Exhibit 12

TENW
Transportation Engineering NorthWest

TECHNICAL MEMORANDUM

DATE: October 1, 2019

TO: Tom Rogers
City of Mill Creek

FROM: Amy Wasserman
TENW

SUBJECT: Updated Traffic Assessment
Crestview Village II
TENW Project No. 5951

10/1/19

This technical memorandum documents the traffic assessment completed for the proposed Crestview Village II residential development, which includes 25 new single-family detached dwelling units. This is an updated to our previous traffic assessment dated July 25, 2019 and addresses the City's Traffic Impact Analysis Review comments dated September 4, 2019. This traffic assessment includes a project description, trip generation estimate, distribution and assignment of project trips, level of service and queueing analysis, and an assessment of transportation mitigation to Mill Creek and Snohomish County.

Project Description

The proposed Crestview Village II project site is located on 3 parcels represented by 2316 and 2318 132nd Street SE in the City of Mill Creek as shown in the Figure 1 Site Vicinity Map. The proposed development is located within Snohomish County Transportation Service Area (TSA) D inside the Urban Growth Area (UGA). The preliminary site plan includes up to 25 single-family residential units. There are two existing single-family homes currently on site that will be removed as part of this project. Vehicular access to the site would be provided via 23rd Lane SE which provides access to the existing adjacent Crestview Village residential development. Full project buildout is expected in 2021. A preliminary site plan is included as Figure 2.

Trip Generation

The trip generation estimate for the proposed Crestview Village II residential development was based on methodology included in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th edition for Land Use Code (LUC) 210 (Single-Family Detached Housing). The weekday daily, AM peak hour, and PM peak hour trip generation calculations are summarized in Table 1 and are based on the net addition of 23 single-family residential housing units. Detailed trip generation calculations are included in Attachment A.

Table 1
Net New Trip Generation Summary

	Net New Trips Generated		
Time Period	In	Out	Total
Weekday Daily	135	136	271
Weekday AM Peak Hour	6	16	22
Weekday PM Peak Hour	16	9	25

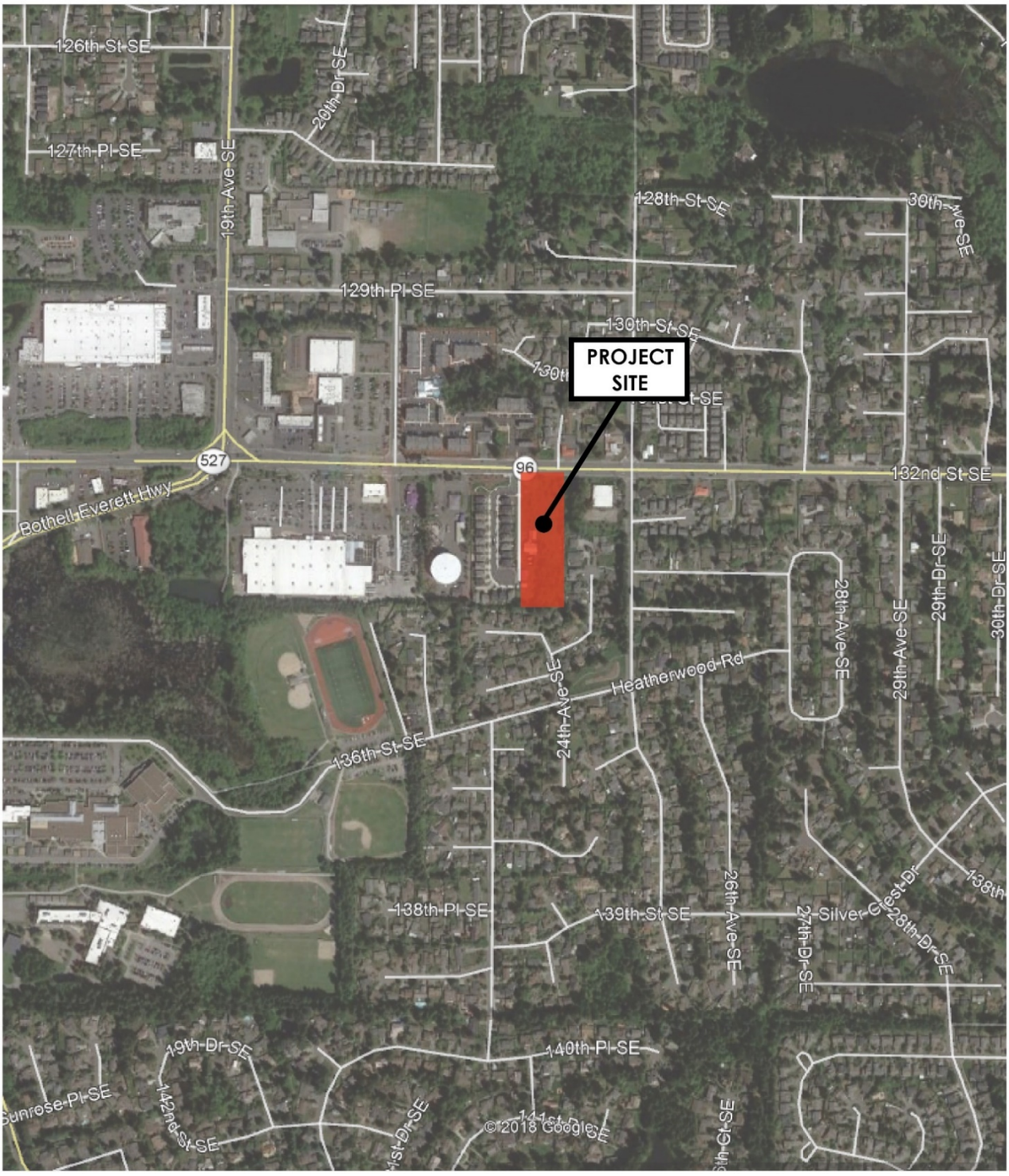


Figure 1: Site Vicinity

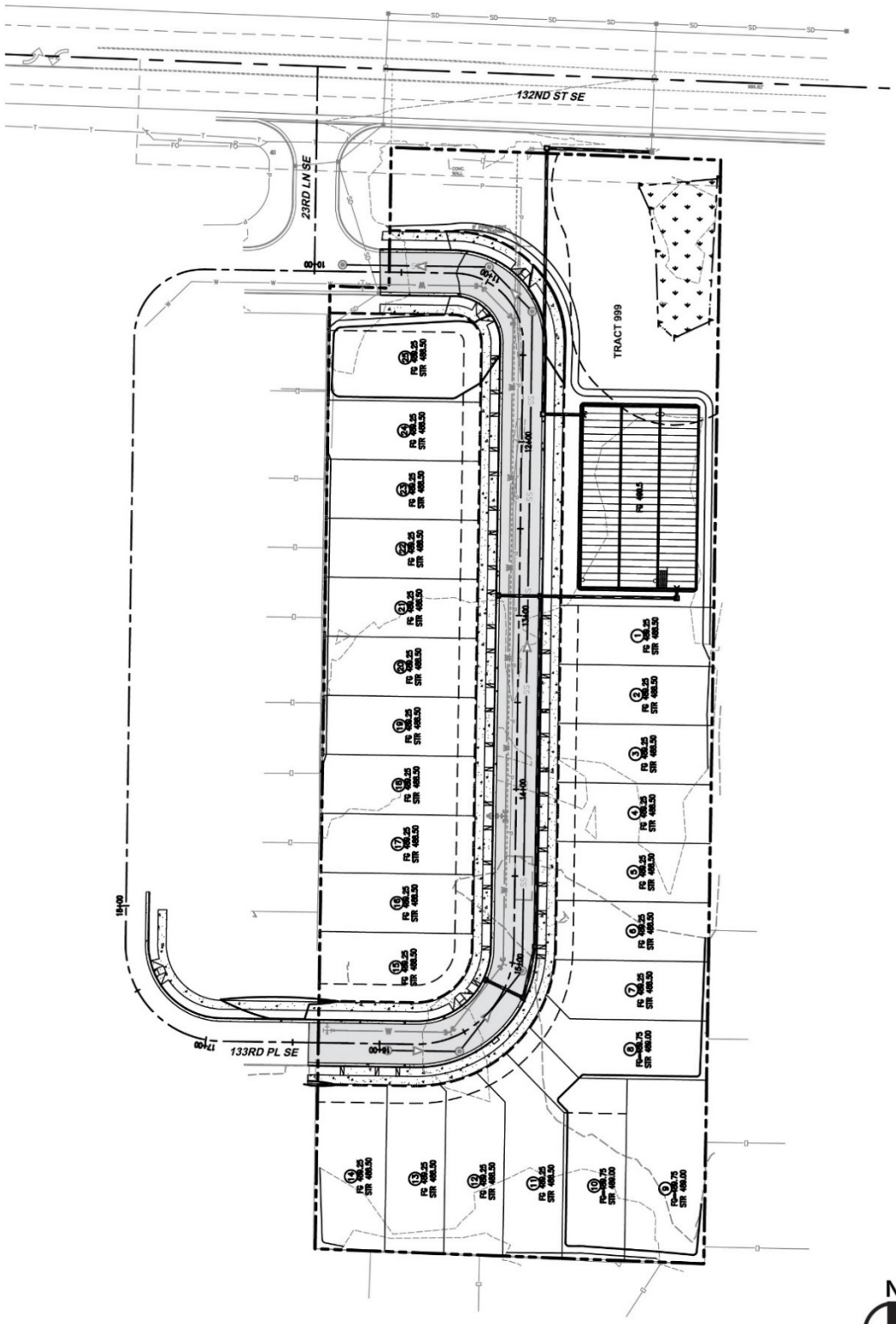


Figure 2: Preliminary Site Plan

As shown in Table 1, the proposed Crestview Village II residential development is estimated to generate 271 net new weekday daily trips, of which 22 net new trips would be generated during the weekday AM peak hour (6 in, 16 out), and 25 net new trips would be generated during the weekday PM peak hour (16 in, 9 out). These trip generation estimates include credit for the 2 existing single-family homes to be removed.

Existing Traffic Volumes

Existing weekday AM and PM peak hour traffic counts were conducted on Wednesday, July 10, 2019 at the following three study intersections:

1. 132nd Street SE (SR 96) / 21st Dr SE
2. 132nd Street SE (SR 96) / 23rd Ln SE
3. 132nd Street SE (SR 96) / 25th Ave SE

The existing weekday AM and PM peak hour traffic volumes represent the highest hour of traffic between 7:00 and 9:00 a.m. and 4:00 and 6:00 p.m. respectively. The existing AM and PM peak hour traffic volumes at the study intersections are illustrated in Figure 3. The detailed traffic counts are included in Attachment B.

Collision History

Intersection Collisions

Collisions at the study intersections were summarized for the most recent three-year period from January 1, 2016 to December 31, 2018. Collision data was provided by the Washington State Department of Transportation (WSDOT). Summaries of the total, yearly average, and collisions per million entering vehicles (MEV) are provided in Table 2. Summaries of collisions by type are provided in Table 3.

Table 1
Collision Data Summary, January 1, 2016 to December 31, 2018

Intersection	2016	2017	2018	3-Year Total Collisions	Average Annual Collision Rate	Collisions per MEV [1]
1. 132nd Street SE / 21st Dr SE	4	1	3	8	2.67	0.25
2. 132nd Street SE / 23rd Ln SE	0	0	0	0	0.00	0.00
3. 132nd Street SE / 25th Ave SE	4	3	7	14	4.67	0.44

Source: WSDOT Collision Records.

[1] MEV = Million Entering Vehicles.

Table 2
Collision Data Summary by Type, January 1, 2016 to December 31, 2018

Intersection	3-Year Total Collisions	Average Annual Collision Rate	Collision Type: Approach Turn	Parked Veh/ Fixed Object	Sideswipe	Right Angle	Rear-end	Ped/Bike	Other
1. 132nd Street SE / 21st Dr SE	8	2.67	1	0	0	1	6	0	0
2. 132nd Street SE / 23rd Ln SE	0	0.00	0	0	0	0	0	0	0
3. 132nd Street SE / 25th Ave SE	14	4.67	0	0	1	1	11	0	1

Source: WSDOT Collision Records.

Intersection collision rates over 1.0 collision per MEV generally warrant further review to determine if any patterns exist. Based on the collision data, none of the study intersections have a rate that exceeds 1.0 collision per MEV. Additionally, there were no collisions over the latest 3-year period at the proposed site access for Crestview Village II at the intersection of 132nd St SE/23rd Ln SE.

Trip Distribution and Assignment

The distribution of the net new weekday peak hour project trips generated by the Crestview Village II development was based on existing travel patterns in the site vicinity. In general, trips were distributed locally as follows:

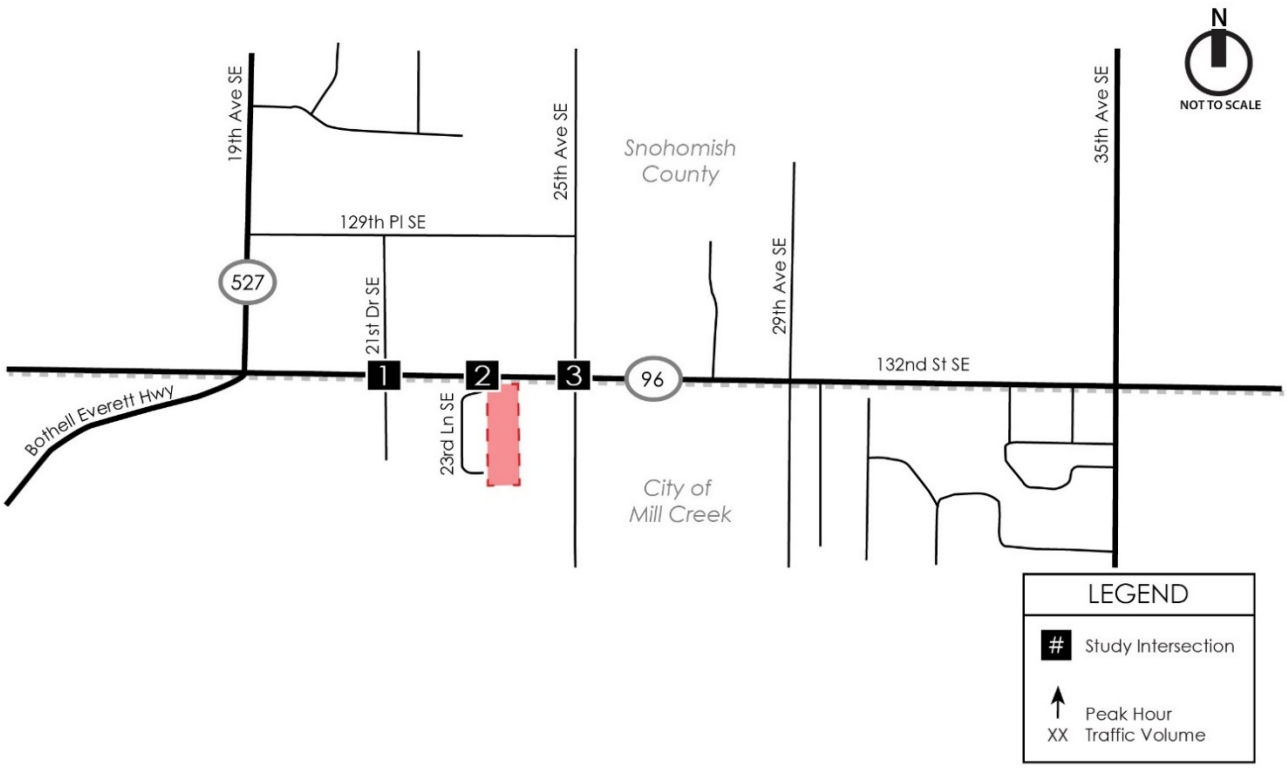
- 20 percent to/from the west via 132nd Street SE (SR 96)
- 20 percent to/from the north via Bothell Everett Highway (19th Ave SE)
- 20 percent to/from the south via Bothell Everett Highway
- 10 percent to/from the north via 35th Avenue SE
- 15 percent to/from the south via 35th Avenue SE
- 15 percent to/from the east via 132nd Street SE (SR 96)

The estimated trip distribution and assignment of the net new project-generated trips is illustrated in Figure 4 for the AM peak hour and Figure 5 for the PM peak hour. Figure 4 and Figure 5 also illustrate the weekday AM and PM peak hour trip assignment through Snohomish County key intersections impacted by 3 or more directional trips.

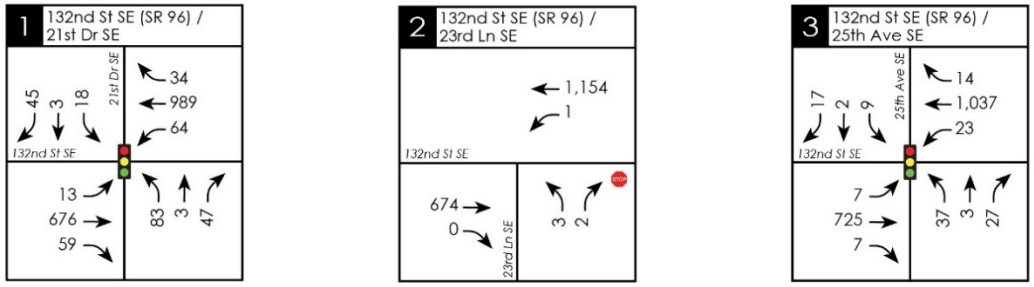
The weekday AM and PM peak hour trip assignments at key intersections impacted by three (3) or more directional trips are shown in tabular format in Tables 4 and 5, respectively.

Table 4
AM Peak Hour Trip Assignment at Snohomish County Key Intersections

Key Intersection ID#	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
177	2	2	2		1		1					1



AM Peak Hour



PM Peak Hour

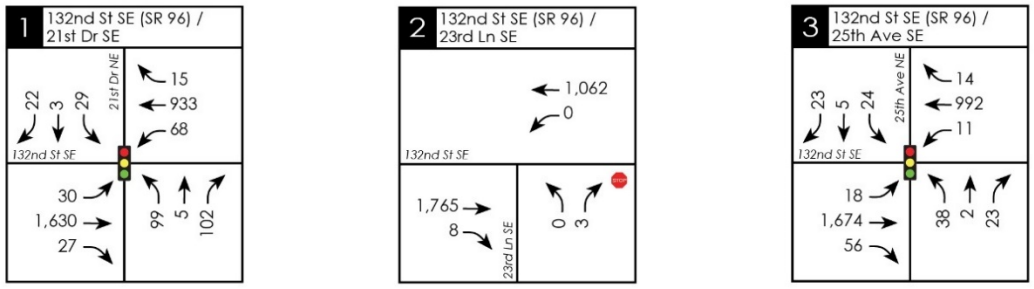
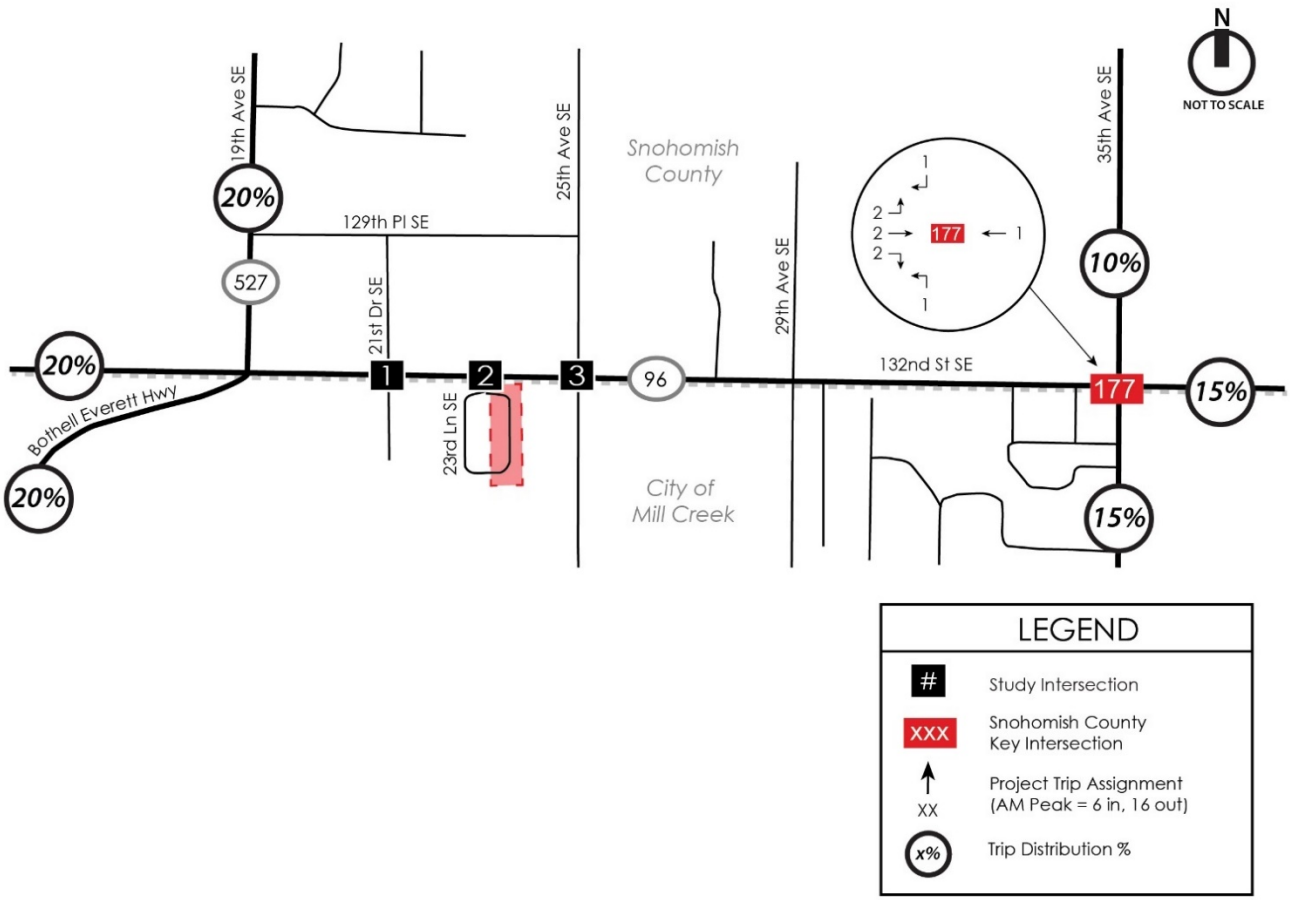


Figure 3: 2019 Existing Weekday Peak Hour Traffic Volumes



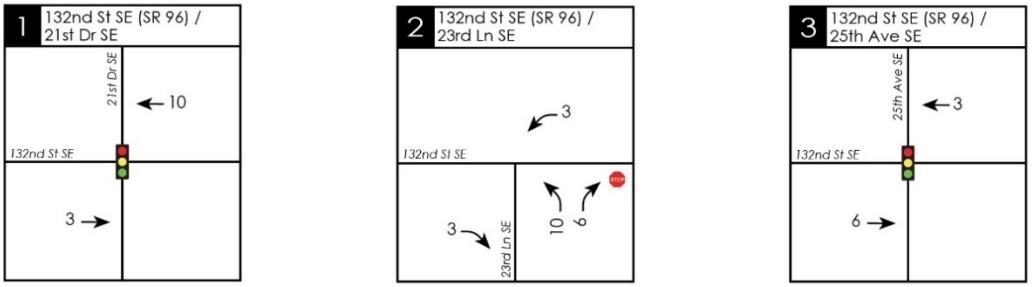
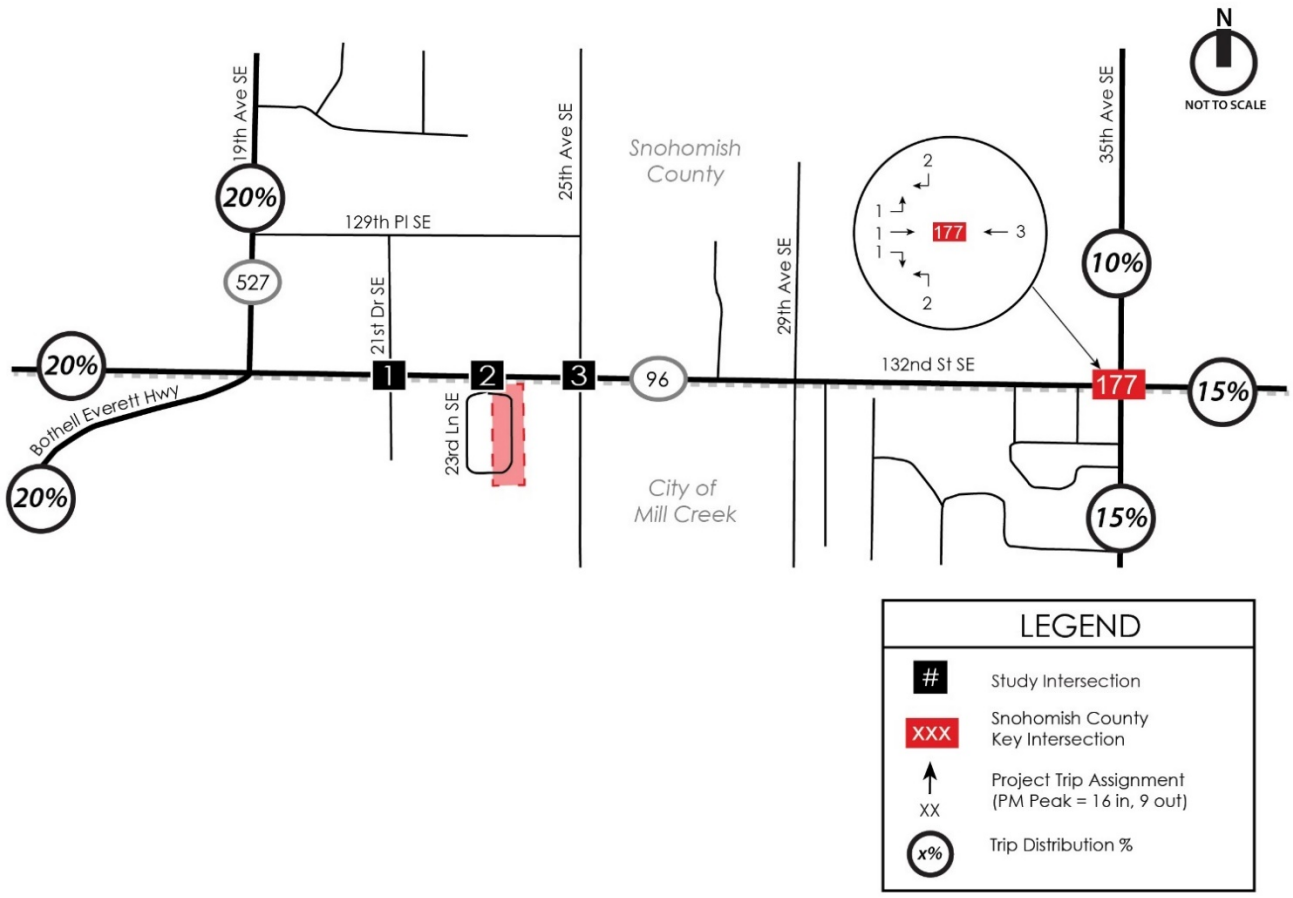


Figure 4: AM Peak Hour Trip Distribution and Assignment



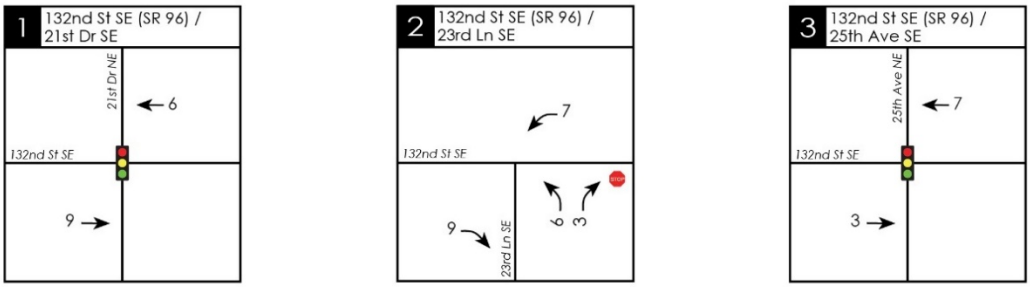


Figure 5: PM Peak Hour Trip Distribution and Assignment

Table 5
PM Peak Hour Trip Assignment at Snohomish County Key Intersections

Key Intersection ID#	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
177	1	1	1		3		2					2

Future Year 2021 Traffic Volumes

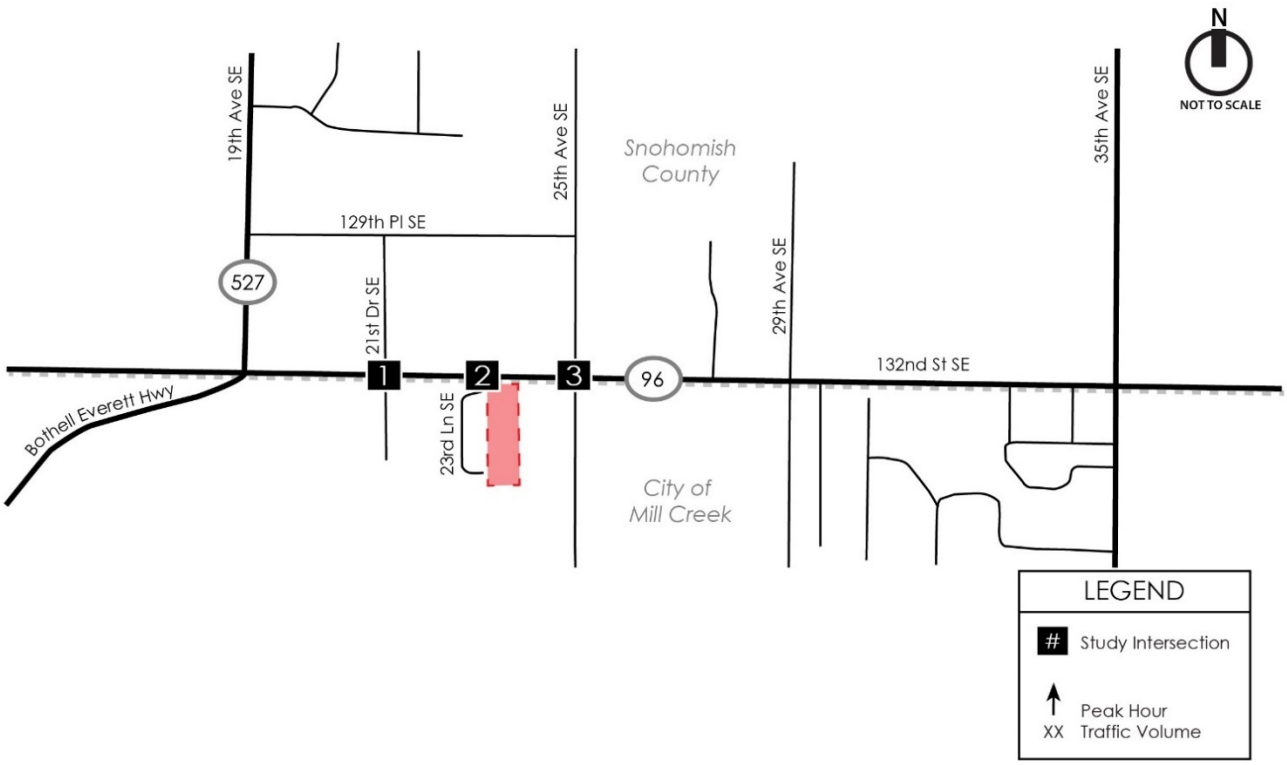
The 2021 no action (without-project) AM and PM peak hour traffic volumes at the study intersections are illustrated in Figure 6 and were estimated by applying an annual growth rate of 2 percent to the existing (2019) counts.

Future year 2021 with-project AM and PM peak hour traffic volumes were estimated by adding the trip assignment from the proposed project (shown in Figure 4 and Figure 5) to the future year 2021 No Action (without project) traffic volumes (shown in Figure 6). The resulting 2021 With Project AM and PM peak hour traffic volumes at the study intersections are shown in Figure 7.

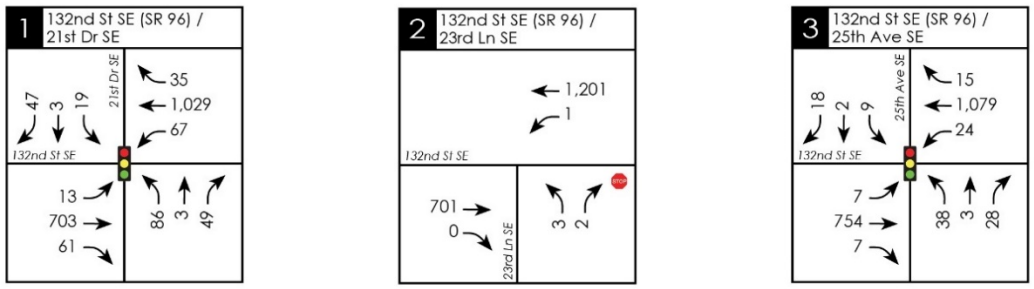
Existing and Year 2021 Intersection LOS Evaluation

To evaluate operations at the 3 study intersections, level of service (LOS) were analyzed during the weekday AM and PM peak hours. LOS was evaluated for 2019 existing and 2021 future without and with project conditions which corresponds with the anticipated opening of the residential development.

LOS calculations for the two study intersections were based on methodology and procedures outlined in the latest *Highway Capacity Manual (6th Edition)* using *Synchro 10* traffic analysis software. The signal timing used in the LOS analysis was provided by WSDOT in July 2019. Table 6 summarizes the 2019 existing and 2021 future LOS results at the two study intersections. The detailed LOS worksheets and a description of the LOS methodology are included in Attachment C.



AM Peak Hour



PM Peak Hour

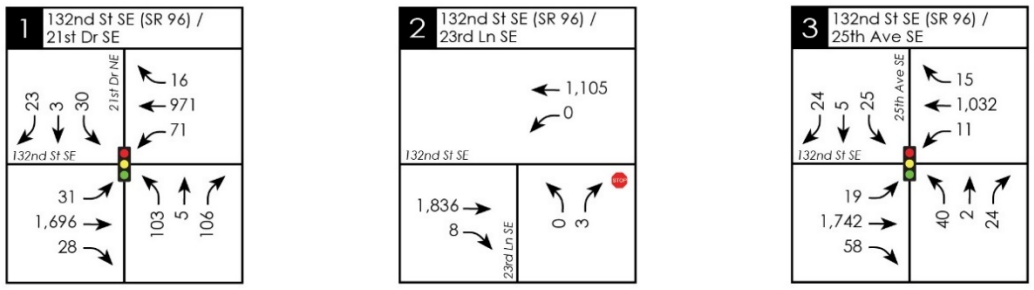
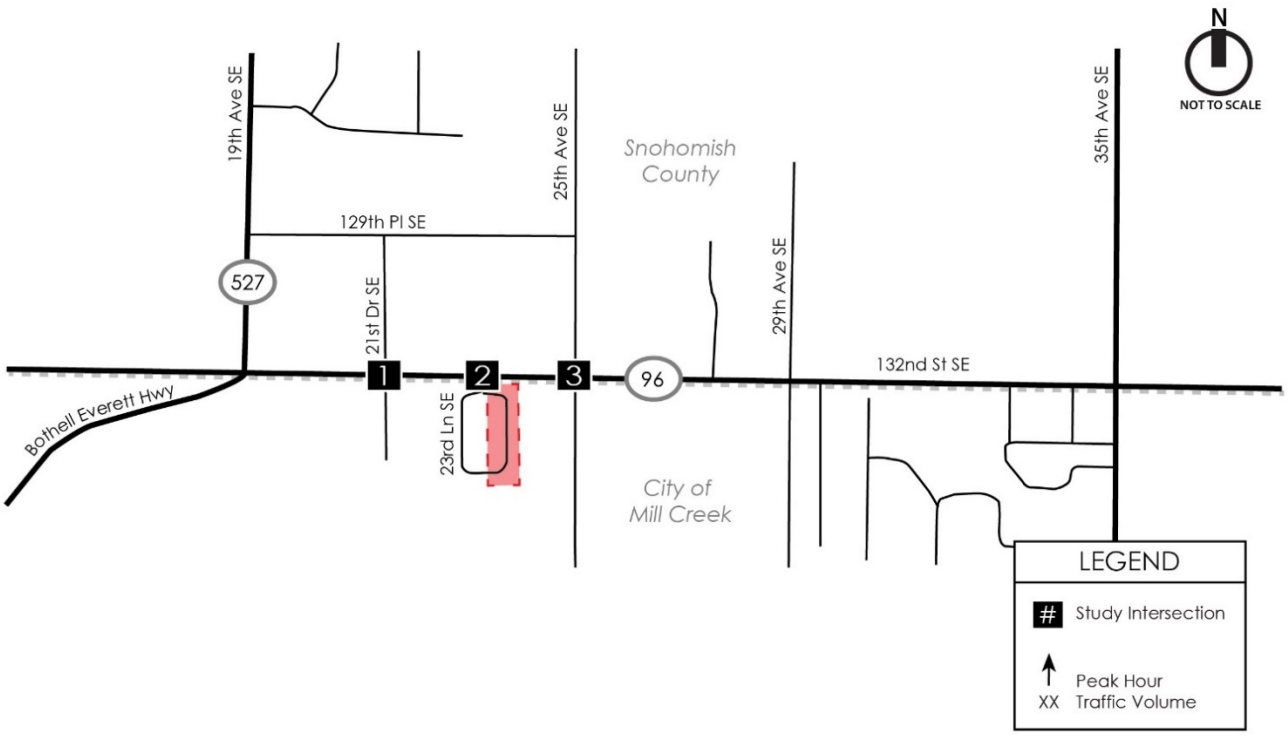
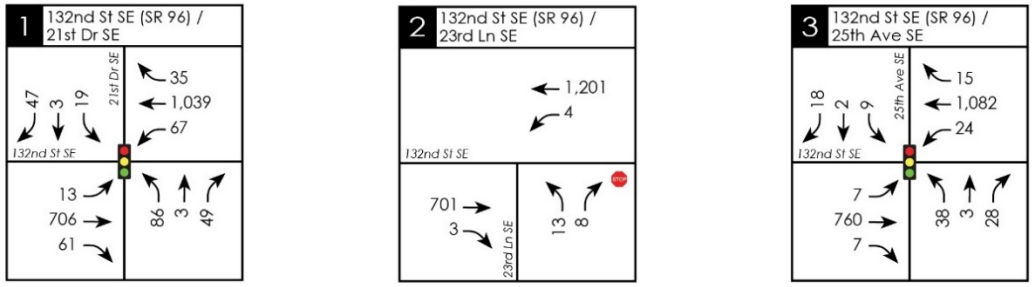


Figure 6: 2021 No Action Weekday Peak Hour Traffic Volumes



AM Peak Hour



PM Peak Hour

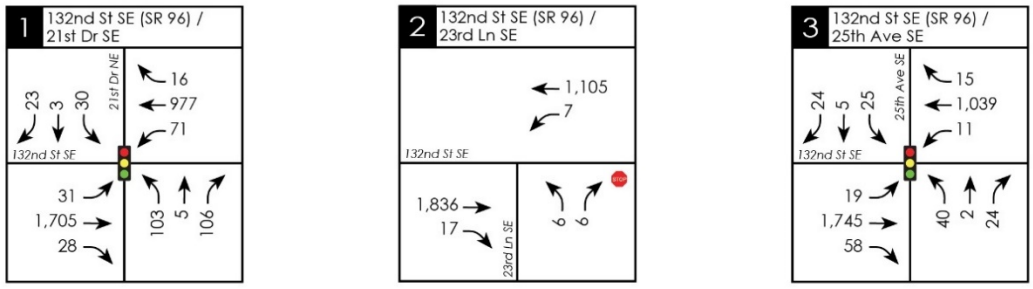


Figure 7: 2021 With Project Weekday Peak Hour Traffic Volumes

Table 6
Existing and Year 2021 Peak Hour Level of Service Summary at Study Intersections

Study Intersection	2019 Existing LOS [1]	2019 Existing Delay (sec) [2]	2021 No Action LOS [1]	2021 No Action Delay (sec) [2]	2021 With Project LOS [1]	2021 With Project Delay (sec) [2]
AM PEAK HOUR						
Signalized:						
1. 132nd Street SE / 21st Drive SE	B	11.8	B	12.0	B	12.0
3. 132nd Street SE / 25th Ave SE	A	6.2	A	6.3	A	6.3
Two-Way Stop Controlled:						
2. 132nd Street SE / 23rd Lane SE						
Westbound Left (entering)	A	7.9	A	8.0	A	8.0
Northbound Left-Right (exiting)	B	11.4	B	11.4	B	11.7
PM PEAK HOUR						
Signalized:						
1. 132nd Street SE / 21st Drive SE	B	16.6	B	17.2	B	17.2
3. 132nd Street SE / 25th Ave SE	A	5.5	A	5.7	A	5.7
Two-Way Stop Controlled:						
2. 132nd Street SE / 23rd Lane SE						
Westbound Left (entering)	A	0.0	A	0.0	B	12.5
Northbound Left-Right (exiting)	C	15.6	C	16.3	C	20.3

1. LOS = Level of Service
2. Delay refers to average control delay expressed in seconds per vehicle.

As shown in Table 6, the signalized study intersections currently operate at LOS B or better during the weekday AM and PM peak hours and are anticipated to continue to operate at LOS B or better in 2021 without or with the proposed project.

Access to the site would be provided via the existing intersection of 132nd Street SE/23rd Lane SE which currently provides access to the existing Crestview Village residential development. As shown in Table 6, all movements at the unsignalized site access at 132nd Street SE/23rd Lane SE currently operate at LOS C or better and are expected to continue to operate at LOS C or better during the weekday AM and PM peak hours in 2021 without or with the proposed Crestview Village II project.

Queue Analysis on 132nd Street SE

Detailed weekday AM and PM peak hour LOS and queuing analyses were conducted at the 132nd Street SE (SR 96) signalized study intersections at 21st Dr SE and 25th Ave SE to ensure that queues on 132nd Street SE do not inhibit access to the Crestview Village II site via the existing 23rd Lane SE. The existing 23rd Lane SE is located approximately 525 feet east of the 21st Dr SE signal, and approximately 525 feet west of the 25th Ave SE signal. The queuing analysis was conducted using both *Synchro 10* and *SimTraffic 10*. A summary of the analysis is provided in Attachment D along with the detailed queue worksheets from *Synchro* and *SimTraffic*.

As also shown in **Attachment D**, during the weekday AM and PM peak hours, the 95th percentile queues for the westbound approach on 132nd Street SE at 21st Drive SE are estimated to be 125 to 250 feet with the project in 2021. As also shown in **Attachment D**, the 95th percentile queues for the eastbound approach on 132nd Street SE at 25th Ave SE are estimated to be 25 to 150 feet with the project in 2021 during the weekday AM and PM peak hours.

Therefore, the 95th percentile queues on 132nd Street SE from the traffic signals at 21st Drive SE and 25th Ave SE would not inhibit or block turns into or out of the access to Crestview Village II at 23rd Lane SE.

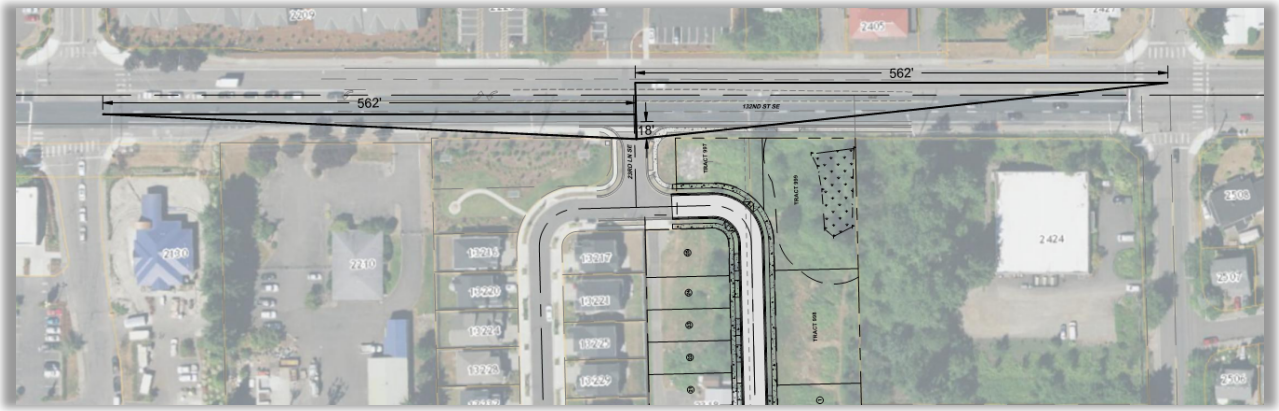
Sight Distance Assessment at Proposed Site Access

Intersection sight distance (ISD), also called entering sight distance was evaluated at the location of the proposed site access at the existing intersection of 132nd Street SE/23rd Lane SE.

The City of Mill Creek uses WSDOT sight distance standards. WSDOT's current best practices related to sight distance are to use a design speed equal to the posted speed/desired operating (target) speed. WSDOT found that vehicles tend to travel at the rate in which the roadway was designed to which led to their current policy. WSDOT has concluded that adding an additional margin above the posted speed (such as +5mph or +10mph) can lead to increased operating speeds which is undesirable. Therefore, WSDOT current practice uses a design speed equal to the posted speed for designing roadway elements such as sight distance, horizontal/vertical geometry, etc. Based on the existing 45 mph posted speed limit on 132nd Street SE, a design speed of 45 mph was used in this sight distance analyses.

Intersection Sight Distance (ISD)

ISD measurements at 132nd Street SE/23rd Lane SE were based on the Washington State Department of Transportation (WSDOT) *Design Manual* Chapter 1310.04 Intersection Sight Distance (dated September 2019). The setback distance from the intersection sight distance sight triangle is 18 feet from the edge of traveled way, 3.5 feet above the road surface, looking at an object 3.5 feet above the road surface.



Sight Distance Triangles at 132nd Street SE / 23rd Lane SE

Based on a 45 mph design speed on 132nd Street SE, the desirable ISD for left-turning turning vehicles is 562 feet and the desirable ISD for right-turning vehicles is 430 feet. At the proposed site access at the

intersection of 132nd Street SE/23rd Lane SE, the available ISD looking to the east and west on 132nd Street SE was verified to exceed the recommended design values, therefore meeting City standards. This assumes existing vegetation in the sight triangles will be cleared and no sight obstructions will be placed in the sight triangles with the proposed project. A detailed sight distance exhibit is included in **Attachment E**.

Transportation Mitigation

City of Mill Creek

The Crestview Village II development is required to contribute a mitigation payment for its impacts to City transportation facilities. Impact fees are based on a fee rate per net new weekday PM peak hour trips generated by the development. Per the *City of Mill Creek Ordinance 2018-838*, the current traffic impact fee is $3,900 per net new PM peak hour trip. The development is estimated to generate 25 net new PM peak hour trips, which results in an estimated traffic impact fee of **$97,500**.

Snohomish County

The City of Mill Creek and Snohomish County have adopted an interlocal agreement (ILA) whereby developments in Mill Creek must assess potential mitigation for impacts on Snohomish County roadway facilities. Mitigation fees to Snohomish County are based on the use of a standard distribution percentage of project trips impacting county roads or on a comprehensive traffic study. Exhibit 2 of the ILA (Snohomish County Traffic Worksheet and Traffic Study Requirements for City Developments Impacting County Roads) is included as **Attachment E**. As shown in **Attachment E** (and also based on **Figure 4** and **Figure 5** of this comprehensive traffic study), the proposed Crestview Village II project will not impact any Snohomish County planned improvement projects identified in the County's Transportation Needs Report with three directional PM peak hour trips. As a result, the project applicant is not required to pay proportionate share impact fees to Snohomish County. Snohomish County's Traffic Mitigation Offer Form is also included in **Attachment F**.

If you have any questions regarding the information presented in this traffic assessment, please contact me at amy@tenw.com or (425) 466-7072.

cc: Robert Fitzmaurice, Taylor Development
Jeff Schramm, TENW

Attachments:
A. Trip Generation Calculations
B. Traffic Counts
C. LOS Methodology and Reports
D. Synchro and SimTraffic Queue Reports
E. Sight Distance Exhibit
F. Snohomish County Traffic Worksheet and Mitigation Offer

ATTACHMENT A

Trip Generation Calculations

Crestview Village II (25 lots)
Trip Generation Summary

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate	Trips Generated In	Trips Generated Out	Trips Generated Total
Daily								
Proposed Use:								
Single-Family Homes	25 DU	210	50%	50%	EQN	145	145	290
Less Existing Use:								
Single-Family Homes	2 DU	210	50%	50%	9.44	-10	-9	-19
					Net New Daily Trips =	**135**	**136**	**271**
AM Peak Hour								
Proposed Use:								
Single-Family Homes	25 DU	210	25%	75%	EQN	6	17	23
Less Existing Use:								
Single-Family Homes	2 DU	210	25%	75%	0.74	0	-1	-1
					Net New AM Peak Hour Trips =	**6**	**16**	**22**
PM Peak Hour								
Proposed Use:								
Single-Family Homes	25 DU	210	63%	37%	EQN	17	10	27
Less Existing Use:								
Single-Family Homes	2 DU	210	63%	37%	0.99	-1	-1	-2
					Net New PM Peak Hour Trips =	**16**	**9**	**25**

Notes:

[1] DU = Dwelling Units.

[2] Institute of Transportation Engineers, *Trip Generation* Manual (10th edition) Land Use Code.

ATTACHMENT B

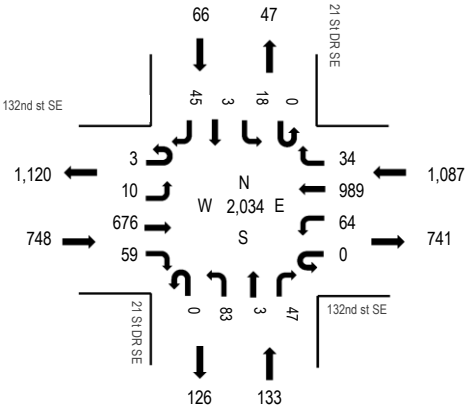
Traffic Counts

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

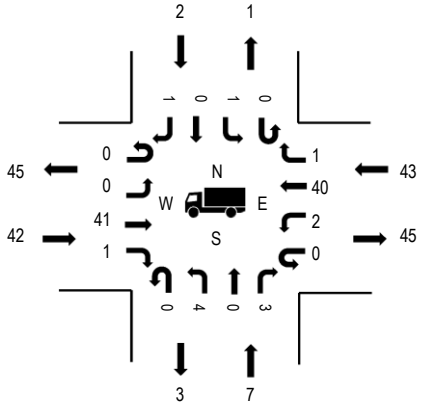
Location: 1 21 St DR SE & 132nd st SE AM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 08:00 AM - 09:00 AM

Peak Hour

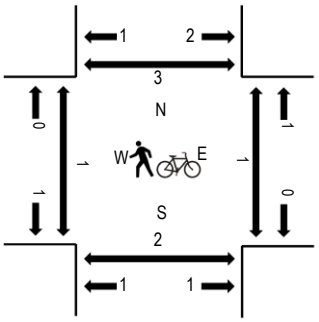
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	5.6%	0.86
WB	4.0%	0.86
NB	5.3%	0.85
SB	3.0%	0.83
All	4.6%	0.88

Traffic Counts - All Vehicles

Interval Start Time	132nd st SE Eastbound				132nd st SE Westbound				21 St DR SE Northbound				21 St DR SE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	2	119	9	0	13	219	5	0	17	0	3	1	3	1	11	403	1,827
7:15 AM	0	4	123	6	0	17	259	0	0	22	0	9	0	1	1	11	453	1,871
7:30 AM	0	3	126	14	1	15	267	6	0	25	0	9	0	3	0	8	477	1,920
7:45 AM	0	2	137	4	0	13	290	5	0	27	0	6	0	6	1	3	494	2,019
8:00 AM	2	1	130	15	0	17	228	11	0	19	1	11	0	1	1	10	447	2,034
8:15 AM	0	4	166	9	0	13	245	12	0	18	0	15	0	7	0	13	502	
8:30 AM	0	3	196	18	0	23	283	9	0	20	1	9	0	4	0	10	576	
8:45 AM	1	2	184	17	0	11	233	2	0	26	1	12	0	6	2	12	509	
Count Total	3	21	1,181	92	1	122	2,024	50	0	174	3	74	1	31	6	78	3,861	
Peak Hour	3	10	676	59	0	64	989	34	0	83	3	47	0	18	3	45	2,034	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

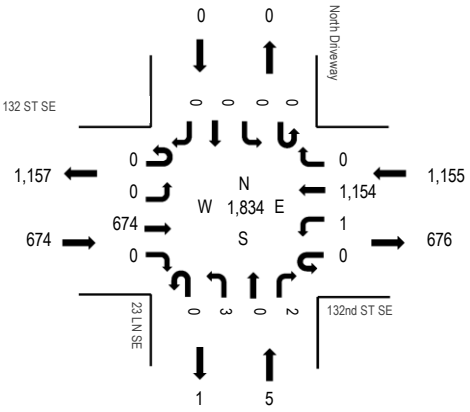
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	6	0	5	0	11	7:00 AM	1	1	1	0	3
7:15 AM	6	2	5	0	13	7:15 AM	0	0	1	0	1
7:30 AM	10	0	4	2	16	7:30 AM	0	1	1	0	2
7:45 AM	5	1	9	0	15	7:45 AM	0	1	1	0	2
8:00 AM	13	0	9	1	23	8:00 AM	0	0	0	1	1
8:15 AM	12	5	11	0	28	8:15 AM	0	1	1	2	4
8:30 AM	9	1	10	0	20	8:30 AM	1	1	0	0	2
8:45 AM	8	1	13	1	23	8:45 AM	0	0	0	0	0
Count Total	69	10	66	4	149	Count Total	2	5	5	3	15
Peak Hour	42	7	43	2	94	Peak Hour	1	2	1	3	7

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

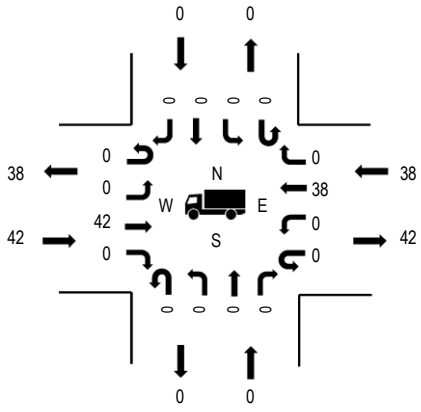
Location: 2 23 LN SE & 132nd ST SE AM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 07:45 AM - 08:45 AM

Peak Hour

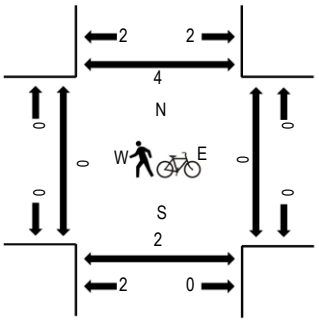
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	6.2%	0.84
WB	3.3%	0.93
NB	0.0%	0.42
SB	0.0%	0.00
All	4.4%	0.92

Traffic Counts - All Vehicles

Interval Start Time	132 ST SE Eastbound				132nd ST SE Westbound				23 LN SE Northbound				North Driveway Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	119	1	0	2	247	0	0	4	0	0	0	0	0	0	373	1,673
7:15 AM	1	0	127	0	0	0	282	0	0	2	0	0	0	0	0	0	412	1,712
7:30 AM	0	0	132	0	0	1	293	0	0	2	0	1	0	0	0	0	429	1,763
7:45 AM	0	0	146	0	0	0	312	0	0	1	0	0	0	0	0	0	459	1,834
8:00 AM	0	0	141	0	0	1	267	0	0	1	0	2	0	0	0	0	412	1,831
8:15 AM	0	0	186	0	0	0	277	0	0	0	0	0	0	0	0	0	463	
8:30 AM	0	0	201	0	0	0	298	0	0	1	0	0	0	0	0	0	500	
8:45 AM	0	0	199	0	0	0	253	0	0	2	0	2	0	0	0	0	456	
Count Total	1	0	1,251	1	0	4	2,229	0	0	13	0	5	0	0	0	0	3,504	
Peak Hour	0	0	674	0	0	1	1,154	0	0	3	0	2	0	0	0	0	1,834	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	7	0	5	0	12	7:00 AM	0	0	0	0	0
7:15 AM	6	0	7	0	13	7:15 AM	0	2	0	1	3
7:30 AM	11	0	8	0	19	7:30 AM	0	0	0	1	1
7:45 AM	5	0	10	0	15	7:45 AM	0	1	0	1	2
8:00 AM	14	0	9	0	23	8:00 AM	0	0	0	1	1
8:15 AM	16	0	10	0	26	8:15 AM	0	1	0	2	3
8:30 AM	7	0	9	0	16	8:30 AM	0	0	0	0	0
8:45 AM	7	0	12	0	19	8:45 AM	0	0	0	0	0
Count Total	73	0	70	0	143	Count Total	0	4	0	6	10
Peak Hour	42	0	38	0	80	Peak Hour	0	2	0	4	6

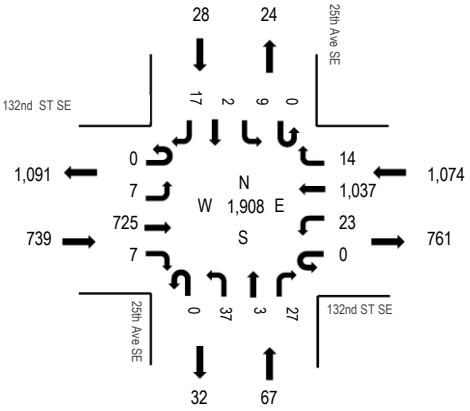
All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

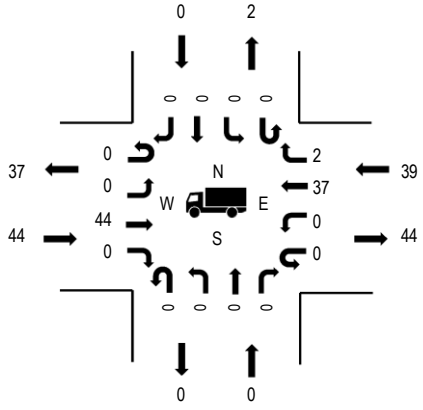
Location: 3 25th Ave SE & 132nd ST SE AM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 08:00 AM - 09:00 AM

Peak Hour

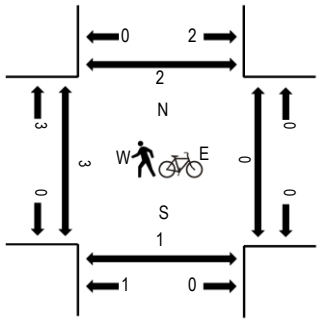
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	6.0%	0.88
WB	3.6%	0.93
NB	0.0%	0.70
SB	0.0%	0.78
All	4.4%	0.91

Traffic Counts - All Vehicles

Interval Start Time	132nd ST SE Eastbound				132nd ST SE Westbound				25th Ave SE Northbound				25th Ave SE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	2	117	4	0	1	241	0	0	12	0	4	0	0	0	2	383	1,674
7:15 AM	0	2	129	0	0	3	250	0	0	8	2	1	0	1	0	5	401	1,716
7:30 AM	0	1	132	2	0	2	255	0	0	18	1	3	0	3	0	5	422	1,790
7:45 AM	0	1	142	5	0	4	284	5	0	11	0	9	0	2	0	5	468	1,894
8:00 AM	0	1	139	2	0	7	250	4	0	13	2	2	0	1	0	4	425	1,908
8:15 AM	0	2	183	1	0	2	266	5	0	5	0	2	0	4	0	5	475	
8:30 AM	0	2	206	1	0	7	280	2	0	11	1	7	0	2	0	7	526	
8:45 AM	0	2	197	3	0	7	241	3	0	8	0	16	0	2	2	1	482	
Count Total	0	13	1,245	18	0	33	2,067	19	0	86	6	44	0	15	2	34	3,582	
Peak Hour	0	7	725	7	0	23	1,037	14	0	37	3	27	0	9	2	17	1,908	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

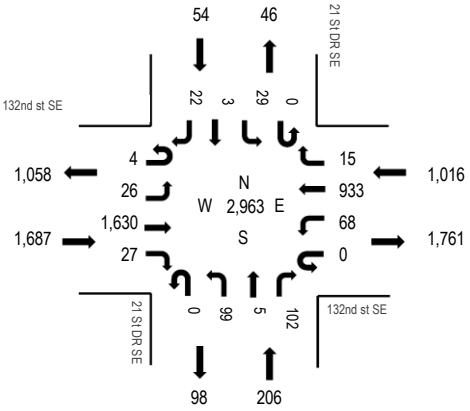
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	7	0	6	0	13	7:00 AM	1	0	0	1	2
7:15 AM	6	0	8	0	14	7:15 AM	0	1	0	0	1
7:30 AM	9	0	8	0	17	7:30 AM	1	0	1	2	4
7:45 AM	6	0	11	0	17	7:45 AM	2	2	0	0	4
8:00 AM	13	0	7	0	20	8:00 AM	2	1	0	0	3
8:15 AM	15	0	11	0	26	8:15 AM	1	0	0	2	3
8:30 AM	7	0	9	0	16	8:30 AM	0	0	0	0	0
8:45 AM	9	0	12	0	21	8:45 AM	0	0	0	0	0
Count Total	72	0	72	0	144	Count Total	7	4	1	5	17
Peak Hour	44	0	39	0	83	Peak Hour	3	1	0	2	6

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

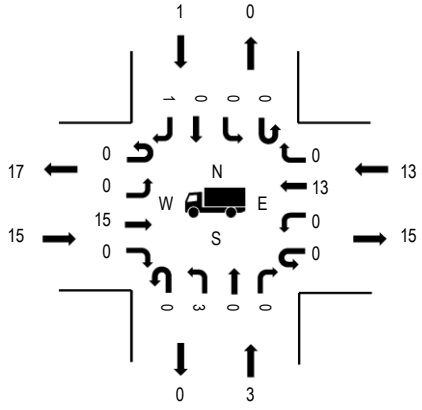
Location: 1 21 St DR SE & 132nd st SE PM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 05:00 PM - 06:00 PM

Peak Hour

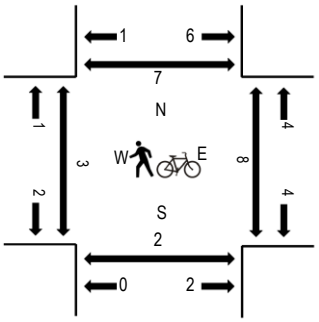
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.9%	0.95
WB	1.3%	0.93
NB	1.5%	0.76
SB	1.9%	0.56
All	1.1%	0.97

Traffic Counts - All Vehicles

Interval Start Time	132nd st SE Eastbound				132nd st SE Westbound				21 St DR SE Northbound				21 St DR SE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	13	387	8	0	17	224	7	0	25	2	18	0	6	0	7	714	2,779
4:15 PM	2	6	356	6	0	9	240	5	0	26	0	20	0	13	3	8	694	2,828
4:30 PM	3	9	335	9	0	17	224	2	0	28	0	22	0	15	0	10	674	2,873
4:45 PM	0	6	378	5	0	19	225	2	0	23	2	17	0	13	0	7	697	2,928
5:00 PM	0	4	415	9	0	12	240	6	0	34	1	33	0	6	0	3	763	2,963
5:15 PM	1	6	429	6	0	19	218	4	0	24	0	20	0	4	1	7	739	
5:30 PM	2	7	388	8	0	17	223	5	0	23	3	29	0	13	2	9	729	
5:45 PM	1	9	398	4	0	20	252	0	0	18	1	20	0	6	0	3	732	
Count Total	9	60	3,086	55	0	130	1,846	31	0	201	9	179	0	76	6	54	5,742	
Peak Hour	4	26	1,630	27	0	68	933	15	0	99	5	102	0	29	3	22	2,963	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	7	0	3	0	10	4:00 PM	0	1	1	3	5
4:15 PM	4	0	4	0	8	4:15 PM	4	0	2	0	6
4:30 PM	7	0	5	0	12	4:30 PM	0	1	3	0	4
4:45 PM	7	1	2	0	10	4:45 PM	0	0	2	1	3
5:00 PM	4	1	3	0	8	5:00 PM	1	1	0	0	2
5:15 PM	5	1	4	0	10	5:15 PM	1	1	3	2	7
5:30 PM	3	1	3	1	8	5:30 PM	1	0	2	1	4
5:45 PM	3	0	3	0	6	5:45 PM	0	0	3	4	7
Count Total	40	4	27	1	72	Count Total	7	4	16	11	38
Peak Hour	15	3	13	1	32	Peak Hour	3	2	8	7	20

All Traffic Data Services Inc.
(303) 216-2439
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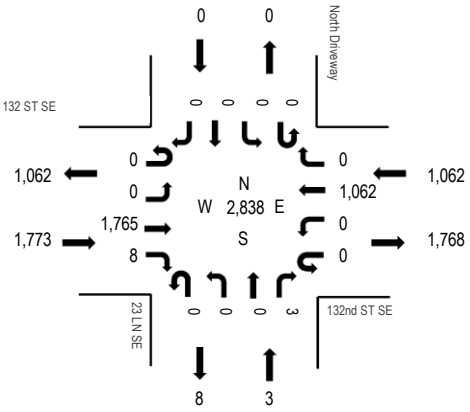
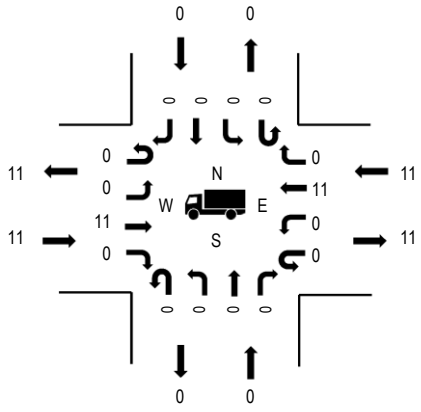
Location: 2 23 LN SE & 132nd ST SE PM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 05:00 PM - 06:00 PM

Peak Hour

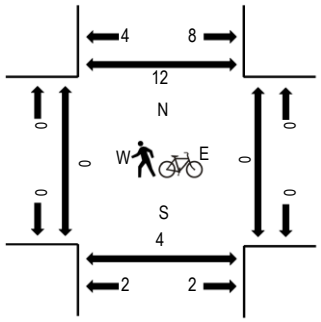
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.6%	0.97
WB	1.0%	0.94
NB	0.0%	0.38
SB	0.0%	0.00
All	0.8%	0.99

Traffic Counts - All Vehicles

Interval Start Time	132 ST SE Eastbound				132nd ST SE Westbound				23 LN SE Northbound				North Driveway Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	412	1	0	0	256	0	0	0	0	0	0	0	0	0	669	2,608
4:15 PM	0	0	383	2	0	0	259	0	0	1	0	0	0	0	0	0	645	2,659
4:30 PM	0	0	370	1	0	1	256	0	0	0	0	0	0	0	0	0	628	2,726
4:45 PM	0	0	408	3	0	1	252	0	0	0	0	2	0	0	0	0	666	2,795
5:00 PM	0	0	452	3	0	0	265	0	0	0	0	0	0	0	0	0	720	2,838
5:15 PM	0	0	457	1	0	0	254	0	0	0	0	0	0	0	0	0	712	
5:30 PM	0	0	434	1	0	0	261	0	0	0	0	1	0	0	0	0	697	
5:45 PM	0	0	422	3	0	0	282	0	0	0	0	2	0	0	0	0	709	
Count Total	0	0	3,338	15	0	2	2,085	0	0	1	0	5	0	0	0	0	5,446	
Peak Hour	0	0	1,765	8	0	0	1,062	0	0	0	0	3	0	0	0	0	2,838	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

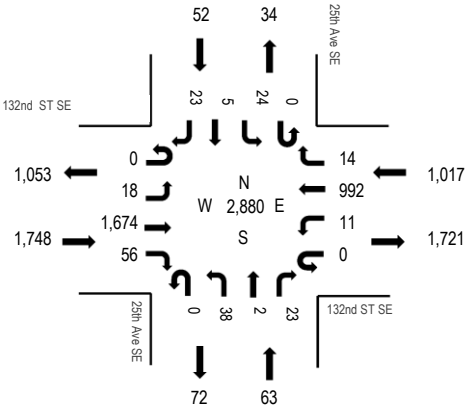
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	7	0	5	0	12	4:00 PM	0	1	0	0	1
4:15 PM	5	0	5	0	10	4:15 PM	0	0	0	0	0
4:30 PM	9	0	5	0	14	4:30 PM	0	0	0	0	0
4:45 PM	7	0	2	0	9	4:45 PM	0	1	0	1	2
5:00 PM	3	0	2	0	5	5:00 PM	0	1	0	0	1
5:15 PM	3	0	3	0	6	5:15 PM	0	3	0	5	8
5:30 PM	2	0	3	0	5	5:30 PM	0	0	0	1	1
5:45 PM	3	0	3	0	6	5:45 PM	0	0	0	6	6
Count Total	39	0	28	0	67	Count Total	0	6	0	13	19
Peak Hour	11	0	11	0	22	Peak Hour	0	4	0	12	16

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

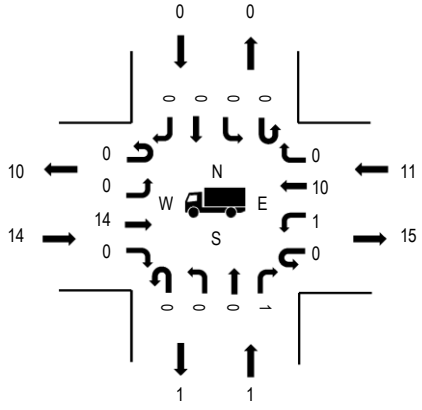
Location: 3 25th Ave SE & 132nd ST SE PM
Date and Start Time: Thursday, July 11, 2019
Peak Hour: 05:00 PM - 06:00 PM

Peak Hour

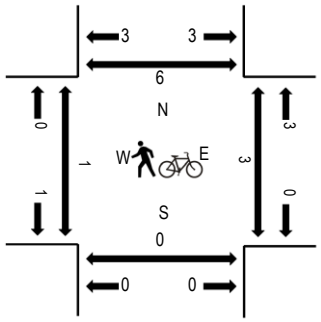
All Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.8%	0.97
WB	1.1%	0.93
NB	1.6%	0.88
SB	0.0%	0.72
All	0.9%	0.98

Traffic Counts - All Vehicles

Interval Start Time	132nd ST SE Eastbound				132nd ST SE Westbound				25th Ave SE Northbound				25th Ave SE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	400	10	0	1	239	1	0	8	0	5	0	5	1	4	676	2,673
4:15 PM	0	6	361	13	0	7	239	3	0	14	2	1	0	1	1	5	653	2,728
4:30 PM	0	3	355	9	0	12	237	2	0	8	2	12	0	2	2	4	648	2,797
4:45 PM	0	5	399	6	0	5	233	4	0	16	0	14	0	8	1	5	696	2,853
5:00 PM	0	7	424	20	0	2	241	3	0	8	0	8	0	10	0	8	731	2,880
5:15 PM	0	1	445	6	0	2	237	6	0	7	1	4	0	6	1	6	722	
5:30 PM	0	3	410	13	0	3	247	2	0	11	0	6	0	5	2	2	704	
5:45 PM	0	7	395	17	0	4	267	3	0	12	1	5	0	3	2	7	723	
Count Total	0	34	3,189	94	0	36	1,940	24	0	84	6	55	0	40	10	41	5,553	
Peak Hour	0	18	1,674	56	0	11	992	14	0	38	2	23	0	24	5	23	2,880	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	0	4	2	12	4:00 PM	0	1	1	1	3
4:15 PM	5	1	4	0	10	4:15 PM	0	0	1	1	2
4:30 PM	9	0	5	0	14	4:30 PM	0	0	0	1	1
4:45 PM	7	0	2	0	9	4:45 PM	0	0	1	0	1
5:00 PM	4	0	3	0	7	5:00 PM	0	0	0	1	1
5:15 PM	4	1	3	0	8	5:15 PM	0	0	2	1	3
5:30 PM	3	0	2	0	5	5:30 PM	1	0	0	3	4
5:45 PM	3	0	3	0	6	5:45 PM	0	0	1	1	2
Count Total	41	2	26	2	71	Count Total	1	1	6	9	17
Peak Hour	14	1	11	0	26	Peak Hour	1	0	3	6	10

ATTACHMENT C

LOS Methodology and Reports

Level of Service Methodology

Level of service calculations for intersections were based on methodology and procedures outlined in the current (6th Edition) *Highway Capacity Manual*, Transportation Research Board, using *Synchro 10* traffic analysis software.

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table C1 outlines the current HCM (6th Edition) LOS criteria for signalized and stop-controlled intersections based on these methodologies.

Table C1
LOS Criteria for Signalized and Stop Controlled Intersections[1]

SIGNALIZED INTERSECTIONS			UNSIGNALIZED INTERSECTIONS		
	LOS by Volume-to Capacity (V/C) Ratio[2]			LOS by Volume-to Capacity (V/C) Ratio[3]	
Control Delay (sec/veh)	≤ 1.0	> 1.0	Control Delay (sec/veh)	≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

1 Source: Highway Capacity Manual (HCM), Transportation Research Board, 6th Edition, 2016.

2 For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.

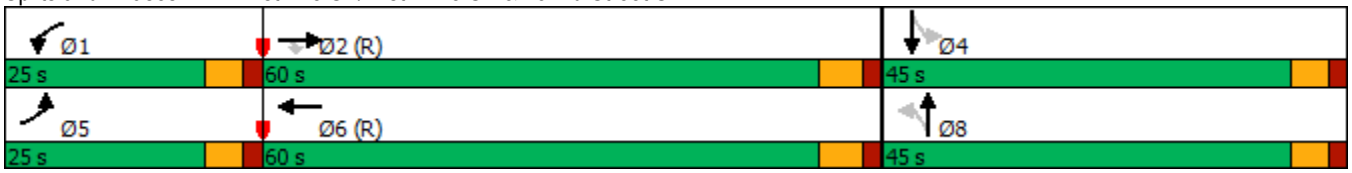
3 For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections, LOS is solely defined by control delay.

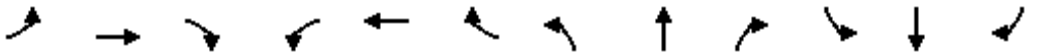
2019 Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	676	59	64	989	34	83	3	47	18	3	45
Future Volume (vph)	13	676	59	64	989	34	83	3	47	18	3	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			294	
Travel Time (s)		5.3			8.1			5.6			8.0	
Confl. Peds. (#/hr)			2			3	1		1	1		1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	6%	2%	3%	4%	3%	5%	0%	6%	6%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	60.0	60.0	25.0	60.0		45.0	45.0		45.0	45.0	
Total Split (%)	19.2%	46.2%	46.2%	19.2%	46.2%		34.6%	34.6%		34.6%	34.6%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	676	59	64	989	34	83	3	47	18	3	45
Future Volume (veh/h)	13	676	59	64	989	34	83	3	47	18	3	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1811	1870	1856	1841	1841	1826	1900	1900	1811	1900	1900
Adj Flow Rate, veh/h	15	768	67	73	1124	39	94	3	53	20	3	51
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	6	2	3	4	4	5	0	0	6	0	0
Cap, veh/h	18	2372	1091	92	2523	88	179	11	190	176	11	190
Arrive On Green	0.01	0.69	0.69	0.10	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1810	3441	1583	1767	3448	120	1315	87	1533	1302	90	1530
Grp Volume(v), veh/h	15	768	67	73	570	593	94	0	56	20	0	54
Grp Sat Flow(s),veh/h/ln	1810	1721	1583	1767	1749	1819	1315	0	1620	1302	0	1620
Q Serve(g_s), s	1.1	11.6	1.8	5.2	0.0	0.0	9.1	0.0	4.1	1.8	0.0	3.9
Cycle Q Clear(g_c), s	1.1	11.6	1.8	5.2	0.0	0.0	13.0	0.0	4.1	5.9	0.0	3.9
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	18	2372	1091	92	1279	1331	179	0	201	176	0	201
V/C Ratio(X)	0.84	0.32	0.06	0.79	0.45	0.45	0.53	0.00	0.28	0.11	0.00	0.27
Avail Cap(c_a), veh/h	270	2372	1091	264	1279	1331	414	0	491	409	0	491
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.2	8.1	6.6	57.5	0.0	0.0	57.5	0.0	51.7	54.4	0.0	51.6
Incr Delay (d2), s/veh	49.1	0.4	0.1	10.6	1.1	1.1	2.4	0.0	0.7	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.9	0.6	2.5	0.4	0.4	3.2	0.0	1.7	0.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.4	8.4	6.7	68.1	1.1	1.1	59.9	0.0	52.4	54.7	0.0	52.3
LnGrp LOS	F	A	A	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		850			1236			150			74	
Approach Delay, s/veh		10.2			5.1			57.1			53.0	
Approach LOS		B			A			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.4	95.9		21.7	6.9	101.4		21.7				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	53.7		39.4	19.4	53.7		39.4				
Max Q Clear Time (g_c+I1), s	7.2	13.6		7.9	3.1	2.0		15.0				
Green Ext Time (p_c), s	0.1	8.7		0.4	0.0	14.3		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		11.8	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	674	0	1	1154	3	2
Future Volume (vph)	674	0	1	1154	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	188	
Travel Time (s)	8.1			9.3	5.1	
Confl. Peds. (#/hr)		2	2		2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	674	0	1	1154	3	2
Future Vol, veh/h	674	0	1	1154	3	2
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	3	0	0
Mvmt Flow	733	0	1	1254	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	735	0	1366	371
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	631	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1232	-	*404	*824
Stage 1	-	-	-	-	*773	-
Stage 2	-	-	-	-	*576	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1230	-	*402	*821
Mov Cap-2 Maneuver	-	-	-	-	*474	-
Stage 1	-	-	-	-	*771	-
Stage 2	-	-	-	-	*574	-

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

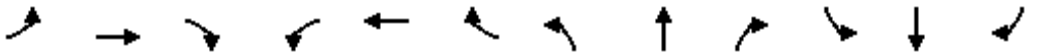
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	570	-	-	1230	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Control Delay (s)	11.4	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	725	7	23	1037	14	37	3	27	9	2	17
Future Volume (vph)	7	725	7	23	1037	14	37	3	27	9	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	2		1	1		2	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	6%	0%	0%	4%	14%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	25.0	65.0		25.0	65.0		40.0	40.0		40.0	40.0	
Total Split (%)	19.2%	50.0%		19.2%	50.0%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	725	7	23	1037	14	37	3	27	9	2	17
Future Volume (veh/h)	7	725	7	23	1037	14	37	3	27	9	2	17
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	0.99		0.99	0.99		0.99
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	1900	1811	1811	1900	1841	1841	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	797	8	25	1140	15	41	3	30	10	2	19
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	6	6	0	4	4	0	0	0	0	0	0
Cap, veh/h	400	2696	27	611	2759	36	100	16	50	64	24	81
Arrive On Green	0.01	1.00	1.00	0.01	0.78	0.78	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1810	3490	35	1810	3534	47	726	198	630	343	301	1019
Grp Volume(v), veh/h	8	393	412	25	564	591	74	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1805	1810	1749	1832	1553	0	0	1662	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.4	13.6	13.6	3.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.4	13.6	13.6	5.8	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.03	0.55		0.41	0.32		0.61
Lane Grp Cap(c), veh/h	400	1329	1394	611	1365	1430	166	0	0	168	0	0
V/C Ratio(X)	0.02	0.30	0.30	0.04	0.41	0.41	0.45	0.00	0.00	0.18	0.00	0.00
Avail Cap(c_a), veh/h	659	1329	1394	856	1365	1430	442	0	0	453	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.8	0.0	0.0	3.0	4.6	4.6	57.7	0.0	0.0	56.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.5	0.0	0.9	0.9	1.9	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.1	4.0	4.2	2.5	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.8	0.6	0.5	3.0	5.5	5.5	59.5	0.0	0.0	56.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		813			1180			74			31	
Approach Delay, s/veh		0.6			5.5			59.5			56.7	
Approach LOS		A			A			E			E	

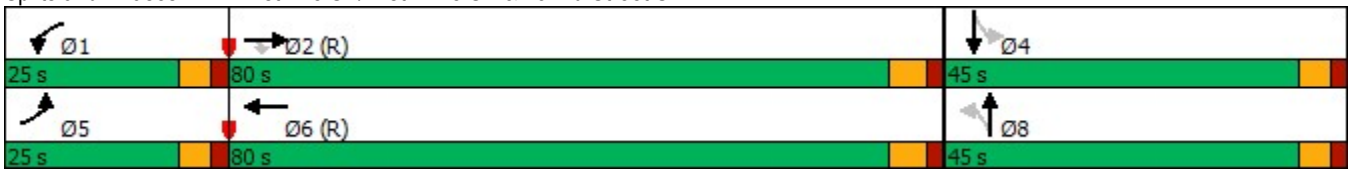
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	106.7		15.9	6.4	107.8		15.9				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	58.7		34.4	19.4	58.7		34.4				
Max Q Clear Time (g_c+I1), s	2.4	2.0		4.2	2.1	15.6		7.8				
Green Ext Time (p_c), s	0.0	10.0		0.1	0.0	16.2		0.4				

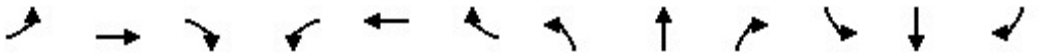
Intersection Summary			
HCM 6th Ctrl Delay		6.2	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1630	27	68	933	15	99	5	102	29	3	22
Future Volume (vph)	30	1630	27	68	933	15	99	5	102	29	3	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			272	
Travel Time (s)		5.3			8.1			5.6			7.4	
Confl. Peds. (#/hr)			2			7	3		8	8		3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	3%	0%	0%	0%	0%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	80.0	80.0	25.0	80.0		45.0	45.0		45.0	45.0	
Total Split (%)	16.7%	53.3%	53.3%	16.7%	53.3%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 25 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1630	27	68	933	15	99	5	102	29	3	22
Future Volume (veh/h)	30	1630	27	68	933	15	99	5	102	29	3	22
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	0.98		0.98	0.99		0.98
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	1900	1885	1900	1900	1885	1885	1856	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	31	1680	28	70	962	15	102	5	105	30	3	23
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	1	3	0	0	0	0	0
Cap, veh/h	40	2486	1116	88	2601	41	219	10	214	147	26	201
Arrive On Green	0.02	0.69	0.69	0.10	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3582	1608	1810	3609	56	1352	72	1522	1289	186	1428
Grp Volume(v), veh/h	31	1680	28	70	477	500	102	0	110	30	0	26
Grp Sat Flow(s),veh/h/ln	1810	1791	1608	1810	1791	1875	1352	0	1595	1289	0	1614
Q Serve(g_s), s	2.6	40.5	0.8	5.7	0.0	0.0	10.7	0.0	9.6	3.3	0.0	2.1
Cycle Q Clear(g_c), s	2.6	40.5	0.8	5.7	0.0	0.0	12.8	0.0	9.6	12.9	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.95	1.00		0.88
Lane Grp Cap(c), veh/h	40	2486	1116	88	1291	1351	219	0	224	147	0	227
V/C Ratio(X)	0.77	0.68	0.03	0.79	0.37	0.37	0.47	0.00	0.49	0.20	0.00	0.11
Avail Cap(c_a), veh/h	234	2486	1116	234	1291	1351	384	0	419	304	0	424
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.0	13.2	7.1	66.9	0.0	0.0	61.9	0.0	59.5	65.4	0.0	56.3
Incr Delay (d2), s/veh	20.5	1.5	0.0	11.1	0.8	0.8	1.5	0.0	1.7	0.7	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(50%),veh/ln	1.4	15.0	0.3	2.8	0.3	0.3	3.8	0.0	4.0	1.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.5	14.7	7.2	78.1	0.8	0.8	63.4	0.0	61.2	66.1	0.0	56.5
LnGrp LOS	F	B	A	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1739			1047			212			56	
Approach Delay, s/veh		16.0			6.0			62.3			61.7	
Approach LOS		B			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	110.4		26.7	8.9	114.4		26.7				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	73.7		39.4	19.4	73.7		39.4				
Max Q Clear Time (g_c+I1), s	7.7	42.5		14.9	4.6	2.0		14.8				
Green Ext Time (p_c), s	0.1	20.9		0.2	0.0	11.0		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		16.6	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1765	8	0	1062	0	3
Future Volume (vph)	1765	8	0	1062	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	195	
Travel Time (s)	8.1			9.3	5.3	
Confl. Peds. (#/hr)		4	4		4	4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1765	8	0	1062	0	3
Future Vol, veh/h	1765	8	0	1062	0	3
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1783	8	0	1073	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1795	0	2332	904
Stage 1	-	-	-	-	1791	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	*519	-	*62	*346
Stage 1	-	-	-	-	*326	-
Stage 2	-	-	-	-	*616	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	*517	-	*62	*343
Mov Cap-2 Maneuver	-	-	-	-	*219	-
Stage 1	-	-	-	-	*325	-
Stage 2	-	-	-	-	*615	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.6
HCM LOS			C

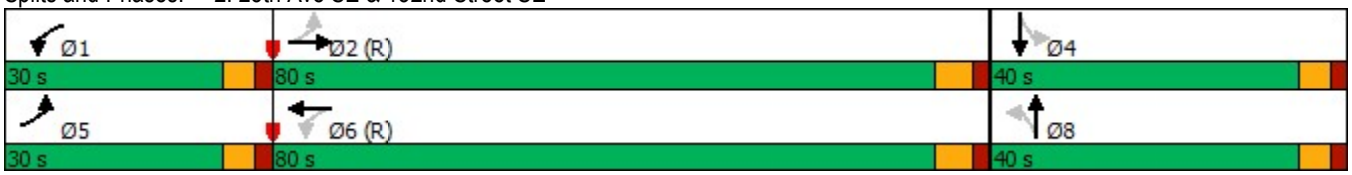
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	343	-	-	* 517	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	15.6	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

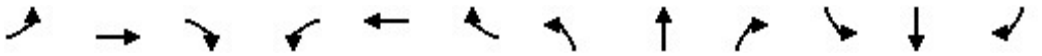
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	1674	56	11	992	14	38	2	23	24	5	23
Future Volume (vph)	18	1674	56	11	992	14	38	2	23	24	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	6					6	1		3	3		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	0%	9%	1%	0%	0%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	30.0	80.0		30.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	20.0%	53.3%		20.0%	53.3%		26.7%	26.7%		26.7%	26.7%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 55 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1674	56	11	992	14	38	2	23	24	5	23
Future Volume (veh/h)	18	1674	56	11	992	14	38	2	23	24	5	23
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	0.99		0.99	0.99		0.99
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	1900	1885	1885	1767	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	18	1708	57	11	1012	14	39	2	23	24	5	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	9	1	1	0	0	0	0	0	0
Cap, veh/h	474	2856	95	266	2909	40	97	12	40	76	23	50
Arrive On Green	0.02	1.00	1.00	0.01	0.80	0.80	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1810	3537	118	1682	3617	50	855	176	578	594	336	737
Grp Volume(v), veh/h	18	862	903	11	501	525	64	0	0	52	0	0
Grp Sat Flow(s),veh/h/ln	1810	1791	1863	1682	1791	1876	1609	0	0	1667	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.2	11.4	11.4	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.2	11.4	11.4	5.3	0.0	0.0	4.2	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.03	0.61		0.36	0.46		0.44
Lane Grp Cap(c), veh/h	474	1446	1505	266	1440	1509	149	0	0	149	0	0
V/C Ratio(X)	0.04	0.60	0.60	0.04	0.35	0.35	0.43	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	749	1446	1505	527	1440	1509	385	0	0	393	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.0	0.0	0.0	2.7	4.0	4.0	67.5	0.0	0.0	67.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	1.8	0.0	0.7	0.6	2.0	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.1	3.5	3.6	2.5	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.0	1.8	1.8	2.7	4.7	4.6	69.4	0.0	0.0	68.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1783			1037			64			52	
Approach Delay, s/veh		1.8			4.6			69.4			68.4	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	127.4		15.9	7.2	126.9		15.9				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	24.4	73.7		34.4	24.4	73.7		34.4				
Max Q Clear Time (g_c+I1), s	2.2	2.0		6.2	2.3	13.4		7.3				
Green Ext Time (p_c), s	0.0	41.8		0.2	0.0	14.5		0.3				

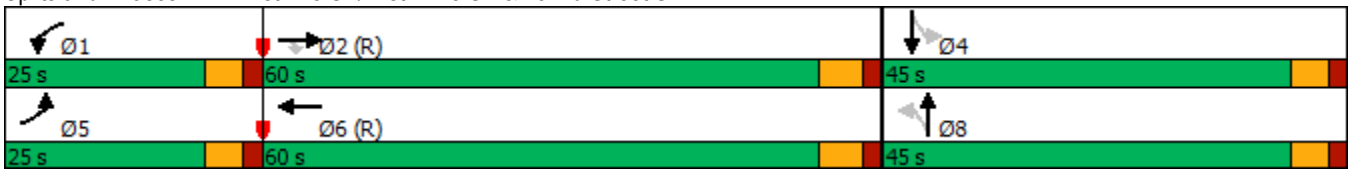
Intersection Summary			
HCM 6th Ctrl Delay		5.5	
HCM 6th LOS		A	

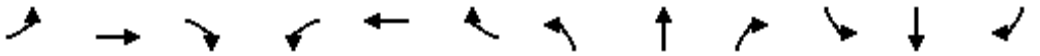
2021 No Action

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	703	61	67	1029	35	86	3	49	19	3	47
Future Volume (vph)	13	703	61	67	1029	35	86	3	49	19	3	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			294	
Travel Time (s)		5.3			8.1			5.6			8.0	
Confl. Peds. (#/hr)			2			3	1		1	1		1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	6%	2%	3%	4%	3%	5%	0%	6%	6%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	60.0	60.0	25.0	60.0		45.0	45.0		45.0	45.0	
Total Split (%)	19.2%	46.2%	46.2%	19.2%	46.2%		34.6%	34.6%		34.6%	34.6%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	703	61	67	1029	35	86	3	49	19	3	47
Future Volume (veh/h)	13	703	61	67	1029	35	86	3	49	19	3	47
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	1900	1811	1870	1856	1841	1841	1826	1900	1900	1811	1900	1900
Adj Flow Rate, veh/h	15	799	69	76	1169	40	98	3	56	22	3	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	6	2	3	4	4	5	0	0	6	0	0
Cap, veh/h	18	2351	1081	96	2509	86	183	11	197	179	11	196
Arrive On Green	0.01	0.68	0.68	0.11	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1810	3441	1583	1767	3450	118	1313	82	1537	1299	87	1533
Grp Volume(v), veh/h	15	799	69	76	592	617	98	0	59	22	0	56
Grp Sat Flow(s),veh/h/ln	1810	1721	1583	1767	1749	1819	1313	0	1619	1299	0	1620
Q Serve(g_s), s	1.1	12.5	1.9	5.5	0.0	0.0	9.5	0.0	4.3	2.0	0.0	4.1
Cycle Q Clear(g_c), s	1.1	12.5	1.9	5.5	0.0	0.0	13.5	0.0	4.3	6.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.95	1.00		0.95
Lane Grp Cap(c), veh/h	18	2351	1081	96	1272	1323	183	0	207	179	0	207
V/C Ratio(X)	0.84	0.34	0.06	0.79	0.47	0.47	0.54	0.00	0.28	0.12	0.00	0.27
Avail Cap(c_a), veh/h	270	2351	1081	264	1272	1323	412	0	491	406	0	491
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.2	8.5	6.8	57.2	0.0	0.0	57.3	0.0	51.3	54.1	0.0	51.2
Incr Delay (d2), s/veh	49.1	0.4	0.1	10.4	1.2	1.2	2.4	0.0	0.7	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.2	0.6	2.6	0.4	0.4	3.3	0.0	1.8	0.7	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.4	8.9	6.9	67.7	1.2	1.2	59.7	0.0	52.0	54.4	0.0	51.9
LnGrp LOS	F	A	A	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		883			1285			157			78	
Approach Delay, s/veh		10.5			5.1			56.8			52.6	
Approach LOS		B			A			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	95.1		22.2	6.9	100.9		22.2				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	53.7		39.4	19.4	53.7		39.4				
Max Q Clear Time (g_c+I1), s	7.5	14.5		8.3	3.1	2.0		15.5				
Green Ext Time (p_c), s	0.1	9.1		0.4	0.0	15.3		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			12.0									
HCM 6th LOS			B									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	701	0	1	1201	3	2
Future Volume (vph)	701	0	1	1201	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	188	
Travel Time (s)	8.1			9.3	5.1	
Confl. Peds. (#/hr)		2	2		2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	701	0	1	1201	3	2
Future Vol, veh/h	701	0	1	1201	3	2
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	3	0	0
Mvmt Flow	762	0	1	1305	3	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	764	0	1421	385
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	657	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	*1201	-	*404	*800
Stage 1	-	-	-	-	*754	-
Stage 2	-	-	-	-	*576	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	*1199	-	*402	*797
Mov Cap-2 Maneuver	-	-	-	-	*472	-
Stage 1	-	-	-	-	*753	-
Stage 2	-	-	-	-	*574	-

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

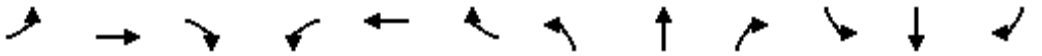
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	564	-	-	* 1199	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Control Delay (s)	11.4	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	754	7	24	1079	15	38	3	28	9	2	18
Future Volume (vph)	7	754	7	24	1079	15	38	3	28	9	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	2		1	1		2	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	6%	0%	0%	4%	14%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	25.0	65.0		25.0	65.0		40.0	40.0		40.0	40.0	
Total Split (%)	19.2%	50.0%		19.2%	50.0%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	754	7	24	1079	15	38	3	28	9	2	18
Future Volume (veh/h)	7	754	7	24	1079	15	38	3	28	9	2	18
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	0.99		0.99	0.99		0.99
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	1900	1811	1811	1900	1841	1841	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	829	8	26	1186	16	42	3	31	10	2	20
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	6	6	0	4	4	0	0	0	0	0	0
Cap, veh/h	381	2692	26	595	2753	37	101	16	51	63	24	83
Arrive On Green	0.01	1.00	1.00	0.01	0.78	0.78	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1810	3492	34	1810	3533	48	727	193	634	328	296	1039
Grp Volume(v), veh/h	8	408	429	26	587	615	76	0	0	32	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1805	1810	1749	1832	1554	0	0	1662	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.4	14.5	14.5	3.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.4	14.5	14.5	5.9	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.03	0.55		0.41	0.31		0.62
Lane Grp Cap(c), veh/h	381	1327	1392	595	1363	1428	168	0	0	170	0	0
V/C Ratio(X)	0.02	0.31	0.31	0.04	0.43	0.43	0.45	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	641	1327	1392	839	1363	1428	442	0	0	453	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	0.0	3.0	4.8	4.8	57.6	0.0	0.0	56.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.0	1.0	1.0	1.9	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.1	4.3	4.5	2.5	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.0	0.6	0.6	3.1	5.8	5.7	59.5	0.0	0.0	56.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		845			1228			76			32	
Approach Delay, s/veh		0.6			5.7			59.5			56.6	
Approach LOS		A			A			E			E	

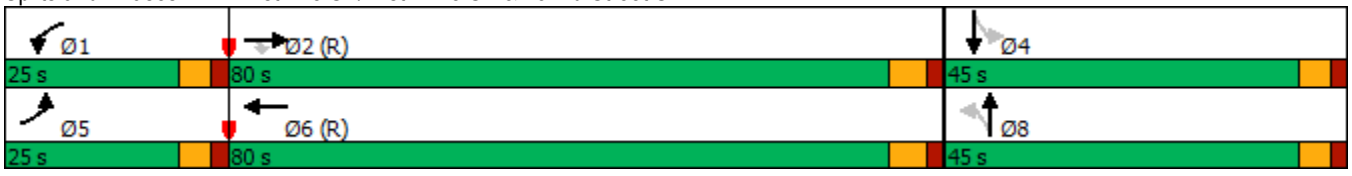
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	106.5		16.0	6.4	107.6		16.0				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	58.7		34.4	19.4	58.7		34.4				
Max Q Clear Time (g_c+I1), s	2.4	2.0		4.3	2.1	16.5		7.9				
Green Ext Time (p_c), s	0.0	10.5		0.1	0.0	17.1		0.4				

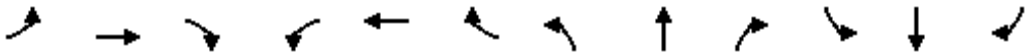
Intersection Summary			
HCM 6th Ctrl Delay		6.3	
HCM 6th LOS		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	1696	28	71	971	16	103	5	106	30	3	23
Future Volume (vph)	31	1696	28	71	971	16	103	5	106	30	3	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			272	
Travel Time (s)		5.3			8.1			5.6			7.4	
Confl. Peds. (#/hr)			2			7	3		8	8		3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	3%	0%	0%	0%	0%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	80.0	80.0	25.0	80.0		45.0	45.0		45.0	45.0	
Total Split (%)	16.7%	53.3%	53.3%	16.7%	53.3%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 25 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1696	28	71	971	16	103	5	106	30	3	23
Future Volume (veh/h)	31	1696	28	71	971	16	103	5	106	30	3	23
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	0.98		0.98	0.99		0.98
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	1900	1885	1900	1900	1885	1885	1856	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	1748	29	73	1001	16	106	5	109	31	3	24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	1	3	0	0	0	0	0
Cap, veh/h	41	2471	1109	92	2589	41	221	10	218	147	26	205
Arrive On Green	0.02	0.69	0.69	0.10	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3582	1608	1810	3608	58	1351	70	1525	1285	179	1434
Grp Volume(v), veh/h	32	1748	29	73	497	520	106	0	114	31	0	27
Grp Sat Flow(s),veh/h/ln	1810	1791	1608	1810	1791	1874	1351	0	1595	1285	0	1613
Q Serve(g_s), s	2.6	44.3	0.9	5.9	0.0	0.0	11.1	0.0	9.9	3.4	0.0	2.2
Cycle Q Clear(g_c), s	2.6	44.3	0.9	5.9	0.0	0.0	13.3	0.0	9.9	13.3	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.96	1.00		0.89
Lane Grp Cap(c), veh/h	41	2471	1109	92	1285	1345	221	0	228	147	0	230
V/C Ratio(X)	0.77	0.71	0.03	0.80	0.39	0.39	0.48	0.00	0.50	0.21	0.00	0.12
Avail Cap(c_a), veh/h	234	2471	1109	234	1285	1345	383	0	419	301	0	424
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.9	14.1	7.3	66.6	0.0	0.0	61.9	0.0	59.4	65.5	0.0	56.0
Incr Delay (d2), s/veh	19.8	1.7	0.0	11.0	0.9	0.8	1.6	0.0	1.7	0.7	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(50%),veh/ln	1.4	16.6	0.3	2.9	0.3	0.3	4.0	0.0	4.2	1.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.7	15.8	7.4	77.6	0.9	0.8	63.5	0.0	61.1	66.2	0.0	56.3
LnGrp LOS	F	B	A	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1809			1090			220			58	
Approach Delay, s/veh		17.1			6.0			62.2			61.6	
Approach LOS		B			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	109.8		27.0	9.0	113.9		27.0				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	73.7		39.4	19.4	73.7		39.4				
Max Q Clear Time (g_c+I1), s	7.9	46.3		15.3	4.6	2.0		15.3				
Green Ext Time (p_c), s	0.1	19.8		0.2	0.0	11.8		1.0				

Intersection Summary												
HCM 6th Ctrl Delay			17.2									
HCM 6th LOS			B									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1836	8	0	1105	0	3
Future Volume (vph)	1836	8	0	1105	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	195	
Travel Time (s)	8.1			9.3	5.3	
Confl. Peds. (#/hr)		4	4		4	4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1836	8	0	1105	0	3
Future Vol, veh/h	1836	8	0	1105	0	3
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1855	8	0	1116	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1867	0	2425	940
Stage 1	-	-	-	-	1863	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	*488	-	*46	*325
Stage 1	-	-	-	-	*307	-
Stage 2	-	-	-	-	*597	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	*486	-	*46	*323
Mov Cap-2 Maneuver	-	-	-	-	*203	-
Stage 1	-	-	-	-	*306	-
Stage 2	-	-	-	-	*595	-

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

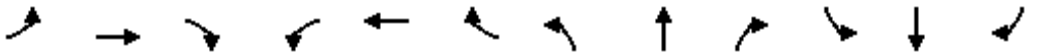
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	* 486	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	16.3	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

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)	19	1742	58	11	1032	15	40	2	24	25	5	24
Future Volume (vph)	19	1742	58	11	1032	15	40	2	24	25	5	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	6					6	1		3	3		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	0%	9%	1%	0%	0%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	30.0	80.0		30.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	20.0%	53.3%		20.0%	53.3%		26.7%	26.7%		26.7%	26.7%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 55 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1742	58	11	1032	15	40	2	24	25	5	24
Future Volume (veh/h)	19	1742	58	11	1032	15	40	2	24	25	5	24
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	0.99		0.99	0.99		0.99
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	1900	1885	1885	1767	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	19	1778	59	11	1053	15	41	2	24	26	5	24
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	9	1	1	0	0	0	0	0	0
Cap, veh/h	455	2851	94	252	2901	41	100	12	40	79	23	51
Arrive On Green	0.02	1.00	1.00	0.01	0.80	0.80	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1810	3538	117	1682	3615	51	869	167	578	620	321	729
Grp Volume(v), veh/h	19	896	941	11	522	546	67	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1810	1791	1864	1682	1791	1876	1614	0	0	1670	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.2	12.2	12.2	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.2	12.2	12.2	5.6	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.03	0.61		0.36	0.47		0.44
Lane Grp Cap(c), veh/h	455	1443	1502	252	1437	1505	152	0	0	152	0	0
V/C Ratio(X)	0.04	0.62	0.63	0.04	0.36	0.36	0.44	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	729	1443	1502	513	1437	1505	385	0	0	393	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.1	0.0	0.0	2.7	4.1	4.1	67.4	0.0	0.0	66.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.0	2.0	0.1	0.7	0.7	2.0	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.8	0.1	3.7	3.9	2.6	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.1	2.0	2.0	2.8	4.8	4.8	69.4	0.0	0.0	68.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1856			1079			67			55	
Approach Delay, s/veh		2.0			4.8			69.4			68.4	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	127.2		16.1	7.2	126.7		16.1				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	24.4	73.7		34.4	24.4	73.7		34.4				
Max Q Clear Time (g_c+I1), s	2.2	2.0		6.4	2.3	14.2		7.6				
Green Ext Time (p_c), s	0.0	45.0		0.3	0.0	15.4		0.3				

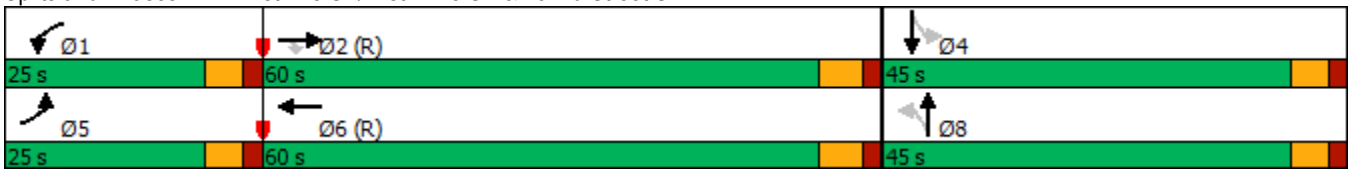
Intersection Summary			
HCM 6th Ctrl Delay		5.7	
HCM 6th LOS		A	

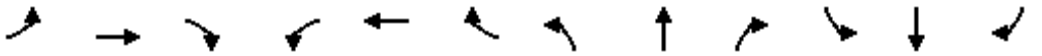
2021 With Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	706	61	67	1039	35	86	3	49	19	3	47
Future Volume (vph)	13	706	61	67	1039	35	86	3	49	19	3	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			294	
Travel Time (s)		5.3			8.1			5.6			8.0	
Confl. Peds. (#/hr)			2			3	1		1	1		1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	6%	2%	3%	4%	3%	5%	0%	6%	6%	0%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	60.0	60.0	25.0	60.0		45.0	45.0		45.0	45.0	
Total Split (%)	19.2%	46.2%	46.2%	19.2%	46.2%		34.6%	34.6%		34.6%	34.6%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 80 (62%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	706	61	67	1039	35	86	3	49	19	3	47
Future Volume (veh/h)	13	706	61	67	1039	35	86	3	49	19	3	47
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	1900	1811	1870	1856	1841	1841	1826	1900	1900	1811	1900	1900
Adj Flow Rate, veh/h	15	802	69	76	1181	40	98	3	56	22	3	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	6	2	3	4	4	5	0	0	6	0	0
Cap, veh/h	18	2351	1081	96	2510	85	183	11	197	179	11	196
Arrive On Green	0.01	0.68	0.68	0.11	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1810	3441	1583	1767	3451	117	1313	82	1537	1299	87	1533
Grp Volume(v), veh/h	15	802	69	76	598	623	98	0	59	22	0	56
Grp Sat Flow(s),veh/h/ln	1810	1721	1583	1767	1749	1819	1313	0	1619	1299	0	1620
Q Serve(g_s), s	1.1	12.5	1.9	5.5	0.0	0.0	9.5	0.0	4.3	2.0	0.0	4.1
Cycle Q Clear(g_c), s	1.1	12.5	1.9	5.5	0.0	0.0	13.5	0.0	4.3	6.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.95	1.00		0.95
Lane Grp Cap(c), veh/h	18	2351	1081	96	1272	1323	183	0	207	179	0	207
V/C Ratio(X)	0.84	0.34	0.06	0.79	0.47	0.47	0.54	0.00	0.28	0.12	0.00	0.27
Avail Cap(c_a), veh/h	270	2351	1081	264	1272	1323	412	0	491	406	0	491
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.2	8.5	6.8	57.2	0.0	0.0	57.3	0.0	51.3	54.1	0.0	51.2
Incr Delay (d2), s/veh	49.1	0.4	0.1	10.4	1.2	1.2	2.4	0.0	0.7	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.3	0.6	2.6	0.4	0.4	3.3	0.0	1.8	0.7	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.4	8.9	6.9	67.7	1.2	1.2	59.7	0.0	52.0	54.4	0.0	51.9
LnGrp LOS	F	A	A	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		886			1297			157			78	
Approach Delay, s/veh		10.5			5.1			56.8			52.6	
Approach LOS		B			A			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	95.1		22.2	6.9	100.9		22.2				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	53.7		39.4	19.4	53.7		39.4				
Max Q Clear Time (g_c+I1), s	7.5	14.5		8.3	3.1	2.0		15.5				
Green Ext Time (p_c), s	0.1	9.2		0.4	0.0	15.5		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		12.0	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	701	3	4	1201	13	8
Future Volume (vph)	701	3	4	1201	13	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	188	
Travel Time (s)	8.1			9.3	5.1	
Confl. Peds. (#/hr)		2	2		2	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	0%	0%	3%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	701	3	4	1201	13	8
Future Vol, veh/h	701	3	4	1201	13	8
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	3	0	0
Mvmt Flow	762	3	4	1305	14	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	767	0	1429	387
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	*1201	-	*404	*800
Stage 1	-	-	-	-	*754	-
Stage 2	-	-	-	-	*576	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	*1199	-	*401	*797
Mov Cap-2 Maneuver	-	-	-	-	*471	-
Stage 1	-	-	-	-	*753	-
Stage 2	-	-	-	-	*573	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

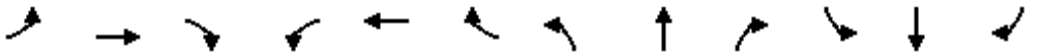
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	558	-	-	* 1199	-
HCM Lane V/C Ratio	0.041	-	-	0.004	-
HCM Control Delay (s)	11.7	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	760	7	24	1082	15	38	3	28	9	2	18
Future Volume (vph)	7	760	7	24	1082	15	38	3	28	9	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	2		1	1		2	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	6%	0%	0%	4%	14%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	25.0	65.0		25.0	65.0		40.0	40.0		40.0	40.0	
Total Split (%)	19.2%	50.0%		19.2%	50.0%		30.8%	30.8%		30.8%	30.8%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 100 (77%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	760	7	24	1082	15	38	3	28	9	2	18
Future Volume (veh/h)	7	760	7	24	1082	15	38	3	28	9	2	18
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	0.99		0.99	0.99		0.99
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	1900	1811	1811	1900	1841	1841	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	835	8	26	1189	16	42	3	31	10	2	20
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	6	6	0	4	4	0	0	0	0	0	0
Cap, veh/h	380	2692	26	592	2753	37	101	16	51	63	24	83
Arrive On Green	0.01	1.00	1.00	0.01	0.78	0.78	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1810	3492	33	1810	3533	48	727	193	634	328	296	1039
Grp Volume(v), veh/h	8	411	432	26	588	617	76	0	0	32	0	0
Grp Sat Flow(s),veh/h/ln	1810	1721	1805	1810	1749	1832	1554	0	0	1662	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.4	14.6	14.6	3.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.4	14.6	14.6	5.9	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.03	0.55		0.41	0.31		0.62
Lane Grp Cap(c), veh/h	380	1327	1392	592	1363	1428	168	0	0	170	0	0
V/C Ratio(X)	0.02	0.31	0.31	0.04	0.43	0.43	0.45	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	640	1327	1392	837	1363	1428	442	0	0	453	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	0.0	3.0	4.8	4.8	57.6	0.0	0.0	56.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.0	1.0	1.0	1.9	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.1	4.3	4.5	2.5	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.0	0.6	0.6	3.1	5.8	5.7	59.5	0.0	0.0	56.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		851			1231			76			32	
Approach Delay, s/veh		0.6			5.7			59.5			56.6	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	106.5		16.0	6.4	107.6		16.0				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	58.7		34.4	19.4	58.7		34.4				
Max Q Clear Time (g_c+I1), s	2.4	2.0		4.3	2.1	16.6		7.9				
Green Ext Time (p_c), s	0.0	10.6		0.1	0.0	17.1		0.4				

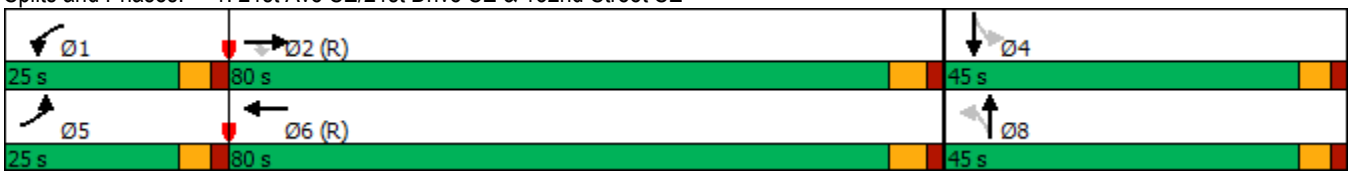
Intersection Summary			
HCM 6th Ctrl Delay		6.3	
HCM 6th LOS		A	

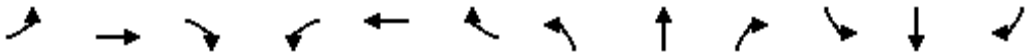
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	1705	28	71	977	16	103	5	106	30	3	23
Future Volume (vph)	31	1705	28	71	977	16	103	5	106	30	3	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	150		0	115		0	125		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		352			537			206			272	
Travel Time (s)		5.3			8.1			5.6			7.4	
Confl. Peds. (#/hr)			2			7	3		8	8		3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	3%	0%	0%	0%	0%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	37.3	37.3	8.6	27.3		35.6	35.6		41.6	41.6	
Total Split (s)	25.0	80.0	80.0	25.0	80.0		45.0	45.0		45.0	45.0	
Total Split (%)	16.7%	53.3%	53.3%	16.7%	53.3%		30.0%	30.0%		30.0%	30.0%	
Yellow Time (s)	3.6	4.3	4.3	3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	6.3	6.3	5.6	6.3		5.6	5.6		5.6	5.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 25 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: 21st Ave SE/21st Drive SE & 132nd Street SE





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1705	28	71	977	16	103	5	106	30	3	23
Future Volume (veh/h)	31	1705	28	71	977	16	103	5	106	30	3	23
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	0.98		0.98	0.99		0.98
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	1900	1885	1900	1900	1885	1885	1856	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	32	1758	29	73	1007	16	106	5	109	31	3	24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	1	3	0	0	0	0	0
Cap, veh/h	41	2471	1109	92	2589	41	221	10	218	147	26	205
Arrive On Green	0.02	0.69	0.69	0.10	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	3582	1608	1810	3608	57	1351	70	1525	1285	179	1434
Grp Volume(v), veh/h	32	1758	29	73	500	523	106	0	114	31	0	27
Grp Sat Flow(s),veh/h/ln	1810	1791	1608	1810	1791	1875	1351	0	1595	1285	0	1613
Q Serve(g_s), s	2.6	44.8	0.9	5.9	0.0	0.0	11.1	0.0	9.9	3.4	0.0	2.2
Cycle Q Clear(g_c), s	2.6	44.8	0.9	5.9	0.0	0.0	13.3	0.0	9.9	13.3	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.96	1.00		0.89
Lane Grp Cap(c), veh/h	41	2471	1109	92	1285	1345	221	0	228	147	0	230
V/C Ratio(X)	0.77	0.71	0.03	0.80	0.39	0.39	0.48	0.00	0.50	0.21	0.00	0.12
Avail Cap(c_a), veh/h	234	2471	1109	234	1285	1345	383	0	419	301	0	424
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.9	14.2	7.3	66.6	0.0	0.0	61.9	0.0	59.4	65.5	0.0	56.0
Incr Delay (d2), s/veh	19.8	1.8	0.0	11.0	0.9	0.8	1.6	0.0	1.7	0.7	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(50%),veh/ln	1.4	16.8	0.3	2.9	0.3	0.3	4.0	0.0	4.2	1.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.7	15.9	7.4	77.6	0.9	0.8	63.5	0.0	61.1	66.2	0.0	56.3
LnGrp LOS	F	B	A	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1819			1096			220			58	
Approach Delay, s/veh		17.2			6.0			62.2			61.6	
Approach LOS		B			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	109.8		27.0	9.0	113.9		27.0				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	19.4	73.7		39.4	19.4	73.7		39.4				
Max Q Clear Time (g_c+I1), s	7.9	46.8		15.3	4.6	2.0		15.3				
Green Ext Time (p_c), s	0.1	19.6		0.2	0.0	11.9		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		17.2	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1836	17	7	1105	6	6
Future Volume (vph)	1836	17	7	1105	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	45			45	25	
Link Distance (ft)	537			613	195	
Travel Time (s)	8.1			9.3	5.3	
Confl. Peds. (#/hr)		4	4		4	4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1836	17	7	1105	6	6
Future Vol, veh/h	1836	17	7	1105	6	6
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	1855	17	7	1116	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1876	0	2444	944
Stage 1	-	-	-	-	1868	-
Stage 2	-	-	-	-	576	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	*488	-	*43	*325
Stage 1	-	-	-	-	*307	-
Stage 2	-	-	-	-	*597	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	*486	-	*42	*323
Mov Cap-2 Maneuver	-	-	-	-	*201	-
Stage 1	-	-	-	-	*306	-
Stage 2	-	-	-	-	*587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

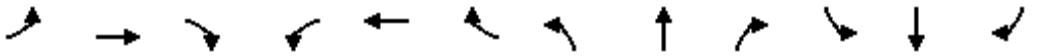
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	* 486	-
HCM Lane V/C Ratio	0.049	-	-	0.015	-
HCM Control Delay (s)	20.3	-	-	12.5	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

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)	19	1745	58	11	1039	15	40	2	24	25	5	24
Future Volume (vph)	19	1745	58	11	1039	15	40	2	24	25	5	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		613			494			232			240	
Travel Time (s)		9.3			7.5			6.3			6.5	
Confl. Peds. (#/hr)	6					6	1		3	3		1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	0%	9%	1%	0%	0%	0%	4%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.6	29.3		8.6	29.3		35.6	35.6		35.6	35.6	
Total Split (s)	30.0	80.0		30.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	20.0%	53.3%		20.0%	53.3%		26.7%	26.7%		26.7%	26.7%	
Yellow Time (s)	3.6	4.3		3.6	4.3		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	6.3		5.6	6.3			5.6			5.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 55 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: 25th Ave SE & 132nd Street SE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	1745	58	11	1039	15	40	2	24	25	5	24
Future Volume (veh/h)	19	1745	58	11	1039	15	40	2	24	25	5	24
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	0.99		0.99	0.99		0.99
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	1900	1885	1885	1767	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	19	1781	59	11	1060	15	41	2	24	26	5	24
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	9	1	1	0	0	0	0	0	0
Cap, veh/h	452	2851	94	251	2901	41	100	12	40	79	23	51
Arrive On Green	0.02	1.00	1.00	0.01	0.80	0.80	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1810	3538	117	1682	3616	51	869	167	578	620	321	729
Grp Volume(v), veh/h	19	898	942	11	525	550	67	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1810	1791	1864	1682	1791	1876	1614	0	0	1670	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.2	12.3	12.3	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	0.0	0.2	12.3	12.3	5.6	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.03	0.61		0.36	0.47		0.44
Lane Grp Cap(c), veh/h	452	1443	1502	251	1437	1505	152	0	0	152	0	0
V/C Ratio(X)	0.04	0.62	0.63	0.04	0.37	0.37	0.44	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	726	1443	1502	512	1437	1505	385	0	0	393	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.1	0.0	0.0	2.7	4.1	4.1	67.4	0.0	0.0	66.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.0	2.0	0.1	0.7	0.7	2.0	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.8	0.1	3.8	3.9	2.6	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.2	2.0	2.0	2.8	4.9	4.8	69.4	0.0	0.0	68.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1859			1086			67			55	
Approach Delay, s/veh		2.0			4.8			69.4			68.4	
Approach LOS		A			A			E			E	

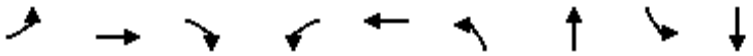
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	127.2		16.1	7.2	126.7		16.1				
Change Period (Y+Rc), s	5.6	6.3		5.6	5.6	6.3		5.6				
Max Green Setting (Gmax), s	24.4	73.7		34.4	24.4	73.7		34.4				
Max Q Clear Time (g_c+I1), s	2.2	2.0		6.4	2.3	14.3		7.6				
Green Ext Time (p_c), s	0.0	45.1		0.3	0.0	15.6		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		5.7
HCM 6th LOS		A

ATTACHMENT D

Synchro and SimTraffic Queue Reports

2019 Existing



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	768	67	73	1163	94	56	20	54
v/c Ratio	0.18	0.34	0.06	0.53	0.46	0.53	0.22	0.11	0.21
Control Delay	63.5	12.4	3.6	71.6	7.9	60.4	13.5	45.2	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.5	12.4	3.6	71.6	7.9	60.4	13.5	45.2	13.5
Queue Length 50th (ft)	12	132	0	60	127	77	2	15	2
Queue Length 95th (ft)	36	271	23	115	218	109	34	33	34
Internal Link Dist (ft)		272			457		126		214
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	269	2275	1054	261	2529	395	498	390	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.34	0.06	0.28	0.46	0.24	0.11	0.05	0.11

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	8	805	25	1155	74	31
v/c Ratio	0.02	0.30	0.04	0.41	0.44	0.18
Control Delay	1.9	2.1	4.2	6.4	42.5	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	2.1	4.2	6.4	42.5	27.9
Queue Length 50th (ft)	0	22	3	97	39	10
Queue Length 95th (ft)	m2	42	15	360	76	35
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	565	2669	691	2833	403	428
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.30	0.04	0.41	0.18	0.07

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	56	301	226	51	144	227	203	131	146	65	79
Average Queue (ft)	15	135	65	16	68	89	80	71	31	21	32
95th Queue (ft)	44	251	164	45	125	178	165	124	89	55	66
Link Distance (ft)		318	318			470	470		147		248
Upstream Blk Time (%)		0						1	1		
Queuing Penalty (veh)		0						0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		1	0		0	1		6	0		0
Queuing Penalty (veh)		0	0		3	1		3	0		0

Intersection: 3 : 25th Ave SE & 132nd Street SE

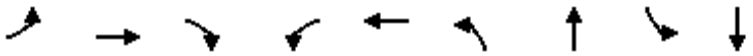
Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	32	144	123	66	234	192	130	64
Average Queue (ft)	5	37	26	13	82	47	56	25
95th Queue (ft)	23	103	86	45	185	133	110	58
Link Distance (ft)		561	561		466	466	186	194
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0			1			
Queuing Penalty (veh)		0			0			

Intersection: 2 : 23rd Ln SE & 132nd Street SE

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	26	15	5	33	12	32
Average Queue (ft)	1	1	0	2	0	5
95th Queue (ft)	12	7	4	19	7	23
Link Distance (ft)	470	470		561	561	141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Network Summary

Network wide Queuing Penalty: 7



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	1680	28	70	977	102	110	30	26
v/c Ratio	0.34	0.67	0.02	0.55	0.37	0.59	0.37	0.22	0.12
Control Delay	78.2	17.6	0.1	80.2	8.3	73.4	13.4	57.9	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.2	17.6	0.1	80.2	8.3	73.4	13.4	57.9	20.6
Queue Length 50th (ft)	30	450	0	68	158	98	4	27	3
Queue Length 95th (ft)	66	837	2	124	210	141	56	54	28
Internal Link Dist (ft)		272			457		126		192
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	233	2503	1121	233	2622	357	495	287	425
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.67	0.02	0.30	0.37	0.29	0.22	0.10	0.06

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	18	1765	11	1026	64	52
v/c Ratio	0.04	0.60	0.06	0.35	0.45	0.34
Control Delay	0.4	1.0	4.4	6.5	55.2	42.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	1.0	4.4	6.5	55.2	42.6
Queue Length 50th (ft)	0	7	1	142	45	27
Queue Length 95th (ft)	m0	21	9	296	84	64
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	631	2938	391	2892	341	355
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.60	0.03	0.35	0.19	0.15

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	274	340	340	180	171	223	202	134	160	79	59
Average Queue (ft)	52	277	230	14	74	104	94	79	61	28	19
95th Queue (ft)	165	411	390	92	139	192	184	135	133	67	50
Link Distance (ft)		317	317			470	470		147		226
Upstream Blk Time (%)		10	5					1	1		
Queuing Penalty (veh)		0	0					0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		13	7	0	1	2		9	1	0	
Queuing Penalty (veh)		4	2	0	3	2		10	1	0	

Intersection: 3: 25th Ave SE & 132nd Street SE

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	53	264	263	57	232	168	146	113
Average Queue (ft)	11	40	47	11	70	35	58	43
95th Queue (ft)	38	144	151	38	163	106	115	92
Link Distance (ft)		560	560		466	466	186	194
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		1			1			
Queuing Penalty (veh)		0			0			

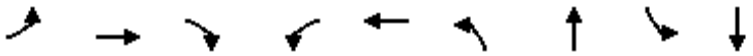
Intersection: 2: 23rd Ln SE & 132nd Street SE

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	LR
Maximum Queue (ft)	84	81	35	15	26
Average Queue (ft)	7	5	2	1	2
95th Queue (ft)	45	38	17	9	16
Link Distance (ft)	470	470	560	560	147
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 22

2021 No Action



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	799	69	76	1209	98	59	22	56
v/c Ratio	0.18	0.35	0.07	0.54	0.48	0.54	0.23	0.12	0.21
Control Delay	63.5	12.8	3.7	71.5	8.7	60.8	13.1	45.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.5	12.8	3.7	71.5	8.7	60.8	13.1	45.3	13.2
Queue Length 50th (ft)	12	142	0	64	137	80	2	17	2
Queue Length 95th (ft)	36	286	25	117	248	113	34	35	34
Internal Link Dist (ft)		272			457		126		214
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	269	2262	1049	261	2520	394	500	390	515
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.35	0.07	0.29	0.48	0.25	0.12	0.06	0.11

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	8	837	26	1202	76	32
v/c Ratio	0.02	0.31	0.05	0.42	0.45	0.18
Control Delay	1.9	2.1	4.2	6.6	43.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	2.1	4.2	6.6	43.1	27.6
Queue Length 50th (ft)	0	23	3	105	41	10
Queue Length 95th (ft)	m1	41	16	382	78	36
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	547	2665	675	2830	403	430
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.31	0.04	0.42	0.19	0.07

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	87	280	223	55	163	261	242	130	150	68	84
Average Queue (ft)	19	138	71	16	74	94	87	72	33	22	32
95th Queue (ft)	60	243	174	46	139	197	187	125	95	55	64
Link Distance (ft)		318	318			470	470		147		248
Upstream Blk Time (%)		0	0					1	1		
Queuing Penalty (veh)		0	0					0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		1	0		1	2		5	0	0	0
Queuing Penalty (veh)		0	0		3	2		3	0	0	0

Intersection: 3 : 25th Ave SE & 132nd Street SE

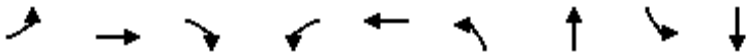
Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	34	157	145	46	263	214	122	77
Average Queue (ft)	6	39	32	12	81	48	55	26
95th Queue (ft)	26	109	98	37	186	138	104	61
Link Distance (ft)		561	561		466	466	186	194
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0			1			
Queuing Penalty (veh)		0			0			

Intersection: 2 : 23rd Ln SE & 132nd Street SE

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	12	13	8	28	29	34
Average Queue (ft)	0	1	0	2	1	5
95th Queue (ft)	7	10	6	15	14	24
Link Distance (ft)	470	470		561	561	141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Network Summary

Network wide Queuing Penalty: 8



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	1748	29	73	1017	106	114	31	27
v/c Ratio	0.35	0.72	0.03	0.56	0.39	0.60	0.38	0.22	0.12
Control Delay	78.4	19.5	0.4	80.3	8.5	73.7	13.1	58.0	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	19.5	0.4	80.3	8.5	73.7	13.1	58.0	20.2
Queue Length 50th (ft)	31	494	0	71	170	101	4	28	3
Queue Length 95th (ft)	68	910	2	130	218	146	56	54	29
Internal Link Dist (ft)		272			457		126		192
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	233	2433	1091	233	2612	357	498	281	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.72	0.03	0.31	0.39	0.30	0.23	0.11	0.06

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	1837	11	1068	67	55
v/c Ratio	0.04	0.63	0.06	0.37	0.47	0.36
Control Delay	0.4	1.4	4.5	6.7	56.2	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	1.4	4.5	6.7	56.2	43.0
Queue Length 50th (ft)	0	7	1	152	48	29
Queue Length 95th (ft)	m1	22	9	313	88	67
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	613	2932	378	2886	337	353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.63	0.03	0.37	0.20	0.16

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	234	342	339	202	173	260	255	138	162	80	68
Average Queue (ft)	54	291	249	21	72	117	104	88	73	27	21
95th Queue (ft)	167	423	404	116	139	219	207	145	152	66	55
Link Distance (ft)		317	317			470	470		147		226
Upstream Blk Time (%)		13	7					1	3		
Queuing Penalty (veh)		0	0					0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		16	9	0	0	3		10	1	0	0
Queuing Penalty (veh)		5	3	0	2	2		11	2	0	0

Intersection: 3 : 25th Ave SE & 132nd Street SE

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	40	181	182	60	206	155	137	119
Average Queue (ft)	11	30	42	12	75	36	55	44
95th Queue (ft)	36	106	117	40	164	106	111	93
Link Distance (ft)		560	560		466	466	186	194
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0			1			
Queuing Penalty (veh)		0			0			

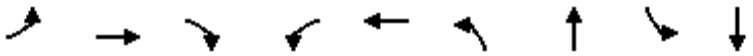
Intersection: 2 : 23rd Ln SE & 132nd Street SE

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	T	T	LR
Maximum Queue (ft)	99	94	51	42	27
Average Queue (ft)	8	7	4	3	3
95th Queue (ft)	49	44	25	19	17
Link Distance (ft)	470	470	560	560	147
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 26

2021 With Project



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	15	802	69	76	1221	98	59	22	56
v/c Ratio	0.18	0.35	0.07	0.54	0.48	0.54	0.23	0.12	0.21
Control Delay	63.5	12.8	3.7	71.8	8.8	60.8	13.1	45.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.5	12.8	3.7	71.8	8.8	60.8	13.1	45.3	13.2
Queue Length 50th (ft)	12	143	0	63	140	80	2	17	2
Queue Length 95th (ft)	36	287	25	118	253	113	34	35	34
Internal Link Dist (ft)		272			457		126		214
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	269	2262	1049	261	2520	394	500	390	515
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.35	0.07	0.29	0.48	0.25	0.12	0.06	0.11

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	8	843	26	1205	76	32
v/c Ratio	0.02	0.32	0.05	0.43	0.45	0.18
Control Delay	1.7	2.2	4.2	6.6	43.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	2.2	4.2	6.6	43.1	27.6
Queue Length 50th (ft)	0	24	3	105	41	10
Queue Length 95th (ft)	m2	42	16	383	78	36
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	546	2665	672	2830	403	430
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.32	0.04	0.43	0.19	0.07

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	83	303	226	50	159	267	253	132	136	67	88
Average Queue (ft)	20	148	78	16	74	102	94	72	33	19	32
95th Queue (ft)	59	265	182	44	137	212	199	125	92	54	66
Link Distance (ft)		318	318			470	470		147		248
Upstream Blk Time (%)		0						0	1		
Queuing Penalty (veh)		0						0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		1	0		0	2		5	0		0
Queuing Penalty (veh)		0	0		3	2		3	0		0

Intersection: 3 : 25th Ave SE & 132nd Street SE

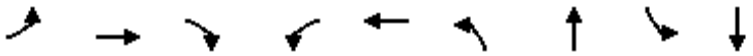
Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	30	144	133	70	259	216	140	82
Average Queue (ft)	6	38	27	14	88	52	61	27
95th Queue (ft)	25	99	86	50	197	148	114	66
Link Distance (ft)		561	561		466	466	186	194
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0			2			
Queuing Penalty (veh)		0			0			

Intersection: 2 : 23rd Ln SE & 132nd Street SE

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	27	18	26	33	20	57
Average Queue (ft)	1	1	1	1	1	18
95th Queue (ft)	15	11	10	14	11	46
Link Distance (ft)	470	470		561	561	141
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Network Summary

Network wide Queuing Penalty: 8



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	1758	29	73	1023	106	114	31	27
v/c Ratio	0.35	0.72	0.03	0.56	0.39	0.60	0.38	0.22	0.12
Control Delay	78.4	19.6	0.4	80.0	8.5	73.7	13.1	58.0	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	19.6	0.4	80.0	8.5	73.7	13.1	58.0	20.2
Queue Length 50th (ft)	31	499	0	71	170	101	4	28	3
Queue Length 95th (ft)	68	917	2	130	220	146	56	54	29
Internal Link Dist (ft)		272			457		126		192
Turn Bay Length (ft)	250		250	150		115		125	
Base Capacity (vph)	233	2433	1091	233	2612	357	498	281	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.72	0.03	0.31	0.39	0.30	0.23	0.11	0.06

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	19	1840	11	1075	67	55
v/c Ratio	0.04	0.63	0.06	0.37	0.47	0.36
Control Delay	0.4	1.3	4.5	6.7	56.2	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.4	1.3	4.5	6.7	56.2	43.0
Queue Length 50th (ft)	0	7	1	154	48	29
Queue Length 95th (ft)	m1	23	9	315	88	67
Internal Link Dist (ft)		533		414	152	160
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	611	2932	378	2886	337	353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.63	0.03	0.37	0.20	0.16

Intersection Summary

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

Intersection: 1: 21st Ave SE/21st Drive SE & 132nd Street SE

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	274	341	340	176	163	245	212	139	160	79	57
Average Queue (ft)	52	287	248	13	70	109	99	83	67	28	20
95th Queue (ft)	165	414	401	82	132	206	192	138	141	65	50
Link Distance (ft)		317	317			470	470		147		226
Upstream Blk Time (%)		11	7					0	2		
Queuing Penalty (veh)		0	0					0	0		
Storage Bay Dist (ft)	250			250	150			115		125	
Storage Blk Time (%)		14	8	0	1	3		9	1	0	
Queuing Penalty (veh)		5	2	0	4	2		11	1	0	

Intersection: 3: 25th Ave SE & 132nd Street SE

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	37	222	231	49	241	186	133	116
Average Queue (ft)	11	35	47	9	84	43	59	46
95th Queue (ft)	35	128	144	34	190	126	115	97
Link Distance (ft)		560	560		466	466	186	194
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		1			2			
Queuing Penalty (veh)		0			0			

Intersection: 2: 23rd Ln SE & 132nd Street SE

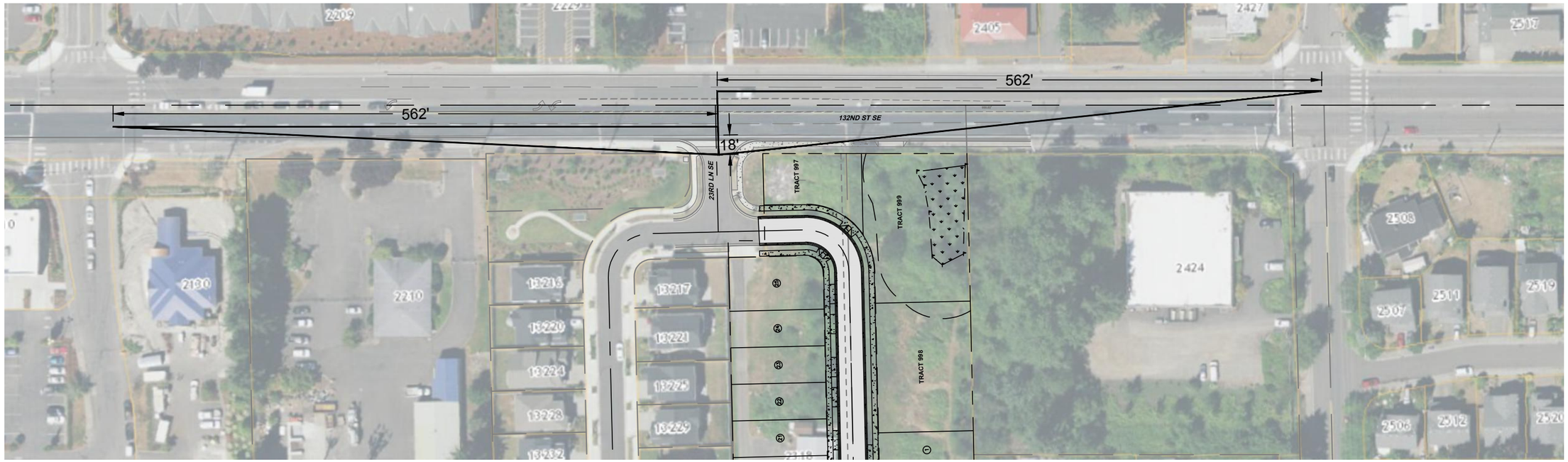
Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	112	133	35	51	40	53
Average Queue (ft)	10	10	5	3	2	12
95th Queue (ft)	58	67	23	22	18	39
Link Distance (ft)	470	470		560	560	147
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			2	0		

Network Summary

Network wide Queuing Penalty: 27

ATTACHMENT E

Sight Distance Exhibit



SIGHT DISTANCE PARAMETERS:

(PER EXHIBIT 1310-19a, WSDOT DESIGN MANUAL)
(132ND ST SE POSTED DESIGN SPEED = 45-MPH)

DESIGN VEHICLE = PASSENGER CAR
POSTED DESIGN SPEED (132ND ST SE) = 45 MPH
BASE TIME GAP (tg) = 7.5 SEC

Si = 1.47 V tg WHERE: Si = SIGHT DISTANCE (FT)
V = DESIGN SPEED (MPH)
tg = TIME GAP (SEC)

LEFT TURN CALCULATION:
ADJUSTED TIME GAP = 8.5 SEC
(ADD 0.5-S FOR EACH LANE IN EXCESS OF ONE TO BE CROSSED)
Si = (1.47) (45) (8.5)
Si = 562 FT

RIGHT TURN CALCULATION:
ADJUSTED TIME GAP = 6.5 SEC
(SUBTRACT 1-SEC FOR RIGHT-TURN MANEUVERS)
Si = (1.47) (45) (6.5)
Si = 430 FT

(LEFT TURN CALCULATION WILL CONTROL THE DESIGN)

N

HORIZ. 0 50 100 200
Scale In Feet

DESIGNED _____
DRAWN _____
CHECKED _____

PACE
An Engineering Services Company
1724 W Marine View Drive, Suite 140
Everett, WA 98201
p. 425.486.6533 | *f.* 425.486.6593
Civil | Structural | Planning | Survey
www. paceengrs.com

DATE
SCALE AS SHOWN

CRESTVIEW VILLAGE II

SIGHT DISTANCE EXHIBIT

PACE PROJECT NO. **19462**
SHEET NAME LAYOUT1

FILE NAME: P:\P19\19462 CRESTVIEW II\CAD\ENGINEERING\FIGURES\SHEETS\F19462-SIGHT-DIST.DWG
SAVE TIME: 10/1/2019 9:18:01 AM PLOT TIME: 10/1/2019 9:18 AM
USER NAME:KEN MCINTYRE
XREF FILES: X19462-11X17-TBLOCK.dwg X19462_BASE.dwg X19462_SITE.dwg X19462_HATCH.dwg

ATTACHMENT F

Snohomish County Traffic Worksheet and Mitigation Offer

Exhibit 2

Snohomish County Traffic Worksheet and Traffic Study Requirements for City Developments Impacting County Roads

Snohomish County (the "County"), through an interlocal agreement (ILA) with the City of Mill Creek (the "City"), may request traffic mitigation measures from any new development in the City ("City Development") that impacts County roads. The City will impose the requested mitigation measures to the extent the City determines that the mitigation is reasonably related to the impacts of the City Development.

To determine impacts and reasonable mitigation measures, the County requires a traffic study from any City Development subject to the ILA. This 'traffic study' may be as simple as completing Sections One and Two of the County traffic worksheet below, or having a professional traffic engineer conduct a formal traffic study to assess site specific issues consistent with the requirements in Section Three below. A City Development must pay traffic mitigation fees to the County based on either the "Area Averages" methodology or by determining the impacts to specific County cost fee basis projects using average daily trip (ADT) generation and distribution. (See Section IV H in the ILA).

A. Mitigation Payment Option A. If a City Development generates less than fifty (50) peak-hour trips and the applicant chooses to utilize the "Proportionate Share Determined by Percentage of County Impact Fee" for determining the mitigation payment, then the applicant will generally only have to fill out the first two sections of this traffic worksheet and complete a mitigation offer (see Section Two below).

B. Mitigation Payment Option B. If a City Development generates more than 50 PM peak - hour trips, or if the applicant chooses to utilize the "Proportionate Share Impact Mitigation Based On Comprehensive Impact Analysis" for determining the mitigation payment, then the applicant will have to fill out Section One of this worksheet, complete a separate traffic study consistent with the requirements in Section Three, and complete a mitigation offer (see Section Three below). The applicant chooses this option.

C. Submittal of Documents. Applicants should submit all documents to the City.

D. Supplemental Information. Following review of the documents submitted, the County may request supplemental information and analysis as necessary to determine the impacts of the City Development in accordance with the City/County ILA and the County's mitigation policies. The City will require the supplemental information to the extent the County determines it is necessary to determine the impacts of the development.

E. Impacts on Access or Circulation. The County may request improvements to existing County roads to provide safe and efficient access and/or circulation. In some instances, the County might request provisions for future County roads identified in the Comprehensive Plan.

F. Frontage Improvements, Right of Way, and Access Point Requirements. Any City Development which takes access from a County road or fronts on a County right-of-way must provide appropriate analysis and documentation to enable the City and the County to determine what standards and requirements to apply.

G. Traffic mitigation offer. The applicant shall complete a traffic mitigation offer to the County that summarizes the mitigation identified in the County traffic worksheet and any additional traffic impacts. See Section Four below.

Section One (1) Worksheet General Information

1. Name of Proposed City Development Crestview Village II
2. City Development File Number (if known)_____
3. APPLICANT / TRAFFIC CONSULTANT

Taylor Development	NAME	TENW
15 Lake Bellevue Dr, Suite 102	ADDRESS	11400 SE 8th St, STE 200
Bellevue, WA 98005	CITY/ST/ZIP	Bellevue, WA 98004
	PHONE #	425-250-0579
n/a	EMAIL	amy@tenw.com

4. City Development Site Address approximately 2300 132nd Street SE
5. Does the City Development front on County road(s)? If yes list road(s) no
6. Description of City Development (size and specific type) 25 proposed single-family detached housing units, less 2 existing single-family homes to be removed.
7. ADT expected to be generated by the proposed development

   22 AM Peak Hour 25 PM Peak Hour 271 Average Daily Trips (ADT)
   (Trip generation for complex developments may have to be determined per Section Three (3) below)

8. Proportionate Share Impact Mitigation: For determining the amount based on a:

   _____ County/City determined percentage go to Section 2(a).
   X Comprehensive traffic study go to Section Three (3).

Section Two (2) Proportionate Share Determined by Percentage of County Impact Fee

2(a). Calculation of Payment Amount

1. Average percentage of trips impacting County roads is:

   _____% for TSA D _____% for TSA E _____% for TSA F

   (Enter the Percentage (%) from the City Development Traffic Percentage Influence Area Map)

2. County Impact Fee Rate Per ADT*: TSA D $_____ TSA E $_____ TSA F $_____

   (* Consistent with the ILA, City Developments pay the County rate for the TSA's being impacted that are in effect at the time the City Development application is deemed complete by the City. The County Council can change these rates at any time by Ordinance, so consult with the County to find the latest fee rates.)

4. Calculation of Proportionate Share Impact Mitigation. The overall percentage impact is 70%, with the breakdown by TSA calculated by the following:

_____	X	_____	X	_____	=	$_____
% of trips (#1 above)		PM PHT (#2 above)		TSA D Rate (#3 above)		TSA D payment

_____	X	_____	X	_____	=	$_____
% of trips (#1 above)		PM PHT (#2 above)		TSA E Rate (#3 above)		TSA E payment
_____	X	_____	X	_____	=	$_____
% of trips (#1 above)		PM PHT (#2 above)		TSA F Rate (#3 above)		TSA F payment

Total Proportionate Share Mitigation Payment Due: **$**_____

2(b). Determining If An Additional Traffic Study Is Required

Will the City Development generate more than fifty (50) peak-hour trips *or* are there other impacts that need to be addressed, e.g., level of service, safety, or access and circulation?

X No. Skip Section Three and go to Section Four.

_____ Yes. Read the introduction to Section Three and skip to Section 3(b).

Section Three (3) Traffic Study Requirements

Introduction: This Section outlines requirements for traffic studies for impacts on County roads. If an applicant chooses (or is required) to complete a traffic study, then it should be submitted along with this worksheet and a mitigation offer. For City Developments generating more than 50 PM peak hour trips see Section 3(c) below.

(Note on Author's Qualifications: A traffic study under this Section must be conducted by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and, preferably, membership in the Institute of Transportation Engineers (ITE). Individuals or firms not on the County's approved list shall, with the traffic study, provide the County the credentials of the individual or firm performing the traffic study certifying compliance with these qualifications.)

3(a). Proportionate Share Impact Mitigation Based On Comprehensive Traffic Study

1. Development's Trip Generation and Distribution. Determine the PM peak-hour trip generation and distribution for the development consistent with Section 3(b) below. see Traffic Assessment.
2. Impacted Improvements. Determine which of the road sections with planned improvements in the County's impact fee cost basis (Transportation Needs Report Appendix D) are impacted by three or more development-generated Directional Peak Hour Trips in the developments PM peak hour (PM PHT). No projects in the TNR are impacted by 3 directional PM peak hour project trips.
3. Current Counts. For each impacted improvement, provide current traffic counts to determine the PM PHT. does not apply
4. Reserve Capacity. Determine "reserve capacity" for each impacted improvement by subtracting the current PM PHT from the maximum service volume (MSV) for the existing facility. Reserve capacity is set to zero if current PM PHT exceeds the MSV. For MSVs see County DPW Rule 4224. does not apply
5. New Capacity. New capacity is the incremental increase in PHT that could be accommodated with the planned improvement. Determine the new capacity of each impacted improvement by subtracting the current MSV from the future MSV after the improvement. does not apply

6. Chargeable Capacity. For each impacted improvement, add the reserve capacity to the new capacity. Does not apply. No impacted improvements.
7. Final Adjusted Cost. Find the cost of each impacted improvement and make any adjustments used by the County for tax credits (see Transportation Needs Report Appendix D). Does not apply. No impacted improvements.
8. Capacity Cost per Peak-Hour Trip. For each impacted improvement, determine the capacity cost per PM PHT by dividing the final adjusted improvement cost by the chargeable capacity. Does not apply. No impacted improvements.
9. Traffic Impacts. From step one above, take the *total* number of PM PHT (in both directions) impacting each planned improvement. Does not apply. No impacted improvements.
10. Proportionate Share. For each impacted improvement, determine the proportionate share impact mitigation by multiplying the capacity cost per peak-hour trip by the number of PM PHT impacting the improvement. Does not apply. No impacted improvements.

3(b) Trip Generation and AM and PM Peak Hour Trip Distribution and Assignment

Calculate the City Developments AM, PM and Daily trip generation consistent with the ITE Trip Generation Handbook and Snohomish County Public Works Rule 4220.070. Determine the trip distribution and assignments consistent with the County's document titled "Format for Trip Distributions" available at the County web site identified in the section below titled "Additional Information".

1. The City Developments distributions will be carried out to each key County intersection at which the approach or departure volumes on any leg have three (3) or less peak hour trips. Trips should be distributed onto the County road system as it is expected to be in six years. You may obtain the most current list of key intersections on the County web site identified in Section 5(a) below. As shown in the Traffic Assessment, Key Intersection #177 is anticipated to be impacted by up to 3 peak hour project trips on any leg.
2. The distribution should be a schematic map showing the broad distributions of trips in terms of percentages on different roads. Show all City boundaries. Confirmed.
3. The assignment should be a schematic map with the impacted key intersections identified by ID# and turning movements for each shown in separate diagrams on the same page or on different pages. The assignment should also be presented in tabular form listing each intersection by the intersection ID#, and the number of trips at each movement. Confirmed.

3(c). Additional Analysis for City Developments Generating More Than Fifty (50) Peak Hour Trips DOES NOT APPLY

For City Developments generating more than 50 peak-hour trips the County requires a future level of service forecast to analyze the City Developments impacts on the level of service of County roads. Contact a PDS Traffic Development Reviewer for the most current list of arterial units in arrears and critical arterial units. Identify any arterial units in arrears or critical arterial units impacted by three or more directional peak-hour trips.

3(d) Additional Analysis for Documented Safety Locations and Access or Circulation

The County may also request any City Development provide additional analysis on either documented safety locations or impacts on access or circulation. If so, the County will request specific additional information through the City.

1. Documented safety locations are defined by the County as either an "Inadequate Road Conditions (IRC)" or "Deficient Road Condition (DRC)") or as amended. Unlike LOS impacts

any three peak hour trips added to documented safety locations are considered an impact for which disclosure is necessary (e.g., 2 westbound plus 1 eastbound).

2. Access or circulation. The County may request improvements to existing County roads to provide safe and efficient access and/or circulation. In some instances, the County may request provisions for future County roads identified in the Comprehensive Plan or in Small Area Transportation Studies.

If any off-site improvements are needed for mitigation the County will work with the applicant to determine requirements for right-of-way, construction plans, right-of-way use permits, construction/maintenance bonds, and other issues.

Section Four (4) Traffic Mitigation Offer to the County

The applicant should complete a traffic mitigation offer to the County that summarizes the mitigation identified in the County traffic worksheet and any additional traffic study analysis. This will facilitate timely review of the development and processing the application. The form to use for the offer is titled "Traffic Mitigation Offer to Snohomish County". This form is typically provided to all applicants along with this traffic study checklist. In addition, copies are available from the County contacts or on the County's web site shown in Section Five below.

Section Five (5) County and City Contact Information

5(a) County Contact information

PDS Traffic Reviewers 425-388-3311

Mark Brown, mark.brown@snoco.org
Chad Haubrich, chad.haubrich@snoco.org
David Irwin, david.irwin@snoco.org

DPW Traffic 425-388-3184

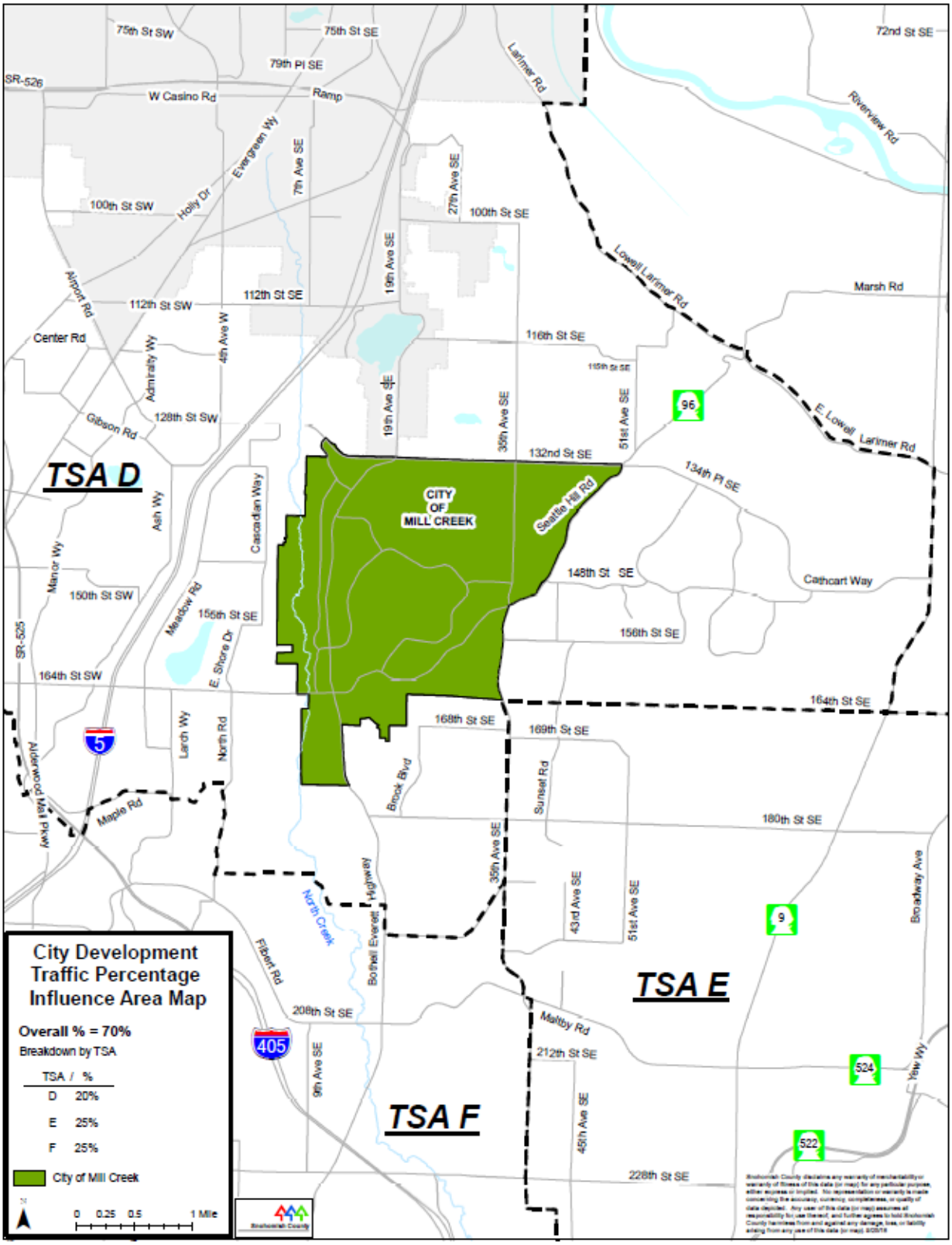
Elbert Esparza, elbert.esparza@snoco.org

County Web Site www.snohomishcountywa.gov/888/Traffic-Mitigation-Concurrency

5(b) City Contact information

Gina Hortillosa PE PMP Director Director of Public Works and Development Services 15728 Main Street Mill Creek, WA 98012 Direct (425) 921-5708 ginah@cityofmillcreek.com	For additional information use the following link to access to the City's web site: cityofmillcreek.com

Section Six (6) City Development Traffic Percentage Influence Area Map



Traffic Mitigation Offer to Snohomish County

The applicant completes part one and submits it to the city with a completed county traffic worksheet. The city completes part two and sends it to the county. The county completes part three and sends it back to the city.

Part One to be completed by Applicant

Basic Development Information

Name of City in which development is located Mill Creek

Name of Proposed Development Crestview Village II

City Project File Number (if known)

Name of Applicant Taylor Development

Address of Applicant 15 Lake Bellevue Dr, Suite 102, Bellevue WA 98005

Proportionate Share Calculation: *Choose Option A or B*

☐ Option A: Based on a percentage of the County's adopted impact fee (Attach traffic worksheet.)

1. The applicable percentage of the County's fee: _____%

2. Net New Average Daily Traffic: _____ADT

3. The adopted County impact fee for this development: _____$/ADT

4. Total Proportionate Share Amount: $_____

☒ Option B: Based on a comprehensive traffic study (Attach traffic worksheet and traffic study)

__X__ No road improvements are impacted. Hence, proportionate share amount is zero.

_____T he following road improvements are impacted. The calculation of proportionate shares is summarized below.

List by Names/Description the Impacted County Projects (attach other pages if necessary)	County Project ID#	PHTs Impacting Project	Capacity Cost per PHT	Proportionate Share Obligation per Impacted Project
1.				
2.				
3.				
4. Total Proportionate Share Amount (sum of obligations for each impacted project)				$_____

☒ **Trip Distribution and Assignment if Required**

If required, attach AM and PM peak-hour trip distribution and assignment. (Attach traffic worksheet showing whether or not it is required and traffic study).

☐ **Mitigation of Other Impacts if Required for Developments Generating More than 50 Peak-Hour Trips**

Mitigation of Impacts on Level of Service

_____No impact or not applicable ____ Mitigation as described in attached traffic study.

Mitigation of Impacts on Inadequate Road Conditions

_____No impact or not applicable ____ Mitigation as described in attached traffic study.

Mitigation for Impacts on Access or Circulation

_____No impact or not applicable ____ Mitigation as described in attached traffic study.

☒ **Written Offer**

The Applicant hereby voluntarily agrees to pay the total proportionate share amount shown above for impacts of the proposed development on the capacity of Snohomish County roads and provide mitigation of all other impacts as indicated above and described in attached documents.

BY: _____Date_____

Signature by Authorized Official of Applicant or Authorized Representative

Print Name and Title _____

Instructions to Applicant. Submit this offer, a completed county traffic worksheet, and any other attachments to the city with your initial application or send directly to Deb Werdal, Snohomish Co. DPW Traffic, 3000 Rockefeller M/S 607, Everett WA 98201.

Part Two: To be completed by the City

Receipt of Written Offer and Attachments by City and Routing to County

Name of Proposed Development

City Project File Number

Date Received

City Staffer Assigned to Project

Address

Phone

Instructions to City. Send this offer and all attachments to Deb Werdal, Snohomish Co. DPW Traffic Operations, 3000 Rockefeller M/S 607, Everett WA 98201. Send copy to staffer shown above.

BY:

_____Date_____ _____

Initialed by City Staffer Print Name and Title

Part Three: To be completed by Snohomish County

Receipt of Offer and Attachments by Snohomish County and Routing Back to City

Name of Proposed Development

City Project File Number

Received by:

_____Date_____ _____

Initialed by County Staffer Print Name and Title

Snohomish County Mitigation Request to City

Snohomish County has reviewed the traffic study worksheet and mitigation offer submitted by the applicant and has determined as follows:

☐ Snohomish County requests that the City impose the mitigation offered above as a condition of approval for the Development. Snohomish County agrees to accept changes in the mitigation payment amount shown above resulting from TDM or lot-yield adjustments approved by the City.

☐ Snohomish County requests that the City require additional supplemental information to adequately evaluate the proposed development's impacts. ☐ The information requested is shown in the notes below.

BY:

_____Date_____ _____

Signature by Authorized County Staffer Print Name and Title

Routing Back to City

Instructions to County Send this offer and all attachments to the City Staffer shown in Part Two above.

Sent by:

_____Date_____ _____

Initialed by City Staffer Print Name and Title

Notes

From:	Esparza, Elbert
To:	Amy Wasserman
Subject:	RE: Comments on Crestview Village II Traffic Assessment
Date:	Monday, September 23, 2019 3:16:44 PM

I reviewed the offer and distribution that you sent for this project. Snohomish County Public Works concurs with the distribution and your conclusion that this development will not impact any county capital improvement projects or county road with three or more directional peak hour trips. Therefore, no mitigation and no offer is required of this development to the county under the county/city interlocal agreement. Thank you for the opportunity to review this proposal.

Elbert H. Esparza Jr.
Associate Land Development Analyst
Snohomish County
Department of Public Works
3000 Rockefeller Ave M/S 607
Everett, WA 98201
Phone: 425-388-3184
FAX: (425) 388-6494
Email: Elbert.Esparza@snoco.org

From: Amy Wasserman [mailto:amy@tenw.com]
Sent: Monday, September 23, 2019 3:12 PM
To: Esparza, Elbert <Elbert.Esparza@co.snohomish.wa.us>
Cc: Jeff Schramm <schramm@tenw.com>; Phil Kitzes <phil@taylordev.com>; Robert Fitzmaurice <robert@taylordev.com>
Subject: Comments on Crestview Village II Traffic Assessment

Hi Elbert,

Thanks for talking with me on the phone last week to clarify your comments regarding the traffic assessment we prepared for the proposed Crestview Village II development in the City of Mill Creek.

We have attached Exhibit 2 of the ILA (Snohomish County Traffic Worksheet and Traffic Study

Requirements for City Developments Impacting County Roads) for the Crestview Village II development which outlines the process to determine impacts to Snohomish County, and have made specific notes about how the Crestview II applicant is following the process to determine the proportionate share impacts. We have also attached the trip distribution and assignment referenced in Exhibit 2 and a copy of the traffic offer mitigation form that accompanies the Traffic Worksheet.

Based on the information included in the attached documents, we believe the Crestview Village II development does not have any proportionate share impacts to Snohomish County road projects and therefore no mitigation is required. Please confirm.

Thank you,
Amy

Amy Wasserman | Transportation Engineer
TENW 11400 SE 8th Street, Suite 200, Bellevue, WA 98004
amy@tenw.com | Cell: (425) 466-7072