TRAFFIC IMPACT STUDY

Green Valley Ranch East
Planning Areas 8 & 9

Prepared for:

Oakwood Homes
4908 Tower Rd.
Denver, CO 80249

Prepared by:

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

Project Manager: Philip Dunham, PE, PTOE
Project Engineer: Omar Aboughazala

FHU Reference No. 121374-01

Original Report: February 2022
Second Edition: April 2022
Third Edition: July 2022
Fourth Edition: September 2022
Fifth Edition: February 2025
Current Edition: May 2025

TABLE OF CONTENTS

Appendices

List of Figures

List of Tables

I. INTRODUCTION

I.A. Summary

Green Valley Ranch East Planning Areas 8 & 9 include a total of 688 single-family dwelling units, a gas station, two fast food restaurants, a high turnover sit-down restaurant, and general commercial. As shown on **Figure 1**, the site is located in the northeast quadrant of the partially constructed 38th Avenue/Tibet Road intersection in Aurora, Colorado. Vehicular access would be via connection to Tibet Road at the 39th, 42nd, and 44th Avenue future alignments and onto 28th Avenue via the future Ukraine Street alignment. **Figure 2** depicts the current site plan concept.

Previous traffic analyses conducted for larger Green Valley Ranch East development 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
- *Traffic Impact Study, Green Valley Ranch East Filing 17*, updated April 2025
- *Traffic Impact Study, Green Valley Ranch East Filing 10*, updated October 2024
- *Traffic Impact Study, 310 West (GVRE Master Plan Amendment 2)*, updated January 2025

The proposed development is a departure from the *Transportation Analysis, Green Valley Ranch East* master report, which assumed approximately 620 single family homes within Planning Areas 8 & 9. The current proposal is roughly a 10 percent increase in residential unit count and introduces a previously uncontemplated commercial component. This traffic impact study (TIS) identifies the potential impacts specific to the current residential and commercial development plans in Planning Areas 8 & 9 and identifies the required resultant roadway and traffic control improvements. As a result of the proposed land use changes, the City of Aurora has asked for this TIS to be included as Master Plan Amendment 3 for Green Valley Ranch East. While a master plan amendment typically requires a full analysis of the development, in recognition of Planning Areas 8 & 9 being the final piece of Green Valley Ranch East, the TIS will be limited to a site-specific scope given that other planning areas have been in conformance. Because the adjacent roadway system is not yet fully constructed and is largely being used for construction access at this time, the study will focus on a short-term (2030) and long-term (2045) scenarios but does not include analysis of existing conditions.

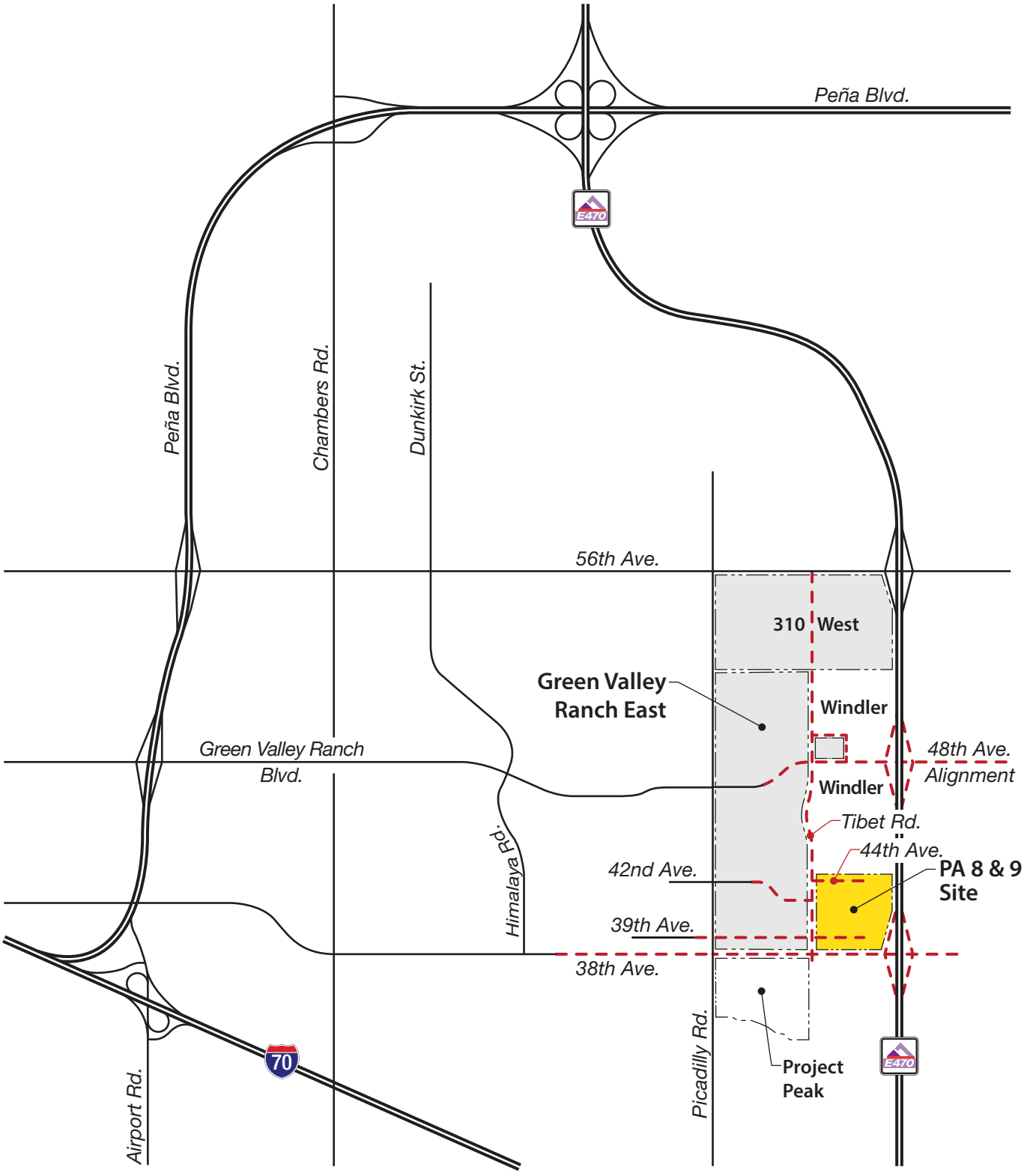
I.B. Scope of Services

The purpose of this TIS is to estimate the potential operational impacts specific to the proposed development and to identify any resultant required roadway and/or intersection improvements and traffic control needs. This TIS also includes a queueing analysis for study intersections. The primary focus for traffic operations is at the following intersections:

- Tibet Road & 44th Avenue
- Tibet Road & 43rd Avenue
- Tibet Road & 42nd Avenue
- Tibet Road & 39th Avenue
- Tibet Road & 39th Place
- Tibet Road & 38th Avenue
- 38th Avenue & Ukraine Street
- 38th Avenue & Wenatchee Street

The TIS will evaluate the following time periods:

- Buildout (2030) of the development for AM and PM peak hours
- Future (2045) of the development for AM and PM peak hours



NORTH

FIGURE 1
Vicinity Map

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

NORTH

FIGURE 2
Conceptual Site Plan

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25

II. EXISTING CONDITIONS

II.A. Land Use

Green Valley Ranch Planning Areas 8 & 9 are currently vacant. E-470 forms the eastern site boundary. Land to the west in Green Valley Ranch East is currently under development with residential uses. The Majestic Commercenter development occupies lands to the south, including the recently constructed Shamrock Foods distribution center.

II.B. Roadway Network

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. West of the study area, 38th Avenue transitions to 40th Avenue and connects with Peña Boulevard via an interchange. 38th Avenue transitions to a two-lane cross-section east of Himalaya and has been constructed up to Odessa Street providing access both to Majestic Commercenter and Green Valley Ranch. 38th Avenue has a break in connectivity between Odessa Street and Picadilly Road over First Creek before continuing as a 4-lane arterial for one-half mile between Picadilly Road and Tibet Road. There is then another break in connectivity over Tributary T between Tibet Road and E-470, where a new interchange has recently been constructed, 38th Avenue becomes the Aurora Highlands Parkway east of E-470 as a 6-lane arterial entering the Aurora Highlands development.
- **Tibet Road**. Tibet Road between 38th Avenue and 48th Avenue is planned as a 3-lane collector and a 4-lane arterial north of 48th Avenue and will be constructed as adjacent lands develop. The western half of the roadway has been constructed to date but largely serves as construction access for earlier phases of Green Valley Ranch East to the west and as the access to the Shamrock Foods distribution center south of 38th Avenue.

III. PROPOSED FUTURE CONDITIONS

III.A. Trip Generation

The standard resource for estimating travel demand is *Trip Generation, 11th Edition*, Institute of Transportation Engineers (ITE), 2021. The currently proposed development of Green Valley Ranch East Planning Areas 8 & 9 is anticipated to include 688 single-family dwelling units, a gas station, two fast food restaurants, a high turnover sit-down restaurant, and general commercial. This analysis used a mix of the regression equations and average rates and used dwelling units, per thousand square feet of floor area, and fueling stations as the independent variables for the corresponding ITE code. **Table 1** outlines the ITE trip generation rates and equations for the applicable land use codes, along with directional distributions and pass-by rates.

National Cooperative Highway Research Program (NCHRP) 684 provides the methodology for internal capture reductions based on the interactions of different land uses within mixed-use developments, including office, retail, restaurant, residential, cinema, and hotel. The methodology considers that mixed-use developments will keep a portion of the trips generated internal to the site, thereby reducing impacts to the adjacent roadway network. This methodology was applied to the site based on the specific land use mix presented in **Table 2**. NCHRP 684 worksheets are included in **Appendix A**.

As previously noted, Planning Areas 8 & 9 contemplate 688 single-family dwelling units, a gas station, two fast food restaurants, a high turnover sit-down restaurant, a grocery store, and general commercial. The trip generation analysis, summarized in **Table 2,** used the rates and equations in **Table 1,** along with the applicable internal capture and pass-by reductions. The analysis results in an anticipated 8,319 new external daily trips, with 672 occurring during the AM peak hour and 612 occurring during the PM peak hour.

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

It is projected that the adjacent study area roadway system would be built, including Tibet Road and 38th Avenue, by site buildout in 2030. 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.

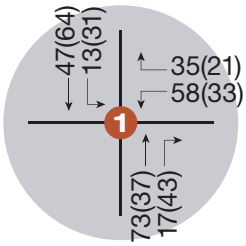
Figure 3 also shows the resultant site-generated traffic assignment. As shown, Tibet Road would carry approximately 2,650 vehicles per day (VPD) in site-related volumes. 38th Avenue would carry 2,500 to 2,900 VPD generated by the site.

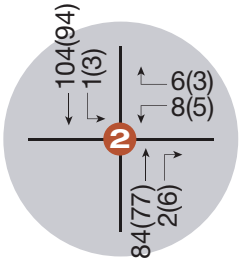
Table 1. ITE Trip Generation Rates and Equations

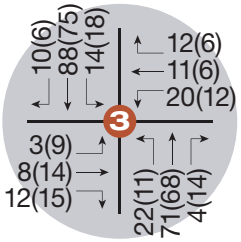
Land Use	ITE Code	Unit	Daily	Peak	Equations & Rates	Distributions		Pass-By
						In	Out	
Single-family Detached	210	DU	Ln(T)=0.92*Ln(X)+2.68	AM	Ln(T)=0.91*Ln(T)+0.12	25%	75%	n/a
				PM	Ln(T)=0.94*Ln(X)+0.27	63%	37%	n/a
Single-family Attached	215	DU	T=7.62*X+-50.48	AM	T=0.52*X+-5.7	25%	75%	n/a
				PM	T=0.6*X+-3.93	59%	41%	n/a
Strip Retail Plaza (<40 KSF)	822	KSF	T=42.2*X+229.68	AM	Ln(T)=0.66*Ln(T)+1.84	60%	40%	n/a
				PM	Ln(T)=0.71*Ln(X)+2.72	50%	50%	n/a
High Turnover (Sit-Down) Restaurant	932	KSF	T=107.2*X	AM	T=9.57*X	55%	45%	n/a
				PM	T=9.05*X	61%	39%	43%
Fast-Food Restaurant with Drive-Thru Window	934	KSF	T=467.48*X	AM	T=44.61*X	51%	49%	50%
				PM	T=33.03*X	52%	48%	55%
Gas Station (GFA 4-5.5 KSF)	945	FP	T=257.13*X	AM	T=27.04*X	50%	50%	70%
				PM	T=22.76*X	50%	50%	70%

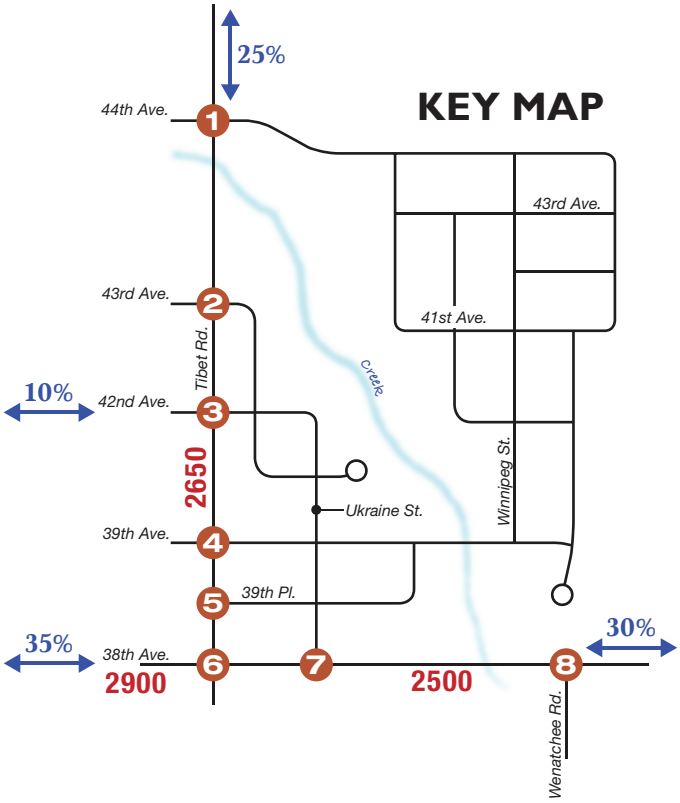
Table 2. Trip Generation

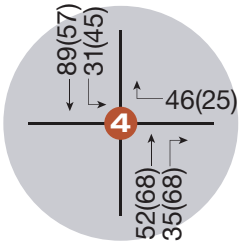
Planning Area	Land Use	ITE Code	Unit	Quantity	Daily	AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
8	Single-family Detached	210	DU	110	1,102	20	61	81	69	40	109
	Single-family Attached	215	DU	75	521	8	25	33	24	17	41
	Gas Station	945	FP	20	5,143	271	270	541	228	227	455
	Drive-Thru Restaurant	934	KSF	2.6	1,215	59	57	116	45	41	86
	Drive-Thru Restaurant	934	KSF	3.3	1,543	75	72	147	57	52	109
	High-Turnover Sit-Down Restaurant	932	KSF	5.7	611	30	25	55	32	20	52
	Strip Retail Plaza	822	KSF	10.0	652	17	12	29	39	39	78
	Subtotal				**10,787**	**480**	**522**	**1,002**	**494**	**436**	**930**
9	Single-family Detached	210	DU	303	2,798	51	153	204	178	104	282
	Single-family Attached	215	DU	200	1,474	25	73	98	68	48	116
	Subtotal				**4,272**	**76**	**226**	**302**	**246**	**152**	**398**
Subtotal Trips					**15,059**	**556**	**748**	**1,304**	**740**	**588**	**1,328**
Total Internal Trips					**3,220**	**102**	**102**	**204**	**220**	**220**	**440**
Total Passby Trips					**3,520**	**214**	**214**	**428**	**138**	**138**	**276**
Total New External Trips					**8,319**	**240**	**432**	**672**	**382**	**230**	**612**

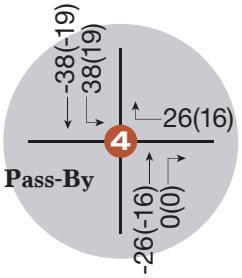


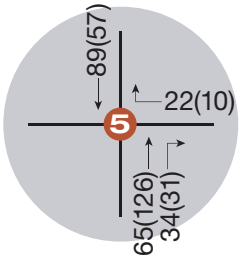


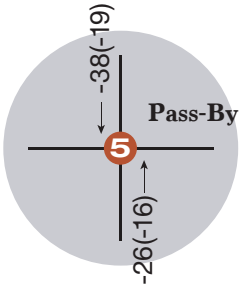


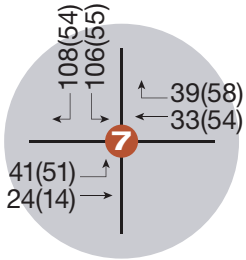


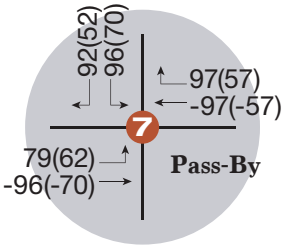


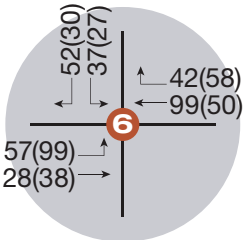


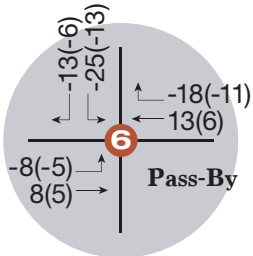


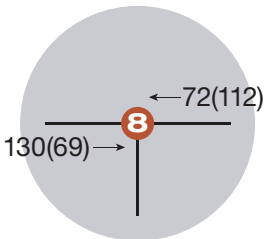












LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
XX%	=	Trip Assignment

NORTH

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 3

Site Generated Traffic Assignment

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25

IV. BACKGROUND FUTURE TRAFFIC CONDITIONS

As described below, background traffic operations are projected to remain generally acceptable at study area intersections. 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, Filing 7, and Filing 10 Traffic Impact Studies
- Development of Project Peak (Shamrock distribution center), per the TIS 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
  - 310 West located southeast of Picadilly Road and 56th Avenue
  - Windler, which straddles E-470 along 48th Avenue
  - Avelon, located in the northeast quadrant of 56th Avenue and Picadilly Road, with a mix of residential and commercial uses planned for this site
  - Painted Prairie, 1,628 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), with Project Peak (Shamrock Foods distribution center) as a portion of this overall development

The short-term and long-term peak hour background analyses assume the following improvements:

- Tibet Road would be constructed as a 3-lane collector cross section with adjacent development. The projected traffic volumes along Tibet Road would remain within the general capacity of a 3-lane collector roadway.
- 38th Avenue would be constructed to 4-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 Road would require signalization per the Project Peak TIS. Dual left-turn lanes would be needed on the northbound approach at this intersection. Signalization of this intersection should be anticipated following the connection of 38th Avenue across E-470.

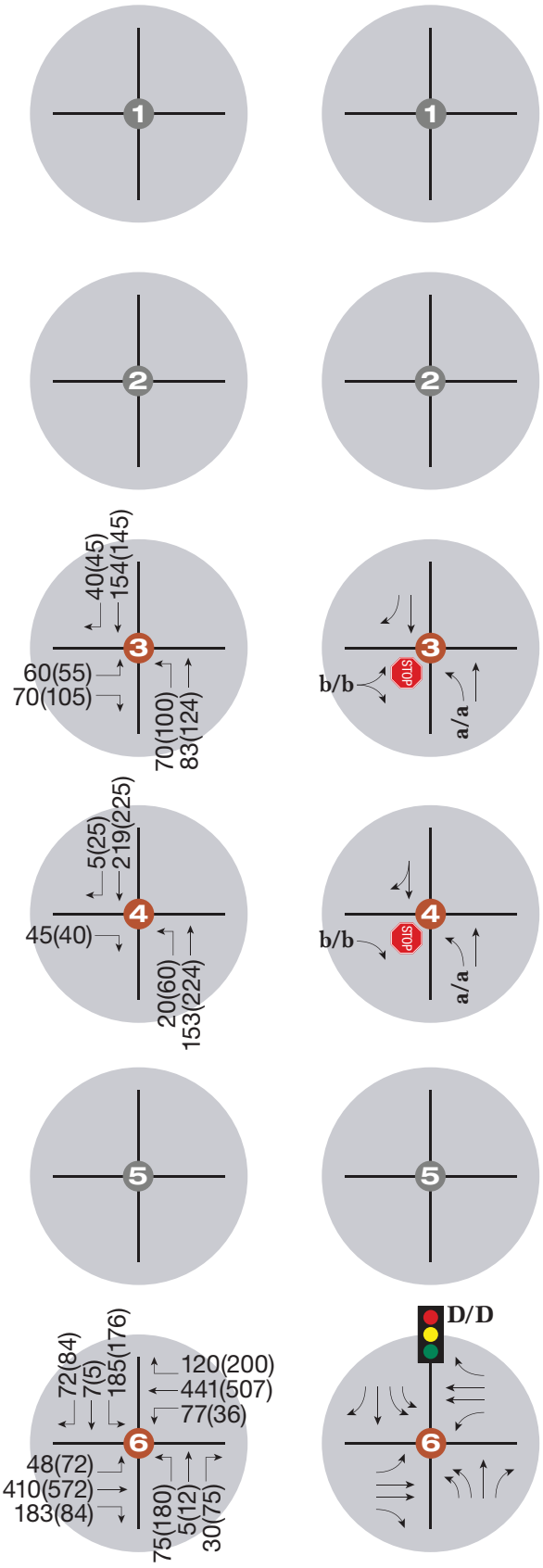
IV.A. Short-Term (2030) Background Traffic Conditions

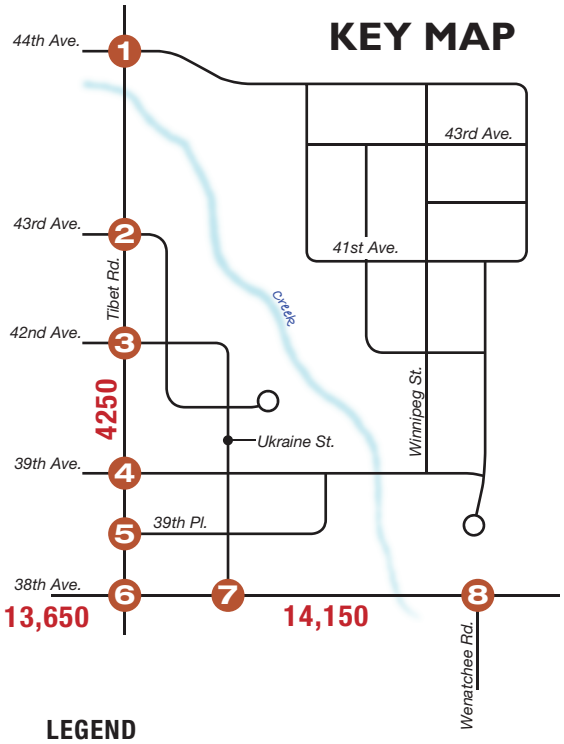
Given significant existing breaks in roadway continuity both along Tibet Road and 38th Avenue, it is difficult to gauge short-term background traffic volumes. As such, short-term (year 2030) through traffic volumes along Tibet Road and 38th Avenue are assumed to be approximately 45 percent of the long-term (year 2045) traffic volumes described below. Since the developments near the project site along Tibet Road and 38th Avenue are assumed to be mostly built out by 2030, side street movements are expected to be the same in the 2030 and 2045 background conditions. These assumptions are consistent with traffic analyses for other nearby developments with more established roadway networks.

Figure 4 illustrates the resultant short-term background volume and level of service (LOS) projections. All signalized intersections are expected to operate at LOS D or better, and all unsignalized movements are expected to operate at LOS B or better in the short-term background condition. **Section VI.A** of this TIS discusses the evaluation of signal warrants for this and all other analysis scenarios. As shown, short-term background daily volumes on 38th Avenue would be approximately 13,650 to 14,150 VPD. Daily volumes on Tibet Road would be approximately 4,250 VPD. Short-term Background LOS worksheets are provided in **Appendix B**.

IV.B. Long-Term (2045) Background Traffic Conditions

Site generated traffic from the above referenced studies was added, along with regional background growth, to determine long-term background volumes in the area. **Figure 5** illustrates the resultant long-term background volume and LOS projection. All signalized intersections are expected to operate at LOS D or better, and all unsignalized movements are expected to operate at LOS C or better in the long-term background condition. As shown, long-term background daily volumes on 38th Avenue would be approximately 29,900 to 30,250 VPD. Daily volumes on Tibet Road would be approximately 8,750 VPD in the long-term background condition. Long-term background LOS worksheets are provided in **Appendix C**.





LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signa
X	=	Intersection Not Analyzed in Background Conditions

NORTH

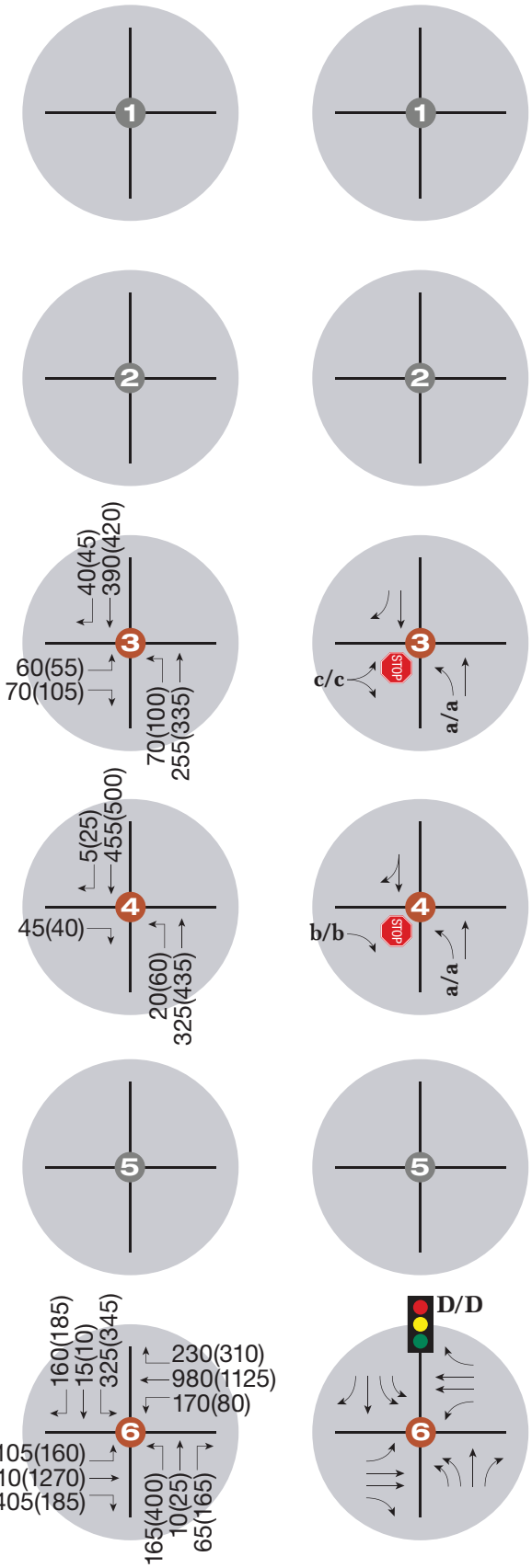
FELSBURG HOLT & ULLEVIG

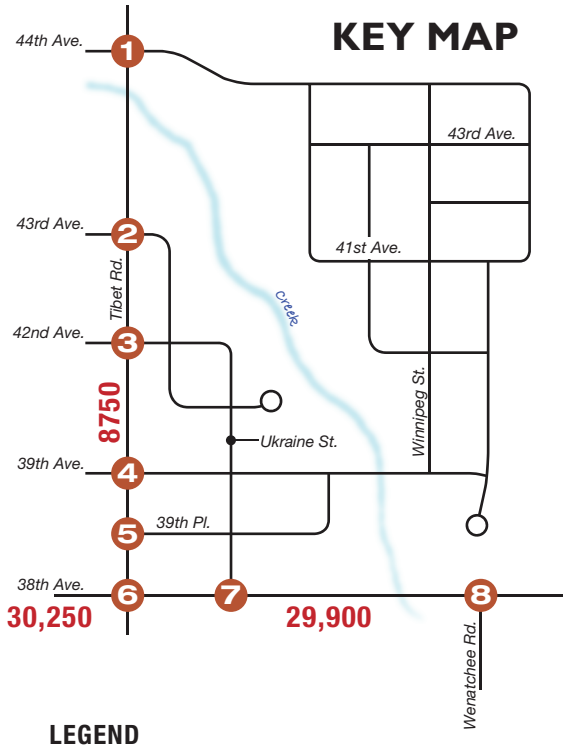
NOTE: Drawing Not to Scale

FIGURE 4

2030 Background Traffic Conditions

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25





LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signa
X	=	Intersection Not Analyzed in Background Conditions

NORTH

FIGURE 5

2045 Background Traffic Conditions

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

V. TOTAL FUTURE TRAFFIC CONDITIONS

V.A. Short-Term (2030) Total Traffic Conditions

The site generated traffic volumes previously shown on **Figure 3** were added to the short-term background traffic volumes shown on **Figure 4** to produce the short-term total traffic volumes illustrated on **Figure 6**. In the short-term total condition, all signalized intersections are expected to operate at LOS D or better, and all unsignalized movements are expected to operate at LOS C or better. LOS for the short-term total condition is shown on **Figure 6**, and LOS worksheets are included in **Appendix D**. As shown, total daily volumes on 38th Avenue would be between 16,550 and 16,650 VPD in the short term, and daily volumes on Tibet Road would be approximately 6,900 VPD.

V.B. Long-Term (2045) Total Traffic Conditions

The site generated traffic volumes previously shown on **Figure 3** were added to the long-term background traffic volumes shown on **Figure 5** to produce the long-term total traffic volumes illustrated on **Figure 7**. Long-term total volumes at 38th Avenue/Tibet Road would include northbound and southbound left-turn movements approaching 300 vehicles per hour (VPH), which is the typical threshold for dual left-turn lanes. Since the northbound dual left-turn lane has already been built, the intersection has been analyzed with northbound and southbound dual left-turn lanes in all scenarios to match opposing geometry to not create offsets with left turns.

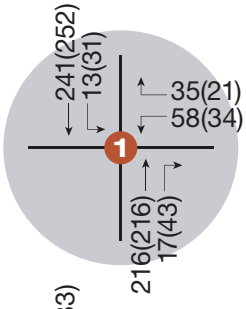
In the long-term total condition, all signalized intersections are expected to operate at LOS C or better, except for the intersection of 38th Avenue and Tibet Road, which is projected to operate at LOS D during the PM peak hour. This improvement in 2045 total and background signalized LOS over 2030 signalized LOS is likely due to the cycle times being a better fit for the 2045 traffic volumes and through volumes along 38th Avenue (the coordinated movements) becoming a larger share of the overall traffic driving down average delay. This is true for all three signals along 38th Avenue. Pedestrian clearance intervals limit the minimum cycle time. All unsignalized movements are expected to operate at LOS D or better with the exception of the eastbound and westbound lefts at 42nd Street. These turning movements are expected to operate at LOS E or F during both peak hours. Because the preliminary evaluation indicated that the eastbound and westbound turning movements at the intersection of Tibet Road and 39th Avenue were projected to have poor LOS, those movements were restricted in this analysis. With 39th Avenue operating as a ¾ movement intersection, more left turning traffic is diverted onto 42nd Avenue.

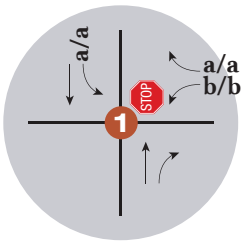
As part of the evaluation for the 2045 total condition, a two-lane roundabout was also considered for the intersection of 38th Avenue and Ukraine Street. In this scenario, the level of delay is only marginally worse than the signalized condition. Specifically, the delays would change from 13.5 seconds in the AM peak to 14.2 seconds, and from 15.2 seconds in the PM peak to 18.0 seconds. However, a roundabout design is less desirable for multimodal commuters. Pedestrians and bicyclists typically experience increased exposure and reduced safety in multilane roundabout environments due to a lack of signalized gaps and inconsistent driver yielding behavior. In addition, installing a roundabout at this location would disrupt coordination along the 38th Avenue corridor. Signal timing plans that currently facilitate efficient progression would no longer apply, introducing delays to through movements that must now yield at the roundabout. Moreover, a roundabout would require a greater right-of-way footprint compared to a signalized intersection, increasing from a 114' ROW for 38th Avenue to an estimated 200' diameter for the roundabout, impacting adjacent properties and placement of access internal to the site along Ukraine Street. For these reasons the recommendation is for signalization at this location. Roundabout LOS and delay are summarized in **Appendix E.**

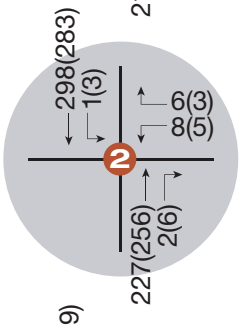
Although 42nd Avenue does not meet volume-based signal warrants, a signal should be considered. Per previous traffic engineering efforts for CSP 3 and Filing 7, this intersection is adjacent to a future school site and could require a protected pedestrian crossing in the future. Therefore, future traffic and pedestrian

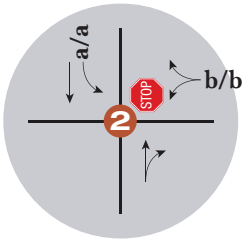
conditions should be periodically monitored and appropriate traffic control measures implemented when warranted. Particular consideration of Warrant 5, School Crossing, would be anticipated. If the 42nd Avenue intersection were signalized, it would operate at LOS B during both peak hours. **Appendix E** includes LOS worksheets for the long-term total condition.

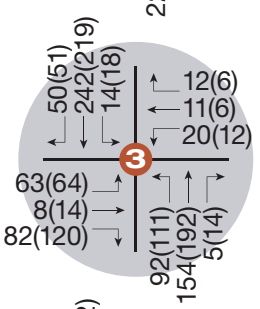
As shown, total daily volumes on 38th Avenue would be approximately 32,400 to 33,150 VPD in the long term, and daily volumes on Tibet Road would be approximately 11,400 VPD in the long term. Short-term and long-term LOS and delay are summarized in **Appendix F**.

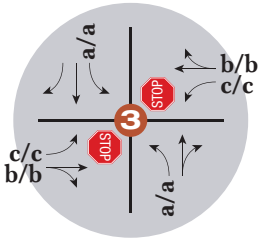


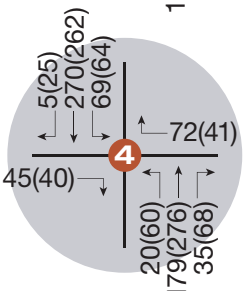


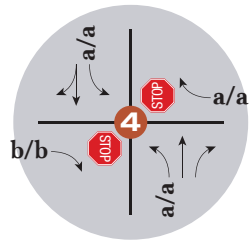


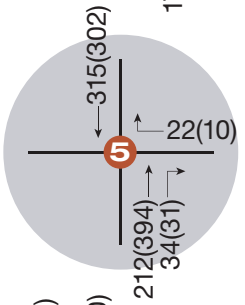


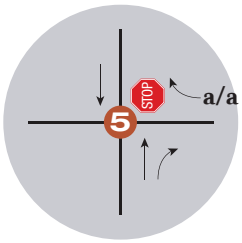


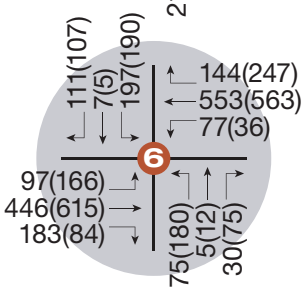


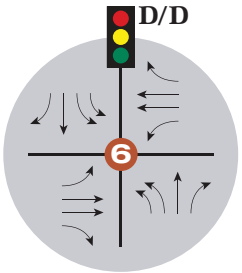


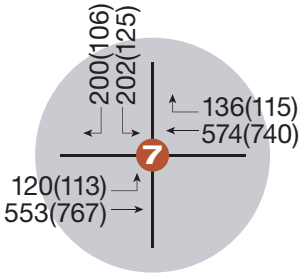


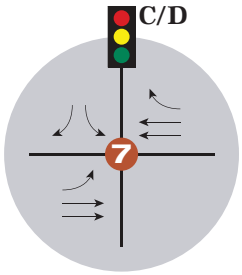


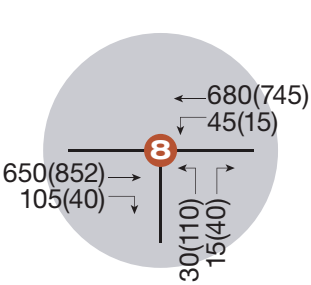


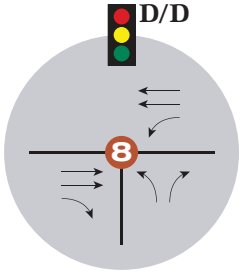


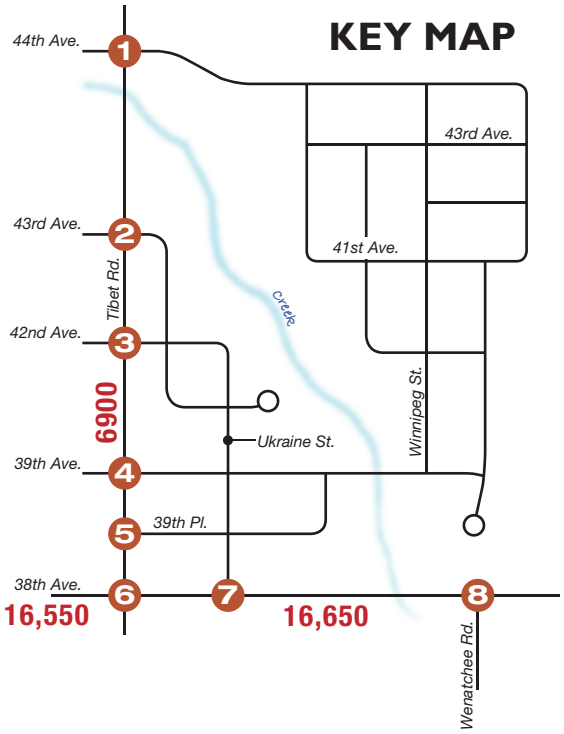












LEGEND

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

NORTH

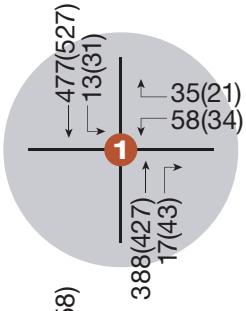
FELSBURG HOLT & ULLEVIG

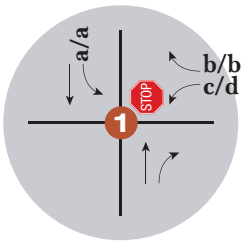
NOTE: Drawing Not to Scale

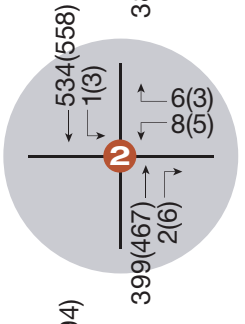
FIGURE 6

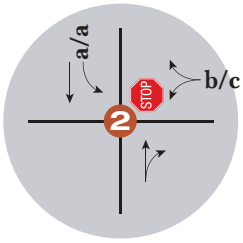
2030 Total Traffic Conditions

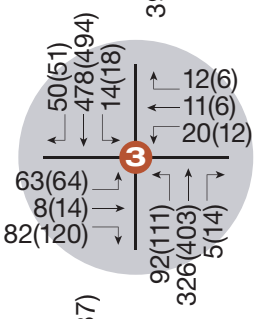
GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25

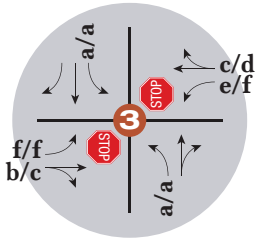


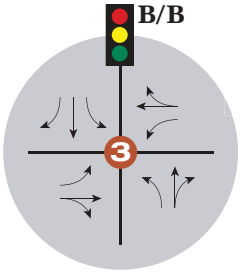




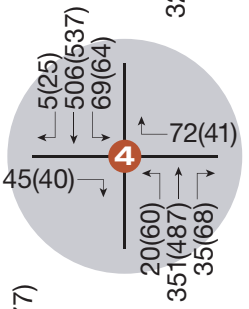


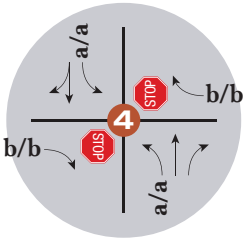


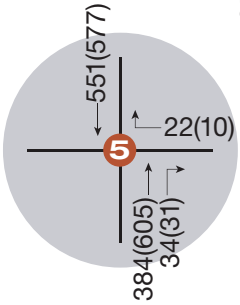


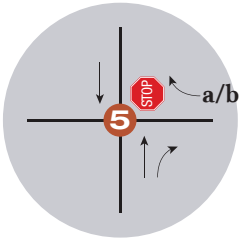


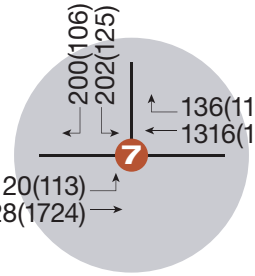
with Signal

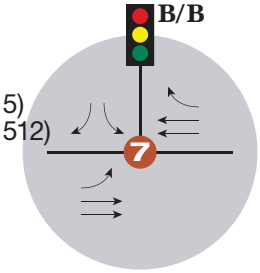


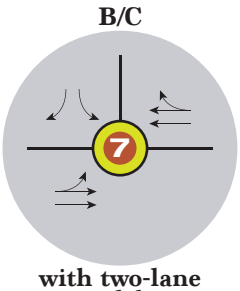




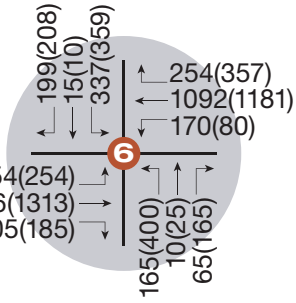


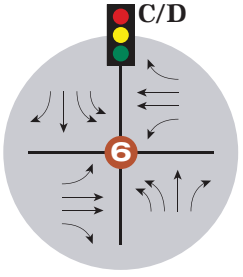


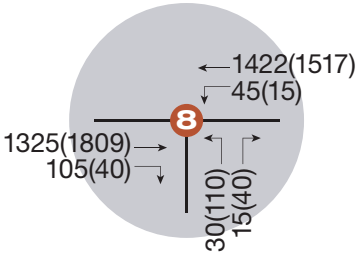


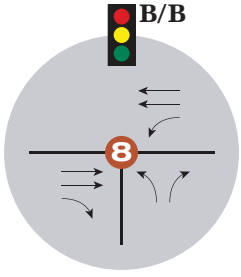


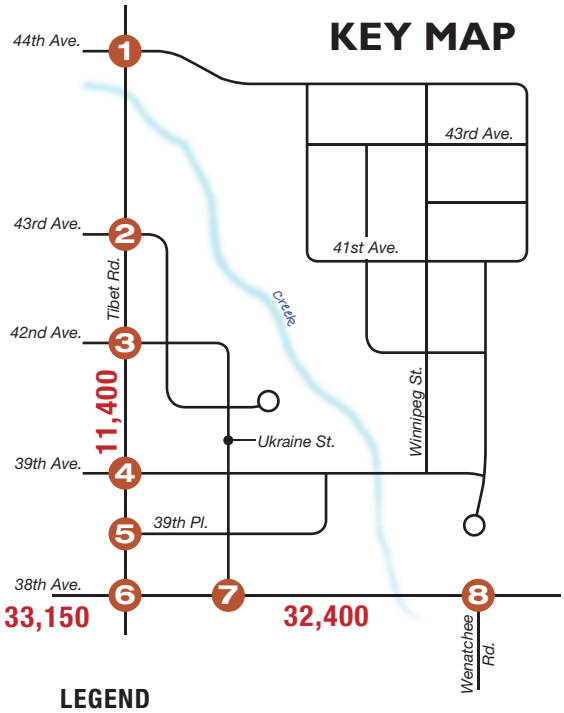
with two-lane roundabout











LEGEND

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

NORTH

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 7

2045 Total Traffic Conditions

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/22/25

VI. EVALUATION

VI.A. Signal Warrants

The analysis included a review to determine if *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, 2009 Edition,* traffic signal Warrant 1 (Eight-Hour Vehicular Volume) and/or Warrant 2 (Four-Hour Vehicular Volume) are satisfied for stop-controlled study intersection(s) under short-term and long-term scenarios. Based on volume reduction criteria used by City of Aurora for all intersection configurations, 50 percent right-turn reductions were applied. **Table 3** summarizes the results of the analysis, and **Appendix G** presents graphical results of the MUTCD warrant analysis.

Signal warrants have been performed under the assumption that 10 percent of daily traffic occurs during the highest peak hour. A linear regression was then applied to factor down each additional hour based on historical data of typical arterial roadways in urban environments. The eight highest hour is assumed to be 5.71 percent of daily traffic or 57.1 percent of the highest peak hour. These approximations are useful in areas where roadways are not yet constructed or development remains minimal, as under current conditions. Daily distributions are heavily influenced by construction traffic given relatively low overall volume.

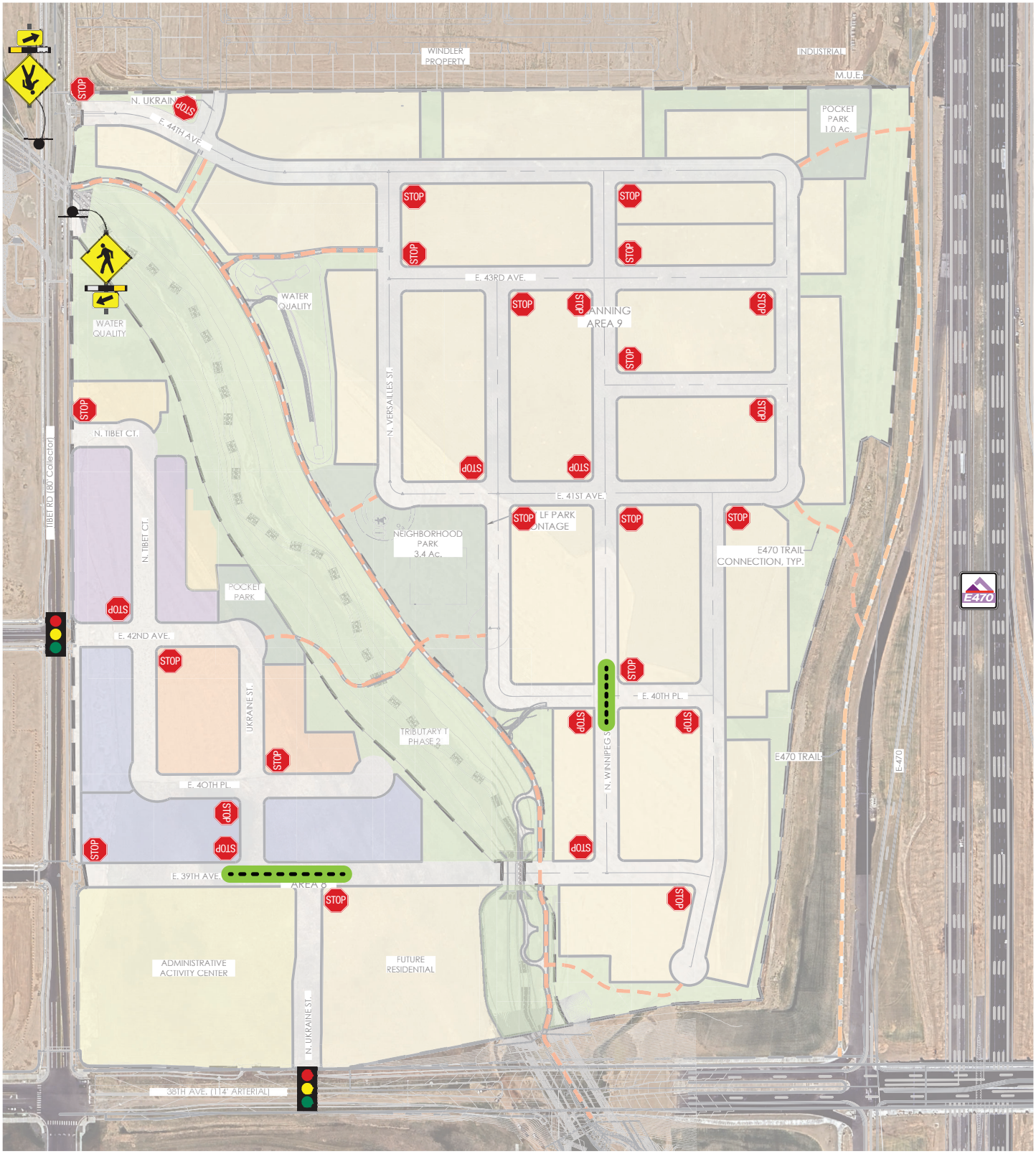
This analysis suggests that the intersection of Tibet Road and 38th Avenue would warrant signalization in all scenarios, and the intersection of 38th Avenue and Ukraine Street would warrant signalization in both total conditions. The intersection of 38th Avenue and Wenatchee Road is close to meeting warrants and has been analyzed as a signal due to past studies finding that the intersection should be signalized. Although the intersection of Tibet Road and 42nd Avenue does not meet Warrants 1 or 2, signalization should be considered due to the nearby school and poor LOS on the side street left-turn movements. Current volume projections indicate that four of the required eight hours would be met in Warrant 1 in the long-term total scenario.

Table 3. MUTCD Signal Warrants

Intersection	Short-Term Background (2030) Signal Warrant	Long-Term Background (2045) Signal Warrant	Short-Term Total (2030) Signal Warrant	Long-Term Total (2045) Signal Warrant
1. Tibet Rd & 44th Ave	N/A	N/A	Not Warranted	Not Warranted
2. Tibet Rd & 43rd Ave	N/A	N/A	Not Warranted	Not Warranted
3. Tibet Rd & 42nd Ave	Not Warranted	Not Warranted	Not Warranted	Not Warranted
4. Tibet Rd & 39th Ave	Not Warranted	Not Warranted	Not Warranted	Not Warranted
5. Tibet Rd & 39th Pl	N/A	N/A	Not Warranted	Not Warranted
6. Tibet Rd & 38th Ave	**Warranted**	**Warranted**	**Warranted**	**Warranted**
7. 38th Ave & Ukraine St	N/A	N/A	**Warranted**	**Warranted**
8. 38th Ave & Wenatchee Rd	Not Warranted	Not Warranted	Not Warranted	Not Warranted

VI.B. Internal Traffic Control

Traffic control at the internal intersections within Planning Areas 8 & 9 would be unsignalized, with STOP sign control on the minor approaches. STOP sign locations are shown on **Figure 8**.



LEGEND

STOP = Stop Sign

= Traffic Signal

= Traffic Calming

= RRFB Signal

NORTH

FIGURE 8

Internal Traffic Control

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

GVR East - PA 8 & 9 - MAY_25 UPDATE 121374-01 5/15/25

VI.C. Street Layout

The proposed street layout for Planning Areas 8 & 9 is 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) is at the approximate one-mile spacing per standards.
- Collector spacing (42nd Avenue and Tibet Road) generally meets the one-half-mile spacing requirement and is consistent with previous planning at Green Valley Ranch East.
- Five local street connections to Tibet Road form the western perimeter of the site at 39th Drive, 39th Avenue, 42nd Avenue, 43rd Avenue, and 44th Avenue. Of note, the northernmost connection to Tibet at 44th Avenue would provide a potential future local connection into the Windler site north of Planning Areas 8 & 9. The site plan also shows one local street connection to 38th Avenue at Ukraine Street on the southern site perimeter.
- No cul-de-sacs longer than 500 feet are proposed. No dead ends or hammerheads are proposed.

VI.D. Traffic Calming

Given the length of several internal streets, some potential traffic calming measures could help mitigate potential speeding concerns. Based on the proposed site layout, curb extensions (or neckdowns) on the eastbound and westbound approaches at the first internal intersection on 39th Avenue and Ukraine Street could discourage speeding within Planning Area 8. Midblock curb extensions on the northbound and southbound approaches at the first intersection north of 39th Avenue (40th Place and Winnipeg Street) on the primary north-south roadway within Planning Area 9 would also help to maintain low speeds within the site. Details of traffic calming measures are illustrated on **Figure 8.**

VI.E. Pedestrian Connectivity

A Rectangular Rapid Flashing Beacon (RRFB) is planned just south of the intersection of 44th Avenue with Tibet Road. The RRFB will provide safe connectivity of the Highline Canal multiuse trail across Tibet Road between GVRE filings. Further, the trail crossing at 38th Avenue near E-470 is planned to be a grade separated under 38th Avenue.

VI.F. Queues

The 95th percentile maximum probable queue lengths for long-term total conditions were extracted from the Synchro LOS worksheets contained in **Appendix E**. The queue lengths are converted into feet (assuming a typical length of 25 feet per vehicle) and are summarized in **Table 4**. The table also provides CDOT storage requirements per the State Highway Access Code (SHAC). Output from the traffic analysis effort was used to recommend storage lengths, using the following methodology:

- **Left-turn lane storage lengths.** At signalized intersections, the greater of the HCM 6th Edition or Synchro methodology queue calculations were reported. For unsignalized intersections, the HCM 6th Edition calculation was reported.
- **Through movements.** For signalized intersections, Synchro methodology queue calculations were reported. Synchro methodology is preferred as it provides more realistic interactions between coordinated signals. No through movement queues were reported for unsignalized intersections as the through movements are free.
- **Right-turn movements.** The Synchro queue length was used for signalized intersections. HCM 6th Edition information was not used because HCM's signalized intersection methodology does not account for right turns on red and assumes channelized rights are to be removed from the intersection, resulting in a reported value of zero. For unsignalized intersections, HCM 6th Edition calculation was reported.

Table 4. Queue Length Summary – Long Range Future

Intersection	Movement	Per Lane Queue Length (ft) AM/PM	CDOT Storage Length (ft) Requirement AM/PM	Recommended Storage Length
1. Tibet Rd & 44th Avenue	WB Left-turn	25/25	75/50	25-Feet
	WB Right-turn	25/25	50/25	25-Feet
	SB Left-turn	25/25	25/50	25-Feet
2. Tibet Rd & 43rd Avenue	WB Left/Right-turn	25/25	25/25	25-Feet
	SB Left-turn	25/25	25/25	25-Feet
3. Tibet Rd & 42nd Avenue	EB Left-turn	75/100	75/75	100-Feet
	EB Through/Right-turn	25/50	100/150	50-Feet
	WB Left-turn	25/25	25/25	25-Feet
	WB Through/Right-turn	25/25	25/25	25-Feet
	NB Left-turn	25/25	100/125	25-Feet
	SB Left-turn	25/25	25/25	25-Feet
4. Tibet Rd & 39th Avenue	EB Right-turn	25/25	50/50	25-Feet
	WB Right-Turn	25/25	75/50	25-Feet
	NB Left-Turn	25/25	25/75	25-Feet
	SB Left-turn	25/25	75/75	25-Feet
5. Tibet Rd & 39th Place	WB Right-Turn	25/25	25/25	25-Feet
6. Tibet Rd & 38th Avenue	EB Left-turn	175/400	175/275	400-Feet
	EB Through	525/650	975/1375	650-Feet
	EB Right-turn	400/25	425/200	400-Feet
	WB Left-turn	150/75	200/100	150-Feet
	WB Through	275/550	1150/1250	550-Feet
	WB Right-turn	100/200	275/375	200-Feet
	NB Left-turn*	150/325	175/425	325-Feet
	NB Through	25/50	25/25	50-Feet
	NB Right-turn	75/225	75/175	225-Feet
	SB Left-turn*	250/275	350/375	275-Feet
	SB Through	25/25	25/25	25-Feet
	SB Right-turn	200/250	225/225	250-Feet
7. 38th Ave & Ukraine Street (Signalized)	EB Left-turn	100/100	125/125	100-Feet
	EB Through	25/300	1300/1800	300-Feet
	WB Through	275/500	1375/1575	500-Feet
	WB Right-turn	50/50	150/125	50-Feet
	SB Left-turn	200/150	225/150	200-Feet
	SB Right-turn	450/275	225/125	450-Feet
7. 38th Ave & Ukraine Street (2-Lane Roundabout)	EB Left-turn	225/625	125/125	625-Feet
	EB Through	225/625	1300/1800	625-Feet
	WB Through	150/200	1375/1575	200-Feet
	WB Right-turn	150/200	150/125	200-Feet
	SB Left-turn	75/50	225/150	75-Feet
	SB Right-turn	100/50	225/125	100-Feet
	EB Through	475/100	1400/1900	475-Feet

Intersection	Movement	Per Lane Queue Length (ft) AM/PM	CDOT Storage Length (ft) Requirement AM/PM	Recommended Storage Length
8. 38th Ave & Wenatchee Street	EB Right-turn	75/25	125/50	75-Feet
	WB Left-turn	75/25	50/25	75-Feet
	WB Through	550/625	1500/1600	625-Feet
	NB Left-turn	50/125	50/125	125-Feet
	NB Right-turn	25/50	25/50	50-Feet
*Dual left-turn lane				

VI.G. Summary of Improvements

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

- Construct 38th Avenue adjacent to the site as a 4-lane Arterial.
- Construct Tibet Road as a 3-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 and southbound approaches. Install a traffic signal when signal warrants are met, anticipated with 2045 background conditions.
- Construct the intersection of 38th Avenue/Ukraine Street to include eastbound and southbound left-turn lanes, as well as westbound and southbound right-turn lanes. Install signal warrants when signal warrants are met, anticipated with 2030 total traffic conditions.
- Install STOP sign control on the westbound approach at Tibet Road/39th Place. Provide a northbound right-turn lane.
- Install STOP sign control on the westbound site access approach at the 39th Avenue/Tibet Road intersection. Provide a southbound left-turn lane. Restrict the eastbound and westbound left-turns.
- Install STOP sign control on the westbound site access approach at the 42nd Avenue/Tibet Road intersection. Provide a southbound left-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 site access approach at the 43rd Avenue/Tibet Road intersection. Provide a southbound left-turn lane.
- Install STOP-sign control on the westbound approach at the Tibet Road/44th Avenue site access intersection. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP-sign control at the site-internal intersections.
- Install curb extensions as a traffic calming measure at two internal intersections.

VII. CONCLUSIONS AND RECOMMENDATIONS

It is currently proposed to develop 688 single-family dwelling units, a gas station, two fast food restaurants, a high turnover sit-down restaurant, and general commercial 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 to Green Valley Ranch East Planning Areas 8 & 9 is proposed at five roadway connections along Tibet Road and one location along 38th Avenue.

The proposed development at Planning Areas 8 & 9 would have a trip generation potential of 8,319 trips per day, with 672 AM peak hour trips and 612 PM peak hour trips. The potential impacts of the site-generated traffic were evaluated under short- and long-term 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 planning Areas 8 & 9:

- Construct 38th Avenue adjacent to the site as a 4-lane Arterial.
- Construct Tibet Road as a 3-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 and southbound approaches. Install a traffic signal.
- Construct the intersection of 38th Avenue/Ukraine Street as a signal with eastbound and southbound left-turn lanes, as well as westbound and southbound right-turn lanes. Install a traffic signal.
- Install STOP sign control on the westbound approach at Tibet Road/39th Place. Provide a northbound right-turn lane.
- Install STOP sign control on the westbound site access approach at the 39th Avenue/Tibet Road intersection. Provide a southbound left-turn lane. Restrict the eastbound and westbound left-turns.
- Install STOP sign control on the westbound site access approach at the 42nd Avenue/Tibet Road intersection. Provide a southbound left-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 site access approach at the 43rd Avenue/Tibet Road intersection. Provide a southbound left-turn lane.
- Install STOP sign control on the westbound approach at the Tibet Road/44th Avenue site access intersection. Provide a southbound left-turn lane and a northbound right-turn lane.
- Install STOP-sign control at the site-internal intersections.
- Install curb extensions as a traffic calming measure at two internal intersections as previously depicted.

APPENDIX A. INTERNAL TRIP CAPTURE

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	GVRE PA 8 and 9	**Organization:**	Felsburg Holt & Ullevig
Project Location:	Aurora, CO	**Performed By:**	PJD
Scenario Description:	Buildout	**Date:**	1/10/2025
Analysis Year:	2045	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	822, 945	10.0, 20	KSF and Pumps	570	288	282
Restaurant	932, 934	5.7, 5.9	KSF	318	164	154
Cinema/Entertainment				0		
Residential	210, 215	413, 275	DUs	416	104	312
Hotel				0		
All Other Land Uses[2]				0		
				1,304	556	748

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00			1.00		
Retail	1.00			1.00		
Restaurant	1.00			1.00		
Cinema/Entertainment	1.00			1.00		
Residential	1.00			1.00		
Hotel	1.00			1.00		
All Other Land Uses[2]	1.00			1.00		

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		37	0	2	0
Restaurant	0	22		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	33	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,304	556	748
Internal Capture Percentage	16%	18%	14%
External Vehicle-Trips[5]	1,100	454	646
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	9%	14%
Restaurant	43%	18%
Cinema/Entertainment	N/A	N/A
Residential	7%	12%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	GVRE PA 8 and 9	**Organization:**	Felsburg Holt & Ullevig
Project Location:	Aurora, CO	**Performed By:**	PJD
Scenario Description:	Buildout	**Date:**	4/28/2025
Analysis Year:	2045	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	822, 945	10.0, 20	KSF and Pumps	533	267	266
Restaurant	932, 934	5.7, 5.9	KSF	247	134	113
Cinema/Entertainment				0		
Residential	210, 215	413, 275	DUs	548	339	209
Hotel				0		
All Other Land Uses[2]				0		
				1,328	740	588

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00			1.00		
Retail	1.00			1.00		
Restaurant	1.00			1.00		
Cinema/Entertainment	1.00			1.00		
Residential	1.00			1.00		
Hotel	1.00			1.00		
All Other Land Uses[2]	1.00			1.00		

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		39	0	69	0
Restaurant	0	46		0	20	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	27	19	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,328	740	588
Internal Capture Percentage	33%	30%	37%
External Vehicle-Trips[5]	888	520	368
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	27%	41%
Restaurant	43%	58%
Cinema/Entertainment	N/A	N/A
Residential	26%	22%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

APPENDIX B. SHORT TERM FUTURE BACKGROUND LEVEL OF SERVICE

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	70	83	154	40
Future Vol, veh/h	60	70	70	83	154	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	-	-	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	65	76	76	90	167	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	409	167	210	0	-	0
Stage 1	167	-	-	-	-	-
Stage 2	242	-	-	-	-	-
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	609	877	1361	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	575	877	1361	-	-	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	3.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1361	-	706	-	-
HCM Lane V/C Ratio	0.056	-	0.2	-	-
HCM Control Delay (s)	7.8	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	20	153	219	5
Future Vol, veh/h	0	45	20	153	219	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	-	-	-
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	49	22	166	238	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	241	243	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	798	1323	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	798	1323	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

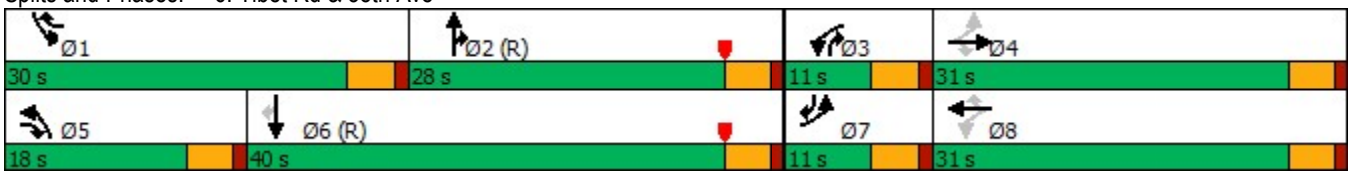
Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.9	0
HCM LOS	A		

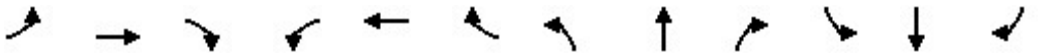
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	798	-	-
HCM Lane V/C Ratio	0.016	-	0.061	-	-
HCM Control Delay (s)	7.8	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	410	183	77	441	120	75	5	30	185	7	72
Future Volume (vph)	48	410	183	77	441	120	75	5	30	185	7	72
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)	11.0	31.0	18.0	11.0	31.0	30.0	18.0	28.0		30.0	40.0	11.0
Total Split (%)	11.0%	31.0%	18.0%	11.0%	31.0%	30.0%	18.0%	28.0%		30.0%	40.0%	11.0%
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)	24.6	19.4	31.7	24.6	19.4	35.1	7.8	47.1	58.0	11.2	50.5	61.3
Actuated g/C Ratio	0.25	0.19	0.32	0.25	0.19	0.35	0.08	0.47	0.58	0.11	0.50	0.61
v/c Ratio	0.26	0.65	0.31	0.39	0.70	0.20	0.31	0.01	0.03	0.52	0.01	0.08
Control Delay	26.7	41.4	4.4	30.0	42.9	4.1	46.1	18.8	0.1	46.5	16.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	41.4	4.4	30.0	42.9	4.1	46.1	18.8	0.1	46.5	16.3	3.0
LOS	C	D	A	C	D	A	D	B	A	D	B	A
Approach Delay		29.7			34.0			32.3			33.8	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 32.2	Intersection LOS: C
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	410	183	77	441	120	75	5	30	185	7	72
Future Volume (veh/h)	48	410	183	77	441	120	75	5	30	185	7	72
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	52	446	199	84	479	130	82	5	33	201	8	78
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	186	601	339	205	653	422	155	965	901	284	1035	937
Arrive On Green	0.04	0.17	0.17	0.05	0.18	0.18	0.04	0.52	0.52	0.08	0.55	0.55
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	52	446	199	84	479	130	82	5	33	201	8	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	2.4	11.9	11.3	3.9	12.7	6.6	2.3	0.1	0.9	5.7	0.2	2.1
Cycle Q Clear(g_c), s	2.4	11.9	11.3	3.9	12.7	6.6	2.3	0.1	0.9	5.7	0.2	2.1
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	186	601	339	205	653	422	155	965	901	284	1035	937
V/C Ratio(X)	0.28	0.74	0.59	0.41	0.73	0.31	0.53	0.01	0.04	0.71	0.01	0.08
Avail Cap(c_a), veh/h	234	942	491	227	942	551	467	965	901	881	1035	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	39.5	35.3	32.6	38.5	29.3	46.7	11.8	9.5	44.7	10.0	8.8
Incr Delay (d2), s/veh	0.8	1.8	1.6	1.3	1.7	0.4	2.8	0.0	0.1	3.2	0.0	0.2
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	1.9	9.1	7.9	3.1	9.5	4.5	1.9	0.1	0.6	4.6	0.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	41.3	37.0	33.9	40.2	29.7	49.5	11.8	9.6	47.9	10.0	9.0
LnGrp LOS	C	D	D	C	D	C	D	B	A	D	B	A
Approach Vol, veh/h		697			693			120			287	
Approach Delay, s/veh		39.5			37.5			36.9			36.3	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	56.1	9.8	21.4	9.0	59.8	8.3	22.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	23.5	6.5	26.5	13.5	35.5	6.5	26.5
Max Q Clear Time (g_c+I1), s	7.7	2.9	5.9	13.9	4.3	4.1	4.4	14.7
Green Ext Time (p_c), s	0.6	0.1	0.0	3.0	0.1	0.3	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

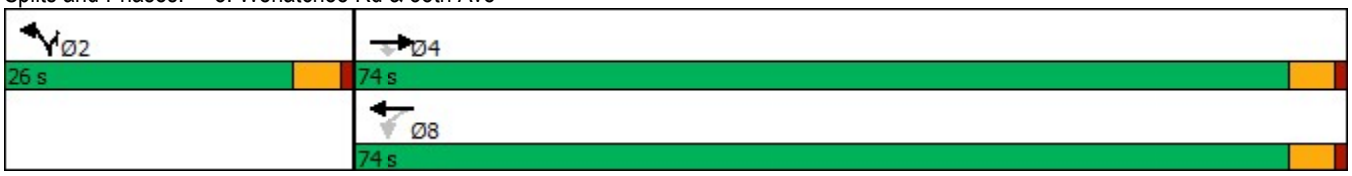
Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	520	105	45	608	30	15
Future Volume (vph)	520	105	45	608	30	15
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	74.0	74.0	74.0	74.0	26.0	26.0
Total Split (%)	74.0%	74.0%	74.0%	74.0%	26.0%	26.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	16.2	16.2	16.2	16.2	6.7	6.7
Actuated g/C Ratio	0.90	0.90	0.90	0.90	0.37	0.37
v/c Ratio	0.18	0.08	0.07	0.21	0.05	0.03
Control Delay	1.7	1.1	2.4	1.8	7.3	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	1.1	2.4	1.8	7.3	5.0
LOS	A	A	A	A	A	A
Approach Delay	1.6			1.8	6.5	
Approach LOS	A			A	A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 18	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.21	
Intersection Signal Delay: 1.9	Intersection LOS: A
Intersection Capacity Utilization 34.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	520	105	45	608	30	15
Future Volume (veh/h)	520	105	45	608	30	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	565	114	49	661	33	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1814	809	662	1814	105	94
Arrive On Green	0.51	0.51	0.51	0.51	0.06	0.06
Sat Flow, veh/h	3647	1585	761	3647	1781	1585
Grp Volume(v), veh/h	565	114	49	661	33	16
Grp Sat Flow(s),veh/h/ln	1777	1585	761	1777	1781	1585
Q Serve(g_s), s	1.9	0.8	0.8	2.3	0.4	0.2
Cycle Q Clear(g_c), s	1.9	0.8	2.8	2.3	0.4	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1814	809	662	1814	105	94
V/C Ratio(X)	0.31	0.14	0.07	0.36	0.31	0.17
Avail Cap(c_a), veh/h	11809	5267	2802	11809	1831	1629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.0	2.7	3.8	3.1	9.4	9.3
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	1.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.1	0.1	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.1	2.8	3.8	3.2	11.1	10.2
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	679			710	49	
Approach Delay, s/veh	3.0			3.2	10.8	
Approach LOS	A			A	B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	5.7	15.2	15.2
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	69.5	69.5
Max Q Clear Time (g_c+I1), s	2.4	3.9	4.8
Green Ext Time (p_c), s	0.1	4.9	5.9

Intersection Summary	
HCM 6th Ctrl Delay	3.4
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	105	100	124	145	45
Future Vol, veh/h	55	105	100	124	145	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	-	-	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	114	109	135	158	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	511	158	207	0	-	0
Stage 1	158	-	-	-	-	-
Stage 2	353	-	-	-	-	-
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	523	887	1364	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	481	887	1364	-	-	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	3.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1364	-	688	-	-
HCM Lane V/C Ratio	0.08	-	0.253	-	-
HCM Control Delay (s)	7.9	-	12	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	60	224	225	25
Future Vol, veh/h	0	40	60	224	225	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	-	-	-
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	43	65	243	245	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	259	272	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	780	1291	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	780	1291	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

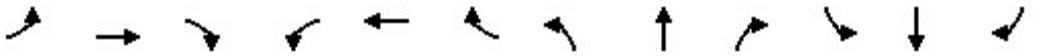
Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1291	-	780	-	-
HCM Lane V/C Ratio	0.051	-	0.056	-	-
HCM Control Delay (s)	7.9	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	572	84	36	507	200	180	12	75	176	5	84
Future Volume (vph)	72	572	84	36	507	200	180	12	75	176	5	84
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	35.0	28.0	10.0	32.0	28.0	28.0	27.0		28.0	27.0	13.0
Total Split (%)	13.0%	35.0%	28.0%	10.0%	32.0%	28.0%	28.0%	27.0%		28.0%	27.0%	13.0%
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)	32.4	25.8	41.3	27.0	21.5	36.9	11.0	41.8	51.8	10.9	41.7	53.9
Actuated g/C Ratio	0.32	0.26	0.41	0.27	0.22	0.37	0.11	0.42	0.52	0.11	0.42	0.54
v/c Ratio	0.34	0.68	0.13	0.20	0.72	0.30	0.52	0.02	0.10	0.51	0.01	0.10
Control Delay	25.3	37.5	3.7	10.8	26.9	9.3	46.6	21.1	4.2	46.5	21.4	3.6
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	25.3	37.5	3.7	10.8	26.9	9.3	46.6	21.1	4.2	46.5	21.4	3.6
LOS	C	D	A	B	C	A	D	C	A	D	C	A
Approach Delay		32.4			21.4			33.5			32.5	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 43.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	572	84	36	507	200	180	12	75	176	5	84
Future Volume (veh/h)	72	572	84	36	507	200	180	12	75	176	5	84
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	78	622	91	39	551	217	196	13	82	191	5	91
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	196	786	478	172	732	451	278	911	824	273	908	846
Arrive On Green	0.05	0.22	0.22	0.01	0.07	0.07	0.08	0.49	0.49	0.08	0.49	0.49
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	78	622	91	39	551	217	196	13	82	191	5	91
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	3.4	16.5	4.3	1.7	15.2	12.0	5.5	0.4	2.6	5.4	0.1	2.8
Cycle Q Clear(g_c), s	3.4	16.5	4.3	1.7	15.2	12.0	5.5	0.4	2.6	5.4	0.1	2.8
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	196	786	478	172	732	451	278	911	824	273	908	846
V/C Ratio(X)	0.40	0.79	0.19	0.23	0.75	0.48	0.70	0.01	0.10	0.70	0.01	0.11
Avail Cap(c_a), veh/h	261	1084	611	211	977	561	812	911	824	812	908	846
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	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	36.8	25.9	31.5	44.1	35.1	44.8	13.3	12.1	44.9	13.3	11.5
Incr Delay (d2), s/veh	1.3	2.8	0.2	0.6	2.0	0.7	3.3	0.0	0.2	3.3	0.0	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	2.7	11.8	2.9	1.4	11.6	8.6	4.5	0.3	1.7	4.4	0.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	39.6	26.1	32.1	46.1	35.8	48.1	13.3	12.4	48.2	13.3	11.8
LnGrp LOS	C	D	C	C	D	D	D	B	B	D	B	B
Approach Vol, veh/h		791			807			291			287	
Approach Delay, s/veh		37.2			42.6			36.5			36.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	53.2	7.8	26.6	12.5	53.0	9.3	25.1
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	23.5	22.5	5.5	30.5	23.5	22.5	8.5	27.5
Max Q Clear Time (g_c+I1), s	7.4	4.6	3.7	18.5	7.5	4.8	5.4	17.2
Green Ext Time (p_c), s	0.5	0.2	0.0	3.6	0.6	0.2	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

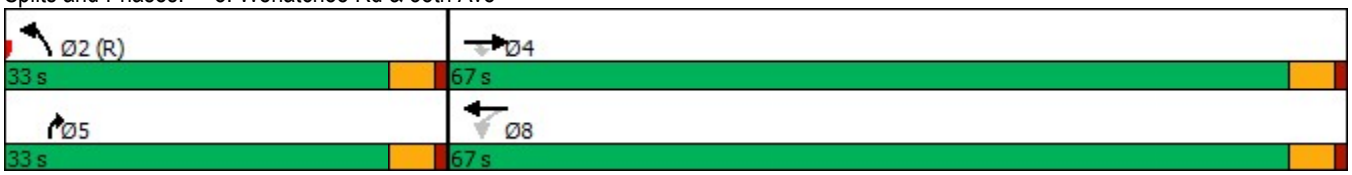
Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	783	40	15	633	110	40
Future Volume (vph)	783	40	15	633	110	40
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	5
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	67.0	67.0	67.0	67.0	33.0	33.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	None
Act Effct Green (s)	34.7	34.7	34.7	34.7	56.3	56.3
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.56	0.56
v/c Ratio	0.69	0.07	0.15	0.56	0.12	0.05
Control Delay	52.9	25.1	23.0	27.6	12.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	25.1	23.0	27.6	12.4	4.4
LOS	D	C	C	C	B	A
Approach Delay	51.5			27.5	10.3	
Approach LOS	D			C	B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 38.1	Intersection LOS: D
Intersection Capacity Utilization 35.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	783	40	15	633	110	40
Future Volume (veh/h)	783	40	15	633	110	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	851	43	16	688	120	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1176	524	136	1176	1032	918
Arrive On Green	0.11	0.11	0.33	0.33	0.58	0.58
Sat Flow, veh/h	3647	1585	648	3647	1781	1585
Grp Volume(v), veh/h	851	43	16	688	120	43
Grp Sat Flow(s),veh/h/ln	1777	1585	648	1777	1781	1585
Q Serve(g_s), s	23.2	2.4	2.3	16.1	3.0	1.2
Cycle Q Clear(g_c), s	23.2	2.4	25.4	16.1	3.0	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1176	524	136	1176	1032	918
V/C Ratio(X)	0.72	0.08	0.12	0.59	0.12	0.05
Avail Cap(c_a), veh/h	2221	991	327	2221	1032	918
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	30.9	41.6	27.8	9.5	9.1
Incr Delay (d2), s/veh	0.7	0.1	0.4	0.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.9	1.7	0.7	11.0	2.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.8	30.9	42.0	28.2	9.7	9.2
LnGrp LOS	D	C	D	C	A	A
Approach Vol, veh/h	894			704	163	
Approach Delay, s/veh	40.3			28.5	9.6	
Approach LOS	D			C	A	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		62.4		37.6		37.6
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		28.5		62.5		62.5
Max Q Clear Time (g_c+I1), s		5.0		25.2		27.4
Green Ext Time (p_c), s		0.4		7.4		5.6

Intersection Summary		
HCM 6th Ctrl Delay		32.8
HCM 6th LOS		C

APPENDIX C. LONG RANGE FUTURE BACKGROUND LEVEL OF SERVICE

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	70	255	390	40
Future Vol, veh/h	60	70	70	255	390	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	-	-	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	65	76	76	277	424	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	853	424	467	0	-	0
Stage 1	424	-	-	-	-	-
Stage 2	429	-	-	-	-	-
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	328	630	1094	-	-	-
Stage 1	660	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	306	630	1094	-	-	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	694	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1094	-	423	-	-
HCM Lane V/C Ratio	0.07	-	0.334	-	-
HCM Control Delay (s)	8.5	-	17.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	20	325	455	5
Future Vol, veh/h	0	45	20	325	455	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	-	-	-
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	49	22	353	495	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	498	500	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	572	1064	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	572	1064	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

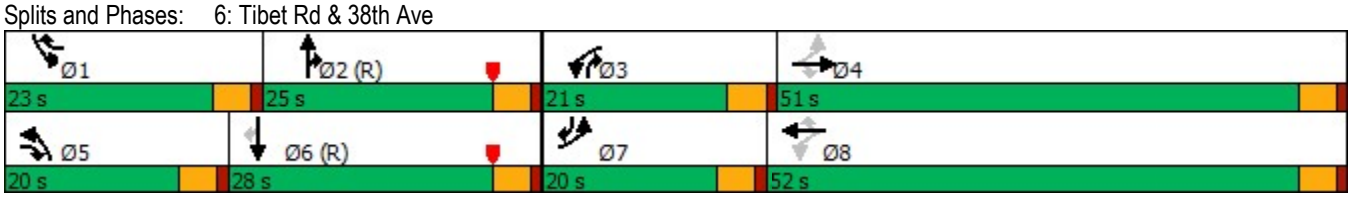
Approach	EB	NB	SB
HCM Control Delay, s	11.9	0.5	0
HCM LOS	B		

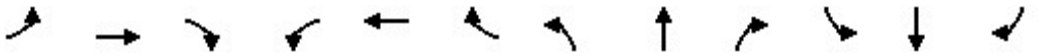
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1064	-	572	-	-
HCM Lane V/C Ratio	0.02	-	0.086	-	-
HCM Control Delay (s)	8.5	-	11.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	910	405	170	980	230	165	10	65	325	15	160
Future Volume (vph)	105	910	405	170	980	230	165	10	65	325	15	160
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)	20.0	51.0	20.0	21.0	52.0	23.0	20.0	25.0		23.0	28.0	20.0
Total Split (%)	16.7%	42.5%	16.7%	17.5%	43.3%	19.2%	16.7%	20.8%		19.2%	23.3%	16.7%
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
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)	50.9	41.2	57.6	57.3	44.4	65.7	11.9	31.1	48.5	16.8	36.0	50.2
Actuated g/C Ratio	0.42	0.34	0.48	0.48	0.37	0.55	0.10	0.26	0.40	0.14	0.30	0.42
v/c Ratio	0.56	0.81	0.45	0.73	0.81	0.26	0.53	0.02	0.11	0.74	0.03	0.25
Control Delay	29.6	41.7	2.8	48.8	59.6	3.9	56.6	39.5	9.9	45.4	28.7	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	41.7	2.8	48.8	59.6	3.9	56.6	39.5	9.9	45.4	28.7	17.0
LOS	C	D	A	D	E	A	E	D	A	D	C	B
Approach Delay		29.7			49.0			43.1			35.8	
Approach LOS		C			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: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 39.0	Intersection LOS: D
Intersection Capacity Utilization 61.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	910	405	170	980	230	165	10	65	325	15	160
Future Volume (veh/h)	105	910	405	170	980	230	165	10	65	325	15	160
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	114	989	440	185	1065	250	179	11	71	353	16	174
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	196	1187	640	240	1282	764	242	580	626	419	676	665
Arrive On Green	0.06	0.33	0.33	0.06	0.24	0.24	0.07	0.31	0.31	0.12	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	114	989	440	185	1065	250	179	11	71	353	16	174
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	5.0	30.8	27.5	7.9	34.1	13.0	6.1	0.5	3.4	12.0	0.7	8.6
Cycle Q Clear(g_c), s	5.0	30.8	27.5	7.9	34.1	13.0	6.1	0.5	3.4	12.0	0.7	8.6
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	196	1187	640	240	1282	764	242	580	626	419	676	665
V/C Ratio(X)	0.58	0.83	0.69	0.77	0.83	0.33	0.74	0.02	0.11	0.84	0.02	0.26
Avail Cap(c_a), veh/h	322	1377	725	334	1407	819	446	580	626	533	676	665
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	36.9	29.5	29.2	42.0	23.1	54.7	28.7	23.0	51.6	24.7	22.7
Incr Delay (d2), s/veh	2.7	4.0	2.3	5.4	3.1	0.2	4.4	0.1	0.4	9.6	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	4.1	20.0	16.1	6.6	21.8	8.5	5.0	0.4	2.4	9.7	0.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	40.9	31.8	34.6	45.1	23.3	59.2	28.8	23.4	61.2	24.8	23.7
LnGrp LOS	C	D	C	C	D	C	E	C	C	E	C	C
Approach Vol, veh/h		1543			1500			261			543	
Approach Delay, s/veh		37.6			40.2			48.2			48.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	41.7	14.7	44.6	12.9	47.8	11.5	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	18.5	20.5	16.5	46.5	15.5	23.5	15.5	47.5
Max Q Clear Time (g_c+I1), s	14.0	5.4	9.9	32.8	8.1	10.6	7.0	36.1
Green Ext Time (p_c), s	0.5	0.2	0.3	7.3	0.3	0.5	0.2	6.3

Intersection Summary	
HCM 6th Ctrl Delay	40.8
HCM 6th LOS	D

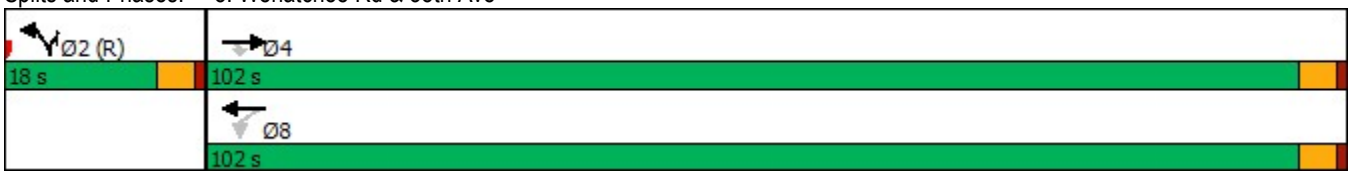
Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1195	105	45	1350	30	15
Future Volume (vph)	1195	105	45	1350	30	15
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	102.0	102.0	102.0	102.0	18.0	18.0
Total Split (%)	85.0%	85.0%	85.0%	85.0%	15.0%	15.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	79.2	79.2	79.2	79.2	31.8	31.8
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.26	0.26
v/c Ratio	0.56	0.11	0.25	0.63	0.07	0.04
Control Delay	25.4	5.9	9.2	12.9	40.8	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	5.9	9.2	12.9	40.8	19.3
LOS	C	A	A	B	D	B
Approach Delay	23.8			12.8	33.8	
Approach LOS	C			B	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 18.4	Intersection LOS: B
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1195	105	45	1350	30	15
Future Volume (veh/h)	1195	105	45	1350	30	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1299	114	49	1467	33	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2159	963	165	2159	565	503
Arrive On Green	0.20	0.20	0.61	0.61	0.32	0.32
Sat Flow, veh/h	3647	1585	380	3647	1781	1585
Grp Volume(v), veh/h	1299	114	49	1467	33	16
Grp Sat Flow(s),veh/h/ln	1777	1585	380	1777	1781	1585
Q Serve(g_s), s	39.9	7.1	12.9	33.1	1.5	0.8
Cycle Q Clear(g_c), s	39.9	7.1	52.7	33.1	1.5	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2159	963	165	2159	565	503
V/C Ratio(X)	0.60	0.12	0.30	0.68	0.06	0.03
Avail Cap(c_a), veh/h	2887	1288	243	2887	565	503
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	21.6	36.2	15.7	28.5	28.2
Incr Delay (d2), s/veh	0.2	0.0	1.0	0.4	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	24.4	4.8	2.2	18.7	1.3	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	21.7	37.2	16.1	28.7	28.4
LnGrp LOS	C	C	D	B	C	C
Approach Vol, veh/h	1413			1516	49	
Approach Delay, s/veh	33.8			16.8	28.6	
Approach LOS	C			B	C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	42.6	77.4	77.4
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	97.5	97.5
Max Q Clear Time (g_c+I1), s	3.5	41.9	54.7
Green Ext Time (p_c), s	0.1	15.2	18.2

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	105	100	335	420	45
Future Vol, veh/h	55	105	100	335	420	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	-	-	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	114	109	364	457	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1039	457	506	0	-	0
Stage 1	457	-	-	-	-	-
Stage 2	582	-	-	-	-	-
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	236	604	1059	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	212	604	1059	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.2	2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	369	-	-
HCM Lane V/C Ratio	0.103	-	0.471	-	-
HCM Control Delay (s)	8.8	-	23.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.4	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	60	435	500	25
Future Vol, veh/h	0	40	60	435	500	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	-	-	-
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	43	65	473	543	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	557	570	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	530	1002	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	530	1002	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

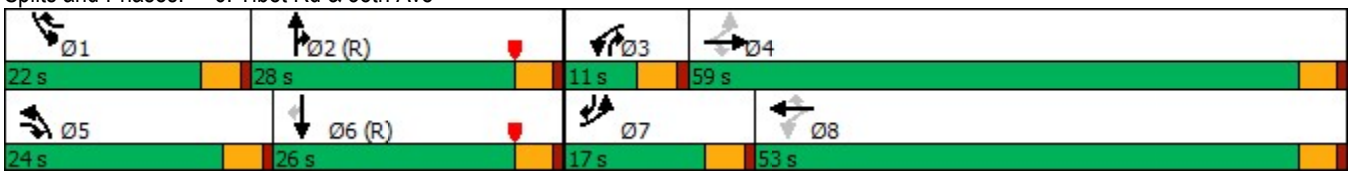
Approach	EB	NB	SB
HCM Control Delay, s	12.4	1.1	0
HCM LOS	B		

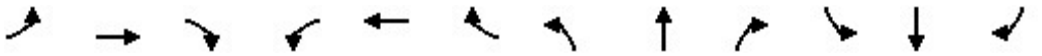
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1002	-	530	-	-
HCM Lane V/C Ratio	0.065	-	0.082	-	-
HCM Control Delay (s)	8.8	-	12.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1270	185	80	1125	310	400	25	165	345	10	185
Future Volume (vph)	160	1270	185	80	1125	310	400	25	165	345	10	185
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)	17.0	59.0	24.0	11.0	53.0	22.0	24.0	28.0		22.0	26.0	17.0
Total Split (%)	14.2%	49.2%	20.0%	9.2%	44.2%	18.3%	20.0%	23.3%		18.3%	21.7%	14.2%
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
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)	63.5	53.1	76.1	54.6	48.2	69.2	18.5	25.9	36.9	16.5	23.9	39.8
Actuated g/C Ratio	0.53	0.44	0.63	0.46	0.40	0.58	0.15	0.22	0.31	0.14	0.20	0.33
v/c Ratio	0.76	0.88	0.19	0.55	0.86	0.32	0.82	0.07	0.32	0.79	0.03	0.36
Control Delay	45.6	38.3	1.5	36.5	56.0	2.4	62.7	40.0	17.5	62.0	30.6	20.3
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	45.6	38.3	1.5	36.5	56.0	2.4	62.7	40.0	17.5	62.0	30.6	20.3
LOS	D	D	A	D	E	A	E	D	B	E	C	C
Approach Delay		34.8			44.0			49.1			47.1	
Approach LOS		C			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: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 41.6	Intersection LOS: D
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1270	185	80	1125	310	400	25	165	345	10	185
Future Volume (veh/h)	160	1270	185	80	1125	310	400	25	165	345	10	185
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	174	1380	201	87	1223	337	435	27	179	375	11	201
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	215	1533	912	159	1424	835	497	466	463	436	434	484
Arrive On Green	0.07	0.43	0.43	0.03	0.27	0.27	0.14	0.25	0.25	0.13	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	174	1380	201	87	1223	337	435	27	179	375	11	201
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	6.7	43.3	7.4	3.4	39.3	17.2	14.8	1.3	10.8	12.8	0.5	12.1
Cycle Q Clear(g_c), s	6.7	43.3	7.4	3.4	39.3	17.2	14.8	1.3	10.8	12.8	0.5	12.1
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	215	1533	912	159	1424	835	497	466	463	436	434	484
V/C Ratio(X)	0.81	0.90	0.22	0.55	0.86	0.40	0.87	0.06	0.39	0.86	0.03	0.42
Avail Cap(c_a), veh/h	270	1614	948	179	1436	841	562	466	463	504	434	484
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	31.7	12.4	28.5	40.7	21.3	50.3	34.3	33.9	51.4	35.6	33.2
Incr Delay (d2), s/veh	13.5	7.1	0.1	2.3	4.4	0.3	13.3	0.2	2.4	12.6	0.1	2.6
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	6.4	26.9	4.7	2.8	25.1	10.7	11.7	1.1	8.0	10.4	0.5	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	38.8	12.5	30.8	45.1	21.6	63.6	34.5	36.3	64.0	35.7	35.8
LnGrp LOS	D	D	B	C	D	C	E	C	D	E	D	D
Approach Vol, veh/h		1755			1647			641			587	
Approach Delay, s/veh		35.9			39.5			54.7			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	19.7	34.4	9.6	56.3	21.8	32.3	13.3	52.6
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	17.5	23.5	6.5	54.5	19.5	21.5	12.5	48.5
Max Q Clear Time (g_c+I1), s	14.8	12.8	5.4	45.3	16.8	14.1	8.7	41.3
Green Ext Time (p_c), s	0.4	0.5	0.0	6.5	0.5	0.4	0.2	5.1

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

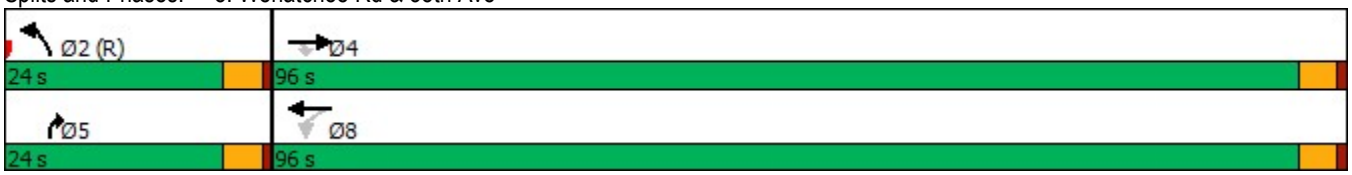
Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1740	40	15	1405	110	40
Future Volume (vph)	1740	40	15	1405	110	40
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	5
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	96.0	96.0	96.0	96.0	24.0	24.0
Total Split (%)	80.0%	80.0%	80.0%	80.0%	20.0%	20.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	None
Act Effct Green (s)	89.7	89.7	89.7	89.7	21.3	21.3
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.18	0.18
v/c Ratio	0.71	0.04	0.16	0.58	0.38	0.14
Control Delay	21.0	4.5	7.8	7.6	48.8	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	4.5	7.8	7.6	48.8	16.2
LOS	C	A	A	A	D	B
Approach Delay	20.7			7.6	40.2	
Approach LOS	C			A	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1740	40	15	1405	110	40
Future Volume (veh/h)	1740	40	15	1405	110	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1891	43	16	1527	120	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2345	1046	108	2345	472	420
Arrive On Green	0.44	0.44	0.66	0.66	0.27	0.27
Sat Flow, veh/h	3647	1585	240	3647	1781	1585
Grp Volume(v), veh/h	1891	43	16	1527	120	43
Grp Sat Flow(s),veh/h/ln	1777	1585	240	1777	1781	1585
Q Serve(g_s), s	55.4	1.8	6.9	30.8	6.4	2.5
Cycle Q Clear(g_c), s	55.4	1.8	62.2	30.8	6.4	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2345	1046	108	2345	472	420
V/C Ratio(X)	0.81	0.04	0.15	0.65	0.25	0.10
Avail Cap(c_a), veh/h	2710	1209	132	2710	472	420
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	11.9	41.3	12.2	34.7	33.3
Incr Delay (d2), s/veh	0.8	0.0	0.6	0.5	1.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	30.4	1.1	0.8	17.0	5.3	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.6	11.9	41.9	12.6	36.0	33.8
LnGrp LOS	C	B	D	B	D	C
Approach Vol, veh/h	1934			1543	163	
Approach Delay, s/veh	27.3			12.9	35.4	
Approach LOS	C			B	D	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	36.3	83.7	83.7
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	91.5	91.5
Max Q Clear Time (g_c+I1), s	8.4	57.4	64.2
Green Ext Time (p_c), s	0.3	21.8	14.9

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

APPENDIX D. SHORT TERM FUTURE TOTAL TRAFFIC LEVEL OF SERVICE

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	35	216	17	13	241
Future Vol, veh/h	58	35	216	17	13	241
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	63	38	235	18	14	262

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	525	235	0	0	253	0
Stage 1	235	-	-	-	-	-
Stage 2	290	-	-	-	-	-
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	644	910	-	-	1343	-
Stage 1	860	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	637	910	-	-	1343	-
Mov Cap-2 Maneuver	637	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	637	910	1343	-
HCM Lane V/C Ratio	-	-	0.099	0.042	0.011	-
HCM Control Delay (s)	-	-	11.3	9.1	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	6	227	2	1	298
Future Vol, veh/h	8	6	227	2	1	298
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	7	247	2	1	324

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	574	248	0	0	249	0
Stage 1	248	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*614	*894	-	-	*1338	-
Stage 1	*843	-	-	-	-	-
Stage 2	*794	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*614	*894	-	-	*1338	-
Mov Cap-2 Maneuver	*614	-	-	-	-	-
Stage 1	*843	-	-	-	-	-
Stage 2	*793	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	709 *	1338	-
HCM Lane V/C Ratio	-	-	0.021	0.001	-
HCM Control Delay (s)	-	-	10.2	7.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

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

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	8	82	20	11	12	92	154	5	14	242	50
Future Vol, veh/h	63	8	82	20	11	12	92	154	5	14	242	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	-	-	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	68	9	89	22	12	13	100	167	5	15	263	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	675	665	263	739	717	170	317	0	0	172	0	0
Stage 1	293	293	-	370	370	-	-	-	-	-	-	-
Stage 2	382	372	-	369	347	-	-	-	-	-	-	-
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	382	387	776	342	359	952	1243	-	-	1432	-	-
Stage 1	715	670	-	684	634	-	-	-	-	-	-	-
Stage 2	674	632	-	651	635	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	341	353	776	276	327	952	1243	-	-	1432	-	-
Mov Cap-2 Maneuver	341	353	-	276	327	-	-	-	-	-	-	-
Stage 1	658	663	-	630	583	-	-	-	-	-	-	-
Stage 2	598	582	-	563	629	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	15.7	3	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1243	-	-	341	701	276	497	1432	-	-
HCM Lane V/C Ratio	0.08	-	-	0.201	0.14	0.079	0.05	0.011	-	-
HCM Control Delay (s)	8.1	-	-	18.2	11	19.2	12.6	7.5	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	0.5	0.3	0.2	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	0	0	45	0	0	72	20	179	35	69	270	5
Future Vol, veh/h	0	0	45	0	0	72	20	179	35	69	270	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	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	0	0	49	0	0	78	22	195	38	75	293	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	296	-	-	195	298	0	0	233	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	743	0	0	941	1263	-	-	1361	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %						1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	743	-	-	941	1263	-	-	1361	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.2	0.7	1.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1263	-	-	743	941	1361	-	-
HCM Lane V/C Ratio	0.017	-	-	0.066	0.083	0.055	-	-
HCM Control Delay (s)	7.9	-	-	10.2	9.2	7.8	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	212	34	0	315
Future Vol, veh/h	0	22	212	34	0	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	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	24	230	37	0	342

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	230	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	917	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		1	-	-		-
Mov Cap-1 Maneuver	-	917	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

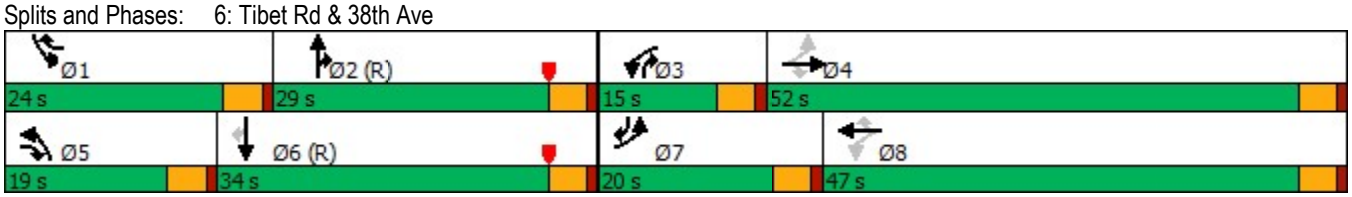
Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

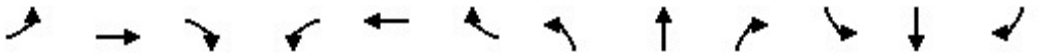
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	917	-
HCM Lane V/C Ratio	-	-	0.026	-
HCM Control Delay (s)	-	-	9	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	446	183	77	553	144	75	5	30	197	7	111
Future Volume (vph)	97	446	183	77	553	144	75	5	30	197	7	111
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)	20.0	52.0	19.0	15.0	47.0	24.0	19.0	29.0		24.0	34.0	20.0
Total Split (%)	16.7%	43.3%	15.8%	12.5%	39.2%	20.0%	15.8%	24.2%		20.0%	28.3%	16.7%
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
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)	40.0	30.8	43.5	36.0	26.9	44.2	8.2	51.6	65.2	12.8	56.1	71.3
Actuated g/C Ratio	0.33	0.26	0.36	0.30	0.22	0.37	0.07	0.43	0.54	0.11	0.47	0.59
v/c Ratio	0.44	0.53	0.28	0.30	0.76	0.23	0.35	0.01	0.04	0.59	0.01	0.12
Control Delay	30.9	40.6	4.1	52.3	78.7	7.7	57.0	25.6	0.1	62.6	17.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	40.6	4.1	52.3	78.7	7.7	57.0	25.6	0.1	62.6	17.3	2.5
LOS	C	D	A	D	E	A	E	C	A	E	B	A
Approach Delay		30.1			62.8			40.0			40.4	
Approach LOS		C			E			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: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 45.5	Intersection LOS: D
Intersection Capacity Utilization 44.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	446	183	77	553	144	75	5	30	197	7	111
Future Volume (veh/h)	97	446	183	77	553	144	75	5	30	197	7	111
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	105	485	199	84	601	157	82	5	33	214	8	121
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	210	773	407	221	734	456	135	936	873	281	1015	958
Arrive On Green	0.06	0.22	0.22	0.10	0.41	0.41	0.04	0.50	0.50	0.08	0.54	0.54
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	105	485	199	84	601	157	82	5	33	214	8	121
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	5.5	14.8	12.8	4.4	18.0	7.8	2.8	0.2	1.1	7.3	0.2	3.9
Cycle Q Clear(g_c), s	5.5	14.8	12.8	4.4	18.0	7.8	2.8	0.2	1.1	7.3	0.2	3.9
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	210	773	407	221	734	456	135	936	873	281	1015	958
V/C Ratio(X)	0.50	0.63	0.49	0.38	0.82	0.34	0.61	0.01	0.04	0.76	0.01	0.13
Avail Cap(c_a), veh/h	330	1407	689	287	1259	690	418	936	873	562	1015	958
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	42.5	37.9	33.7	33.2	24.6	56.8	15.0	12.4	54.0	12.6	10.2
Incr Delay (d2), s/veh	1.8	0.8	0.9	0.8	1.8	0.3	4.4	0.0	0.1	4.2	0.0	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	10.8	8.8	3.4	10.1	4.8	2.4	0.1	0.8	6.0	0.2	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	43.4	38.8	34.5	35.0	24.9	61.2	15.0	12.4	58.2	12.6	10.4
LnGrp LOS	D	D	D	C	D	C	E	B	B	E	B	B
Approach Vol, veh/h		789			842			120			343	
Approach Delay, s/veh		41.5			33.1			45.8			40.3	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	64.6	10.6	30.6	9.2	69.6	11.9	29.3
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	19.5	24.5	10.5	47.5	14.5	29.5	15.5	42.5
Max Q Clear Time (g_c+I1), s	9.3	3.1	6.4	16.8	4.8	5.9	7.5	20.0
Green Ext Time (p_c), s	0.5	0.1	0.1	4.3	0.1	0.4	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

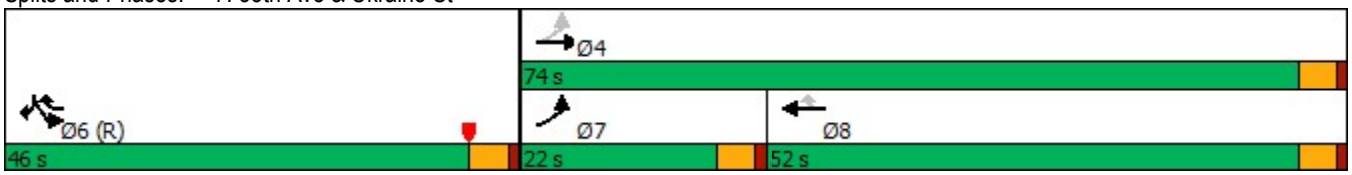
Notes

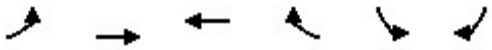
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	553	574	136	202	200
Future Volume (vph)	120	553	574	136	202	200
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Prot
Protected Phases	7	4	8	6	6	6
Permitted Phases	4			8		
Detector Phase	7	4	8	6	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.0	74.0	52.0	46.0	46.0	46.0
Total Split (%)	18.3%	61.7%	43.3%	38.3%	38.3%	38.3%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	45.6	45.6	28.1	98.0	65.4	65.4
Actuated g/C Ratio	0.38	0.38	0.23	0.82	0.54	0.54
v/c Ratio	0.48	0.45	0.75	0.11	0.23	0.23
Control Delay	51.2	23.2	47.2	0.2	16.8	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	23.2	47.2	0.2	16.8	3.0
LOS	D	C	D	A	B	A
Approach Delay		28.2	38.2		10.0	
Approach LOS		C	D		A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25.5 (21%), Referenced to phase 2: and 6:SBL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 28.1	Intersection LOS: C
Intersection Capacity Utilization 45.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: 38th Ave & Ukraine St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	553	574	136	202	200
Future Volume (veh/h)	120	553	574	136	202	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	601	624	148	220	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	230	1152	762	1292	1070	953
Arrive On Green	0.14	0.65	0.43	0.43	0.60	0.60
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	130	601	624	148	220	217
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	6.6	10.8	18.6	1.9	6.7	7.6
Cycle Q Clear(g_c), s	6.6	10.8	18.6	1.9	6.7	7.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	230	1152	762	1292	1070	953
V/C Ratio(X)	0.56	0.52	0.82	0.11	0.21	0.23
Avail Cap(c_a), veh/h	361	2058	1407	1580	1070	953
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	30.9	16.2	32.2	1.6	10.9	11.1
Incr Delay (d2), s/veh	1.8	0.3	1.6	0.0	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	6.2	10.0	4.9	4.9	15.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.8	16.5	33.8	1.6	11.3	11.6
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h		731	772		437	
Approach Delay, s/veh		19.4	27.6		11.5	
Approach LOS		B	C		B	

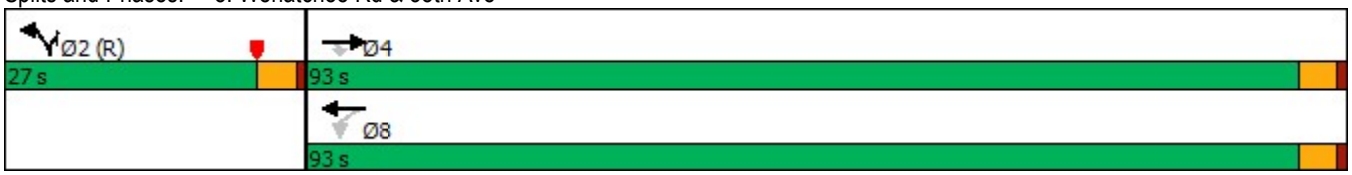
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			43.4		76.6	13.2	30.2
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			69.5		41.5	17.5	47.5
Max Q Clear Time (g_c+I1), s			12.8		9.6	8.6	20.6
Green Ext Time (p_c), s			4.8		1.4	0.2	5.2

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	650	105	45	680	30	15
Future Volume (vph)	650	105	45	680	30	15
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	36.1	36.1	36.1	36.1	74.9	74.9
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.62	0.62
v/c Ratio	0.66	0.21	0.44	0.69	0.03	0.02
Control Delay	46.6	15.4	44.7	40.1	10.9	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	15.4	44.7	40.1	10.9	5.3
LOS	D	B	D	D	B	A
Approach Delay	42.2			40.4	9.1	
Approach LOS	D			D	A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 12.5 (10%), Referenced to phase 2:NBL and 6:, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 40.4	Intersection LOS: D
Intersection Capacity Utilization 37.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	650	105	45	680	30	15
Future Volume (veh/h)	650	105	45	680	30	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	707	114	49	739	33	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1178	525	155	1178	1057	941
Arrive On Green	0.11	0.11	0.33	0.33	0.59	0.59
Sat Flow, veh/h	3647	1585	666	3647	1781	1585
Grp Volume(v), veh/h	707	114	49	739	33	16
Grp Sat Flow(s),veh/h/ln	1777	1585	666	1777	1781	1585
Q Serve(g_s), s	22.8	7.9	8.2	21.1	0.9	0.5
Cycle Q Clear(g_c), s	22.8	7.9	30.9	21.1	0.9	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1178	525	155	1178	1057	941
V/C Ratio(X)	0.60	0.22	0.32	0.63	0.03	0.02
Avail Cap(c_a), veh/h	2621	1169	425	2621	1057	941
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	39.2	47.7	33.9	10.1	10.0
Incr Delay (d2), s/veh	0.5	0.2	1.2	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.2	5.9	2.5	14.1	0.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.3	39.4	48.9	34.4	10.2	10.0
LnGrp LOS	D	D	D	C	B	B
Approach Vol, veh/h	821			788	49	
Approach Delay, s/veh	45.4			35.3	10.1	
Approach LOS	D			D	B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	75.7	44.3	44.3
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	88.5	88.5
Max Q Clear Time (g_c+I1), s	2.9	24.8	32.9
Green Ext Time (p_c), s	0.1	6.4	6.8

Intersection Summary	
HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	21	216	43	31	252
Future Vol, veh/h	34	21	216	43	31	252
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	37	23	235	47	34	274

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	577	235	0	0	282	0
Stage 1	235	-	-	-	-	-
Stage 2	342	-	-	-	-	-
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	582	910	-	-	1304	-
Stage 1	860	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	567	910	-	-	1304	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	567	910	1304	-
HCM Lane V/C Ratio	-	-	0.065	0.025	0.026	-
HCM Control Delay (s)	-	-	11.8	9.1	7.8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	3	256	6	3	283
Future Vol, veh/h	5	3	256	6	3	283
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	278	7	3	308

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	596	282	0	0	285	0
Stage 1	282	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*574	*868	-	-	*1299	-
Stage 1	*818	-	-	-	-	-
Stage 2	*804	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*572	*868	-	-	*1299	-
Mov Cap-2 Maneuver	*572	-	-	-	-	-
Stage 1	*818	-	-	-	-	-
Stage 2	*802	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	* 1299	-
HCM Lane V/C Ratio	-	-	0.013	0.003	-
HCM Control Delay (s)	-	-	10.6	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

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

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	14	120	12	6	6	111	192	14	18	219	51
Future Vol, veh/h	64	14	120	12	6	6	111	192	14	18	219	51
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
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	70	15	130	13	7	7	121	209	15	20	238	55

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	744	744	238	837	792	217	293	0	0	224	0	0
Stage 1	278	278	-	459	459	-	-	-	-	-	-	-
Stage 2	466	466	-	378	333	-	-	-	-	-	-	-
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	342	346	801	290	322	912	1269	-	-	1372	-	-
Stage 1	728	680	-	614	577	-	-	-	-	-	-	-
Stage 2	607	572	-	644	644	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	306	309	801	214	287	912	1269	-	-	1372	-	-
Mov Cap-2 Maneuver	306	309	-	214	287	-	-	-	-	-	-	-
Stage 1	659	670	-	555	522	-	-	-	-	-	-	-
Stage 2	539	517	-	519	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	18.2	2.8	0.5
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1269	-	-	306	687	214	437	1372	-	-
HCM Lane V/C Ratio	0.095	-	-	0.227	0.212	0.061	0.03	0.014	-	-
HCM Control Delay (s)	8.1	-	-	20.2	11.6	22.9	13.5	7.7	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.9	0.8	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	40	0	0	41	60	276	68	64	262	25
Future Vol, veh/h	0	0	40	0	0	41	60	276	68	64	262	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	-	-
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	0	0	43	0	0	45	65	300	74	70	285	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	299	-	-	300	312	0	0	374	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	741	0	0	867	1248	-	-	1202	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %						1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	741	-	-	867	1248	-	-	1202	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	9.4	1.2	1.5
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1248	-	-	741	867	1202	-	-
HCM Lane V/C Ratio	0.052	-	-	0.059	0.051	0.058	-	-
HCM Control Delay (s)	8	-	-	10.2	9.4	8.2	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	394	31	0	302
Future Vol, veh/h	0	10	394	31	0	302
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	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	11	428	34	0	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	428	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	*764	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		1	-	-		-
Mov Cap-1 Maneuver	-	*764	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

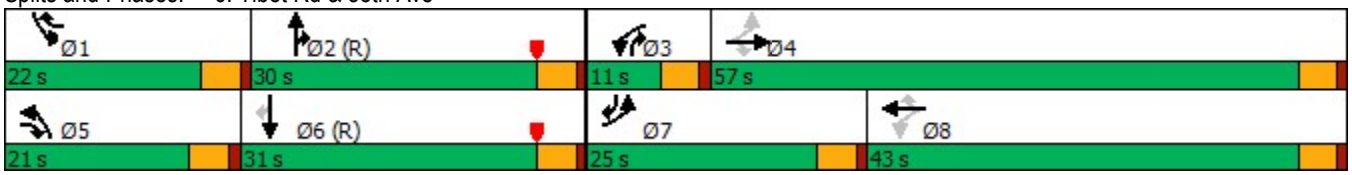
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	764	-
HCM Lane V/C Ratio	-	-	0.014	-
HCM Control Delay (s)	-	-	9.8	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

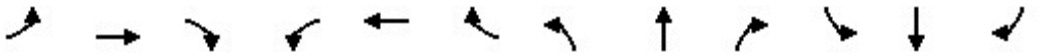
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	615	84	36	563	247	180	12	75	190	5	107
Future Volume (vph)	166	615	84	36	563	247	180	12	75	190	5	107
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)	25.0	57.0	21.0	11.0	43.0	22.0	21.0	30.0		22.0	31.0	25.0
Total Split (%)	20.8%	47.5%	17.5%	9.2%	35.8%	18.3%	17.5%	25.0%		18.3%	25.8%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
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)	46.4	37.6	54.3	33.6	27.3	44.3	12.1	47.5	58.3	12.5	47.9	67.1
Actuated g/C Ratio	0.39	0.31	0.45	0.28	0.23	0.37	0.10	0.40	0.49	0.10	0.40	0.56
v/c Ratio	0.61	0.60	0.12	0.17	0.76	0.36	0.56	0.02	0.10	0.58	0.01	0.12
Control Delay	32.7	36.9	3.1	6.1	13.8	1.4	57.5	28.2	4.0	59.1	23.0	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	32.7	36.9	3.1	6.1	13.8	1.4	57.5	28.2	4.0	59.1	23.0	2.6
LOS	C	D	A	A	B	A	E	C	A	E	C	A
Approach Delay		32.8			9.9			41.1			38.6	
Approach LOS		C			A			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: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 48.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	615	84	36	563	247	180	12	75	190	5	107
Future Volume (veh/h)	166	615	84	36	563	247	180	12	75	190	5	107
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	180	668	91	39	612	268	196	13	82	207	5	116
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	1025	577	201	800	482	260	846	765	272	853	871
Arrive On Green	0.09	0.29	0.29	0.01	0.07	0.07	0.08	0.45	0.45	0.08	0.46	0.46
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	180	668	91	39	612	268	196	13	82	207	5	116
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	9.0	19.8	4.6	2.0	20.3	17.9	6.7	0.5	3.4	7.0	0.2	4.3
Cycle Q Clear(g_c), s	9.0	19.8	4.6	2.0	20.3	17.9	6.7	0.5	3.4	7.0	0.2	4.3
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	262	1025	577	201	800	482	260	846	765	272	853	871
V/C Ratio(X)	0.69	0.65	0.16	0.19	0.77	0.56	0.75	0.02	0.11	0.76	0.01	0.13
Avail Cap(c_a), veh/h	400	1555	813	244	1140	633	475	846	765	504	853	871
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	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	37.4	25.8	35.4	52.4	42.2	54.4	18.1	16.9	54.2	17.8	13.1
Incr Delay (d2), s/veh	3.2	0.7	0.1	0.3	1.3	0.7	4.4	0.0	0.3	4.4	0.0	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	7.3	13.5	3.2	1.6	14.1	11.4	5.5	0.4	2.3	5.8	0.1	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	38.1	25.9	35.7	53.8	42.9	58.8	18.2	17.2	58.5	17.8	13.4
LnGrp LOS	D	D	C	D	D	D	E	B	B	E	B	B
Approach Vol, veh/h		939			919			291			328	
Approach Delay, s/veh		36.4			49.8			45.3			42.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	58.8	8.1	39.1	13.5	59.2	15.8	31.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	25.5	6.5	52.5	16.5	26.5	20.5	38.5
Max Q Clear Time (g_c+I1), s	9.0	5.4	4.0	21.8	8.7	6.3	11.0	22.3
Green Ext Time (p_c), s	0.4	0.3	0.0	5.5	0.4	0.3	0.3	4.7

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

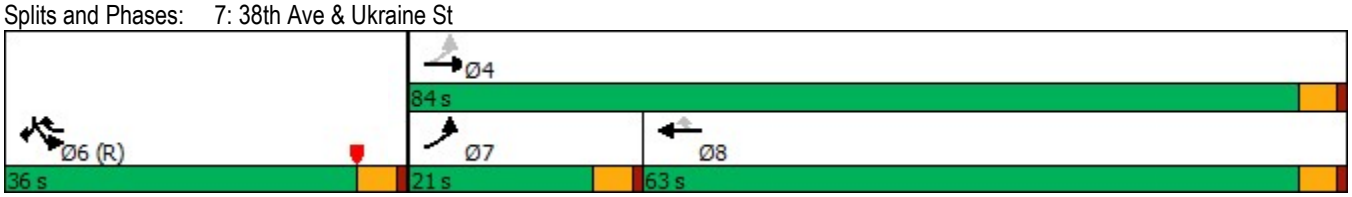
Notes

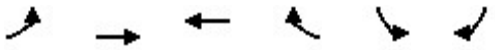
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	113	767	740	115	125	106
Future Volume (vph)	113	767	740	115	125	106
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Prot
Protected Phases	7	4	8	6	6	6
Permitted Phases	4			8		
Detector Phase	7	4	8	6	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	21.0	84.0	63.0	36.0	36.0	36.0
Total Split (%)	17.5%	70.0%	52.5%	30.0%	30.0%	30.0%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	52.5	52.5	36.2	99.2	58.5	58.5
Actuated g/C Ratio	0.44	0.44	0.30	0.83	0.49	0.49
v/c Ratio	0.48	0.54	0.75	0.09	0.16	0.14
Control Delay	50.8	48.6	69.4	0.3	20.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	48.6	69.4	0.3	20.1	4.5
LOS	D	D	E	A	C	A
Approach Delay		48.9	60.1		13.0	
Approach LOS		D	E		B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 49.5	Intersection LOS: D
Intersection Capacity Utilization 44.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: 38th Ave & Ukraine St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	113	767	740	115	125	106
Future Volume (veh/h)	113	767	740	115	125	106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	834	804	125	136	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	1407	1049	1306	942	839
Arrive On Green	0.02	0.13	0.10	0.10	0.53	0.53
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	123	834	804	125	136	115
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	5.5	26.5	26.5	2.2	4.7	4.4
Cycle Q Clear(g_c), s	5.5	26.5	26.5	2.2	4.7	4.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	218	1407	1049	1306	942	839
V/C Ratio(X)	0.57	0.59	0.77	0.10	0.14	0.14
Avail Cap(c_a), veh/h	350	2354	1732	1611	942	839
HCM Platoon Ratio	0.33	0.33	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	30.8	43.0	50.1	2.6	14.4	14.3
Incr Delay (d2), s/veh	1.9	0.3	1.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	18.0	18.1	6.5	3.6	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.7	43.4	51.1	2.6	14.7	14.7
LnGrp LOS	C	D	D	A	B	B
Approach Vol, veh/h		957	929		251	
Approach Delay, s/veh		42.0	44.6		14.7	
Approach LOS		D	D		B	

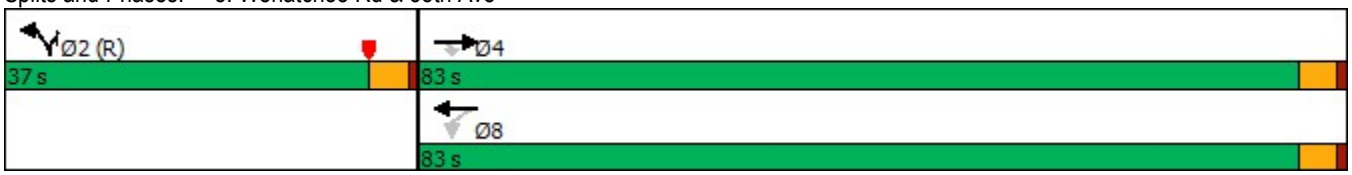
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			52.0		68.0	12.1	39.9
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			79.5		31.5	16.5	58.5
Max Q Clear Time (g_c+I1), s			28.5		6.7	7.5	28.5
Green Ext Time (p_c), s			7.3		0.7	0.2	6.9

Intersection Summary		
HCM 6th Ctrl Delay		39.9
HCM 6th LOS		D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	852	40	15	745	110	40
Future Volume (vph)	852	40	15	745	110	40
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	83.0	83.0	83.0	83.0	37.0	37.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	44.1	44.1	44.1	44.1	66.9	66.9
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.56	0.56
v/c Ratio	0.71	0.07	0.16	0.62	0.12	0.05
Control Delay	32.2	7.2	26.7	32.7	14.9	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	7.2	26.7	32.7	14.9	5.0
LOS	C	A	C	C	B	A
Approach Delay	31.1			32.6	12.3	
Approach LOS	C			C	B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 18.5 (15%), Referenced to phase 2:NBL and 6:, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	852	40	15	745	110	40
Future Volume (veh/h)	852	40	15	745	110	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	926	43	16	810	120	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1253	559	121	1253	1020	908
Arrive On Green	0.12	0.12	0.35	0.35	0.57	0.57
Sat Flow, veh/h	3647	1585	604	3647	1781	1585
Grp Volume(v), veh/h	926	43	16	810	120	43
Grp Sat Flow(s),veh/h/ln	1777	1585	604	1777	1781	1585
Q Serve(g_s), s	30.2	2.9	2.9	22.9	3.7	1.4
Cycle Q Clear(g_c), s	30.2	2.9	33.2	22.9	3.7	1.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1253	559	121	1253	1020	908
V/C Ratio(X)	0.74	0.08	0.13	0.65	0.12	0.05
Avail Cap(c_a), veh/h	2325	1037	303	2325	1020	908
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	35.6	49.9	32.6	11.8	11.3
Incr Delay (d2), s/veh	0.8	0.1	0.5	0.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.4	2.1	0.8	15.1	2.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.5	35.7	50.4	33.2	12.0	11.4
LnGrp LOS	D	D	D	C	B	B
Approach Vol, veh/h	969			826	163	
Approach Delay, s/veh	47.9			33.5	11.8	
Approach LOS	D			C	B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	73.2	46.8	46.8
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	78.5	78.5
Max Q Clear Time (g_c+I1), s	5.7	32.2	35.2
Green Ext Time (p_c), s	0.5	8.5	7.1

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

APPENDIX E. LONG TERM FUTURE TOTAL TRAFFIC LEVEL OF SERVICE

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	35	388	17	13	477
Future Vol, veh/h	58	35	388	17	13	477
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	63	38	422	18	14	518

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	968	422	0	0	440	0
Stage 1	422	-	-	-	-	-
Stage 2	546	-	-	-	-	-
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	*344	*764	-	-	*1143	-
Stage 1	*720	-	-	-	-	-
Stage 2	*646	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*340	*764	-	-	*1143	-
Mov Cap-2 Maneuver	*340	-	-	-	-	-
Stage 1	*720	-	-	-	-	-
Stage 2	*638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	340	764	* 1143	-
HCM Lane V/C Ratio	-	-	0.185	0.05	0.012	-
HCM Control Delay (s)	-	-	18	10	8.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.2	0	-

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

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	6	399	2	1	534
Future Vol, veh/h	8	6	399	2	1	534
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	7	434	2	1	580

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1017	435	0	0	436	0
Stage 1	435	-	-	-	-	-
Stage 2	582	-	-	-	-	-
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	*295	*764	-	-	*1143	-
Stage 1	*720	-	-	-	-	-
Stage 2	*597	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*295	*764	-	-	*1143	-
Mov Cap-2 Maneuver	*295	-	-	-	-	-
Stage 1	*720	-	-	-	-	-
Stage 2	*596	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	400	* 1143	-
HCM Lane V/C Ratio	-	-	0.038	0.001	-
HCM Control Delay (s)	-	-	14.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

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

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	8	82	20	11	12	92	326	5	14	478	50
Future Vol, veh/h	63	8	82	20	11	12	92	326	5	14	478	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	-	-	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	68	9	89	22	12	13	100	354	5	15	520	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1119	1109	520	1183	1161	357	574	0	0	359	0	0
Stage 1	550	550	-	557	557	-	-	-	-	-	-	-
Stage 2	569	559	-	626	604	-	-	-	-	-	-	-
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	169	188	556	147	171	*816	999	-	-	*1221	-	-
Stage 1	519	516	-	570	528	-	-	-	-	-	-	-
Stage 2	558	527	-	472	488	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	143	167	556	109	152	*816	999	-	-	*1221	-	-
Mov Cap-2 Maneuver	143	167	-	109	152	-	-	-	-	-	-	-
Stage 1	467	510	-	513	475	-	-	-	-	-	-	-
Stage 2	482	474	-	385	482	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.9	32.2	2	0.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	999	-	-	143	461	109	264	* 1221	-	-
HCM Lane V/C Ratio	0.1	-	-	0.479	0.212	0.199	0.095	0.012	-	-
HCM Control Delay (s)	9	-	-	51.4	14.9	46.1	20.1	8	-	-
HCM Lane LOS	A	-	-	F	B	E	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	2.2	0.8	0.7	0.3	0	-	-

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

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	45	0	0	72	20	351	35	69	506	5
Future Vol, veh/h	0	0	45	0	0	72	20	351	35	69	506	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	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	0	0	49	0	0	78	22	382	38	75	550	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	553	-	-	382	555	0	0	420	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	533	0	0	*790	1015	-	-	1166	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %						1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	533	-	-	*790	1015	-	-	1166	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	10.1	0.4	1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1015	-	-	533	790	1166	-	-
HCM Lane V/C Ratio	0.021	-	-	0.092	0.099	0.064	-	-
HCM Control Delay (s)	8.6	-	-	12.4	10.1	8.3	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0.2	-	-

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

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	384	34	0	551
Future Vol, veh/h	0	22	384	34	0	551
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	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	24	417	37	0	599

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	417	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	*764	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		1	-	-		-
Mov Cap-1 Maneuver	-	*764	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

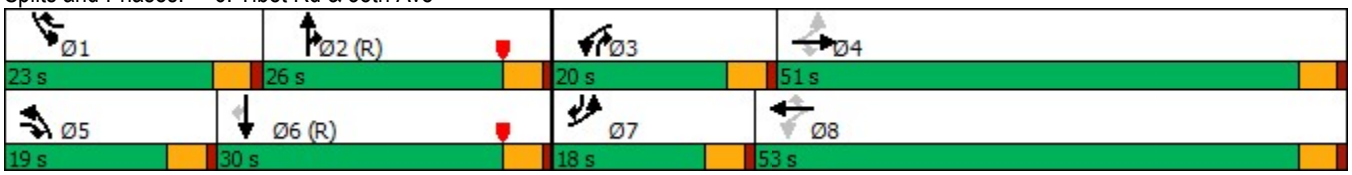
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	764	-
HCM Lane V/C Ratio	-	-	0.031	-
HCM Control Delay (s)	-	-	9.9	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-

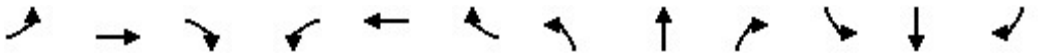
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	946	405	170	1092	254	165	10	65	337	15	199
Future Volume (vph)	154	946	405	170	1092	254	165	10	65	337	15	199
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)	18.0	51.0	19.0	20.0	53.0	23.0	19.0	26.0		23.0	30.0	18.0
Total Split (%)	15.0%	42.5%	15.8%	16.7%	44.2%	19.2%	15.8%	21.7%		19.2%	25.0%	15.0%
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)	57.8	45.9	62.1	58.9	46.5	67.9	11.7	26.8	43.7	16.9	31.9	48.3
Actuated g/C Ratio	0.48	0.38	0.52	0.49	0.39	0.57	0.10	0.22	0.36	0.14	0.27	0.40
v/c Ratio	0.71	0.76	0.43	0.70	0.87	0.27	0.53	0.03	0.12	0.76	0.03	0.32
Control Delay	40.4	36.4	2.6	48.4	45.0	1.2	57.1	40.9	10.4	44.7	31.2	22.1
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	40.4	36.4	2.6	48.4	45.0	1.2	57.1	40.9	10.4	44.7	31.2	22.1
LOS	D	D	A	D	D	A	E	D	B	D	C	C
Approach Delay		27.7			38.0			43.7			36.2	
Approach LOS		C			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: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 34.0	Intersection LOS: C
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	946	405	170	1092	254	165	10	65	337	15	199
Future Volume (veh/h)	154	946	405	170	1092	254	165	10	65	337	15	199
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	167	1028	440	185	1187	276	179	11	71	366	16	216
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	226	1251	668	244	1281	769	241	539	592	431	642	666
Arrive On Green	0.08	0.35	0.35	0.17	0.72	0.72	0.07	0.29	0.29	0.12	0.34	0.34
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	167	1028	440	185	1187	276	179	11	71	366	16	216
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	7.1	31.6	26.7	8.0	33.7	7.2	6.1	0.5	3.5	12.4	0.7	11.0
Cycle Q Clear(g_c), s	7.1	31.6	26.7	8.0	33.7	7.2	6.1	0.5	3.5	12.4	0.7	11.0
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	226	1251	668	244	1281	769	241	539	592	431	642	666
V/C Ratio(X)	0.74	0.82	0.66	0.76	0.93	0.36	0.74	0.02	0.12	0.85	0.02	0.32
Avail Cap(c_a), veh/h	289	1377	725	322	1436	838	418	539	592	533	642	666
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	35.4	27.8	25.1	15.4	7.7	54.8	30.6	24.7	51.4	26.1	23.4
Incr Delay (d2), s/veh	7.2	3.8	2.0	4.4	6.4	0.2	4.5	0.1	0.4	10.4	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	20.4	15.6	5.5	10.9	3.4	5.1	0.4	2.5	10.0	0.6	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	39.3	29.7	29.5	21.8	7.9	59.3	30.7	25.1	61.8	26.2	24.7
LnGrp LOS	D	D	C	C	C	A	E	C	C	E	C	C
Approach Vol, veh/h		1635			1648			261			598	
Approach Delay, s/veh		36.3			20.3			48.8			47.4	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	39.1	14.7	46.7	12.9	45.7	13.7	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	18.5	21.5	15.5	46.5	14.5	25.5	13.5	48.5
Max Q Clear Time (g_c+I1), s	14.4	5.5	10.0	33.6	8.1	13.0	9.1	35.7
Green Ext Time (p_c), s	0.5	0.2	0.2	7.2	0.3	0.6	0.2	7.6

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

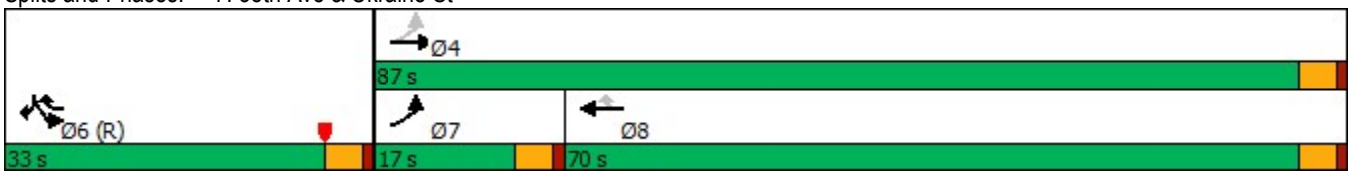
Notes

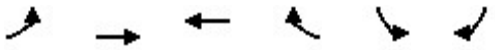
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	1228	1316	136	202	200
Future Volume (vph)	120	1228	1316	136	202	200
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Prot
Protected Phases	7	4	8	6	6	6
Permitted Phases	4			8		
Detector Phase	7	4	8	6	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	17.0	87.0	70.0	33.0	33.0	33.0
Total Split (%)	14.2%	72.5%	58.3%	27.5%	27.5%	27.5%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	75.9	75.9	60.7	100.3	35.1	35.1
Actuated g/C Ratio	0.63	0.63	0.51	0.84	0.29	0.29
v/c Ratio	0.58	0.60	0.80	0.11	0.43	0.36
Control Delay	44.9	11.3	20.2	0.3	39.5	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	11.3	20.2	0.3	39.5	8.2
LOS	D	B	C	A	D	A
Approach Delay		14.3	18.4		24.0	
Approach LOS		B	B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25.5 (21%), Referenced to phase 2: and 6:SBL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: 38th Ave & Ukraine St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	1228	1316	136	202	200
Future Volume (veh/h)	120	1228	1316	136	202	200
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	1335	1430	148	220	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	209	1790	1455	1317	751	668
Arrive On Green	0.11	1.00	0.82	0.82	0.42	0.42
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	130	1335	1430	148	220	217
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	5.0	0.0	44.7	0.7	9.8	11.0
Cycle Q Clear(g_c), s	5.0	0.0	44.7	0.7	9.8	11.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	209	1790	1455	1317	751	668
V/C Ratio(X)	0.62	0.75	0.98	0.11	0.29	0.32
Avail Cap(c_a), veh/h	294	2443	1940	1533	751	668
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.76	0.76	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	10.5	0.5	22.9	23.3
Incr Delay (d2), s/veh	1.8	0.5	12.2	0.0	1.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.2	10.4	1.4	7.7	17.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.1	0.5	22.6	0.6	23.9	24.6
LnGrp LOS	C	A	C	A	C	C
Approach Vol, veh/h		1465	1578		437	
Approach Delay, s/veh		2.7	20.6		24.2	
Approach LOS		A	C		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	69.4	50.6	11.4	58.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	82.5	28.5	12.5	65.5
Max Q Clear Time (g_c+I1), s	2.0	13.0	7.0	46.7
Green Ext Time (p_c), s	15.8	1.3	0.1	11.1

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1325	105	45	1422	30	15
Future Volume (vph)	1325	105	45	1422	30	15
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	103.0	103.0	103.0	103.0	17.0	17.0
Total Split (%)	85.8%	85.8%	85.8%	85.8%	14.2%	14.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	84.0	84.0	84.0	84.0	27.0	27.0
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.22	0.22
v/c Ratio	0.58	0.10	0.28	0.62	0.08	0.04
Control Delay	17.5	3.6	8.6	10.6	44.6	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	3.6	8.6	10.6	44.6	20.7
LOS	B	A	A	B	D	C
Approach Delay	16.5			10.5	36.8	
Approach LOS	B			B	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 12.5 (10%), Referenced to phase 2:NBL and 6:, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 51.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1325	105	45	1422	30	15
Future Volume (veh/h)	1325	105	45	1422	30	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1440	114	49	1546	33	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2097	935	163	2097	596	531
Arrive On Green	0.59	0.59	0.59	0.59	0.33	0.33
Sat Flow, veh/h	3647	1585	332	3647	1781	1585
Grp Volume(v), veh/h	1440	114	49	1546	33	16
Grp Sat Flow(s),veh/h/ln	1777	1585	332	1777	1781	1585
Q Serve(g_s), s	33.5	3.8	14.3	37.9	1.5	0.8
Cycle Q Clear(g_c), s	33.5	3.8	47.8	37.9	1.5	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2097	935	163	2097	596	531
V/C Ratio(X)	0.69	0.12	0.30	0.74	0.06	0.03
Avail Cap(c_a), veh/h	2917	1301	240	2917	596	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	10.9	33.4	17.8	27.0	26.8
Incr Delay (d2), s/veh	0.3	0.0	1.0	0.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.5	2.4	2.2	21.2	1.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.3	10.9	34.4	18.5	27.2	26.9
LnGrp LOS	B	B	C	B	C	C
Approach Vol, veh/h	1554			1595	49	
Approach Delay, s/veh	16.8			19.0	27.1	
Approach LOS	B			B	C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	44.7	75.3	75.3
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	98.5	98.5
Max Q Clear Time (g_c+I1), s	3.5	35.5	49.8
Green Ext Time (p_c), s	0.0	18.7	21.0

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	21	427	43	31	527
Future Vol, veh/h	34	21	427	43	31	527
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	37	23	464	47	34	573

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1105	464	0	0	511	0
Stage 1	464	-	-	-	-	-
Stage 2	641	-	-	-	-	-
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	*218	*737	-	-	1062	-
Stage 1	*695	-	-	-	-	-
Stage 2	*580	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*211	*737	-	-	1062	-
Mov Cap-2 Maneuver	*211	-	-	-	-	-
Stage 1	*695	-	-	-	-	-
Stage 2	*561	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	211	737	1062	-
HCM Lane V/C Ratio	-	-	0.175	0.031	0.032	-
HCM Control Delay (s)	-	-	25.7	10	8.5	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0.1	-

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	5	3	467	6	3	558
Future Vol, veh/h	5	3	467	6	3	558
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	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	508	7	3	607

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1125	512	0	0	515	0
Stage 1	512	-	-	-	-	-
Stage 2	613	-	-	-	-	-
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	*193	*685	-	-	*1025	-
Stage 1	*646	-	-	-	-	-
Stage 2	*572	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*193	*685	-	-	*1025	-
Mov Cap-2 Maneuver	*193	-	-	-	-	-
Stage 1	*646	-	-	-	-	-
Stage 2	*571	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	264	* 1025	-
HCM Lane V/C Ratio	-	-	0.033	0.003	-
HCM Control Delay (s)	-	-	19.1	8.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

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

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	14	120	12	6	6	111	403	14	18	494	51
Future Vol, veh/h	64	14	120	12	6	6	111	403	14	18	494	51
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
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	70	15	130	13	7	7	121	438	15	20	537	55

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1272	1272	537	1365	1320	446	592	0	0	453	0	0
Stage 1	577	577	-	688	688	-	-	-	-	-	-	-
Stage 2	695	695	-	677	632	-	-	-	-	-	-	-
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	118	135	544	96	123	761	984	-	-	1131	-	-
Stage 1	502	502	-	471	447	-	-	-	-	-	-	-
Stage 2	466	442	-	443	474	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	100	116	544	59	106	761	984	-	-	1131	-	-
Mov Cap-2 Maneuver	100	116	-	59	106	-	-	-	-	-	-	-
Stage 1	440	493	-	413	392	-	-	-	-	-	-	-
Stage 2	398	388	-	321	465	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.2	54.2	1.9	0.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	984	-	-	100	393	59	186	1131	-	-
HCM Lane V/C Ratio	0.123	-	-	0.696	0.371	0.221	0.07	0.017	-	-
HCM Control Delay (s)	9.2	-	-	98.9	19.5	82.6	25.8	8.2	-	-
HCM Lane LOS	A	-	-	F	C	F	D	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	3.5	1.7	0.8	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	40	0	0	41	60	487	68	64	537	25
Future Vol, veh/h	0	0	40	0	0	41	60	487	68	64	537	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	-	-
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	0	0	43	0	0	45	65	529	74	70	584	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	598	-	-	529	611	0	0	603	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	0	0	502	0	0	*685	968	-	-	958	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %						1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	502	-	-	*685	968	-	-	958	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	10.6	0.9	0.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	968	-	-	502	685	958	-	-
HCM Lane V/C Ratio	0.067	-	-	0.087	0.065	0.073	-	-
HCM Control Delay (s)	9	-	-	12.9	10.6	9.1	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.2	0.2	-	-

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	10	605	31	0	577
Future Vol, veh/h	0	10	605	31	0	577
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	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	11	658	34	0	627

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	658	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	*581	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		1	-	-		-
Mov Cap-1 Maneuver	-	*581	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

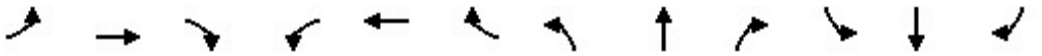
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	581	-
HCM Lane V/C Ratio	-	-	0.019	-
HCM Control Delay (s)	-	-	11.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	1313	185	80	1181	357	400	25	165	359	10	208
Future Volume (vph)	254	1313	185	80	1181	357	400	25	165	359	10	208
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	61.0	22.0	12.0	52.0	21.0	22.0	26.0		21.0	25.0	21.0
Total Split (%)	17.5%	50.8%	18.3%	10.0%	43.3%	17.5%	18.3%	21.7%		17.5%	20.8%	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)	67.7	56.0	77.7	54.2	47.0	67.6	17.2	22.7	34.4	16.1	21.6	42.3
Actuated g/C Ratio	0.56	0.47	0.65	0.45	0.39	0.56	0.14	0.19	0.29	0.13	0.18	0.35
v/c Ratio	0.92	0.86	0.18	0.52	0.93	0.37	0.88	0.08	0.34	0.85	0.03	0.38
Control Delay	66.7	35.3	1.4	33.9	38.7	0.9	70.6	41.8	18.2	65.0	32.2	22.1
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	66.7	35.3	1.4	33.9	38.7	0.9	70.6	41.8	18.2	65.0	32.2	22.1
LOS	E	D	A	C	D	A	E	D	B	E	C	C
Approach Delay		36.3			30.1			54.8			49.0	
Approach LOS		D			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: 0.93	
Intersection Signal Delay: 38.1	Intersection LOS: D
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Tibet Rd & 38th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	1313	185	80	1181	357	400	25	165	359	10	208
Future Volume (veh/h)	254	1313	185	80	1181	357	400	25	165	359	10	208
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	276	1427	201	87	1284	388	435	27	179	390	11	226
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	302	1673	970	174	1373	817	489	386	396	446	363	511
Arrive On Green	0.13	0.47	0.47	0.06	0.51	0.51	0.14	0.21	0.21	0.13	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	276	1427	201	87	1284	388	435	27	179	390	11	226
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1728	1870	1585
Q Serve(g_s), s	13.3	42.6	6.8	3.5	40.6	16.7	14.8	1.4	11.5	13.3	0.6	13.5
Cycle Q Clear(g_c), s	13.3	42.6	6.8	3.5	40.6	16.7	14.8	1.4	11.5	13.3	0.6	13.5
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	302	1673	970	174	1373	817	489	386	396	446	363	511
V/C Ratio(X)	0.91	0.85	0.21	0.50	0.93	0.47	0.89	0.07	0.45	0.87	0.03	0.44
Avail Cap(c_a), veh/h	319	1673	970	207	1407	832	504	386	396	475	363	511
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.57	0.57	0.57	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	28.1	10.3	26.2	27.7	14.4	50.6	38.3	38.0	51.3	39.2	32.2
Incr Delay (d2), s/veh	28.4	4.5	0.1	1.3	7.4	0.2	17.4	0.4	3.7	15.8	0.2	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.8	25.7	0.1	2.7	21.7	8.0	12.1	1.2	8.5	11.0	0.5	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	32.6	10.4	27.4	35.1	14.6	68.0	38.7	41.7	67.1	39.4	34.9
LnGrp LOS	E	C	B	C	D	B	E	D	D	E	D	C
Approach Vol, veh/h		1904			1759			641			627	
Approach Delay, s/veh		34.6			30.2			59.4			55.0	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	29.3	9.7	61.0	21.5	27.8	19.9	50.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	21.5	7.5	56.5	17.5	20.5	16.5	47.5
Max Q Clear Time (g_c+I1), s	15.3	13.5	5.5	44.6	16.8	15.5	15.3	42.6
Green Ext Time (p_c), s	0.2	0.4	0.0	8.1	0.1	0.3	0.1	3.8

Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

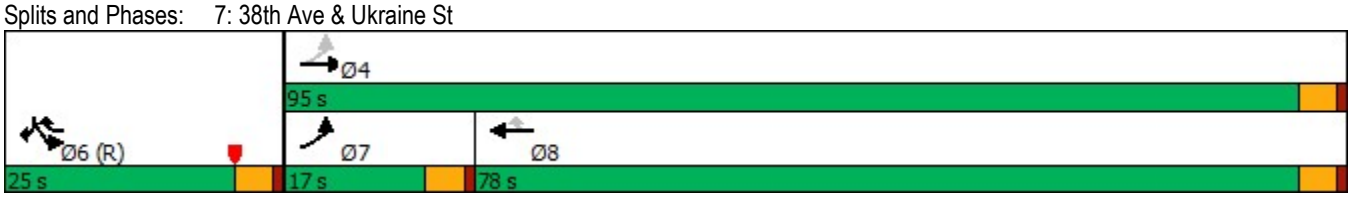
Notes

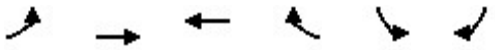
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	113	1724	1512	115	125	106
Future Volume (vph)	113	1724	1512	115	125	106
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Prot
Protected Phases	7	4	8	6	6	6
Permitted Phases	4			8		
Detector Phase	7	4	8	6	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	17.0	95.0	78.0	25.0	25.0	25.0
Total Split (%)	14.2%	79.2%	65.0%	20.8%	20.8%	20.8%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	83.9	83.9	70.2	101.8	27.1	27.1
Actuated g/C Ratio	0.70	0.70	0.58	0.85	0.23	0.23
v/c Ratio	0.61	0.76	0.79	0.09	0.34	0.26
Control Delay	29.9	14.7	22.5	0.4	44.1	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	14.7	22.5	0.4	44.1	9.3
LOS	C	B	C	A	D	A
Approach Delay		15.7	21.0		28.2	
Approach LOS		B	C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: 38th Ave & Ukraine St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	113	1724	1512	115	125	106
Future Volume (veh/h)	113	1724	1512	115	125	106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	1874	1643	125	136	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	187	2155	1851	1331	567	505
Arrive On Green	0.06	0.81	0.69	0.69	0.32	0.32
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	123	1874	1643	125	136	115
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.7	41.0	44.2	1.1	6.8	6.4
Cycle Q Clear(g_c), s	3.7	41.0	44.2	1.1	6.8	6.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	187	2155	1851	1331	567	505
V/C Ratio(X)	0.66	0.87	0.89	0.09	0.24	0.23
Avail Cap(c_a), veh/h	287	2680	2177	1476	567	505
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.77	0.77	1.00	1.00
Uniform Delay (d), s/veh	24.9	8.5	15.6	1.0	30.2	30.1
Incr Delay (d2), s/veh	1.9	1.4	3.4	0.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.5	11.9	20.0	2.0	5.5	10.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.8	9.9	19.0	1.1	31.2	31.1
LnGrp LOS	C	A	B	A	C	C
Approach Vol, veh/h		1997	1768		251	
Approach Delay, s/veh		10.9	17.8		31.1	
Approach LOS		B	B		C	

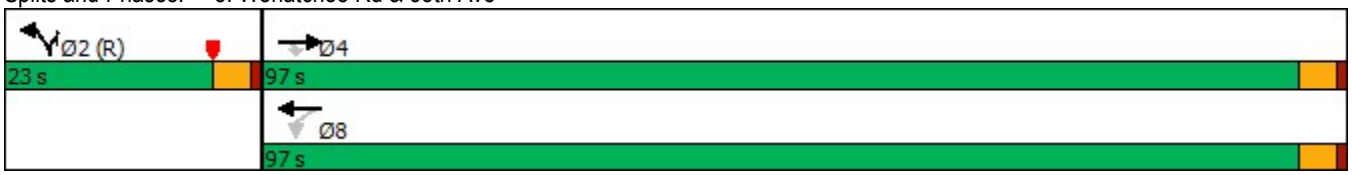
Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	77.3	42.7	10.3	67.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	90.5	20.5	12.5	73.5
Max Q Clear Time (g_c+I1), s	43.0	8.8	5.7	46.2
Green Ext Time (p_c), s	25.9	0.6	0.1	16.3

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1809	40	15	1517	110	40
Future Volume (vph)	1809	40	15	1517	110	40
Turn Type	NA	Perm	Perm	NA	Prot	Prot
Protected Phases	4			8	2	2
Permitted Phases		4	8			
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	9.5	9.5
Total Split (s)	97.0	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	80.8%	19.2%	19.2%
Yellow Time (s)	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
Lost Time Adjust (s)	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
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	91.4	91.4	91.4	91.4	19.6	19.6
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.16	0.16
v/c Ratio	0.73	0.04	0.17	0.61	0.42	0.15
Control Delay	10.1	3.3	8.1	7.4	50.8	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	3.3	8.1	7.4	50.8	19.1
LOS	B	A	A	A	D	B
Approach Delay	10.0			7.4	42.4	
Approach LOS	A			A	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 18.5 (15%), Referenced to phase 2:NBL and 6:, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Wenatchee Rd & 38th Ave



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1809	40	15	1517	110	40
Future Volume (veh/h)	1809	40	15	1517	110	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1966	43	16	1649	120	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2023	902	187	2023	633	564
Arrive On Green	1.00	1.00	0.57	0.57	0.36	0.36
Sat Flow, veh/h	3647	1585	223	3647	1781	1585
Grp Volume(v), veh/h	1966	43	16	1649	120	43
Grp Sat Flow(s),veh/h/ln	1777	1585	223	1777	1781	1585
Q Serve(g_s), s	0.0	0.0	4.0	44.7	5.6	2.2
Cycle Q Clear(g_c), s	0.0	0.0	4.0	44.7	5.6	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2023	902	187	2023	633	564
V/C Ratio(X)	0.97	0.05	0.09	0.81	0.19	0.08
Avail Cap(c_a), veh/h	2739	1222	232	2739	633	564
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.0	20.8	26.7	25.6
Incr Delay (d2), s/veh	6.8	0.0	0.2	1.4	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.0	0.4	25.0	4.5	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.8	0.0	12.2	22.2	27.4	25.9
LnGrp LOS	A	A	B	C	C	C
Approach Vol, veh/h	2009			1665	163	
Approach Delay, s/veh	6.6			22.1	27.0	
Approach LOS	A			C	C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	47.2	72.8	72.8
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	92.5	92.5
Max Q Clear Time (g_c+I1), s	7.6	2.0	46.7
Green Ext Time (p_c), s	0.3	37.9	21.6

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

MOVEMENT SUMMARY

Site: 101 [38th Ave & Ukraine St - AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 38th Ave														
6	T1	1316	3.0	1430	3.0	0.661	12.0	LOS B	5.4	138.8	0.53	0.34	0.53	31.8
16	R2	136	3.0	148	3.0	0.661	11.7	LOS B	5.3	136.9	0.51	0.32	0.51	31.0
Approach		1452	3.0	1578	3.0	0.661	12.0	LOS B	5.4	138.8	0.53	0.33	0.53	31.7
North: Ukraine St														
7	L2	202	3.0	220	3.0	0.557	22.8	LOS C	2.6	66.3	0.84	1.00	1.42	26.2
14	R2	200	3.0	217	3.0	0.643	31.2	LOS D	3.2	82.8	0.88	1.08	1.65	24.3
Approach		402	3.0	437	3.0	0.643	27.0	LOS D	3.2	82.8	0.86	1.04	1.53	25.2
West: 38th Ave														
5	L2	120	3.0	130	3.0	0.665	13.2	LOS B	8.4	214.5	0.65	0.65	0.92	31.0
2	T1	1228	3.0	1335	3.0	0.665	12.8	LOS B	8.4	214.5	0.64	0.62	0.89	31.3
Approach		1348	3.0	1465	3.0	0.665	12.8	LOS B	8.4	214.5	0.64	0.62	0.89	31.3
All Vehicles		3202	3.0	3480	3.0	0.665	14.2	LOS B	8.4	214.5	0.62	0.55	0.81	30.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [38th Ave & Ukraine St - PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: 38th Ave														
6	T1	1512	3.0	1643	3.0	0.735	14.5	LOS B	7.2	183.6	0.61	0.38	0.61	30.8
16	R2	115	3.0	125	3.0	0.735	14.2	LOS B	7.1	181.6	0.59	0.37	0.59	30.0
Approach		1627	3.0	1768	3.0	0.735	14.5	LOS B	7.2	183.6	0.60	0.38	0.60	30.7
North: Ukraine St														
7	L2	125	3.0	136	3.0	0.415	20.7	LOS C	1.6	39.9	0.84	0.93	1.20	26.8
14	R2	106	3.0	115	3.0	0.417	24.1	LOS C	1.5	39.5	0.86	0.95	1.22	26.3
Approach		231	3.0	251	3.0	0.417	22.3	LOS C	1.6	39.9	0.85	0.94	1.21	26.6
West: 38th Ave														
5	L2	113	3.0	123	3.0	0.840	21.1	LOS C	23.8	610.5	0.84	0.83	1.28	28.1
2	T1	1724	3.0	1874	3.0	0.840	20.6	LOS C	23.8	610.5	0.83	0.79	1.23	28.3
Approach		1837	3.0	1997	3.0	0.840	20.7	LOS C	23.8	610.5	0.83	0.80	1.23	28.3
All Vehicles		3695	3.0	4016	3.0	0.840	18.0	LOS C	23.8	610.5	0.73	0.62	0.96	29.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX F. LEVEL OF SERVICE AND DELAY TABLE

Intersection	Movement	Short Term Total		Long Term Total	
		AM	PM	AM	PM
		LOS(Delay)	LOS(Delay)	LOS(Delay)	LOS(Delay)
1. Tibet Rd & 44th Ave	WB Left-turn	B (11.8)	B (11.8)	C (18)	D (25.7)
	WB Right-turn	A (9.1)	A (9.1)	B (10)	B (10)
	SB Left-turn	A (7.7)	A (7.8)	A (8.2)	A (8.5)
2. Tibet Rd & 43rd Ave	WB Left/Right-turn	B (10.2)	B (10.6)	B (14.4)	C (19.1)
	SB Left-turn	A (7.7)	A (7.8)	A (8.2)	A (8.5)
3. Tibet Rd & 42nd Ave (Unsignalized)	EB Left-turn	C (18.2)	C (20.2)	F (51.4)	F (98.9)
	EB Through/Right-turn	B (11)	B (11.6)	B (14.9)	C (19.5)
	WB Left-turn	C (19.2)	C (22.9)	E (46.1)	F (82.6)
	WB Through/Right-turn	B (12.6)	B (13.5)	C (20.1)	D (25.8)
	NB Left-turn	A (8.1)	A (8.1)	A (9)	A (9.2)
	SB Left-turn	A (7.5)	A (7.7)	A (8)	A (8.2)
3. Tibet Rd & 42nd Ave (Signalized)	EB Left-turn	N/A	N/A	D (55)	D (51.2)
	EB Through/Right-turn	N/A	N/A	E (57.4)	E (58.8)
	WB Left-turn	N/A	N/A	E (57.9)	E (58)
	WB Through/Right-turn	N/A	N/A	D (50.5)	D (47.5)
	NB Left-turn	N/A	N/A	B (10.3)	A (1.1)
	NB Through/Right-turn	N/A	N/A	A (7.4)	A (0.5)
	SB Left-turn	N/A	N/A	A (4.3)	A (2.3)
	SB Through	N/A	N/A	A (2.9)	A (3.7)
	SB Right-turn	N/A	N/A	A (1.8)	A (2.3)
	Overall	**N/A**	**N/A**	**B (13.7)**	**B (11.2)**
4. Tibet Rd & 39th Ave	EB Right-turn	B (10.2)	B (10.2)	B (12.4)	B (12.9)
	WB Right-Turn	A (9.2)	A (9.4)	B (10.1)	B (10.6)
	NB Left-Turn	A (7.9)	A (8)	A (8.6)	A (9)
	SB Left-turn	A (7.8)	A (8.2)	A (8.3)	A (9.1)
5. Tibet Rd & 39th Pl	WB Right-Turn	A (9)	A (9.9)	A (9.9)	B (11.3)
6. Tibet Rd & 38th Ave	EB Left-turn	D (37.6)	D (35.5)	D (35.4)	E (62.7)
	EB Through	D (43.4)	D (38.1)	D (39.3)	C (32.6)
	EB Right-turn	D (38.8)	C (25.9)	C (29.7)	B (10.4)
	WB Left-turn	C (34.5)	D (35.7)	C (29.5)	C (27.4)
	WB Through	D (35)	D (53.8)	C (21.8)	D (35.1)
	WB Right-turn	C (24.9)	D (42.9)	A (7.9)	B (14.6)

	NB Left-turn*	E (61.2)	E (58.8)	E (59.3)	E (68)
	NB Through	B (15)	B (18.2)	C (30.7)	D (38.7)
	NB Right-turn	B (12.4)	B (17.2)	C (25.1)	D (41.7)
	SB Left-turn*	E (58.2)	E (58.5)	E (61.8)	E (67.1)
	SB Through	B (12.6)	B (17.8)	C (26.2)	D (39.4)
	SB Right-turn	B (10.4)	B (13.4)	C (24.7)	C (34.9)
	Overall	**D (38.1)**	**D (43.2)**	**C (32.3)**	**D (38.9)**
7. 38th Ave & Ukraine St (Signalized)	EB Left-turn	C (32.8)	C (32.7)	C (25.1)	C (26.8)
	EB Through	B (16.5)	D (43.4)	A (0.5)	A (9.9)
	WB Through	C (33.8)	D (51.1)	C (22.6)	B (19)
	WB Right-turn	A (1.6)	A (2.6)	A (0.6)	A (1.1)
	SB Left-turn	B (11.3)	B (14.7)	C (23.9)	C (31.2)
	SB Right-turn	B (11.6)	B (14.7)	C (24.6)	C (31.1)
	Overall	**C (20.9)**	**D (39.9)**	**B (13.5)**	**B (15.2)**
7. 38th Ave & Ukraine St (2-Lane Roundabout)	EB Left-turn	N/A	N/A	B (13.2)	C (21.1)
	EB Through	N/A	N/A	B (12.8)	C (20.6)
	WB Through	N/A	N/A	B (12)	B (14.5)
	WB Right-turn	N/A	N/A	B (11.7)	B (14.2)
	SB Left-turn	N/A	N/A	C (22.8)	C (20.7)
	SB Right-turn	N/A	N/A	D (31.2)	C (24.1)
	Overall	**N/A**	**N/A**	**B (14.2)**	**C (18)**
8. 38th Ave & Wenatchee St	EB Through	D (46.3)	D (48.5)	B (17.3)	A (6.8)
	EB Right-turn	D (39.4)	D (35.7)	B (10.9)	A (0)
	WB Left-turn	D (48.9)	D (50.4)	C (34.4)	B (12.2)
	WB Through	C (34.4)	C (33.2)	B (18.5)	C (22.2)
	NB Left-turn	B (10.2)	B (12)	C (27.2)	C (27.4)
	NB Right-turn	B (10)	B (11.4)	C (26.9)	C (25.9)
	Overall	**D (39.5)**	**D (38.8)**	**B (18)**	**B (14.2)**

APPENDIX G. SIGNAL WARRANTS

MUTCD Volume-based Warrant Evaluation
Tibet Rd & 44th Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 44th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	542	509	476	442	409	376	343	309
Highest Apprch. Minor Street	200 (160)	76	71	67	62	57	53	48	43

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	542	509	476	442	409	376	343	309
Highest Apprch. Minor Street	100 (80)	76	71	67	62	57	53	48	43

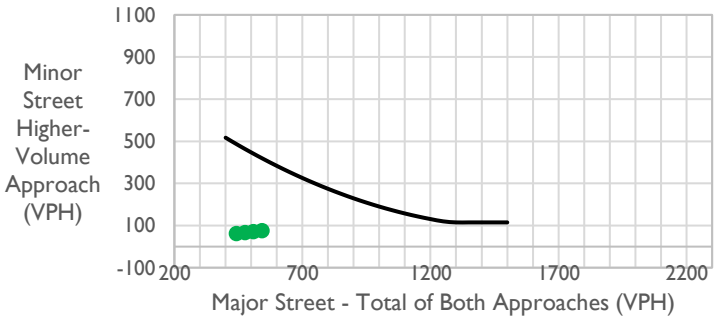
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

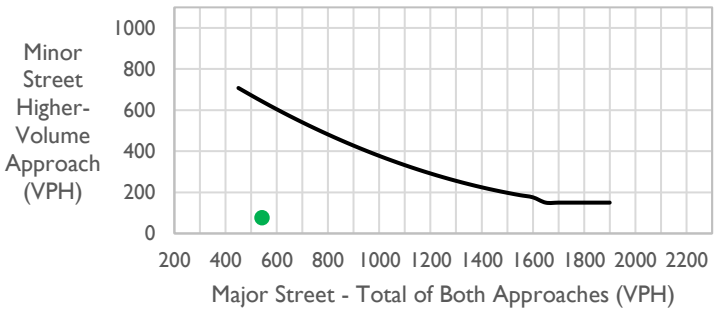
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	542	76
2nd Highest	509	71
3rd Highest	476	67
4th Highest	442	62



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	542	76



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 44th Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 44th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1028	965	902	839	776	713	650	587
Highest Apprch. Minor Street	200 (160)	76	71	67	62	57	53	48	43

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1028	965	902	839	776	713	650	587
Highest Apprch. Minor Street	100 (80)	76	71	67	62	57	53	48	43

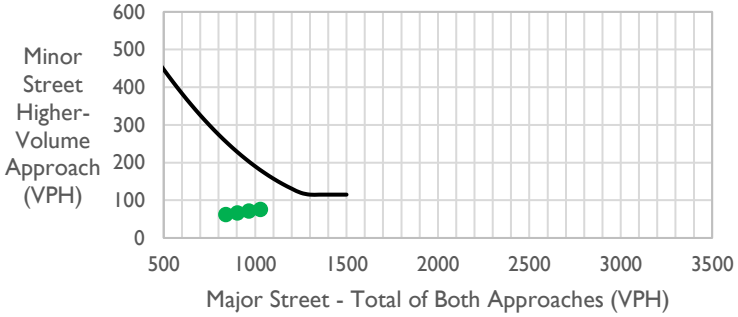
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

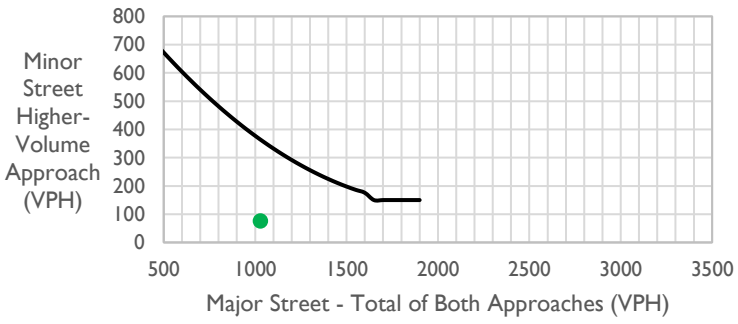
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1028	76
2nd Highest	965	71
3rd Highest	902	67
4th Highest	839	62



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1028	76



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 43rd Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 43rd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	548	514	481	447	414	380	346	313
Highest Apprch. Minor Street	200 (160)	11	10	10	9	8	8	7	6

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	548	514	481	447	414	380	346	313
Highest Apprch. Minor Street	100 (80)	11	10	10	9	8	8	7	6

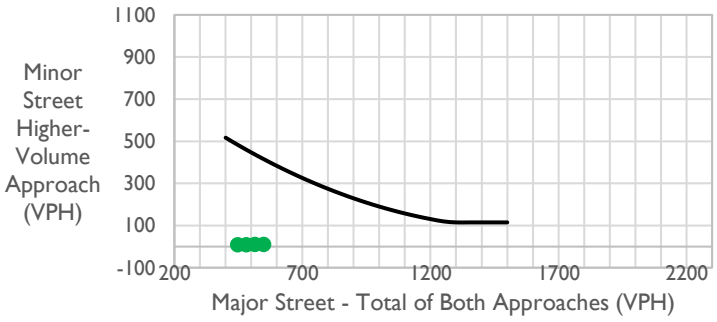
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

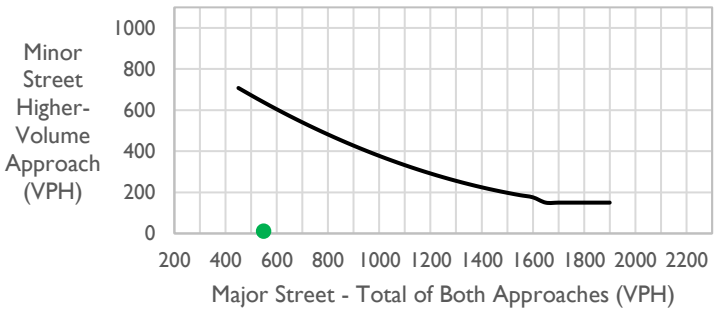
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	548	11
2nd Highest	514	10
3rd Highest	481	10
4th Highest	447	9



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	548	11



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 43rd Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 43rd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1034	971	907	844	781	717	654	590
Highest Apprch. Minor Street	200 (160)	11	10	10	9	8	8	7	6

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1034	971	907	844	781	717	654	590
Highest Apprch. Minor Street	100 (80)	11	10	10	9	8	8	7	6

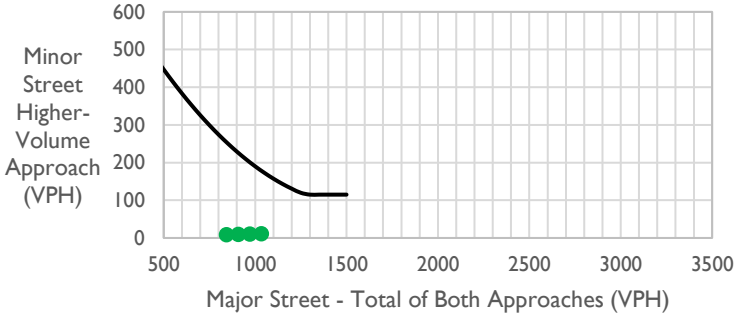
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

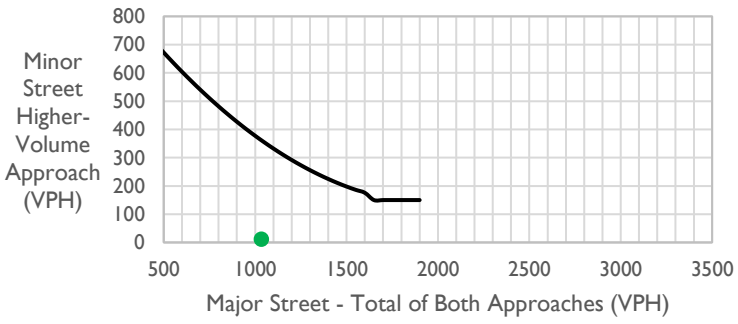
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1034	11
2nd Highest	971	10
3rd Highest	907	10
4th Highest	844	9



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1034	11



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 42nd Ave
Short-term (2030) Background

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 42nd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	414	389	363	338	313	287	262	236
Highest Apprch. Minor Street	200 (160)	108	101	95	88	82	75	68	62

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	414	389	363	338	313	287	262	236
Highest Apprch. Minor Street	100 (80)	108	101	95	88	82	75	68	62

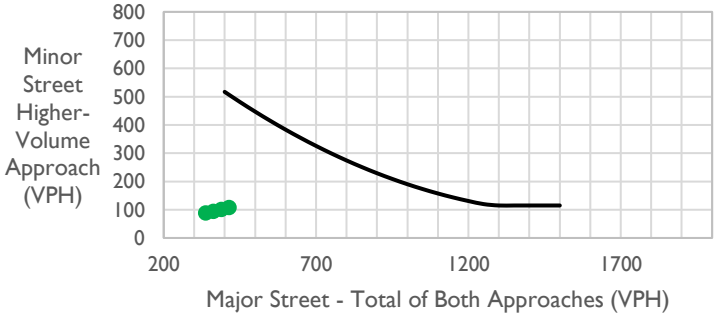
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

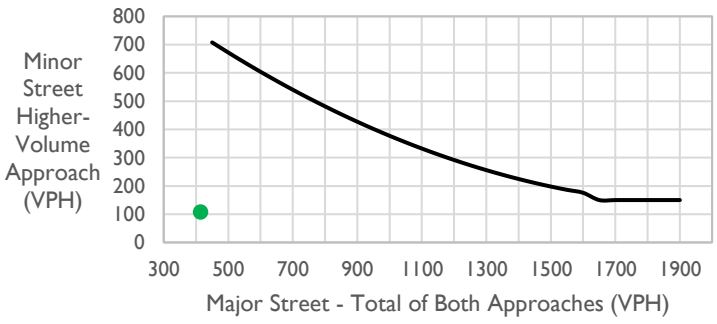
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	414	108
2nd Highest	389	101
3rd Highest	363	95
4th Highest	338	88



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	414	108



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 42nd Ave
Long-term (2045) Background

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 42nd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	900	845	790	735	679	624	569	514
Highest Apprch. Minor Street	200 (160)	108	101	95	88	82	75	68	62

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	900	845	790	735	679	624	569	514
Highest Apprch. Minor Street	100 (80)	108	101	95	88	82	75	68	62

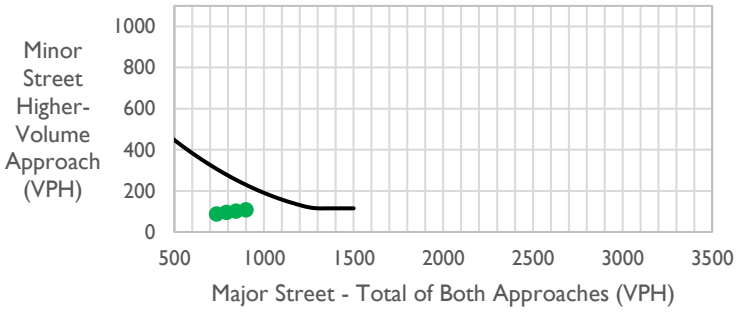
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

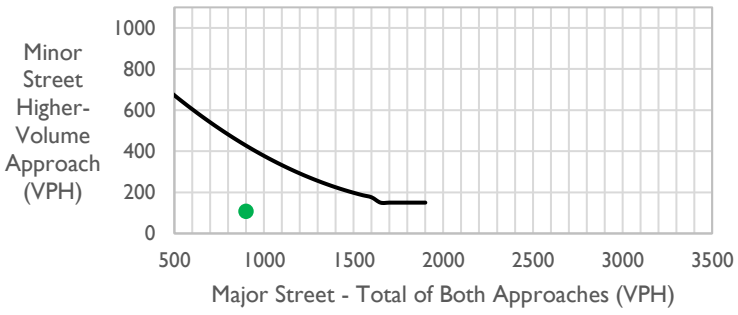
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	900	108
2nd Highest	845	101
3rd Highest	790	95
4th Highest	735	88



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	900	108



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 42nd Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 42nd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB, 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	605	568	531	494	457	420	383	345
Highest Apprch. Minor Street	200 (160)	138	130	121	113	104	96	87	79

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	605	568	531	494	457	420	383	345
Highest Apprch. Minor Street	100 (80)	138	130	121	113	104	96	87	79

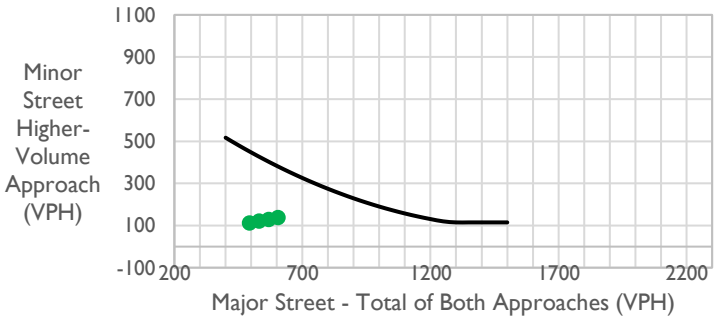
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

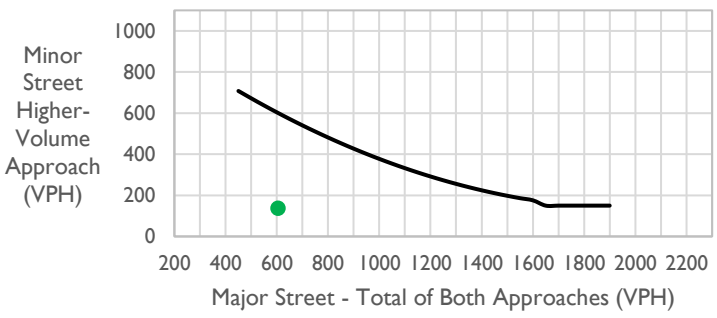
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	605	138
2nd Highest	568	130
3rd Highest	531	121
4th Highest	494	113



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	605	138



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 42nd Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 42nd Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB, 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1091	1024	957	890	824	757	690	623
Highest Apprch. Minor Street	200 (160)	138	130	121	113	104	96	87	79

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1091	1024	957	890	824	757	690	623
Highest Apprch. Minor Street	100 (80)	138	130	121	113	104	96	87	79

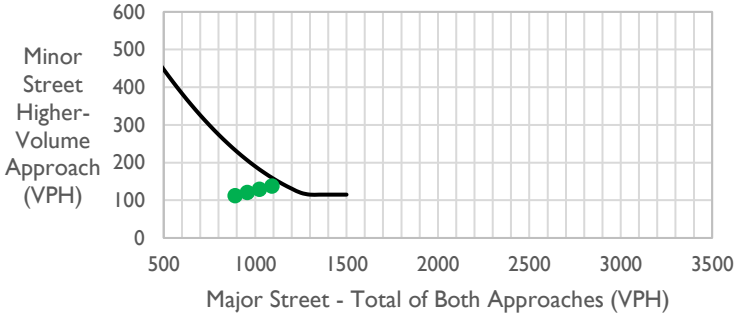
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

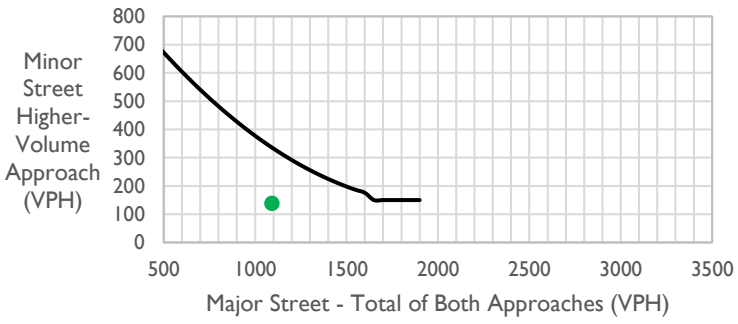
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1091	138
2nd Highest	1024	130
3rd Highest	957	121
4th Highest	890	113



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1091	138



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Ave
Short-term (2030) Background

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	534	501	469	436	403	370	338	305
Highest Apprch. Minor Street	200 (160)	23	22	20	19	17	16	15	13

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	534	501	469	436	403	370	338	305
Highest Apprch. Minor Street	100 (80)	23	22	20	19	17	16	15	13

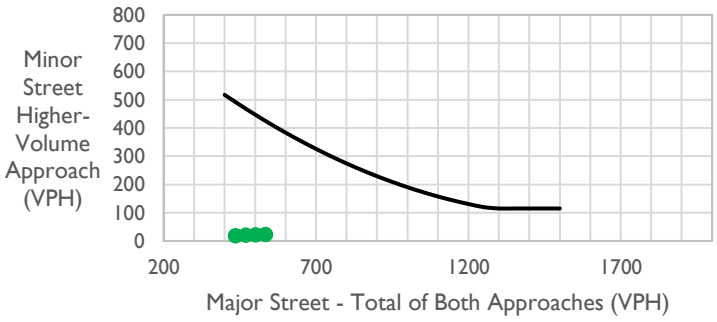
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

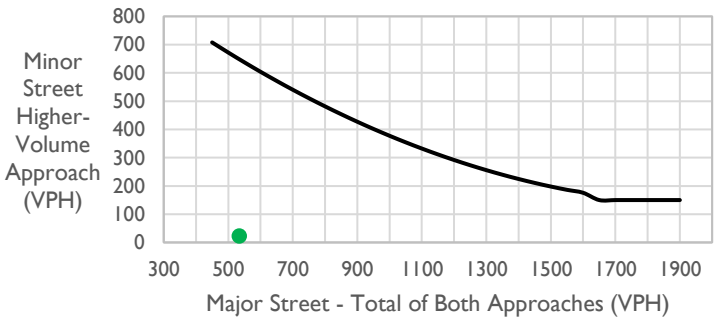
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	534	23
2nd Highest	501	22
3rd Highest	469	20
4th Highest	436	19



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	534	23



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Ave
Long-term (2045) Background

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1020	957	895	832	770	707	645	582
Highest Apprch. Minor Street	200 (160)	23	22	20	19	17	16	15	13

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1020	957	895	832	770	707	645	582
Highest Apprch. Minor Street	100 (80)	23	22	20	19	17	16	15	13

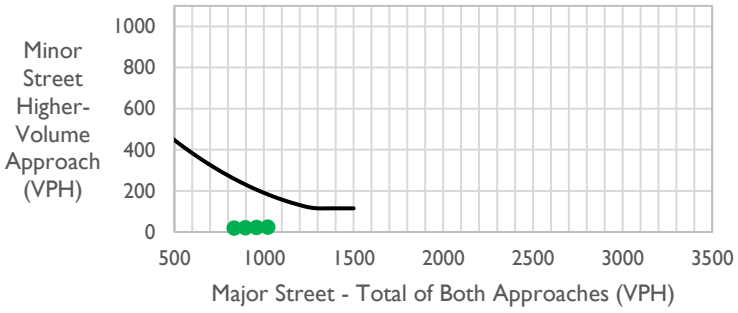
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

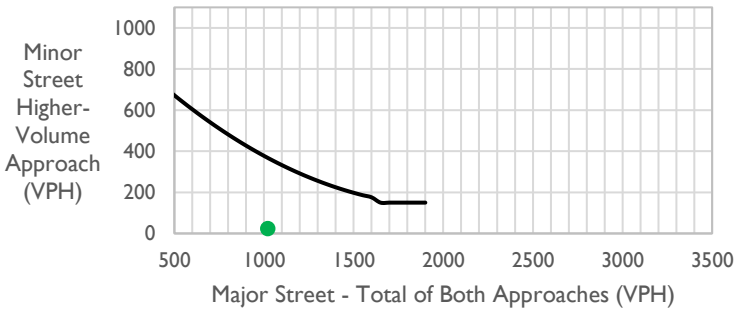
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1020	23
2nd Highest	957	22
3rd Highest	895	20
4th Highest	832	19



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1020	23



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB, 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	755	709	662	616	570	524	477	431
Highest Apprch. Minor Street	200 (160)	36	34	32	29	27	25	23	21

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	755	709	662	616	570	524	477	431
Highest Apprch. Minor Street	100 (80)	36	34	32	29	27	25	23	21

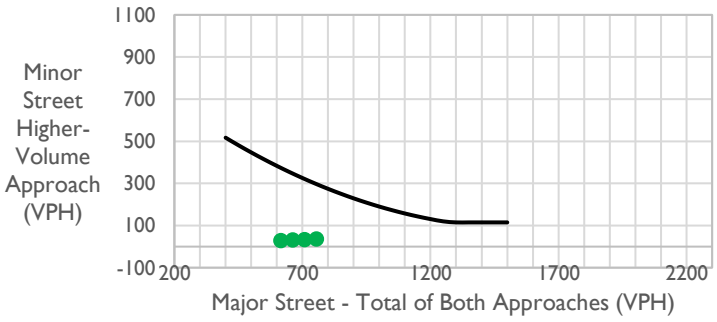
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

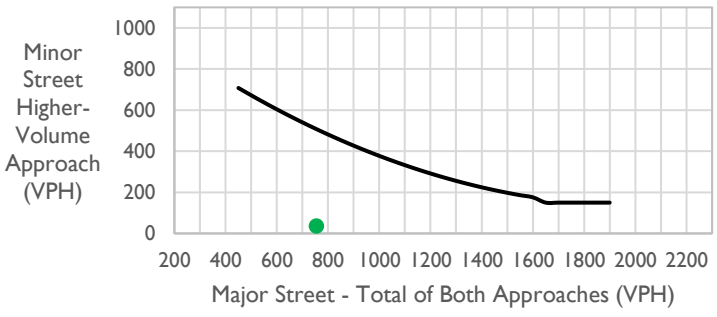
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	755	36
2nd Highest	709	34
3rd Highest	662	32
4th Highest	616	29



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	755	36



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Ave
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% EB, 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1241	1165	1089	1013	937	861	785	709
Highest Apprch. Minor Street	200 (160)	36	34	32	29	27	25	23	21

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1241	1165	1089	1013	937	861	785	709
Highest Apprch. Minor Street	100 (80)	36	34	32	29	27	25	23	21

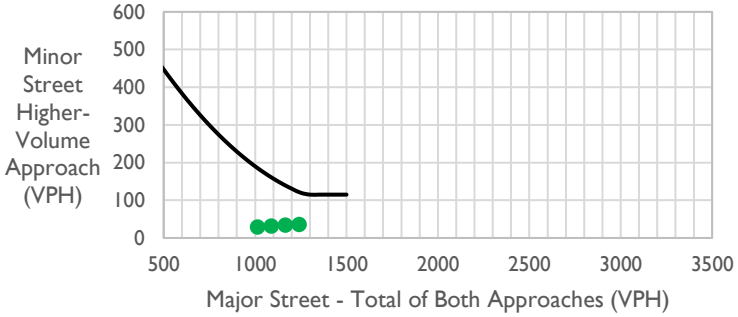
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

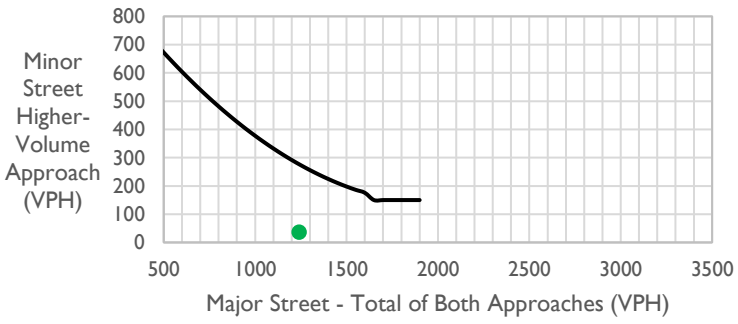
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1241	36
2nd Highest	1165	34
3rd Highest	1089	32
4th Highest	1013	29



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1241	36



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Pl.
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Pl.
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	727	682	638	593	549	504	460	415
Highest Apprch. Minor Street	200 (160)	11	10	10	9	8	8	7	6

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	727	682	638	593	549	504	460	415
Highest Apprch. Minor Street	100 (80)	11	10	10	9	8	8	7	6

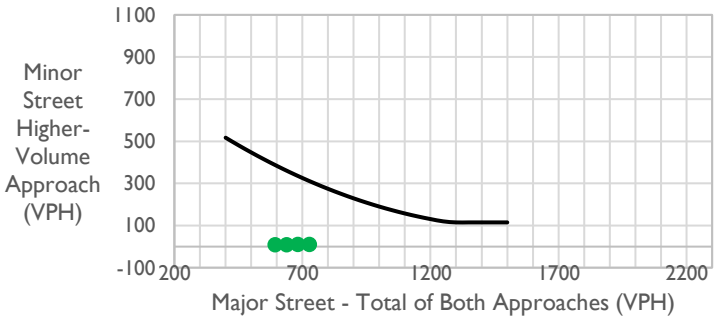
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	727	11
2nd Highest	682	10
3rd Highest	638	10
4th Highest	593	9



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	727	11

MUTCD Volume-based Warrant Evaluation
Tibet Rd & 39th Pl.
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: 39th Pl.
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% WB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1213	1139	1064	990	916	841	767	693
Highest Apprch. Minor Street	200 (160)	11	10	10	9	8	8	7	6

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1213	1139	1064	990	916	841	767	693
Highest Apprch. Minor Street	100 (80)	11	10	10	9	8	8	7	6

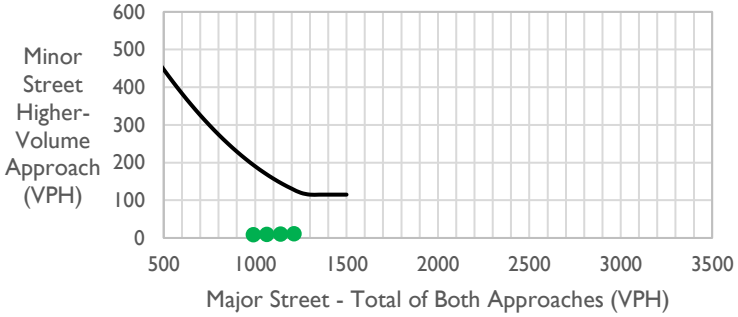
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

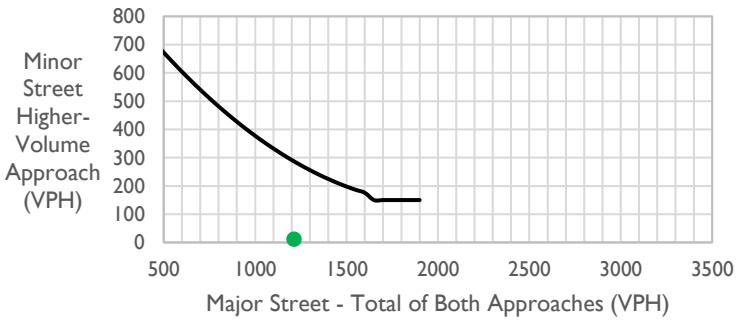
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1213	11
2nd Highest	1139	10
3rd Highest	1064	10
4th Highest	990	9



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1213	11



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 38th Ave
Short-term (2030) Background

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB, 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1471	1381	1291	1201	1110	1020	930	840
Highest Apprch. Minor Street	200 (160)	230	216	202	188	174	160	145	131

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1471	1381	1291	1201	1110	1020	930	840
Highest Apprch. Minor Street	100 (80)	230	216	202	188	174	160	145	131

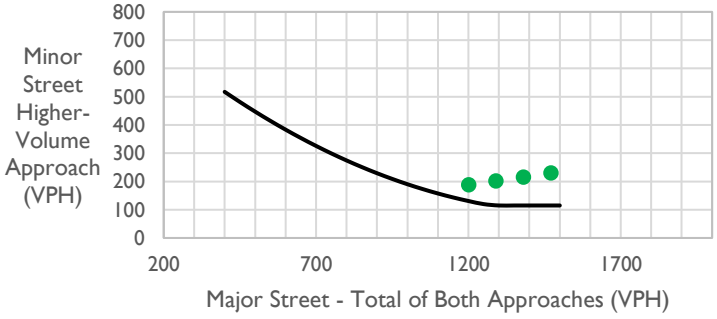
WARRANT 1, Condition A and Condition B

80% Satisfied	No

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

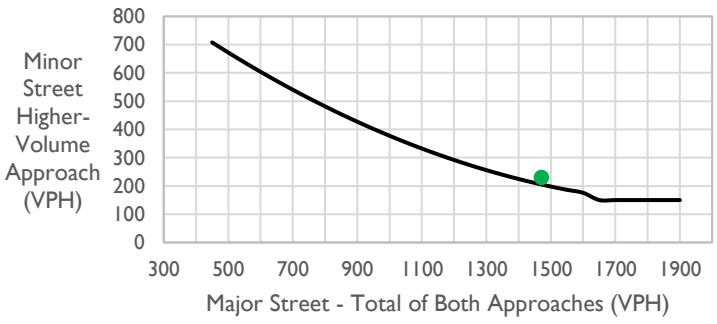
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1471	230
2nd Highest	1381	216
3rd Highest	1291	202
4th Highest	1201	188



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1471	230



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 38th Ave
Long-term (2045) Background

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB, 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	3130	2938	2746	2555	2363	2171	1979	1787
Highest Apprch. Minor Street	200 (160)	508	477	446	415	383	352	321	290

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	3130	2938	2746	2555	2363	2171	1979	1787
Highest Apprch. Minor Street	100 (80)	508	477	446	415	383	352	321	290

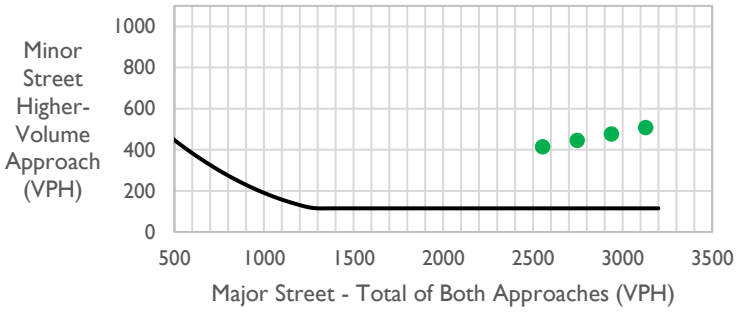
WARRANT 1, Condition A and Condition B

80% Satisfied	Yes

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

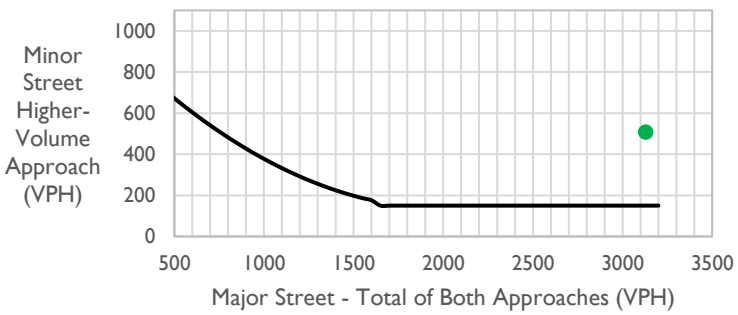
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3130	508
2nd Highest	2938	477
3rd Highest	2746	446
4th Highest	2555	415



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3130	508



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 38th Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB, 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1711	1606	1501	1396	1292	1187	1082	977
Highest Apprch. Minor Street	200 (160)	260	244	228	212	196	180	164	148

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1711	1606	1501	1396	1292	1187	1082	977
Highest Apprch. Minor Street	100 (80)	260	244	228	212	196	180	164	148

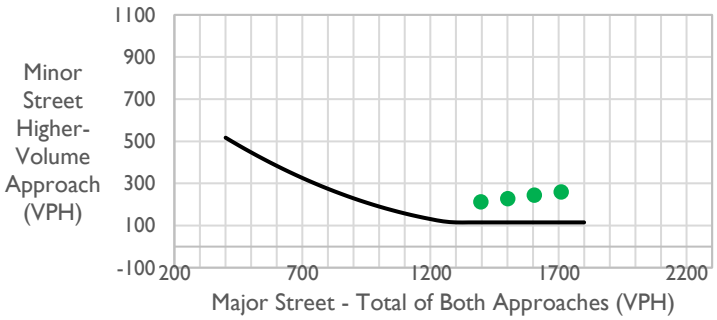
WARRANT 1, Condition A and Condition B

80% Satisfied	No

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

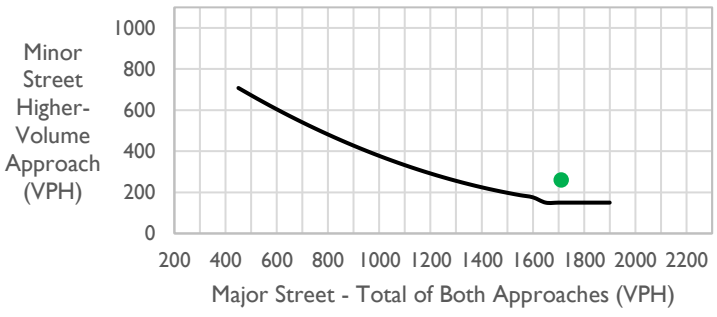
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1711	260
2nd Highest	1606	244
3rd Highest	1501	228
4th Highest	1396	212



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1711	260



MUTCD Volume-based Warrant Evaluation
Tibet Rd & 38th Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Tibet Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB, 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	3370	3163	2957	2750	2544	2337	2131	1924
Highest Apprch. Minor Street	200 (160)	508	477	446	415	383	352	321	290

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	3370	3163	2957	2750	2544	2337	2131	1924
Highest Apprch. Minor Street	100 (80)	508	477	446	415	383	352	321	290

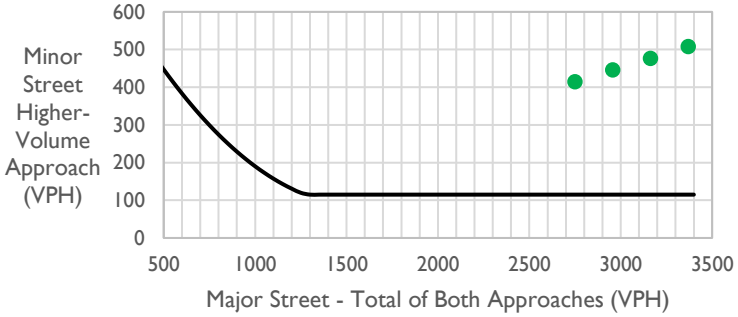
WARRANT 1, Condition A and Condition B

80% Satisfied	Yes

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

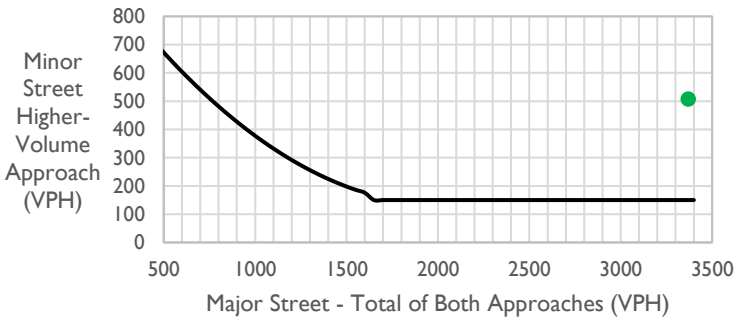
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3370	508
2nd Highest	3163	477
3rd Highest	2957	446
4th Highest	2750	415



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3370	508



MUTCD Volume-based Warrant Evaluation
Ukraine St & 38th Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Ukraine St
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1735	1629	1522	1416	1310	1203	1097	991
Highest Apprch. Minor Street	200 (160)	302	283	265	246	228	209	191	172

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1735	1629	1522	1416	1310	1203	1097	991
Highest Apprch. Minor Street	100 (80)	302	283	265	246	228	209	191	172

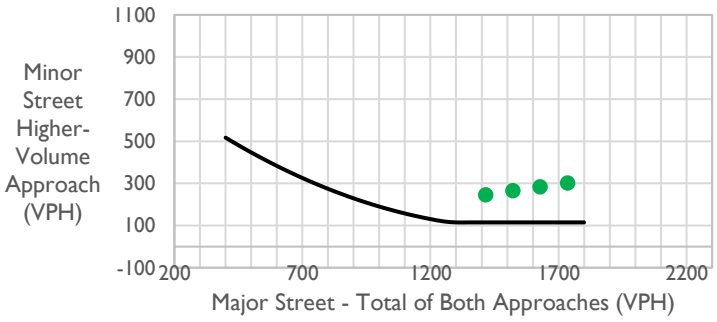
WARRANT 1, Condition A and Condition B

80% Satisfied	Yes

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

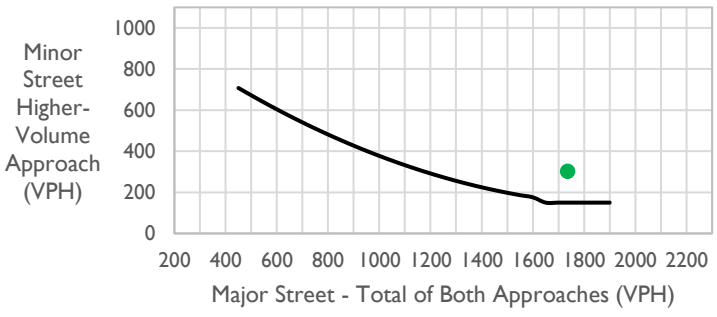
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1735	302
2nd Highest	1629	283
3rd Highest	1522	265
4th Highest	1416	246



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1735	302



MUTCD Volume-based Warrant Evaluation
Ukraine St & 38th Ave
Long-term (2045) Total

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Ukraine St
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% SB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	3464	3252	3039	2827	2615	2403	2190	1978
Highest Apprch. Minor Street	200 (160)	302	283	265	246	228	209	191	172

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	Yes

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	3464	3252	3039	2827	2615	2403	2190	1978
Highest Apprch. Minor Street	100 (80)	302	283	265	246	228	209	191	172

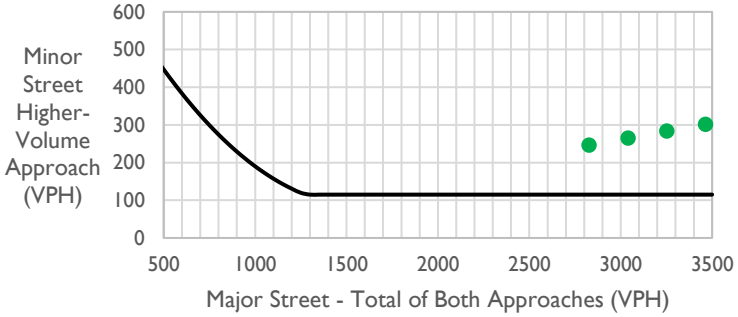
WARRANT 1, Condition A and Condition B

80% Satisfied	Yes

WARRANT 2, Four Hour Volume

100% Satisfied	Yes

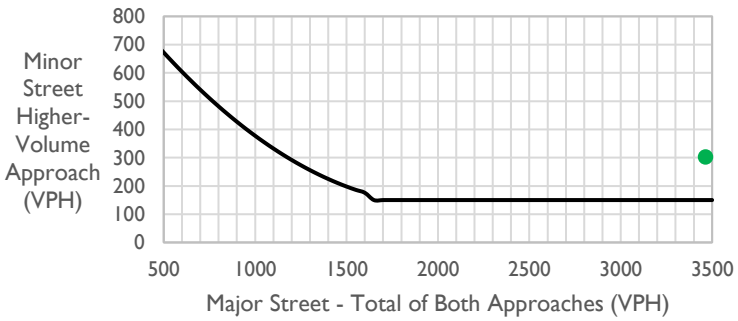
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3464	302
2nd Highest	3252	283
3rd Highest	3039	265
4th Highest	2827	246



WARRANT 3, Peak Hour Volume

100% Satisfied	Yes

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3464	302



MUTCD Volume-based Warrant Evaluation
Wenatchee Rd & 38th Ave
Short-term (2030) Background

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Wenatchee Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1471	1381	1291	1201	1110	1020	930	840
Highest Apprch. Minor Street	200 (160)	130	122	114	106	98	90	82	74

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1471	1381	1291	1201	1110	1020	930	840
Highest Apprch. Minor Street	100 (80)	130	122	114	106	98	90	82	74

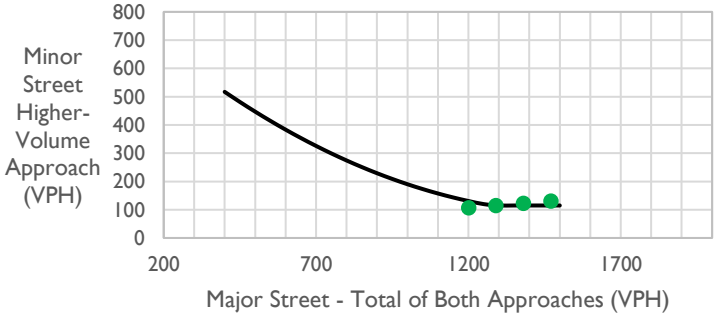
WARRANT 1, Condition A and Condition B

80% Satisfied	No

WARRANT 2, Four Hour Volume

100% Satisfied	No

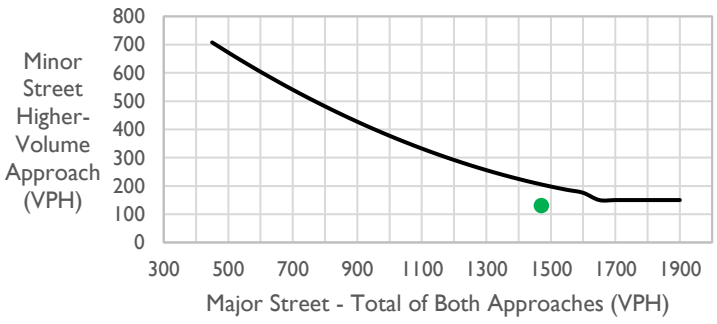
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1471	130
2nd Highest	1381	122
3rd Highest	1291	114
4th Highest	1201	106



WARRANT 3, Peak Hour Volume

100% Satisfied	No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1471	130



MUTCD Volume-based Warrant Evaluation
Wenatchee Rd & 38th Ave
Long-term (2045) Background

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Wenatchee Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	3200	3004	2808	2612	2416	2219	2023	1827
Highest Apprch. Minor Street	200 (160)	130	122	114	106	98	90	82	74

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied	No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	3200	3004	2808	2612	2416	2219	2023	1827
Highest Apprch. Minor Street	100 (80)	130	122	114	106	98	90	82	74

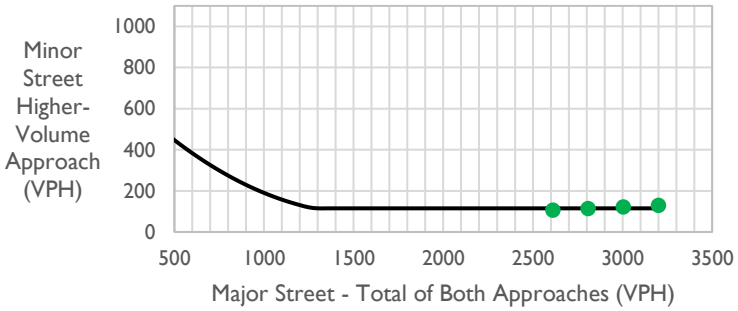
WARRANT 1, Condition A and Condition B

80% Satisfied	No

WARRANT 2, Four Hour Volume

100% Satisfied	No

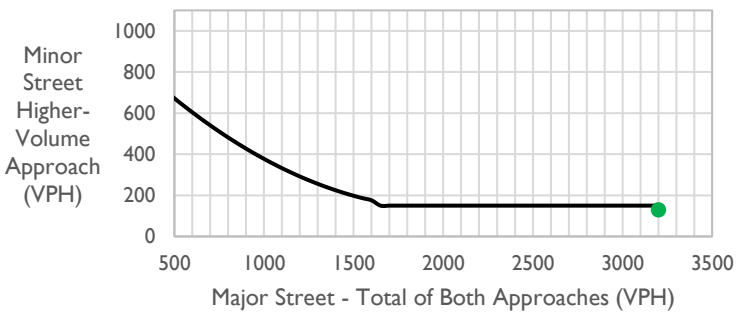
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3200	130
2nd Highest	3004	122
3rd Highest	2808	114
4th Highest	2612	106



WARRANT 3, Peak Hour Volume

100% Satisfied	No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3200	130



MUTCD Volume-based Warrant Evaluation
Wenatchee Rd & 38th Ave
Short-term (2030) Total

FELSBURG HOLT & ULLEVIG

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Wenatchee Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	1652	1551	1450	1348	1247	1146	1045	943
Highest Apprch. Minor Street	200 (160)	130	122	114	106	98	90	82	74

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	1652	1551	1450	1348	1247	1146	1045	943
Highest Apprch. Minor Street	100 (80)	130	122	114	106	98	90	82	74

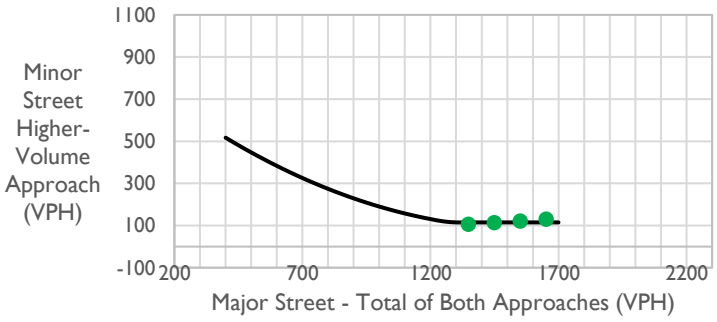
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

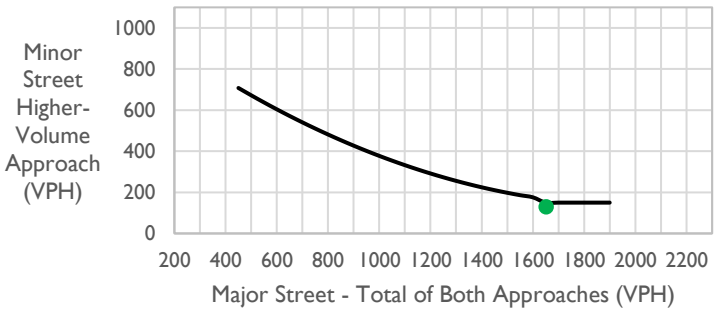
	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1652	130
2nd Highest	1551	122
3rd Highest	1450	114
4th Highest	1348	106



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	1652	130



MUTCD Volume-based Warrant Evaluation
Wenatchee Rd & 38th Ave
Long-term (2045) Total

Major Street: 38th Ave
Lanes Moving Traffic: 2 or more
Approach Speed: 30 MPH
Option: Low speed, urban community

Minor Street: Wenatchee Rd
Lanes Moving Traffic: 2 or more
Right Turn Volume Included: 50% NB

WARRANT 1, Condition A - Minimum Vehicular Volume

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	600 (480)	3381	3174	2967	2759	2552	2345	2138	1931
Highest Apprch. Minor Street	200 (160)	130	122	114	106	98	90	82	74

WARRANT 1, Condition B - Interruption of Continuous Traffic

100% Satisfied | No

	Vehicles per hour 100% (80%)	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	900 (720)	3381	3174	2967	2759	2552	2345	2138	1931
Highest Apprch. Minor Street	100 (80)	130	122	114	106	98	90	82	74

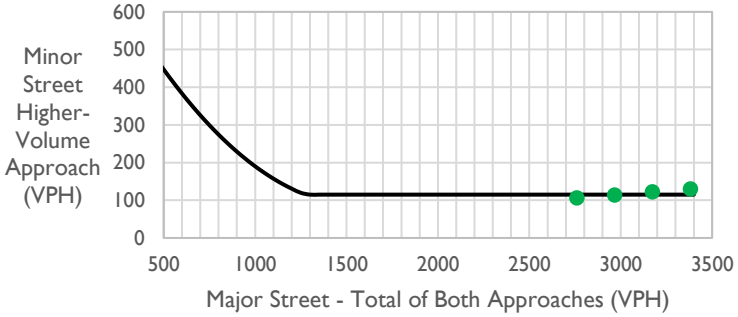
WARRANT 1, Condition A and Condition B

80% Satisfied | No

WARRANT 2, Four Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3381	130
2nd Highest	3174	122
3rd Highest	2967	114
4th Highest	2759	106



WARRANT 3, Peak Hour Volume

100% Satisfied | No

	Both Apprchs. Major Street	Higher Vol. Apprch. Minor Street
Peak Hour	3381	130