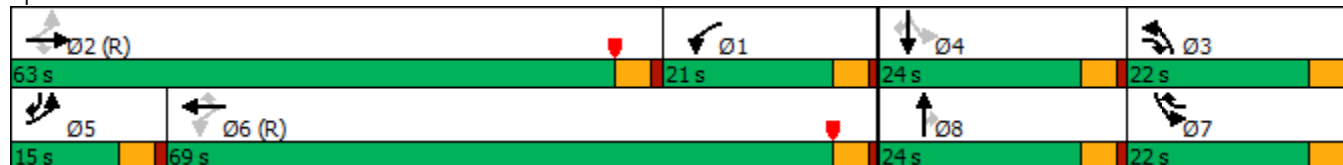
Intersection LOS: C

Intersection Capacity Utilization 64.8%

ICU Level of Service C











Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave



HCM 6th TWSC
16: Tibet Rd & 39th Ave







Long Term Total
AM Peak

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	5	49	35	5	50	22	295	10	15	283	6
Future Vol, veh/h	21	5	49	35	5	50	22	295	10	15	283	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	23	5	53	38	5	54	24	321	11	16	308	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	744	720	308	742	716	321	315	0	0	332	0	0
Stage 1	340	340	-	369	369	-	-	-	-	-	-	-
Stage 2	404	380	-	373	347	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	327	350	725	328	352	713	1228	-	-	1211	-	-
Stage 1	669	634	-	645	616	-	-	-	-	-	-	-
Stage 2	617	609	-	642	629	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	291	338	725	293	340	713	1228	-	-	1211	-	-
Mov Cap-2 Maneuver	291	338	-	293	340	-	-	-	-	-	-	-
Stage 1	656	626	-	632	604	-	-	-	-	-	-	-
Stage 2	554	597	-	582	621	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.1		14.2		0.5		0.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1228	-	-	291	656	293	648	1211	-	-
HCM Lane V/C Ratio	0.019	-	-	0.078	0.089	0.13	0.092	0.013	-	-
HCM Control Delay (s)	8	-	-	18.4	11	19.1	11.1	8	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0.4	0.3	0	-	-

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	75	71	295	229	45
Future Vol, veh/h	40	75	71	295	229	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	43	82	77	321	249	49




Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	724	249	298	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	388	782	1246	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	364	782	1246	-	-	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1246	-	364	782	-	-
HCM Lane V/C Ratio	0.062	-	0.119	0.104	-	-
HCM Control Delay (s)	8.1	-	16.2	10.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	0.3	-	-

Intersection

Int Delay, s/veh 1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	1	10	106	9	29
Future Vol, veh/h	87	1	10	106	9	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	95	1	11	115	10	32






Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	96
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1479
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1479
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	893	-	-	1479	-
HCM Lane V/C Ratio	0.046	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	4	10	105	7	18
Future Vol, veh/h	70	4	10	105	7	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	76	4	11	114	8	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	80
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1499
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1499
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.1
HCM LOS			A























Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	904	-	-	1499	-
HCM Lane V/C Ratio	0.03	-	-	0.007	-
HCM Control Delay (s)	9.1	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th Signalized Intersection Summary

1: Picadilly Rd & 42nd Ave

















Long Term Total

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (veh/h)	25	10	30	185	20	40	90	1137	90	173	1322	40
Future Volume (veh/h)	25	10	30	185	20	40	90	1137	90	173	1322	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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	27	11	33	201	22	43	98	1236	98	188	1437	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, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	153	17	52	292	79	154	301	3015	239	406	3270	98
Arrive On Green	0.02	0.04	0.04	0.12	0.14	0.14	0.07	1.00	1.00	0.05	0.66	0.66
Sat Flow, veh/h	1739	402	1207	1739	552	1079	1739	4709	373	1739	4973	149
Grp Volume(v), veh/h	27	0	44	201	0	65	98	872	462	188	960	520
Grp Sat Flow(s),veh/h/ln	1739	0	1609	1739	0	1632	1739	1662	1759	1739	1662	1799
Q Serve(g_s), s	1.9	0.0	3.5	13.9	0.0	4.6	2.6	0.0	0.0	4.8	18.1	18.1
Cycle Q Clear(g_c), s	1.9	0.0	3.5	13.9	0.0	4.6	2.6	0.0	0.0	4.8	18.1	18.1
Prop In Lane	1.00		0.75	1.00		0.66	1.00		0.21	1.00		0.08
Lane Grp Cap(c), veh/h	153	0	69	292	0	233	301	2128	1126	406	2185	1183
V/C Ratio(X)	0.18	0.00	0.63	0.69	0.00	0.28	0.33	0.41	0.41	0.46	0.44	0.44
Avail Cap(c_a), veh/h	265	0	316	338	0	420	336	2128	1126	492	2185	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	61.2	49.3	0.0	49.7	8.2	0.0	0.0	6.8	10.7	10.7
Incr Delay (d2), s/veh	0.5	0.0	9.2	4.8	0.0	0.6	0.6	0.6	1.1	0.8	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	2.9	10.6	0.0	3.5	1.7	0.3	0.6	3.2	10.8	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	70.4	54.1	0.0	50.4	8.8	0.6	1.1	7.6	11.4	11.9
LnGrp LOS	E	A	E	D	A	D	A	A	A	A	B	B
Approach Vol, veh/h	71			266			1432			1668		
Approach Delay, s/veh	65.7			53.2			1.3			11.1		
Approach LOS	E			D			A			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	87.8	20.6	10.1	9.4	90.0	7.6	23.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	53.5	19.5	25.5	7.5	59.5	11.5	33.5				
Max Q Clear Time (g_c+I1), s	6.8	2.0	15.9	5.5	4.6	20.1	3.9	6.6				
Green Ext Time (p_c), s	0.3	13.2	0.2	0.1	0.1	14.5	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	11.4											
HCM 6th LOS	B											

Timings 1: Picadilly Rd & 42nd Ave

Long Term Total
PM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	10	185	20	90	1137	173	1322
Future Volume (vph)	25	10	185	20	90	1137	173	1322
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	16.0	30.0	24.0	38.0	12.0	58.0	18.0	64.0
Total Split (%)	12.3%	23.1%	18.5%	29.2%	9.2%	44.6%	13.8%	49.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effect Green (s)	13.0	7.0	27.1	19.6	83.8	75.8	93.2	81.4
Actuated g/C Ratio	0.10	0.05	0.21	0.15	0.64	0.58	0.72	0.63
v/c Ratio	0.18	0.38	0.69	0.23	0.39	0.47	0.56	0.48
Control Delay	41.5	34.1	56.8	22.3	19.7	18.7	14.3	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	34.1	56.8	22.3	19.7	18.7	14.3	14.7
LOS	D	C	E	C	B	B	B	B
Approach Delay		36.9		48.4		18.8		14.7
Approach LOS		D		D		B		B

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.5

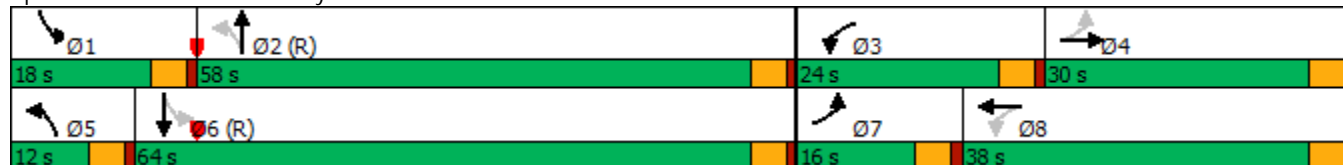
Intersection LOS: B

Intersection Capacity Utilization 61.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Picadilly Rd & 42nd Ave








HCM 6th TWSC
4: Picadilly Rd & 40th PI

Long Term Total
PM Peak

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	12	1305	60	21	1516
Future Vol, veh/h	0	12	1305	60	21	1516
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	13	1418	65	23	1648







Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2156	742	0
Stage 1	1451	-	-
Stage 2	705	-	-
Critical Hdwy	5.8	7.2	-
Critical Hdwy Stg 1	6.7	-	-
Critical Hdwy Stg 2	6.1	-	-
Follow-up Hdwy	3.85	3.95	-
Pot Cap-1 Maneuver	74	302	-
Stage 1	124	-	-
Stage 2	403	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	66	302	-
Mov Cap-2 Maneuver	66	-	-
Stage 1	124	-	-
Stage 2	361	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.5	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	302	221
HCM Lane V/C Ratio	-	-	0.043	0.103
HCM Control Delay (s)	-	-	0	17.5
HCM Lane LOS	-	-	A	C
HCM 95th %tile Q(veh)	-	-	0.1	0.3

HCM 6th TWSC
6: CSP 3 Internal & 42nd Ave

Long Term Total
PM Peak

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	91	11	5	77	30	32	5	5	20	5	40
Future Vol, veh/h	55	91	11	5	77	30	32	5	5	20	5	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	60	99	12	5	84	33	35	5	5	22	5	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	117	0	0	111	0	0	360	352	105	341	342	101
Stage 1	-	-	-	-	-	-	225	225	-	111	111	-
Stage 2	-	-	-	-	-	-	135	127	-	230	231	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1453	-	-	1460	-	-	590	568	941	607	575	946
Stage 1	-	-	-	-	-	-	771	712	-	887	798	-
Stage 2	-	-	-	-	-	-	861	785	-	766	708	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1453	-	-	1460	-	-	540	543	941	578	550	946
Mov Cap-2 Maneuver	-	-	-	-	-	-	540	543	-	578	550	-
Stage 1	-	-	-	-	-	-	739	683	-	851	796	-
Stage 2	-	-	-	-	-	-	813	783	-	724	679	-

























Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0.3			11.9			10.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	569	1453	-	-	1460	-	-	756
HCM Lane V/C Ratio	0.08	0.041	-	-	0.004	-	-	0.093
HCM Control Delay (s)	11.9	7.6	-	-	7.5	-	-	10.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.3

HCM 6th Signalized Intersection Summary

























9: Picadilly Rd & 38th Ave

Long Term Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	1022	150	394	895	320	130	873	375	210	1127	179
Future Volume (veh/h)	172	1022	150	394	895	320	130	873	375	210	1127	179
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	187	1111	163	428	973	348	141	949	408	228	1225	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	252	1187	642	481	1401	790	205	1348	639	279	1515	595
Arrive On Green	0.08	0.34	0.34	0.10	0.27	0.27	0.07	0.27	0.27	0.04	0.10	0.10
Sat Flow, veh/h	1739	3469	1547	3374	3469	1547	1739	4985	1547	1739	4985	1547
Grp Volume(v), veh/h	187	1111	163	428	973	348	141	949	408	228	1225	195
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1687	1735	1547	1739	1662	1547	1739	1662	1547
Q Serve(g_s), s	5.1	40.3	9.0	16.3	32.7	12.8	7.5	22.3	27.3	11.7	31.3	2.9
Cycle Q Clear(g_c), s	5.1	40.3	9.0	16.3	32.7	12.8	7.5	22.3	27.3	11.7	31.3	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	1187	642	481	1401	790	205	1348	639	279	1515	595
V/C Ratio(X)	0.74	0.94	0.25	0.89	0.69	0.44	0.69	0.70	0.64	0.82	0.81	0.33
Avail Cap(c_a), veh/h	252	1187	642	506	1401	790	206	1348	639	301	1515	595
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	0.33	0.33	0.33
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	53.1	41.4	24.8	57.8	40.2	11.3	34.6	42.7	30.4	34.5	54.8	20.9
Incr Delay (d2), s/veh	11.3	14.6	0.9	17.1	2.9	1.8	9.1	3.1	4.8	15.0	4.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.9	26.7	6.3	13.1	21.6	8.8	6.7	14.6	16.4	10.8	21.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	56.0	25.8	74.9	43.1	13.0	43.7	45.9	35.3	49.5	59.5	22.4
LnGrp LOS	E	E	C	E	D	B	D	D	D	D	E	C
Approach Vol, veh/h	1461		1749				1498			1648		
Approach Delay, s/veh	53.7		44.9				42.8			53.8		
Approach LOS	D		D				D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	49.0	14.0	44.0	15.0	57.0	18.3	39.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	43.5	9.5	39.5	10.5	52.5	15.5	33.5				
Max Q Clear Time (g_c+I1), s	18.3	42.3	9.5	33.3	7.1	34.7	13.7	29.3				
Green Ext Time (p_c), s	0.2	0.9	0.0	4.3	0.2	8.0	0.1	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			48.7									
HCM 6th LOS			D									

Timings 9: Picadilly Rd & 38th Ave

Long Term Total
PM Peak

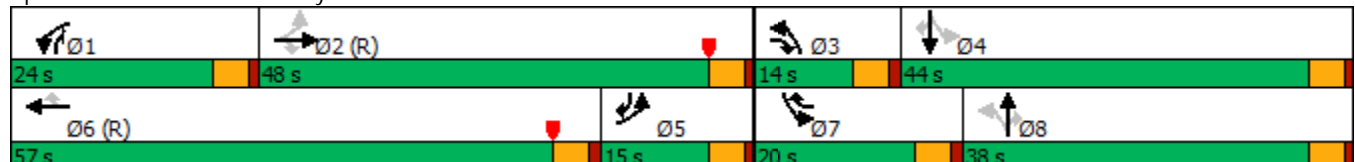
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1022	150	394	895	320	130	873	375	210	1127	179
Future Volume (vph)	172	1022	150	394	895	320	130	873	375	210	1127	179
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	15.0	48.0	14.0	24.0	57.0	20.0	14.0	38.0	24.0	20.0	44.0	15.0
Total Split (%)	11.5%	36.9%	10.8%	18.5%	43.8%	15.4%	10.8%	29.2%	18.5%	15.4%	33.8%	11.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	None	None	Max	None
Act Effect Green (s)	44.0	44.0	57.9	19.0	52.5	67.6	43.3	33.9	57.4	53.5	39.6	50.1
Actuated g/C Ratio	0.34	0.34	0.45	0.15	0.40	0.52	0.33	0.26	0.44	0.41	0.30	0.39
v/c Ratio	0.71	0.96	0.22	0.88	0.70	0.42	0.78	0.74	0.54	0.87	0.81	0.30
Control Delay	60.0	60.0	11.1	65.4	21.6	11.3	57.7	48.1	20.9	78.0	62.1	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	60.0	11.1	65.4	21.6	11.3	57.7	48.1	20.9	78.0	62.1	25.3
LOS	E	E	B	E	C	B	E	D	C	E	E	C
Approach Delay		54.5			30.3			41.6			60.0	
Approach LOS		D			C			D			E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 82 (63%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 46.2
Intersection Capacity Utilization 83.5%
Analysis Period (min) 15

Intersection LOS: D
ICU Level of Service E

Splits and Phases: 9: Picadilly Rd & 38th Ave



Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1607	1578	38	0	31
Future Vol, veh/h	0	1607	1578	38	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	350	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	1747	1715	41	0	34

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 858
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.35
Pot Cap-1 Maneuver	0	-	- 0 294
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - 294
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

























Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	294
HCM Lane V/C Ratio	-	-	-	0.115
HCM Control Delay (s)	-	-	-	18.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.4

HCM 6th Signalized Intersection Summary

























13: Tibet Rd & 38th Ave

Long Term Total
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	1270	185	80	1130	304	400	25	165	204	10	86
Future Volume (veh/h)	152	1270	185	80	1130	304	400	25	165	204	10	86
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	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826	1826
Adj Flow Rate, veh/h	165	1380	201	87	1228	330	435	27	179	222	11	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	193	1641	958	341	1789	964	492	330	280	391	260	309
Arrive On Green	0.12	0.95	0.95	0.10	0.52	0.52	0.15	0.18	0.18	0.11	0.14	0.14
Sat Flow, veh/h	1739	3469	1547	1739	3469	1547	3374	1826	1547	1739	1826	1547
Grp Volume(v), veh/h	165	1380	201	87	1228	330	435	27	179	222	11	93
Grp Sat Flow(s),veh/h/ln	1739	1735	1547	1739	1735	1547	1687	1826	1547	1739	1826	1547
Q Serve(g_s), s	7.5	13.6	0.0	0.0	34.5	3.3	16.4	1.6	13.9	0.0	0.7	4.6
Cycle Q Clear(g_c), s	7.5	13.6	0.0	0.0	34.5	3.3	16.4	1.6	13.9	0.0	0.7	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	193	1641	958	341	1789	964	492	330	280	391	260	309
V/C Ratio(X)	0.85	0.84	0.21	0.25	0.69	0.34	0.88	0.08	0.64	0.57	0.04	0.30
Avail Cap(c_a), veh/h	193	1641	958	341	1789	964	558	330	280	425	260	309
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	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	29.1	2.2	1.0	26.8	23.6	4.5	54.4	44.3	49.3	46.1	48.1	23.2
Incr Delay (d2), s/veh	29.3	5.4	0.5	0.4	2.2	1.0	14.3	0.5	10.7	1.5	0.3	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	7.9	4.3	0.6	3.7	20.7	4.1	12.6	1.4	10.3	10.9	0.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	7.6	1.5	27.2	25.8	5.5	68.8	44.8	60.1	47.6	48.4	25.7
LnGrp LOS	E	A	A	C	C	A	E	D	E	D	D	C
Approach Vol, veh/h	1746		1645				641		326			
Approach Delay, s/veh	11.7		21.8				65.3		41.4			
Approach LOS	B		C				E		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.5	66.0	23.5	23.0	12.0	71.5	18.5	28.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	61.5	21.5	18.5	7.5	64.5	16.5	23.5				
Max Q Clear Time (g_c+I1), s	2.0	15.6	18.4	6.6	9.5	36.5	2.0	15.9				
Green Ext Time (p_c), s	0.1	16.8	0.5	0.2	0.0	12.6	0.5	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	25.6											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings 13: Tibet Rd & 38th Ave

Long Term Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1270	185	80	1130	304	400	25	165	204	10	86
Future Volume (vph)	152	1270	185	80	1130	304	400	25	165	204	10	86
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	12.0	66.0	26.0	15.0	69.0	21.0	26.0	28.0	28.0	21.0	23.0	12.0
Total Split (%)	9.2%	50.8%	20.0%	11.5%	53.1%	16.2%	20.0%	21.5%	21.5%	16.2%	17.7%	9.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	Max	Max	None	Max	None
Act Effect Green (s)	62.7	62.7	87.5	64.5	64.5	79.8	20.3	23.5	23.5	33.8	18.5	27.2
Actuated g/C Ratio	0.48	0.48	0.67	0.50	0.50	0.61	0.16	0.18	0.18	0.26	0.14	0.21
v/c Ratio	0.97	0.83	0.18	0.41	0.72	0.31	0.84	0.08	0.42	0.57	0.04	0.22
Control Delay	89.3	21.5	1.1	42.0	28.7	1.3	68.0	45.2	9.6	42.1	48.8	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	21.5	1.1	42.0	28.7	1.3	68.0	45.2	9.6	42.1	48.8	2.9
LOS	F	C	A	D	C	A	E	D	A	D	D	A
Approach Delay		25.5			23.9			50.7			31.1	
Approach LOS		C			C			D			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 18 (14%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 29.0

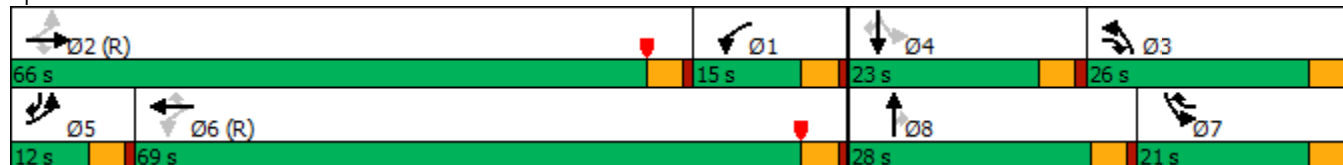
Intersection LOS: C

Intersection Capacity Utilization 69.0%

ICU Level of Service C











Analysis Period (min) 15

Splits and Phases: 13: Tibet Rd & 38th Ave



HCM 6th TWSC
16: Tibet Rd & 39th Ave







Long Term Total
PM Peak

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	5	37	25	5	40	63	379	40	55	246	25
Future Vol, veh/h	14	5	37	25	5	40	63	379	40	55	246	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	100	-	100	100	-	100
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	15	5	40	27	5	43	68	412	43	60	267	27

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	981	978	267	971	962	412	294	0	0	455	0	0
Stage 1	387	387	-	548	548	-	-	-	-	-	-	-
Stage 2	594	591	-	423	414	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	226	248	764	229	253	633	1251	-	-	1090	-	-
Stage 1	631	604	-	515	512	-	-	-	-	-	-	-
Stage 2	486	490	-	603	588	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	190	222	764	196	226	633	1251	-	-	1090	-	-
Mov Cap-2 Maneuver	190	222	-	196	226	-	-	-	-	-	-	-
Stage 1	597	571	-	487	484	-	-	-	-	-	-	-
Stage 2	423	464	-	535	556	-	-	-	-	-	-	-




Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.1		17.4		1.1		1.4	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1251	-	-	190	592	196	527	1090	-	-
HCM Lane V/C Ratio	0.055	-	-	0.08	0.077	0.139	0.093	0.055	-	-
HCM Control Delay (s)	8	-	-	25.6	11.6	26.3	12.5	8.5	-	-
HCM Lane LOS	A	-	-	D	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.2	0.5	0.3	0.2	-	-

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	104	101	332	222	53
Future Vol, veh/h	35	104	101	332	222	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	38	113	110	361	241	58
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	822	241	299	0	-	0
Stage 1	241	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	340	791	1245	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	310	791	1245	-	-	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.3	1.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1245	-	310	791	-	-
HCM Lane V/C Ratio	0.088	-	0.123	0.143	-	-
HCM Control Delay (s)	8.2	-	18.2	10.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	0.5	-	-

Intersection

Int Delay, s/veh 1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	121	5	35	119	6	19
Future Vol, veh/h	121	5	35	119	6	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	132	5	38	129	7	21





Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	137
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1429
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1429
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	820	-	-	1429	-
HCM Lane V/C Ratio	0.033	-	-	0.027	-
HCM Control Delay (s)	9.5	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	8	27	98	14	18
Future Vol, veh/h	108	8	27	98	14	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	117	9	29	107	15	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	126
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1442
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1442
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	799	-	-	1442	-
HCM Lane V/C Ratio	0.044	-	-	0.02	-
HCM Control Delay (s)	9.7	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

APPENDIX G. SIGNAL WARRANT ANALYSIS

Signal Warrant Evaluation - Approach Volume Counts

Major Road				Minor Road			
Hour	% DIR			Hour	% DIR		
	% ADT	NB/WB	SB/EB		% ADT	EB/SB	WB/NB
1	0.098	32	68	1	0.093	71	29
2	0.09	60	40	2	0.081	32	68
3	0.088	58	42	3	0.083	42	58
4	0.087	61	39	4	0.084	37	63
5	0.082	21	79	5	0.063	68	32
6	0.06	43	57	6	0.07	80	20
7	0.056	50	50	7	0.061	35	65
8	0.055	57	43	8	0.057	45	55

Signal Warrants : 38th Avenue/Tibet Road

Short Range Future					Minor			Warrant Satisfied?		
ADT	Major Approaches		Minor Approaches		Major	Higher	adjusted			
Hour	6300	8180	2010	4110	Total	Minor	for right-turns	1	2	3
	WB	EB	SB	NB						
1	198	545	133	111	961	235	176	N	N	N
2	340	294	52	226	827	570	428	Y	Y	Y
3	322	302	70	198	624	198	148	N	N	N
4	334	278	62	218	612	218	163	N	N	N
5	108	530	86	83	638	86	65	N	N	N
6	163	280	113	58	442	113	84	N	N	N
7	176	229	43	163	405	163	122	N	N	N
8	198	193	52	129	391	129	97	N	N	N
								NO	NO	YES

Long Range Future					Minor			Warrant Satisfied?		
ADT	Major Approaches		Minor Approaches		Major	Higher	adjusted			
Hour	30060	31970	7510	4110	Total	Minor	for right-turns	1	2	3
	WB	EB	SB	NB						
1	943	2130	496	111	3073	496	372	Y	Y	Y
2	1623	1151	195	226	2774	226	170	N	Y	Y
3	1534	1182	262	198	2716	262	196	N	Y	Y
4	1595	1085	233	218	2680	233	175	N	Y	Y
5	518	2071	322	83	2589	322	241	Y	Y	Y
6	776	1093	421	58	1869	421	315	Y	Y	Y
7	842	895	160	163	1737	163	122	N	Y	N
8	942	756	193	129	1698	193	144	N	Y	N
								NO	YES	YES