TRAFFIC IMPACT STUDY

Green Valley Ranch East
Planning Areas 8 & 9

Prepared for:

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FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

FHU Reference No. 119605-01

February 2022

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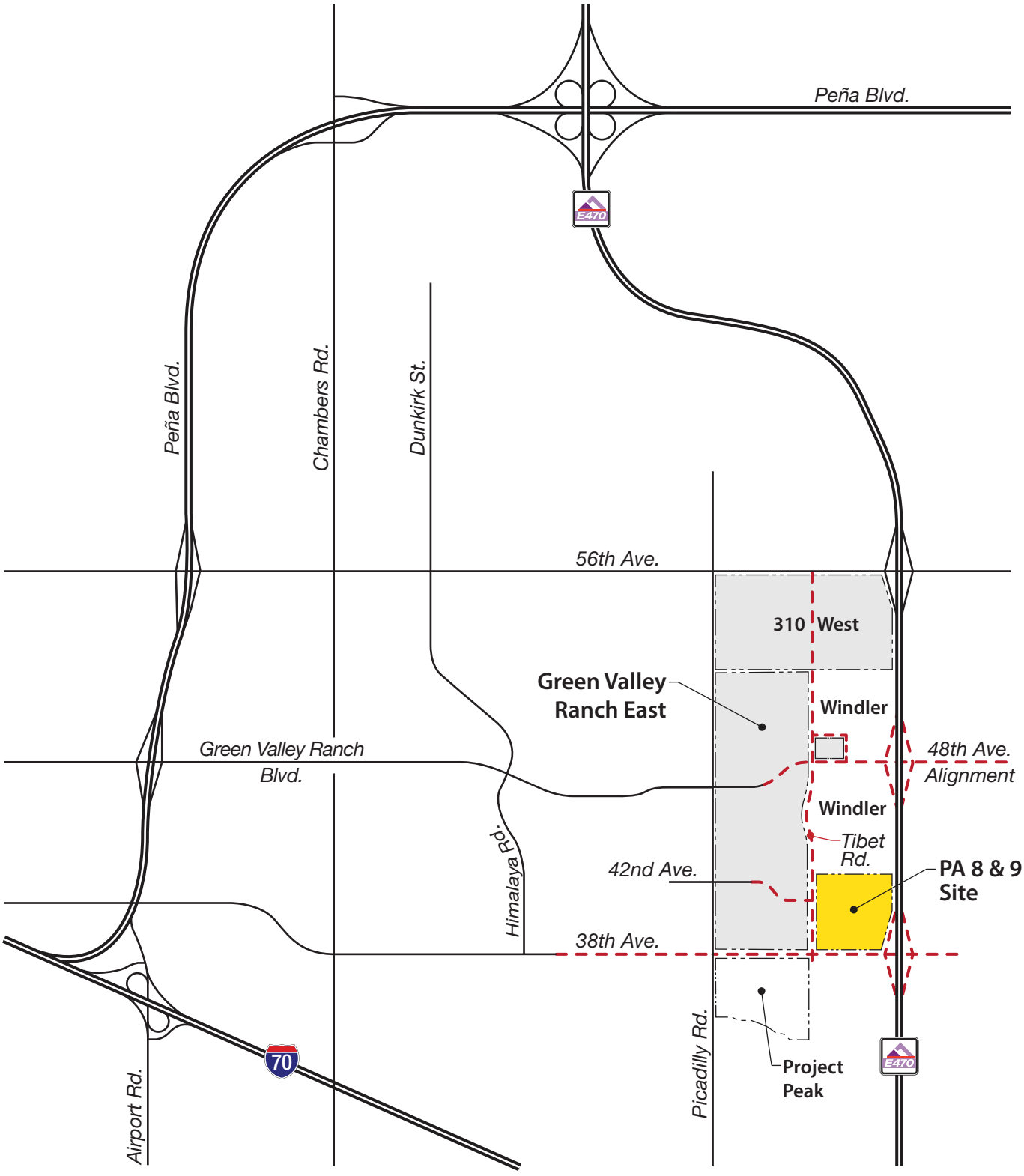
I. INTRODUCTION

Green Valley Ranch East Planning Areas 8 & 9 include a total of 568 single-family dwelling units. As shown on **Figure 1**, the site is located in the northeast quadrant of the future 38th Avenue/Tibet Road intersection in Aurora, Colorado. Vehicular access would be via connection to Tibet Road at the 39th, 42nd, and 45th Avenue (approximate) future alignments. These accesses would be full-movement (unsignalized), consistent with previous planning efforts at Green Valley Ranch East. A local, right-in/right-out (RIRO) connection to 38th Avenue is also planned. **Figure 2** depicts the current site plan concept.

Previous traffic analyses conducted for Green Valley Ranch East include the following:

- Transportation Analysis, Green Valley Ranch East, Felsburg Holt & Ullevig, updated May 2020
- Traffic Impact Study, Green Valley Ranch East CSP 3, updated May 2020
- Traffic Impact Study, Green Valley Ranch East Filing 7, updated May 2020

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 residential development in Planning Areas 8 & 9 and identifies the resultant roadway and traffic control improvements required. Because the adjacent roadway system has yet to be constructed, this analysis focuses on the Long-Range (year 2040) planning horizon.



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NOTE: Drawing Not to Scale

NORTH

FIGURE 1
Vicinity Map

GVR East - PA 8 & 9 121-374-01 2/11/21

DEVELOPMENT SUMMARY		
LOT TYPE	UNITS	PERCENTAGE
SINGLE FAMILY LOTS (MERIDIAN/HORIZON)	160	28.2%
STANDARD / EXPANDED GARAGE (50' MIN WIDTH)	99	61.9%
THREE-CAR GARAGE (60' MIN WIDTH)	61	38.1%
MOTORCOURT LOTS (CARRIAGE HOUSE)	234	41.2%
MOTORCOURT LOTS (PORCHLIGHT)	174	30.6%
TOTAL	568	100%

NORTH

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NOTE: Drawing Not to Scale

FIGURE 2

Conceptual Site Plan

GVR East - PA 8 & 9 121-374-01 2/11/21

II. EXISTING CONDITIONS

II.A. Land Use

Green Valley Ranch Planning Areas 8 & 9 are currently vacant. E-470 forms the eastern site boundary. Lands to the west in Green Valley Ranch East are currently under development with residential uses. Lands to the south include Project Peak, an industrial development.

II.B. Roadways

The primary existing study area includes:

- **38th Avenue**. This east-west roadway extends east from Tower Road to Himalaya Street as a 4-lane arterial in the City and County of Denver, and is posted with a 40 miles per hour (MPH) speed limit. To the west, 38th Avenue transitions to 40th Avenue and interchanges with Peña Boulevard. 38th Avenue is currently under construction between Himalaya Street and Project Peak, which will have access at the future Tibet Road alignment. In the future, 38th Avenue will have an interchange on E-470.
- **Tibet Road**. This planned north-south roadway will be constructed as adjacent lands develop. Tibet Road between 38th Avenue and 48th Avenue is planned as a 3-lane collector. As noted above, Project Peak (on the south side of 38th Avenue) will have vehicular access at the Tibet Road alignment.

III. PROPOSED FUTURE CONDITIONS

III.A. Trip Generation

As previously noted, the planned residential uses within Planning Areas 8 & 9 would consist of 568 single-family residential units. The proposed development is in general conformance with the planning data previously assumed for the *Transportation Analysis, Green Valley Ranch East* master report. The trip generation analysis, summarized in **Table 1**, was conducted using the fitted curve equations contained in *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), 2021 (ITE worksheets are included in **Appendix A**.

Table 1. Planning Areas 8 & 9 Trip Generation Analysis

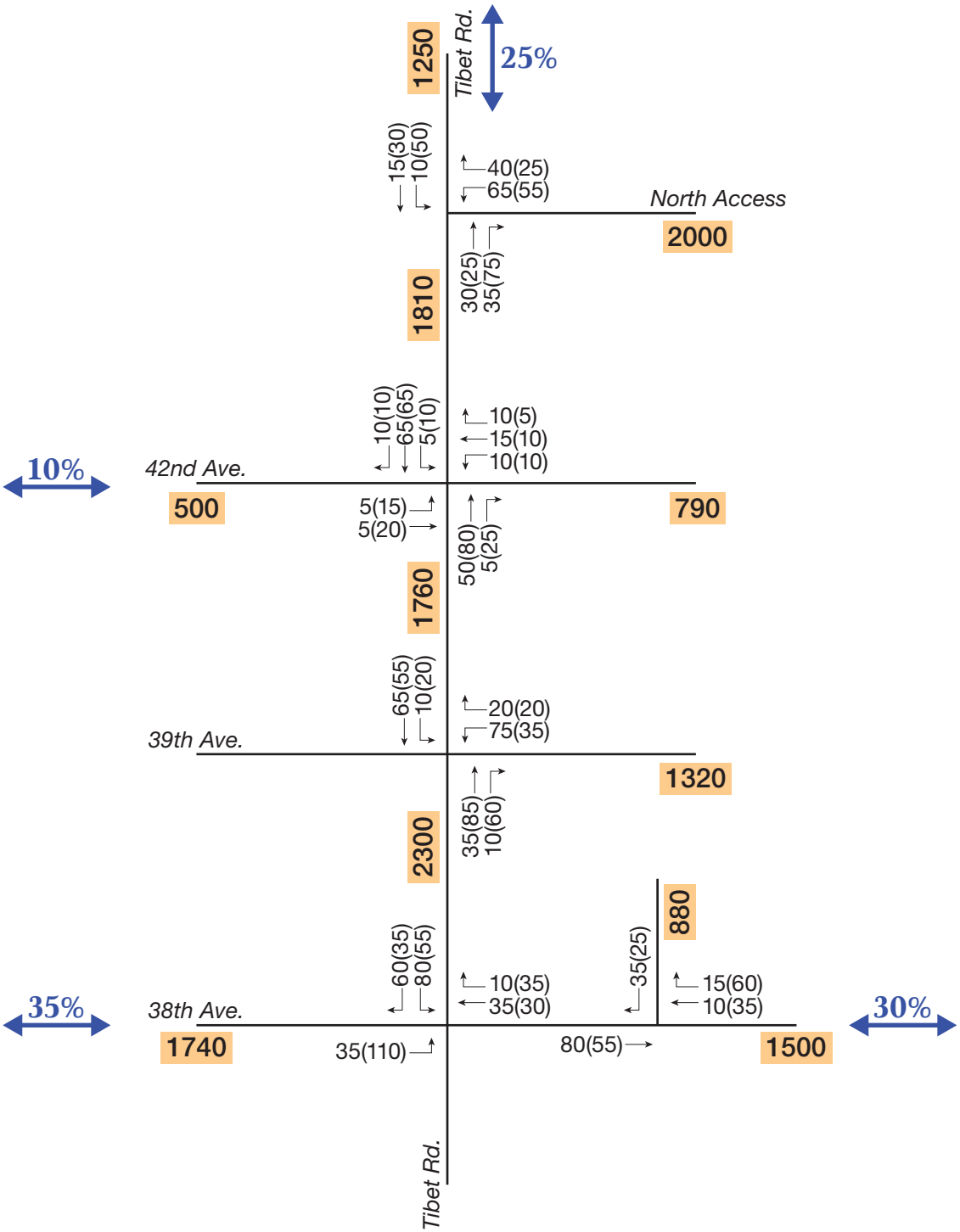
Land Use	Quantity	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Detached Housing (1)	174 DU	4,990	95	270	365	320	190	510
1 ITE Land Use Code 210 Single Family Detached Housing. Fitted curve equation results shown.								

As shown in **Table 1**, the site would have a trip generation potential of about 4,990 trips per day, with 365 AM peak hour trips and 510 PM peak hour trips.

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

In the future, it is projected that the adjacent study area roadway system would be built, including Tibet Road, 38th Avenue, and the E-470 interchange at 38th Avenue. The trip distribution, as depicted on **Figure 3**, is based on the location of the site relative to regional connections and on previous traffic engineering efforts at Green Valley Ranch East.

Figure 3 also shows the resultant site-generated traffic assignment. As shown, Tibet Road would carry between 1,250 and 2,300 vehicles per day (VPD) in site-related volumes. 38th Avenue would carry 1,500 to 1,740 VPD generated by the site.



LEGEND

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

XXX = Daily Traffic Volumes

XX% = Trip Distribution

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NOTE: Drawing Not to Scale

FIGURE 3

Site Generated Traffic Assignment

GVR East - PA 8 & 9 121-374-01 2/14/21

IV. FUTURE CONDITIONS

IV.A. Background Traffic Conditions

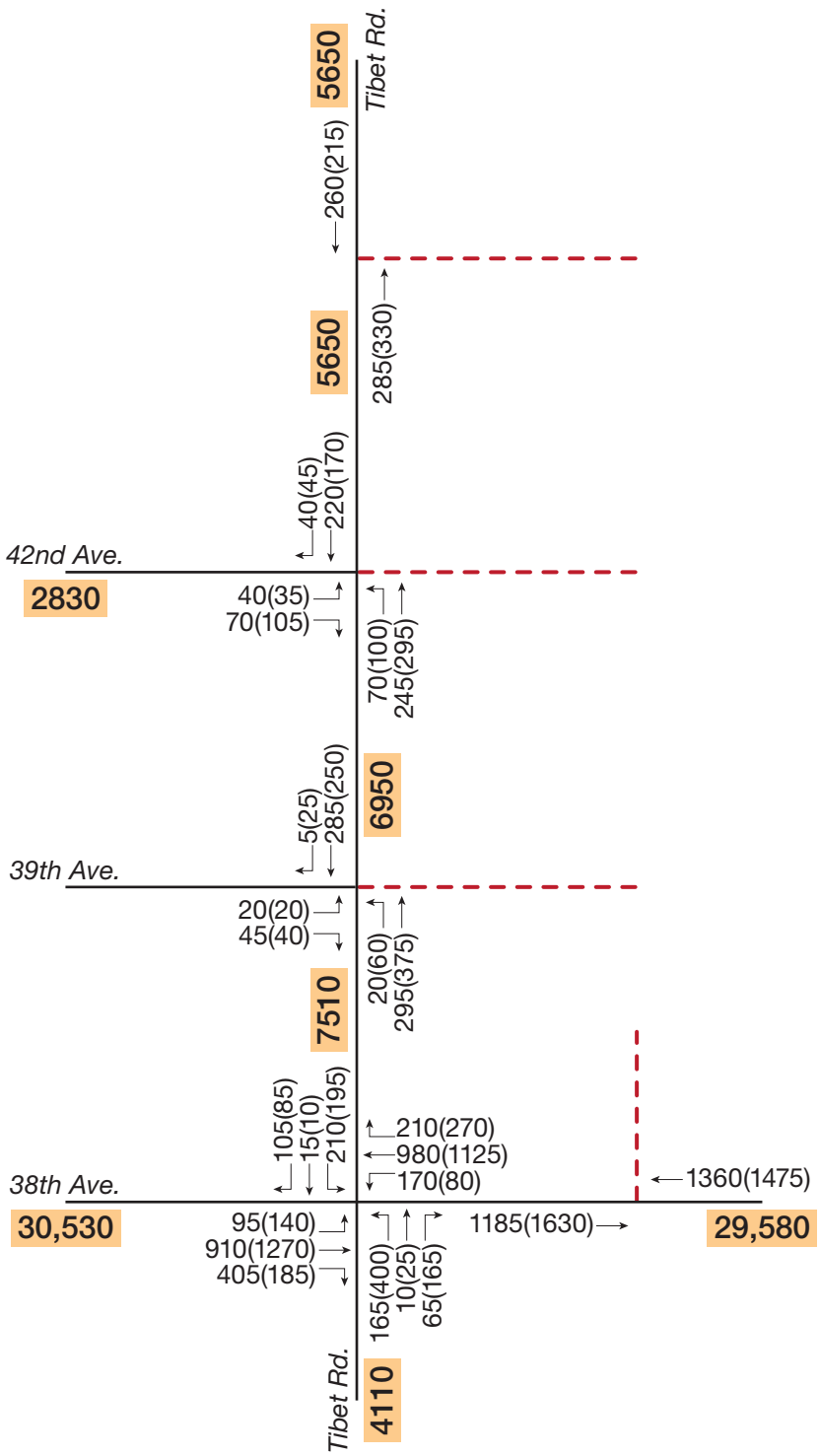
For the Long Range Future scenario (year 2040), background volumes were based on the following:

- Other Green Valley Ranch East development per the Final Development Plan (FDP) and the CSP 1, CSP 2, CSP 3, and Filing 7 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 based on the 2018 NEATS Refresh project, including 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 Denver Regional Council of Governments (DRCOG) model (this master plan's traffic impact study shows more given a maximum buildout scenario).
  - Windler and Cardon properties that straddle E-470.
  - Avelon, located in the northeast quadrant of 56th Avenue and Picadilly Road. A mix of residential and commercial uses is planned for this site.
  - Painted Prairie, l,628 acres of future mixed-use development located in the northwest quadrant of 56th Avenue and Picadilly Road.
  - Majestic (southwest of E-470 and 38th Avenue). Project Peak is a portion of this overall development.

Figure 4 illustrates the resultant Long Range Future background projections. As shown, background volumes on 38th Avenue would be approximately 29,580 to 30,530 VPD. Daily volumes on Tibet Road adjacent to Planning Areas 8 & 9 would range between about 5,650 to 7,510 VPD.

The Long Range Future peak hour background volumes were used as the basis for intersection Level of Service (LOS) analyses, the results of which are graphically depicted on **Figure 5**. As shown, year 2040 background traffic operations are projected to remain generally acceptable at study area intersections (**Appendix B** contains LOS worksheets). The analyses assume the following improvements:

- Tibet Road would be constructed to a three-lane collector cross section with adjacent development. The projected traffic volumes along Tibet Road would remain within the general capacity of a two-lane collector roadway.
- 38th Avenue would be constructed to four-lane arterial standards. For this analysis, it is assumed that the planned interchange at E-470/38th Avenue would be constructed.
- The intersection at 38th Avenue/Tibet Street would require signalization per the Project Peak Traffic Impact Study. Dual left-turn lanes would be needed on the northbound approach at this intersection. Signalization of this intersection should be anticipated following connection of 38th Avenue across E-470.



LEGEND

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

XXX = Daily Traffic Volumes

= Future Roadway

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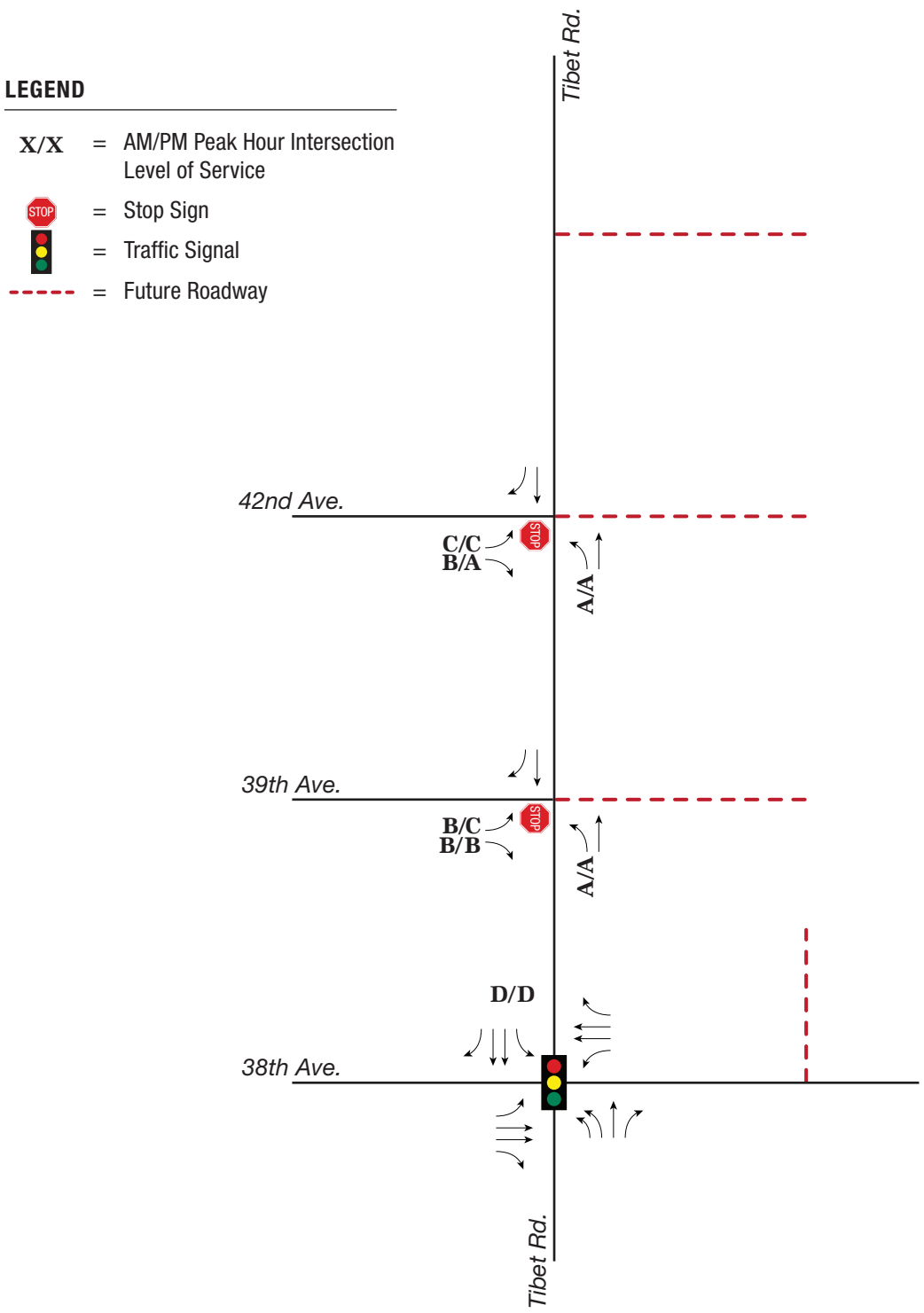
NOTE: Drawing Not to Scale

FIGURE 4

Long Range Background Traffic Volumes

GVR East - PA 8 & 9 121-374-01 2/11/21



NORTH

FIGURE 5

Long Range Background Traffic Levels of Service

GVR East - PA 8 & 9 121-374-01 2/11/21

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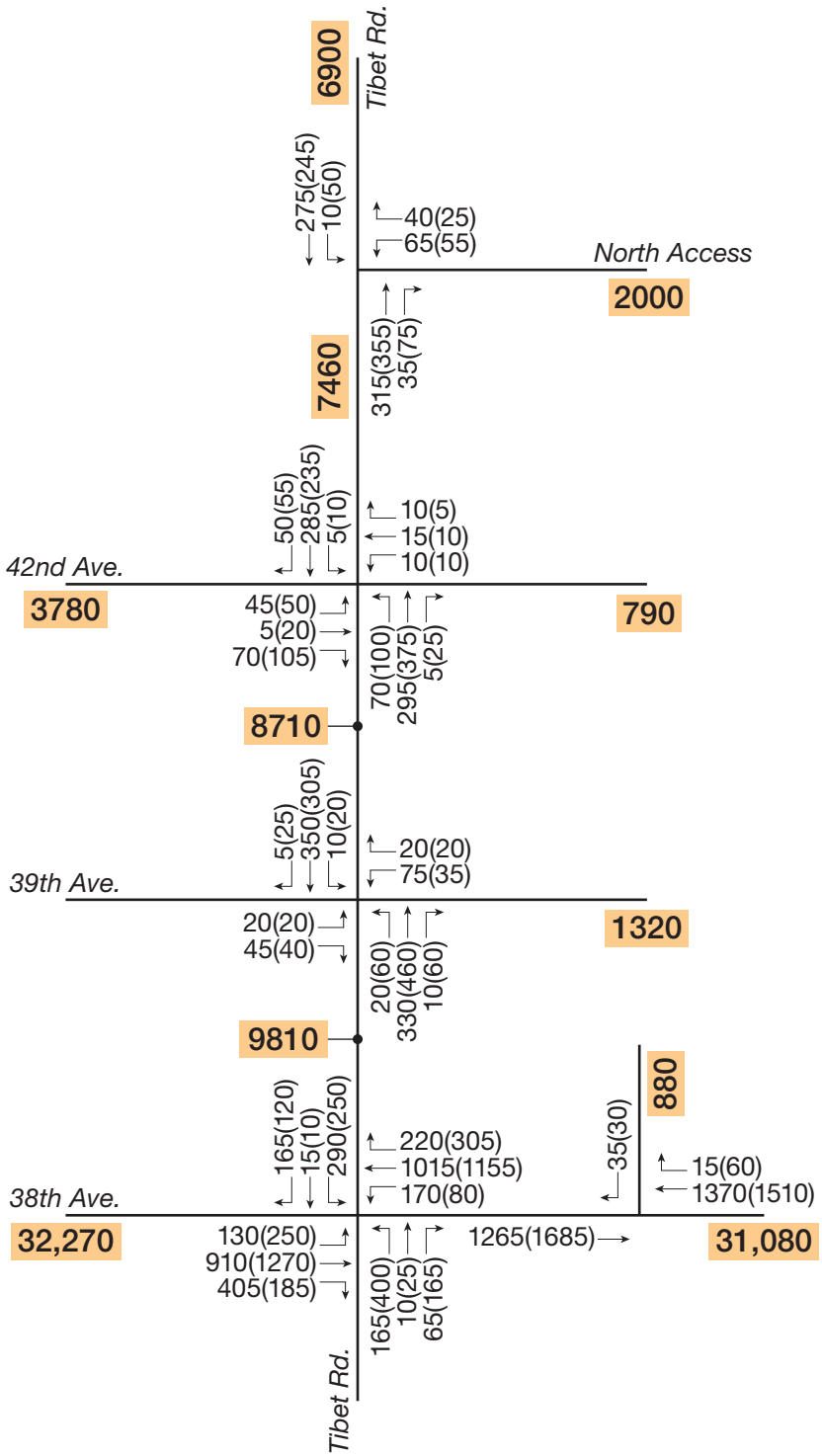
NOTE: Drawing Not to Scale

IV.B. Total Future Traffic

The site-generated traffic volumes previously shown on **Figure 3** were added to the 2040 background traffic volumes (**Figure 5**) to produce the Long Range Future total traffic volumes as illustrated on **Figure 6**. As shown, Tibet Road daily volumes would range between about 6,900 and 9,810 VPD within the study area. 38th Avenue is estimated to serve approximately 31,080 to 32,270 VPD in the vicinity of the site.



LEGEND

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

XXX = Daily Traffic Volumes

NORTH

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NOTE: Drawing Not to Scale

FIGURE 6

Long Range Total Traffic Volumes

GVR East - PA 8 & 9 121-374-01 2/14/21

V. EVALUATION

V.A. Level of Service

The Long Range total traffic peak hour intersection operations are shown on **Figure 7** (**Appendix C** contains LOS worksheets). As shown, study area traffic operations would continue to be acceptable at the study area signalized intersections. As previously noted, the intersection at Tibet Road/38th Avenue would warrant signalization. A traffic signal at this intersection would operate at LOS D during peak times. **Table 2** provides a summary of the LOS results.

Table 2. LOS Summary

Intersection/Movement	2040 Background		2040 Total Traffic	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
38th Ave/Tibet Road	**Traffic Signal**			
Northbound Left	E	E	E	E
Northbound Through	C	C	D	D
Northbound Right	C	C	C	D
Southbound Left	E	E	E	E
Southbound Through	C	C	C	D
Southbound Right	C	C	C	C
Eastbound Left	C	C	D	E
Eastbound Through	D	D	D	D
Eastbound Right	C	C	C	B
Westbound Left	D	D	D	C
Westbound Through	D	D	D	D
Westbound Right	B	B	B	B
Tibet Road/39th Ave	**STOP Sign Control (EB/WB)**			
Northbound Left	A	A	A	A
Southbound Left	–	–	A	A
Eastbound Left	B	C	C	D
Eastbound Through-Right	B	B	B	B
Westbound Left	–	–	D	D
Westbound Through-Right	–	–	B	B
Tibet Road/42nd Ave	**STOP Sign Control (EB/WB)**			
Northbound Left	A	A	A	A
Southbound Left	–	–	A	A
Eastbound Left	C	C	C	D
Eastbound Through-Right	B	A	B	B
Westbound Left	–	–	C	D
Westbound Through-Right	–	–	C	C
Tibet Road/North Access				
Southbound Left	–	–	A	A
Westbound Left	–	–	C	C
Westbound Right	–	–	B	B
38th Ave/RIRO Access				
Southbound Right	–	–	C	C

V.B. Internal Traffic Control

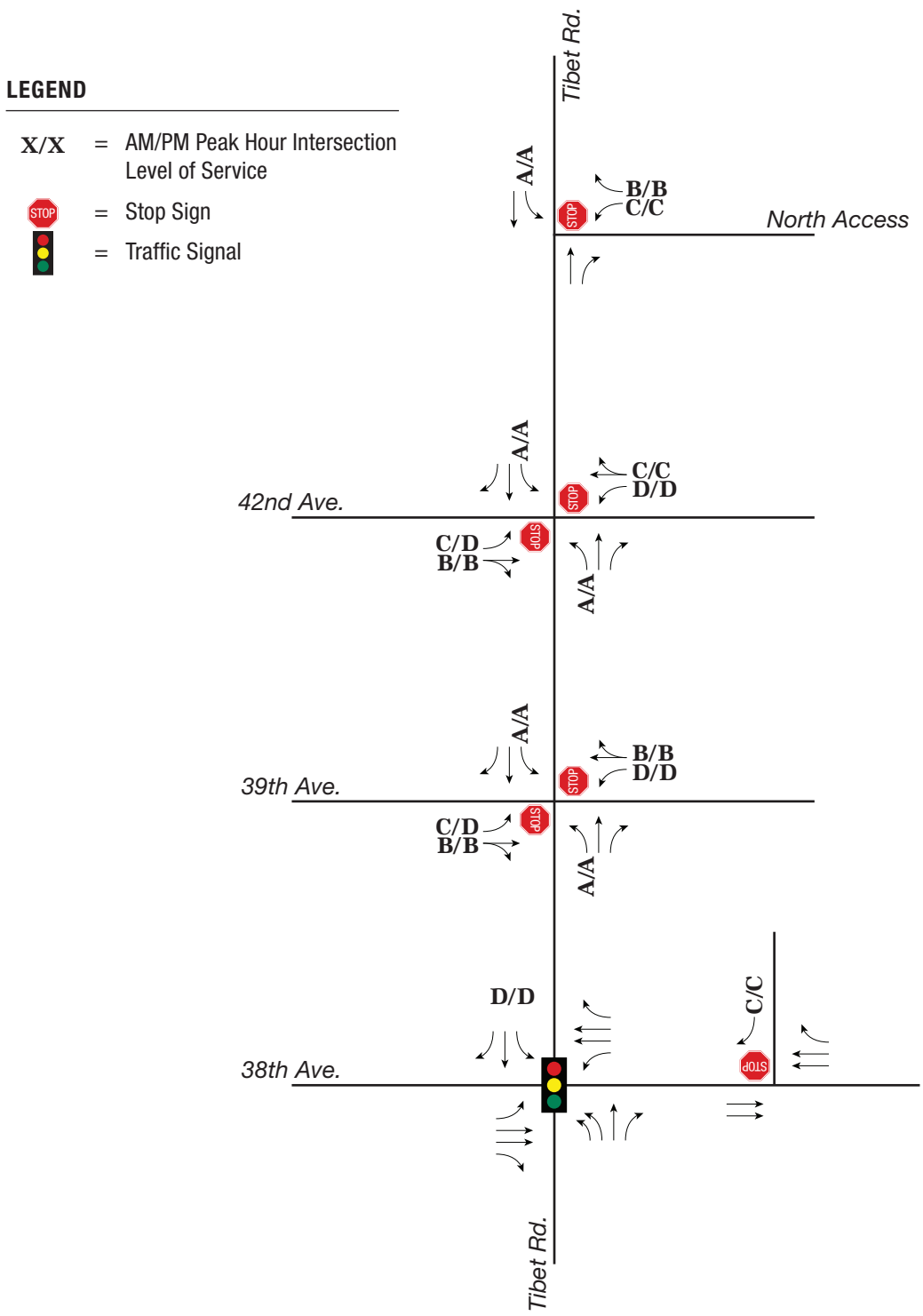
At Tibet Road/42nd Avenue, traffic operations would be acceptable under STOP sign control. Per our previous traffic engineering efforts for CSP 3 and Filing 7, however, this intersection is adjacent to a future school site and could require a protected pedestrian crossing in the future. Therefore, future 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 acceptably during peak times.

Traffic control at the internal intersections within Planning Areas 8 & 9 would be unsignalized, with STOP sign control on the minor approaches. **Figure 8** depicts the proposed internal traffic control. Given the limited continuity of the internal local streets, additional traffic calming measures are not envisioned.

V.C. Street Layout

The proposed street layout for Planning Areas 8 & 9 is generally consistent with Section 4.04.1 of the City's Roadway Design and Construction Standards, as follows:

- Arterial spacing (38th Avenue, 48th Avenue, Picadilly Road and E-470 are at the approximate one-mile spacing per standards)
- Collector spacing (42nd Avenue and Tibet Road) generally meets the half-mile spacing requirement and is consistent with previous planning at Green Valley Ranch East.
- There are two local street connections and one collector connection to Tibet Road, which forms the western perimeter of the site. Of note, the proposed collector connection to Tibet would provide for a potential future local connection into the Windler site north of Planneing Areas 8 & 9. The site plan also shows one local street connection to 38th Avenue on the southern site perimeter.
- There are no cul-de-sacs longer than 500 feet proposed. No dead ends or hammerheads are proposed.
- However, several areas within Planning Areas 8 & 9 require travel on three local streets to connect to an internal destination (Aurora standards specify no more than two local streets to a destination)



NORTH

FIGURE 7

Long Range Total Traffic Levels of Service

GVR East - PA 8 & 9 121-374-01 2/14/21

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

DEVELOPMENT SUMMARY		
LOT TYPE	UNITS	PERCENTAGE
SINGLE FAMILY LOTS (MERIDIAN/HORIZON)	160	28.2%
STANDARD / EXPANDED GARAGE (50' MIN WIDTH)	99	61.9%
THREE-CAR GARAGE (60' MIN WIDTH)	61	38.1%
MOTORCOURT LOTS (CARRIAGE HOUSE)	234	41.2%
MOTORCOURT LOTS (PORCHLIGHT)	174	30.6%
TOTAL	568	100%

LEGEND

STOP = Stop Sign

NORTH

FIGURE 8

Internal Traffic Control

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NOTE: Drawing Not to Scale

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 3**. 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 3. 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		
38th Ave/Tibet Road	**Traffic Signal**			
Northbound Left (2-lane)	125	300	400	400
Northbound Right	75	225	185	225
Southbound Left	450	400	290	450
Southbound Right	200	150	185	200
Eastbound Left	150	400	250	400
Eastbound Right	400	125	405	425
Westbound Left	200	75	170	200
Westbound Right	175	250	305	300
Tibet Rd/39th Ave	**STOP Sign**			
Northbound Left	25	25	60	75
Northbound Right	–	–	60	75
Southbound Left	0	25	40	50
Southbound Right	–	–	40	50
Eastbound Left	25	25	40	50
Eastbound Thru-Right	25	25	45	50
Westbound Left	50	25	75	75
Westbound Thru-Right	25	25	40	50
Tibet Rd/42nd Ave	**STOP Sign**			
Northbound Left	25	25	100	100
Northbound Right	–	–	40	50
Southbound Left	0	0	40	50
Southbound Right	–	–	55	75
Eastbound Left	25	25	50	50
Eastbound Thru-Right	25	25	125	125
Westbound Left	25	25	40	50
Westbound Thru-Right	25	25	40	50
Tibet Rd/North Site Access	**STOP Sign**			
Northbound Right	–	–	75	75
Southbound Left	0	25	50	50
Westbound Left	25	25	65	75
Westbound Right	25	25	40	50
38th Ave/Site RIRO Access	**STOP Sign**			
Westbound Right	–	–	60	75

V.E. Auxiliary Lanes

The site access intersections along Tibet Road and 38th Avenue were evaluated relative to auxiliary lane criteria in the CDOT *State Highway Access Code*. The proposed design for Tibet Road is a two-lane Collector with an assumed 35 MPH posted speed limit (typical for collector roads in Aurora). 38th Avenue is planned to be a four-lane arterial with an assumed speed limit of 40 MPH. For this evaluation, CDOT NR-B criteria was applied. **Table 4** summarizes the auxiliary lane length requirements for the site accesses.

Table 4. Auxiliary Lanes – Planning Areas 8 & 9 Accesses(1)

Intersection	Direction	Left-Turn Lane			Right-Turn Lane		
		Storage	Taper	Total	Storage	Taper	Total
39th Avenue	SB	50	100	150			
	NB				75	100	175
42nd Avenue	SB	50	100	150			
	NB				50	100	150
North Access	SB	50	100	150			
	NB				75	100	175
RIRO Access	WB				75	144	219

1. Dimensions are given in feet.

V.F. Recommendations

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

- Construct 38th Avenue adjacent to the site as a four-lane Arterial.
- Construct Tibet Road as a two-lane Collector.
- Construct the intersection of Tibet Road/38th Avenue to include separate left-turn and right-turn lanes along each approach. Dual left-turn lanes will be required on the northbound approach – all other approaches would have single left-turn lanes. Periodically monitor this intersection and install a traffic signal, when warranted.
- Install STOP-sign control on the westbound approach at Tibet Road/39th Place. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP sign control on the westbound site access approach at the 42nd Avenue/Tibet Road intersection. Provide a southbound left-turn lane and a northbound right-turn lane. Periodically monitor traffic and pedestrian conditions at this intersection. Ultimately, a signal could be warranted due to its proximity to the future school site and the potential need for a protected school crossing.
- Install STOP-sign control on the westbound approach at the Tibet Road/north site access intersection. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP sign control on the southbound RIRO access approach to 38th Avenue. Provide a westbound right-turn lane at this site access.
- Install STOP-sign control at the site-internal intersections as previously depicted.

VI. CONCLUSIONS AND RECOMMENDATIONS

It is currently proposed to develop 568 single-family homes within Green Valley Ranch East Planning Areas 8 & 9. The site is located along the east side of the future Tibet Road alignment, north of the future 38th Avenue alignment. Vehicular access would be via three roadway connections along Tibet Road and one along 38th Avenue.

The proposed development at Planning Areas 8 & 9 would have a trip generation potential of about 4,990 trips per day, with 365 AM peak hour trips and 510 PM peak hour trips. Because the adjacent roadway system has yet to be developed, the potential impacts of the site-generated traffic were evaluated under a Long Range Future scenario. 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 planning Areas 8 & 9:

- Construct 38th Avenue adjacent to the site as a four-lane Arterial.
- Construct Tibet Road as a two-lane Collector.
- Construct the intersection of Tibet Road/38th Avenue to include separate left-turn and right-turn lanes along each approach. Dual left-turn lanes will be required on the northbound approach – all other approaches would have single left-turn lanes. Periodically monitor this intersection and install a traffic signal, when warranted.
- Install STOP-sign control on the westbound approach at Tibet Road/39th Place. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP-sign control on the westbound site access approach at the 42nd Avenue/Tibet Road intersection. Provide a southbound left-turn lane and a northbound right-turn lane. Periodically monitor traffic and pedestrian conditions at this intersection. Ultimately, a signal could be warranted due to its proximity to the future school site and the potential need for a protected school crossing.
- Install STOP-sign control on the westbound approach at the Tibet Road/north site access intersection. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP-sign control on the southbound RIRO access approach to 38th Avenue. Provide a westbound right-turn lane at this site access.
- Install STOP-sign control at the site-internal intersections as previously depicted on **Figure 8**.

APPENDIX A. TRIP GENERATION

Single-Family Detached Housing
(210)

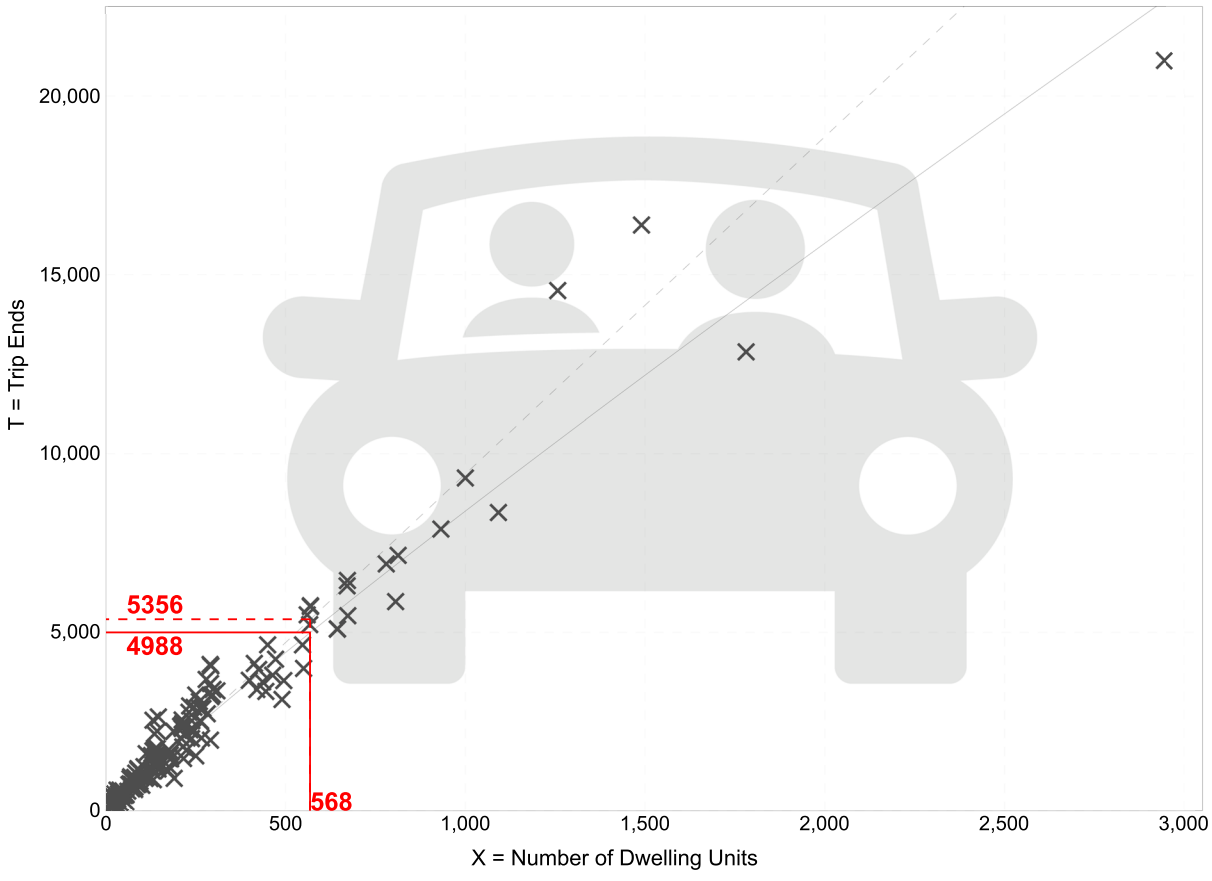
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 2.68 **R^2= 0.95**

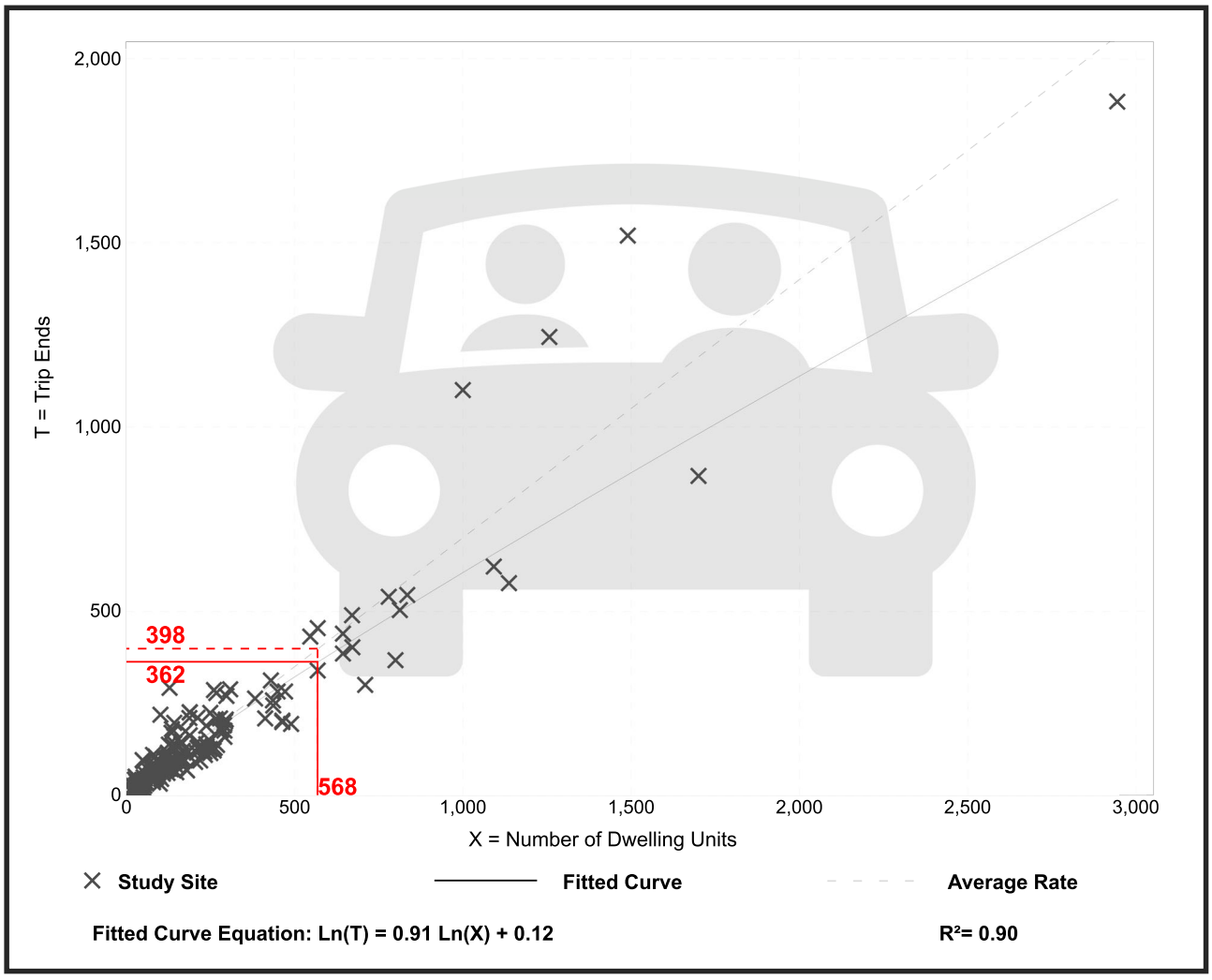
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	192
Avg. Num. of Dwelling Units:	226
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



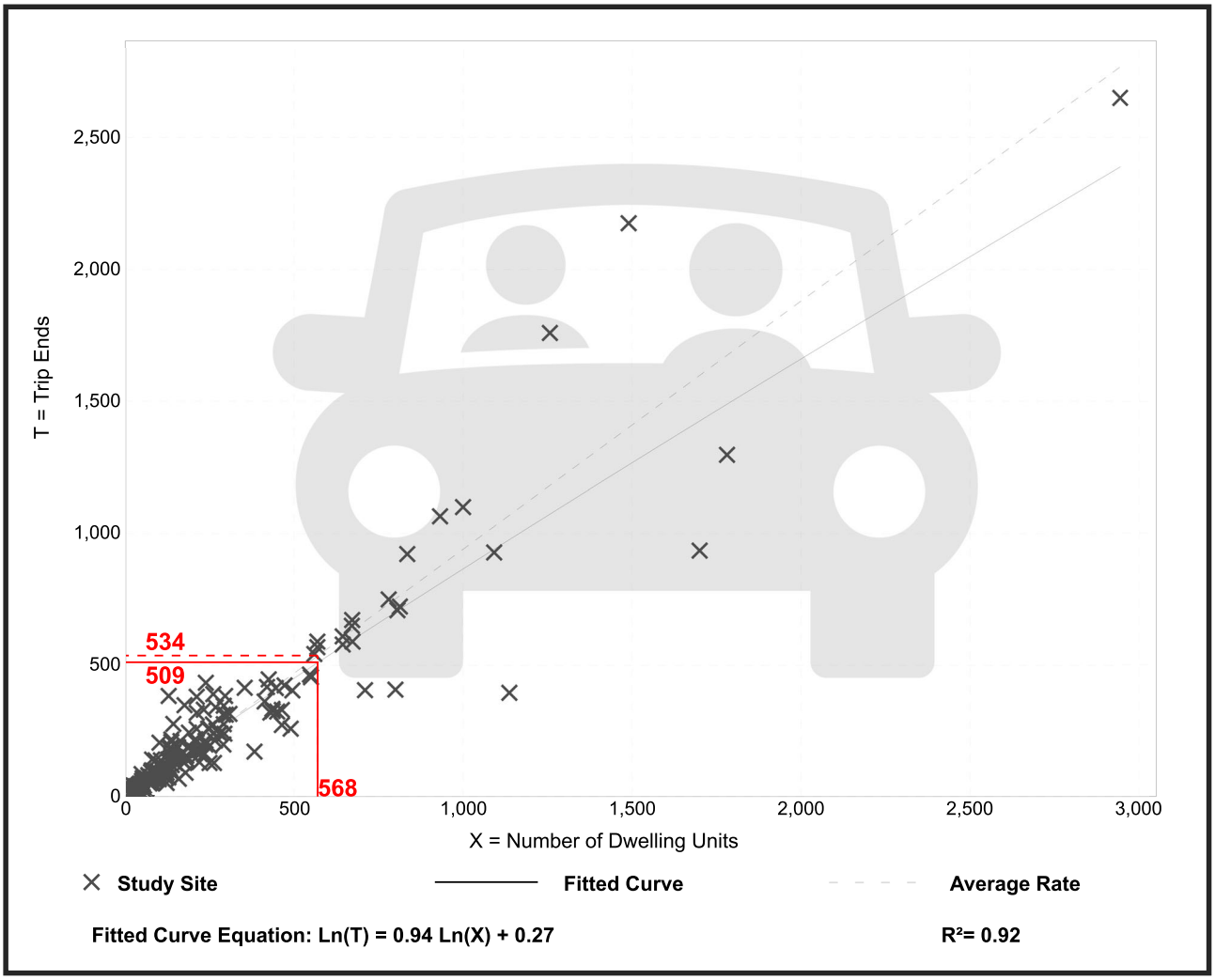
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	208
Avg. Num. of Dwelling Units:	248
Directional Distribution:	63% entering, 37% exiting

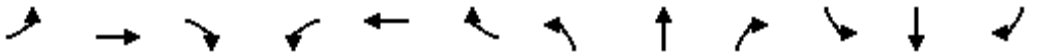
Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



APPENDIX B. EXISTING CONDITIONS LOS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	910	405	170	980	210	165	10	65	210	15	105
Future Volume (veh/h)	95	910	405	170	980	210	165	10	65	210	15	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	989	440	185	1065	228	179	11	71	228	16	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1195	646	239	1305	811	246	534	585	258	672	652
Arrive On Green	0.05	0.34	0.34	0.08	0.37	0.37	0.07	0.29	0.29	0.14	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	989	440	185	1065	228	179	11	71	228	16	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.5	30.7	27.3	7.9	32.5	9.8	6.1	0.5	3.6	15.1	0.7	5.5
Cycle Q Clear(g_c), s	4.5	30.7	27.3	7.9	32.5	9.8	6.1	0.5	3.6	15.1	0.7	5.5
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	195	1195	646	239	1305	811	246	534	585	258	672	652
V/C Ratio(X)	0.53	0.83	0.68	0.77	0.82	0.28	0.73	0.02	0.12	0.88	0.02	0.17
Avail Cap(c_a), veh/h	212	1407	740	276	1555	923	648	534	585	334	672	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	36.6	29.2	28.2	34.3	16.7	54.6	30.8	25.0	50.3	24.9	22.4
Incr Delay (d2), s/veh	2.2	3.7	2.1	11.3	3.0	0.2	4.1	0.1	0.4	19.6	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(50%),veh/ln	2.0	13.8	10.7	4.1	14.4	3.6	2.8	0.2	1.4	8.1	0.3	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	40.3	31.3	39.4	37.3	16.9	58.7	30.9	25.4	69.9	24.9	23.0
LnGrp LOS	C	D	C	D	D	B	E	C	C	E	C	C
Approach Vol, veh/h		1532			1478			261			358	
Approach Delay, s/veh		37.1			34.4			48.5			52.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	38.8	14.5	44.8	13.0	47.6	10.8	48.6
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	22.5	19.5	12.5	47.5	22.5	19.5	7.5	52.5
Max Q Clear Time (g_c+I1), s	17.1	5.6	9.9	32.7	8.1	7.5	6.5	34.5
Green Ext Time (p_c), s	0.3	0.2	0.1	7.6	0.5	0.3	0.0	8.3

Intersection Summary	
HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

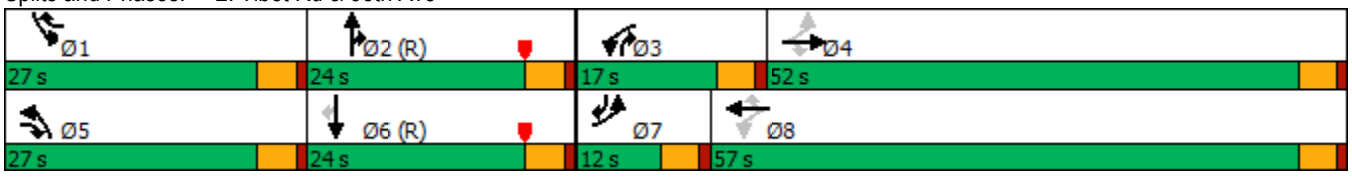
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	910	405	170	980	210	165	10	65	210	15	105
Future Volume (vph)	95	910	405	170	980	210	165	10	65	210	15	105
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	2 3	1	6	7
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	5	3	8	1	5	2	2 3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	12.0	52.0	27.0	17.0	57.0	27.0	27.0	24.0		27.0	24.0	12.0
Total Split (%)	10.0%	43.3%	22.5%	14.2%	47.5%	22.5%	22.5%	20.0%		22.5%	20.0%	10.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
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
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
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
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	49.0	41.6	58.1	57.5	46.0	70.1	12.0	29.0	45.3	19.6	36.6	48.5
Actuated g/C Ratio	0.41	0.35	0.48	0.48	0.38	0.58	0.10	0.24	0.38	0.16	0.30	0.40
v/c Ratio	0.58	0.81	0.44	0.78	0.78	0.22	0.52	0.02	0.11	0.79	0.03	0.16
Control Delay	30.2	40.9	2.7	47.5	36.8	1.5	56.4	41.2	7.3	67.5	34.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	40.9	2.7	47.5	36.8	1.5	56.4	41.2	7.3	67.5	34.6	5.7
LOS	C	D	A	D	D	A	E	D	A	E	C	A
Approach Delay		29.2			32.7			42.4			46.4	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19.5 (16%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Tibet Rd & 38th Ave



Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	45	20	295	285	5
Future Vol, veh/h	20	45	20	295	285	5
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	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	49	22	321	310	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	675	310	315	0	-	0
Stage 1	310	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	419	730	1245	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	411	730	1245	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1245	-	411	730	-	-
HCM Lane V/C Ratio	0.017	-	0.053	0.067	-	-
HCM Control Delay (s)	7.9	-	14.2	10.3	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.2	-	-

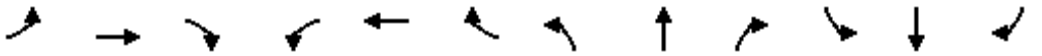
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	70	70	245	220	40
Future Vol, veh/h	40	70	70	245	220	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	-	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, %	2	2	2	2	2	2
Mvmt Flow	43	76	76	266	239	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	657	239	282	0	-	0
Stage 1	239	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	430	800	1280	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	405	800	1280	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	664	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1280	-	405	800	-	-
HCM Lane V/C Ratio	0.059	-	0.107	0.095	-	-
HCM Control Delay (s)	8	-	15	10	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	0.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	910	405	170	980	210	165	10	65	210	15	105
Future Volume (veh/h)	95	910	405	170	980	210	165	10	65	210	15	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	989	440	185	1065	228	179	11	71	228	16	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1195	646	239	1305	811	246	534	585	258	672	652
Arrive On Green	0.05	0.34	0.34	0.08	0.37	0.37	0.07	0.29	0.29	0.14	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	103	989	440	185	1065	228	179	11	71	228	16	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.5	30.7	27.3	7.9	32.5	9.8	6.1	0.5	3.6	15.1	0.7	5.5
Cycle Q Clear(g_c), s	4.5	30.7	27.3	7.9	32.5	9.8	6.1	0.5	3.6	15.1	0.7	5.5
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	195	1195	646	239	1305	811	246	534	585	258	672	652
V/C Ratio(X)	0.53	0.83	0.68	0.77	0.82	0.28	0.73	0.02	0.12	0.88	0.02	0.17
Avail Cap(c_a), veh/h	212	1407	740	276	1555	923	648	534	585	334	672	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	36.6	29.2	28.2	34.3	16.7	54.6	30.8	25.0	50.3	24.9	22.4
Incr Delay (d2), s/veh	2.2	3.7	2.1	11.3	3.0	0.2	4.1	0.1	0.4	19.6	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	3.6	19.9	16.0	7.3	20.6	6.5	5.0	0.4	2.5	12.8	0.6	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	40.3	31.3	39.4	37.3	16.9	58.7	30.9	25.4	69.9	24.9	23.0
LnGrp LOS	C	D	C	D	D	B	E	C	C	E	C	C
Approach Vol, veh/h		1532			1478			261			358	
Approach Delay, s/veh		37.1			34.4			48.5			52.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	38.8	14.5	44.8	13.0	47.6	10.8	48.6
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	22.5	19.5	12.5	47.5	22.5	19.5	7.5	52.5
Max Q Clear Time (g_c+I1), s	17.1	5.6	9.9	32.7	8.1	7.5	6.5	34.5
Green Ext Time (p_c), s	0.3	0.2	0.1	7.6	0.5	0.3	0.0	8.3

Intersection Summary	
HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

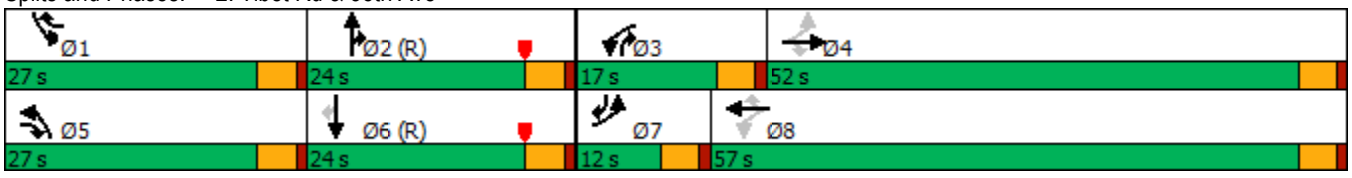
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	910	405	170	980	210	165	10	65	210	15	105
Future Volume (vph)	95	910	405	170	980	210	165	10	65	210	15	105
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	2 3	1	6	7
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	5	3	8	1	5	2	2 3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	12.0	52.0	27.0	17.0	57.0	27.0	27.0	24.0		27.0	24.0	12.0
Total Split (%)	10.0%	43.3%	22.5%	14.2%	47.5%	22.5%	22.5%	20.0%		22.5%	20.0%	10.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
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
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
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
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	49.0	41.6	58.1	57.5	46.0	70.1	12.0	29.0	45.3	19.6	36.6	48.5
Actuated g/C Ratio	0.41	0.35	0.48	0.48	0.38	0.58	0.10	0.24	0.38	0.16	0.30	0.40
v/c Ratio	0.58	0.81	0.44	0.78	0.78	0.22	0.52	0.02	0.11	0.79	0.03	0.16
Control Delay	30.2	40.9	2.7	47.5	36.8	1.5	56.4	41.2	7.3	67.5	34.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	40.9	2.7	47.5	36.8	1.5	56.4	41.2	7.3	67.5	34.6	5.7
LOS	C	D	A	D	D	A	E	D	A	E	C	A
Approach Delay		29.2			32.7			42.4			46.4	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19.5 (16%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Tibet Rd & 38th Ave



Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	40	60	375	250	25
Future Vol, veh/h	20	40	60	375	250	25
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	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	43	65	408	272	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	810	272	299	0	-	0
Stage 1	272	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	349	767	1262	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	331	767	1262	-	-	-
Mov Cap-2 Maneuver	331	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1262	-	331	767	-	-
HCM Lane V/C Ratio	0.052	-	0.066	0.057	-	-
HCM Control Delay (s)	8	-	16.6	10	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	105	100	295	170	45
Future Vol, veh/h	35	105	100	295	170	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	-	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, %	2	2	2	2	2	2
Mvmt Flow	38	114	109	321	185	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	724	185	234	0	-	0
Stage 1	185	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	393	857	1333	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	361	857	1333	-	-	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1333	-	361	857	-	-
HCM Lane V/C Ratio	0.082	-	0.105	0.133	-	-
HCM Control Delay (s)	7.9	-	16.1	9.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	0.5	-	-

APPENDIX C. SHORT RANGE FUTURE BACKGROUND TRAFFIC LOS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	910	405	170	980	220	165	10	65	290	15	165
Future Volume (veh/h)	130	910	405	170	980	220	165	10	65	290	15	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	989	440	185	1065	239	179	11	71	315	16	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	1195	646	241	1258	865	246	443	510	342	669	674
Arrive On Green	0.07	0.34	0.34	0.08	0.35	0.35	0.07	0.24	0.24	0.19	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	141	989	440	185	1065	239	179	11	71	315	16	179
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.2	30.7	27.3	8.0	33.2	9.7	6.1	0.5	3.8	20.8	0.7	8.8
Cycle Q Clear(g_c), s	6.2	30.7	27.3	8.0	33.2	9.7	6.1	0.5	3.8	20.8	0.7	8.8
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	213	1195	646	241	1258	865	246	443	510	342	669	674
V/C Ratio(X)	0.66	0.83	0.68	0.77	0.85	0.28	0.73	0.02	0.14	0.92	0.02	0.27
Avail Cap(c_a), veh/h	219	1318	701	291	1466	958	648	443	510	364	669	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	36.6	29.2	28.4	35.8	14.6	54.6	35.1	28.9	47.6	25.0	22.4
Incr Delay (d2), s/veh	7.0	4.2	2.4	9.7	4.3	0.2	4.1	0.1	0.6	27.6	0.1	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	5.4	20.0	16.1	7.3	21.3	6.3	5.0	0.5	2.8	17.5	0.6	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	40.8	31.6	38.1	40.0	14.8	58.7	35.2	29.5	75.2	25.0	23.3
LnGrp LOS	D	D	C	D	D	B	E	D	C	E	C	C
Approach Vol, veh/h		1570			1489			261			510	
Approach Delay, s/veh		37.8			35.7			49.8			55.4	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.5	32.9	14.7	44.9	13.0	47.4	12.6	47.0
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	24.5	19.5	13.5	44.5	22.5	21.5	8.5	49.5
Max Q Clear Time (g_c+I1), s	22.8	5.8	10.0	32.7	8.1	10.8	8.2	35.2
Green Ext Time (p_c), s	0.2	0.2	0.2	6.6	0.5	0.5	0.0	7.3

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

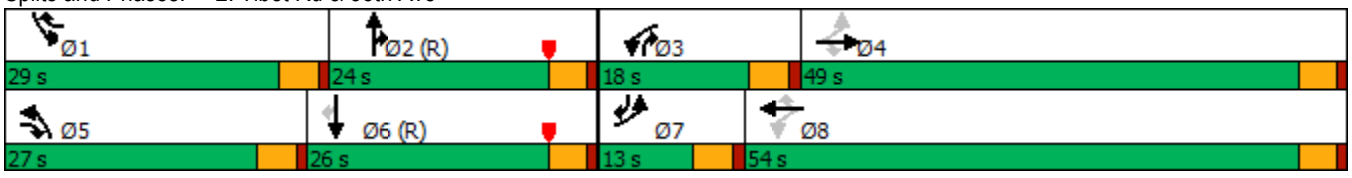
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	910	405	170	980	220	165	10	65	290	15	165
Future Volume (vph)	130	910	405	170	980	220	165	10	65	290	15	165
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	2 3	1	6	7
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	5	3	8	1	5	2	2 3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	13.0	49.0	27.0	18.0	54.0	29.0	27.0	24.0		29.0	26.0	13.0
Total Split (%)	10.8%	40.8%	22.5%	15.0%	45.0%	24.2%	22.5%	20.0%		24.2%	21.7%	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
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
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
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
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	49.3	40.9	57.4	56.7	44.7	73.6	12.0	24.5	41.2	24.4	36.9	49.8
Actuated g/C Ratio	0.41	0.34	0.48	0.47	0.37	0.61	0.10	0.20	0.34	0.20	0.31	0.42
v/c Ratio	0.76	0.82	0.45	0.77	0.81	0.22	0.52	0.03	0.12	0.88	0.03	0.24
Control Delay	48.4	42.3	2.8	46.0	38.9	1.5	56.4	42.7	8.0	71.5	33.9	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	48.4	42.3	2.8	46.0	38.9	1.5	56.4	42.7	8.0	71.5	33.9	9.7
LOS	D	D	A	D	D	A	E	D	A	E	C	A
Approach Delay		31.8			33.7			42.7			48.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19.5 (16%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Tibet Rd & 38th Ave



Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	45	75	5	20	20	330	10	10	350	5
Future Vol, veh/h	20	5	45	75	5	20	20	330	10	10	350	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	5	49	82	5	22	22	359	11	11	380	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	824	816	380	835	810	359	385	0	0	370	0	0
Stage 1	402	402	-	403	403	-	-	-	-	-	-	-
Stage 2	422	414	-	432	407	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	292	311	667	287	314	685	1173	-	-	1189	-	-
Stage 1	625	600	-	624	600	-	-	-	-	-	-	-
Stage 2	609	593	-	602	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	273	302	667	257	305	685	1173	-	-	1189	-	-
Mov Cap-2 Maneuver	273	302	-	257	305	-	-	-	-	-	-	-
Stage 1	613	595	-	612	589	-	-	-	-	-	-	-
Stage 2	573	582	-	548	592	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	22	0.5	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1173	-	-	273	595	257	548	1189	-	-
HCM Lane V/C Ratio	0.019	-	-	0.08	0.091	0.317	0.05	0.009	-	-
HCM Control Delay (s)	8.1	-	-	19.3	11.7	25.4	11.9	8.1	-	-
HCM Lane LOS	A	-	-	C	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	1.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	5	70	10	15	10	70	295	5	5	285	50
Future Vol, veh/h	45	5	70	10	15	10	70	295	5	5	285	50
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	-	-	100	-	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	5	76	11	16	11	76	321	5	5	310	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	809	798	310	861	847	321	364	0	0	326	0	0
Stage 1	320	320	-	473	473	-	-	-	-	-	-	-
Stage 2	489	478	-	388	374	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	299	319	730	276	299	720	1195	-	-	1234	-	-
Stage 1	692	652	-	572	558	-	-	-	-	-	-	-
Stage 2	561	556	-	636	618	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	267	297	730	231	279	720	1195	-	-	1234	-	-
Mov Cap-2 Maneuver	267	297	-	231	279	-	-	-	-	-	-	-
Stage 1	648	649	-	535	522	-	-	-	-	-	-	-
Stage 2	501	520	-	563	616	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	17.2	1.6	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1195	-	-	267	665	231	370	1234	-	-
HCM Lane V/C Ratio	0.064	-	-	0.183	0.123	0.047	0.073	0.004	-	-
HCM Control Delay (s)	8.2	-	-	21.5	11.2	21.4	15.5	7.9	-	-
HCM Lane LOS	A	-	-	C	B	C	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0.4	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	40	315	35	10	275
Future Vol, veh/h	65	40	315	35	10	275
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, %	2	2	2	2	2	2
Mvmt Flow	71	43	342	38	11	299

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	663	342	0	0	380	0
Stage 1	342	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	426	701	-	-	1178	-
Stage 1	719	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	422	701	-	-	1178	-
Mov Cap-2 Maneuver	422	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	422	701	1178	-
HCM Lane V/C Ratio	-	-	0.167	0.062	0.009	-
HCM Control Delay (s)	-	-	15.2	10.5	8.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0	-

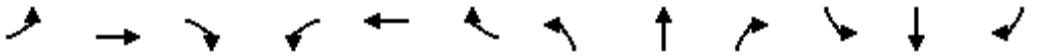
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1265	1370	15	0	35
Future Vol, veh/h	0	1265	1370	15	0	35
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	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1375	1489	16	0	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	745
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	357
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	357
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	357
HCM Lane V/C Ratio	-	-	-	0.107
HCM Control Delay (s)	-	-	-	16.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	1270	185	80	1125	305	400	25	165	250	10	120
Future Volume (veh/h)	250	1270	185	80	1125	305	400	25	165	250	10	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	272	1380	201	87	1223	332	435	27	179	272	11	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	1581	939	170	1281	839	509	358	375	301	398	542
Arrive On Green	0.13	0.44	0.44	0.04	0.36	0.36	0.15	0.19	0.19	0.17	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	272	1380	201	87	1223	332	435	27	179	272	11	130
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.4	42.3	7.1	3.7	40.3	15.0	14.7	1.4	11.7	18.0	0.6	7.1
Cycle Q Clear(g_c), s	13.4	42.3	7.1	3.7	40.3	15.0	14.7	1.4	11.7	18.0	0.6	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	1581	939	170	1281	839	509	358	375	301	398	542
V/C Ratio(X)	0.91	0.87	0.21	0.51	0.95	0.40	0.85	0.08	0.48	0.90	0.03	0.24
Avail Cap(c_a), veh/h	313	1581	939	201	1288	842	677	358	375	349	398	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	30.2	11.4	28.2	37.4	16.8	49.9	39.8	39.4	48.9	37.4	28.3
Incr Delay (d2), s/veh	28.7	5.7	0.1	2.4	15.5	0.3	8.1	0.4	4.3	23.9	0.1	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	15.6	26.0	4.5	3.0	27.3	9.3	11.2	1.3	8.7	15.1	0.5	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.4	35.9	11.5	30.6	52.9	17.1	58.0	40.2	43.8	72.8	37.5	29.3
LnGrp LOS	E	D	B	C	D	B	E	D	D	E	D	C
Approach Vol, veh/h		1853			1642			641			413	
Approach Delay, s/veh		37.3			44.5			53.3			58.2	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.8	27.5	9.9	57.9	22.2	30.1	20.0	47.8
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	23.5	18.5	7.5	52.5	23.5	18.5	16.5	43.5
Max Q Clear Time (g_c+I1), s	20.0	13.7	5.7	44.3	16.7	9.1	15.4	42.3
Green Ext Time (p_c), s	0.3	0.3	0.0	5.9	0.9	0.3	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

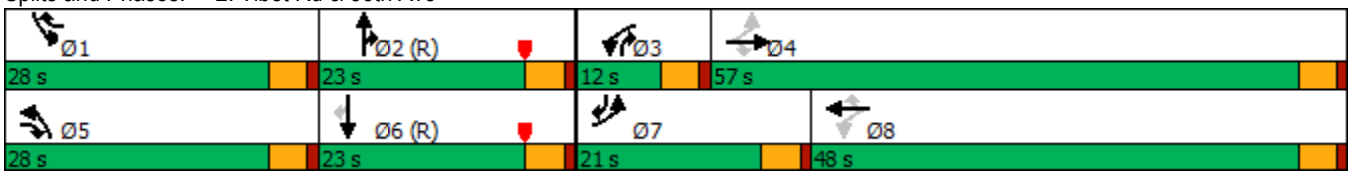
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	1270	185	80	1125	305	400	25	165	250	10	120
Future Volume (vph)	250	1270	185	80	1125	305	400	25	165	250	10	120
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pt+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	2 3	1	6	7
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	5	3	8	1	5	2	2 3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	21.0	57.0	28.0	12.0	48.0	28.0	28.0	23.0		28.0	23.0	21.0
Total Split (%)	17.5%	47.5%	23.3%	10.0%	40.0%	23.3%	23.3%	19.2%		23.3%	19.2%	17.5%
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
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
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
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
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	64.0	52.3	76.9	50.7	43.5	69.6	20.2	20.9	32.6	21.6	22.3	42.8
Actuated g/C Ratio	0.53	0.44	0.64	0.42	0.36	0.58	0.17	0.17	0.27	0.18	0.19	0.36
v/c Ratio	0.91	0.90	0.18	0.52	0.95	0.31	0.76	0.08	0.36	0.86	0.03	0.22
Control Delay	65.8	40.2	1.4	28.9	53.9	1.9	56.2	44.3	19.5	71.9	43.1	17.4
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	65.8	40.2	1.4	28.9	53.9	1.9	56.2	44.3	19.5	71.9	43.1	17.4
LOS	E	D	A	C	D	A	E	D	B	E	D	B
Approach Delay		39.8			42.1			45.4			54.0	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 19.5 (16%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 42.7	Intersection LOS: D
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Tibet Rd & 38th Ave



Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	40	35	5	20	60	460	60	20	305	25
Future Vol, veh/h	20	5	40	35	5	20	60	460	60	20	305	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	100	-	-	100	-	-	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	5	43	38	5	22	65	500	65	22	332	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1052	1071	332	1044	1033	500	359	0	0	565	0	0
Stage 1	376	376	-	630	630	-	-	-	-	-	-	-
Stage 2	676	695	-	414	403	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	204	221	710	207	232	571	1200	-	-	1007	-	-
Stage 1	645	616	-	470	475	-	-	-	-	-	-	-
Stage 2	443	444	-	616	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	182	204	710	179	215	571	1200	-	-	1007	-	-
Mov Cap-2 Maneuver	182	204	-	179	215	-	-	-	-	-	-	-
Stage 1	610	602	-	445	449	-	-	-	-	-	-	-
Stage 2	398	420	-	561	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.8	23.6	0.8	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1200	-	-	182	557	179	429	1007	-	-
HCM Lane V/C Ratio	0.054	-	-	0.119	0.088	0.213	0.063	0.022	-	-
HCM Control Delay (s)	8.2	-	-	27.4	12.1	30.5	14	8.7	-	-
HCM Lane LOS	A	-	-	D	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.3	0.8	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	20	105	10	10	5	100	375	25	10	235	55
Future Vol, veh/h	50	20	105	10	10	5	100	375	25	10	235	55
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	-	-	100	-	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	22	114	11	11	5	109	408	27	11	255	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	925	930	255	1001	963	408	315	0	0	435	0	0
Stage 1	277	277	-	626	626	-	-	-	-	-	-	-
Stage 2	648	653	-	375	337	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	250	267	784	222	256	643	1245	-	-	1125	-	-
Stage 1	729	681	-	472	477	-	-	-	-	-	-	-
Stage 2	459	464	-	646	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	222	241	784	164	231	643	1245	-	-	1125	-	-
Mov Cap-2 Maneuver	222	241	-	164	231	-	-	-	-	-	-	-
Stage 1	665	674	-	430	435	-	-	-	-	-	-	-
Stage 2	405	423	-	529	635	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	22.2	1.6	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1245	-	-	222	576	164	294	1125	-	-
HCM Lane V/C Ratio	0.087	-	-	0.245	0.236	0.066	0.055	0.01	-	-
HCM Control Delay (s)	8.2	-	-	26.4	13.2	28.5	18	8.2	-	-
HCM Lane LOS	A	-	-	D	B	D	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.9	0.9	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	25	355	75	50	245
Future Vol, veh/h	55	25	355	75	50	245
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, %	2	2	2	2	2	2
Mvmt Flow	60	27	386	82	54	266

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	760	386	0	0	468	0
Stage 1	386	-	-	-	-	-
Stage 2	374	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	374	662	-	-	1094	-
Stage 1	687	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	356	662	-	-	1094	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	356	662	1094	-
HCM Lane V/C Ratio	-	-	0.168	0.041	0.05	-
HCM Control Delay (s)	-	-	17.1	10.7	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1685	1510	60	0	30
Future Vol, veh/h	0	1685	1510	60	0	30
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	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1832	1641	65	0	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	821
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	318
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	318
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	318
HCM Lane V/C Ratio	-	-	-	0.103
HCM Control Delay (s)	-	-	-	17.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3