

Transportation Impact Analysis

PROCTOR WILLOWS

Prepared for:

The Quadrant Corporation

March 2019

Prepared by:



12131 113th Avenue NE, Suite 203
Kirkland, WA 98034-7120
Phone: 425-821-3665
Fax: 425-825-8434
www.transpogroup.com

16159.00

© 2019 Transpo Group

Table of Contents

INTRODUCTION.....	1
Project Description.....	1
Scope of Analysis	1
EXISTING CONDITIONS.....	4
Study Area	4
Street System	4
Non-Motorized Facilities	5
Transit Facilities	5
Traffic Volumes	5
Traffic Operations	7
Traffic Safety.....	8
FORECASTED CONDITIONS	10
Planned Improvements.....	10
Future Without-Project Traffic Volumes.....	10
Trip Generation	13
Trip Distribution & Assignment	13
Future With-Project Traffic Volumes.....	16
Future Traffic Operations	16
Site Access Analysis.....	18
Traffic Safety.....	19
School Walk Routes.....	19
SUMMARY OF ANALYSIS AND MITIGATION	20
Executive Summary.....	20
Summary of Impacts.....	20
Mitigation Measures.....	20

Appendix

Appendix A: Traffic Counts
Appendix B: LOS Definitions
Appendix C: LOS Worksheets
Appendix D: City of Kirkland Model Volumes
Appendix E: Trip Generation
Appendix F: Signal Warrants
Appendix G: Sight Distance Exhibits
Appendix H: Proportional Share Calculations
Appendix I: Impact Fee Schedule

Figures

Figure 1.	Site Vicinity & Study Intersections	2
Figure 2.	Preliminary Site Plan	3
Figure 3.	Existing Weekday AM and PM Peak Hour Traffic Volumes.....	6
Figure 4.	Future (2021) Without-Project AM and PM Peak Hour Traffic Volumes.....	12
Figure 5.	Weekday AM and PM Peak Hour Trip Distribution	14
Figure 6.	Weekday AM and PM Peak Hour Project Trip Assignment	15
Figure 7.	Future (2021) With-Project Weekday AM and PM Peak Hour Traffic Volumes	17

Tables

Table 1.	Existing Conditions Summary	4
Table 2.	Existing Level of Service Summary.....	7
Table 3.	Collision Summary (2015 - 2017).....	8
Table 4.	Project Trip Generation Estimates	13
Table 5.	Future (2021) Level of Service Summary.....	16

Introduction

This Transportation Impact Analysis (TIA) summarizes the potential transportation-related impacts associated with the proposed mixed-use development located immediately west of Willows Road NE and south of NE 124th Street in the City of Redmond. As necessary, mitigation measures are identified that would offset or reduce significant impacts.

Project Description

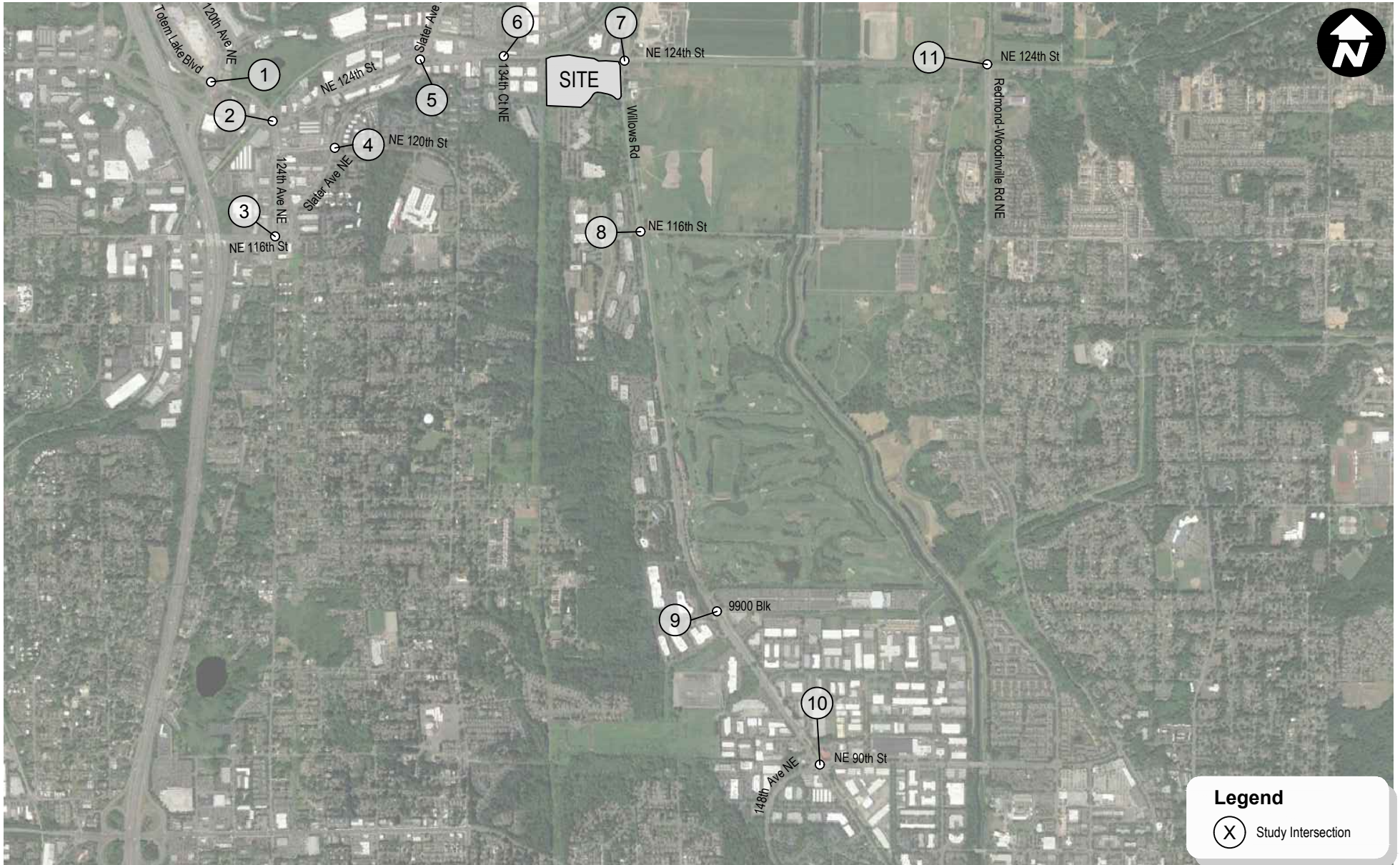
The proposed development project would include 195 apartment units, 175 townhouse units, and 22,500 square feet (sf) of commercial space, including approximately 9,000 sf of office space, an 8,500-sf daycare, and 5,000 sf of retail space. Potential transportation-related impacts are evaluated as part of the City of Redmond's Master Planning and Development Agreement process.

Two access points are proposed with one full turning-movement access via NE 124th Street and one right-in/right-out only access via Willows Road NE. The proposed NE 124th Street access would be controlled with a traffic signal and align with the existing commercial driveway ("Willows 124") to the north. The project site is currently undeveloped.

The site vicinity and study intersections are shown in Figure 1. A preliminary site plan is shown in Figure 2. The development is anticipated to be completed and fully occupied by the end of 2021.

Scope of Analysis

The TIA begins by summarizing existing conditions, including the street system, non-motorized and transit facilities, traffic volumes, traffic operations and traffic safety. Next, forecast conditions are summarized which include future traffic volumes, project trip generation, trip distribution and assignment, with-project traffic operations, site access analysis, and school walk routes. The TIA concludes with an executive summary and a discussion of mitigation measures.

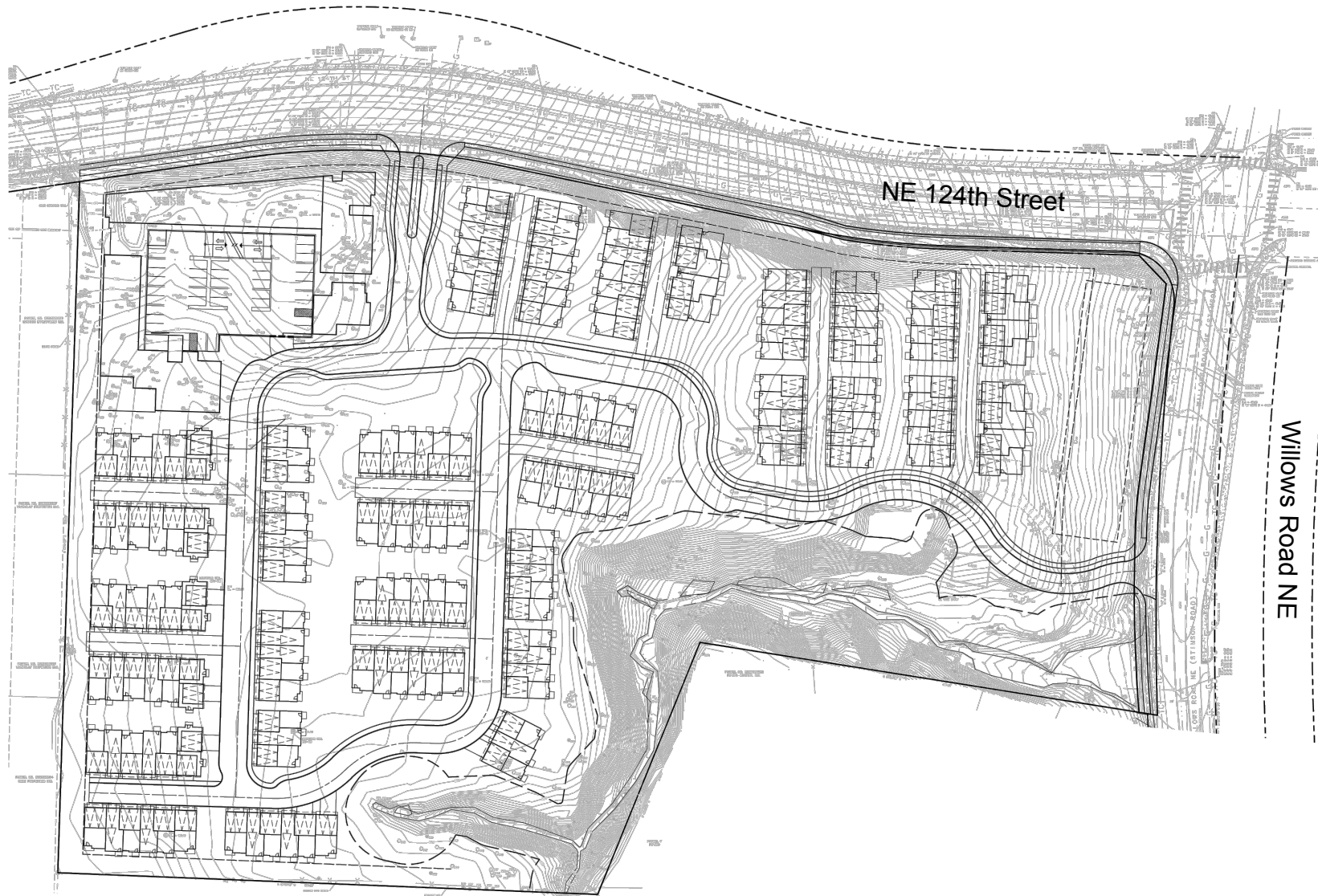


Site Vicinity & Study Intersections

Proctor Willows

FIGURE

1



Preliminary Site Plan

Proctor Willows

Jan 21, 2019 - 12:10pm darwinl M:\1616159.00 - Proctor Willows Feasibility\Graphics\2018-2019 update\Drawing2.dwg Layout: Site Plan

Existing Conditions

This section summarizes existing conditions within the study area defined for this analysis.

Study Area

Considering that the project site is located on the border between the Cities of Redmond and Kirkland, coordination with both jurisdictions was required to determine the study area. Through coordination with the City of Redmond, development review staff identified the following four signalized intersections for analysis:

- Willows Road NE / NE 116th Street
- Willows Road NE / 9900 Block-NE 100th Court
- Willows Road NE / 148th Avenue NE
- Redmond-Woodinville Road NE / NE 124th Street

In addition, through coordination with the City of Kirkland, development review staff identified the following seven signalized intersections for analysis:

- 120th Avenue NE / Totem Lake Boulevard
- Totem Lake Boulevard / NE 124th Street
- 124th Avenue NE / NE 116th Street
- Slater Avenue NE / NE 120th Street
- Slater Avenue NE / NE 124th Street
- 134th Court NE / NE 124th Street
- Willows Road NE / NE 124th Street

In addition to these 11 off-site study intersections, the two proposed site access driveways were analyzed for future with-project conditions.

Street System

The primary roadways within the study area and their characteristics near study intersections are described in Table 1.

Table 1. Existing Conditions Summary

Roadway	Street Classification ¹	Speed Limit	No. of Lanes	Pedestrian Facilities	Bicycle Facilities
Totem Lake Blvd	Secondary Arterial	35	5	Sidewalks Both Sides	None
120th Ave NE	Collector Arterial	25	3-4	Sidewalks on East Side	None
NE 124th St	Primary Arterial	35	5-6	Sidewalks Both Sides	None
124th Ave NE	Primary Arterial	35	3-4	Sidewalks Both Sides	None
NE 116th St	Secondary Arterial	25	5	Sidewalks Both Sides	Bike Lanes
Slater Ave NE	Collector Arterial	35	3	Sidewalks Both Sides	Bike Lanes
NE 120th St	Secondary Arterial	35	3	Sidewalks Both Sides	Bike Lanes
Willows Road NE	Minor Arterial	45	3-5	Intermittent	Bike Lanes
Redmond-Woodinville Rd	Principal Arterial	40	2-4	Intermittent	None
NE 90th St-148th Ave NE	Principal Arterial	30-40	3-5	Sidewalks Both Sides	None

1. As classified per the City of Redmond or City of Kirkland

Non-Motorized Facilities

As shown in Table 1, most roadways in the City of Kirkland (west of the project site) have sidewalks on both sides of the street. Immediately east of the project site on Willows Road NE, sidewalks are intermittent on either side. Further east and south of the site, Redmond-Woodinville Road provides intermittent sidewalks on both sides and NE 90th Street-148th Avenue NE provides sidewalks on both sides of the street.

In terms of bicycle facilities, on-street bicycle lanes exist on NE 116th Street, Slater Avenue NE, NE 120th Street and Willows Road NE. In addition, the soft-surface Cross Kirkland Corridor (CKC) trail exists approximately one-half mile west of the project site and runs between the Totem Lake Business District and South Kirkland Park & Ride. The hard-surface Sammamish River Trail exists approximately one-half mile east of the project site and runs between Blythe Park in Bothell to Marymoor Park and can be accessed via NE 124th Street.

Transit Facilities

Three transit routes, operated by King County Metro, are provided within walking distance of the project. The nearest transit stop is located on the south side of NE 124th Street west of Willows Road NE, immediately north of the project site. The three routes provided are summarized below:

Route 243 is a commuter route that operates between Overlake Transit Center and Kenmore Park and Ride on weekdays only. The route provides service only during the AM peak period (5:30 a.m. – 7:00 a.m.) and PM peak period (5:30 p.m. – 7:00 p.m.) with 30-minute headways for both peak periods.

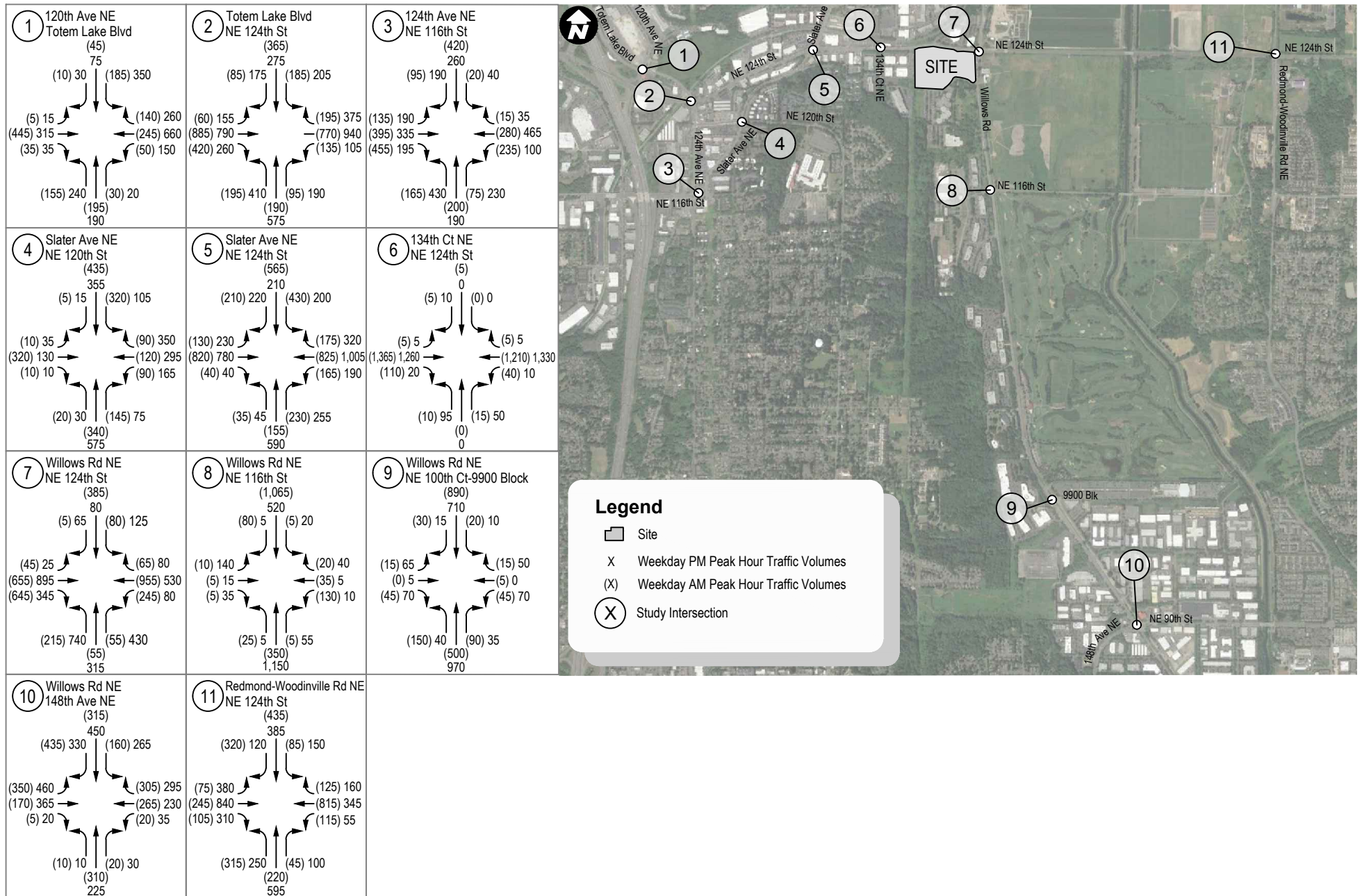
Route 244 is a commuter route that operates between Overlake Transit Center and Kenmore Park and Ride on weekdays only. The route provides service only during the AM peak period (6:30 a.m. – 8:30 a.m.) and PM peak period (4:00 p.m. – 6:00 p.m.) with 30-minute headways for both peak periods.

Route 930 is a commuter route that operates between Redmond Town Center and Kingsgate Park and Ride on weekdays only. The route provides service only during the AM peak period (6:00 a.m. – 10:00 a.m.) and PM peak period (2:00 p.m. – 6:00 p.m.) with 30-minute headways for both peak periods. King County Metro has identified Route 930 as a high priority (No. 5) for service growth in its *2018 System Evaluation Report*.

King County Metro's North Eastside Mobility Project finalized recommendations in late-2018 for expanding and improving transit service in the north Eastside area. They included replacing Routes 243 and 244 and providing additional service to Route 930 with peak and midday service between 6 a.m. and 7 p.m. with 30-minute headways. In addition, riders could use new Route 225 in place of Route 244 as it would provide new all-day service between Overlake and Kenmore with 30-minute headways during the weekday peak and midday hours and 60-minute headways on weekday nights and on the weekends. These recommendations will be submitted to the King County Council in early 2019 and if adopted, changes to existing bus service would take effect in September 2019.

Traffic Volumes

Traffic counts at the 11 study intersections were collected during the weekday AM and PM peak periods on a typical weekday in November 2018. Detailed intersection traffic counts are included in Appendix A. Existing traffic volumes are shown in Figure 3. Traffic volumes were rounded to the nearest five vehicles since weekday volumes fluctuate day-to-day.



Existing Weekday AM and PM Peak Hour Traffic Volumes

Proctor Willows

Traffic Operations

A level of service (LOS) analysis was conducted for the study area intersections for the weekday AM and PM peak hours. All study intersections were analyzed using *Synchro 9*. This software program provides an analysis based on methodologies presented in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2010 Edition).

LOS values range from LOS A, which indicates good operating conditions with little or no delay, to LOS F, which indicates congestion and long vehicle delays. LOS is measured in terms of total average intersection delay for signalized intersections. LOS is measured in terms of the average delay for the worst minor street movement for stop sign-controlled intersections such as the proposed driveway on Willows Road NE. A more detailed explanation of LOS criteria is provided in Appendix B.

Signal timing settings were provided by the Cities of Redmond and Kirkland. Detailed LOS worksheets for these intersections are included in Appendix C. LOS results using existing intersection control and signal timing plans are summarized in Table 2.

The Cities of Redmond and Kirkland both currently have an intersection LOS standard of LOS D or better. The Redmond-Woodinville Road / NE 124th Street intersection is the one exception within the study area because Redmond-Woodinville Road is also State Route (SR) 202 and designated a regionally significant state highway (a.k.a. non-highway of statewide significance (HSS)). Per House Bill 1487, the Puget Sound Regional Council (PSRC) adopted a LOS E or better standard for SR 202 facilities located in the Cities of Redmond and Woodinville. The PSRC states that "local jurisdictions should...ensure the adopted LOS standards in their transportation elements are consistent with the LOS standards for non-HSS and HSS state routes."¹

Table 2. Existing Level of Service Summary

Intersection	Weekday AM Peak Hour		Weekday PM Peak Hour	
	LOS ¹	Delay ²	LOS	Delay
1. 120th Ave NE / Totem Lake Blvd	B	17	C	23
2. Totem Lake Blvd / NE 124th St	D	43	D	50
3. 124th Ave NE / NE 116th St	D	36	D	38
4. Slater Ave NE / NE 120th St	C	34	F	94
5. Slater Ave NE / NE 124th St	F	95	E	70
6. 134th Court NE / NE 124th St	A	2	A	7
7. Willows Road NE / NE 124th St	D	45	D	45
8. Willows Road NE / NE 116th St	C	25	B	14
9. Willows Road NE / 9900 Block	B	10	B	12
10. Willows Road NE / 148th Ave NE	D	45	D	47
11. Redmond-Woodinville Road / NE 124th St ³	D	38	E	69

1. Level of service based on 2010 *Highway Capacity Manual* methodology

2. Average delay in seconds per vehicle

3. LOS standard of LOS E or better per PSRC

As shown in Table 2, all study intersections operate at the LOS D or better during the existing AM peak hour and meet applicable LOS standards except for Slater Avenue NE / NE 124th Street. During the existing PM peak hour, the two study intersections on Slater Avenue NE currently operate at LOS E or F and do not meet the City of Kirkland's LOS Standard of LOS D or better. The remaining nine intersections currently meet applicable LOS standards during the PM peak hour.

¹ <https://www.psrc.org/level-of-service>

Traffic Safety

Collision records were reviewed within the study area to document any potential traffic safety issues. The most recent complete set of annual collision data from WSDOT is for the three-year period between January 1, 2015 and December 31, 2017.

A summary of the total and average annual number of reported collisions as well as the collisions rate at each study intersection is provided in Table 3. In addition to the study intersections, the segment on NE 124th Street between Willows Road NE and 134th Court NE was also reviewed. The collision rate is representative of the average number of collisions per one million entering vehicles (MEV) at each intersection. Intersections with a rate greater than 1.0 collision per MEV are typically flagged for further investigation to determine whether an adverse condition exists.

For additional safety analysis, the critical crash rate was also calculated for each intersection. Critical crash rates are crash rates that have been statistically adjusted, based on other roads with similar characteristics, to remove the elements of chance and randomness. This is a check to determine if the rate at a location is significantly higher than a predetermined average rate for locations of similar characteristics. Based on the methodology found in Chapter 4 of the *Highway Safety Manual* (AASHTO, 2010), observed collisions per MEV and critical crash rates at each study intersection were compared to identify where observed rates were higher than the calculated critical rate.

Table 3. Collision Summary (2015 - 2017)

Intersection	Collisions Per Year			Annual Average	Collisions Per MEV ¹	Critical Crash Rate
	2015	2016	2017			
1. 120th Ave NE / Totem Lake Blvd	4	4	4	4.0	0.47	0.76
2. Totem Lake Blvd / NE 124th St	7	11	6	8.0	0.49	0.69
3. 124th Ave NE / NE 116th St	19	11	5	11.7	1.04	0.73
4. Slater Ave NE / NE 120th St	10	4	7	7.0	0.95	0.78
5. Slater Ave NE / NE 124th St	9	8	6	7.7	0.53	0.70
6. 134th Court NE / NE 124th St	5	1	0	2.0	0.20	0.74
7. Willows Road NE / NE 124th St	10	15	4	9.7	0.71	0.71
8. Willows Road NE / NE 116th St	2	3	2	2.3	0.32	0.78
9. Willows Road NE / 9900 Block	1	3	1	1.7	0.22	0.78
10. Willows Road NE / 148th Ave NE	8	1	0	3.0	0.30	0.74
11. Redmond-Woodinville Road / NE 124th St ³	4	4	4	4.0	0.30	0.71
Segment						
NE 124th St (Willows Road NE to 134th Ct NE)	1	1	3	1.7		

1. MEV = one million entering vehicles

As shown in the table above, all study intersections are at or below 0.53 collisions per MEV except for 124th Avenue NE / NE 116th Street, Slater Avenue NE / NE 120th Street, and Willows Road NE / NE 124th Street which are at 1.04, 0.95, and 0.71 collisions per MEV respectively. Considering the typical 1.0 collision per MEV rate threshold, the intersection of 124th Avenue NE / NE 116th Street is flagged for additional review.

When considering the critical crash rates, the 124th Avenue NE / NE 116th Street and Slater Avenue NE / NE 120th Street intersections were also the only intersections where the observed crash rate was greater than the critical crash rate. Of the 35 total collisions that occurred at the intersection of 124th Avenue NE / NE 116th Street during the three-year period, the most common types were left-turn related (17), followed by rear-end (7), and

entering at an angle (7). One collision at this intersection involved a motor vehicle striking a pedestrian, which occurred when the vehicle failed to yield when turning right in wet dark conditions. The 17 left-turn related collisions are comprised of vehicles turning left from all four approaches equally. The left-turn signal phasing for all four approaches are currently protected/permitted.

Of the 21 collision at the intersection of Slater Avenue / NE 120th Street during the three-year period, the most common types were left-turn related (7), entering at angle (7), and rear-ends (3).

Along the segment of NE 124th Street there was one reported fatality that was the result of a motorist striking a street light pole in dark conditions. There were two pedestrian-related and one bicyclist-related collisions that were reported in the general study area during the three-year period. The pedestrian collisions occurred at 124th Avenue NE / NE 116th Street and Slater Avenue NE / NE 124th Street. The bicycle collision occurred at the intersection of Willows Road NE / 148th Avenue NE.

Forecasted Conditions

Planned Improvements

The 2019-2024 Transportation Improvement Program (TIP) for the City of Redmond and the *2019-2024 Preliminary Six-Year Capital Improvement Program (CIP)* for the City of Kirkland were reviewed for future transportation improvements that may impact the street network within the study area. One improvement project was identified that may affect future traffic operations at study intersections:

- 124th Avenue NE between NE 116th Street and NE 124th Street is planned to be widened from three lanes to five lanes including a two-way center turn lane. Purchase of the necessary land for this improvement is scheduled for 2020 with construction starting in 2021.

The proposed Proctor Willows project is anticipated to be completed in 2021. Thus, this improvement was not assumed in the future traffic operations analysis.

Non-Motorized Improvements

Two non-motorized improvements are also planned near the project:

- A mid-block crossing with HAWK signals is planned along Willows Road NE. This crossing would connect the existing golf course with office buildings to the west allowing access to transit stops. This project is expected to be finished in 2019.
- A pedestrian and bicycle bridge is planned at the NE 124th Street / 124th Avenue NE intersection along the Cross Kirkland Corridor (CKC). Design would be consistent with the CKC Master Plan.

Future Without-Project Traffic Volumes

Future without-project traffic volumes for the 2021 horizon year were estimated using different methods and assumptions dependent on the jurisdiction (Redmond or Kirkland).

For the four study intersections located in the City of Redmond:

- A 2 percent annual growth rate was applied to existing AM and PM peak hour traffic volumes. This growth rate is identified as an appropriate rate per the City of Redmond's *Transportation Impact Analysis Outline*.
- AM and PM peak hour project trips generated by two nearby "pipeline" developments (Willows Preparatory School²) and Willow Building X were included in the future traffic volumes.

²

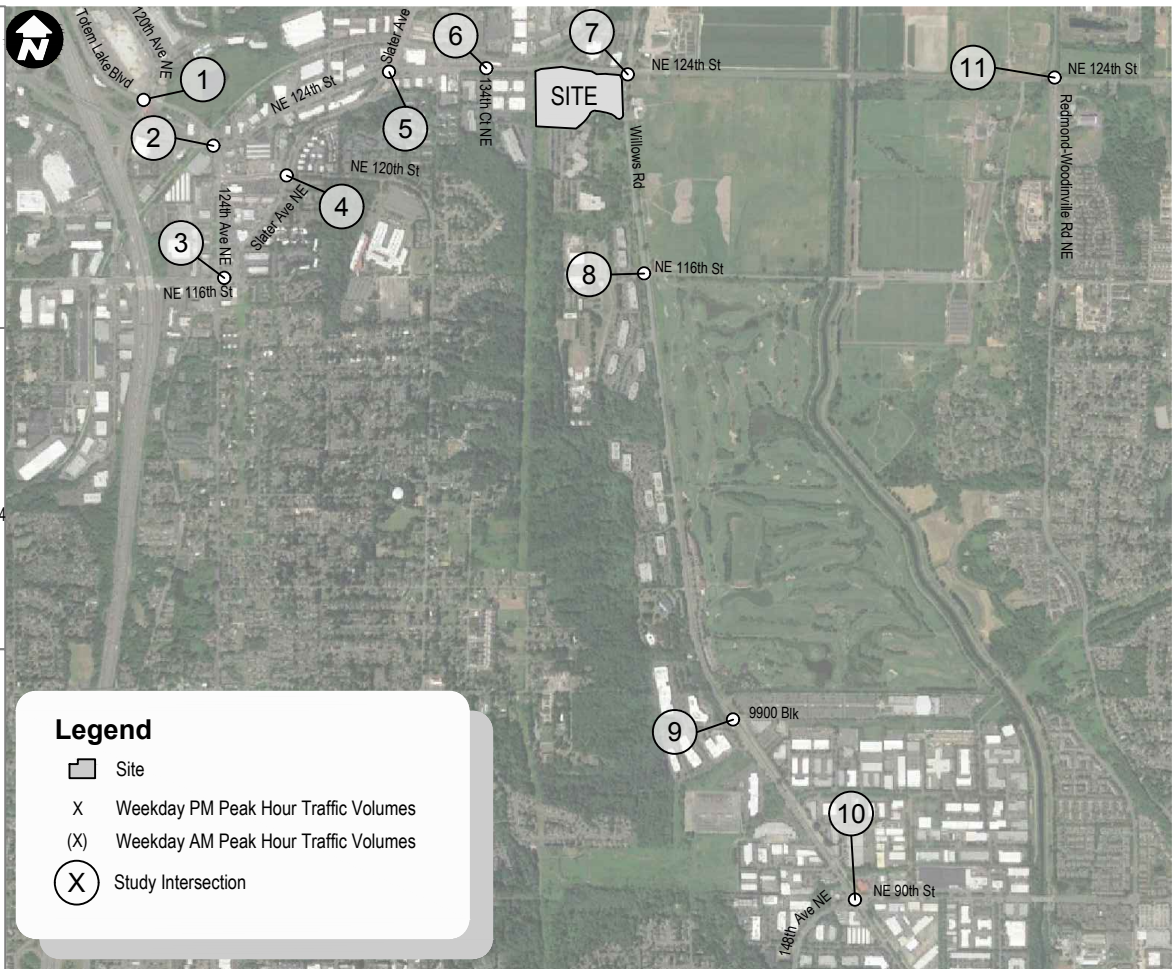
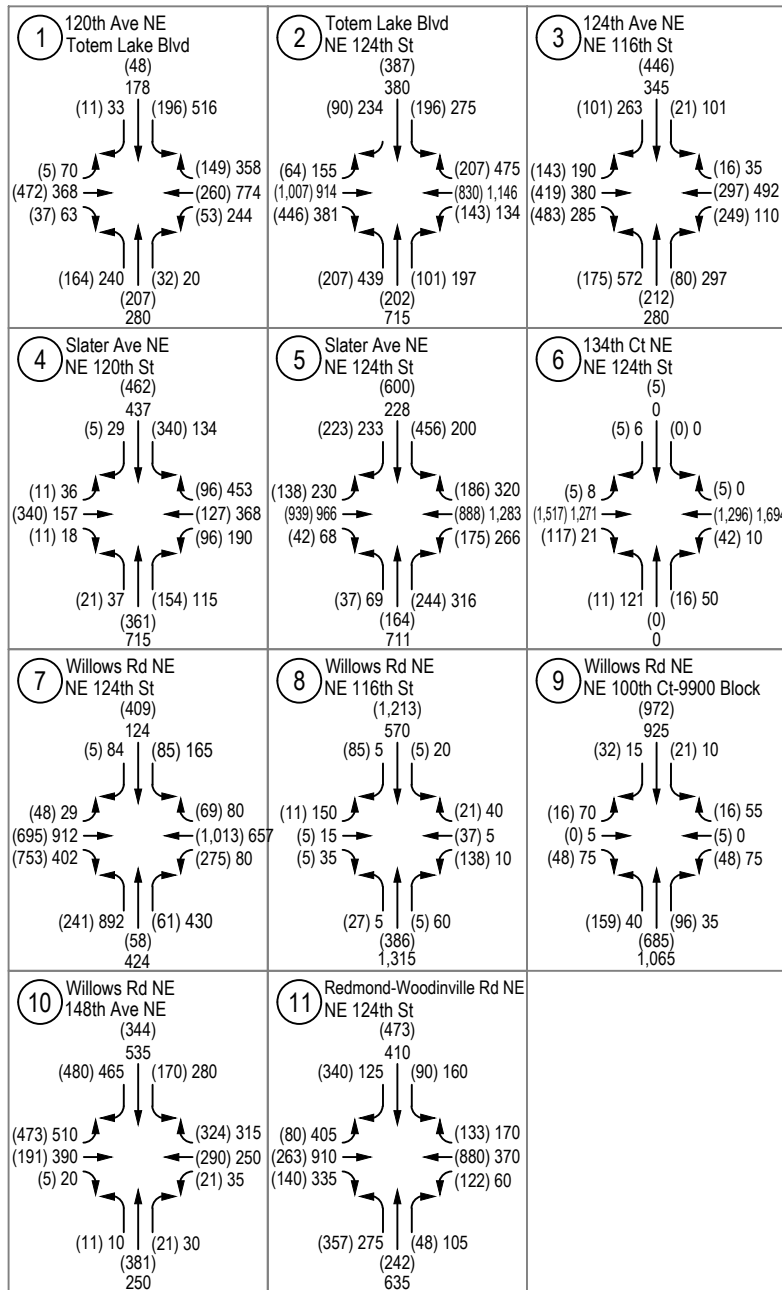
Willows Preparatory School located southeast of the Redmond-Woodinville Road NE / NE 124th Street intersection. Traffic Impact Analysis prepared by Gibson Traffic Consultants. November 2016.

For the seven study intersections located in the City of Kirkland:

- Future PM peak hour volumes were generated by Kirkland's travel model³ and provided by Kirkland development review staff. These model volumes are provided in Appendix D.
- Future AM peak hour volumes were estimated by applying a 2 percent growth rate to the existing AM peak hour traffic volumes based on coordination with development review staff.

Future (2021) without-project traffic volumes for all eleven study intersections are illustrated in Figure 4.

³ Some model volumes were somewhat lower than existing volumes at certain intersections. This is because traffic volumes fluctuate from day-to-day and whereas existing volumes were recorded on a weekday in November 2018, volumes used to calibrate the City's travel model were collected on a different day. To account for this and to assure no future volumes were lower than existing volumes, future model volumes were scaled up to match existing volumes.



Future (2021) Without-Project AM and PM Peak Hour Traffic Volumes

Proctor Willows

Trip Generation

Weekday daily, AM peak hour, and PM peak hour trips were estimated using trip rates referenced for Land Use #221 (Multifamily Housing (Mid-Rise)), Land Use #710 (General Office Building), Land Use #565 (Daycare) and Land Use #820 (Shopping Center) from the *Trip Generation Manual*, 10th Edition, Institute of Transportation Engineers (ITE), 2017. Internal capture rates were applied per *ITE Trip Generation Handbook*, 3rd Edition. Pass-by trips were deducted from the PM peak hour only per *ITE Trip Generation Handbook*, 3rd Edition.

As a conservative estimate, all trips are assumed to be vehicular in nature with no mode split adjustments for walking, bicycling or use of transit.

Table 4 summarizes the weekday vehicle trip generation. Detailed trip generation calculations including the internal capture and pass-by adjustments are provided in Appendix E.

Table 4. Project Trip Generation Estimates

Land Use	Size	Trip Rate ¹	Net Project Trips		
			Total	In	Out
<u>Weekday Daily</u>					
Multifamily Housing	370 DU	5.44	2,004	1,002	1,002
Office	9 ksf	9.74	74	37	37
Daycare	8.5 ksf	47.62	332	166	166
Retail	5 ksf	37.75	152	76	76
Total			2,562	1,281	1,281
<u>Weekday AM Peak Hour</u>					
Multifamily Housing	370 DU	0.36	132	35	97
Office	9 ksf	1.16	10	9	1
Daycare	8.5 ksf	11.00	94	50	44
Retail	5 ksf	0.94	4	2	2
Total			240	96	144
<u>Weekday PM Peak Hour</u>					
Multifamily Housing	370 3DU	0.42	151	92	59
Office	9 ksf	1.15	8	1	7
Daycare	8.5 ksf	11.12	95	45	50
Retail	5 ksf	3.81	10	5	5
Total			264	143	121

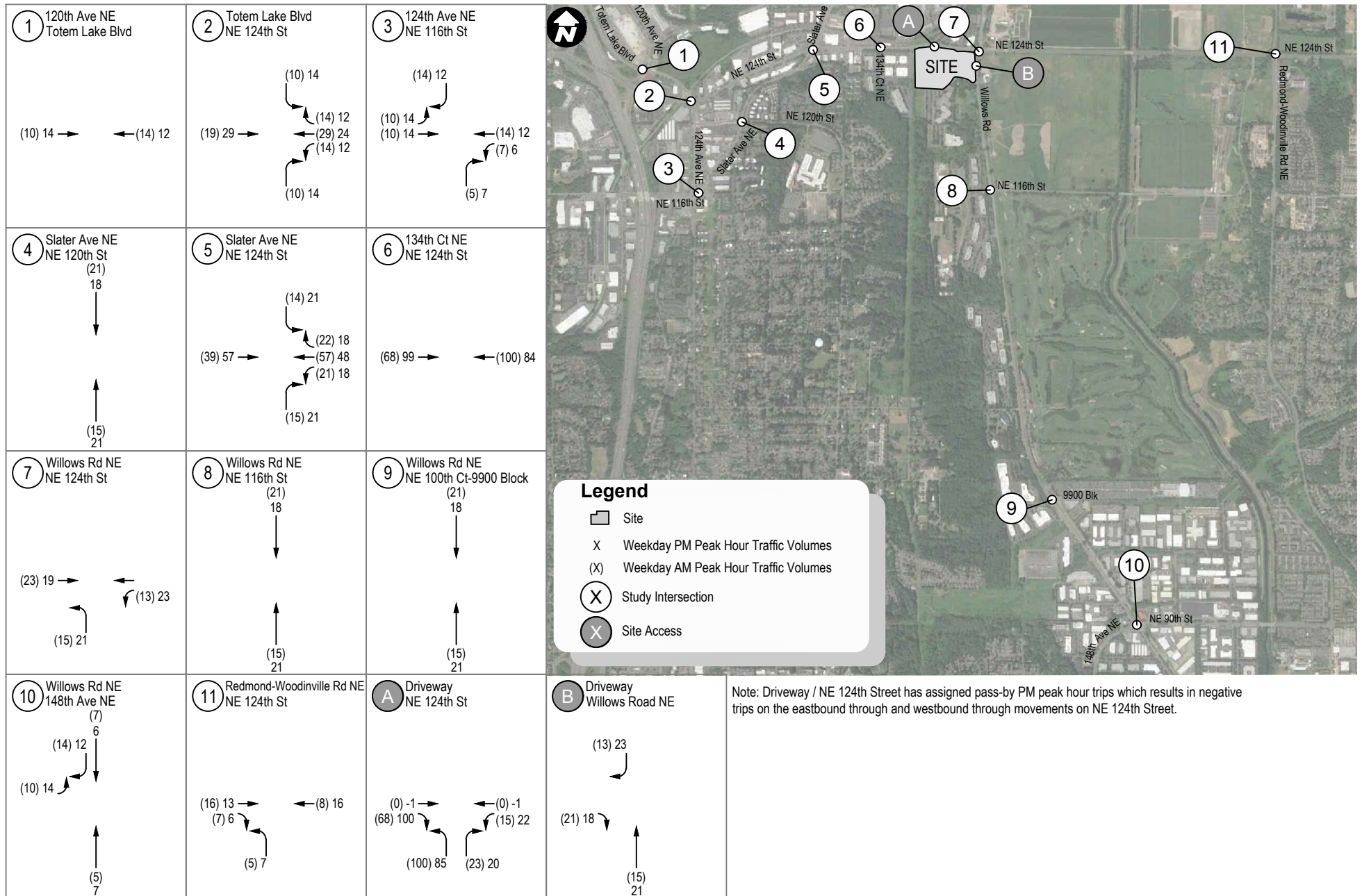
Notes: DU=dwelling units, ksf=1,000 square feet

1. Average trip rates from the *Trip Generation Manual* (ITE, 10th Edition, 2017); the effective trip rate based on the fitted curve equation was used to estimate PM peak hour trips for multifamily housing based on recommendations in the *Trip Generation Handbook* (ITE, 3rd Edition, 2017)

The proposed mixed-use development is expected to generate 2,562 net new daily trips, 240 net new AM peak hour trips, and 264 net new PM peak hour trips.

Trip Distribution & Assignment

Trip distribution patterns were estimated based on the City of Kirkland's travel model. Based on the model, approximately 70 percent of project trips would be oriented to/from the west on NE 124th Street, 15 percent to/from the east on NE 124th Street, and 15 percent to/from the south on Willows Road NE. Figure 5 illustrates the estimated trip distribution and Figure 6 illustrates project trip assignment at study intersections.



Weekday AM and PM Peak Hour Project Trip Assignment

Proctor Willows

Future With-Project Traffic Volumes

Future with-project traffic volumes were estimated by adding site-generated weekday AM and PM peak hour traffic volumes to future (2021) without-project traffic volumes. The resulting 2021 with-project traffic volumes are illustrated in Figure 7.

Future Traffic Operations

A level of service analysis was conducted for 2021 without- and with-project conditions assuming no channelization improvements and no change in existing signal timing at study intersections. The future with-project analysis documents the potential project impacts of adding new trips to the study intersections.

The results of the LOS analysis are summarized in Table 5. Levels of service worksheets for 2021 without- and with-project traffic conditions are included in Appendix C of this report.

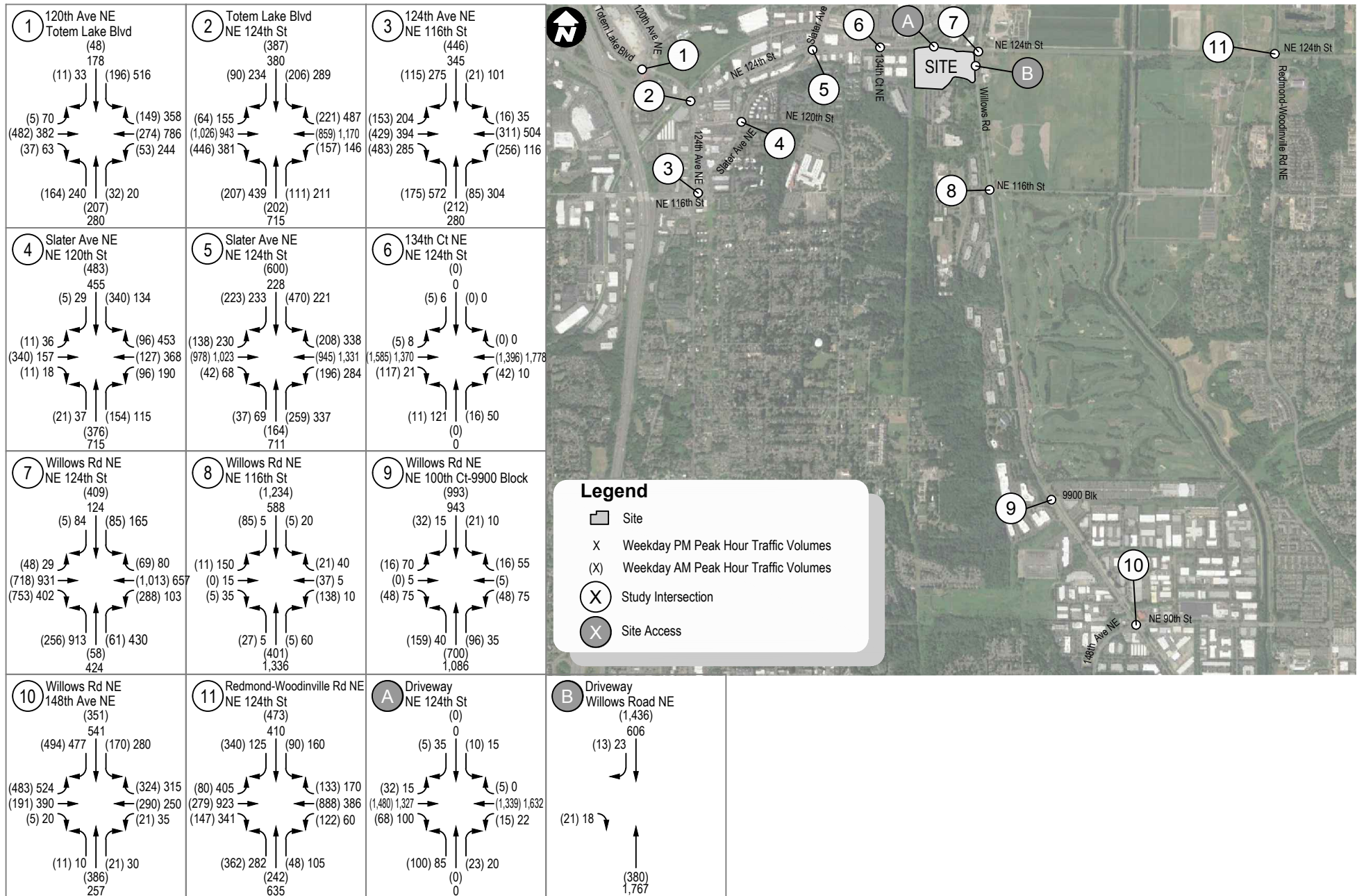
Table 5. Future (2021) Level of Service Summary

Intersection	2021 Without-Project		2021 With-Project	
	LOS ¹	Delay ²	LOS	Delay
<u>Weekday AM Peak Hour</u>				
1. 120th Ave NE / Totem Lake Blvd	B	18	B	18
2. Totem Lake Blvd / NE 124th St	D	45	D	47
3. 124th Ave NE / NE 116th St	D	38	D	38
4. Slater Ave NE / NE 120th St	D	36	D	36
5. Slater Ave NE / NE 124th St	F	103	F	109
6. 134th Court NE / NE 124th St	A	2	A	1
7. Willows Road NE / NE 124th St	E	60	E	62
8. Willows Road NE / NE 116th St	D	43	D	46
9. Willows Road NE / 9900 Block	B	11	B	11
10. Willows Road NE / 148th Ave NE	D	54	D	55
11. Redmond-Woodinville Road / NE 124th St ³	D	48	D	49
<u>Weekday PM Peak Hour</u>				
1. 120th Ave NE / Totem Lake Blvd	D	42	D	43
2. Totem Lake Blvd / NE 124th St	E	67	E	71
3. 124th Ave NE / NE 116th St	E	63	E	65
4. Slater Ave NE / NE 120th St	F	151	F	149
5. Slater Ave NE / NE 124th St	F	96	F	109
6. 134th Court NE / NE 124th St	A	6	A	4
7. Willows Road NE / NE 124th St	D	52	D	55
8. Willows Road NE / NE 116th St	B	15	B	15
9. Willows Road NE / 9900 Block	B	14	B	14
10. Willows Road NE / 148th Ave NE	D	51	D	51
11. Redmond-Woodinville Road / NE 124th St ³	F	87	F	90

1. Level of service based on 2010 Highway Capacity Manual methodology

2. Average delay in seconds per vehicle

3. LOS standard of LOS E or better per PSRC



Future (2021) With-Project Weekday AM and PM Peak Hour Traffic Volumes

FIGURE

Proctor Willows

transpogroup **7**
WHAT TRANSPORTATION CAN BE.

As shown in Table 5, with the addition of project traffic and assuming no change in existing channelization and signal timing, all intersections would operate at the same LOS compared to without-project conditions.

For intersections that do not meet LOS Standards:

- During the AM peak Hour, traffic operations at two study intersections would continue not meeting the applicable LOS standard, including Slater Avenue / NE 124th Street and Willows Road / NE 124th Street.
- During the PM peak hour, traffic operations at five study intersections would continue not meeting the applicable LOS standard, including Totem Lake Boulevard / NE 124th Street, 124th Avenue NE / NE 116th Street, Slater Avenue NE / NE 120th Street, Slater Avenue NE / NE 124th Street, and Redmond-Woodinville Road / NE 124th Street.

Site Access Analysis

Traffic Signal Warrants

The *Manual of Uniform Traffic Control Devices* (MUTCD⁴) is regularly used to evaluate warrants for the installation of traffic signals. Eleven warrants are described with the instruction that a traffic control signal should not be installed unless one or more of the warrants are met. Two of the 11 warrants were evaluated at the proposed signalized driveway on NE 124th Street, including Warrant 1 (Eight-Hour Vehicular Volume) and Warrant 2 (Four-Hour Vehicular Volume). The remaining warrants are not applicable to this intersection and as such, were not evaluated.

In estimating future hourly traffic volumes at the proposed driveway, it was assumed that the eighth and fourth highest hours would represent approximately 80 and 90 percent of weekday AM peak hour project traffic, respectively. This assumption is supported by traffic counts at existing multi-family developments in the area. The future northbound approach will be a single outbound lane so total northbound approach volumes were considered in the warrant analysis. It was determined that both Warrant 1 and Warrant 2 would be satisfied under future with-project conditions⁵. The signal warrant calculations and summary are available in Appendix F.

Traffic Operations

For the new proposed driveway on NE 124th Street, the intersection was modeled as a traffic signal coordinated in the east-west movements with cycle lengths matching the existing peak hour cycle lengths. During the future AM peak hour, the proposed signal is anticipated to operate at LOS A, while the right-in/right-out driveway on Willows Road NE is anticipated to operate at LOS D. During the future PM peak hour, the proposed traffic signal and right-in/right-out driveway on Willows Road NE are both anticipated to operate at LOS B.

Sight Distance

Entering and stopping sight distance was analyzed at the two proposed access driveways. Considering that the signalized driveway is in Kirkland jurisdiction and the right-in/right-out driveway is in Redmond jurisdiction, both cities' sight distance requirements were reviewed.

⁴ *Manual on Uniform Traffic Control Devices*. 2009 Edition. Chapter 4C. Traffic Control Signal Needs Studies.

⁵ Even if the eighth and fourth highest hours represented approximately 60 and 65 percent of AM peak hour traffic, respectively, both Warrant 1 and Warrant 2 would be satisfied under future with-project conditions.

For the City of Redmond, the sight distance requirements⁶ for a 45-mph roadway (Willows Road NE) would require 610 feet of entering sight distance (for eastbound-to-southbound right-turning motorists) based on a 14.5-foot setback. For stopping sight distance in the southbound direction, 495 feet is required.

For the City of Kirkland, the sight distance requirements⁷ for a 35-mph roadway (NE 124th Street) call for a 14-foot setback with a minimum sight distance of 390 feet (for northbound-to-eastbound motorists turning right on red). Accounting for the existing uphill grade (approximately 8 percent) to the east and existing downhill grade (approximately 6 percent) to the west, the minimum sight distance was adjusted to 351 feet and 429 feet, respectively, in accordance with Exhibit 9-53 of Chapter 9 of *A Policy on Geometric Design of Highways and Streets* (AASHTO, 4th Edition). In this case, both the stopping and entering sight distance requirements are equal.

Sight distance exhibits prepared by KPFF are provided in Appendix G and show that both proposed driveways would meet minimum entering and stopping sight distance requirements in each respective jurisdiction. As stated in this exhibit, topographic contours represent existing conditions, not future conditions. Future designs will be prepared showing future topographic contours and demonstrating that the sight distance triangles will be free of obstruction, including slopes on the southwest corner of this new intersection.

Traffic Safety

Traffic generated by the proposed development would likely result in a proportionate increase in the probability of traffic accidents. It is unlikely, however, that this traffic would create a safety hazard or significantly increase the number of reported accidents at the locations within the project vicinity, based on the minimal increase in overall traffic volumes and the impacts to intersection operations.

To address existing safety issues at the 124th Avenue NE / NE 116th Street intersection and particularly the frequency of left-turn type collisions, the City of Kirkland could consider changing the left-turn phasing from protected/permitted to protected-only. However, it is important to note that this change would affect traffic operations and degrade the intersection from LOS D to LOS E in the future AM peak hour⁸.

School Walk Routes

Public school for children living in the proposed development would be provided by the Lake Washington School District (LWSD) and students would be assigned to Rose Hill Elementary School, Rose Hill Middle School and Lake Washington High School. The distance between the project site and these schools is approximately 3.5 to 4 miles.

Based on information provided on the LWSD website⁹ and coordination with district transportation planning staff, students attending all three schools would be provided school bus service. Future school bus stop locations for prospective students will be determined by LWSD planning staff once future students enroll at each respective school.

⁶ Redmond Zoning Code – Appendix 2. Tables 6 & 9

⁷ City of Kirkland Sight Distance Guidelines. Table 2. Sight Distance Triangle Guidelines

⁸ The proposed development's proportional share of daily traffic at this intersection is approximately 5 percent, below the City of Kirkland's LOS E threshold of 15 percent for mitigation.

⁹ <http://busroutes.lwsd.org/elinkrp/Students/BasicTransBoundarySearch.aspx>

Summary of Analysis and Mitigation

Executive Summary

- The proposed project would construct 195 apartment units, 175 townhouse units, approximately 9,000 sf of office space, an 8,500-sf daycare, and 5,000 sf of retail space.
- Access to the project would be provided via two new driveways, one signalized driveway on NE 124th Street and one right-in/right-out driveway on Willows Road NE.
- The proposed mixed-use development is expected to generate 2,562 net new daily trips, 240 net new AM peak hour trips, and 264 net new PM peak hour trips.

Summary of Impacts

- All study intersections in the future would operate at the same LOS with or without the addition of project trips.
- One intersection in the City of Redmond, Redmond-Woodinville Road / NE 124th Street, would not meet the applicable LOS standard. Possible mitigation at this intersection is identified in the following section.
- Five intersections (listed below) would not meet the City of Kirkland's LOS D or better standard. As necessary, possible mitigation at these intersections is identified in the following section.
 - o Totem Lake Boulevard / NE 124th Street – LOS E (AM and PM peak hour)
 - o 124th Avenue NE / NE 116th Street – LOS E (AM and PM peak hour)
 - o Slater Avenue NE / NE 120th Street – LOS F (PM peak hour)
 - o Slater Avenue NE / NE 124th Street – LOS F (AM and PM peak hour)
 - o Willows Road NE / NE 124th Street – LOS F (AM peak hour)
- The proposed signalized driveway is anticipated to operate at LOS A and LOS B during the future AM and PM peak hour, respectively. The right-in/right-out driveway is anticipated to operate at LOS D and B during the future AM and PM peak hour, respectively.

Mitigation Measures

This section summarizes recommended mitigation measures at Redmond and Kirkland study intersections.

City of Redmond

As disclosed in previous sections, the Redmond-Woodinville Road / NE 124th Street intersection would operate at LOS F during the future PM peak hour and not meet the applicable standard of LOS E or better. The proposed project is anticipated to increase PM peak hour traffic at this location by 39 vehicles or, on average, less than one vehicle per minute. Project-generated traffic would represent approximately 1 percent of the total traffic anticipated to enter this intersection during future PM peak hour conditions and increase average vehicular delay by 3 seconds (from approximately 87 to 90 seconds).

PM peak hour signal optimization at Redmond-Woodinville Road / NE 124th Street would mitigate the project's potential impact to traffic operations while maintaining the existing cycle length. With these changes, the intersection would operate at LOS E (80 seconds of average delay), better than the future without-project condition of LOS F (87 seconds of average delay). Detailed LOS worksheets and optimized signal timing sheets for the mitigated condition can be found in Appendix C.

City of Kirkland

As reviewed in the section above, five intersections located in the City of Kirkland would not meet LOS standards. For the City of Kirkland, mitigation¹⁰ for impacts at intersections are required when an intersection performs at LOS E or LOS F and the project's proportional share of daily traffic is greater than 15 percent or 5 percent, respectively. Detailed proportionate share worksheet calculations are provided in Appendix H. Proportional share was calculated at each of the five poorly operating intersections and summarized below:

- Totem Lake Boulevard / NE 124th Street (LOS E): 3.9 percent < 15 percent
- 124th Avenue NE / NE 116th Street (LOS E): 4.9 percent < 15 percent
- Slater Avenue NE / NE 120th Street (LOS F): 1.2 percent < 5 percent
- Slater Avenue NE / NE 124th Street (LOS F): 15 percent > **6.2 percent > 5 percent**
- Willows Road NE / NE 124th Street (LOS E): 2.6 percent < 15 percent

As seen above, the project's proportional share at Slater Avenue NE / NE 124th Street would be greater than Kirkland's 5 percent threshold for LOS F operations.

AM and PM peak hour signal optimization at Slater Avenue NE / NE 124th Street would mitigate the project's potential impact to traffic operations while maintaining the existing cycle length. With these changes, the intersection would operate at LOS E (79.7 seconds of average delay) during the AM peak hour, better than the future without-project condition of LOS F (103 seconds of average delay) and would operate at LOS E (69 seconds of average delay) during the PM peak hour, better than the future without-project condition of LOS F (96 seconds of average delay). Detailed LOS worksheets and optimized signal timing sheets for the mitigated conditions can be found in Appendix C.

Frontage Improvements / Vehicle Queuing Analysis

The existing transportation network will be enhanced by way of frontage improvements. For example, a new buffered bicycle lane and multi-modal trail would be constructed on the south side of NE 124th Street. This trail in conjunction with the new signalized site access and traffic signal at Willows Road NE / NE 124th Street would provide a protected pedestrian and bicycle connection between the future Eastside Rail Corridor Trail north of NE 124th Street and the future extension of the Redmond Central Connector (Phase III) east of Willows Road NE. On Willows Road NE, frontage improvements would include a second southbound through lane, on-street bicycle lane, and new concrete sidewalk.

Improvements to transit facilities would be incorporated into the frontage improvements along NE 124th Street. The existing transit stop on the south side of NE 124th Street just west of Willows Road NE would be relocated to the far side of the proposed signalized driveway and bus shelters would be constructed on the north and south sides of NE 124th Street.

In conjunction with frontage improvements along the south side of NE 124th Street, it is recommended that the existing eastbound right-turn lane at the Willows Road NE / NE 124th Street intersection be lengthened such that eastbound through queues during the future AM and PM peak hours do not block access to this turn lane. Vehicle storage for this lane currently extends approximately 150 feet west of Willows Avenue NE.

¹⁰ Traffic Impact Analysis Guidelines. Table 1. Mitigations for SEPA impacts at intersections

As part of the traffic operations analysis, it was determined that future eastbound through queues at Willows Road NE / NE 124th Street will be greatest during the PM peak hour and based on future with-project traffic volumes and existing signal timing, the 95th-percentile queue length would be approximately 625 feet. *Synchro 9* reports detailing this queue length is included in Appendix C. To avoid this queue blocking access to the eastbound right-turn lane, the taper for this turn lane would need to begin approximately 700 feet west of Willows Road NE. This assumes a 75-foot taper length.

It is important to note that this right-turn lane in combination with the outside eastbound through lane west of the taper would provide adequate storage for the 95th-percentile queue associated with eastbound right-turns because during the hour of greatest right-turn demand (AM peak hour), only approximately 335 feet of the existing eastbound through lanes would be needed to accommodate the 95th-percentile queue for this movement.

Transportation Impact Fees

The City of Redmond Impact fees were estimated based on the Impact Fee Schedule provided on the City of Redmond website¹¹. Transportation impact fees for the multi-family and commercial land uses are as follows:

- Multifamily Residential Use: \$4,922.51/unit x 370 units = \$1,821,329
- Office Use: \$23.32/sf x 9,000 sf = \$209,880
- Daycare Use: \$63.05/sf x 8,500 sf = \$535,925
- Retail Use: \$22.45/sf x 5,000 sf = \$112,250
- **All Uses: \$2,679,384**

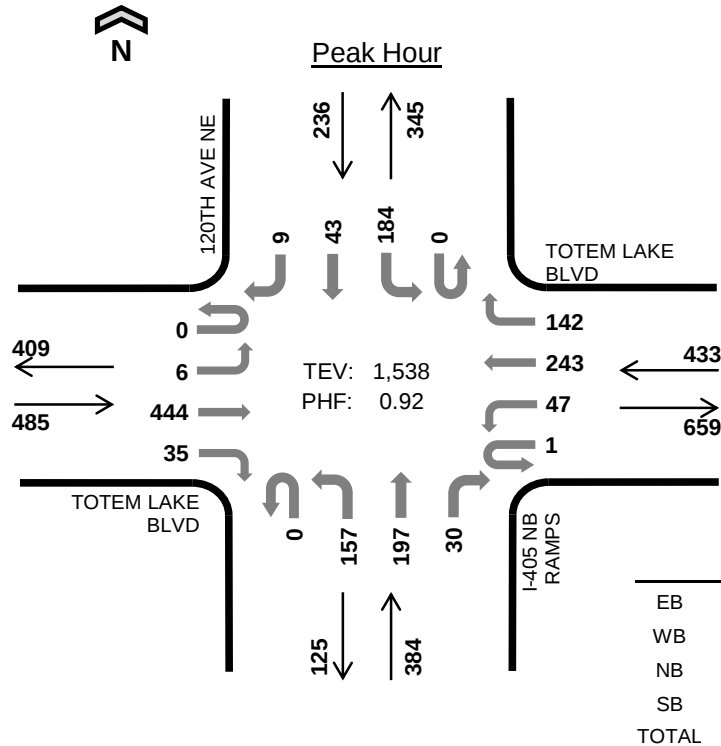
The impact fee schedule, effective until January 1, 2020, is included in Appendix I.

¹¹

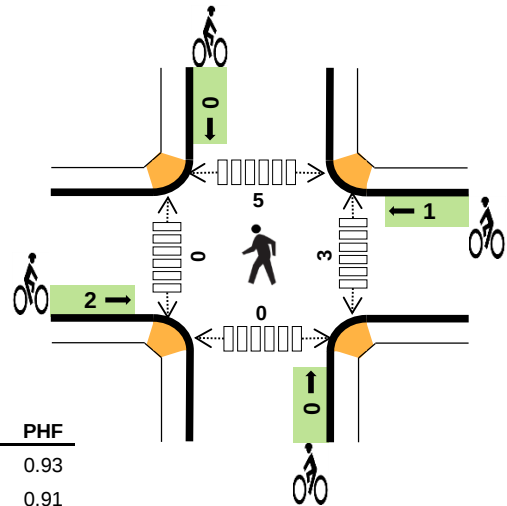


<https://www.redmond.gov/common/pages/UserFile.aspx?fileId=223070>

120TH AVE NE TOTEM LAKE BLVD



Date: Wed, Nov 14, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



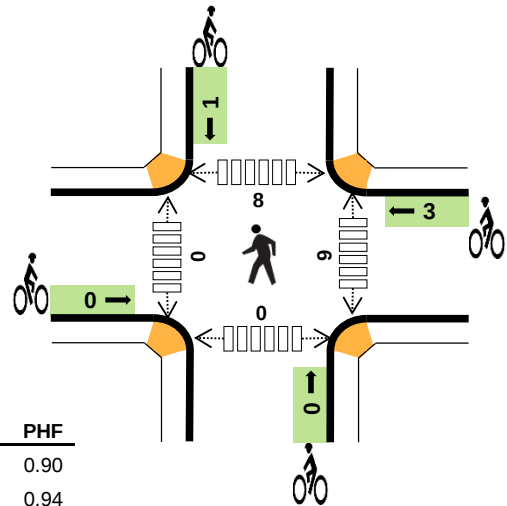
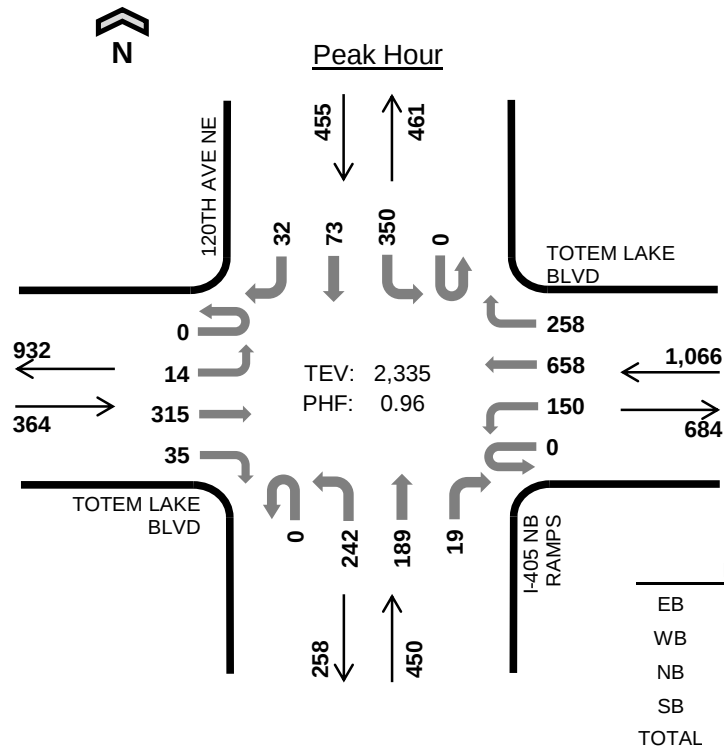
Two-Hour Count Summaries

Interval Start	TOTEM LAKE BLVD				TOTEM LAKE BLVD				I-405 NB RAMPS				120TH AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	88	8	0	4	36	28	0	39	54	2	0	14	9	4	288	0
7:15 AM	0	0	81	7	0	9	65	32	0	51	50	5	0	27	11	3	341	0
7:30 AM	0	4	86	14	0	11	50	43	0	55	50	5	0	36	25	2	381	0
7:45 AM	0	0	97	10	0	17	50	30	0	52	68	9	0	33	17	5	388	1,398
8:00 AM	0	1	96	13	0	14	49	33	0	32	51	9	0	32	15	2	347	1,457
8:15 AM	0	0	120	5	0	14	50	39	0	37	47	6	0	45	6	5	374	1,490
8:30 AM	0	4	117	9	0	8	74	33	0	36	52	9	0	46	11	0	399	1,508
8:45 AM	0	1	111	8	1	11	70	37	0	52	47	6	0	61	11	2	418	1,538
Count Total	0	12	796	74	1	88	444	275	0	354	419	51	0	294	105	23	2,936	0
Peak Hour	0	6	444	35	1	47	243	142	0	157	197	30	0	184	43	9	1,538	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	3	0	4	9	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	3	2	3	8	0	0	0	0	0	0	0	1	0	1
7:30 AM	1	5	3	5	14	0	0	0	1	1	1	0	3	0	4
7:45 AM	0	4	2	2	8	0	0	0	0	0	1	0	4	0	5
8:00 AM	1	2	4	4	11	0	0	0	0	0	1	0	1	0	2
8:15 AM	2	4	1	2	9	0	0	0	0	0	2	0	1	0	3
8:30 AM	1	1	2	3	7	1	0	0	0	1	0	0	2	0	2
8:45 AM	2	5	3	3	13	1	1	0	0	2	0	0	1	0	1
Count Total	9	27	17	26	79	2	1	0	1	4	5	0	14	0	19
Peak Hour	6	12	10	12	40	2	1	0	0	3	3	0	5	0	8

120TH AVE NE TOTEM LAKE BLVD



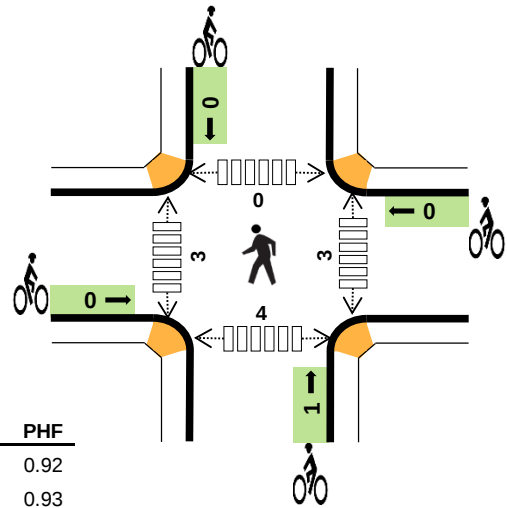
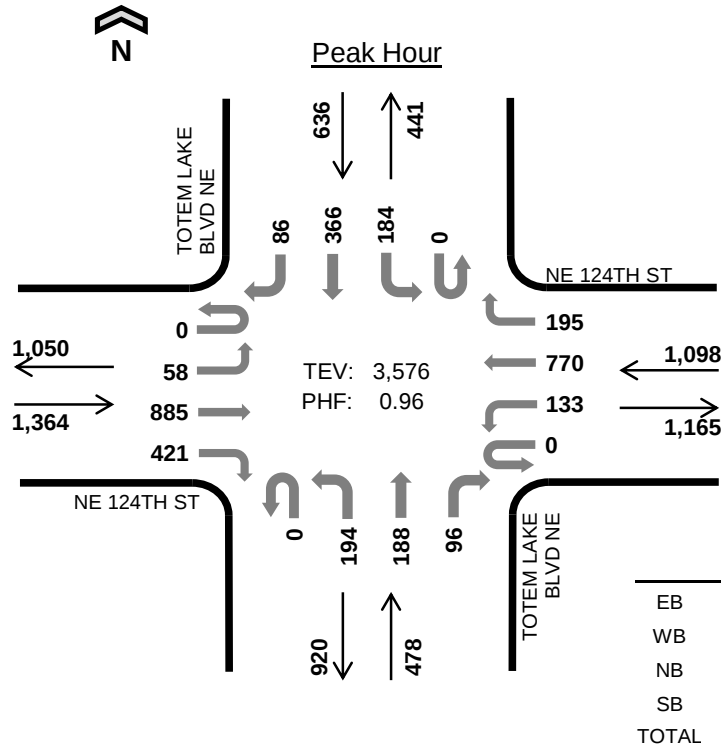
Two-Hour Count Summaries

Interval Start	TOTEM LAKE BLVD Eastbound				TOTEM LAKE BLVD Westbound				I-405 NB RAMPS Northbound				120TH AVE NE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	73	4	0	47	153	66	0	47	40	2	0	94	23	7	560	0
4:15 PM	0	3	86	12	0	39	158	88	0	55	51	5	0	85	16	4	602	0
4:30 PM	0	3	72	9	0	42	180	53	0	70	46	6	0	92	21	12	606	0
4:45 PM	0	4	84	10	0	22	167	51	0	70	52	6	0	79	13	9	567	2,335
5:00 PM	0	4	81	11	0	45	133	73	0	39	48	4	0	79	15	11	543	2,318
5:15 PM	0	10	84	7	0	34	133	64	0	42	53	4	0	88	8	12	539	2,255
5:30 PM	0	3	71	10	1	40	164	88	0	34	57	6	0	84	9	6	573	2,222
5:45 PM	0	5	65	6	0	33	146	62	0	57	55	3	1	68	13	3	517	2,172
Count Total	0	36	616	69	1	302	1,234	545	0	414	402	36	1	669	118	64	4,507	0
Peak Hour	0	14	315	35	0	150	658	258	0	242	189	19	0	350	73	32	2,335	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	0	3	5	0	1	0	0	1	3	0	5	0	8
4:15 PM	0	5	0	1	6	0	2	0	0	2	1	0	0	0	1
4:30 PM	0	1	0	2	3	0	0	0	1	1	1	0	2	0	3
4:45 PM	2	2	1	2	7	0	0	0	0	0	4	0	1	0	5
5:00 PM	0	2	0	1	3	0	0	0	0	0	2	0	1	0	3
5:15 PM	0	3	0	2	5	0	0	0	0	0	3	0	4	0	7
5:30 PM	1	2	0	0	3	0	1	0	0	1	0	0	0	0	0
5:45 PM	0	4	0	2	6	0	1	0	0	1	0	0	3	0	3
Count Total	3	21	1	13	38	0	5	0	1	6	14	0	16	0	30
Peak Hour	2	10	1	8	21	0	3	0	1	4	9	0	8	0	17

TOTEM LAKE BLVD NE NE 124TH ST



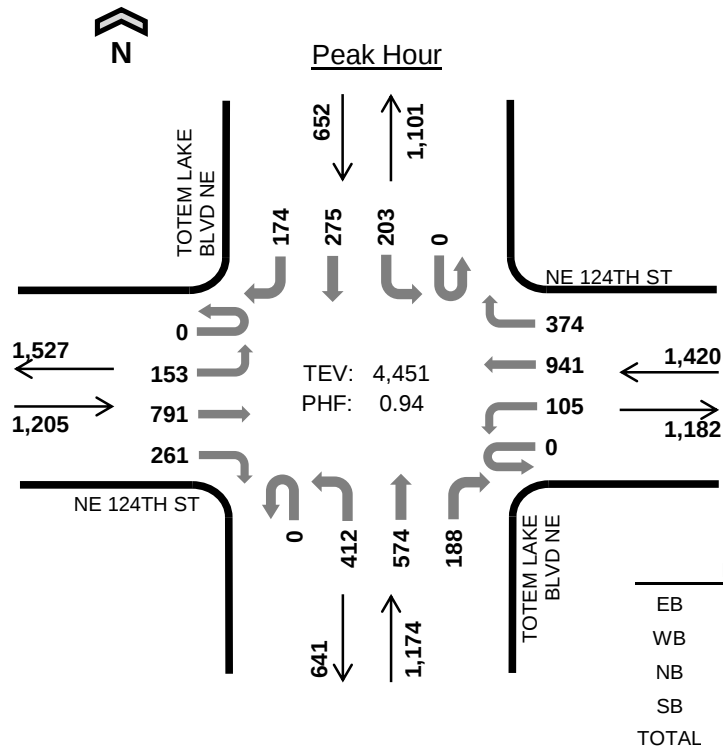
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				TOTEM LAKE BLVD NE				TOTEM LAKE BLVD NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	11	225	86	0	24	169	23	0	35	36	20	0	41	52	12	734	0
7:15 AM	0	9	257	106	0	34	173	48	0	35	53	11	0	39	52	5	822	0
7:30 AM	1	9	249	112	0	37	184	50	0	37	46	19	0	34	70	15	863	0
7:45 AM	0	6	212	119	0	34	184	38	0	44	59	26	0	43	90	15	870	3,289
8:00 AM	0	10	259	102	0	32	195	43	0	58	43	24	0	35	77	15	893	3,448
8:15 AM	0	14	214	107	0	43	188	47	0	39	43	22	0	40	92	17	866	3,492
8:30 AM	0	18	190	112	0	24	179	52	0	53	48	29	0	60	100	22	887	3,516
8:45 AM	0	16	222	100	0	34	208	53	0	44	54	21	0	49	97	32	930	3,576
Count Total	1	93	1,828	844	0	262	1,480	354	0	345	382	172	0	341	630	133	6,865	0
Peak Hour	0	58	885	421	0	133	770	195	0	194	188	96	0	184	366	86	3,576	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	13	7	3	2	25	0	0	0	0	0	1	1	0	1	3
7:15 AM	5	7	3	3	18	0	0	0	0	0	2	1	3	1	7
7:30 AM	5	7	4	4	20	0	0	0	0	0	2	1	0	0	3
7:45 AM	4	7	5	3	19	0	0	0	0	0	1	1	0	1	3
8:00 AM	9	5	5	3	22	0	0	0	0	0	1	1	0	2	4
8:15 AM	9	4	4	4	21	0	0	0	0	0	1	1	0	1	3
8:30 AM	4	5	4	5	18	0	0	0	0	0	1	1	0	1	3
8:45 AM	5	9	5	4	23	0	0	1	0	1	0	0	0	0	0
Count Total	54	51	33	28	166	0	0	1	0	1	9	7	3	7	26
Peak Hour	27	23	18	16	84	0	0	1	0	1	3	3	0	4	10

TOTEM LAKE BLVD NE NE 124TH ST



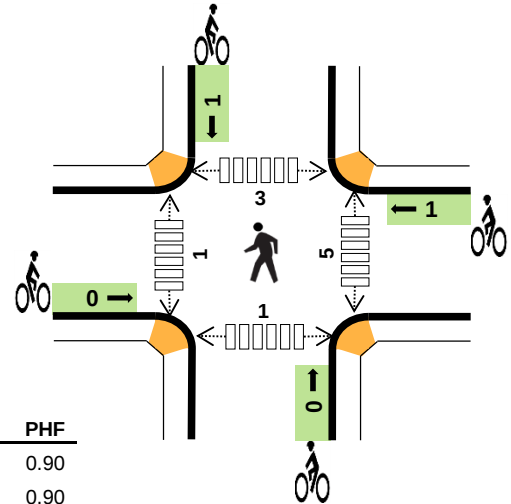
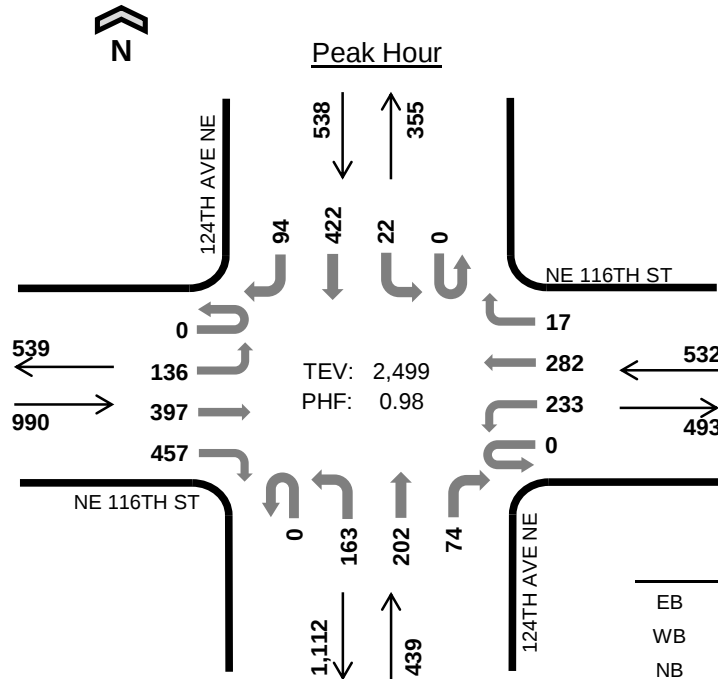
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				TOTEM LAKE BLVD NE				TOTEM LAKE BLVD NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	45	198	58	0	31	270	96	0	104	125	44	0	52	63	41	1,127	0
4:15 PM	0	38	184	54	0	22	226	101	0	119	153	44	0	46	78	46	1,111	0
4:30 PM	0	36	221	73	0	29	263	110	0	86	149	42	0	53	75	52	1,189	0
4:45 PM	0	34	188	76	0	23	182	67	0	103	147	58	0	52	59	35	1,024	4,451
5:00 PM	0	33	201	63	0	44	198	85	0	86	118	59	0	53	73	43	1,056	4,380
5:15 PM	0	43	215	89	0	31	162	60	0	87	130	70	0	41	73	50	1,051	4,320
5:30 PM	0	34	188	86	0	44	219	101	0	102	150	44	0	47	78	46	1,139	4,270
5:45 PM	0	35	208	74	0	37	248	78	0	97	127	52	1	50	54	38	1,099	4,345
Count Total	0	298	1,603	573	0	261	1,768	698	0	784	1,099	413	1	394	553	351	8,796	0
Peak Hour	0	153	791	261	0	105	941	374	0	412	574	188	0	203	275	174	4,451	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	4	1	2	12	0	0	0	0	0	1	5	2	0	8
4:15 PM	5	6	6	1	18	0	0	0	0	0	3	3	2	1	9
4:30 PM	7	3	1	2	13	0	0	0	0	0	4	2	0	4	10
4:45 PM	9	1	3	2	15	0	0	0	0	0	5	0	3	1	9
5:00 PM	5	4	2	1	12	0	0	0	0	0	2	4	1	1	8
5:15 PM	5	2	5	2	14	0	0	0	0	0	4	1	5	0	10
5:30 PM	5	3	3	2	13	0	0	0	0	0	3	2	2	2	9
5:45 PM	1	4	4	2	11	0	0	0	0	0	6	1	1	3	11
Count Total	42	27	25	14	108	0	0	0	0	0	28	18	16	12	74
Peak Hour	26	14	11	7	58	0	0	0	0	0	13	10	7	6	36

124TH AVE NE NE 116TH ST



	HV %:	PHF
EB	1.8%	0.90
WB	5.1%	0.90
NB	2.3%	0.84
SB	3.2%	0.91
TOTAL	2.9%	0.98

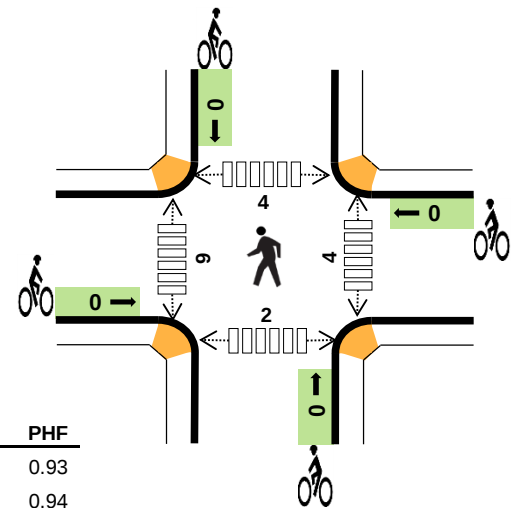
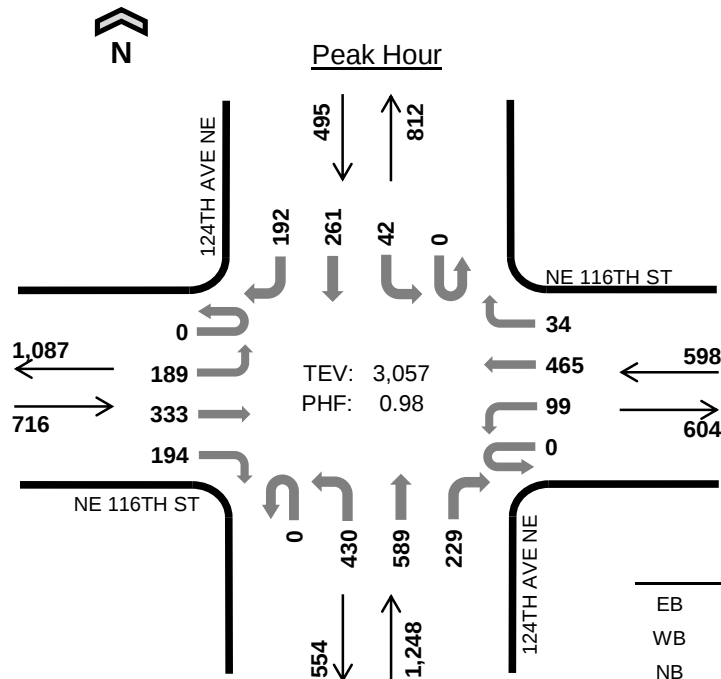
Two-Hour Count Summaries

Interval Start	NE 116TH ST				NE 116TH ST				124TH AVE NE				124TH AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	27	80	96	0	49	54	6	0	24	45	12	0	6	62	17	478	0
7:15 AM	0	27	93	117	0	52	91	4	0	30	56	15	0	4	77	24	590	0
7:30 AM	0	34	98	106	0	69	70	9	0	34	44	21	0	6	105	23	619	0
7:45 AM	0	49	116	109	0	52	79	3	0	42	55	10	0	5	101	18	639	2,326
8:00 AM	0	28	87	117	0	54	60	3	0	48	53	30	0	5	99	28	612	2,460
8:15 AM	0	25	96	125	0	58	73	2	0	39	50	13	0	6	117	25	629	2,499
8:30 AM	0	38	97	134	0	70	72	8	0	26	42	25	0	5	83	15	615	2,495
8:45 AM	0	33	90	108	0	49	69	4	0	48	59	21	0	16	105	23	625	2,481
Count Total	0	261	757	912	0	453	568	39	0	291	404	147	0	53	749	173	4,807	0
Peak Hour	0	136	397	457	0	233	282	17	0	163	202	74	0	22	422	94	2,499	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	3	1	1	8	0	0	0	0	0	0	1	0	0	1
7:15 AM	2	2	2	4	10	0	0	0	0	0	0	1	3	2	6
7:30 AM	3	3	3	3	12	0	1	0	1	2	3	0	1	0	4
7:45 AM	7	7	3	4	21	0	0	0	0	0	1	0	1	0	2
8:00 AM	5	4	2	3	14	0	0	0	0	0	0	1	0	1	2
8:15 AM	3	13	2	7	25	0	0	0	0	0	1	0	1	0	2
8:30 AM	4	1	0	5	10	0	0	0	0	0	2	2	3	0	7
8:45 AM	4	4	4	3	15	0	0	1	0	1	1	2	2	0	5
Count Total	31	37	17	30	115	0	1	1	1	3	8	7	11	3	29
Peak Hour	18	27	10	17	72	0	1	0	1	2	5	1	3	1	10

124TH AVE NE NE 116TH ST



	HV %:	PHF
EB	2.0%	0.93
WB	0.7%	0.94
NB	0.6%	0.98
SB	1.0%	0.94
TOTAL	1.0%	0.98

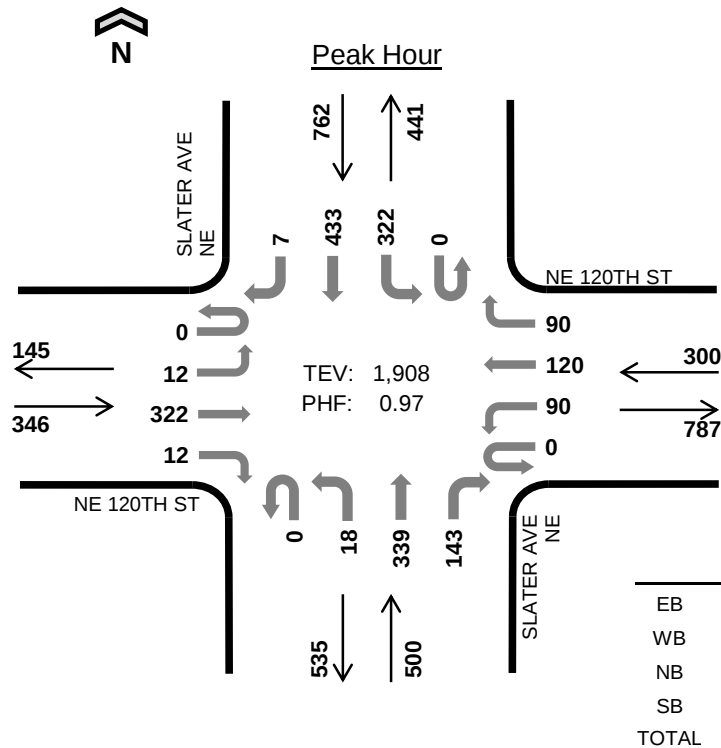
Two-Hour Count Summaries

Interval Start	NE 116TH ST				NE 116TH ST				124TH AVE NE				124TH AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	49	91	53	0	23	109	7	0	111	145	51	0	7	73	52	771	0
4:15 PM	0	46	75	61	0	19	114	10	0	105	157	42	0	9	59	48	745	0
4:30 PM	0	51	90	42	0	24	128	7	0	104	144	70	0	14	64	43	781	0
4:45 PM	0	43	77	38	0	33	114	10	0	110	143	66	0	12	65	49	760	3,057
5:00 PM	0	59	80	50	0	25	124	6	0	96	131	43	0	20	64	54	752	3,038
5:15 PM	0	45	64	48	0	31	130	3	0	94	145	45	0	17	93	44	759	3,052
5:30 PM	0	52	60	32	0	22	130	7	0	91	141	45	0	20	75	62	737	3,008
5:45 PM	0	51	88	49	0	26	138	2	0	100	148	53	0	13	67	49	784	3,032
Count Total	0	396	625	373	0	203	987	52	0	811	1,154	415	0	112	560	401	6,089	0
Peak Hour	0	189	333	194	0	99	465	34	0	430	589	229	0	42	261	192	3,057	0

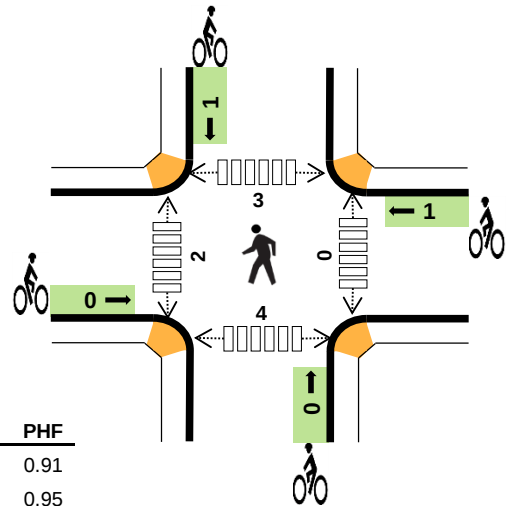
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	1	1	2	11	0	0	0	0	0	1	4	0	1	6
4:15 PM	3	1	1	1	6	0	0	0	0	0	1	2	0	1	4
4:30 PM	3	1	2	1	7	0	0	0	0	0	0	1	1	0	2
4:45 PM	1	1	3	1	6	0	0	0	0	0	2	2	3	0	7
5:00 PM	2	1	3	1	7	0	0	0	0	0	2	6	2	0	10
5:15 PM	1	0	3	1	5	0	0	0	0	0	5	5	0	0	10
5:30 PM	1	0	2	1	4	1	0	0	0	1	2	0	1	0	3
5:45 PM	0	1	3	2	6	0	0	0	0	0	5	3	2	0	10
Count Total	18	6	18	10	52	1	0	0	0	1	18	23	9	2	52
Peak Hour	14	4	7	5	30	0	0	0	0	0	4	9	4	2	19

SLATER AVE NE NE 120TH ST



Date: Wed, Nov 14, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



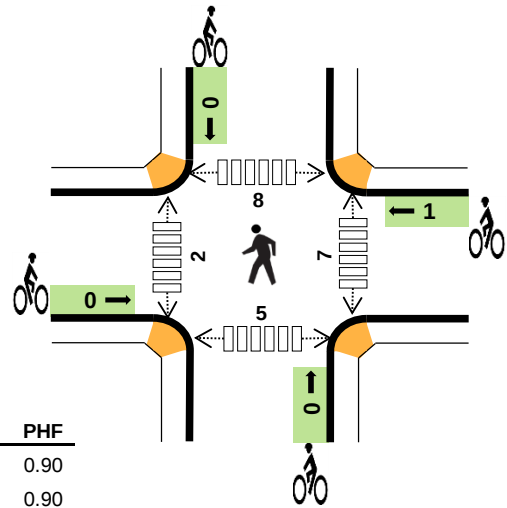
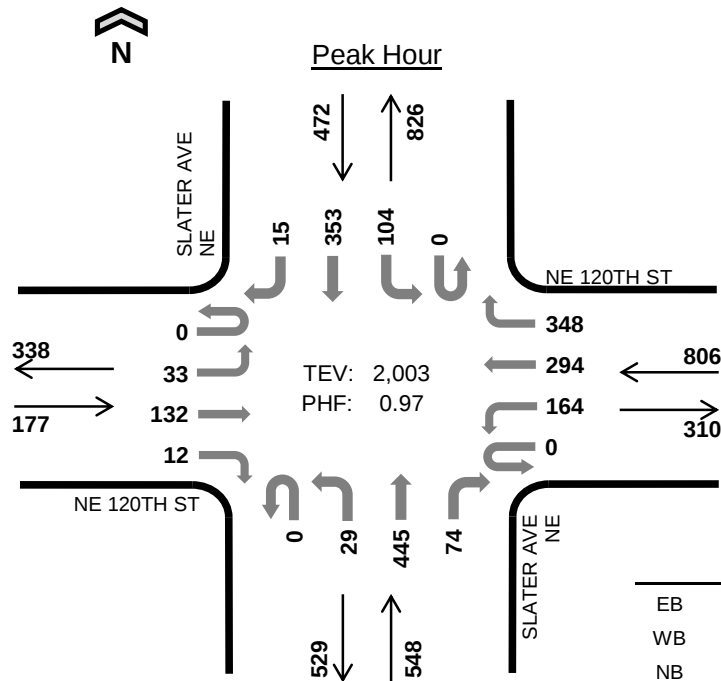
Two-Hour Count Summaries

Interval Start	NE 120TH ST				NE 120TH ST				SLATER AVE NE				SLATER AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	70	2	0	8	12	15	0	3	71	36	0	74	88	0	379	0
7:15 AM	0	3	77	1	0	24	29	12	0	3	69	31	0	74	108	3	434	0
7:30 AM	0	5	77	0	0	27	29	21	0	7	93	33	0	84	110	2	488	0
7:45 AM	0	1	90	4	0	21	35	23	0	2	82	35	0	75	99	1	468	1,769
8:00 AM	0	3	67	6	0	27	28	24	0	6	88	31	0	66	112	2	460	1,850
8:15 AM	0	3	88	2	0	15	28	22	0	3	76	44	0	97	112	2	492	1,908
8:30 AM	0	0	97	3	0	10	33	22	0	4	69	36	0	77	102	5	458	1,878
8:45 AM	0	3	89	0	0	20	30	21	0	4	77	51	0	107	84	3	489	1,899
Count Total	0	18	655	18	0	152	224	160	0	32	625	297	0	654	815	18	3,668	0
Peak Hour	0	12	322	12	0	90	120	90	0	18	339	143	0	322	433	7	1,908	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	1	1	4	8	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	2	0	4	7	0	0	0	1	1	0	0	3	0	3
7:30 AM	1	3	2	3	9	0	0	0	1	1	0	1	2	1	4
7:45 AM	0	4	3	7	14	0	0	0	0	0	0	0	0	0	0
8:00 AM	2	0	4	5	11	0	1	0	0	1	0	0	0	1	1
8:15 AM	0	4	1	11	16	0	0	0	0	0	0	1	1	2	4
8:30 AM	0	1	4	3	8	0	0	1	0	1	0	1	0	1	2
8:45 AM	2	0	5	4	11	0	0	0	0	0	0	0	0	2	2
Count Total	8	15	20	41	84	0	1	1	2	4	0	3	6	7	16
Peak Hour	3	11	10	26	50	0	1	0	1	2	0	2	3	4	9

SLATER AVE NE NE 120TH ST



	HV %:	PHF
EB	1.1%	0.90
WB	0.4%	0.90
NB	0.9%	0.98
SB	0.8%	0.91
TOTAL	0.7%	0.97

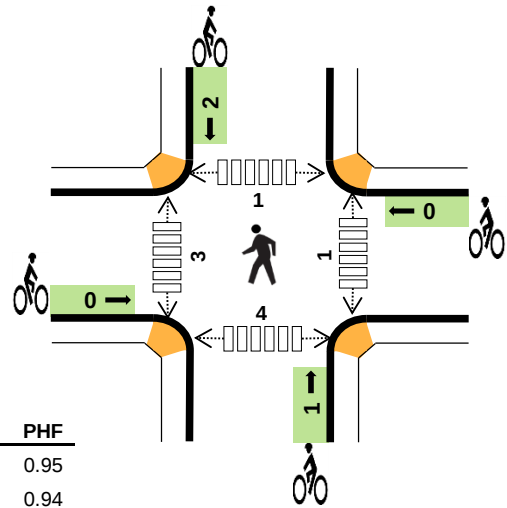
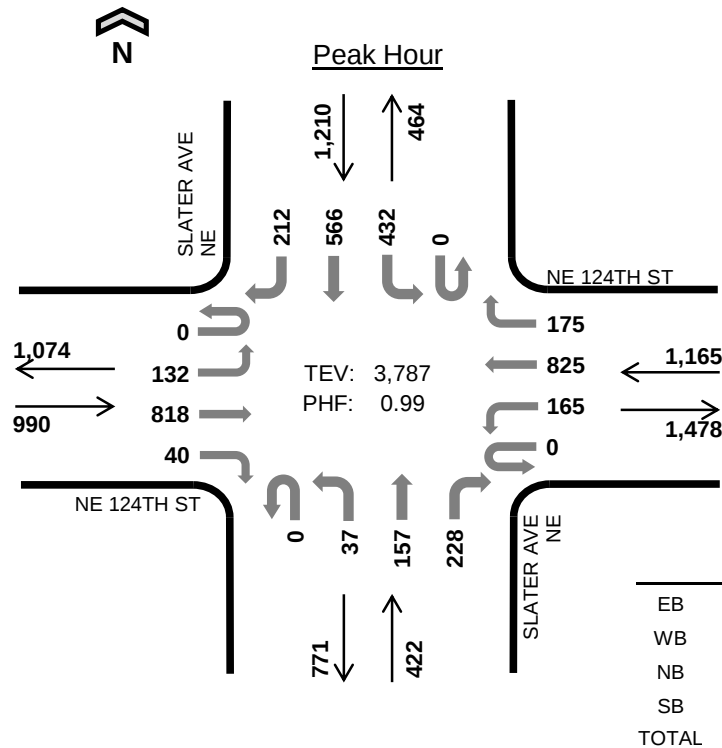
Two-Hour Count Summaries

Interval Start	NE 120TH ST				NE 120TH ST				SLATER AVE NE				SLATER AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	8	18	6	0	47	97	76	0	9	110	20	0	26	77	10	504	0
4:15 PM	0	6	38	4	0	46	76	73	0	7	111	20	0	28	84	4	497	0
4:30 PM	0	10	32	5	0	47	77	100	0	8	110	17	0	28	74	6	514	0
4:45 PM	0	11	36	2	0	29	66	89	0	2	114	19	0	25	90	3	486	2,001
5:00 PM	0	6	26	1	0	42	75	86	0	12	110	18	0	23	105	2	506	2,003
5:15 PM	0	5	35	2	0	38	77	64	0	11	82	16	0	33	72	6	441	1,947
5:30 PM	0	5	45	5	0	45	63	73	0	17	109	17	0	34	82	9	504	1,937
5:45 PM	0	6	47	2	0	40	75	79	0	9	82	17	0	41	75	5	478	1,929
Count Total	0	57	277	27	0	334	606	640	0	75	828	144	0	238	659	45	3,930	0
Peak Hour	0	33	132	12	0	164	294	348	0	29	445	74	0	104	353	15	2,003	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	5	1	7	0	0	0	0	0	2	1	3	0	6
4:15 PM	1	1	0	1	3	0	0	0	0	0	3	2	2	1	8
4:30 PM	1	1	2	2	6	0	0	0	0	0	1	0	3	3	7
4:45 PM	0	1	2	1	4	0	1	0	0	1	1	0	0	0	1
5:00 PM	0	0	1	0	1	0	0	0	0	0	2	0	3	1	6
5:15 PM	1	2	1	0	4	0	0	0	0	0	3	0	3	0	6
5:30 PM	0	1	0	0	1	0	0	1	0	1	3	0	0	1	4
5:45 PM	1	2	0	1	4	0	0	0	0	0	0	1	1	3	5
Count Total	5	8	11	6	30	0	1	1	0	2	15	4	15	9	43
Peak Hour	2	3	5	4	14	0	1	0	0	1	7	2	8	5	22

SLATER AVE NE NE 124TH ST



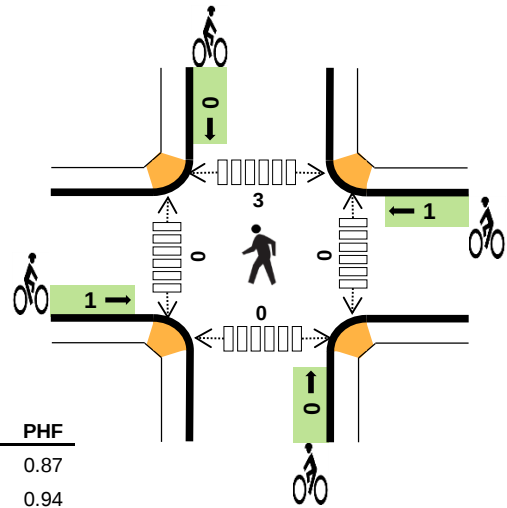
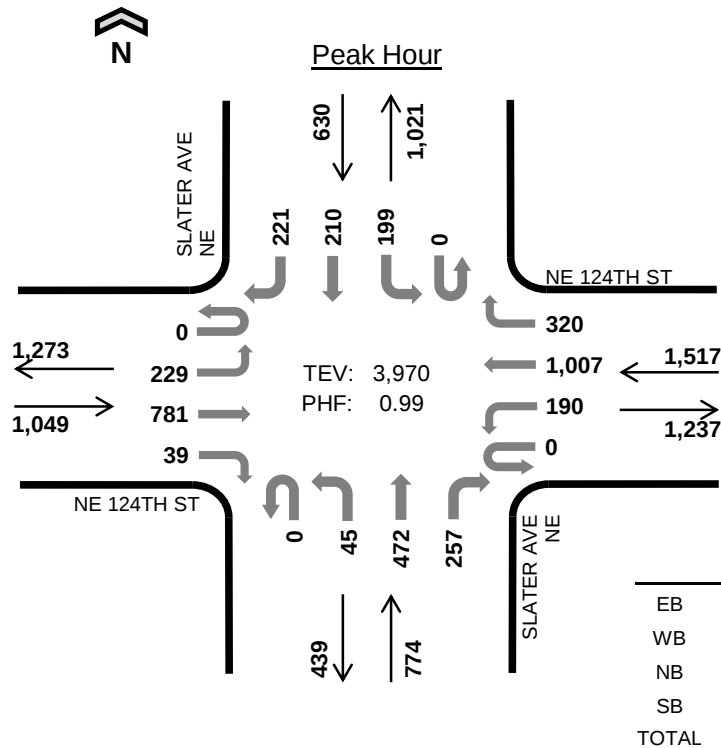
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				SLATER AVE NE				SLATER AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	1	20	239	3	0	48	177	37	0	6	29	54	0	109	106	50	879	0
7:15 AM	0	29	229	1	0	42	149	38	0	8	36	55	0	92	134	55	868	0
7:30 AM	0	38	231	4	0	47	181	43	0	7	42	60	0	103	124	60	940	0
7:45 AM	0	22	222	7	0	48	206	49	0	10	35	62	0	91	123	48	923	3,610
8:00 AM	0	41	197	10	0	39	189	43	0	15	38	59	0	99	136	45	911	3,642
8:15 AM	0	25	225	11	0	42	198	46	0	3	50	62	0	100	136	62	960	3,734
8:30 AM	0	34	215	8	0	44	225	40	0	13	29	47	0	129	123	48	955	3,749
8:45 AM	0	32	181	11	0	40	213	46	0	6	40	60	0	104	171	57	961	3,787
Count Total	1	241	1,739	55	0	350	1,538	342	0	68	299	459	0	827	1,053	425	7,397	0
Peak Hour	0	132	818	40	0	165	825	175	0	37	157	228	0	432	566	212	3,787	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	8	8	2	5	23	0	0	0	0	0	0	0	1	0	1
7:15 AM	7	7	1	5	20	0	0	0	1	1	0	0	0	0	0
7:30 AM	2	8	2	5	17	0	0	0	1	1	0	0	1	0	1
7:45 AM	5	8	5	8	26	1	0	0	0	1	0	0	0	0	0
8:00 AM	9	6	2	7	24	0	0	1	1	2	0	1	0	2	3
8:15 AM	6	7	4	15	32	0	0	0	0	0	0	0	0	0	0
8:30 AM	4	4	5	4	17	0	0	0	1	1	0	2	0	2	4
8:45 AM	6	7	4	8	25	0	0	0	0	0	1	0	1	0	2
Count Total	47	55	25	57	184	1	0	1	4	6	1	3	3	4	11
Peak Hour	25	24	15	34	98	0	0	1	2	3	1	3	1	4	9

SLATER AVE NE NE 124TH ST



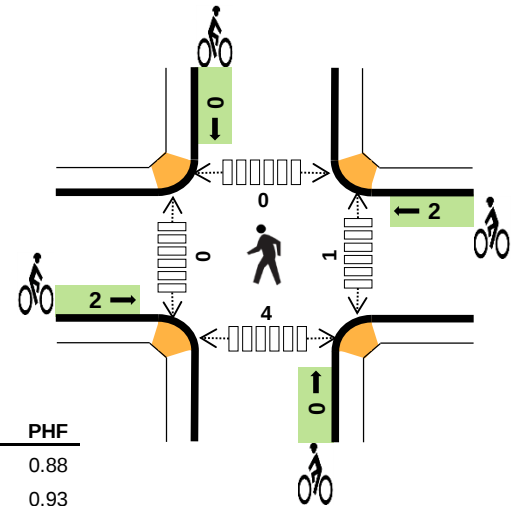
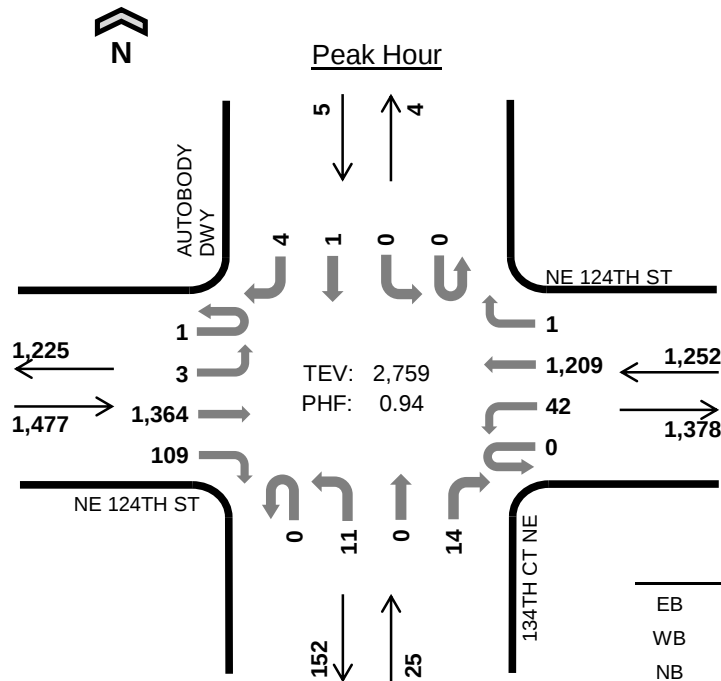
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				SLATER AVE NE				SLATER AVE NE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	58	178	11	0	47	267	67	0	10	117	72	0	51	55	67	1,000	0
4:15 PM	0	48	189	6	0	51	265	87	0	10	107	59	0	52	45	53	972	0
4:30 PM	0	61	230	9	0	42	235	80	0	16	124	55	0	51	53	48	1,004	0
4:45 PM	0	62	184	13	0	50	240	86	0	9	124	71	0	45	57	53	994	3,970
5:00 PM	0	66	235	15	0	41	215	84	0	10	104	55	0	49	54	50	978	3,948
5:15 PM	0	68	192	18	0	44	188	77	0	7	108	62	0	58	61	31	914	3,890
5:30 PM	0	55	231	13	0	53	276	99	0	10	102	46	0	45	56	38	1,024	3,910
5:45 PM	0	62	179	17	0	50	212	90	0	7	108	55	0	41	56	43	920	3,836
Count Total	0	480	1,618	102	0	378	1,898	670	0	79	894	475	0	392	437	383	7,806	0
Peak Hour	0	229	781	39	0	190	1,007	320	0	45	472	257	0	199	210	221	3,970	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	2	4	4	13	0	1	0	0	1	0	0	0	0	0
4:15 PM	5	3	1	4	13	0	0	0	0	0	0	0	2	0	2
4:30 PM	7	4	3	6	20	0	0	0	0	0	0	0	1	0	1
4:45 PM	5	3	1	1	10	1	0	0	0	1	0	0	0	0	0
5:00 PM	6	2	2	0	10	0	0	0	0	0	3	1	1	0	5
5:15 PM	5	1	2	1	9	0	0	0	0	0	0	2	1	1	4
5:30 PM	10	6	0	1	17	0	0	0	0	0	0	1	2	1	4
5:45 PM	1	1	1	2	5	0	2	0	1	3	2	0	0	0	2
Count Total	42	22	14	19	97	1	3	0	1	5	5	4	7	2	18
Peak Hour	20	12	9	15	56	1	1	0	0	2	0	0	3	0	3

134TH CT NE NE 124TH ST



	HV %:	PHF
EB	2.2%	0.88
WB	2.3%	0.93
NB	8.0%	0.69
SB	0.0%	0.42
TOTAL	2.3%	0.94

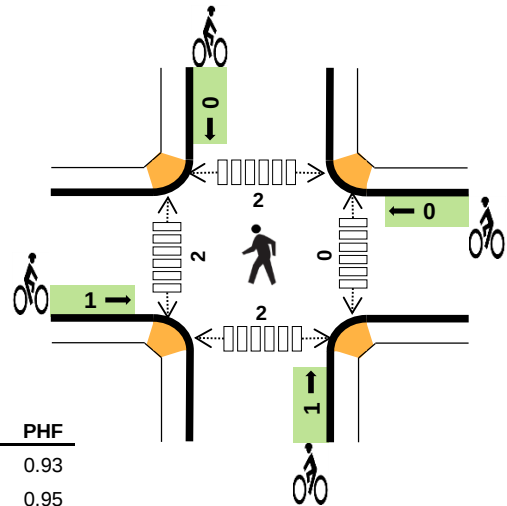
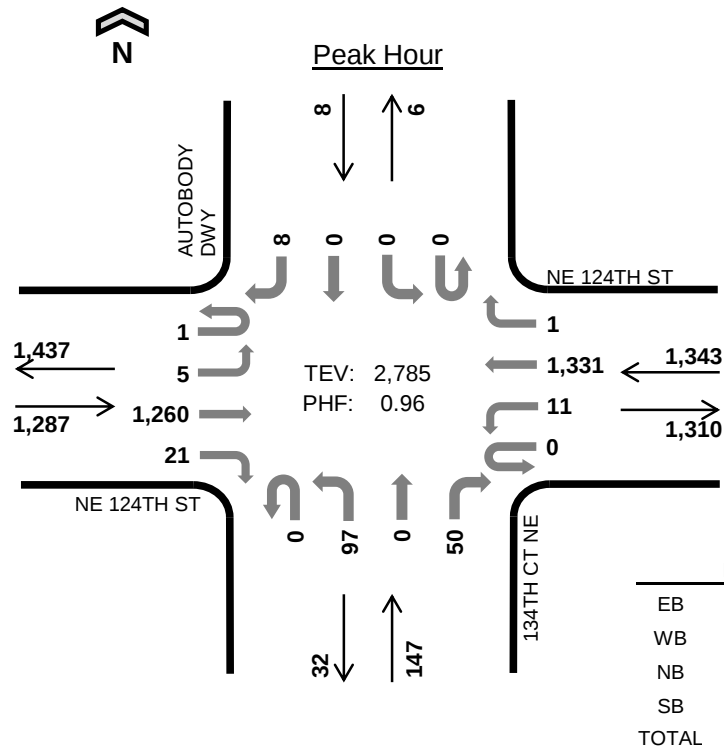
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				134TH CT NE				AUTOBODY DWY				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	356	20	0	12	252	0	0	7	0	0	0	0	0	0	0	647	0
7:15 AM	0	0	354	22	0	4	244	0	0	2	0	2	0	0	0	0	0	628	0
7:30 AM	0	1	354	16	0	6	260	0	0	4	0	5	0	0	0	0	0	646	0
7:45 AM	0	0	335	20	0	13	288	1	0	2	0	3	0	0	0	0	0	662	2,583
8:00 AM	1	1	324	32	0	15	280	0	0	4	0	3	0	0	1	2	663	2,599	
8:15 AM	0	1	389	30	0	13	290	0	0	3	0	3	0	0	0	2	731	2,702	
8:30 AM	0	0	340	17	0	7	310	0	0	1	0	2	0	0	0	0	677	2,733	
8:45 AM	0	1	311	30	0	7	329	1	0	3	0	6	0	0	0	0	688	2,759	
Count Total	1	4	2,763	187	0	77	2,253	2	0	26	0	24	0	0	1	4	5,342	0	
Peak Hour	1	3	1,364	109	0	42	1,209	1	0	11	0	14	0	0	1	4	2,759	0	

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	9	0	0	13	0	0	0	0	0	0	0	1	1	2
7:15 AM	9	8	1	0	18	0	0	0	0	0	1	0	0	1	2
7:30 AM	6	7	0	0	13	0	0	0	0	0	0	0	0	0	0
7:45 AM	8	6	0	0	14	1	0	0	0	1	1	0	1	1	3
8:00 AM	10	7	1	0	18	1	1	0	0	2	0	0	0	0	0
8:15 AM	9	5	0	0	14	0	0	0	0	0	0	0	0	1	1
8:30 AM	6	3	0	0	9	1	1	0	0	2	0	0	0	3	3
8:45 AM	7	14	1	0	22	0	0	0	0	0	1	0	0	0	1
Count Total	59	59	3	0	121	3	2	0	0	5	3	0	2	7	12
Peak Hour	32	29	2	0	63	2	2	0	0	4	1	0	0	4	5

134TH CT NE NE 124TH ST



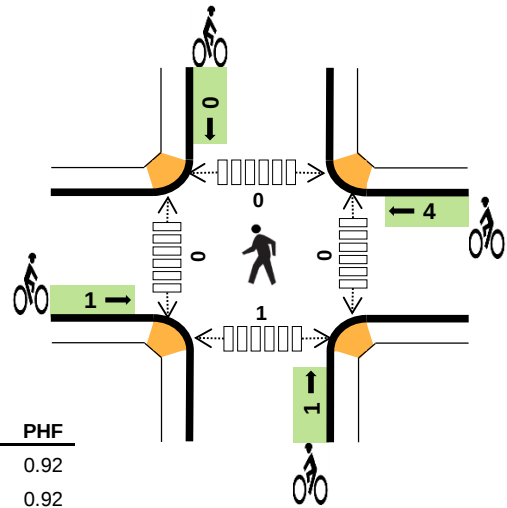
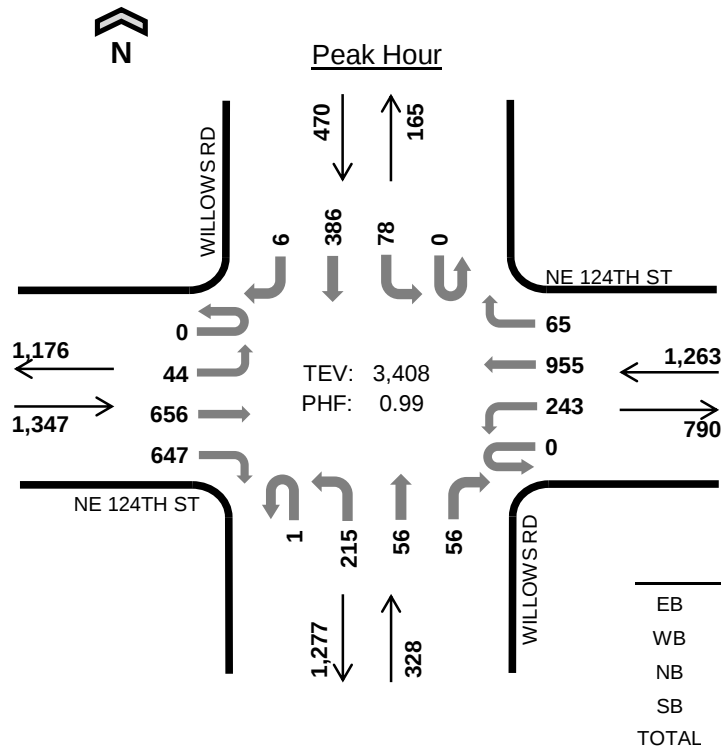
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				134TH CT NE				AUTOBODY DWY				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	1	4	308	1	0	4	366	0	0	25	0	10	0	0	0	3	722	0
4:15 PM	0	0	284	2	0	1	333	0	0	13	0	15	0	1	0	0	649	0
4:30 PM	0	3	332	4	0	1	354	0	0	17	0	12	0	0	0	5	728	0
4:45 PM	0	0	291	3	0	4	341	1	0	24	0	11	0	0	0	0	675	2,774
5:00 PM	0	0	342	5	0	2	295	0	0	29	0	19	0	0	0	0	692	2,744
5:15 PM	1	2	295	9	0	4	341	0	0	27	0	8	0	0	0	3	690	2,785
5:30 PM	0	2	305	3	0	6	350	0	0	33	0	10	0	0	0	3	712	2,769
5:45 PM	0	0	278	5	0	1	331	0	0	20	0	7	0	0	0	1	643	2,737
Count Total	2	11	2,435	32	0	23	2,711	1	0	188	0	92	0	1	0	15	5,511	0
Peak Hour	1	5	1,260	21	0	11	1,331	1	0	97	0	50	0	0	0	8	2,785	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	0	0	0	7	1	0	0	0	1	0	0	1	1	2
4:15 PM	5	3	0	0	8	0	0	0	0	0	0	1	0	0	1
4:30 PM	9	5	0	0	14	0	0	0	0	0	0	1	0	1	2
4:45 PM	7	2	0	0	9	1	0	0	0	1	0	0	0	0	0
5:00 PM	3	2	0	0	5	0	0	1	0	1	0	0	1	1	2
5:15 PM	4	1	0	0	5	0	0	0	0	0	0	1	1	0	2
5:30 PM	7	6	0	0	13	0	0	0	0	0	0	0	1	0	1
5:45 PM	3	2	0	0	5	1	1	0	0	2	1	0	2	0	3
Count Total	45	21	0	0	66	3	1	1	0	5	1	3	6	3	13
Peak Hour	23	10	0	0	33	1	0	1	0	2	0	2	2	2	6

WILLOWS RD NE 124TH ST



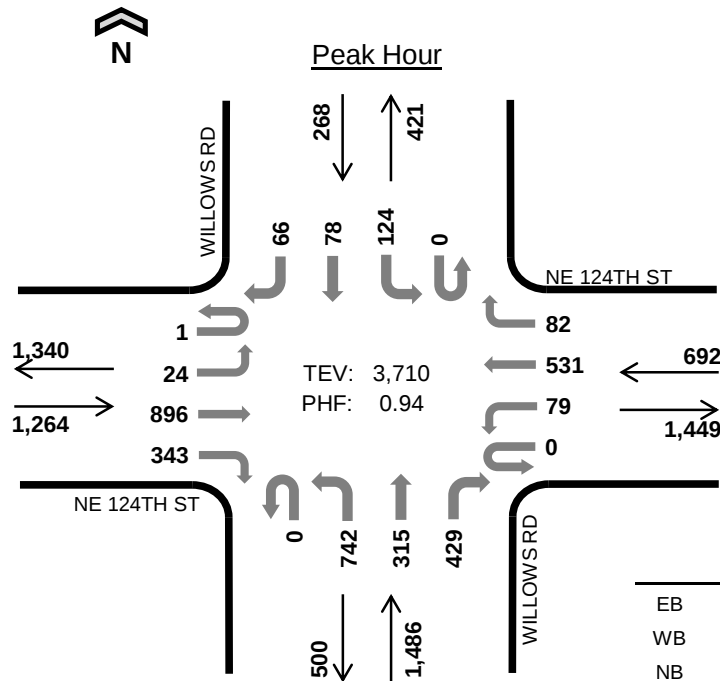
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	12	117	212	0	69	205	14	0	42	15	11	0	5	58	3	763	0
7:15 AM	0	7	121	212	0	97	214	9	0	54	10	9	0	15	62	3	813	0
7:30 AM	0	13	121	164	0	89	212	22	0	48	11	13	0	13	82	2	790	0
7:45 AM	0	10	161	160	0	69	211	20	0	59	22	12	0	21	101	1	847	3,213
8:00 AM	0	16	149	151	0	72	256	15	1	62	10	14	0	15	82	0	843	3,293
8:15 AM	0	9	182	174	0	37	243	19	0	39	15	15	0	17	109	2	861	3,341
8:30 AM	0	9	164	162	0	65	245	11	0	55	9	15	0	25	94	3	857	3,408
8:45 AM	0	4	164	134	0	66	285	18	0	55	12	12	0	21	66	1	838	3,399
Count Total	0	80	1,179	1,369	0	564	1,871	128	1	414	104	101	0	132	654	15	6,612	0
Peak Hour	0	44	656	647	0	243	955	65	1	215	56	56	0	78	386	6	3,408	0

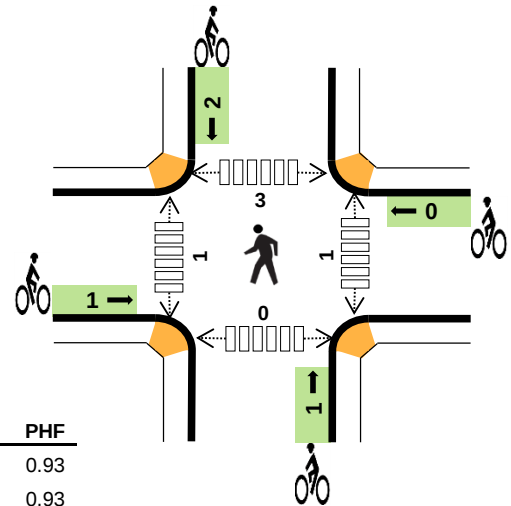
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	4	9	1	16	0	0	0	0	0	0	0	0	0	0
7:15 AM	5	2	8	0	15	0	0	0	0	0	0	0	0	0	0
7:30 AM	7	2	4	0	13	0	0	0	0	0	0	0	0	0	0
7:45 AM	7	3	4	1	15	0	2	0	0	2	0	0	0	0	0
8:00 AM	9	5	7	0	21	0	2	0	0	2	0	0	0	0	0
8:15 AM	7	5	1	0	13	1	0	0	0	1	0	0	0	1	1
8:30 AM	5	2	3	1	11	0	0	1	0	1	0	0	0	0	0
8:45 AM	7	13	5	0	25	1	0	0	0	1	1	0	0	0	1
Count Total	49	36	41	3	129	2	4	1	0	7	1	0	0	1	2
Peak Hour	28	15	15	2	60	1	4	1	0	6	0	0	0	1	1

WILLOWS RD NE 124TH ST



Date: Wed, Nov 14, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	1.9%	0.93
WB	0.9%	0.93
NB	0.6%	0.92
SB	0.4%	0.78
TOTAL	1.1%	0.94

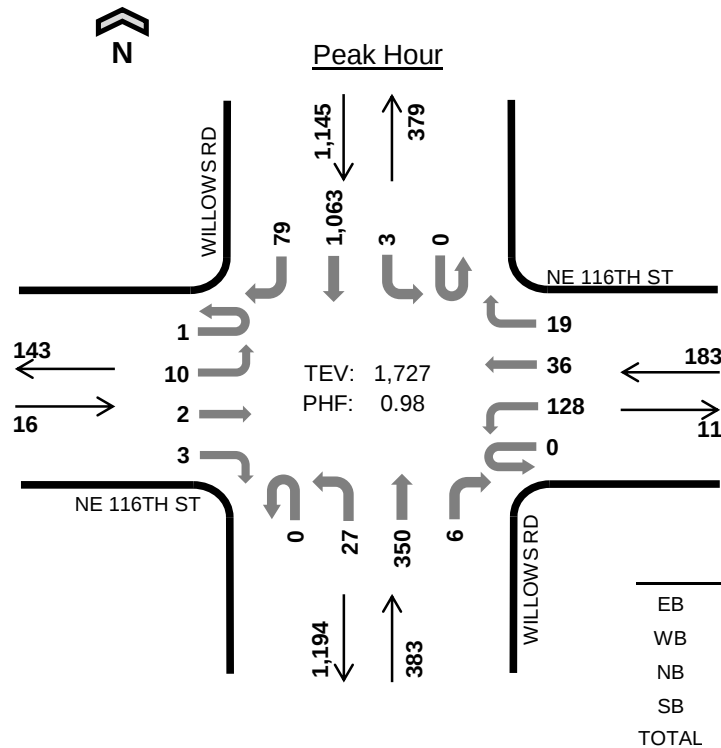
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	11	242	85	0	23	146	17	0	196	93	116	0	33	17	9	988	0
4:15 PM	1	3	198	93	0	21	134	28	0	178	80	108	0	28	11	17	900	0
4:30 PM	0	7	210	87	0	16	127	18	0	189	76	106	0	32	29	25	922	0
4:45 PM	0	3	246	78	0	19	124	19	0	179	66	99	0	31	21	15	900	3,710
5:00 PM	1	7	236	70	0	21	113	22	0	183	67	118	0	39	21	15	913	3,635
5:15 PM	0	4	252	71	0	22	149	21	0	159	79	88	0	26	12	15	898	3,633
5:30 PM	0	7	223	74	0	20	160	16	0	187	90	98	0	21	12	15	923	3,634
5:45 PM	0	9	213	65	0	27	145	18	0	152	67	107	0	18	12	10	843	3,577
Count Total	2	51	1,820	623	0	169	1,098	159	0	1,423	618	840	0	228	135	121	7,287	0
Peak Hour	1	24	896	343	0	79	531	82	0	742	315	429	0	124	78	66	3,710	0

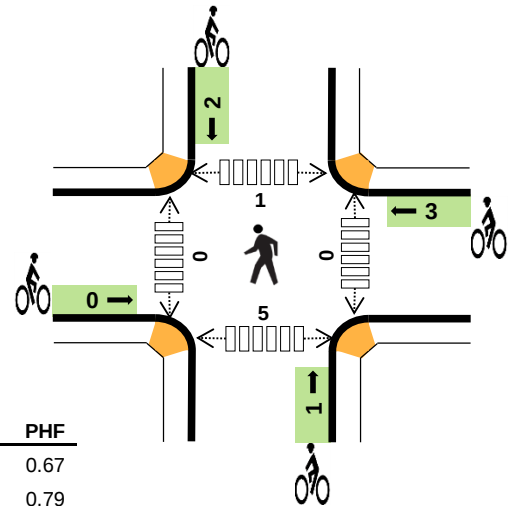
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	3	1	0	11	1	0	0	1	2	0	1	2	0	3
4:15 PM	5	1	3	0	9	0	0	0	0	0	0	0	0	0	0
4:30 PM	7	1	4	0	12	0	0	1	0	1	1	0	1	0	2
4:45 PM	5	1	1	1	8	0	0	0	1	1	0	0	0	0	0
5:00 PM	3	1	1	0	5	1	0	0	0	1	0	0	0	0	0
5:15 PM	3	0	1	0	4	0	0	0	0	0	0	0	1	0	1
5:30 PM	4	3	4	0	11	0	0	0	0	0	0	0	0	0	0
5:45 PM	2	2	0	0	4	1	1	0	0	2	0	1	1	0	2
Count Total	36	12	15	1	64	3	1	1	2	7	1	2	5	0	8
Peak Hour	24	6	9	1	40	1	0	1	2	4	1	1	3	0	5

WILLOWS RD NE 116TH ST



Date: Wed, Nov 14, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



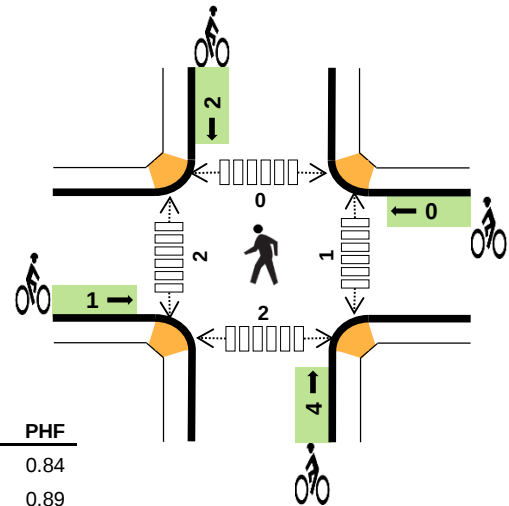
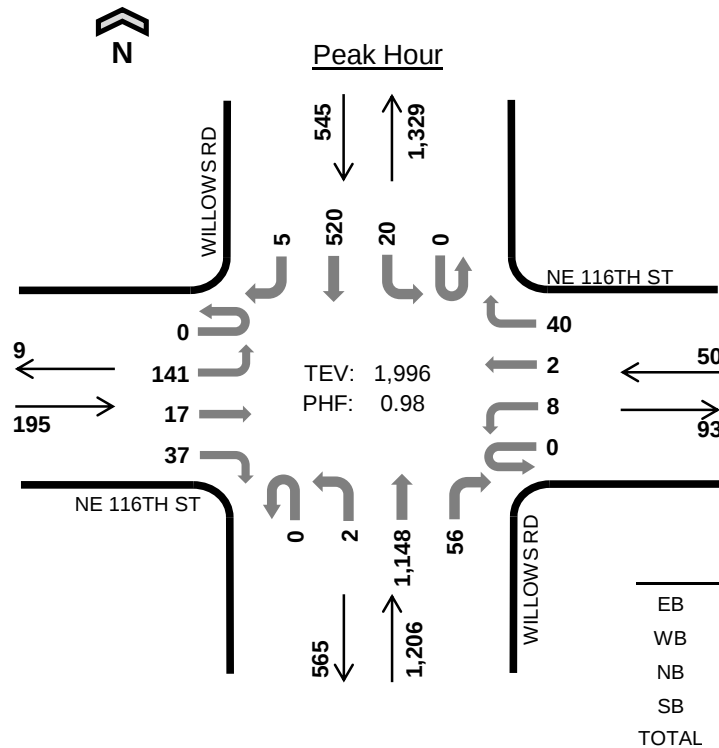
Two-Hour Count Summaries

Interval Start	NE 116TH ST				NE 116TH ST				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	0	0	0	7	3	2	0	6	73	0	0	2	292	29	416	0
7:15 AM	0	2	0	0	0	6	3	4	0	11	87	1	0	1	285	33	433	0
7:30 AM	0	2	0	2	0	9	5	4	0	6	82	1	0	1	280	33	425	0
7:45 AM	0	3	0	1	0	23	4	4	0	8	103	3	0	1	269	20	439	1,713
8:00 AM	1	3	1	1	0	25	15	6	0	9	85	3	0	2	255	16	422	1,719
8:15 AM	0	2	1	1	0	40	11	7	0	5	80	0	0	0	259	23	429	1,715
8:30 AM	0	2	0	0	0	40	6	2	0	5	82	0	0	0	280	20	437	1,727
8:45 AM	0	0	0	0	0	61	10	4	0	5	79	1	0	1	244	12	417	1,705
Count Total	1	16	2	5	0	211	57	33	0	55	671	9	0	8	2,164	186	3,418	0
Peak Hour	1	10	2	3	0	128	36	19	0	27	350	6	0	3	1,063	79	1,727	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	8	3	11	0	1	0	1	2	0	0	0	0	0
7:15 AM	0	0	8	4	12	0	0	0	0	0	0	1	0	2	3
7:30 AM	0	0	4	5	9	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	4	4	10	0	0	0	1	1	0	0	0	2	2
8:00 AM	1	1	5	6	13	0	1	0	1	2	0	0	0	0	0
8:15 AM	0	1	3	3	7	0	2	0	0	2	0	0	0	3	3
8:30 AM	0	0	2	3	5	0	0	1	0	1	0	0	1	0	1
8:45 AM	0	0	5	5	10	0	2	0	0	2	0	1	0	0	1
Count Total	1	4	39	33	77	0	6	1	3	10	0	2	1	7	10
Peak Hour	1	4	14	16	35	0	3	1	2	6	0	0	1	5	6

WILLOWS RD NE 116TH ST



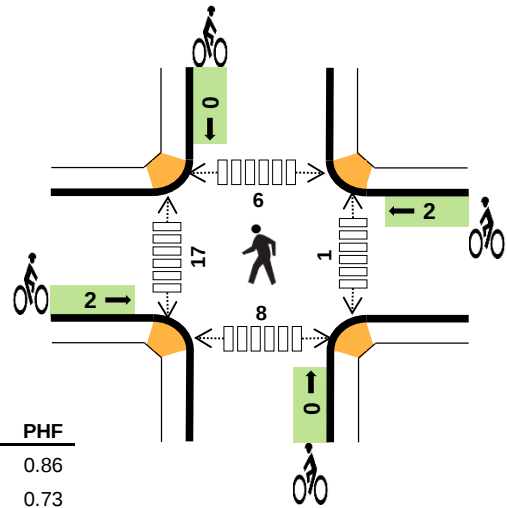
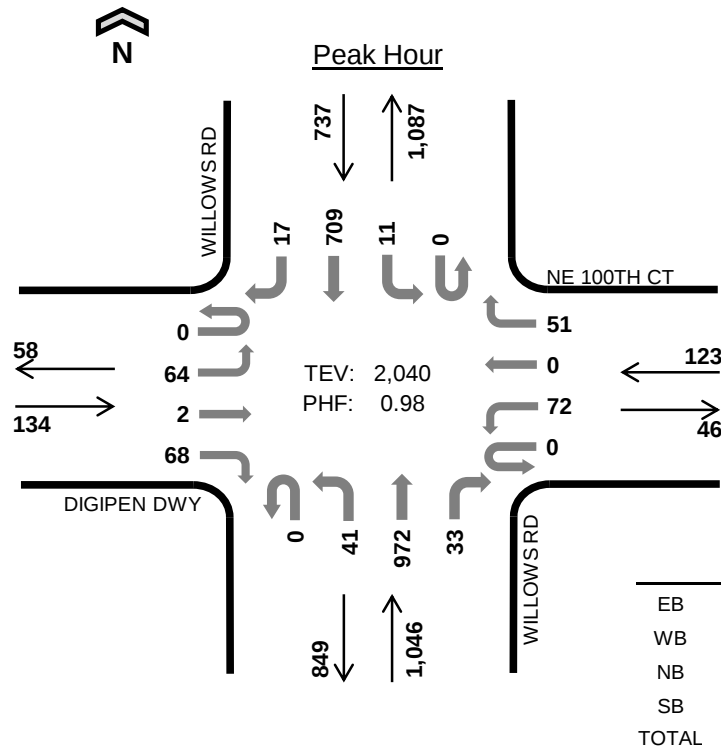
Two-Hour Count Summaries

Interval Start	NE 116TH ST Eastbound				NE 116TH ST Westbound				WILLOWS RD Northbound				WILLOWS RD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	35	4	7	0	2	1	11	0	0	302	9	0	4	132	1	508	0
4:15 PM	0	25	1	9	0	2	1	11	0	0	297	13	0	6	141	2	508	0
4:30 PM	0	41	7	10	0	3	0	8	0	1	275	10	0	4	131	1	491	0
4:45 PM	0	40	5	11	0	1	0	10	0	1	274	24	0	6	116	1	489	1,996
5:00 PM	0	49	7	19	0	2	0	9	0	0	273	10	0	6	127	1	503	1,991
5:15 PM	0	45	7	10	0	1	0	5	0	1	271	11	0	3	100	3	457	1,940
5:30 PM	0	28	7	5	0	3	0	12	0	1	285	25	0	5	118	1	490	1,939
5:45 PM	0	22	1	2	0	3	0	8	0	2	274	11	0	3	102	0	428	1,878
Count Total	0	285	39	73	0	17	2	74	0	6	2,251	113	0	37	967	10	3,874	0
Peak Hour	0	141	17	37	0	8	2	40	0	2	1,148	56	0	20	520	5	1,996	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	5	7	0	0	1	2	3	0	2	0	1	3
4:15 PM	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0
4:30 PM	0	0	4	2	6	1	0	1	0	2	1	0	0	0	1
4:45 PM	0	0	1	4	5	0	0	1	0	1	0	0	0	1	1
5:00 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	4	4
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	3	2	6	1	0	1	0	2	0	0	0	2	2
5:45 PM	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2
Count Total	0	2	14	13	29	4	1	5	2	12	1	4	0	8	13
Peak Hour	0	0	9	11	20	1	0	4	2	7	1	2	0	2	5

WILLOWS RD NE 100TH CT



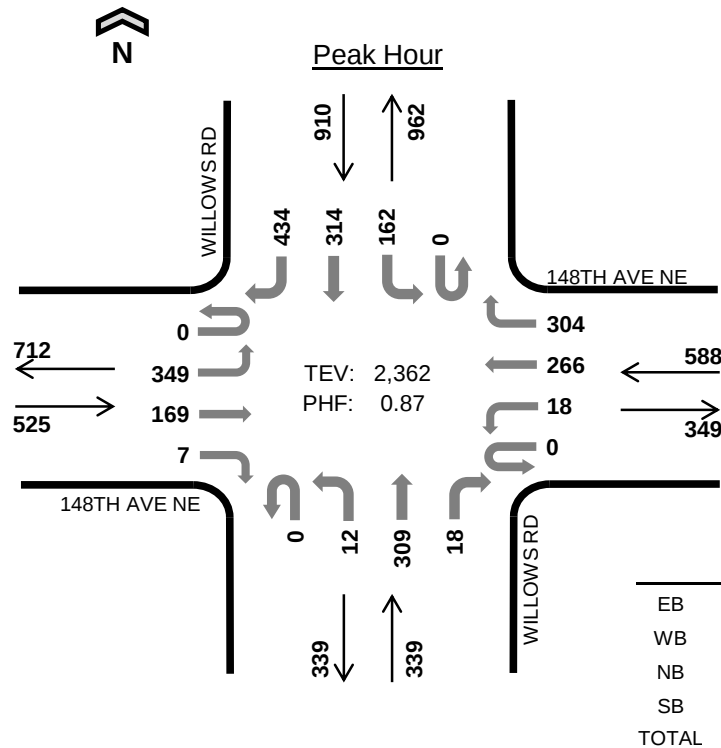
Two-Hour Count Summaries

Interval Start	DIGIPEN DWY				NE 100TH CT				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	18	0	19	0	18	0	24	0	10	255	5	0	5	164	1	519	0
4:15 PM	0	14	1	17	0	4	0	8	0	11	256	7	0	1	198	6	523	0
4:30 PM	0	17	0	22	0	27	0	11	0	10	207	9	0	3	168	8	482	0
4:45 PM	0	15	1	10	0	23	0	8	0	10	254	12	0	2	179	2	516	2,040
5:00 PM	0	19	0	23	0	7	2	14	0	15	215	13	0	2	173	4	487	2,008
5:15 PM	0	11	0	27	0	7	3	8	0	12	206	23	0	2	159	3	461	1,946
5:30 PM	0	11	1	18	0	6	1	10	0	17	224	18	0	2	144	2	454	1,918
5:45 PM	0	10	0	22	0	32	0	5	0	18	218	12	0	1	147	8	473	1,875
Count Total	0	115	3	158	0	124	6	88	0	103	1,835	99	0	18	1,332	34	3,915	0
Peak Hour	0	64	2	68	0	72	0	51	0	41	972	33	0	11	709	17	2,040	0

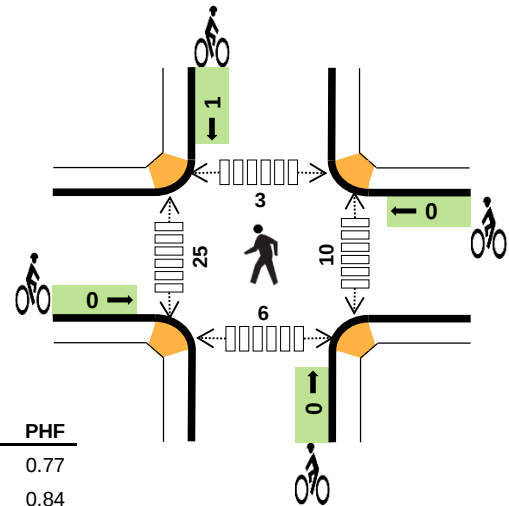
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	4	5	5	14	1	0	0	0	1	1	3	2	6	12
4:15 PM	0	1	2	0	3	0	2	0	0	2	0	4	1	1	6
4:30 PM	1	3	5	2	11	1	0	0	0	1	0	7	2	0	9
4:45 PM	0	1	3	3	7	0	0	0	0	0	0	3	1	1	5
5:00 PM	0	2	3	3	8	1	0	0	0	1	0	1	1	1	3
5:15 PM	0	0	1	0	1	0	0	0	1	1	0	6	1	3	10
5:30 PM	0	0	2	3	5	2	0	0	1	3	2	2	3	2	9
5:45 PM	0	0	2	1	3	1	0	0	0	1	0	12	2	2	16
Count Total	1	11	23	17	52	6	2	0	2	10	3	38	13	16	70
Peak Hour	1	9	15	10	35	2	2	0	0	4	1	17	6	8	32

WILLOWS RD 148TH AVE NE



Date: Wed, Nov 14, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



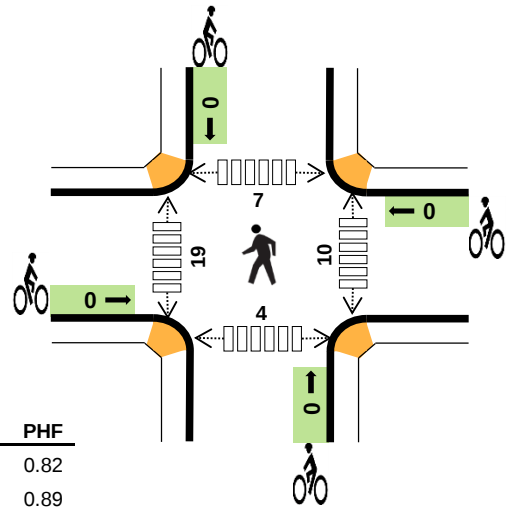
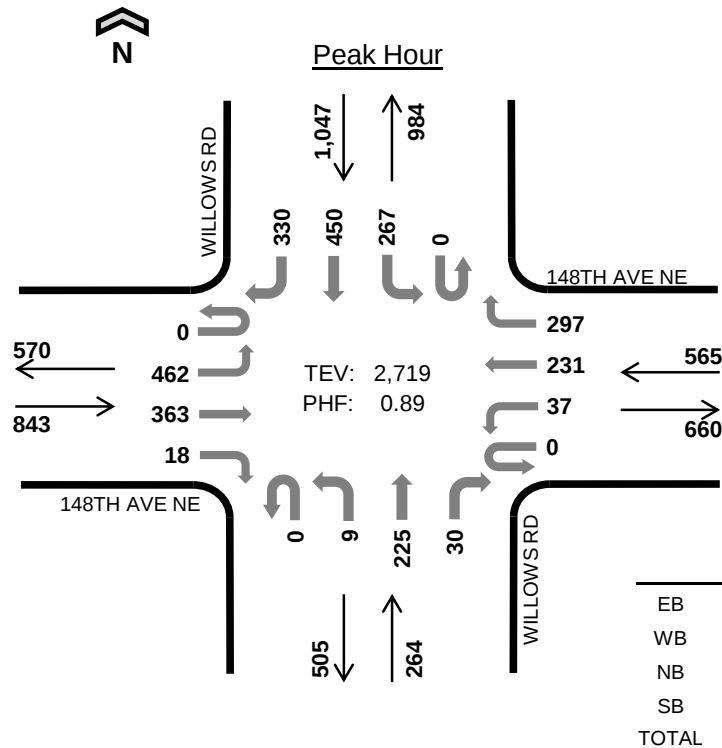
Two-Hour Count Summaries

Interval Start	148TH AVE NE				148TH AVE NE				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	51	23	2	0	6	43	59	0	5	50	7	0	46	68	85	445	0
7:15 AM	0	45	43	3	0	3	56	53	0	4	62	9	0	42	91	84	495	0
7:30 AM	0	59	46	4	0	4	73	60	0	5	68	4	0	27	82	109	541	0
7:45 AM	0	84	35	4	0	2	66	100	0	5	75	5	0	31	79	95	581	2,062
8:00 AM	0	71	34	1	0	2	69	60	0	5	66	7	0	43	66	105	529	2,146
8:15 AM	0	71	45	2	0	11	63	66	0	3	70	3	0	47	82	90	553	2,204
8:30 AM	0	91	39	1	0	3	66	72	0	2	83	3	0	37	85	120	602	2,265
8:45 AM	0	116	51	3	0	2	68	106	0	2	90	5	0	35	81	119	678	2,362
Count Total	0	588	316	20	0	33	504	576	0	31	564	43	0	308	634	807	4,424	0
Peak Hour	0	349	169	7	0	18	266	304	0	12	309	18	0	162	314	434	2,362	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	7	0	14	27	0	0	0	0	0	0	1	0	0	1
7:15 AM	8	6	2	10	26	0	0	0	0	0	0	2	0	2	4
7:30 AM	8	8	2	7	25	0	0	0	0	0	1	2	0	1	4
7:45 AM	6	7	2	3	18	0	0	0	0	0	3	4	4	1	12
8:00 AM	3	5	2	8	18	0	0	0	0	0	1	2	0	0	3
8:15 AM	4	10	3	10	27	0	0	0	1	1	1	3	2	1	7
8:30 AM	4	4	3	6	17	0	0	0	0	0	5	12	0	2	19
8:45 AM	8	2	1	4	15	0	0	0	0	0	3	8	1	3	15
Count Total	47	49	15	62	173	0	0	0	1	1	14	34	7	10	65
Peak Hour	19	21	9	28	77	0	0	0	1	1	10	25	3	6	44

WILLOWS RD 148TH AVE NE



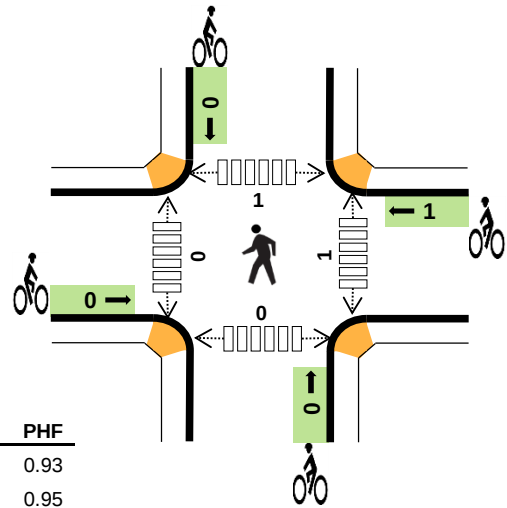
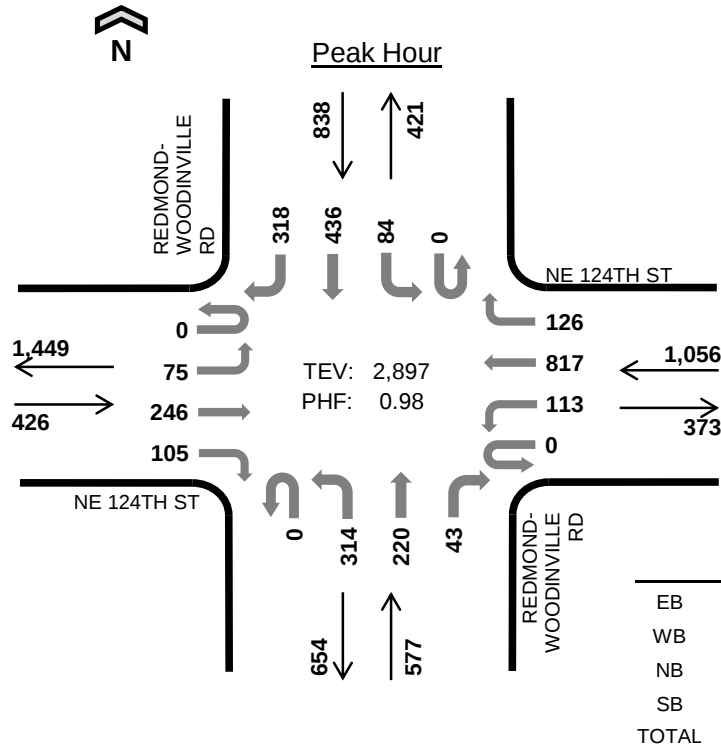
Two-Hour Count Summaries

Interval Start	148TH AVE NE				148TH AVE NE				WILLOWS RD				WILLOWS RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	87	72	5	0	10	70	76	0	4	64	13	0	63	112	89	665	0
4:15 PM	0	134	77	2	0	6	49	65	0	5	57	11	0	50	116	72	644	0
4:30 PM	0	95	81	4	0	8	65	75	0	3	46	5	0	66	109	74	631	0
4:45 PM	0	126	78	4	0	12	29	76	0	1	61	9	0	57	114	83	650	2,590
5:00 PM	0	143	108	7	0	8	72	78	0	3	61	5	0	74	109	100	768	2,693
5:15 PM	0	98	96	3	0	9	65	68	0	2	57	11	0	70	118	73	670	2,719
5:30 PM	0	118	86	2	0	12	56	67	0	4	46	4	0	42	89	71	597	2,685
5:45 PM	0	140	95	3	0	7	46	77	0	6	57	6	0	63	94	64	658	2,693
Count Total	0	941	693	30	0	72	452	582	0	28	449	64	0	485	861	626	5,283	0
Peak Hour	0	462	363	18	0	37	231	297	0	9	225	30	0	267	450	330	2,719	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	2	1	4	10	0	0	0	0	0	3	5	1	0	9
4:15 PM	5	3	0	2	10	0	0	0	0	0	4	5	2	5	16
4:30 PM	3	3	0	4	10	0	0	0	0	0	2	6	3	1	12
4:45 PM	3	5	2	3	13	0	0	0	0	0	3	6	1	2	12
5:00 PM	5	5	0	6	16	0	0	0	0	0	4	2	0	1	7
5:15 PM	3	2	1	1	7	0	0	0	0	0	1	5	3	0	9
5:30 PM	3	2	0	3	8	0	0	0	0	0	4	7	1	4	16
5:45 PM	3	4	0	1	8	0	0	0	0	0	3	9	0	2	14
Count Total	28	26	4	24	82	0	0	0	0	0	24	45	11	15	95
Peak Hour	14	15	3	14	46	0	0	0	0	0	10	19	7	4	40

REDMOND-WOODINVILLE RD NE 124TH ST



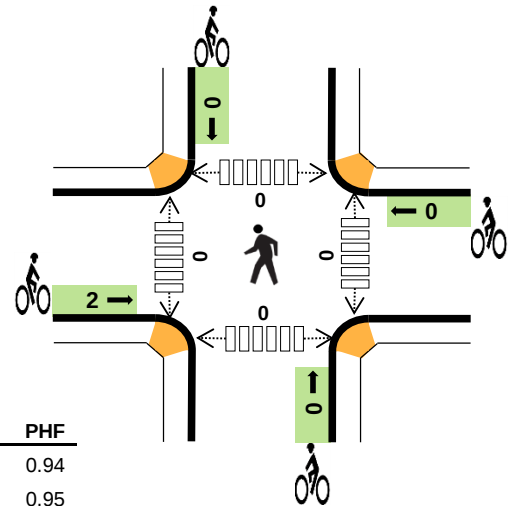
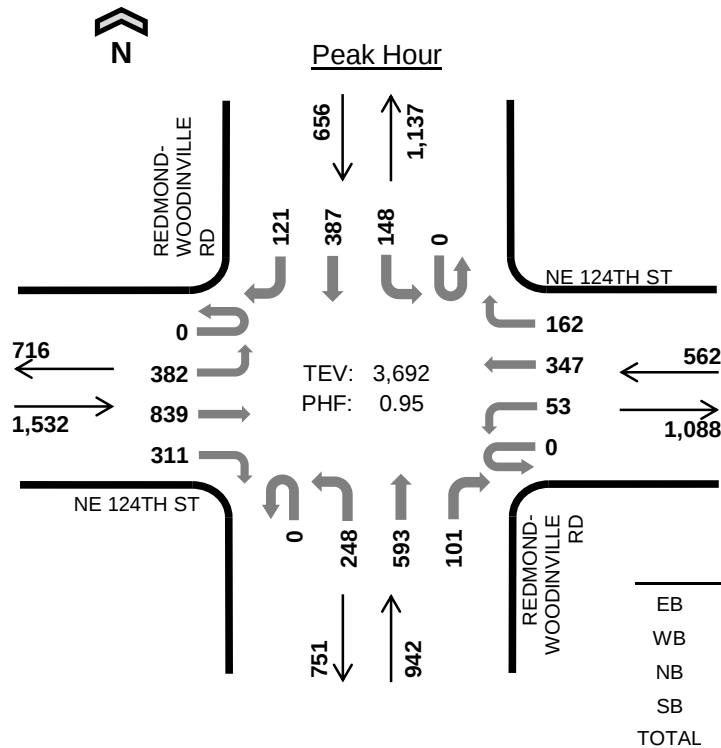
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				REDMOND-WOODINVILLE RD				REDMOND-WOODINVILLE RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	17	42	46	0	42	182	29	0	54	22	0	0	6	149	49	638	0
7:15 AM	0	14	52	28	0	35	189	32	0	63	43	5	0	14	137	69	681	0
7:30 AM	0	18	52	38	0	43	186	17	0	71	68	6	0	11	132	63	705	0
7:45 AM	0	16	61	32	0	26	225	21	0	73	60	11	0	21	121	70	737	2,761
8:00 AM	0	6	54	27	0	32	206	26	0	84	54	7	0	25	107	75	703	2,826
8:15 AM	0	23	62	29	0	27	184	32	0	88	65	13	0	18	107	77	725	2,870
8:30 AM	0	22	69	23	0	23	219	30	0	80	50	10	0	23	110	69	728	2,893
8:45 AM	0	24	61	26	0	31	208	38	0	62	51	13	0	18	112	97	741	2,897
Count Total	0	140	453	249	0	259	1,599	225	0	575	413	65	0	136	975	569	5,658	0
Peak Hour	0	75	246	105	0	113	817	126	0	314	220	43	0	84	436	318	2,897	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	1	2	6	13	0	1	0	0	1	0	0	0	0	0
7:15 AM	3	6	1	3	13	0	0	0	0	0	0	0	0	0	0
7:30 AM	4	3	2	2	11	0	0	1	0	1	0	0	0	0	0
7:45 AM	7	2	6	7	22	0	0	0	0	0	1	0	1	0	2
8:00 AM	5	4	4	4	17	0	0	0	0	0	1	0	1	0	2
8:15 AM	4	4	4	5	17	0	1	0	0	1	0	0	0	0	0
8:30 AM	5	2	6	5	18	0	0	0	0	0	0	0	0	0	0
8:45 AM	4	8	4	7	23	0	0	0	0	0	0	0	0	0	0
Count Total	36	30	29	39	134	0	2	1	0	3	2	0	2	0	4
Peak Hour	18	18	18	21	75	0	1	0	0	1	1	0	1	0	2

REDMOND-WOODINVILLE RD NE 124TH ST



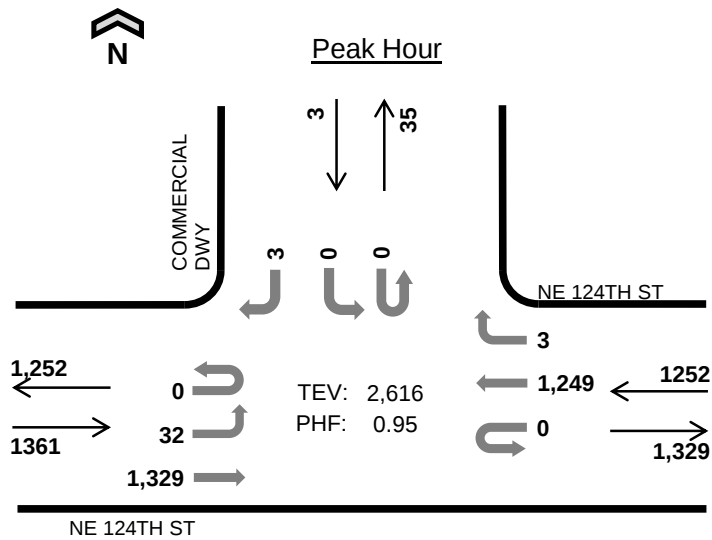
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				REDMOND-WOODINVILLE RD				REDMOND-WOODINVILLE RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	104	148	67	0	8	80	43	0	56	172	29	0	26	113	28	874	0
4:15 PM	0	101	191	66	0	16	103	42	0	60	149	25	0	40	86	32	911	0
4:30 PM	0	101	180	60	0	5	90	38	0	55	160	31	0	27	73	15	835	0
4:45 PM	0	94	209	73	0	14	82	47	0	58	139	28	0	39	84	21	888	3,508
5:00 PM	0	103	223	80	0	11	83	53	0	66	156	23	0	34	109	31	972	3,606
5:15 PM	0	99	199	78	0	17	85	22	0	67	154	24	0	40	85	31	901	3,596
5:30 PM	0	86	208	80	0	11	97	40	0	57	144	26	0	35	109	38	931	3,692
5:45 PM	0	89	179	79	0	12	100	25	0	66	149	29	0	31	83	20	862	3,666
Count Total	0	777	1,537	583	0	94	720	310	0	485	1,223	215	0	272	742	216	7,174	0
Peak Hour	0	382	839	311	0	53	347	162	0	248	593	101	0	148	387	121	3,692	0

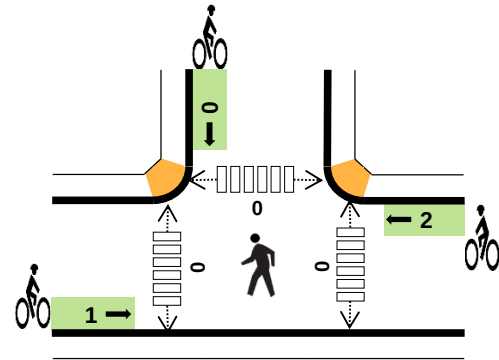
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	4	3	1	10	0	0	0	0	0	0	0	0	0	0
4:15 PM	4	5	1	2	12	1	0	0	0	1	0	1	0	8	9
4:30 PM	4	2	1	3	10	0	0	0	0	0	0	0	0	0	0
4:45 PM	7	2	3	2	14	0	0	0	0	0	0	0	0	0	0
5:00 PM	5	1	2	0	8	0	0	0	0	0	0	0	0	0	0
5:15 PM	2	3	0	0	5	1	0	0	0	1	0	0	0	0	0
5:30 PM	8	1	3	4	16	1	0	0	0	1	0	0	0	0	0
5:45 PM	3	2	1	0	6	1	0	0	0	1	0	0	0	0	0
Count Total	35	20	14	12	81	4	0	0	0	4	0	1	0	8	9
Peak Hour	22	7	8	6	43	2	0	0	0	2	0	0	0	0	0

COMMERCIAL DWY NE 124TH ST



Date: Wed, Nov 14, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	2.2%	0.87
WB	2.3%	0.93
NB	-	-
SB	0.0%	0.38
TOTAL	2.3%	0.95

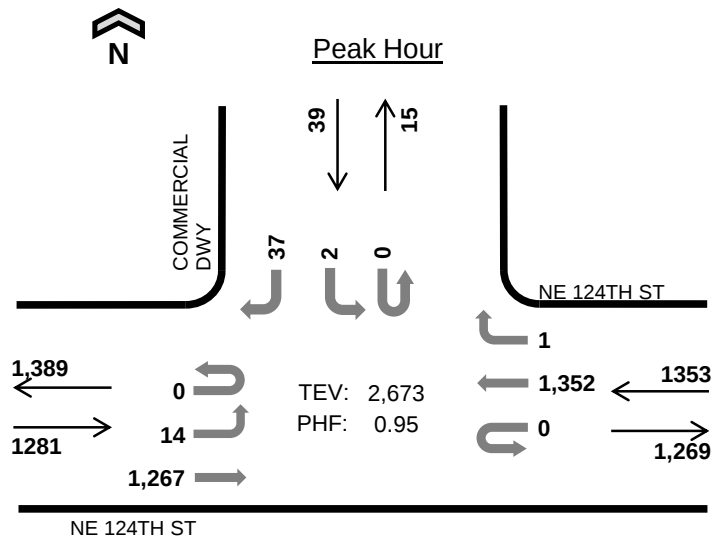
Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				0				COMMERCIAL DWY				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	1	6	346	0	0	0	264	0	0	0	0	0	0	0	0	0	617	0
7:15 AM	0	5	348	0	0	0	267	1	0	0	0	0	0	0	0	0	621	0
7:30 AM	0	6	315	0	0	0	258	0	0	0	0	0	0	0	0	0	579	0
7:45 AM	0	10	335	0	0	0	286	0	0	0	0	0	0	0	0	1	632	2,449
8:00 AM	0	7	312	0	0	0	315	0	0	0	0	0	0	0	2		636	2,468
8:15 AM	0	7	384	0	0	0	293	1	0	0	0	0	0	0	1		686	2,533
8:30 AM	0	6	334	0	0	0	306	0	0	0	0	0	0	0	0		646	2,600
8:45 AM	0	12	299	0	0	0	335	2	0	0	0	0	0	0	0		648	2,616
Count Total	1	59	2,673	0	0	0	2,324	4	0	0	0	0	0	0	4		5,065	0
Peak Hour	0	32	1,329	0	0	0	1,249	3	0	0	0	0	0	0	3		2,616	0

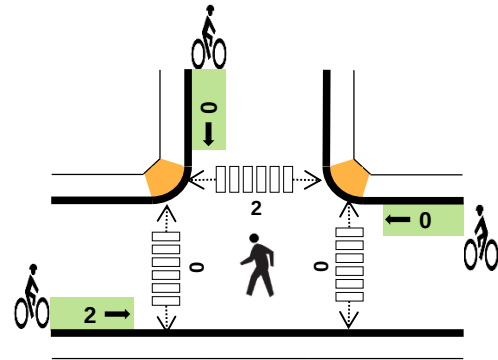
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	9	0	0	12	0	0	0	0	0	0	0	1	0	1
7:15 AM	7	7	0	0	14	0	0	0	0	0	0	0	0	0	0
7:30 AM	6	6	0	0	12	0	0	0	0	0	0	0	0	0	0
7:45 AM	9	5	0	0	14	1	0	0	0	1	0	0	1	1	2
8:00 AM	9	6	0	0	15	1	1	0	0	2	0	0	0	0	0
8:15 AM	9	7	0	0	16	0	0	0	0	0	0	0	0	0	0
8:30 AM	5	2	0	0	7	0	1	0	0	1	0	0	0	0	0
8:45 AM	7	14	0	0	21	0	0	0	0	0	0	0	0	0	0
Count Total	55	56	0	0	111	2	2	0	0	4	0	0	2	1	3
Peak Hr	30	29	0	0	59	1	2	0	0	3	0	0	0	0	0

COMMERCIAL DWY NE 124TH ST



Date: Wed, Nov 14, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	2.3%	0.95
WB	0.9%	0.94
NB	-	-
SB	0.0%	0.70
TOTAL	1.5%	0.95

Two-Hour Count Summaries

Interval Start	NE 124TH ST				NE 124TH ST				0				COMMERCIAL DWY				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	3	327	0	0	0	358	0	0	0	0	0	0	1	0	10	699	0
4:15 PM	0	2	302	0	0	0	320	0	0	0	0	0	0	0	0	6	630	0
4:30 PM	0	5	332	0	0	0	350	1	0	0	0	0	0	1	0	13	702	0
4:45 PM	0	4	306	0	0	0	324	0	0	0	0	0	0	0	0	8	642	2,673
5:00 PM	0	1	352	0	0	0	301	0	0	0	0	0	0	0	0	6	660	2,634
5:15 PM	0	2	309	0	0	0	330	0	0	0	0	0	0	0	0	6	647	2,651
5:30 PM	1	0	313	0	0	0	357	0	0	0	0	0	0	1	0	7	679	2,628
5:45 PM	1	0	286	0	0	0	316	1	0	0	0	0	0	1	0	1	606	2,592
Count Total	2	17	2,527	0	0	0	2,656	2	0	0	0	0	0	4	0	57	5,265	0
Peak Hour	0	14	1,267	0	0	0	1,352	1	0	0	0	0	0	2	0	37	2,673	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	8	2	0	0	10	1	0	0	0	1	0	0	1	1	2
4:15 PM	5	3	0	0	8	0	0	0	0	0	0	0	0	0	0
4:30 PM	9	4	0	0	13	0	0	0	0	0	0	0	1	1	2
4:45 PM	7	3	0	0	10	1	0	0	0	1	0	0	0	0	0
5:00 PM	4	4	0	0	8	1	0	0	0	1	0	0	1	1	2
5:15 PM	6	1	0	0	7	0	0	0	0	0	0	0	1	0	1
5:30 PM	6	7	0	0	13	0	0	0	0	0	0	0	1	0	1
5:45 PM	5	1	0	0	6	1	2	0	0	3	0	0	0	1	1
Count Total	50	25	0	0	75	4	2	0	0	6	0	0	5	4	9
Peak Hr	29	12	0	0	41	2	0	0	0	2	0	0	2	2	4

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	445	35	50	245	140	155	195	30	185	45	10
Future Volume (veh/h)	5	445	35	50	245	140	155	195	30	185	45	10
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	5	484	0	54	266	152	168	212	33	201	49	11
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	5	5	5
Cap, veh/h	367	973	435	378	687	378	326	343	290	389	167	37
Arrive On Green	0.01	0.27	0.00	0.05	0.32	0.32	0.19	0.19	0.19	0.12	0.12	0.12
Sat Flow, veh/h	1792	3574	1599	1757	2157	1188	1757	1845	1563	3343	1430	321
Grp Volume(v), veh/h	5	484	0	54	214	204	168	212	33	201	0	60
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1757	1752	1593	1757	1845	1563	1672	0	1751
Q Serve(g_s), s	0.1	5.7	0.0	1.1	4.8	5.0	4.3	5.3	0.9	2.8	0.0	1.6
Cycle Q Clear(g_c), s	0.1	5.7	0.0	1.1	4.8	5.0	4.3	5.3	0.9	2.8	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.75	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	367	973	435	378	558	507	326	343	290	389	0	204
V/C Ratio(X)	0.01	0.50	0.00	0.14	0.38	0.40	0.51	0.62	0.11	0.52	0.00	0.29
Avail Cap(c_a), veh/h	534	1995	892	478	996	905	1030	1081	916	1226	0	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	15.4	0.0	12.1	13.3	13.4	18.4	18.8	17.0	20.8	0.0	20.3
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.4	0.5	1.3	1.8	0.2	1.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.9	0.0	0.5	2.3	2.3	2.2	2.9	0.4	1.4	0.0	0.8
LnGrp Delay(d),s/veh	13.2	15.8	0.0	12.3	13.7	13.9	19.6	20.6	17.2	21.9	0.0	21.1
LnGrp LOS	B	B		B	B	B	B	C	B	C		C
Approach Vol, veh/h		489			472			413			261	
Approach Delay, s/veh		15.7			13.6			19.9			21.7	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	21.0		13.9	7.1	18.7		10.4				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	28.5		29.4	5.5	28.0		18.4				
Max Q Clear Time (g_c+I1), s	2.1	7.0		7.3	3.1	7.7		4.8				
Green Ext Time (p_c), s	0.0	6.1		1.8	0.0	6.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				17.1								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	885	420	135	770	195	195	190	95	185	365	85
Future Volume (veh/h)	60	885	420	135	770	195	195	190	95	185	365	85
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1827	1827	1827	1845	1845	1845
Adj Flow Rate, veh/h	62	922	438	141	802	203	203	198	99	193	380	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	3	3	3
Cap, veh/h	79	1527	800	145	1660	936	253	650	412	217	435	370
Arrive On Green	0.04	0.43	0.43	0.08	0.47	0.47	0.07	0.19	0.19	0.12	0.24	0.00
Sat Flow, veh/h	1774	3539	1579	1774	3539	1579	3375	3471	1525	1757	1845	1568
Grp Volume(v), veh/h	62	922	438	141	802	203	203	198	99	193	380	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1579	1774	1770	1579	1688	1736	1525	1757	1845	1568
Q Serve(g_s), s	4.7	27.0	25.6	10.7	21.0	8.1	8.0	6.6	6.9	14.6	26.8	0.0
Cycle Q Clear(g_c), s	4.7	27.0	25.6	10.7	21.0	8.1	8.0	6.6	6.9	14.6	26.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	1527	800	145	1660	936	253	650	412	217	435	370
V/C Ratio(X)	0.78	0.60	0.55	0.98	0.48	0.22	0.80	0.30	0.24	0.89	0.87	0.00
Avail Cap(c_a), veh/h	133	1527	800	145	1660	936	300	851	500	234	545	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	63.8	29.5	22.7	61.9	24.6	12.9	61.5	47.3	38.6	58.3	49.7	0.0
Incr Delay (d2), s/veh	6.2	1.8	2.7	66.9	1.0	0.5	12.5	0.3	0.3	30.2	12.4	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	2.4	13.6	11.7	7.9	10.5	3.6	4.2	3.2	2.9	8.9	15.1	0.0
LnGrp Delay(d),s/veh	70.0	31.3	25.4	128.8	25.6	13.4	74.0	47.6	38.9	88.4	62.0	0.0
LnGrp LOS	E	C	C	F	C	B	E	D	D	F	E	
Approach Vol, veh/h		1422			1146			500			573	
Approach Delay, s/veh		31.2			36.1			56.6			70.9	
Approach LOS		C			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	69.2	22.7	31.2	17.0	64.2	16.1	37.7				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	10.1	* 50	18.0	* 33	11.0	* 49	12.0	* 40				
Max Q Clear Time (g_c+I1), s	6.7	23.0	16.6	8.9	12.7	29.0	10.0	28.8				
Green Ext Time (p_c), s	0.0	12.2	0.1	4.2	0.0	10.5	0.1	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay			42.5									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	395	455	235	280	15	165	200	75	20	420	95
Future Volume (veh/h)	135	395	455	235	280	15	165	200	75	20	420	95
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.99	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1810	1900	1863	1863	1863	1845	1845	1900
Adj Flow Rate, veh/h	138	403	464	240	286	15	168	204	77	20	429	97
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	5	5	5	2	2	2	3	3	3
Cap, veh/h	580	784	665	374	1562	82	297	577	487	335	695	156
Arrive On Green	0.04	0.42	0.42	0.09	0.47	0.47	0.08	0.31	0.31	0.02	0.25	0.25
Sat Flow, veh/h	1774	1863	1580	1723	3322	173	1774	1863	1571	1757	2835	635
Grp Volume(v), veh/h	138	403	464	240	147	154	168	204	77	20	264	262
Grp Sat Flow(s),veh/h/ln	1774	1863	1580	1723	1719	1776	1774	1863	1571	1757	1752	1718
Q Serve(g_s), s	6.0	21.9	33.0	10.5	6.8	6.9	9.4	11.6	4.9	1.2	18.3	18.7
Cycle Q Clear(g_c), s	6.0	21.9	33.0	10.5	6.8	6.9	9.4	11.6	4.9	1.2	18.3	18.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	580	784	665	374	808	835	297	577	487	335	429	421
V/C Ratio(X)	0.24	0.51	0.70	0.64	0.18	0.18	0.57	0.35	0.16	0.06	0.61	0.62
Avail Cap(c_a), veh/h	580	784	665	452	808	835	361	577	487	371	429	421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	29.4	32.6	21.1	21.1	21.1	34.5	36.7	34.4	37.2	46.0	46.1
Incr Delay (d2), s/veh	0.2	2.4	6.0	1.8	0.5	0.5	1.7	1.7	0.7	0.0	6.4	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	11.8	15.5	5.1	3.3	3.5	4.7	6.3	2.2	0.6	9.6	9.7
LnGrp Delay(d),s/veh	21.5	31.8	38.6	22.9	21.6	21.6	36.2	38.4	35.1	37.2	52.5	52.9
LnGrp LOS	C	C	D	C	C	C	D	D	D	D	D	D
Approach Vol, veh/h	1005				541			449			546	
Approach Delay, s/veh	33.5				22.2			37.0			52.1	
Approach LOS	C				C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	70.0	8.2	48.0	17.7	63.3	17.1	39.1				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	6.0	64.5	6.0	42.5	19.0	51.5	16.5	31.5				
Max Q Clear Time (g_c+l1), s	8.0	8.9	3.2	13.6	12.5	35.0	11.4	20.7				
Green Ext Time (p_c), s	0.0	7.4	0.0	5.2	0.3	5.8	0.2	3.6				
Intersection Summary												
HCM 2010 Ctrl Delay	35.7											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	320	10	90	120	90	20	340	145	320	435	5
Future Volume (veh/h)	10	320	10	90	120	90	20	340	145	320	435	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1827	1827	1900	1863	1863	1900	1845	1845	1900
Adj Flow Rate, veh/h	10	330	10	93	124	93	21	351	149	330	448	5
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	4	4	4	2	2	2	3	3	3
Cap, veh/h	123	362	11	135	223	168	512	627	266	512	1059	12
Arrive On Green	0.01	0.20	0.20	0.04	0.23	0.23	0.02	0.50	0.50	0.10	0.58	0.58
Sat Flow, veh/h	1792	1816	55	1740	962	722	1774	1241	527	1757	1820	20
Grp Volume(v), veh/h	10	0	340	93	0	217	21	0	500	330	0	453
Grp Sat Flow(s),veh/h/ln	1792	0	1871	1740	0	1684	1774	0	1769	1757	0	1841
Q Serve(g_s), s	0.6	0.0	24.0	2.4	0.0	15.3	0.8	0.0	26.4	11.7	0.0	18.4
Cycle Q Clear(g_c), s	0.6	0.0	24.0	2.4	0.0	15.3	0.8	0.0	26.4	11.7	0.0	18.4
Prop In Lane	1.00		0.03	1.00		0.43	1.00		0.30	1.00		0.01
Lane Grp Cap(c), veh/h	123	0	373	135	0	391	512	0	893	512	0	1070
V/C Ratio(X)	0.08	0.00	0.91	0.69	0.00	0.56	0.04	0.00	0.56	0.65	0.00	0.42
Avail Cap(c_a), veh/h	304	0	485	260	0	430	607	0	893	666	0	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.7	0.0	52.9	62.1	0.0	45.7	15.4	0.0	23.1	16.5	0.0	15.7
Incr Delay (d2), s/veh	0.1	0.0	16.0	2.3	0.0	0.5	0.0	0.0	2.5	0.5	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	14.0	3.5	0.0	7.2	0.4	0.0	13.4	5.7	0.0	9.7
LnGrp Delay(d),s/veh	46.8	0.0	68.9	64.5	0.0	46.2	15.4	0.0	25.6	17.0	0.0	16.9
LnGrp LOS	D		E	E		D	B		C	B		B
Approach Vol, veh/h	350				310				521			
Approach Delay, s/veh	68.3				51.7				25.2			
Approach LOS	E				D				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	36.8	18.1	73.6	11.3	31.9	7.8	84.0				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	5.5	* 5	4.5	* 5.5				
Max Green Setting (Gmax), s	15.5	34.5	26.0	39.5	15.5	* 35	10.5	* 55				
Max Q Clear Time (g_c+I1), s	2.6	17.3	13.7	28.4	4.4	26.0	2.8	20.4				
Green Ext Time (p_c), s	0.0	0.9	0.4	3.3	0.7	0.9	0.0	4.6				
Intersection Summary												
HCM 2010 Ctrl Delay	33.8											
HCM 2010 LOS	C											
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	820	40	165	825	175	35	155	230	430	565	210
Future Volume (veh/h)	130	820	40	165	825	175	35	155	230	430	565	210
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1827	1827	1900	1845	1845	1845
Adj Flow Rate, veh/h	131	828	0	167	833	0	35	157	232	434	571	212
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	2	2	2	4	4	4	3	3	3
Cap, veh/h	137	1326	593	151	1366	611	57	365	321	267	595	497
Arrive On Green	0.08	0.38	0.00	0.03	0.13	0.00	0.03	0.21	0.21	0.15	0.32	0.32
Sat Flow, veh/h	1757	3505	1568	1774	3539	1583	1740	1736	1526	1757	1845	1543
Grp Volume(v), veh/h	131	828	0	167	833	0	35	157	232	434	571	212
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1774	1770	1583	1740	1736	1526	1757	1845	1543
Q Serve(g_s), s	10.0	26.0	0.0	11.5	30.1	0.0	2.7	10.6	19.1	20.5	41.0	14.6
Cycle Q Clear(g_c), s	10.0	26.0	0.0	11.5	30.1	0.0	2.7	10.6	19.1	20.5	41.0	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1326	593	151	1366	611	57	365	321	267	595	497
V/C Ratio(X)	0.96	0.62	0.00	1.11	0.61	0.00	0.62	0.43	0.72	1.63	0.96	0.43
Avail Cap(c_a), veh/h	137	1326	593	151	1366	611	122	444	390	267	622	520
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.0	34.1	0.0	65.6	49.3	0.0	64.5	46.3	49.6	57.3	44.9	35.9
Incr Delay (d2), s/veh	63.8	2.2	0.0	101.2	1.9	0.0	4.0	0.3	3.6	298.6	25.5	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	7.3	12.9	0.0	9.9	15.1	0.0	1.4	5.1	8.4	32.1	25.2	6.2
LnGrp Delay(d),s/veh	125.8	36.4	0.0	166.8	51.2	0.0	68.5	46.6	53.2	355.9	70.4	36.1
LnGrp LOS	F	D		F	D		E	D	D	F	E	D
Approach Vol, veh/h		959			1000			424			1217	
Approach Delay, s/veh		48.6			70.5			52.0			166.2	
Approach LOS		D			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	57.1	26.0	34.9	18.0	56.1	10.9	50.0				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	10.5	46.0	20.5	34.5	11.5	45.0	9.5	* 46				
Max Q Clear Time (g_c+I1), s	12.0	32.1	22.5	21.1	13.5	28.0	4.7	43.0				
Green Ext Time (p_c), s	0.0	2.6	0.0	1.0	0.0	2.6	0.0	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				94.8								
HCM 2010 LOS				F								
Notes												

HCM 2010 Signalized Intersection Summary

6: 134th Ct E & NE 124th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1365	110	40	1210	5	10	0	15	0	5	5
Future Volume (veh/h)	5	1365	110	40	1210	5	10	0	15	0	5	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1759	1759	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1452	117	43	1287	5	11	0	16	0	5	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	0	0	0
Cap, veh/h	414	2988	239	347	3261	13	87	0	46	0	27	27
Arrive On Green	1.00	1.00	1.00	0.90	0.90	0.90	0.03	0.00	0.03	0.00	0.03	0.03
Sat Flow, veh/h	425	3313	265	326	3615	14	1310	0	1485	0	870	870
Grp Volume(v), veh/h	5	772	797	43	630	662	11	0	16	0	0	10
Grp Sat Flow(s),veh/h/ln	425	1770	1809	326	1770	1860	1310	0	1485	0	0	1740
Q Serve(g_s), s	0.1	0.0	0.0	2.0	7.3	7.3	1.1	0.0	1.4	0.0	0.0	0.8
Cycle Q Clear(g_c), s	7.4	0.0	0.0	2.0	7.3	7.3	1.9	0.0	1.4	0.0	0.0	0.8
Prop In Lane	1.00		0.15	1.00		0.01	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	414	1596	1631	347	1596	1678	87	0	46	0	0	54
V/C Ratio(X)	0.01	0.48	0.49	0.12	0.39	0.39	0.13	0.00	0.34	0.00	0.00	0.18
Avail Cap(c_a), veh/h	414	1596	1631	347	1596	1678	444	0	451	0	0	528
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.14	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.7	1.0	1.0	64.6	0.0	64.0	0.0	0.0	63.7
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.7	0.7	0.7	0.2	0.0	1.6	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.2	3.8	4.0	0.4	0.0	0.6	0.0	0.0	0.4
LnGrp Delay(d),s/veh	0.2	0.2	0.2	1.5	1.7	1.7	64.9	0.0	65.7	0.0	0.0	64.3
LnGrp LOS	A	A	A	A	A	A	E		E			E
Approach Vol, veh/h	1574			1335				27		10		
Approach Delay, s/veh	0.2			1.7				65.3		64.3		
Approach LOS	A			A				E		E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	126.8		8.2		126.8		8.2					
Change Period (Y+Rc), s	5.0		4.0		5.0		4.0					
Max Green Setting (Gmax), s	85.0		41.0		85.0		41.0					
Max Q Clear Time (g_c+I1), s	9.3		3.9		9.4		2.8					
Green Ext Time (p_c), s	4.8		0.0		4.8		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	1.7											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
Existing AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	45	655	645	245	955	65	215	55	55	80	385	5	
Future Volume (veh/h)	45	655	645	245	955	65	215	55	55	80	385	5	
Number	1	6	16	5	2	12	7	4	14	3	8	18	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	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	
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1810	1810	1810	1900	1900	1900	
Adj Flow Rate, veh/h	45	662	652	247	965	66	217	56	56	81	389	5	
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	0	0	0	
Cap, veh/h	64	1353	717	270	1684	115	264	442	602	102	414	5	
Arrive On Green	0.04	0.38	0.38	0.15	0.50	0.50	0.08	0.24	0.24	0.06	0.22	0.22	
Sat Flow, veh/h	1774	3539	1548	1792	3389	232	3343	1810	1518	1810	1872	24	
Grp Volume(v), veh/h	45	662	652	247	509	522	217	56	56	81	0	394	
Grp Sat Flow(s),veh/h/ln	1774	1770	1548	1792	1787	1834	1672	1810	1518	1810	0	1896	
Q Serve(g_s), s	3.4	19.2	51.6	18.3	27.0	27.0	8.6	3.3	3.1	6.0	0.0	27.6	
Cycle Q Clear(g_c), s	3.4	19.2	51.6	18.3	27.0	27.0	8.6	3.3	3.1	6.0	0.0	27.6	
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.01	
Lane Grp Cap(c), veh/h	64	1353	717	270	888	911	264	442	602	102	0	420	
V/C Ratio(X)	0.70	0.49	0.91	0.91	0.57	0.57	0.82	0.13	0.09	0.80	0.00	0.94	
Avail Cap(c_a), veh/h	118	1353	717	332	888	911	433	529	676	168	0	491	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.49	0.49	0.49	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	64.3	31.7	33.9	56.5	23.9	23.9	61.2	39.8	25.7	62.9	0.0	51.7	
Incr Delay (d2), s/veh	5.0	1.3	17.6	13.7	1.3	1.3	2.5	0.0	0.0	5.2	0.0	22.9	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	9.6	26.1	10.1	13.6	14.0	4.1	1.6	1.3	3.1	0.0	17.1	
LnGrp Delay(d),s/veh	69.4	33.0	51.5	70.2	25.2	25.2	63.7	39.9	25.7	68.2	0.0	74.5	
LnGrp LOS	E	C	D	E	C	C	E	D	C	E		E	
Approach Vol, veh/h	1359				1278				329				475
Approach Delay, s/veh	43.1				33.9				53.2				73.4
Approach LOS	D				C				D				E
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	10.9	72.6	13.1	38.4	26.4	57.1	16.2	35.4					
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5					
Max Green Setting (Gmax), s	9.0	* 53	12.5	39.5	25.0	35.5	17.5	* 35					
Max Q Clear Time (g_c+I1), s	5.4	29.0	8.0	5.3	20.3	53.6	10.6	29.6					
Green Ext Time (p_c), s	0.0	2.1	0.0	0.4	0.0	0.0	0.0	0.3					
Intersection Summary													
HCM 2010 Ctrl Delay	44.8												
HCM 2010 LOS	D												
Notes													

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	5	130	35	20	25	350	5	5	1065	80
Future Volume (veh/h)	10	5	5	130	35	20	25	350	5	5	1065	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.96	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1863	1900	1827	1827	1900	1881	1881	1881
Adj Flow Rate, veh/h	10	5	5	133	36	20	26	357	5	5	1087	82
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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
Percent Heavy Veh, %	6	6	6	2	2	2	4	4	4	1	1	1
Cap, veh/h	291	167	167	206	42	23	168	2286	32	703	1194	993
Arrive On Green	0.01	0.20	0.20	0.15	0.15	0.15	0.02	0.65	0.65	0.01	0.63	0.63
Sat Flow, veh/h	1707	820	820	1035	281	156	1740	3504	49	1792	1881	1565
Grp Volume(v), veh/h	10	0	10	189	0	0	26	177	185	5	1087	82
Grp Sat Flow(s),veh/h/ln	1707	0	1641	1471	0	0	1740	1736	1817	1792	1881	1565
Q Serve(g_s), s	0.6	0.0	0.6	14.4	0.0	0.0	0.6	4.5	4.5	0.1	57.4	2.3
Cycle Q Clear(g_c), s	0.6	0.0	0.6	14.4	0.0	0.0	0.6	4.5	4.5	0.1	57.4	2.3
Prop In Lane	1.00		0.50	0.70		0.11	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	333	271	0	0	168	1133	1186	703	1194	993
V/C Ratio(X)	0.03	0.00	0.03	0.70	0.00	0.00	0.15	0.16	0.16	0.01	0.91	0.08
Avail Cap(c_a), veh/h	464	0	529	297	0	0	323	1168	1223	926	1299	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	36.6	47.8	0.0	0.0	22.0	7.7	7.7	7.4	18.2	8.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.7	0.0	0.0	0.3	0.1	0.1	0.0	9.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	6.3	0.0	0.0	0.4	2.2	2.3	0.1	32.7	1.0
LnGrp Delay(d),s/veh	39.1	0.0	36.7	53.5	0.0	0.0	22.3	7.8	7.8	7.4	27.6	8.1
LnGrp LOS	D		D	D			C	A	A	A	C	A
Approach Vol, veh/h	20			189			388			1174		
Approach Delay, s/veh	37.9			53.5			8.8			26.2		
Approach LOS	D			D			A			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	7	8				
Phs Duration (G+Y+Rc), s	5.7	80.7	28.3		7.8	78.6	6.4	22.0				
Change Period (Y+Rc), s	5.0	5.8	5.0		5.0	5.8	5.0	5.0				
Max Green Setting (Gmax), s	15.0	77.2	37.0		13.0	79.2	13.0	19.0				
Max Q Clear Time (g_c+I1), s	2.1	6.5	2.6		2.6	59.4	2.6	16.4				
Green Ext Time (p_c), s	0.0	26.2	1.0		0.0	13.4	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	25.4											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	45	45	5	15	150	500	90	20	890	30
Future Volume (veh/h)	15	0	45	45	5	15	150	500	90	20	890	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.97		0.94	1.00		0.97	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1900	1810	1900	1667	1667	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	16	0	47	47	5	16	156	521	94	21	927	31
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	14	14	14	3	3	3	2	2	2
Cap, veh/h	59	15	109	182	33	106	405	1392	1149	686	1368	1129
Arrive On Green	0.10	0.00	0.10	0.10	0.10	0.10	0.08	1.00	1.00	0.02	0.73	0.73
Sat Flow, veh/h	220	154	1098	1172	333	1066	1757	1845	1523	1774	1863	1537
Grp Volume(v), veh/h	63	0	0	47	0	21	156	521	94	21	927	31
Grp Sat Flow(s),veh/h/ln	1471	0	0	1172	0	1399	1757	1845	1523	1774	1863	1537
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.6	2.8	0.0	0.0	0.4	31.6	0.7
Cycle Q Clear(g_c), s	4.6	0.0	0.0	4.0	0.0	1.6	2.8	0.0	0.0	0.4	31.6	0.7
Prop In Lane	0.25		0.75	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	184	0	0	182	0	139	405	1392	1149	686	1368	1129
V/C Ratio(X)	0.34	0.00	0.00	0.26	0.00	0.15	0.38	0.37	0.08	0.03	0.68	0.03
Avail Cap(c_a), veh/h	280	0	0	261	0	233	479	1392	1149	796	1368	1129
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.74	0.74	0.74	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	0.0	0.0	50.5	0.0	49.4	8.5	0.0	0.0	3.6	8.4	4.3
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.7	0.0	0.5	0.4	0.6	0.1	0.0	2.7	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	2.0	0.0	0.0	1.5	0.0	0.7	1.8	0.2	0.0	0.2	17.0	0.3
LnGrp Delay(d),s/veh	51.9	0.0	0.0	51.2	0.0	49.9	9.0	0.6	0.1	3.7	11.1	4.4
LnGrp LOS	D			D		D	A	A	A	A	B	A
Approach Vol, veh/h		63			68			771			979	
Approach Delay, s/veh		51.9			50.8			2.2			10.8	
Approach LOS		D			D			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	95.6		16.9	10.0	93.1		16.9				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	10.0	75.0		20.0	10.0	75.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	2.0		6.6	4.8	33.6		6.0				
Green Ext Time (p_c), s	0.0	18.6		0.5	0.2	16.3		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				10.1								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	170	5	20	265	305	10	310	20	160	315	435
Future Volume (veh/h)	350	170	5	20	265	305	10	310	20	160	315	435
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1827	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	402	195	6	23	305	351	11	356	23	184	362	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	3	3	3	3	3	3
Cap, veh/h	545	558	17	217	512	625	22	456	29	220	699	594
Arrive On Green	0.16	0.32	0.32	0.12	0.28	0.28	0.01	0.27	0.27	0.04	0.13	0.00
Sat Flow, veh/h	3375	1763	54	1740	1827	1536	1757	1711	111	1757	1845	1568
Grp Volume(v), veh/h	402	0	201	23	305	351	11	0	379	184	362	0
Grp Sat Flow(s),veh/h/ln	1688	0	1817	1740	1827	1536	1757	0	1821	1757	1845	1568
Q Serve(g_s), s	13.6	0.0	10.2	1.4	17.3	5.9	0.7	0.0	23.1	12.5	22.0	0.0
Cycle Q Clear(g_c), s	13.6	0.0	10.2	1.4	17.3	5.9	0.7	0.0	23.1	12.5	22.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	545	0	575	217	512	625	22	0	486	220	699	594
V/C Ratio(X)	0.74	0.00	0.35	0.11	0.60	0.56	0.49	0.00	0.78	0.84	0.52	0.00
Avail Cap(c_a), veh/h	591	0	575	217	512	625	220	0	486	293	699	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.68	0.68	0.00
Uniform Delay (d), s/veh	47.9	0.0	31.5	46.6	37.3	27.4	58.8	0.0	40.7	56.3	42.2	0.0
Incr Delay (d2), s/veh	4.5	0.0	1.7	0.2	1.9	1.2	15.5	0.0	11.8	11.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	5.4	0.7	9.0	2.6	0.5	0.0	13.2	6.8	11.4	0.0
LnGrp Delay(d),s/veh	52.4	0.0	33.2	46.8	39.2	28.6	74.4	0.0	52.5	67.5	42.9	0.0
LnGrp LOS	D		C	D	D	C	E		D	E	D	
Approach Vol, veh/h		603			679			390			546	
Approach Delay, s/veh		46.0			34.0			53.1			51.2	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.4	38.6	6.5	50.5	20.0	43.0	20.0	37.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	21.0	27.0	15.0	37.0	10.0	38.0	20.0	32.0				
Max Q Clear Time (g_c+I1), s	15.6	19.3	2.7	24.0	3.4	12.2	14.5	25.1				
Green Ext Time (p_c), s	0.8	2.0	0.0	3.1	0.9	1.1	0.6	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	245	105	115	815	125	315	220	45	85	435	320
Future Volume (veh/h)	75	245	105	115	815	125	315	220	45	85	435	320
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	77	250	107	117	832	128	321	224	46	87	444	327
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	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
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	3	3	3
Cap, veh/h	131	734	305	147	949	146	399	609	647	112	511	552
Arrive On Green	0.08	0.31	0.31	0.08	0.31	0.31	0.12	0.33	0.33	0.06	0.28	0.28
Sat Flow, veh/h	1740	2391	994	1774	3065	471	3408	1845	1567	1757	1845	1566
Grp Volume(v), veh/h	77	179	178	117	480	480	321	224	46	87	444	327
Grp Sat Flow(s),veh/h/ln	1740	1736	1650	1774	1770	1767	1704	1845	1567	1757	1845	1566
Q Serve(g_s), s	4.2	7.8	8.1	6.3	25.0	25.0	8.9	9.0	1.7	4.7	22.3	6.4
Cycle Q Clear(g_c), s	4.2	7.8	8.1	6.3	25.0	25.0	8.9	9.0	1.7	4.7	22.3	6.4
Prop In Lane	1.00		0.60	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	533	507	147	548	547	399	609	647	112	511	552
V/C Ratio(X)	0.59	0.34	0.35	0.79	0.88	0.88	0.81	0.37	0.07	0.78	0.87	0.59
Avail Cap(c_a), veh/h	447	769	731	274	602	601	526	609	647	271	586	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	26.0	26.2	43.8	31.8	31.8	41.9	24.8	17.3	44.9	33.5	11.6
Incr Delay (d2), s/veh	4.1	0.4	0.4	9.3	13.0	13.0	6.8	0.4	0.0	10.9	12.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.8	3.8	3.5	14.1	14.1	4.6	4.7	0.8	2.6	13.1	6.5
LnGrp Delay(d),s/veh	47.6	26.4	26.6	53.0	44.8	44.8	48.6	25.2	17.3	55.8	45.5	12.9
LnGrp LOS	D	C	C	D	D	D	D	C	B	E	D	B
Approach Vol, veh/h		434			1077			591			858	
Approach Delay, s/veh		30.2			45.7			37.3			34.1	
Approach LOS		C			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	37.6	13.1	35.4	16.4	32.4	12.8	35.6				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	15.0	30.9	15.0	43.1	15.0	30.9	25.0	* 33				
Max Q Clear Time (g_c+I1), s	6.7	11.0	8.3	10.1	10.9	24.3	6.2	27.0				
Green Ext Time (p_c), s	0.1	5.6	0.1	2.5	0.4	2.6	2.2	3.1				
Intersection Summary												
HCM 2010 Ctrl Delay				38.4								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	315	35	150	660	260	240	190	20	350	75	30
Future Volume (veh/h)	15	315	35	150	660	260	240	190	20	350	75	30
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	328	0	156	688	271	224	234	21	365	78	31
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	217	1096	490	504	919	362	328	345	292	520	191	76
Arrive On Green	0.02	0.31	0.00	0.08	0.37	0.37	0.18	0.18	0.18	0.15	0.15	0.15
Sat Flow, veh/h	1792	3574	1599	1792	2483	978	1810	1900	1607	3442	1267	503
Grp Volume(v), veh/h	16	328	0	156	495	464	224	234	21	365	0	109
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1674	1810	1900	1607	1721	0	1770
Q Serve(g_s), s	0.4	4.7	0.0	3.7	16.2	16.2	7.8	7.7	0.7	6.8	0.0	3.7
Cycle Q Clear(g_c), s	0.4	4.7	0.0	3.7	16.2	16.2	7.8	7.7	0.7	6.8	0.0	3.7
Prop In Lane	1.00		1.00	1.00		0.58	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	217	1096	490	504	661	619	328	345	292	520	0	267
V/C Ratio(X)	0.07	0.30	0.00	0.31	0.75	0.75	0.68	0.68	0.07	0.70	0.00	0.41
Avail Cap(c_a), veh/h	316	1384	619	604	806	755	754	792	670	922	0	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	17.8	0.0	12.9	18.4	18.4	25.7	25.7	22.8	27.1	0.0	25.8
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.3	3.1	3.3	2.5	2.3	0.1	1.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	0.0	1.9	8.6	8.0	4.1	4.3	0.3	3.3	0.0	1.9
LnGrp Delay(d),s/veh	16.6	17.9	0.0	13.3	21.6	21.8	28.2	28.0	22.9	28.8	0.0	26.8
LnGrp LOS	B	B		B	C	C	C	C	C	C		C
Approach Vol, veh/h		344			1115			479			474	
Approach Delay, s/veh		17.9			20.5			27.9			28.4	
Approach LOS		B			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	29.8		16.8	10.1	25.6		14.7				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	30.3		28.0	9.3	26.0		18.0				
Max Q Clear Time (g_c+I1), s	2.4	18.2		9.8	5.7	6.7		8.8				
Green Ext Time (p_c), s	0.0	6.6		2.0	0.1	8.7		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay				23.1								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	790	260	105	940	375	410	575	190	205	275	175
Future Volume (veh/h)	155	790	260	105	940	375	410	575	190	205	275	175
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.99	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	165	840	277	112	1000	399	436	612	202	218	293	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	188	1499	887	135	1407	809	482	774	461	205	361	307
Arrive On Green	0.11	0.42	0.42	0.08	0.39	0.39	0.14	0.22	0.22	0.11	0.19	0.00
Sat Flow, veh/h	1774	3539	1575	1792	3574	1590	3476	3574	1570	1792	1881	1599
Grp Volume(v), veh/h	165	840	277	112	1000	399	436	612	202	218	293	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1575	1792	1787	1590	1738	1787	1570	1792	1881	1599
Q Serve(g_s), s	12.8	25.1	13.1	8.6	33.0	23.1	17.3	22.7	14.6	16.0	20.9	0.0
Cycle Q Clear(g_c), s	12.8	25.1	13.1	8.6	33.0	23.1	17.3	22.7	14.6	16.0	20.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1499	887	135	1407	809	482	774	461	205	361	307
V/C Ratio(X)	0.88	0.56	0.31	0.83	0.71	0.49	0.90	0.79	0.44	1.06	0.81	0.00
Avail Cap(c_a), veh/h	229	1499	887	256	1407	809	497	871	503	205	415	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.6	30.5	16.3	63.8	35.7	22.6	59.4	51.8	40.3	62.0	54.1	0.0
Incr Delay (d2), s/veh	23.0	1.5	0.9	4.8	3.1	2.1	19.5	4.5	0.7	81.1	10.3	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	7.5	12.6	5.9	4.5	16.9	10.6	9.6	11.7	6.4	12.5	11.9	0.0
LnGrp Delay(d),s/veh	84.7	32.0	17.2	68.6	38.8	24.8	78.9	56.3	40.9	143.1	64.4	0.0
LnGrp LOS	F	C	B	E	D	C	E	E	D	F	E	
Approach Vol, veh/h		1282			1511			1250			511	
Approach Delay, s/veh		35.6			37.3			61.7			97.9	
Approach LOS		D			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.8	61.0	22.0	36.2	16.6	65.2	25.4	32.8				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	18.1	* 48	16.0	* 34	20.0	* 46	20.0	* 31				
Max Q Clear Time (g_c+I1), s	14.8	35.0	18.0	24.7	10.6	27.1	19.3	22.9				
Green Ext Time (p_c), s	0.1	8.7	0.0	4.5	0.1	11.0	0.1	4.0				
Intersection Summary												
HCM 2010 Ctrl Delay			50.3									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	335	195	100	465	35	430	590	230	40	260	190
Future Volume (veh/h)	190	335	195	100	465	35	430	590	230	40	260	190
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	194	342	199	102	474	36	439	602	235	41	265	194
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	331	560	474	254	842	64	520	883	743	259	789	558
Arrive On Green	0.09	0.30	0.30	0.04	0.25	0.25	0.11	0.47	0.47	0.03	0.40	0.40
Sat Flow, veh/h	1774	1863	1577	1792	3367	255	1792	1881	1584	1792	1997	1411
Grp Volume(v), veh/h	194	342	199	102	251	259	439	602	235	41	236	223
Grp Sat Flow(s),veh/h/ln	1774	1863	1577	1792	1787	1835	1792	1881	1584	1792	1787	1621
Q Serve(g_s), s	10.9	21.7	13.9	5.9	16.9	17.0	14.5	34.4	12.8	1.8	12.7	13.3
Cycle Q Clear(g_c), s	10.9	21.7	13.9	5.9	16.9	17.0	14.5	34.4	12.8	1.8	12.7	13.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.87
Lane Grp Cap(c), veh/h	331	560	474	254	447	459	520	883	743	259	706	640
V/C Ratio(X)	0.59	0.61	0.42	0.40	0.56	0.56	0.84	0.68	0.32	0.16	0.33	0.35
Avail Cap(c_a), veh/h	357	560	474	254	447	459	520	883	743	275	706	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	41.3	38.6	37.4	45.1	45.2	28.8	28.6	22.8	25.2	29.1	29.3
Incr Delay (d2), s/veh	1.8	4.9	2.7	0.8	5.0	5.0	12.1	4.2	1.1	0.1	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	11.9	6.4	2.9	9.0	9.3	10.2	18.9	5.8	0.9	6.5	6.2
LnGrp Delay(d),s/veh	35.3	46.3	41.4	38.1	50.1	50.1	40.8	32.8	23.9	25.3	30.4	30.8
LnGrp LOS	D	D	D	D	D	D	D	C	C	C	C	C
Approach Vol, veh/h		735			612			1276			500	
Approach Delay, s/veh		42.0			48.1			33.9			30.1	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.9	40.0	9.8	70.2	11.0	46.9	20.0	60.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	15.0	34.5	6.0	54.5	6.0	34.5	14.5	54.5				
Max Q Clear Time (g_c+I1), s	12.9	19.0	3.8	36.4	7.9	23.7	16.5	15.3				
Green Ext Time (p_c), s	0.1	5.4	0.0	7.6	0.0	4.4	0.0	10.0				
Intersection Summary												
HCM 2010 Ctrl Delay			38.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	130	10	165	295	350	30	445	75	105	355	15
Future Volume (veh/h)	35	130	10	165	295	350	30	445	75	105	355	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	36	134	10	170	304	361	31	459	77	108	366	15
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	0	0	0	1	1	1	1	1	1
Cap, veh/h	109	398	30	412	221	262	496	789	132	389	920	38
Arrive On Green	0.03	0.23	0.23	0.08	0.28	0.28	0.03	0.50	0.50	0.04	0.51	0.51
Sat Flow, veh/h	1792	1728	129	1810	783	930	1792	1569	263	1792	1794	74
Grp Volume(v), veh/h	36	0	144	170	0	665	31	0	536	108	0	381
Grp Sat Flow(s),veh/h/ln	1792	0	1857	1810	0	1712	1792	0	1833	1792	0	1868
Q Serve(g_s), s	2.1	0.0	9.1	9.7	0.0	39.5	1.2	0.0	28.8	4.1	0.0	17.5
Cycle Q Clear(g_c), s	2.1	0.0	9.1	9.7	0.0	39.5	1.2	0.0	28.8	4.1	0.0	17.5
Prop In Lane	1.00		0.07	1.00		0.54	1.00		0.14	1.00		0.04
Lane Grp Cap(c), veh/h	109	0	427	412	0	483	496	0	921	389	0	958
V/C Ratio(X)	0.33	0.00	0.34	0.41	0.00	1.38	0.06	0.00	0.58	0.28	0.00	0.40
Avail Cap(c_a), veh/h	250	0	531	460	0	483	640	0	921	644	0	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	45.0	35.3	0.0	50.3	16.5	0.0	24.5	18.7	0.0	20.9
Incr Delay (d2), s/veh	0.6	0.0	0.2	0.2	0.0	182.1	0.0	0.0	2.7	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.7	4.8	0.0	43.1	0.6	0.0	15.3	2.0	0.0	9.3
LnGrp Delay(d),s/veh	43.2	0.0	45.2	35.6	0.0	232.3	16.5	0.0	27.1	18.9	0.0	22.1
LnGrp LOS	D		D	D		F	B		C	B		C
Approach Vol, veh/h	180			835			567			489		
Approach Delay, s/veh	44.8			192.3			26.6			21.4		
Approach LOS	D			F			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	45.0	10.1	75.9	16.3	37.7	8.7	77.3				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	4.5	* 5.5	4.5	* 5.5				
Max Green Setting (Gmax), s	15.5	39.5	26.0	39.5	15.5	* 40	15.5	* 50				
Max Q Clear Time (g_c+I1), s	4.1	41.5	6.1	30.8	11.7	11.1	3.2	19.5				
Green Ext Time (p_c), s	0.0	0.0	0.1	2.8	0.1	4.2	0.0	4.2				
Intersection Summary												
HCM 2010 Ctrl Delay	93.7											
HCM 2010 LOS	F											
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	780	40	190	1005	320	45	470	255	200	210	220
Future Volume (veh/h)	230	780	40	190	1005	320	45	470	255	200	210	220
Number	1	6	16	5	2	12	7	4	14	3	8	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	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	232	788	0	192	1015	0	45	475	258	202	212	222
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	222	1433	641	173	1345	602	63	510	275	184	537	456
Arrive On Green	0.13	0.40	0.00	0.03	0.12	0.00	0.04	0.23	0.23	0.10	0.29	0.29
Sat Flow, veh/h	1774	3539	1583	1792	3574	1599	1792	2243	1212	1774	1863	1583
Grp Volume(v), veh/h	232	788	0	192	1015	0	45	378	355	202	212	222
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1599	1792	1787	1667	1774	1863	1583
Q Serve(g_s), s	17.5	23.9	0.0	13.5	38.4	0.0	3.5	29.0	29.3	14.5	12.8	16.2
Cycle Q Clear(g_c), s	17.5	23.9	0.0	13.5	38.4	0.0	3.5	29.0	29.3	14.5	12.8	16.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		1.00
Lane Grp Cap(c), veh/h	222	1433	641	173	1345	602	63	406	379	184	537	456
V/C Ratio(X)	1.05	0.55	0.00	1.11	0.75	0.00	0.71	0.93	0.94	1.10	0.39	0.49
Avail Cap(c_a), veh/h	222	1433	641	173	1345	602	275	491	459	184	537	456
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.87	0.87	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	31.9	0.0	67.8	55.1	0.0	66.8	53.0	53.1	62.8	40.0	41.2
Incr Delay (d2), s/veh	73.1	1.5	0.0	97.0	3.5	0.0	5.3	20.6	22.8	95.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	12.0	0.0	11.4	19.7	0.0	1.8	16.6	15.9	12.0	6.6	7.2
LnGrp Delay(d),s/veh	134.3	33.4	0.0	164.7	58.5	0.0	72.1	73.6	76.0	158.2	40.2	41.5
LnGrp LOS	F	C		F	E		E	E	E	F	D	D
Approach Vol, veh/h		1020			1207			778			636	
Approach Delay, s/veh		56.4			75.4			74.6			78.1	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	57.7	20.0	38.3	20.0	61.7	11.5	46.9				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	17.5	46.0	14.5	38.5	13.5	50.0	21.5	* 32				
Max Q Clear Time (g_c+I1), s	19.5	40.4	16.5	31.3	15.5	25.9	5.5	18.2				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.6	0.0	3.0	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay				70.4								
HCM 2010 LOS				E								
Notes												

HCM 2010 Signalized Intersection Summary

6: 134th Ct E & NE 124th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1260	20	10	1330	5	95	0	50	0	0	10
Future Volume (veh/h)	5	1260	20	10	1330	5	95	0	50	0	0	10
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1312	21	10	1385	5	99	0	52	0	0	10
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	341	3006	48	400	3081	11	174	0	146	0	0	148
Arrive On Green	1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.00	0.09	0.00	0.00	0.09
Sat Flow, veh/h	387	3564	57	413	3653	13	1418	0	1581	0	0	1604
Grp Volume(v), veh/h	5	651	682	10	678	712	99	0	52	0	0	10
Grp Sat Flow(s),veh/h/ln	387	1770	1851	413	1787	1879	1418	0	1581	0	0	1604
Q Serve(g_s), s	0.2	0.0	0.0	0.5	13.4	13.4	9.6	0.0	4.3	0.0	0.0	0.8
Cycle Q Clear(g_c), s	13.6	0.0	0.0	0.5	13.4	13.4	10.4	0.0	4.3	0.0	0.0	0.8
Prop In Lane	1.00		0.03	1.00		0.01	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	341	1493	1562	400	1508	1585	174	0	146	0	0	148
V/C Ratio(X)	0.01	0.44	0.44	0.03	0.45	0.45	0.57	0.00	0.36	0.00	0.00	0.07
Avail Cap(c_a), veh/h	341	1493	1562	400	1508	1585	469	0	474	0	0	481
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)	0.64	0.64	0.64	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.8	0.0	0.0	1.8	2.8	2.8	62.8	0.0	59.7	0.0	0.0	58.1
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.1	1.0	0.9	1.1	0.0	0.5	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.1	6.8	7.1	3.8	0.0	1.9	0.0	0.0	0.4
LnGrp Delay(d),s/veh	0.8	0.6	0.6	1.9	3.7	3.7	63.9	0.0	60.2	0.0	0.0	58.1
LnGrp LOS	A	A	A	A	A	A	E		E			E
Approach Vol, veh/h	1338			1400			151			10		
Approach Delay, s/veh	0.6			3.7			62.6			58.1		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	123.1		16.9		123.1		16.9					
Change Period (Y+Rc), s	5.0		4.0		5.0		4.0					
Max Green Setting (Gmax), s	89.0		42.0		89.0		42.0					
Max Q Clear Time (g_c+I1), s	15.4		12.4		15.6		2.8					
Green Ext Time (p_c), s	3.8		0.0		3.8		0.1					
Intersection Summary												
HCM 2010 Ctrl Delay	5.5											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	895	345	80	530	80	740	315	430	125	80	65
Future Volume (veh/h)	25	895	345	80	530	80	740	315	430	125	80	65
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1900	1900	1900
Adj Flow Rate, veh/h	27	952	367	85	564	85	787	335	457	133	85	69
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	0	0	0
Cap, veh/h	49	1447	1008	106	1370	206	828	537	544	156	129	104
Arrive On Green	0.03	0.41	0.41	0.06	0.44	0.44	0.24	0.29	0.29	0.09	0.13	0.13
Sat Flow, veh/h	1774	3539	1545	1792	3116	468	3476	1881	1577	1810	963	782
Grp Volume(v), veh/h	27	952	367	85	323	326	787	335	457	133	0	154
Grp Sat Flow(s),veh/h/ln	1774	1770	1545	1792	1787	1797	1738	1881	1577	1810	0	1746
Q Serve(g_s), s	2.1	30.5	15.4	6.6	17.3	17.4	31.2	21.7	37.5	10.1	0.0	11.7
Cycle Q Clear(g_c), s	2.1	30.5	15.4	6.6	17.3	17.4	31.2	21.7	37.5	10.1	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	49	1447	1008	106	786	790	828	537	544	156	0	233
V/C Ratio(X)	0.55	0.66	0.36	0.81	0.41	0.41	0.95	0.62	0.84	0.85	0.00	0.66
Avail Cap(c_a), veh/h	89	1447	1008	115	786	790	931	732	708	200	0	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.2	33.5	11.4	65.1	26.8	26.8	52.5	43.5	42.4	63.1	0.0	57.6
Incr Delay (d2), s/veh	3.4	2.4	1.0	19.4	1.0	1.0	17.0	0.4	5.6	19.5	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	15.3	6.9	3.8	8.7	8.8	16.9	11.3	17.2	5.9	0.0	5.8
LnGrp Delay(d),s/veh	70.6	35.8	12.5	84.5	27.8	27.9	69.6	44.0	48.0	82.5	0.0	58.8
LnGrp LOS	E	D	B	F	C	C	E	D	D	F		E
Approach Vol, veh/h	1346				734			1579			287	
Approach Delay, s/veh	30.2				34.4			57.9			69.8	
Approach LOS	C				C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	67.1	17.6	45.4	14.2	62.7	38.8	24.2				
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	7.0	* 42	15.5	54.5	9.0	38.5	37.5	* 33				
Max Q Clear Time (g_c+I1), s	4.1	19.4	12.1	39.5	8.6	32.5	33.2	13.7				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.5	0.0	1.7	0.1	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay	44.9											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	15	35	10	5	40	5	1150	55	20	520	5
Future Volume (veh/h)	140	15	35	10	5	40	5	1150	55	20	520	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	143	15	36	10	5	41	5	1173	56	20	531	5
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	2	2	2
Cap, veh/h	380	106	256	63	16	75	468	1984	95	285	1095	909
Arrive On Green	0.09	0.22	0.22	0.06	0.06	0.06	0.01	0.57	0.57	0.02	0.59	0.59
Sat Flow, veh/h	1810	491	1179	186	243	1170	1792	3469	165	1774	1863	1547
Grp Volume(v), veh/h	143	0	51	56	0	0	5	604	625	20	531	5
Grp Sat Flow(s),veh/h/ln	1810	0	1670	1599	0	0	1792	1787	1847	1774	1863	1547
Q Serve(g_s), s	5.9	0.0	2.1	1.0	0.0	0.0	0.1	18.3	18.3	0.4	13.7	0.1
Cycle Q Clear(g_c), s	5.9	0.0	2.1	2.8	0.0	0.0	0.1	18.3	18.3	0.4	13.7	0.1
Prop In Lane	1.00		0.71	0.18		0.73	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	380	0	362	153	0	0	468	1022	1057	285	1095	909
V/C Ratio(X)	0.38	0.00	0.14	0.37	0.00	0.00	0.01	0.59	0.59	0.07	0.49	0.01
Avail Cap(c_a), veh/h	602	0	399	409	0	0	734	2120	2191	564	2210	1835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	26.5	37.9	0.0	0.0	8.4	11.6	11.6	9.1	9.9	7.1
Incr Delay (d2), s/veh	0.5	0.0	0.1	1.1	0.0	0.0	0.0	0.7	0.6	0.1	0.4	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	2.9	0.0	1.0	1.3	0.0	0.0	0.0	9.1	9.4	0.2	7.1	0.0
LnGrp Delay(d),s/veh	30.9	0.0	26.6	39.0	0.0	0.0	8.4	12.2	12.2	9.1	10.3	7.1
LnGrp LOS	C		C	D			A	B	B	A	B	A
Approach Vol, veh/h		194			56			1234			556	
Approach Delay, s/veh		29.8			39.0			12.2			10.3	
Approach LOS		C			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	53.6		23.1	5.5	54.9	12.8	10.4				
Change Period (Y+Rc), s	5.0	5.8		5.0	5.0	5.8	5.0	5.0				
Max Green Setting (Gmax), s	15.0	99.2		20.0	13.0	99.2	18.0	19.0				
Max Q Clear Time (g_c+I1), s	2.4	20.3		4.1	2.1	15.7	7.9	4.8				
Green Ext Time (p_c), s	0.0	27.5		0.4	0.0	27.9	0.2	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			14.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	5	70	70	0	50	40	970	35	10	710	15
Future Volume (veh/h)	65	5	70	70	0	50	40	970	35	10	710	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1900	1881	1900	1776	1776	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	66	5	71	71	0	51	41	990	36	10	724	15
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	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
Percent Heavy Veh, %	1	1	1	7	7	7	1	1	1	1	1	1
Cap, veh/h	116	20	91	196	0	200	494	1366	1147	448	1329	1116
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.04	0.97	0.97	0.01	0.71	0.71
Sat Flow, veh/h	522	143	665	1244	0	1461	1792	1881	1580	1792	1881	1580
Grp Volume(v), veh/h	142	0	0	71	0	51	41	990	36	10	724	15
Grp Sat Flow(s),veh/h/ln	1330	0	0	1244	0	1461	1792	1881	1580	1792	1881	1580
Q Serve(g_s), s	9.0	0.0	0.0	0.0	0.0	3.7	0.7	7.3	0.1	0.2	22.0	0.3
Cycle Q Clear(g_c), s	12.8	0.0	0.0	8.7	0.0	3.7	0.7	7.3	0.1	0.2	22.0	0.3
Prop In Lane	0.46		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	0	196	0	200	494	1366	1147	448	1329	1116
V/C Ratio(X)	0.63	0.00	0.00	0.36	0.00	0.25	0.08	0.72	0.03	0.02	0.54	0.01
Avail Cap(c_a), veh/h	269	0	0	233	0	243	663	1366	1147	651	1329	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	0.0	48.4	0.0	46.3	6.3	0.7	0.6	4.9	8.4	5.2
Incr Delay (d2), s/veh	3.4	0.0	0.0	1.1	0.0	0.7	0.1	2.6	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.0	2.3	0.0	1.6	0.4	3.6	0.1	0.1	11.9	0.2
LnGrp Delay(d),s/veh	53.9	0.0	0.0	49.5	0.0	46.9	6.3	3.3	0.6	4.9	10.0	5.2
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		142			122			1067			749	
Approach Delay, s/veh		53.9			48.4			3.3			9.8	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	92.1		21.5	8.7	89.8		21.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	15.0	70.0		20.0	15.0	70.0		20.0				
Max Q Clear Time (g_c+I1), s	2.2	9.3		14.8	2.7	24.0		10.7				
Green Ext Time (p_c), s	0.0	23.9		0.6	0.0	21.5		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				11.8								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary

10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	460	365	20	35	230	295	10	225	30	265	450	330
Future Volume (veh/h)	460	365	20	35	230	295	10	225	30	265	450	330
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	517	410	22	39	258	331	11	253	34	298	506	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	1	1	1	1	1	1
Cap, veh/h	633	698	37	53	452	673	23	351	47	337	737	626
Arrive On Green	0.18	0.40	0.40	0.03	0.24	0.24	0.01	0.22	0.22	0.06	0.13	0.00
Sat Flow, veh/h	3442	1751	94	1757	1845	1546	1792	1618	217	1792	1881	1599
Grp Volume(v), veh/h	517	0	432	39	258	331	11	0	287	298	506	0
Grp Sat Flow(s),veh/h/ln	1721	0	1845	1757	1845	1546	1792	0	1836	1792	1881	1599
Q Serve(g_s), s	17.3	0.0	22.1	2.6	14.7	0.0	0.7	0.0	17.4	19.8	30.8	0.0
Cycle Q Clear(g_c), s	17.3	0.0	22.1	2.6	14.7	0.0	0.7	0.0	17.4	19.8	30.8	0.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	633	0	735	53	452	673	23	0	398	337	737	626
V/C Ratio(X)	0.82	0.00	0.59	0.73	0.57	0.49	0.48	0.00	0.72	0.89	0.69	0.00
Avail Cap(c_a), veh/h	660	0	735	161	452	673	164	0	398	388	737	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	47.0	0.0	28.3	57.7	39.8	24.5	58.8	0.0	43.6	55.0	45.2	0.0
Incr Delay (d2), s/veh	7.6	0.0	3.4	17.5	1.7	0.6	14.7	0.0	10.8	16.9	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	11.9	1.5	7.7	7.9	0.5	0.0	10.0	11.4	16.6	0.0
LnGrp Delay(d),s/veh	54.7	0.0	31.8	75.2	41.5	25.0	73.6	0.0	54.4	71.9	47.7	0.0
LnGrp LOS	D		C	E	D	C	E		D	E	D	
Approach Vol, veh/h		949			628			298			804	
Approach Delay, s/veh		44.2			34.9			55.1			56.6	
Approach LOS		D			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.1	34.4	6.5	52.0	8.6	52.8	27.5	31.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	23.0	25.0	11.0	41.0	11.0	37.0	26.0	26.0				
Max Q Clear Time (g_c+I1), s	19.3	16.7	2.7	32.8	4.6	24.1	21.8	19.4				
Green Ext Time (p_c), s	1.7	1.8	0.0	3.4	0.0	4.0	0.7	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			47.0									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	840	310	55	345	160	250	595	100	150	385	120
Future Volume (veh/h)	380	840	310	55	345	160	250	595	100	150	385	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	400	884	326	58	363	168	263	626	105	158	405	126
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	421	951	349	75	424	193	318	667	634	180	685	957
Arrive On Green	0.23	0.37	0.37	0.04	0.18	0.18	0.09	0.35	0.35	0.10	0.36	0.36
Sat Flow, veh/h	1792	2544	934	1792	2388	1088	3476	1881	1599	1792	1881	1599
Grp Volume(v), veh/h	400	620	590	58	270	261	263	626	105	158	405	126
Grp Sat Flow(s),veh/h/ln	1792	1787	1692	1792	1787	1689	1738	1881	1599	1792	1881	1599
Q Serve(g_s), s	35.8	54.1	54.6	5.2	23.8	24.4	12.1	52.4	6.9	14.2	28.4	1.7
Cycle Q Clear(g_c), s	35.8	54.1	54.6	5.2	23.8	24.4	12.1	52.4	6.9	14.2	28.4	1.7
Prop In Lane	1.00		0.55	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	421	668	633	75	318	300	318	667	634	180	685	957
V/C Ratio(X)	0.95	0.93	0.93	0.78	0.85	0.87	0.83	0.94	0.17	0.88	0.59	0.13
Avail Cap(c_a), veh/h	440	668	633	242	412	389	641	757	710	264	685	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	48.8	49.0	77.2	64.8	65.1	72.6	50.8	31.7	72.2	42.0	5.3
Incr Delay (d2), s/veh	30.1	19.2	20.9	15.8	12.5	15.2	5.5	18.1	0.1	19.4	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.3	30.3	29.1	2.9	12.9	12.7	6.0	30.5	3.1	8.0	15.0	1.3
LnGrp Delay(d),s/veh	91.4	68.0	69.9	93.0	77.3	80.3	78.1	68.8	31.9	91.5	43.3	5.3
LnGrp LOS	F	E	E	F	E	F	E	E	C	F	D	A
Approach Vol, veh/h	1610			589				994				
Approach Delay, s/veh	74.5			80.2				67.4				
Approach LOS	E			F				E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.4	63.2	11.8	66.3	19.9	64.7	43.7	34.4				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	24.0	65.5	22.0	29.5	30.0	47.5	40.0	* 38				
Max Q Clear Time (g_c+I1), s	16.2	54.4	7.2	56.6	14.1	30.4	37.8	26.4				
Green Ext Time (p_c), s	0.2	3.4	0.1	0.0	0.8	7.3	0.4	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	68.7											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	472	37	53	260	149	164	207	32	196	48	11
Future Volume (veh/h)	5	472	37	53	260	149	164	207	32	196	48	11
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	5	513	0	58	283	162	178	225	35	213	52	12
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	5	5	5
Cap, veh/h	361	1002	448	374	706	391	337	354	300	380	161	37
Arrive On Green	0.01	0.28	0.00	0.05	0.33	0.33	0.19	0.19	0.19	0.11	0.11	0.11
Sat Flow, veh/h	1792	3574	1599	1757	2153	1192	1757	1845	1563	3343	1422	328
Grp Volume(v), veh/h	5	513	0	58	229	216	178	225	35	213	0	64
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1757	1752	1593	1757	1845	1563	1672	0	1750
Q Serve(g_s), s	0.1	6.3	0.0	1.2	5.2	5.5	4.7	5.8	1.0	3.1	0.0	1.7
Cycle Q Clear(g_c), s	0.1	6.3	0.0	1.2	5.2	5.5	4.7	5.8	1.0	3.1	0.0	1.7
Prop In Lane	1.00		1.00	1.00		0.75	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	361	1002	448	374	575	523	337	354	300	380	0	199
V/C Ratio(X)	0.01	0.51	0.00	0.16	0.40	0.41	0.53	0.64	0.12	0.56	0.00	0.32
Avail Cap(c_a), veh/h	521	1925	861	464	961	873	994	1043	884	1183	0	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	15.7	0.0	12.3	13.5	13.6	18.9	19.3	17.4	21.8	0.0	21.2
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.4	0.5	1.3	1.9	0.2	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.1	0.0	0.6	2.6	2.5	2.4	3.1	0.4	1.5	0.0	0.9
LnGrp Delay(d),s/veh	13.4	16.1	0.0	12.5	13.9	14.1	20.2	21.2	17.5	23.1	0.0	22.1
LnGrp LOS	B	B		B	B	B	C	C	B	C		C
Approach Vol, veh/h		518			503			438			277	
Approach Delay, s/veh		16.1			13.8			20.5			22.9	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	22.1		14.6	7.3	19.6		10.5				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	28.5		29.4	5.5	28.0		18.4				
Max Q Clear Time (g_c+I1), s	2.1	7.5		7.8	3.2	8.3		5.1				
Green Ext Time (p_c), s	0.0	6.5		1.9	0.0	6.3		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			17.6									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1007	446	143	830	207	207	202	101	196	387	90
Future Volume (veh/h)	64	1007	446	143	830	207	207	202	101	196	387	90
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1827	1827	1827	1845	1845	1845
Adj Flow Rate, veh/h	67	1049	465	149	865	216	216	210	105	204	403	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	3	3	3
Cap, veh/h	85	1474	782	145	1595	916	265	682	426	227	456	388
Arrive On Green	0.05	0.42	0.42	0.08	0.45	0.45	0.08	0.20	0.20	0.13	0.25	0.00
Sat Flow, veh/h	1774	3539	1579	1774	3539	1579	3375	3471	1526	1757	1845	1568
Grp Volume(v), veh/h	67	1049	465	149	865	216	216	210	105	204	403	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1579	1774	1770	1579	1688	1736	1526	1757	1845	1568
Q Serve(g_s), s	5.0	33.2	28.5	11.0	24.0	9.0	8.5	7.0	7.2	15.4	28.4	0.0
Cycle Q Clear(g_c), s	5.0	33.2	28.5	11.0	24.0	9.0	8.5	7.0	7.2	15.4	28.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	85	1474	782	145	1595	916	265	682	426	227	456	388
V/C Ratio(X)	0.79	0.71	0.59	1.03	0.54	0.24	0.81	0.31	0.25	0.90	0.88	0.00
Avail Cap(c_a), veh/h	133	1474	782	145	1595	916	300	851	501	234	545	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	63.6	32.7	24.4	62.0	27.0	13.8	61.2	46.4	37.8	57.9	48.9	0.0
Incr Delay (d2), s/veh	6.5	2.9	3.3	83.2	1.3	0.6	14.3	0.3	0.3	32.5	14.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	16.8	13.1	8.7	11.9	4.0	4.5	3.4	3.1	9.5	16.2	0.0
LnGrp Delay(d),s/veh	70.0	35.6	27.7	145.6	28.3	14.4	75.5	46.6	38.1	90.3	62.9	0.0
LnGrp LOS	E	D	C	F	C	B	E	D	D	F	E	
Approach Vol, veh/h	1581			1230				531			607	
Approach Delay, s/veh	34.8			40.1				56.7			72.1	
Approach LOS	C			D				E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	66.7	23.5	32.4	17.0	62.1	16.6	39.3				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	10.1	* 50	18.0	* 33	11.0	* 49	12.0	* 40				
Max Q Clear Time (g_c+I1), s	7.0	26.0	17.4	9.2	13.0	35.2	10.5	30.4				
Green Ext Time (p_c), s	0.0	13.2	0.0	4.4	0.0	9.3	0.1	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay	45.1											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	419	483	249	297	16	175	212	80	21	446	101
Future Volume (veh/h)	143	419	483	249	297	16	175	212	80	21	446	101
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.99	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1810	1900	1863	1863	1863	1845	1845	1900
Adj Flow Rate, veh/h	146	428	493	254	303	16	179	216	82	21	455	103
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	5	5	5	2	2	2	3	3	3
Cap, veh/h	568	773	656	363	1560	82	291	577	486	327	682	153
Arrive On Green	0.04	0.42	0.42	0.10	0.47	0.47	0.09	0.31	0.31	0.02	0.24	0.24
Sat Flow, veh/h	1774	1863	1580	1723	3320	175	1774	1863	1571	1757	2834	637
Grp Volume(v), veh/h	146	428	493	254	156	163	179	216	82	21	280	278
Grp Sat Flow(s),veh/h/ln	1774	1863	1580	1723	1719	1776	1774	1863	1571	1757	1752	1718
Q Serve(g_s), s	6.0	24.0	36.4	11.2	7.3	7.3	10.1	12.4	5.2	1.2	19.8	20.1
Cycle Q Clear(g_c), s	6.0	24.0	36.4	11.2	7.3	7.3	10.1	12.4	5.2	1.2	19.8	20.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	568	773	656	363	808	834	291	577	486	327	422	413
V/C Ratio(X)	0.26	0.55	0.75	0.70	0.19	0.20	0.62	0.37	0.17	0.06	0.66	0.67
Avail Cap(c_a), veh/h	568	773	656	432	808	834	345	577	486	361	422	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	30.5	34.1	22.3	21.2	21.3	35.1	37.0	34.5	37.6	47.1	47.2
Incr Delay (d2), s/veh	0.2	2.8	7.8	3.5	0.5	0.5	2.4	1.9	0.7	0.0	8.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	12.9	17.2	5.6	3.6	3.7	5.1	6.7	2.4	0.6	10.5	10.5
LnGrp Delay(d),s/veh	22.1	33.3	41.9	25.7	21.8	21.8	37.5	38.9	35.3	37.6	55.1	55.7
LnGrp LOS	C	C	D	C	C	C	D	D	D	D	E	E
Approach Vol, veh/h	1067				573			477			579	
Approach Delay, s/veh	35.7				23.5			37.7			54.8	
Approach LOS	D				C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	70.0	8.3	48.0	18.5	62.5	17.8	38.5				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	6.0	64.5	6.0	42.5	19.0	51.5	16.5	31.5				
Max Q Clear Time (g_c+I1), s	8.0	9.3	3.2	14.4	13.2	38.4	12.1	22.1				
Green Ext Time (p_c), s	0.0	8.1	0.0	5.5	0.3	5.5	0.2	3.5				
Intersection Summary												
HCM 2010 Ctrl Delay	37.6											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	340	11	96	127	96	21	361	154	340	462	5
Future Volume (veh/h)	11	340	11	96	127	96	21	361	154	340	462	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1827	1827	1900	1863	1863	1900	1845	1845	1900
Adj Flow Rate, veh/h	11	351	11	99	131	99	22	372	159	351	476	5
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	4	4	4	2	2	2	3	3	3
Cap, veh/h	129	382	12	135	233	176	477	598	256	480	1037	11
Arrive On Green	0.02	0.21	0.21	0.04	0.24	0.24	0.02	0.48	0.48	0.11	0.57	0.57
Sat Flow, veh/h	1792	1814	57	1740	959	725	1774	1239	529	1757	1822	19
Grp Volume(v), veh/h	11	0	362	99	0	230	22	0	531	351	0	481
Grp Sat Flow(s),veh/h/ln	1792	0	1871	1740	0	1684	1774	0	1768	1757	0	1841
Q Serve(g_s), s	0.7	0.0	25.6	2.9	0.0	16.2	0.8	0.0	29.9	13.1	0.0	20.6
Cycle Q Clear(g_c), s	0.7	0.0	25.6	2.9	0.0	16.2	0.8	0.0	29.9	13.1	0.0	20.6
Prop In Lane	1.00		0.03	1.00		0.43	1.00		0.30	1.00		0.01
Lane Grp Cap(c), veh/h	129	0	394	135	0	409	477	0	854	480	0	1048
V/C Ratio(X)	0.09	0.00	0.92	0.73	0.00	0.56	0.05	0.00	0.62	0.73	0.00	0.46
Avail Cap(c_a), veh/h	308	0	485	259	0	430	570	0	854	617	0	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.6	0.0	52.2	62.3	0.0	44.8	16.8	0.0	25.8	19.0	0.0	17.0
Incr Delay (d2), s/veh	0.1	0.0	18.3	2.9	0.0	0.8	0.0	0.0	3.4	2.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	15.2	3.7	0.0	7.6	0.4	0.0	15.4	6.5	0.0	10.8
LnGrp Delay(d),s/veh	45.7	0.0	70.5	65.1	0.0	45.7	16.9	0.0	29.2	21.1	0.0	18.4
LnGrp LOS	D		E	E		D	B		C	C		B
Approach Vol, veh/h	373			329			553			832		
Approach Delay, s/veh	69.8			51.5			28.7			19.6		
Approach LOS	E			D			C			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	38.3	19.5	70.7	11.4	33.4	7.9	82.3				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	5.5	* 5	4.5	* 5.5				
Max Green Setting (Gmax), s	15.5	34.5	26.0	39.5	15.5	* 35	10.5	* 55				
Max Q Clear Time (g_c+I1), s	2.7	18.2	15.1	31.9	4.9	27.6	2.8	22.6				
Green Ext Time (p_c), s	0.0	0.9	0.4	2.8	0.8	0.9	0.0	4.9				
Intersection Summary												
HCM 2010 Ctrl Delay	36.0											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	939	42	175	888	186	37	164	244	456	600	223
Future Volume (veh/h)	138	939	42	175	888	186	37	164	244	456	600	223
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1827	1827	1900	1845	1845	1845
Adj Flow Rate, veh/h	139	948	0	177	897	0	37	166	246	461	606	225
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	2	2	2	4	4	4	3	3	3
Cap, veh/h	137	1272	569	151	1311	586	58	392	345	267	622	520
Arrive On Green	0.08	0.36	0.00	0.03	0.12	0.00	0.03	0.23	0.23	0.15	0.34	0.34
Sat Flow, veh/h	1757	3505	1568	1774	3539	1583	1740	1736	1527	1757	1845	1543
Grp Volume(v), veh/h	139	948	0	177	897	0	37	166	246	461	606	225
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1774	1770	1583	1740	1736	1527	1757	1845	1543
Q Serve(g_s), s	10.5	31.9	0.0	11.5	32.8	0.0	2.8	11.1	20.1	20.5	43.8	15.3
Cycle Q Clear(g_c), s	10.5	31.9	0.0	11.5	32.8	0.0	2.8	11.1	20.1	20.5	43.8	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1272	569	151	1311	586	58	392	345	267	622	520
V/C Ratio(X)	1.02	0.75	0.00	1.17	0.68	0.00	0.64	0.42	0.71	1.73	0.97	0.43
Avail Cap(c_a), veh/h	137	1272	569	151	1311	586	122	444	390	267	622	520
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.91	0.91	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	37.6	0.0	65.6	51.7	0.0	64.4	44.7	48.2	57.3	44.2	34.7
Incr Delay (d2), s/veh	81.6	4.0	0.0	123.2	2.6	0.0	4.3	0.3	4.0	342.9	29.6	0.2
Initial Q Delay(d3),s/veh	0.2	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	8.2	16.1	0.0	10.8	16.6	0.0	1.4	5.3	8.9	35.3	27.3	6.6
LnGrp Delay(d),s/veh	144.0	41.6	0.0	188.8	54.3	0.0	68.7	45.0	52.2	400.2	73.8	34.9
LnGrp LOS	F	D		F	D		E	D	D	F	E	C
Approach Vol, veh/h		1087			1074			449			1292	
Approach Delay, s/veh		54.7			76.5			50.9			183.5	
Approach LOS		D			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	55.0	26.0	37.0	18.0	54.0	11.0	52.0				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	10.5	46.0	20.5	34.5	11.5	45.0	9.5	* 46				
Max Q Clear Time (g_c+I1), s	12.5	34.8	22.5	22.1	13.5	33.9	4.8	45.8				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.1	0.0	2.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			102.9									
HCM 2010 LOS			F									
Notes												

HCM 2010 Signalized Intersection Summary
6: 134th Ct E & NE 124th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1517	117	42	1296	5	11	0	16	0	5	5
Future Volume (veh/h)	5	1517	117	42	1296	5	11	0	16	0	5	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1759	1759	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1614	124	45	1379	5	12	0	17	0	5	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	0	0	0
Cap, veh/h	380	2998	228	303	3258	12	88	0	48	0	28	28
Arrive On Green	1.00	1.00	1.00	0.90	0.90	0.90	0.03	0.00	0.03	0.00	0.03	0.03
Sat Flow, veh/h	389	3327	253	277	3617	13	1310	0	1485	0	870	870
Grp Volume(v), veh/h	5	851	887	45	675	709	12	0	17	0	0	10
Grp Sat Flow(s),veh/h/ln	389	1770	1811	277	1770	1860	1310	0	1485	0	0	1740
Q Serve(g_s), s	0.1	0.0	0.0	2.6	8.2	8.2	1.2	0.0	1.5	0.0	0.0	0.8
Cycle Q Clear(g_c), s	8.4	0.0	0.0	2.6	8.2	8.2	2.0	0.0	1.5	0.0	0.0	0.8
Prop In Lane	1.00		0.14	1.00		0.01	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	380	1594	1632	303	1594	1676	88	0	48	0	0	56
V/C Ratio(X)	0.01	0.53	0.54	0.15	0.42	0.42	0.14	0.00	0.35	0.00	0.00	0.18
Avail Cap(c_a), veh/h	380	1594	1632	303	1594	1676	444	0	451	0	0	528
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.3	0.0	0.0	0.8	1.1	1.1	64.5	0.0	63.9	0.0	0.0	63.6
Incr Delay (d2), s/veh	0.0	0.1	0.1	1.0	0.8	0.8	0.3	0.0	1.6	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.3	4.3	4.5	0.4	0.0	0.6	0.0	0.0	0.4
LnGrp Delay(d),s/veh	0.3	0.1	0.1	1.8	1.9	1.9	64.8	0.0	65.6	0.0	0.0	64.1
LnGrp LOS	A	A	A	A	A	A	E		E			E
Approach Vol, veh/h	1743				1429				29		10	
Approach Delay, s/veh	0.1				1.9				65.2		64.1	
Approach LOS	A				A				E		E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	126.6			8.4		126.6		8.4				
Change Period (Y+Rc), s	5.0			4.0		5.0		4.0				
Max Green Setting (Gmax), s	85.0			41.0		85.0		41.0				
Max Q Clear Time (g_c+I1), s	10.2			4.0		10.4		2.8				
Green Ext Time (p_c), s	5.8			0.0		5.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				1.7								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	695	753	275	1013	69	241	58	61	85	409	5
Future Volume (veh/h)	48	695	753	275	1013	69	241	58	61	85	409	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1810	1810	1810	1900	1900	1900
Adj Flow Rate, veh/h	48	702	761	278	1023	70	243	59	62	86	413	5
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	0	0	0
Cap, veh/h	66	1222	672	301	1613	110	290	472	654	107	437	5
Arrive On Green	0.04	0.35	0.35	0.17	0.48	0.48	0.09	0.26	0.26	0.06	0.23	0.23
Sat Flow, veh/h	1774	3539	1548	1792	3389	232	3343	1810	1518	1810	1873	23
Grp Volume(v), veh/h	48	702	761	278	539	554	243	59	62	86	0	418
Grp Sat Flow(s),veh/h/ln	1774	1770	1548	1792	1787	1834	1672	1810	1518	1810	0	1896
Q Serve(g_s), s	3.6	21.9	46.6	20.6	30.6	30.6	9.7	3.4	3.3	6.3	0.0	29.3
Cycle Q Clear(g_c), s	3.6	21.9	46.6	20.6	30.6	30.6	9.7	3.4	3.3	6.3	0.0	29.3
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	66	1222	672	301	851	873	290	472	654	107	0	443
V/C Ratio(X)	0.73	0.57	1.13	0.92	0.63	0.63	0.84	0.13	0.09	0.80	0.00	0.94
Avail Cap(c_a), veh/h	118	1222	672	332	851	873	433	529	702	168	0	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.36	0.36	0.36	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.3	36.1	38.4	55.3	26.5	26.5	60.7	38.1	23.0	62.7	0.0	50.9
Incr Delay (d2), s/veh	5.6	2.0	77.5	13.3	1.3	1.3	5.8	0.0	0.0	6.6	0.0	25.0
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	1.9	11.1	39.4	11.3	15.3	15.7	4.7	1.7	1.4	3.4	0.0	18.4
LnGrp Delay(d),s/veh	70.0	38.1	115.9	68.7	27.8	27.8	66.5	38.2	23.0	69.3	0.0	75.8
LnGrp LOS	E	D	F	E	C	C	E	D	C	E		E
Approach Vol, veh/h		1511			1371			364			504	
Approach Delay, s/veh		78.3			36.1			54.5			74.7	
Approach LOS		E			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	69.8	13.5	40.7	28.7	52.1	17.2	37.0				
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	9.0	* 53	12.5	39.5	25.0	35.5	17.5	* 35				
Max Q Clear Time (g_c+l1), s	5.6	32.6	8.3	5.4	22.6	48.6	11.7	31.3				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.5	0.0	0.0	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			60.1									
HCM 2010 LOS			E									
Notes												

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
2021 Without-Project AM Peak Hour

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (veh/h)	11	5	5	138	37	21	27	386	5	5	1213	85			
Future Volume (veh/h)	11	5	5	138	37	21	27	386	5	5	1213	85			
Number	7	4	14	3	8	18	5	2	12	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.96	1.00		0.98	1.00		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			
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1863	1900	1827	1827	1900	1881	1881	1881			
Adj Flow Rate, veh/h	11	5	5	141	38	21	28	394	5	5	1238	87			
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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			
Percent Heavy Veh, %	6	6	6	2	2	2	4	4	4	1	1	1			
Cap, veh/h	292	167	167	206	42	23	102	2321	29	683	1209	1006			
Arrive On Green	0.01	0.20	0.20	0.15	0.15	0.15	0.03	0.66	0.66	0.01	0.64	0.64			
Sat Flow, veh/h	1707	820	820	1037	279	154	1740	3509	44	1792	1881	1565			
Grp Volume(v), veh/h	11	0	10	200	0	0	28	195	204	5	1238	87			
Grp Sat Flow(s),veh/h/ln	1707	0	1641	1471	0	0	1740	1736	1818	1792	1881	1565			
Q Serve(g_s), s	0.7	0.0	0.6	16.5	0.0	0.0	0.7	5.3	5.3	0.1	79.2	2.6			
Cycle Q Clear(g_c), s	0.7	0.0	0.6	16.5	0.0	0.0	0.7	5.3	5.3	0.1	79.2	2.6			
Prop In Lane	1.00		0.50	0.70		0.10	1.00		0.02	1.00		1.00			
Lane Grp Cap(c), veh/h	292	0	335	272	0	0	102	1148	1202	683	1209	1006			
V/C Ratio(X)	0.04	0.00	0.03	0.74	0.00	0.00	0.27	0.17	0.17	0.01	1.02	0.09			
Avail Cap(c_a), veh/h	450	0	493	277	0	0	242	1148	1202	890	1209	1006			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.7	0.0	39.3	51.4	0.0	0.0	32.4	8.0	8.0	7.6	22.0	8.3			
Incr Delay (d2), s/veh	0.0	0.0	0.0	9.2	0.0	0.0	1.1	0.1	0.1	0.0	32.1	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	0.3	0.0	0.3	7.4	0.0	0.0	0.6	2.5	2.6	0.1	51.4	1.1			
LnGrp Delay(d),s/veh	41.8	0.0	39.3	60.6	0.0	0.0	33.4	8.0	8.0	7.7	54.2	8.4			
LnGrp LOS	D		D	E			C	A	A	A	F	A			
Approach Vol, veh/h	21				200		427				1330				
Approach Delay, s/veh	40.6				60.6		9.7				51.0				
Approach LOS	D				E		A				D				
Timer	1	2	3	4	5	6	7	8							
Assigned Phs	1	2			4	5	6	7	8						
Phs Duration (G+Y+Rc), s	5.8	87.3			30.2	8.1	85.0	6.6	23.6						
Change Period (Y+Rc), s	5.0	5.8			5.0	5.0	5.8	5.0	5.0						
Max Green Setting (Gmax), s	15.0	77.2			37.0	13.0	79.2	13.0	19.0						
Max Q Clear Time (g_c+I1), s	2.1	7.3			2.6	2.7	81.2	2.7	18.5						
Green Ext Time (p_c), s	0.0	35.5			1.1	0.0	0.0	0.0	0.1						
Intersection Summary															
HCM 2010 Ctrl Delay				42.9											
HCM 2010 LOS				D											

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
2021 Without-Project AM Peak Hour

																
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Volume (veh/h)	16	0	48	48	5	16	159	685	96	21	972	32				
Future Volume (veh/h)	16	0	48	48	5	16	159	685	96	21	972	32				
Number	7	4	14	3	8	18	5	2	12	1	6	16				
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	0.96		0.96	0.97		0.94	1.00		0.97	1.00		0.97				
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				
Adj Sat Flow, veh/h/ln	1900	1810	1900	1667	1667	1900	1845	1845	1845	1863	1863	1863				
Adj Flow Rate, veh/h	17	0	50	50	5	17	166	714	100	22	1012	33				
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96				
Percent Heavy Veh, %	5	5	5	14	14	14	3	3	3	2	2	2				
Cap, veh/h	60	15	111	181	32	109	354	1388	1145	585	1361	1123				
Arrive On Green	0.10	0.00	0.10	0.10	0.10	0.10	0.09	1.00	1.00	0.02	0.73	0.73				
Sat Flow, veh/h	223	150	1098	1170	317	1079	1757	1845	1523	1774	1863	1537				
Grp Volume(v), veh/h	67	0	0	50	0	22	166	714	100	22	1012	33				
Grp Sat Flow(s),veh/h/ln	1471	0	0	1170	0	1397	1757	1845	1523	1774	1863	1537				
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	1.7	3.0	0.0	0.0	0.4	38.4	0.7				
Cycle Q Clear(g_c), s	4.9	0.0	0.0	4.5	0.0	1.7	3.0	0.0	0.0	0.4	38.4	0.7				
Prop In Lane	0.25		0.75	1.00		0.77	1.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	186	0	0	181	0	141	354	1388	1145	585	1361	1123				
V/C Ratio(X)	0.36	0.00	0.00	0.28	0.00	0.16	0.47	0.51	0.09	0.04	0.74	0.03				
Avail Cap(c_a), veh/h	280	0	0	258	0	233	425	1388	1145	695	1361	1123				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00				
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.54	0.54	0.54	1.00	1.00	1.00				
Uniform Delay (d), s/veh	50.7	0.0	0.0	50.5	0.0	49.3	11.6	0.0	0.0	3.7	9.5	4.4				
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.8	0.0	0.5	0.5	0.7	0.1	0.0	3.7	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	2.1	0.0	0.0	1.6	0.0	0.7	2.4	0.3	0.0	0.2	20.8	0.3				
LnGrp Delay(d),s/veh	51.9	0.0	0.0	51.3	0.0	49.8	12.1	0.7	0.1	3.7	13.2	4.5				
LnGrp LOS	D			D		D	B	A	A	A	B	A				
Approach Vol, veh/h	67				72		980				1067					
Approach Delay, s/veh	51.9				50.9		2.6				12.8					
Approach LOS	D				D		A				B					
Timer	1	2	3	4	5	6	7	8								
Assigned Phs	1	2			4	5	6	8								
Phs Duration (G+Y+Rc), s	7.6	95.3			17.1	10.2	92.7	17.1								
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0	5.0	5.0								
Max Green Setting (Gmax), s	10.0	75.0			20.0	10.0	75.0	20.0								
Max Q Clear Time (g_c+I1), s	2.4	2.0			6.9	5.0	40.4	6.5								
Green Ext Time (p_c), s	0.0	26.8			0.5	0.2	19.6	0.5								
Intersection Summary																
HCM 2010 Ctrl Delay				10.7												
HCM 2010 LOS				B												

HCM 2010 Signalized Intersection Summary

10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	473	191	5	21	290	324	11	381	21	170	344	480
Future Volume (veh/h)	473	191	5	21	290	324	11	381	21	170	344	480
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1827	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	544	220	6	24	333	372	13	438	24	195	395	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	3	3	3	3	3	3
Cap, veh/h	591	560	15	207	476	604	26	461	25	231	707	601
Arrive On Green	0.17	0.32	0.32	0.12	0.26	0.26	0.01	0.27	0.27	0.04	0.13	0.00
Sat Flow, veh/h	3375	1770	48	1740	1827	1535	1757	1730	95	1757	1845	1568
Grp Volume(v), veh/h	544	0	226	24	333	372	13	0	462	195	395	0
Grp Sat Flow(s),veh/h/ln	1688	0	1818	1740	1827	1535	1757	0	1825	1757	1845	1568
Q Serve(g_s), s	19.0	0.0	11.6	1.5	19.8	7.4	0.9	0.0	29.8	13.2	24.2	0.0
Cycle Q Clear(g_c), s	19.0	0.0	11.6	1.5	19.8	7.4	0.9	0.0	29.8	13.2	24.2	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	591	0	576	207	476	604	26	0	487	231	707	601
V/C Ratio(X)	0.92	0.00	0.39	0.12	0.70	0.62	0.51	0.00	0.95	0.85	0.56	0.00
Avail Cap(c_a), veh/h	591	0	576	207	476	604	220	0	487	293	707	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	48.7	0.0	32.0	47.2	40.1	29.2	58.7	0.0	43.2	56.2	42.9	0.0
Incr Delay (d2), s/veh	19.9	0.0	2.0	0.2	4.5	1.9	14.5	0.0	30.0	11.1	0.7	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	10.5	0.0	6.2	0.7	10.6	3.4	0.5	0.0	19.1	7.2	12.5	0.0
LnGrp Delay(d),s/veh	68.6	0.0	34.0	47.5	44.7	31.1	73.2	0.0	73.2	67.2	43.6	0.0
LnGrp LOS	E		C	D	D	C	E		E	E	D	
Approach Vol, veh/h		770			729			475			590	
Approach Delay, s/veh		58.5			37.8			73.2			51.4	
Approach LOS		E			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	36.3	6.8	51.0	19.3	43.0	20.7	37.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	21.0	27.0	15.0	37.0	10.0	38.0	20.0	32.0				
Max Q Clear Time (g_c+I1), s	21.0	21.8	2.9	26.2	3.5	13.6	15.2	31.8				
Green Ext Time (p_c), s	0.0	1.7	0.0	3.0	1.3	1.3	0.5	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			53.7									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
2021 Without-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	263	140	122	880	133	357	242	48	90	473	340
Future Volume (veh/h)	80	263	140	122	880	133	357	242	48	90	473	340
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	82	268	143	124	898	136	364	247	49	92	483	347
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	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
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	3	3	3
Cap, veh/h	140	682	353	153	950	144	429	629	669	117	519	568
Arrive On Green	0.08	0.31	0.31	0.09	0.31	0.31	0.13	0.34	0.34	0.07	0.28	0.28
Sat Flow, veh/h	1740	2212	1146	1774	3072	465	3408	1845	1567	1757	1845	1566
Grp Volume(v), veh/h	82	209	202	124	517	517	364	247	49	92	483	347
Grp Sat Flow(s),veh/h/ln	1740	1736	1623	1774	1770	1768	1704	1845	1567	1757	1845	1566
Q Serve(g_s), s	4.8	10.0	10.5	7.3	30.3	30.3	11.1	10.8	2.0	5.5	27.1	7.6
Cycle Q Clear(g_c), s	4.8	10.0	10.5	7.3	30.3	30.3	11.1	10.8	2.0	5.5	27.1	7.6
Prop In Lane	1.00		0.71	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	535	500	153	547	547	429	629	669	117	519	568
V/C Ratio(X)	0.58	0.39	0.40	0.81	0.95	0.95	0.85	0.39	0.07	0.79	0.93	0.61
Avail Cap(c_a), veh/h	410	705	659	251	552	551	482	629	669	248	537	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	28.9	29.0	47.6	35.8	35.8	45.4	26.6	18.0	48.8	37.1	12.7
Incr Delay (d2), s/veh	3.8	0.5	0.5	9.6	25.3	25.3	12.2	0.4	0.0	10.9	22.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.9	4.7	4.0	18.6	18.6	5.9	5.6	0.8	3.0	17.1	7.5
LnGrp Delay(d),s/veh	50.9	29.3	29.5	57.3	61.0	61.1	57.6	27.0	18.0	59.7	59.7	14.5
LnGrp LOS	D	C	C	E	E	E	E	C	B	E	E	B
Approach Vol, veh/h		493			1158			660			922	
Approach Delay, s/veh		33.0			60.7			43.2			42.7	
Approach LOS		C			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	41.7	14.2	38.2	18.4	35.4	14.1	38.3				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	15.0	30.9	15.0	43.1	15.0	30.9	25.0	* 33				
Max Q Clear Time (g_c+I1), s	7.5	12.8	9.3	12.5	13.1	29.1	6.8	32.3				
Green Ext Time (p_c), s	0.1	5.9	0.1	2.9	0.3	0.8	2.6	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				47.8								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	368	63	244	774	358	240	280	20	516	178	33
Future Volume (veh/h)	70	368	63	244	774	358	240	280	20	516	178	33
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	73	383	0	254	806	373	250	292	21	538	185	34
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	174	1040	465	482	826	381	359	377	319	641	285	52
Arrive On Green	0.05	0.29	0.00	0.11	0.35	0.35	0.20	0.20	0.20	0.19	0.19	0.19
Sat Flow, veh/h	1792	3574	1599	1792	2354	1085	1810	1900	1608	3442	1530	281
Grp Volume(v), veh/h	73	383	0	254	611	568	250	292	21	538	0	219
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1651	1810	1900	1608	1721	0	1812
Q Serve(g_s), s	2.4	7.3	0.0	8.2	29.1	29.4	11.1	12.6	0.9	13.0	0.0	9.7
Cycle Q Clear(g_c), s	2.4	7.3	0.0	8.2	29.1	29.4	11.1	12.6	0.9	13.0	0.0	9.7
Prop In Lane	1.00		1.00	1.00		0.66	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	174	1040	465	482	627	579	359	377	319	641	0	338
V/C Ratio(X)	0.42	0.37	0.00	0.53	0.97	0.98	0.70	0.77	0.07	0.84	0.00	0.65
Avail Cap(c_a), veh/h	192	1076	481	482	627	579	587	616	521	717	0	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	24.3	0.0	17.5	27.7	27.7	32.2	32.8	28.1	33.9	0.0	32.5
Incr Delay (d2), s/veh	1.6	0.2	0.0	1.1	29.6	32.3	2.4	3.4	0.1	8.0	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.6	0.0	4.2	19.4	18.4	5.8	6.9	0.4	6.9	0.0	5.1
LnGrp Delay(d),s/veh	24.9	24.5	0.0	18.6	57.2	60.0	34.6	36.2	28.2	41.9	0.0	35.8
LnGrp LOS	C	C		B	E	E	C	D	C	D		D
Approach Vol, veh/h		456			1433			563			757	
Approach Delay, s/veh		24.6			51.5			35.2			40.1	
Approach LOS		C			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	35.3		21.7	13.8	30.1		20.7				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	30.3		28.0	9.3	26.0		18.0				
Max Q Clear Time (g_c+I1), s	4.4	31.4		14.6	10.2	9.3		15.0				
Green Ext Time (p_c), s	0.0	0.0		2.2	0.0	9.9		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				42.1								
HCM 2010 LOS				D								
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	914	381	134	1146	475	439	715	197	275	380	234
Future Volume (veh/h)	155	914	381	134	1146	475	439	715	197	275	380	234
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	165	972	405	143	1219	505	467	761	210	293	404	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	188	1321	814	167	1290	756	497	891	542	205	415	353
Arrive On Green	0.11	0.37	0.37	0.09	0.36	0.36	0.14	0.25	0.25	0.11	0.22	0.00
Sat Flow, veh/h	1774	3539	1574	1792	3574	1590	3476	3574	1574	1792	1881	1599
Grp Volume(v), veh/h	165	972	405	143	1219	505	467	761	210	293	404	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1574	1792	1787	1590	1738	1787	1574	1792	1881	1599
Q Serve(g_s), s	12.8	33.2	23.5	11.0	46.3	34.2	18.6	28.4	14.2	16.0	29.8	0.0
Cycle Q Clear(g_c), s	12.8	33.2	23.5	11.0	46.3	34.2	18.6	28.4	14.2	16.0	29.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1321	814	167	1290	756	497	891	542	205	415	353
V/C Ratio(X)	0.88	0.74	0.50	0.86	0.95	0.67	0.94	0.85	0.39	1.43	0.97	0.00
Avail Cap(c_a), veh/h	229	1321	814	256	1290	756	497	891	542	205	415	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.6	37.9	22.1	62.5	43.4	28.3	59.4	50.1	34.9	62.0	54.1	0.0
Incr Delay (d2), s/veh	23.0	3.7	2.2	10.4	14.9	4.6	26.2	8.1	0.5	219.7	37.0	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	7.5	16.9	10.7	5.9	25.5	15.9	10.8	15.1	6.3	20.4	19.8	0.0
LnGrp Delay(d),s/veh	84.7	41.6	24.2	72.9	58.3	32.9	85.7	58.2	35.4	281.7	91.1	0.0
LnGrp LOS	F	D	C	E	E	C	F	E	D	F	F	
Approach Vol, veh/h		1542			1867			1438			697	
Approach Delay, s/veh		41.7			52.6			63.8			171.2	
Approach LOS		D			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.8	56.4	22.0	40.8	19.1	58.1	26.0	36.8				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	18.1	* 48	16.0	* 34	20.0	* 46	20.0	* 31				
Max Q Clear Time (g_c+I1), s	14.8	48.3	18.0	30.4	13.0	35.2	20.6	31.8				
Green Ext Time (p_c), s	0.1	0.0	0.0	2.6	0.1	8.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			67.4									
HCM 2010 LOS			E									
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	380	285	110	492	35	572	711	297	101	345	263
Future Volume (veh/h)	190	380	285	110	492	35	572	711	297	101	345	263
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	194	388	291	112	502	36	584	726	303	103	352	268
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	321	560	474	219	846	61	449	866	729	197	768	575
Arrive On Green	0.09	0.30	0.30	0.04	0.25	0.25	0.11	0.46	0.46	0.04	0.40	0.40
Sat Flow, veh/h	1774	1863	1577	1792	3382	242	1792	1881	1583	1792	1945	1455
Grp Volume(v), veh/h	194	388	291	112	265	273	584	726	303	103	323	297
Grp Sat Flow(s),veh/h/ln	1774	1863	1577	1792	1787	1837	1792	1881	1583	1792	1787	1613
Q Serve(g_s), s	10.9	25.4	21.8	6.0	18.0	18.1	14.5	46.8	17.6	4.7	18.4	18.8
Cycle Q Clear(g_c), s	10.9	25.4	21.8	6.0	18.0	18.1	14.5	46.8	17.6	4.7	18.4	18.8
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	321	560	474	219	447	459	449	866	729	197	706	637
V/C Ratio(X)	0.60	0.69	0.61	0.51	0.59	0.59	1.30	0.84	0.42	0.52	0.46	0.47
Avail Cap(c_a), veh/h	348	560	474	219	447	459	449	866	729	197	706	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	42.6	41.4	39.3	45.5	45.6	34.0	32.7	24.8	29.4	30.8	30.9
Incr Delay (d2), s/veh	2.2	6.9	5.9	1.5	5.7	5.6	150.4	9.5	1.7	1.2	2.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	14.1	10.3	1.0	9.6	9.9	28.7	26.5	8.0	2.4	9.5	8.8
LnGrp Delay(d),s/veh	35.9	49.6	47.2	40.9	51.2	51.1	184.4	42.2	26.6	30.7	32.9	33.4
LnGrp LOS	D	D	D	D	D	D	F	D	C	C	C	C
Approach Vol, veh/h		873			650			1613			723	
Approach Delay, s/veh		45.8			49.4			90.8			32.8	
Approach LOS		D			D			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.9	40.0	11.0	69.0	11.0	46.9	20.0	60.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	15.0	34.5	6.0	54.5	6.0	34.5	14.5	54.5				
Max Q Clear Time (g_c+I1), s	12.9	20.1	6.7	48.8	8.0	27.4	16.5	20.8				
Green Ext Time (p_c), s	0.1	6.0	0.0	4.2	0.0	3.8	0.0	13.6				
Intersection Summary												
HCM 2010 Ctrl Delay			62.8									
HCM 2010 LOS			E									

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	157	18	190	368	453	37	584	115	134	437	29
Future Volume (veh/h)	36	157	18	190	368	453	37	584	115	134	437	29
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	37	162	19	196	379	467	38	602	119	138	451	30
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	0	0	0	1	1	1	1	1	1
Cap, veh/h	110	361	42	388	216	266	421	751	149	265	888	59
Arrive On Green	0.03	0.22	0.22	0.10	0.28	0.28	0.03	0.49	0.49	0.05	0.51	0.51
Sat Flow, veh/h	1792	1651	194	1810	766	944	1792	1524	301	1792	1744	116
Grp Volume(v), veh/h	37	0	181	196	0	846	38	0	721	138	0	481
Grp Sat Flow(s),veh/h/ln	1792	0	1844	1810	0	1710	1792	0	1825	1792	0	1860
Q Serve(g_s), s	2.2	0.0	11.9	11.4	0.0	39.5	1.4	0.0	46.3	5.3	0.0	24.0
Cycle Q Clear(g_c), s	2.2	0.0	11.9	11.4	0.0	39.5	1.4	0.0	46.3	5.3	0.0	24.0
Prop In Lane	1.00		0.10	1.00		0.55	1.00		0.17	1.00		0.06
Lane Grp Cap(c), veh/h	110	0	403	388	0	482	421	0	900	265	0	947
V/C Ratio(X)	0.34	0.00	0.45	0.50	0.00	1.75	0.09	0.00	0.80	0.52	0.00	0.51
Avail Cap(c_a), veh/h	250	0	527	415	0	482	560	0	900	503	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	47.4	36.2	0.0	50.3	17.8	0.0	29.7	25.1	0.0	22.7
Incr Delay (d2), s/veh	0.7	0.0	0.3	0.4	0.0	347.8	0.0	0.0	7.4	0.6	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.1	5.7	0.0	65.2	0.7	0.0	25.1	2.6	0.0	12.8
LnGrp Delay(d),s/veh	44.1	0.0	47.7	36.5	0.0	398.0	17.9	0.0	37.2	25.6	0.0	24.7
LnGrp LOS	D		D	D		F	B		D	C		C
Approach Vol, veh/h	218			1042			759			619		
Approach Delay, s/veh	47.1			330.0			36.2			24.9		
Approach LOS	D			F			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	45.0	11.4	74.5	18.0	36.1	9.1	76.8				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	4.5	* 5.5	4.5	* 5.5				
Max Green Setting (Gmax), s	15.5	39.5	26.0	39.5	15.5	* 40	15.5	* 50				
Max Q Clear Time (g_c+I1), s	4.2	41.5	7.3	48.3	13.4	13.9	3.4	26.0				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.1	5.9	0.0	6.0				
Intersection Summary												
HCM 2010 Ctrl Delay	150.5											
HCM 2010 LOS	F											
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	966	68	266	1283	320	69	531	316	200	228	233
Future Volume (veh/h)	230	966	68	266	1283	320	69	531	316	200	228	233
Number	1	6	16	5	2	12	7	4	14	3	8	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	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	232	976	0	269	1296	0	70	536	319	202	230	235
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	222	1312	587	173	1223	547	89	564	335	184	574	488
Arrive On Green	0.13	0.37	0.00	0.03	0.11	0.00	0.05	0.26	0.26	0.10	0.31	0.31
Sat Flow, veh/h	1774	3539	1583	1792	3574	1599	1792	2159	1283	1774	1863	1583
Grp Volume(v), veh/h	232	976	0	269	1296	0	70	444	411	202	230	235
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1599	1792	1787	1655	1774	1863	1583
Q Serve(g_s), s	17.5	33.5	0.0	13.5	47.9	0.0	5.4	34.1	34.2	14.5	13.6	16.9
Cycle Q Clear(g_c), s	17.5	33.5	0.0	13.5	47.9	0.0	5.4	34.1	34.2	14.5	13.6	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.78	1.00		1.00
Lane Grp Cap(c), veh/h	222	1312	587	173	1223	547	89	467	432	184	574	488
V/C Ratio(X)	1.05	0.74	0.00	1.56	1.06	0.00	0.79	0.95	0.95	1.10	0.40	0.48
Avail Cap(c_a), veh/h	222	1312	587	173	1223	547	275	491	455	184	574	488
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.76	0.76	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	38.3	0.0	67.8	62.1	0.0	65.8	50.8	50.8	62.8	38.2	39.3
Incr Delay (d2), s/veh	73.1	3.9	0.0	271.0	40.0	0.0	5.7	27.2	28.9	95.5	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	17.1	0.0	19.7	30.5	0.0	2.8	20.4	19.1	12.0	7.1	7.4
LnGrp Delay(d),s/veh	134.3	42.1	0.0	338.8	102.1	0.0	71.5	78.0	79.8	158.2	38.4	39.6
LnGrp LOS	F	D		F	F		E	E	E	F	D	D
Approach Vol, veh/h		1208			1565			925			667	
Approach Delay, s/veh		59.8			142.8			78.3			75.1	
Approach LOS		E			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	52.9	20.0	43.1	20.0	56.9	13.4	49.7				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	17.5	46.0	14.5	38.5	13.5	50.0	21.5	* 32				
Max Q Clear Time (g_c+I1), s	19.5	49.9	16.5	36.2	15.5	35.5	7.4	18.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	3.9	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			95.8									
HCM 2010 LOS			F									
Notes												

HCM 2010 Signalized Intersection Summary

6: 134th Ct E & NE 124th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1271	21	10	1694	0	121	0	50	0	0	6
Future Volume (veh/h)	8	1271	21	10	1694	0	121	0	50	0	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	1324	22	10	1765	0	126	0	52	0	0	6
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	230	2949	49	389	2960	0	200	0	170	0	0	173
Arrive On Green	1.00	1.00	1.00	0.83	0.83	0.00	0.11	0.00	0.11	0.00	0.00	0.11
Sat Flow, veh/h	270	3561	59	408	3668	0	1424	0	1583	0	0	1606
Grp Volume(v), veh/h	8	658	688	10	1765	0	126	0	52	0	0	6
Grp Sat Flow(s),veh/h/ln	270	1770	1851	408	1787	0	1424	0	1583	0	0	1606
Q Serve(g_s), s	0.9	0.0	0.0	0.6	23.5	0.0	12.2	0.0	4.2	0.0	0.0	0.5
Cycle Q Clear(g_c), s	24.4	0.0	0.0	0.6	23.5	0.0	12.6	0.0	4.2	0.0	0.0	0.5
Prop In Lane	1.00		0.03	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	230	1465	1533	389	2960	0	200	0	170	0	0	173
V/C Ratio(X)	0.03	0.45	0.45	0.03	0.60	0.00	0.63	0.00	0.31	0.00	0.00	0.03
Avail Cap(c_a), veh/h	230	1465	1533	389	2960	0	474	0	475	0	0	482
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)	0.45	0.45	0.45	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.5	0.0	0.0	2.1	4.1	0.0	61.6	0.0	57.6	0.0	0.0	56.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.9	0.0	1.2	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.2	0.1	11.6	0.0	4.9	0.0	1.9	0.0	0.0	0.2
LnGrp Delay(d),s/veh	2.6	0.4	0.4	2.2	5.0	0.0	62.8	0.0	58.0	0.0	0.0	56.0
LnGrp LOS	A	A	A	A	A		E		E			E
Approach Vol, veh/h	1354			1775			178			6		
Approach Delay, s/veh	0.5			5.0			61.4			56.0		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	120.9		19.1		120.9		19.1					
Change Period (Y+Rc), s	5.0		4.0		5.0		4.0					
Max Green Setting (Gmax), s	89.0		42.0		89.0		42.0					
Max Q Clear Time (g_c+I1), s	25.5		14.6		26.4		2.5					
Green Ext Time (p_c), s	6.6		0.0		6.6		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	6.2											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	912	402	80	657	80	892	424	430	165	124	84
Future Volume (veh/h)	29	912	402	80	657	80	892	424	430	165	124	84
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1900	1900	1900
Adj Flow Rate, veh/h	31	970	428	85	699	85	949	451	457	176	132	89
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	0	0	0
Cap, veh/h	53	1300	991	106	1271	154	931	570	572	199	153	103
Arrive On Green	0.03	0.37	0.37	0.06	0.40	0.40	0.27	0.30	0.30	0.11	0.15	0.15
Sat Flow, veh/h	1774	3539	1544	1792	3208	390	3476	1881	1577	1810	1051	709
Grp Volume(v), veh/h	31	970	428	85	389	395	949	451	457	176	0	221
Grp Sat Flow(s),veh/h/ln	1774	1770	1544	1792	1787	1811	1738	1881	1577	1810	0	1760
Q Serve(g_s), s	2.4	33.4	19.6	6.6	23.5	23.6	37.5	30.8	36.4	13.4	0.0	17.2
Cycle Q Clear(g_c), s	2.4	33.4	19.6	6.6	23.5	23.6	37.5	30.8	36.4	13.4	0.0	17.2
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	53	1300	991	106	708	717	931	570	572	199	0	256
V/C Ratio(X)	0.58	0.75	0.43	0.81	0.55	0.55	1.02	0.79	0.80	0.88	0.00	0.86
Avail Cap(c_a), veh/h	89	1300	991	115	708	717	931	732	708	200	0	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.60	0.60	0.60	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.0	38.6	12.9	65.1	32.6	32.6	51.3	44.7	40.1	61.4	0.0	58.5
Incr Delay (d2), s/veh	3.7	3.9	1.4	18.2	1.8	1.8	34.4	3.4	4.1	32.8	0.0	5.7
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	1.2	17.0	8.7	3.8	11.9	12.1	22.4	16.6	16.6	8.5	0.0	8.8
LnGrp Delay(d),s/veh	70.7	42.5	14.3	83.2	34.5	34.5	85.7	48.1	44.3	94.2	0.0	64.2
LnGrp LOS	E	D	B	F	C	C	F	D	D	F		E
Approach Vol, veh/h		1429			869			1857			397	
Approach Delay, s/veh		34.7			39.2			66.4			77.5	
Approach LOS		C			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	61.0	20.9	47.9	14.2	56.9	43.0	25.8				
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	7.0	* 42	15.5	54.5	9.0	38.5	37.5	* 33				
Max Q Clear Time (g_c+I1), s	4.4	25.6	15.4	38.4	8.6	35.4	39.5	19.2				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.7	0.0	1.2	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			52.2									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	15	35	10	5	40	5	1315	60	20	570	5
Future Volume (veh/h)	150	15	35	10	5	40	5	1315	60	20	570	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	153	15	36	10	5	41	5	1342	61	20	582	5
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	2	2	2
Cap, veh/h	355	102	244	54	15	70	465	2128	97	251	1168	970
Arrive On Green	0.10	0.21	0.21	0.06	0.06	0.06	0.01	0.61	0.61	0.02	0.63	0.63
Sat Flow, veh/h	1810	491	1179	183	245	1170	1792	3478	158	1774	1863	1547
Grp Volume(v), veh/h	153	0	51	56	0	0	5	688	715	20	582	5
Grp Sat Flow(s),veh/h/ln	1810	0	1670	1598	0	0	1792	1787	1849	1774	1863	1547
Q Serve(g_s), s	7.5	0.0	2.5	1.3	0.0	0.0	0.1	24.1	24.2	0.4	16.8	0.1
Cycle Q Clear(g_c), s	7.5	0.0	2.5	3.3	0.0	0.0	0.1	24.1	24.2	0.4	16.8	0.1
Prop In Lane	1.00		0.71	0.18		0.73	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	355	0	346	139	0	0	465	1094	1131	251	1168	970
V/C Ratio(X)	0.43	0.00	0.15	0.40	0.00	0.00	0.01	0.63	0.63	0.08	0.50	0.01
Avail Cap(c_a), veh/h	510	0	346	345	0	0	689	1791	1853	482	1867	1551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	32.1	45.3	0.0	0.0	8.4	12.1	12.2	9.9	10.0	6.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	1.4	0.0	0.0	0.0	0.7	0.7	0.1	0.4	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	3.8	0.0	1.1	1.5	0.0	0.0	0.1	11.9	12.5	0.2	8.7	0.1
LnGrp Delay(d),s/veh	37.2	0.0	32.2	46.7	0.0	0.0	8.4	12.9	12.9	10.0	10.4	6.9
LnGrp LOS	D		C	D			A	B	B	A	B	A
Approach Vol, veh/h	204				56		1408				607	
Approach Delay, s/veh	36.0				46.7		12.8				10.4	
Approach LOS	D				D		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	7	8			
Phs Duration (G+Y+Rc), s	7.1	66.4			25.5	5.6	67.8	14.6	10.9			
Change Period (Y+Rc), s	5.0	5.8			5.0	5.0	5.8	5.0	5.0			
Max Green Setting (Gmax), s	15.0	99.2			20.0	13.0	99.2	18.0	19.0			
Max Q Clear Time (g_c+I1), s	2.4	26.2			4.5	2.1	18.8	9.5	5.3			
Green Ext Time (p_c), s	0.0	34.4			0.4	0.0	35.7	0.2	0.2			
Intersection Summary												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	5	75	75	0	55	40	1065	35	10	925	15
Future Volume (veh/h)	70	5	75	75	0	55	40	1065	35	10	925	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1900	1881	1900	1776	1776	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	71	5	77	77	0	56	41	1087	36	10	944	15
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	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
Percent Heavy Veh, %	1	1	1	7	7	7	1	1	1	1	1	1
Cap, veh/h	119	19	95	199	0	212	348	1351	1135	386	1315	1104
Arrive On Green	0.15	0.15	0.15	0.15	0.00	0.15	0.04	0.95	0.95	0.01	0.70	0.70
Sat Flow, veh/h	515	132	656	1239	0	1462	1792	1881	1580	1792	1881	1580
Grp Volume(v), veh/h	153	0	0	77	0	56	41	1087	36	10	944	15
Grp Sat Flow(s),veh/h/ln	1303	0	0	1239	0	1462	1792	1881	1580	1792	1881	1580
Q Serve(g_s), s	10.0	0.0	0.0	0.0	0.0	4.1	0.8	13.5	0.1	0.2	36.4	0.3
Cycle Q Clear(g_c), s	14.1	0.0	0.0	9.7	0.0	4.1	0.8	13.5	0.1	0.2	36.4	0.3
Prop In Lane	0.46		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	0	199	0	212	348	1351	1135	386	1315	1104
V/C Ratio(X)	0.66	0.00	0.00	0.39	0.00	0.26	0.12	0.80	0.03	0.03	0.72	0.01
Avail Cap(c_a), veh/h	264	0	0	226	0	244	517	1351	1135	589	1315	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	48.0	0.0	45.6	10.3	1.1	0.8	5.6	10.9	5.5
Incr Delay (d2), s/veh	4.9	0.0	0.0	1.2	0.0	0.7	0.1	3.5	0.0	0.0	3.4	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	5.2	0.0	0.0	2.5	0.0	1.7	0.4	7.0	0.1	0.1	19.9	0.2
LnGrp Delay(d),s/veh	55.2	0.0	0.0	49.2	0.0	46.2	10.4	4.6	0.8	5.6	14.3	5.5
LnGrp LOS	E			D		D	B	A	A	A	B	A
Approach Vol, veh/h	153		133			1164			969			
Approach Delay, s/veh	55.2		48.0			4.7			14.1			
Approach LOS	E		D			A			B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	6.4	91.2	22.4		8.7	88.9	22.4					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	15.0	70.0	20.0		15.0	70.0	20.0					
Max Q Clear Time (g_c+I1), s	2.2	15.5	16.1		2.8	38.4	11.7					
Green Ext Time (p_c), s	0.0	31.9	0.5		0.0	22.4	0.9					
Intersection Summary												
HCM 2010 Ctrl Delay			14.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	390	20	35	250	315	10	250	30	280	535	465
Future Volume (veh/h)	510	390	20	35	250	315	10	250	30	280	535	465
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	573	438	22	39	281	354	11	281	34	315	601	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	1	1	1	1	1	1
Cap, veh/h	631	686	34	53	438	674	23	356	43	351	752	640
Arrive On Green	0.18	0.39	0.39	0.03	0.24	0.24	0.01	0.22	0.22	0.06	0.13	0.00
Sat Flow, veh/h	3442	1758	88	1757	1845	1545	1792	1641	199	1792	1881	1599
Grp Volume(v), veh/h	573	0	460	39	281	354	11	0	315	315	601	0
Grp Sat Flow(s),veh/h/ln	1721	0	1846	1757	1845	1545	1792	0	1840	1792	1881	1599
Q Serve(g_s), s	19.6	0.0	24.3	2.6	16.4	0.0	0.7	0.0	19.4	20.9	37.2	0.0
Cycle Q Clear(g_c), s	19.6	0.0	24.3	2.6	16.4	0.0	0.7	0.0	19.4	20.9	37.2	0.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	631	0	721	53	438	674	23	0	399	351	752	640
V/C Ratio(X)	0.91	0.00	0.64	0.73	0.64	0.53	0.48	0.00	0.79	0.90	0.80	0.00
Avail Cap(c_a), veh/h	660	0	721	161	438	674	164	0	399	388	752	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.65	0.65	0.00
Uniform Delay (d), s/veh	48.0	0.0	29.7	57.7	41.2	24.9	58.8	0.0	44.4	54.9	47.4	0.0
Incr Delay (d2), s/veh	16.1	0.0	4.3	17.5	3.2	0.8	14.7	0.0	14.7	15.7	4.3	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	10.7	0.0	13.3	1.5	8.7	8.7	0.5	0.0	11.5	11.9	20.3	0.0
LnGrp Delay(d),s/veh	64.1	0.0	34.0	75.2	44.4	25.6	73.6	0.0	59.1	70.6	51.7	0.0
LnGrp LOS	E		C	E	D	C	E		E	E	D	
Approach Vol, veh/h	1033			674				326			916	
Approach Delay, s/veh	50.7			36.3				59.6			58.2	
Approach LOS	D			D				E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	33.5	6.5	53.0	8.6	51.8	28.5	31.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	23.0	25.0	11.0	41.0	11.0	37.0	26.0	26.0				
Max Q Clear Time (g_c+I1), s	21.6	18.4	2.7	39.2	4.6	26.3	22.9	21.4				
Green Ext Time (p_c), s	0.4	1.7	0.0	1.1	0.0	3.9	0.6	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay	50.7											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
2021 Without-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	910	335	60	370	170	275	635	105	160	410	125
Future Volume (veh/h)	405	910	335	60	370	170	275	635	105	160	410	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	426	958	353	63	389	179	289	668	111	168	432	132
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	404	936	342	80	439	199	340	686	654	188	700	955
Arrive On Green	0.23	0.37	0.37	0.04	0.18	0.18	0.10	0.36	0.36	0.10	0.37	0.37
Sat Flow, veh/h	1792	2548	931	1792	2391	1086	3476	1881	1599	1792	1881	1599
Grp Volume(v), veh/h	426	669	642	63	289	279	289	668	111	168	432	132
Grp Sat Flow(s),veh/h/ln	1792	1787	1692	1792	1787	1690	1738	1881	1599	1792	1881	1599
Q Serve(g_s), s	40.0	65.2	65.2	6.2	28.0	28.6	14.5	62.1	7.8	16.4	33.2	2.0
Cycle Q Clear(g_c), s	40.0	65.2	65.2	6.2	28.0	28.6	14.5	62.1	7.8	16.4	33.2	2.0
Prop In Lane	1.00		0.55	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	657	622	80	328	310	340	686	654	188	700	955
V/C Ratio(X)	1.05	1.02	1.03	0.79	0.88	0.90	0.85	0.97	0.17	0.89	0.62	0.14
Avail Cap(c_a), veh/h	404	657	622	222	378	357	588	695	662	242	700	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.7	56.1	56.1	83.9	70.5	70.8	78.7	55.5	33.3	78.4	45.4	6.0
Incr Delay (d2), s/veh	59.8	40.1	44.5	15.7	19.1	22.4	6.0	27.5	0.1	26.7	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.5	39.4	38.1	3.4	15.6	15.3	7.3	37.5	3.5	9.6	17.6	1.5
LnGrp Delay(d),s/veh	128.5	96.2	100.6	99.6	89.6	93.2	84.7	83.0	33.4	105.1	47.1	6.1
LnGrp LOS	F	F	F	F	F	F	F	F	C	F	D	A
Approach Vol, veh/h	1737				631			1068			732	
Approach Delay, s/veh	105.8				92.2			78.3			53.0	
Approach LOS	F				F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.6	70.2	12.9	70.7	22.3	71.5	45.5	38.1				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	24.0	65.5	22.0	29.5	30.0	47.5	40.0	* 38				
Max Q Clear Time (g_c+I1), s	18.4	64.1	8.2	67.2	16.5	35.2	42.0	30.6				
Green Ext Time (p_c), s	0.2	0.6	0.1	0.0	0.8	6.4	0.0	2.0				
Intersection Summary												
HCM 2010 Ctrl Delay	87.4											
HCM 2010 LOS	F											
Notes												

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	482	37	53	274	149	164	207	32	196	48	11
Future Volume (veh/h)	5	482	37	53	274	149	164	207	32	196	48	11
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	5	524	0	58	298	162	178	225	35	213	52	12
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	3	3	3	3	3	3	5	5	5
Cap, veh/h	358	1016	455	372	729	384	336	353	299	378	161	37
Arrive On Green	0.01	0.28	0.00	0.05	0.33	0.33	0.19	0.19	0.19	0.11	0.11	0.11
Sat Flow, veh/h	1792	3574	1599	1757	2195	1158	1757	1845	1563	3343	1422	328
Grp Volume(v), veh/h	5	524	0	58	236	224	178	225	35	213	0	64
Grp Sat Flow(s), veh/h/ln	1792	1787	1599	1757	1752	1600	1757	1845	1563	1672	0	1750
Q Serve(g_s), s	0.1	6.4	0.0	1.2	5.5	5.7	4.8	5.9	1.0	3.2	0.0	1.8
Cycle Q Clear(g_c), s	0.1	6.4	0.0	1.2	5.5	5.7	4.8	5.9	1.0	3.2	0.0	1.8
Prop In Lane	1.00		1.00	1.00		0.72	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	358	1016	455	372	582	531	336	353	299	378	0	198
V/C Ratio(X)	0.01	0.52	0.00	0.16	0.41	0.42	0.53	0.64	0.12	0.56	0.00	0.32
Avail Cap(c_a), veh/h	517	1909	854	461	953	870	985	1035	877	1174	0	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	15.7	0.0	12.3	13.5	13.6	19.1	19.5	17.5	22.0	0.0	21.4
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.5	0.5	1.3	1.9	0.2	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.2	0.0	0.6	2.7	2.6	2.4	3.2	0.4	1.5	0.0	0.9
LnGrp Delay(d),s/veh	13.3	16.1	0.0	12.5	14.0	14.1	20.4	21.4	17.7	23.3	0.0	22.3
LnGrp LOS	B	B		B	B	B	C	C	B	C		C
Approach Vol, veh/h		529			518			438			277	
Approach Delay, s/veh		16.1			13.9			20.7			23.1	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	22.4		14.6	7.4	19.9		10.5				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	28.5		29.4	5.5	28.0		18.4				
Max Q Clear Time (g_c+I1), s	2.1	7.7		7.9	3.2	8.4		5.2				
Green Ext Time (p_c), s	0.0	6.6		1.9	0.0	6.5		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1026	446	157	859	221	207	202	111	206	387	90
Future Volume (veh/h)	64	1026	446	157	859	221	207	202	111	206	387	90
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1827	1827	1827	1845	1845	1845
Adj Flow Rate, veh/h	67	1069	465	164	895	230	216	210	116	215	403	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	3	3	3
Cap, veh/h	85	1473	782	145	1594	922	265	669	420	234	456	388
Arrive On Green	0.05	0.42	0.42	0.08	0.45	0.45	0.08	0.19	0.19	0.13	0.25	0.00
Sat Flow, veh/h	1774	3539	1579	1774	3539	1579	3375	3471	1525	1757	1845	1568
Grp Volume(v), veh/h	67	1069	465	164	895	230	216	210	116	215	403	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1579	1774	1770	1579	1688	1736	1525	1757	1845	1568
Q Serve(g_s), s	5.0	34.1	28.5	11.0	25.1	9.6	8.5	7.0	8.1	16.3	28.4	0.0
Cycle Q Clear(g_c), s	5.0	34.1	28.5	11.0	25.1	9.6	8.5	7.0	8.1	16.3	28.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	85	1473	782	145	1594	922	265	669	420	234	456	388
V/C Ratio(X)	0.79	0.73	0.59	1.13	0.56	0.25	0.81	0.31	0.28	0.92	0.88	0.00
Avail Cap(c_a), veh/h	133	1473	782	145	1594	922	300	851	501	234	545	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	63.6	33.0	24.4	62.0	27.3	13.7	61.2	46.8	38.5	57.8	48.9	0.0
Incr Delay (d2), s/veh	6.5	3.2	3.3	115.6	1.4	0.6	14.3	0.3	0.4	37.3	13.9	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	2.6	17.3	13.1	10.0	12.5	4.3	4.5	3.4	3.4	10.4	16.2	0.0
LnGrp Delay(d),s/veh	70.0	36.1	27.7	177.6	28.7	14.3	75.5	47.1	38.8	95.0	62.8	0.0
LnGrp LOS	E	D	C	F	C	B	E	D	D	F	E	
Approach Vol, veh/h	1601			1289			542			618		
Approach Delay, s/veh	35.1			45.1			56.6			74.0		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.4	66.7	24.0	31.9	17.0	62.1	16.6	39.3				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	10.0	* 50	18.0	* 33	11.0	* 49	12.0	* 40				
Max Q Clear Time (g_c+11), s	17.0	27.1	18.3	10.1	13.0	36.1	10.5	30.4				
Green Ext Time (p_c), s	0.0	13.2	0.0	4.4	0.0	9.0	0.1	3.0				
Intersection Summary												
HCM 2010 Ctrl Delay	47.1											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	429	483	256	311	16	175	212	85	21	446	115
Future Volume (veh/h)	153	429	483	256	311	16	175	212	85	21	446	115
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.99	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1810	1810	1900	1863	1863	1863	1845	1845	1900
Adj Flow Rate, veh/h	156	438	493	261	317	16	179	216	87	21	455	117
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	5	5	5	2	2	2	3	3	3
Cap, veh/h	560	769	652	361	1564	79	285	577	486	326	663	169
Arrive On Green	0.04	0.41	0.41	0.10	0.47	0.47	0.09	0.31	0.31	0.02	0.24	0.24
Sat Flow, veh/h	1774	1863	1580	1723	3329	167	1774	1863	1571	1757	2755	703
Grp Volume(v), veh/h	156	438	493	261	163	170	179	216	87	21	288	284
Grp Sat Flow(s),veh/h/ln	1774	1863	1580	1723	1719	1777	1774	1863	1571	1757	1752	1705
Q Serve(g_s), s	6.0	24.8	36.6	11.6	7.6	7.7	10.1	12.4	5.6	1.2	20.5	20.8
Cycle Q Clear(g_c), s	6.0	24.8	36.6	11.6	7.6	7.7	10.1	12.4	5.6	1.2	20.5	20.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	560	769	652	361	808	835	285	577	486	326	422	410
V/C Ratio(X)	0.28	0.57	0.76	0.72	0.20	0.20	0.63	0.37	0.18	0.06	0.68	0.69
Avail Cap(c_a), veh/h	560	769	652	426	808	835	340	577	486	360	422	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	31.0	34.4	22.8	21.3	21.3	35.2	37.0	34.7	37.6	47.4	47.5
Incr Delay (d2), s/veh	0.2	3.1	8.0	4.4	0.6	0.6	2.7	1.9	0.8	0.0	8.7	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	13.4	17.4	5.9	3.8	3.9	5.1	6.7	2.5	0.6	10.9	10.8
LnGrp Delay(d),s/veh	22.5	34.0	42.4	27.2	21.9	21.9	37.9	38.9	35.5	37.6	56.1	56.8
LnGrp LOS	C	C	D	C	C	C	D	D	D	D	E	E
Approach Vol, veh/h	1087			594			482			593		
Approach Delay, s/veh	36.2			24.2			37.9			55.7		
Approach LOS	D			C			D			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.0	70.0	8.3	48.0	18.8	62.2	17.8	38.5				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	6.0	64.5	6.0	42.5	19.0	51.5	16.5	31.5				
Max Q Clear Time (g_c+10), s	9.7	9.7	3.2	14.4	13.6	38.6	12.1	22.8				
Green Ext Time (p_c), s	0.0	8.4	0.0	5.7	0.3	5.6	0.2	3.4				
Intersection Summary												
HCM 2010 Ctrl Delay	38.1											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	340	11	96	127	96	21	376	154	340	483	5
Future Volume (veh/h)	11	340	11	96	127	96	21	376	154	340	483	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1827	1827	1900	1863	1863	1900	1845	1845	1900
Adj Flow Rate, veh/h	11	351	11	99	131	99	22	388	159	351	498	5
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	4	4	4	2	2	2	3	3	3
Cap, veh/h	129	382	12	135	233	176	461	607	249	469	1037	10
Arrive On Green	0.02	0.21	0.21	0.04	0.24	0.24	0.02	0.48	0.48	0.11	0.57	0.57
Sat Flow, veh/h	1792	1814	57	1740	959	725	1774	1256	515	1757	1823	18
Grp Volume(v), veh/h	11	0	362	99	0	230	22	0	547	351	0	503
Grp Sat Flow(s),veh/h/ln	1792	0	1871	1740	0	1684	1774	0	1771	1757	0	1841
Q Serve(g_s), s	0.7	0.0	25.6	2.9	0.0	16.2	0.8	0.0	31.2	13.1	0.0	21.9
Cycle Q Clear(g_c), s	0.7	0.0	25.6	2.9	0.0	16.2	0.8	0.0	31.2	13.1	0.0	21.9
Prop In Lane	1.00		0.03	1.00		0.43	1.00		0.29	1.00		0.01
Lane Grp Cap(c), veh/h	129	0	394	135	0	409	461	0	856	469	0	1048
V/C Ratio(X)	0.09	0.00	0.92	0.73	0.00	0.56	0.05	0.00	0.64	0.75	0.00	0.48
Avail Cap(c_a), veh/h	308	0	485	259	0	430	554	0	856	606	0	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.6	0.0	52.2	62.3	0.0	44.8	16.9	0.0	26.1	19.6	0.0	17.2
Incr Delay (d2), s/veh	0.1	0.0	18.3	2.9	0.0	0.8	0.0	0.0	3.6	2.5	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	15.2	3.7	0.0	7.6	0.4	0.0	16.1	6.6	0.0	11.5
LnGrp Delay(d),s/veh	45.7	0.0	70.5	65.1	0.0	45.7	16.9	0.0	29.7	22.2	0.0	18.8
LnGrp LOS	D		E	E		D	B		C	C		B
Approach Vol, veh/h	373			329			569			854		
Approach Delay, s/veh	69.8			51.5			29.2			20.2		
Approach LOS	E			D			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	38.3	19.5	70.7	11.4	33.4	7.9	82.3				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	5.5	* 5	4.5	* 5.5				
Max Green Setting (Gmax), s	15.5	34.5	26.0	39.5	15.5	* 35	10.5	* 55				
Max Q Clear Time (g_c+11), s	12.3	18.2	15.1	33.2	4.9	27.6	2.8	23.9				
Green Ext Time (p_c), s	0.0	0.9	0.4	2.6	0.8	0.9	0.0	5.1				
Intersection Summary												
HCM 2010 Ctrl Delay	36.2											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	978	42	196	945	208	37	164	259	470	600	223
Future Volume (veh/h)	138	978	42	196	945	208	37	164	259	470	600	223
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1827	1827	1900	1845	1845	1845
Adj Flow Rate, veh/h	139	988	0	198	955	0	37	166	262	475	606	225
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	2	2	2	4	4	4	3	3	3
Cap, veh/h	137	1272	569	151	1311	586	58	392	345	267	622	520
Arrive On Green	0.08	0.36	0.00	0.03	0.12	0.00	0.03	0.23	0.23	0.15	0.34	0.34
Sat Flow, veh/h	1757	3505	1568	1774	3539	1583	1740	1736	1527	1757	1845	1543
Grp Volume(v), veh/h	139	988	0	198	955	0	37	166	262	475	606	225
Grp Sat Flow(s), veh/h/ln	1757	1752	1568	1774	1770	1583	1740	1736	1527	1757	1845	1543
Q Serve(g_s), s	10.5	33.8	0.0	11.5	35.1	0.0	2.8	11.1	21.6	20.5	43.8	15.3
Cycle Q Clear(g_c), s	10.5	33.8	0.0	11.5	35.1	0.0	2.8	11.1	21.6	20.5	43.8	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	1272	569	151	1311	586	58	392	345	267	622	520
V/C Ratio(X)	1.02	0.78	0.00	1.31	0.73	0.00	0.64	0.42	0.76	1.78	0.97	0.43
Avail Cap(c_a), veh/h	137	1272	569	151	1311	586	122	444	390	267	622	520
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	38.1	0.0	65.6	52.7	0.0	64.4	44.7	48.8	57.3	44.2	34.7
Incr Delay (d2), s/veh	81.6	4.7	0.0	175.1	3.2	0.0	4.3	0.3	6.2	366.0	29.6	0.2
Initial Q Delay(d3),s/veh	0.2	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	8.2	17.2	0.0	13.0	17.8	0.0	1.4	5.3	9.7	37.1	27.3	6.6
LnGrp Delay(d),s/veh	144.0	42.8	0.0	240.7	55.9	0.0	68.7	45.0	55.0	423.3	73.8	34.9
LnGrp LOS	F	D		F	E		E	D	D	F	E	C
Approach Vol, veh/h		1127			1153			465			1306	
Approach Delay, s/veh		55.3			87.6			52.5			194.2	
Approach LOS		E			F			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	55.0	26.0	37.0	18.0	54.0	11.0	52.0				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	40.5	46.0	20.5	34.5	11.5	45.0	9.5	* 46				
Max Q Clear Time (g_c+1/2), s	11.2	37.1	22.5	23.6	13.5	35.8	4.8	45.8				
Green Ext Time (p_c), s	0.0	2.7	0.0	1.1	0.0	2.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			109.0									
HCM 2010 LOS			F									
Notes												

HCM 2010 Signalized Intersection Summary

6: 134th Ct E & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1585	117	42	1396	0	11	0	16	0	0	5
Future Volume (veh/h)	5	1585	117	42	1396	0	11	0	16	0	0	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1759	1759	1900	1900	1900	1900
Adj Flow Rate, veh/h	5	1686	124	45	1485	0	12	0	17	0	0	5
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	0	0	0
Cap, veh/h	372	3009	219	286	3189	0	92	0	48	0	0	52
Arrive On Green	1.00	1.00	1.00	1.00	1.00	0.00	0.03	0.00	0.03	0.00	0.00	0.03
Sat Flow, veh/h	353	3340	243	258	3632	0	1316	0	1485	0	0	1604
Grp Volume(v), veh/h	5	885	925	45	1485	0	12	0	17	0	0	5
Grp Sat Flow(s),veh/h/ln	353	1770	1813	258	1770	0	1316	0	1485	0	0	1604
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.5	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	1.5	0.0	0.0	0.4
Prop In Lane	1.00		0.13	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	372	1594	1633	286	3189	0	92	0	48	0	0	52
V/C Ratio(X)	0.01	0.56	0.57	0.16	0.47	0.00	0.13	0.00	0.35	0.00	0.00	0.10
Avail Cap(c_a), veh/h	372	1594	1633	286	3189	0	449	0	451	0	0	487
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.82	0.82	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	64.2	0.0	63.9	0.0	0.0	63.4
Incr Delay (d2), s/veh	0.0	0.1	0.1	1.0	0.4	0.0	0.2	0.0	1.6	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.1	0.2	0.0	0.4	0.0	0.6	0.0	0.0	0.2
LnGrp Delay(d),s/veh	0.0	0.1	0.1	1.0	0.4	0.0	64.4	0.0	65.6	0.0	0.0	63.7
LnGrp LOS	A	A	A	A	A		E		E			E
Approach Vol, veh/h	1815				1530		29				5	
Approach Delay, s/veh	0.1				0.4		65.1				63.7	
Approach LOS	A				A		E				E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	126.6		8.4		126.6		8.4					
Change Period (Y+Rc), s	5.0		4.0		5.0		4.0					
Max Green Setting (Gmax), s	85.0		41.0		85.0		41.0					
Max Q Clear Time (g_c+I1), s	2.0		3.6		2.0		2.4					
Green Ext Time (p_c), s	8.1		0.0		8.1		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			0.9									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	718	753	288	1013	69	256	58	61	85	409	5
Future Volume (veh/h)	48	718	753	288	1013	69	256	58	61	85	409	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1810	1810	1810	1900	1900	1900
Adj Flow Rate, veh/h	48	725	761	291	1023	70	259	59	62	86	413	5
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	5	5	5	0	0	0
Cap, veh/h	66	1180	661	313	1597	109	305	480	672	107	437	5
Arrive On Green	0.04	0.33	0.33	0.17	0.47	0.47	0.09	0.27	0.27	0.06	0.23	0.23
Sat Flow, veh/h	1774	3539	1548	1792	3389	232	3343	1810	1518	1810	1873	23
Grp Volume(v), veh/h	48	725	761	291	539	554	259	59	62	86	0	418
Grp Sat Flow(s),veh/h/ln	1774	1770	1548	1792	1787	1834	1672	1810	1518	1810	0	1896
Q Serve(g_s), s	3.6	23.2	45.0	21.6	30.9	30.9	10.3	3.3	3.2	6.3	0.0	29.3
Cycle Q Clear(g_c), s	3.6	23.2	45.0	21.6	30.9	30.9	10.3	3.3	3.2	6.3	0.0	29.3
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	66	1180	661	313	842	864	305	480	672	107	0	443
V/C Ratio(X)	0.73	0.61	1.15	0.93	0.64	0.64	0.85	0.12	0.09	0.80	0.00	0.94
Avail Cap(c_a), veh/h	118	1180	661	332	842	864	433	529	713	168	0	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.35	0.35	0.35	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.3	37.7	38.9	54.9	27.0	27.0	60.4	37.6	22.0	62.7	0.0	50.9
Incr Delay (d2), s/veh	5.6	2.4	84.9	14.0	1.3	1.3	7.7	0.0	0.0	6.6	0.0	25.0
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	1.9	11.7	40.1	11.9	15.4	15.8	5.1	1.7	1.4	3.4	0.0	18.4
LnGrp Delay(d),s/veh	70.0	40.1	123.8	68.8	28.3	28.3	68.1	37.7	22.1	69.3	0.0	75.8
LnGrp LOS	E	D	F	E	C	C	E	D	C	E		E
Approach Vol, veh/h	1534			1384			380			504		
Approach Delay, s/veh	82.6			36.8			55.9			74.7		
Approach LOS	F			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.0	69.1	13.5	41.3	29.6	50.5	17.8	37.0				
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	9.0	* 53	12.5	39.5	25.0	35.5	17.5	* 35				
Max Q Clear Time (g_c+1.5I), s	15.6	32.9	8.3	5.3	23.6	47.0	12.3	31.3				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.5	0.0	0.0	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay	62.2											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	5	138	37	21	27	401	5	5	1234	85
Future Volume (veh/h)	11	0	5	138	37	21	27	401	5	5	1234	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.96	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1863	1900	1827	1827	1900	1881	1881	1881
Adj Flow Rate, veh/h	11	0	5	141	38	21	28	409	5	5	1259	87
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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
Percent Heavy Veh, %	6	6	6	2	2	2	4	4	4	1	1	1
Cap, veh/h	291	0	308	206	42	23	102	2323	28	673	1210	1006
Arrive On Green	0.01	0.00	0.20	0.15	0.15	0.15	0.03	0.66	0.66	0.01	0.64	0.64
Sat Flow, veh/h	1707	0	1512	1040	280	155	1740	3511	43	1792	1881	1565
Grp Volume(v), veh/h	11	0	5	200	0	0	28	202	212	5	1259	87
Grp Sat Flow(s),veh/h/ln	1707	0	1512	1476	0	0	1740	1736	1818	1792	1881	1565
Q Serve(g_s), s	0.7	0.0	0.3	16.4	0.0	0.0	0.7	5.5	5.5	0.1	79.2	2.6
Cycle Q Clear(g_c), s	0.7	0.0	0.3	16.4	0.0	0.0	0.7	5.5	5.5	0.1	79.2	2.6
Prop In Lane	1.00		1.00	0.70		0.10	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	308	272	0	0	102	1148	1203	673	1210	1006
V/C Ratio(X)	0.04	0.00	0.02	0.74	0.00	0.00	0.27	0.18	0.18	0.01	1.04	0.09
Avail Cap(c_a), veh/h	450	0	454	277	0	0	242	1148	1203	880	1210	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	0.0	39.2	51.4	0.0	0.0	32.4	8.0	8.0	7.6	22.0	8.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	9.1	0.0	0.0	1.1	0.1	0.1	0.0	37.2	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	0.3	0.0	0.1	7.4	0.0	0.0	0.6	2.7	2.8	0.1	53.1	1.1
LnGrp Delay(d),s/veh	41.8	0.0	39.2	60.5	0.0	0.0	33.4	8.1	8.1	7.6	59.2	8.4
LnGrp LOS	D		D	E			C	A	A	A	F	A
Approach Vol, veh/h	16		200			442			1351			
Approach Delay, s/veh	41.0		60.5			9.7			55.7			
Approach LOS	D		E			A			E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	87.3		30.1	8.1	85.0	6.6	23.5				
Change Period (Y+Rc), s	5.0	5.8		5.0	5.0	5.8	5.0	5.0				
Max Green Setting (Gmax), s	5.0	77.2		37.0	13.0	79.2	13.0	19.0				
Max Q Clear Time (g_c+11.2), s	5.0	7.5		2.3	2.7	81.2	2.7	18.4				
Green Ext Time (p_c), s	0.0	37.1		1.0	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay	45.9											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	48	48	5	16	159	700	96	21	993	32
Future Volume (veh/h)	16	0	48	48	5	16	159	700	96	21	993	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.97		0.94	1.00		0.97	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1900	1810	1900	1667	1667	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	17	0	50	50	5	17	166	729	100	22	1034	33
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	14	14	14	3	3	3	2	2	2
Cap, veh/h	60	15	111	181	32	109	342	1388	1145	579	1361	1123
Arrive On Green	0.10	0.00	0.10	0.10	0.10	0.10	0.09	1.00	1.00	0.02	0.73	0.73
Sat Flow, veh/h	223	150	1098	1170	317	1079	1757	1845	1523	1774	1863	1537
Grp Volume(v), veh/h	67	0	0	50	0	22	166	729	100	22	1034	33
Grp Sat Flow(s),veh/h/ln	1471	0	0	1170	0	1397	1757	1845	1523	1774	1863	1537
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	1.7	3.0	0.0	0.0	0.4	40.3	0.7
Cycle Q Clear(g_c), s	4.9	0.0	0.0	4.5	0.0	1.7	3.0	0.0	0.0	0.4	40.3	0.7
Prop In Lane	0.25		0.75	1.00		0.77	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	0	0	181	0	141	342	1388	1145	579	1361	1123
V/C Ratio(X)	0.36	0.00	0.00	0.28	0.00	0.16	0.49	0.53	0.09	0.04	0.76	0.03
Avail Cap(c_a), veh/h	280	0	0	258	0	233	412	1388	1145	688	1361	1123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.52	0.52	0.52	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	0.0	0.0	50.5	0.0	49.3	12.5	0.0	0.0	3.7	9.8	4.4
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.8	0.0	0.5	0.6	0.7	0.1	0.0	4.0	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	2.1	0.0	0.0	1.6	0.0	0.7	2.6	0.3	0.0	0.2	21.9	0.3
LnGrp Delay(d),s/veh	51.9	0.0	0.0	51.3	0.0	49.8	13.1	0.7	0.1	3.7	13.8	4.5
LnGrp LOS	D			D		D	B	A	A	A	B	A
Approach Vol, veh/h	67				72		995				1089	
Approach Delay, s/veh	51.9				50.9		2.7				13.3	
Approach LOS	D				D		A				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	7.6	95.3			17.1	10.2	92.7	17.1				
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	75.0	75.0			20.0	10.0	75.0	20.0				
Max Q Clear Time (g_c+12.5), s	12.5	2.0			6.9	5.0	42.3	6.5				
Green Ext Time (p_c), s	0.0	28.2			0.5	0.2	19.5	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			11.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	191	5	21	290	324	11	386	21	170	351	494
Future Volume (veh/h)	483	191	5	21	290	324	11	386	21	170	351	494
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1827	1845	1845	1900	1845	1845	1845
Adj Flow Rate, veh/h	555	220	6	24	333	372	13	444	24	195	403	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	4	4	4	3	3	3	3	3	3
Cap, veh/h	591	560	15	207	476	604	26	462	25	231	707	601
Arrive On Green	0.17	0.32	0.32	0.12	0.26	0.26	0.01	0.27	0.27	0.04	0.13	0.00
Sat Flow, veh/h	3375	1770	48	1740	1827	1535	1757	1731	94	1757	1845	1568
Grp Volume(v), veh/h	555	0	226	24	333	372	13	0	468	195	403	0
Grp Sat Flow(s),veh/h/ln	1688	0	1818	1740	1827	1535	1757	0	1825	1757	1845	1568
Q Serve(g_s), s	19.5	0.0	11.6	1.5	19.8	7.4	0.9	0.0	30.4	13.2	24.7	0.0
Cycle Q Clear(g_c), s	19.5	0.0	11.6	1.5	19.8	7.4	0.9	0.0	30.4	13.2	24.7	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	591	0	576	207	476	604	26	0	487	231	707	601
V/C Ratio(X)	0.94	0.00	0.39	0.12	0.70	0.62	0.51	0.00	0.96	0.85	0.57	0.00
Avail Cap(c_a), veh/h	591	0	576	207	476	604	220	0	487	293	707	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.56	0.56	0.00
Uniform Delay (d), s/veh	48.9	0.0	32.0	47.2	40.1	29.2	58.7	0.0	43.4	56.2	43.1	0.0
Incr Delay (d2), s/veh	23.2	0.0	2.0	0.2	4.5	1.9	14.5	0.0	32.3	10.6	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	6.2	0.7	10.6	3.4	0.5	0.0	19.7	7.1	12.8	0.0
LnGrp Delay(d),s/veh	72.0	0.0	34.0	47.5	44.7	31.1	73.2	0.0	75.7	66.8	43.9	0.0
LnGrp LOS	E		C	D	D	C	E		E	E	D	
Approach Vol, veh/h	781			729			481			598		
Approach Delay, s/veh	61.0			37.8			75.6			51.3		
Approach LOS	E			D			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.0	36.3	6.8	51.0	19.3	43.0	20.7	37.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	27.0	27.0	15.0	37.0	10.0	38.0	20.0	32.0				
Max Q Clear Time (g_c+Y), s	21.8	21.8	2.9	26.7	3.5	13.6	15.2	32.4				
Green Ext Time (p_c), s	0.0	1.7	0.0	3.0	1.3	1.3	0.5	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	55.0											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	279	147	122	888	133	362	242	48	90	473	340
Future Volume (veh/h)	80	279	147	122	888	133	362	242	48	90	473	340
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	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
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	82	285	150	124	906	136	369	247	49	92	483	347
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	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
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	3	3	3
Cap, veh/h	142	687	352	153	951	143	433	630	670	117	518	568
Arrive On Green	0.08	0.31	0.31	0.09	0.31	0.31	0.13	0.34	0.34	0.07	0.28	0.28
Sat Flow, veh/h	1740	2221	1138	1774	3076	462	3408	1845	1567	1757	1845	1566
Grp Volume(v), veh/h	82	221	214	124	521	521	369	247	49	92	483	347
Grp Sat Flow(s),veh/h/ln	1740	1736	1624	1774	1770	1769	1704	1845	1567	1757	1845	1566
Q Serve(g_s), s	4.9	10.8	11.2	7.3	30.8	30.8	11.3	10.9	2.0	5.5	27.3	7.5
Cycle Q Clear(g_c), s	4.9	10.8	11.2	7.3	30.8	30.8	11.3	10.9	2.0	5.5	27.3	7.5
Prop In Lane	1.00		0.70	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	537	502	153	547	546	433	630	670	117	518	568
V/C Ratio(X)	0.58	0.41	0.43	0.81	0.95	0.95	0.85	0.39	0.07	0.79	0.93	0.61
Avail Cap(c_a), veh/h	407	700	655	249	548	548	479	630	670	247	534	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	29.2	29.4	47.9	36.2	36.2	45.6	26.8	18.1	49.1	37.4	12.7
Incr Delay (d2), s/veh	3.6	0.5	0.6	9.7	27.0	27.1	12.9	0.4	0.0	11.0	23.2	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	5.2	5.1	4.0	19.2	19.2	6.1	5.6	0.9	3.0	17.2	7.5
LnGrp Delay(d),s/veh	50.9	29.7	29.9	57.6	63.2	63.2	58.5	27.2	18.1	60.1	60.6	14.5
LnGrp LOS	D	C	C	E	E	E	E	C	B	E	E	B
Approach Vol, veh/h	517			1166			665			922		
Approach Delay, s/veh	33.2			62.6			43.9			43.2		
Approach LOS	C			E			D			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	2.1	42.0	14.2	38.5	18.6	35.5	14.2	38.5				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	15.0	30.9	15.0	43.1	15.0	30.9	25.0	* 33				
Max Q Clear Time (g_c+17), s	12.9	12.9	9.3	13.2	13.3	29.3	6.9	32.8				
Green Ext Time (p_c), s	0.1	5.9	0.1	3.1	0.3	0.7	2.7	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	48.7											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

12: Driveway & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1480	68	15	1339	5	100	0	23	10	0	5
Future Volume (veh/h)	32	1480	68	15	1339	5	100	0	23	10	0	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	1558	72	16	1409	5	105	0	24	11	0	5
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	0	0	0
Cap, veh/h	274	2409	111	318	2583	9	235	5	44	208	8	78
Arrive On Green	0.05	1.00	1.00	0.04	0.71	0.71	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1774	3442	158	1774	3617	13	1174	32	276	1025	52	490
Grp Volume(v), veh/h	34	798	832	16	689	725	129	0	0	16	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1831	1774	1770	1860	1482	0	0	1567	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	24.6	24.6	9.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	24.6	24.6	10.7	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.01	0.81		0.19	0.69		0.31
Lane Grp Cap(c), veh/h	274	1239	1282	318	1264	1328	284	0	0	295	0	0
V/C Ratio(X)	0.12	0.64	0.65	0.05	0.55	0.55	0.45	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	299	1239	1282	318	1264	1328	284	0	0	295	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)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.6	0.0	0.0	7.9	9.0	9.0	52.1	0.0	0.0	48.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.1	2.0	0.1	1.7	1.6	5.1	0.0	0.0	0.4	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	0.4	0.7	0.7	0.2	12.5	13.1	4.9	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	9.8	2.1	2.0	8.0	10.7	10.7	57.2	0.0	0.0	48.5	0.0	0.0
LnGrp LOS	A	A	A	A	B	B	E			D		
Approach Vol, veh/h	1664			1430			129			16		
Approach Delay, s/veh	2.2			10.7			57.2			48.5		
Approach LOS	A			B			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.0	10.0	99.0		26.0	8.1	100.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		21.5	5.5	94.5		21.5	5.5	94.5				
Max Q Clear Time (g_c+I1), s		12.7	2.0	2.0		3.0	2.8	26.6				
Green Ext Time (p_c), s		0.4	2.6	22.3		0.7	0.0	15.6				
Intersection Summary												
HCM 2010 Ctrl Delay	8.4											
HCM 2010 LOS	A											

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	21	0	380	1436	13
Future Vol, veh/h	0	21	0	380	1436	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	5	5	0	0
Mvmt Flow	0	21	0	384	1451	13
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	-	1457	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	161	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	161	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	30.7	0	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	161	-	-		
HCM Lane V/C Ratio	-	0.132	-	-		
HCM Control Delay (s)	-	30.7	-	-		
HCM Lane LOS	-	D	-	-		
HCM 95th %tile Q(veh)	-	0.4	-	-		

HCM 2010 Signalized Intersection Summary

1: Totem Lake Blvd & 120th Ave NE

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	382	63	244	786	358	240	280	20	516	178	33
Future Volume (veh/h)	70	382	63	244	786	358	240	280	20	516	178	33
Number	1	6	16	5	2	12	7	4	14	3	8	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		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	73	398	0	254	819	373	250	292	21	538	185	34
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	2	2	2
Cap, veh/h	171	1040	465	476	831	377	359	377	319	641	285	52
Arrive On Green	0.05	0.29	0.00	0.11	0.35	0.35	0.20	0.20	0.20	0.19	0.19	0.19
Sat Flow, veh/h	1792	3574	1599	1792	2367	1073	1810	1900	1608	3442	1530	281
Grp Volume(v), veh/h	73	398	0	254	617	575	250	292	21	538	0	219
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1654	1810	1900	1608	1721	0	1812
Q Serve(g_s), s	2.4	7.7	0.0	8.2	29.6	29.9	11.1	12.6	0.9	13.0	0.0	9.7
Cycle Q Clear(g_c), s	2.4	7.7	0.0	8.2	29.6	29.9	11.1	12.6	0.9	13.0	0.0	9.7
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	171	1040	465	476	627	580	359	377	319	641	0	338
V/C Ratio(X)	0.43	0.38	0.00	0.53	0.98	0.99	0.70	0.77	0.07	0.84	0.00	0.65
Avail Cap(c_a), veh/h	189	1076	481	476	627	580	587	616	521	717	0	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	24.4	0.0	17.6	27.8	27.9	32.2	32.8	28.1	33.9	0.0	32.5
Incr Delay (d2), s/veh	1.7	0.2	0.0	1.2	31.9	34.9	2.4	3.4	0.1	8.0	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.8	0.0	4.2	20.1	19.2	5.8	6.9	0.4	6.9	0.0	5.1
LnGrp Delay(d),s/veh	25.0	24.7	0.0	18.7	59.7	62.8	34.6	36.2	28.2	41.9	0.0	35.8
LnGrp LOS	C	C		B	E	E	C	D	C	D		D
Approach Vol, veh/h		471			1446			563			757	
Approach Delay, s/veh		24.7			53.7			35.2			40.1	
Approach LOS		C			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	35.3		21.7	13.8	30.1		20.7				
Change Period (Y+Rc), s	4.5	5.0		4.6	4.5	5.0		4.6				
Max Green Setting (Gmax), s	5.0	30.3		28.0	9.3	26.0		18.0				
Max Q Clear Time (g_c+I1), s	4.4	31.9		14.6	10.2	9.7		15.0				
Green Ext Time (p_c), s	0.0	0.0		2.2	0.0	9.9		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			43.1									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary

2: 124th Ave NE & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	943	381	146	1170	487	439	715	211	289	380	234
Future Volume (veh/h)	155	943	381	146	1170	487	439	715	211	289	380	234
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	165	1003	405	155	1245	518	467	761	224	307	404	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	188	1297	803	179	1290	756	497	891	392	205	415	353
Arrive On Green	0.11	0.37	0.37	0.10	0.36	0.36	0.14	0.25	0.25	0.11	0.22	0.00
Sat Flow, veh/h	1774	3539	1574	1792	3574	1590	3476	3574	1574	1792	1881	1599
Grp Volume(v), veh/h	165	1003	405	155	1245	518	467	761	224	307	404	0
Grp Sat Flow(s),veh/h/ln	1774	3539	1574	1792	3574	1590	3476	3574	1574	1792	1881	1599
Q Serve(g_s), s	12.8	35.1	23.8	11.9	47.8	35.5	18.6	28.4	17.4	16.0	29.8	0.0
Cycle Q Clear(g_c), s	12.8	35.1	23.8	11.9	47.8	35.5	18.6	28.4	17.4	16.0	29.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1297	803	179	1290	756	497	891	392	205	415	353
V/C Ratio(X)	0.88	0.77	0.50	0.87	0.97	0.68	0.94	0.85	0.57	1.50	0.97	0.00
Avail Cap(c_a), veh/h	229	1297	803	256	1290	756	497	891	392	205	415	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.6	39.2	22.7	62.1	43.9	28.6	59.4	50.1	46.0	62.0	54.1	0.0
Incr Delay (d2), s/veh	23.0	4.5	2.3	14.3	18.0	5.0	26.2	8.1	2.0	248.6	37.0	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	7.5	18.0	10.8	6.6	26.7	16.7	10.8	15.1	7.8	22.0	19.8	0.0
LnGrp Delay(d),s/veh	84.7	43.7	25.0	76.4	61.9	33.6	85.7	58.2	48.0	310.6	91.1	0.0
LnGrp LOS	F	D	C	E	E	C	F	E	D	F	F	
Approach Vol, veh/h	1573			1918			1452			711		
Approach Delay, s/veh	43.2			55.4			65.5			185.9		
Approach LOS	D			E			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.8	56.4	22.0	40.8	20.0	57.2	26.0	36.8				
Change Period (Y+Rc), s	5.9	* 5.9	6.0	* 5.9	6.0	* 5.9	6.0	* 5.9				
Max Green Setting (Gmax), s	48.0	* 48	16.0	* 34	20.0	* 46	20.0	* 31				
Max Q Clear Time (g_c+14.5), s	49.8	* 49.8	18.0	30.4	13.9	37.1	20.6	31.8				
Green Ext Time (p_c), s	0.1	0.0	0.0	2.6	0.1	7.5	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	71.0											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

3: 124th Ave NE & NE 116th St/Slater Ave NE

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	394	285	116	504	35	572	711	304	101	345	275
Future Volume (veh/h)	204	394	285	116	504	35	572	711	304	101	345	275
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	208	402	291	118	514	36	584	726	310	103	352	281
Adj No. of Lanes	1	1	1	1	2	0	1	1	1	1	2	0
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, %	2	2	2	1	1	1	1	1	1	1	1	1
Cap, veh/h	325	568	481	215	842	59	440	861	724	193	746	586
Arrive On Green	0.10	0.30	0.30	0.04	0.25	0.25	0.10	0.46	0.46	0.04	0.39	0.39
Sat Flow, veh/h	1774	1863	1577	1792	3388	237	1792	1881	1583	1792	1901	1492
Grp Volume(v), veh/h	208	402	291	118	271	279	584	726	310	103	331	302
Grp Sat Flow(s),veh/h/ln	1774	1863	1577	1792	1787	1838	1792	1881	1583	1792	1787	1606
Q Serve(g_s), s	11.8	26.6	21.8	6.0	18.6	18.7	14.5	47.3	18.3	4.8	19.1	19.6
Cycle Q Clear(g_c), s	11.8	26.6	21.8	6.0	18.6	18.7	14.5	47.3	18.3	4.8	19.1	19.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.93
Lane Grp Cap(c), veh/h	325	568	481	215	444	457	440	861	724	193	702	630
V/C Ratio(X)	0.64	0.71	0.61	0.55	0.61	0.61	1.33	0.84	0.43	0.53	0.47	0.48
Avail Cap(c_a), veh/h	341	568	481	215	444	457	440	861	724	193	702	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	42.8	41.1	41.0	46.2	46.2	34.3	33.3	25.4	30.0	31.4	31.5
Incr Delay (d2), s/veh	3.3	7.3	5.6	2.4	6.1	6.0	162.5	9.9	1.8	1.5	2.3	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	14.8	10.2	1.4	9.9	10.2	29.5	27.0	8.4	2.4	9.9	9.1
LnGrp Delay(d),s/veh	37.3	50.1	46.7	43.4	52.3	52.2	196.8	43.2	27.2	31.5	33.7	34.1
LnGrp LOS	D	D	D	D	D	D	F	D	C	C	C	C
Approach Vol, veh/h	901			668			1620			736		
Approach Delay, s/veh	46.0			50.7			95.5			33.6		
Approach LOS	D			D			F			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.0	11.0	69.0	11.0	47.8	20.0	60.0					
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	5.5				
Max Green Setting (Gmax), s	34.5	6.0	54.5	6.0	34.5	14.5	54.5					
Max Q Clear Time (g_c+11.3), s	20.7	6.8	49.3	8.0	28.6	16.5	21.6					
Green Ext Time (p_c), s	0.1	6.0	0.0	3.9	0.0	3.4	0.0	13.7				
Intersection Summary												
HCM 2010 Ctrl Delay	64.9											
HCM 2010 LOS	E											

HCM 2010 Signalized Intersection Summary

4: Slater Ave NE & NE 120th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	157	18	190	368	453	37	605	115	134	455	29
Future Volume (veh/h)	36	157	18	190	368	453	37	605	115	134	455	29
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	37	162	19	196	379	467	38	624	119	138	469	30
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
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, %	1	1	1	0	0	0	1	1	1	1	1	1
Cap, veh/h	110	361	42	388	216	266	408	756	144	251	890	57
Arrive On Green	0.03	0.22	0.22	0.10	0.28	0.28	0.03	0.49	0.49	0.05	0.51	0.51
Sat Flow, veh/h	1792	1651	194	1810	766	944	1792	1534	293	1792	1749	112
Grp Volume(v), veh/h	37	0	181	196	0	846	38	0	743	138	0	499
Grp Sat Flow(s),veh/h/ln	1792	0	1844	1810	0	1710	1792	0	1827	1792	0	1861
Q Serve(g_s), s	2.2	0.0	11.9	11.4	0.0	39.5	1.4	0.0	48.7	5.3	0.0	25.2
Cycle Q Clear(g_c), s	2.2	0.0	11.9	11.4	0.0	39.5	1.4	0.0	48.7	5.3	0.0	25.2
Prop In Lane	1.00		0.10	1.00		0.55	1.00		0.16	1.00		0.06
Lane Grp Cap(c), veh/h	110	0	403	388	0	482	408	0	901	251	0	947
V/C Ratio(X)	0.34	0.00	0.45	0.50	0.00	1.75	0.09	0.00	0.82	0.55	0.00	0.53
Avail Cap(c_a), veh/h	250	0	527	415	0	482	548	0	901	489	0	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	0.0	47.4	36.2	0.0	50.3	18.0	0.0	30.3	26.1	0.0	23.0
Incr Delay (d2), s/veh	0.7	0.0	0.3	0.4	0.0	347.8	0.0	0.0	8.5	0.7	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.1	5.7	0.0	65.2	0.7	0.0	26.5	2.6	0.0	13.4
LnGrp Delay(d),s/veh	44.1	0.0	47.7	36.5	0.0	398.0	18.1	0.0	38.8	26.8	0.0	25.1
LnGrp LOS	D		D	D		F	B		D	C		C
Approach Vol, veh/h	218					1042		781		637		
Approach Delay, s/veh	47.1					330.0		37.8		25.5		
Approach LOS	D					F		D		C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	45.0	11.4	74.5	18.0	36.1	9.1	76.8				
Change Period (Y+Rc), s	4.5	5.5	4.0	5.5	4.5	* 5.5	4.5	* 5.5				
Max Green Setting (Gmax), s	45.5	39.5	26.0	39.5	15.5	* 40	15.5	* 50				
Max Q Clear Time (g_c+14.2), s	41.5	41.5	7.3	50.7	13.4	13.9	3.4	27.2				
Green Ext Time (p_c), s	0.0	0.0	0.2	0.0	0.1	5.9	0.0	6.2				
Intersection Summary												
HCM 2010 Ctrl Delay		149.3										
HCM 2010 LOS		F										
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1023	68	284	1331	338	69	531	337	221	228	233
Future Volume (veh/h)	230	1023	68	284	1331	338	69	531	337	221	228	233
Number	1	6	16	5	2	12	7	4	14	3	8	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	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	232	1033	0	287	1344	0	70	536	340	223	230	235
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	222	1291	578	173	1202	538	89	562	356	184	585	497
Arrive On Green	0.13	0.36	0.00	0.03	0.11	0.00	0.05	0.27	0.27	0.10	0.31	0.31
Sat Flow, veh/h	1774	3539	1583	1792	3574	1599	1792	2102	1332	1774	1863	1583
Grp Volume(v), veh/h	232	1033	0	287	1344	0	70	456	420	223	230	235
Grp Sat Flow(s), veh/h/ln	1774	1770	1583	1792	1787	1599	1792	1787	1646	1774	1863	1583
Q Serve(g_s), s	17.5	36.6	0.0	13.5	47.1	0.0	5.4	35.1	35.2	14.5	13.5	16.7
Cycle Q Clear(g_c), s	17.5	36.6	0.0	13.5	47.1	0.0	5.4	35.1	35.2	14.5	13.5	16.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.81	1.00		1.00
Lane Grp Cap(c), veh/h	222	1291	578	173	1202	538	89	478	440	184	585	497
V/C Ratio(X)	1.05	0.80	0.00	1.66	1.12	0.00	0.79	0.95	0.96	1.21	0.39	0.47
Avail Cap(c_a), veh/h	222	1291	578	173	1202	538	275	491	453	184	585	497
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.73	0.73	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	39.9	0.0	67.8	62.2	0.0	65.8	50.4	50.5	62.8	37.6	38.7
Incr Delay (d2), s/veh	73.1	5.3	0.0	315.5	62.0	0.0	5.7	28.5	30.3	135.6	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	18.9	0.0	21.8	33.7	0.0	2.8	21.1	19.7	14.0	7.0	7.3
LnGrp Delay(d),s/veh	134.3	45.1	0.0	383.2	124.2	0.0	71.5	79.0	80.8	198.4	37.7	38.9
LnGrp LOS	F	D		F	F		E	E	F	F	D	D
Approach Vol, veh/h		1265			1631			946			688	
Approach Delay, s/veh		61.5			169.8			79.2			90.2	
Approach LOS		E			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	52.1	20.0	43.9	20.0	56.1	13.4	50.5				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	7.5	46.0	14.5	38.5	13.5	50.0	21.5	* 32				
Max Q Clear Time (g_c+1), s	19.5	49.1	16.5	37.2	15.5	38.6	7.4	18.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	3.8	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			108.5									
HCM 2010 LOS			F									
Notes												

HCM 2010 Signalized Intersection Summary

6: 134th Ct E & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1370	21	10	1778	0	121	0	50	0	0	6
Future Volume (veh/h)	8	1370	21	10	1778	0	121	0	50	0	0	6
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	1427	22	10	1852	0	126	0	52	0	0	6
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	257	2953	45	357	2960	0	200	0	170	0	0	173
Arrive On Green	1.00	1.00	1.00	1.00	1.00	0.00	0.11	0.00	0.11	0.00	0.00	0.11
Sat Flow, veh/h	248	3566	55	370	3668	0	1424	0	1583	0	0	1606
Grp Volume(v), veh/h	8	708	741	10	1852	0	126	0	52	0	0	6
Grp Sat Flow(s),veh/h/ln	248	1770	1852	370	1787	0	1424	0	1583	0	0	1606
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	4.2	0.0	0.0	0.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.0	4.2	0.0	0.0	0.5
Prop In Lane	1.00		0.03	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	257	1465	1533	357	2960	0	200	0	170	0	0	173
V/C Ratio(X)	0.03	0.48	0.48	0.03	0.63	0.00	0.63	0.00	0.31	0.00	0.00	0.03
Avail Cap(c_a), veh/h	257	1465	1533	357	2960	0	474	0	475	0	0	482
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.34	0.61	0.61	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	61.6	0.0	57.6	0.0	0.0	56.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.6	0.0	1.2	0.0	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.3	0.0	4.9	0.0	1.9	0.0	0.0	0.2
LnGrp Delay(d),s/veh	0.1	0.4	0.4	0.1	0.6	0.0	62.8	0.0	58.0	0.0	0.0	56.0
LnGrp LOS	A	A	A	A	A		E		E			E
Approach Vol, veh/h	1457			1862			178			6		
Approach Delay, s/veh	0.4			0.6			61.4			56.0		
Approach LOS	A			A			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	120.9		19.1		120.9		19.1					
Change Period (Y+Rc), s	5.0		4.0		5.0		4.0					
Max Green Setting (Gmax), s	89.0		42.0		89.0		42.0					
Max Q Clear Time (g_c+I1), s	2.0		14.6		2.0		2.5					
Green Ext Time (p_c), s	7.5		0.0		7.5		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	3.7											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

7: Willows Rd & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	931	402	103	657	80	913	424	430	165	124	84
Future Volume (veh/h)	29	931	402	103	657	80	913	424	430	165	124	84
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1900	1881	1881	1881	1900	1900	1900
Adj Flow Rate, veh/h	31	990	428	110	699	85	971	451	457	176	132	89
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	0	0	0
Cap, veh/h	53	1281	983	115	1271	154	931	570	581	199	153	103
Arrive On Green	0.03	0.36	0.36	0.06	0.40	0.40	0.27	0.30	0.30	0.11	0.15	0.15
Sat Flow, veh/h	1774	3539	1544	1792	3208	390	3476	1881	1577	1810	1051	709
Grp Volume(v), veh/h	31	990	428	110	389	395	971	451	457	176	0	221
Grp Sat Flow(s),veh/h/ln	1774	1770	1544	1792	1787	1811	1738	1881	1577	1810	0	1760
Q Serve(g_s), s	2.4	34.7	19.9	8.6	23.5	23.6	37.5	30.8	36.1	13.4	0.0	17.2
Cycle Q Clear(g_c), s	2.4	34.7	19.9	8.6	23.5	23.6	37.5	30.8	36.1	13.4	0.0	17.2
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		0.40
Lane Grp Cap(c), veh/h	53	1281	983	115	708	717	931	570	581	199	0	256
V/C Ratio(X)	0.58	0.77	0.44	0.96	0.55	0.55	1.04	0.79	0.79	0.88	0.00	0.86
Avail Cap(c_a), veh/h	89	1281	983	115	708	717	931	732	717	200	0	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.58	0.58	0.58	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.0	39.6	13.3	65.3	32.6	32.6	51.3	44.7	39.4	61.4	0.0	58.5
Incr Delay (d2), s/veh	3.7	4.6	1.4	50.7	1.8	1.8	41.3	3.4	3.7	32.8	0.0	5.7
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	1.2	17.7	8.8	5.9	11.9	12.1	23.3	16.6	16.3	8.5	0.0	8.8
LnGrp Delay(d),s/veh	70.7	44.2	14.7	116.0	34.4	34.4	92.6	48.1	43.1	94.2	0.0	64.2
LnGrp LOS	E	D	B	F	C	C	F	D	D	F		E
Approach Vol, veh/h	1449			894			1879			397		
Approach Delay, s/veh	36.0			44.5			69.9			77.5		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	60.2	61.0	20.9	47.9	15.0	56.2	43.0	25.8				
Change Period (Y+Rc), s	6.0	* 5.5	5.5	5.5	6.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	7.0	* 42	15.5	54.5	9.0	38.5	37.5	* 33				
Max Q Clear Time (g_c+14.4), s	14.4	25.6	15.4	38.1	10.6	36.7	39.5	19.2				
Green Ext Time (p_c), s	0.0	2.4	0.0	0.7	0.0	0.8	0.0	0.6				
Intersection Summary												
HCM 2010 Ctrl Delay	55.0											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

8: Willows Rd & NE 116th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	15	35	10	5	40	5	1336	60	20	588	5
Future Volume (veh/h)	150	15	35	10	5	40	5	1336	60	20	588	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	153	15	36	10	5	41	5	1363	61	20	600	5
Adj No. of Lanes	1	1	0	0	1	0	1	2	0	1	1	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
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	2	2	2
Cap, veh/h	351	101	242	53	15	70	458	2149	96	248	1178	978
Arrive On Green	0.10	0.21	0.21	0.06	0.06	0.06	0.01	0.62	0.62	0.02	0.63	0.63
Sat Flow, veh/h	1810	491	1179	182	246	1170	1792	3481	155	1774	1863	1547
Grp Volume(v), veh/h	153	0	51	56	0	0	5	699	725	20	600	5
Grp Sat Flow(s),veh/h/ln	1810	0	1670	1598	0	0	1792	1787	1849	1774	1863	1547
Q Serve(g_s), s	7.7	0.0	2.5	1.3	0.0	0.0	0.1	24.9	25.0	0.4	17.7	0.1
Cycle Q Clear(g_c), s	7.7	0.0	2.5	3.4	0.0	0.0	0.1	24.9	25.0	0.4	17.7	0.1
Prop In Lane	1.00		0.71	0.18		0.73	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	343	137	0	0	458	1103	1142	248	1178	978
V/C Ratio(X)	0.44	0.00	0.15	0.41	0.00	0.00	0.01	0.63	0.64	0.08	0.51	0.01
Avail Cap(c_a), veh/h	499	0	343	337	0	0	676	1751	1811	473	1825	1516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	33.0	46.3	0.0	0.0	8.5	12.2	12.2	10.0	10.1	6.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	1.4	0.0	0.0	0.0	0.7	0.7	0.1	0.4	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	3.9	0.0	1.2	1.6	0.0	0.0	0.1	12.4	12.9	0.2	9.1	0.1
LnGrp Delay(d),s/veh	38.2	0.0	33.1	47.8	0.0	0.0	8.5	12.9	12.9	10.1	10.5	6.9
LnGrp LOS	D		C	D			A	B	B	B	B	A
Approach Vol, veh/h	204					56		1429			625	
Approach Delay, s/veh	36.9					47.8		12.9			10.5	
Approach LOS	D					D		B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	7	8			
Phs Duration (G+Y+Rc), s	7.2	68.3			25.8	5.7	69.8	14.8	11.0			
Change Period (Y+Rc), s	5.0	5.8			5.0	5.0	5.8	5.0	5.0			
Max Green Setting (Gmax), s	5.0	99.2			20.0	13.0	99.2	18.0	19.0			
Max Q Clear Time (g_c+1/2), s	12.4	27.0			4.5	2.1	19.7	9.7	5.4			
Green Ext Time (p_c), s	0.0	35.5			0.4	0.0	37.0	0.2	0.2			
Intersection Summary												
HCM 2010 Ctrl Delay	15.2											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary

9: Willows Rd & 9900 Block

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	5	75	75	0	55	40	1086	35	10	943	15
Future Volume (veh/h)	70	5	75	75	0	55	40	1086	35	10	943	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.99	1.00		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
Adj Sat Flow, veh/h/ln	1900	1881	1900	1776	1776	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	71	5	77	77	0	56	41	1108	36	10	962	15
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	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
Percent Heavy Veh, %	1	1	1	7	7	7	1	1	1	1	1	1
Cap, veh/h	119	19	95	199	0	212	338	1351	1135	376	1315	1104
Arrive On Green	0.15	0.15	0.15	0.15	0.00	0.15	0.04	0.95	0.95	0.01	0.70	0.70
Sat Flow, veh/h	515	132	656	1239	0	1462	1792	1881	1580	1792	1881	1580
Grp Volume(v), veh/h	153	0	0	77	0	56	41	1108	36	10	962	15
Grp Sat Flow(s),veh/h/ln	1303	0	0	1239	0	1462	1792	1881	1580	1792	1881	1580
Q Serve(g_s), s	10.0	0.0	0.0	0.0	0.0	4.1	0.8	14.7	0.1	0.2	37.8	0.3
Cycle Q Clear(g_c), s	14.1	0.0	0.0	9.7	0.0	4.1	0.8	14.7	0.1	0.2	37.8	0.3
Prop In Lane	0.46		0.50	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	0	199	0	212	338	1351	1135	376	1315	1104
V/C Ratio(X)	0.66	0.00	0.00	0.39	0.00	0.26	0.12	0.82	0.03	0.03	0.73	0.01
Avail Cap(c_a), veh/h	264	0	0	226	0	244	506	1351	1135	578	1315	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	48.0	0.0	45.6	10.8	1.1	0.8	5.7	11.1	5.5
Incr Delay (d2), s/veh	4.9	0.0	0.0	1.2	0.0	0.7	0.1	3.8	0.0	0.0	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.0	2.5	0.0	1.7	0.5	7.6	0.1	0.1	20.8	0.2
LnGrp Delay(d),s/veh	55.2	0.0	0.0	49.2	0.0	46.2	10.9	4.9	0.8	5.7	14.8	5.5
LnGrp LOS	E			D		D	B	A	A	A	B	A
Approach Vol, veh/h	153					133		1185		987		
Approach Delay, s/veh	55.2					48.0		4.9		14.5		
Approach LOS	E					D		A		B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	6.4	91.2	22.4		8.7	88.9	22.4					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	5.0	70.0	20.0		15.0	70.0	20.0					
Max Q Clear Time (g_c+1/2), s	11.2	16.7	16.1		2.8	39.8	11.7					
Green Ext Time (p_c), s	0.0	32.6	0.5		0.0	22.2	0.9					
Intersection Summary												
HCM 2010 Ctrl Delay			14.3									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

10: Willows Rd & 148th Avenue NE/NE 90th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	524	390	20	35	250	315	10	257	30	280	541	477
Future Volume (veh/h)	524	390	20	35	250	315	10	257	30	280	541	477
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	589	438	22	39	281	354	11	289	34	315	608	0
Adj No. of Lanes	2	1	0	1	1	1	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	3	3	3	1	1	1	1	1	1
Cap, veh/h	643	686	34	53	431	669	23	357	42	351	752	640
Arrive On Green	0.19	0.39	0.39	0.03	0.23	0.23	0.01	0.22	0.22	0.06	0.13	0.00
Sat Flow, veh/h	3442	1758	88	1757	1845	1544	1792	1647	194	1792	1881	1599
Grp Volume(v), veh/h	589	0	460	39	281	354	11	0	323	315	608	0
Grp Sat Flow(s),veh/h/ln	1721	0	1846	1757	1845	1544	1792	0	1841	1792	1881	1599
Q Serve(g_s), s	20.1	0.0	24.3	2.6	16.5	0.0	0.7	0.0	20.0	20.9	37.7	0.0
Cycle Q Clear(g_c), s	20.1	0.0	24.3	2.6	16.5	0.0	0.7	0.0	20.0	20.9	37.7	0.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	643	0	721	53	431	669	23	0	399	351	752	640
V/C Ratio(X)	0.92	0.00	0.64	0.73	0.65	0.53	0.48	0.00	0.81	0.90	0.81	0.00
Avail Cap(c_a), veh/h	660	0	721	161	431	669	164	0	399	388	752	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.64	0.64	0.00
Uniform Delay (d), s/veh	47.9	0.0	29.7	57.7	41.6	25.2	58.8	0.0	44.7	54.9	47.6	0.0
Incr Delay (d2), s/veh	17.4	0.0	4.3	17.5	3.5	0.8	14.7	0.0	16.2	15.4	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	13.3	1.5	8.8	8.7	0.5	0.0	11.9	11.9	20.6	0.0
LnGrp Delay(d),s/veh	65.3	0.0	34.0	75.2	45.0	26.0	73.6	0.0	60.8	70.3	52.1	0.0
LnGrp LOS	E		C	E	D	C	E		E	E	D	
Approach Vol, veh/h	1049			674			334			923		
Approach Delay, s/veh	51.6			36.8			61.2			58.3		
Approach LOS	D			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.4	33.1	6.5	53.0	8.6	51.8	28.5	31.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	25.0	25.0	11.0	41.0	11.0	37.0	26.0	26.0				
Max Q Clear Time (g_c+Tb), s	18.5	18.5	2.7	39.7	4.6	26.3	22.9	22.0				
Green Ext Time (p_c), s	0.3	1.7	0.0	0.8	0.0	4.0	0.6	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay	51.4											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	923	341	60	386	170	282	635	105	160	410	125
Future Volume (veh/h)	405	923	341	60	386	170	282	635	105	160	410	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	426	972	359	63	406	179	297	668	111	168	432	132
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	401	941	344	80	454	198	347	684	653	188	694	947
Arrive On Green	0.22	0.37	0.37	0.04	0.19	0.19	0.10	0.36	0.36	0.10	0.37	0.37
Sat Flow, veh/h	1792	2547	932	1792	2425	1057	3476	1881	1599	1792	1881	1599
Grp Volume(v), veh/h	426	679	652	63	298	287	297	668	111	168	432	132
Grp Sat Flow(s), veh/h/ln	1792	1787	1692	1792	1787	1695	1738	1881	1599	1792	1881	1599
Q Serve(g_s), s	40.0	66.0	66.0	6.2	29.1	29.6	15.0	62.6	7.9	16.5	33.6	2.1
Cycle Q Clear(g_c), s	40.0	66.0	66.0	6.2	29.1	29.6	15.0	62.6	7.9	16.5	33.6	2.1
Prop In Lane	1.00		0.55	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	660	625	80	334	317	347	684	653	188	694	947
V/C Ratio(X)	1.06	1.03	1.04	0.79	0.89	0.91	0.85	0.98	0.17	0.89	0.62	0.14
Avail Cap(c_a), veh/h	401	660	625	221	375	356	584	690	657	241	694	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.3	56.3	56.3	84.5	70.8	71.1	79.1	56.1	33.6	79.0	46.2	6.2
Incr Delay (d2), s/veh	62.4	42.6	47.7	15.8	20.9	24.1	6.4	28.2	0.1	27.1	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.7	40.3	39.0	3.4	16.3	16.0	7.5	37.8	3.5	9.6	17.9	1.6
LnGrp Delay(d),s/veh	131.7	99.0	104.1	100.3	91.7	95.2	85.5	84.3	33.7	106.1	48.0	6.3
LnGrp LOS	F	F	F	F	F	F	F	F	C	F	D	A
Approach Vol, veh/h		1757			648			1076			732	
Approach Delay, s/veh		108.8			94.1			79.4			53.8	
Approach LOS		F			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.7	70.5	12.9	71.5	22.9	71.4	45.5	38.9				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	24.0	65.5	22.0	29.5	30.0	47.5	40.0	* 38				
Max Q Clear Time (g_c+1/3), s	11.5	64.6	8.2	68.0	17.0	35.6	42.0	31.6				
Green Ext Time (p_c), s	0.2	0.4	0.1	0.0	0.8	6.3	0.0	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			89.5									
HCM 2010 LOS			F									
Notes												

HCM 2010 Signalized Intersection Summary

12: Driveway & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1327	100	22	1632	0	85	0	20	15	0	35
Future Volume (veh/h)	15	1327	100	22	1632	0	85	0	20	15	0	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1881	1881	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	16	1397	105	23	1718	0	89	0	21	16	0	37
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	122	1863	139	268	2015	0	423	5	90	171	17	357
Arrive On Green	0.03	1.00	1.00	0.02	0.56	0.00	0.32	0.00	0.32	0.32	0.00	0.32
Sat Flow, veh/h	1774	3332	249	1792	3668	0	1163	16	278	425	52	1103
Grp Volume(v), veh/h	16	739	763	23	1718	0	110	0	0	53	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1812	1792	1787	0	1457	0	0	1580	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.8	56.5	0.0	3.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.8	56.5	0.0	7.0	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.00	0.81		0.19	0.30		0.70
Lane Grp Cap(c), veh/h	122	989	1013	268	2015	0	518	0	0	544	0	0
V/C Ratio(X)	0.13	0.75	0.75	0.09	0.85	0.00	0.21	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	162	1232	1262	301	2489	0	518	0	0	544	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)	0.86	0.86	0.86	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.2	0.0	0.0	14.6	25.7	0.0	34.2	0.0	0.0	33.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	1.7	1.7	0.1	2.6	0.0	0.9	0.0	0.0	0.4	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	0.6	0.5	0.5	0.4	28.4	0.0	3.2	0.0	0.0	1.5	0.0	0.0
LnGrp Delay(d),s/veh	51.6	1.7	1.7	14.8	28.2	0.0	35.2	0.0	0.0	33.4	0.0	0.0
LnGrp LOS	D	A	A	B	C		D			C		
Approach Vol, veh/h	1518			1741			110			53		
Approach Delay, s/veh	2.2			28.1			35.2			33.4		
Approach LOS	A			C			D			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		49.8	7.5	82.8		49.8	6.8	83.4				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		23.5	5.5	97.5		23.5	5.5	97.5				
Max Q Clear Time (g_c+I1), s		9.0	2.8	2.0		5.1	2.0	58.5				
Green Ext Time (p_c), s		0.7	0.0	18.6		0.8	2.8	20.4				
Intersection Summary												
HCM 2010 Ctrl Delay	16.9											
HCM 2010 LOS	B											

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	1767	606	23
Future Vol, veh/h	0	18	0	1767	606	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	0	19	0	1880	645	24
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	657	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	468	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	468	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 468		-	-		
HCM Lane V/C Ratio	- 0.041		-	-		
HCM Control Delay (s)	- 13		-	-		
HCM Lane LOS	- B		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 With-Project AM Peak Hour (Optimized)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	978	42	196	945	208	37	164	259	470	600	223
Future Volume (veh/h)	138	978	42	196	945	208	37	164	259	470	600	223
Number	1	6	16	5	2	12	7	4	14	3	8	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	1.00		0.98	1.00		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
Adj Sat Flow, veh/h/ln	1845	1845	1845	1863	1863	1863	1827	1827	1900	1845	1845	1845
Adj Flow Rate, veh/h	139	988	0	198	955	0	37	166	262	475	606	225
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	2	2	2	4	4	4	3	3	3
Cap, veh/h	216	1080	483	164	1022	457	58	339	298	384	689	576
Arrive On Green	0.12	0.31	0.00	0.03	0.10	0.00	0.03	0.20	0.20	0.22	0.37	0.37
Sat Flow, veh/h	1757	3505	1568	1774	3539	1583	1740	1736	1525	1757	1845	1544
Grp Volume(v), veh/h	139	988	0	198	955	0	37	166	262	475	606	225
Grp Sat Flow(s),veh/h/ln	1757	1752	1568	1774	1770	1583	1740	1736	1525	1757	1845	1544
Q Serve(g_s), s	10.2	36.7	0.0	12.5	36.2	0.0	2.8	11.5	22.5	29.5	41.4	9.4
Cycle Q Clear(g_c), s	10.2	36.7	0.0	12.5	36.2	0.0	2.8	11.5	22.5	29.5	41.4	9.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	1080	483	164	1022	457	58	339	298	384	689	576
V/C Ratio(X)	0.64	0.91	0.00	1.21	0.93	0.00	0.64	0.49	0.88	1.24	0.88	0.39
Avail Cap(c_a), veh/h	216	1080	483	164	1022	457	77	431	379	384	779	652
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.89	0.89	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	45.0	0.0	65.4	59.8	0.0	64.4	48.3	52.7	52.7	39.5	13.1
Incr Delay (d2), s/veh	5.0	13.3	0.0	132.2	14.8	0.0	4.3	0.4	14.9	127.3	9.6	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	5.2	19.7	0.0	12.2	19.9	0.0	1.4	5.6	10.8	27.9	22.9	4.0
LnGrp Delay(d),s/veh	61.4	58.2	0.0	197.7	74.5	0.0	68.7	48.7	67.6	180.0	49.1	13.3
LnGrp LOS	E	E		F	E		E	D	E	F	D	B
Approach Vol, veh/h		1127			1153			465			1306	
Approach Delay, s/veh		58.6			95.7			61.0			90.6	
Approach LOS		E			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.1	44.0	35.0	32.9	19.0	48.1	11.0	56.9				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	* 6.5	6.5	* 6.5				
Max Green Setting (Gmax), s	9.5	39.0	29.5	33.5	12.5	* 36	6.0	* 57				
Max Q Clear Time (g_c+I1), s	12.2	38.2	31.5	24.5	14.5	38.7	4.8	43.4				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.1	0.0	0.0	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			79.7									
HCM 2010 LOS			E									
Notes												

HCM 2010 Signalized Intersection Summary

5: Slater Ave NE & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour (Optimized)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1023	68	284	1331	338	69	531	337	221	228	233
Future Volume (veh/h)	230	1023	68	284	1331	338	69	531	337	221	228	233
Number	1	6	16	5	2	12	7	4	14	3	8	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	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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1881	1881	1900	1863	1863	1863
Adj Flow Rate, veh/h	232	1033	0	287	1344	0	70	536	340	223	230	235
Adj No. of Lanes	1	2	1	1	2	1	1	2	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	1	1	1	1	1	1	2	2	2
Cap, veh/h	868	2354	1053	301	1266	567	89	503	319	201	565	480
Arrive On Green	0.49	0.66	0.00	0.17	0.35	0.00	0.05	0.24	0.24	0.11	0.30	0.30
Sat Flow, veh/h	1774	3539	1583	1792	3574	1599	1792	2102	1332	1774	1863	1583
Grp Volume(v), veh/h	232	1033	0	287	1344	0	70	456	420	223	230	235
Grp Sat Flow(s), veh/h/ln	1774	1770	1583	1792	1787	1599	1792	1787	1646	1774	1863	1583
Q Serve(g_s), s	10.8	19.3	0.0	22.2	49.6	0.0	5.4	33.5	33.5	15.9	13.7	11.9
Cycle Q Clear(g_c), s	10.8	19.3	0.0	22.2	49.6	0.0	5.4	33.5	33.5	15.9	13.7	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.81	1.00		1.00
Lane Grp Cap(c), veh/h	868	2354	1053	301	1266	567	89	428	394	201	565	480
V/C Ratio(X)	0.27	0.44	0.00	0.95	1.06	0.00	0.79	1.07	1.07	1.11	0.41	0.49
Avail Cap(c_a), veh/h	868	2354	1053	301	1266	567	224	428	394	201	565	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.73	0.73	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	11.1	0.0	57.7	45.2	0.0	65.8	53.3	53.3	62.0	38.8	19.4
Incr Delay (d2), s/veh	0.1	0.6	0.0	32.3	39.9	0.0	5.7	62.1	64.3	94.9	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	9.5	0.0	13.7	31.5	0.0	2.8	23.9	22.2	13.1	7.1	5.2
LnGrp Delay(d),s/veh	21.1	11.7	0.0	90.0	85.1	0.0	71.5	115.3	117.5	157.0	38.9	19.7
LnGrp LOS	C	B		F	F		E	F	F	F	D	B
Approach Vol, veh/h		1265			1631			946			688	
Approach Delay, s/veh		13.4			86.0			113.1			70.6	
Approach LOS		B			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.5	54.6	21.4	40.0	30.0	101.1	13.4	48.0				
Change Period (Y+Rc), s	6.5	5.0	5.5	6.5	6.5	* 6.5	6.5	5.5				
Max Green Setting (Gmax), s	7.5	49.6	15.9	33.5	23.5	* 44	17.5	31.9				
Max Q Clear Time (g_c+11.2, s)	11.2	51.6	17.9	35.5	24.2	21.3	7.4	15.7				
Green Ext Time (p_c), s	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			69.0									
HCM 2010 LOS			E									
Notes												

HCM 2010 Signalized Intersection Summary

11: Redmond-Woodinville Rd NE & NE 124th St

Proctor Willows
2021 With-Project PM Peak Hour (Optimized)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	923	341	60	386	170	282	635	105	160	410	125
Future Volume (veh/h)	405	923	341	60	386	170	282	635	105	160	410	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	426	972	359	63	406	179	297	668	111	168	432	132
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	479	1067	390	80	468	204	342	566	553	192	582	922
Arrive On Green	0.27	0.42	0.42	0.04	0.19	0.19	0.10	0.30	0.30	0.11	0.31	0.31
Sat Flow, veh/h	1792	2548	932	1792	2425	1057	3476	1881	1599	1792	1881	1599
Grp Volume(v), veh/h	426	679	652	63	298	287	297	668	111	168	432	132
Grp Sat Flow(s),veh/h/ln	1792	1787	1692	1792	1787	1695	1738	1881	1599	1792	1881	1599
Q Serve(g_s), s	37.3	58.1	59.4	5.7	26.3	26.9	13.7	49.1	8.0	15.1	33.6	1.9
Cycle Q Clear(g_c), s	37.3	58.1	59.4	5.7	26.3	26.9	13.7	49.1	8.0	15.1	33.6	1.9
Prop In Lane	1.00		0.55	1.00		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	479	748	709	80	345	327	342	566	553	192	582	922
V/C Ratio(X)	0.89	0.91	0.92	0.79	0.86	0.88	0.87	1.18	0.20	0.88	0.74	0.14
Avail Cap(c_a), veh/h	494	755	715	165	426	404	405	566	553	373	739	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.4	44.5	44.8	77.2	63.8	64.0	72.5	57.0	37.5	71.8	50.5	6.0
Incr Delay (d2), s/veh	17.5	14.7	17.1	15.4	14.3	16.6	15.8	98.2	0.2	11.8	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.8	31.7	31.1	3.2	14.4	14.1	7.4	40.9	3.5	8.1	17.9	1.4
LnGrp Delay(d),s/veh	74.9	59.2	61.9	92.6	78.0	80.6	88.3	155.3	37.7	83.6	53.5	6.1
LnGrp LOS	E	E	E	F	E	F	F	F	D	F	D	A
Approach Vol, veh/h	1757			648			1076			732		
Approach Delay, s/veh	64.0			80.6			124.7			51.9		
Approach LOS	E			F			F			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	54.6	12.3	73.8	21.1	56.0	49.1	37.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.5	* 5.5				
Max Green Setting (Gmax), s	34.0	49.1	15.0	68.9	19.0	64.1	45.0	* 39				
Max Q Clear Time (g_c+11.7), s	11.7	51.1	7.7	61.4	15.7	35.6	39.3	28.9				
Green Ext Time (p_c), s	0.4	0.0	0.1	5.5	0.3	9.8	4.3	2.6				
Intersection Summary												
HCM 2010 Ctrl Delay	80.0											
HCM 2010 LOS	E											
Notes												

2021	Future w/o Project	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Sum
101	Lake WA Blvd/NE 38th Pl	24	8	36	128	1	202	11	1184	100	70	974	11	2749
102	Lake WA Blvd/Lakeview Dr	33	105	182	366	31	3	68	527	706	12	433	14	2480
103	NE 68th St/State St	424	442	3	8	248	296	3	15	20	174	2	161	1797
104	NE 68th St/108th Ave NE	240	434	83	247	294	210	122	454	255	265	389	115	3109
105	Central Way/6th St	39	868	104	221	941	193	185	387	395	84	128	63	3608
106	Central Way/3rd St S	73	412	82	162	787	150	160	338	147	165	135	22	2633
107	Central Way/Lake St	0	278	248	187	615	0	509	0	59	0	0	0	1896
108	Lake St/Kirkland Ave	24	36	39	120	31	66	6	524	83	13	384	34	1359
109	NE 85th St/114th Ave NE	3	1253	31	410	1406	406	13	91	765	288	26	8	4700
110	6th St S/4th St	207	11	194	69	13	231	46	481	93	117	222	40	1724
111	Kirkland Ave/3rd Street	36	137	67	145	175	188	79	392	141	94	190	60	1702
112	Kirkland Way/6th Street	105	244	45	60	183	43	112	515	88	153	228	165	1942
201	NE 116th St/98th Ave NE	78	315	267	79	521	135	634	918	181	164	301	72	3667
202	NE 124th St/100th Ave NE	30	69	23	383	240	1063	49	978	274	432	458	29	4028
203	NE 132nd St/100th Ave NE	106	155	150	71	325	574	294	1565	94	257	695	85	4372
204	NE 132nd St/116th Way NE	8	418	236	154	679	31	627	43	281	13	30	10	2529
205	Forbes Creek Dr/Market St	11	0	1	59	0	14	1	1703	113	20	633	5	2560
206	NE 120th Pl/100th Ave NE	0	0	0	0	0	0	0	106	0	0	18	0	124
207	Juanita Dr/93rd Ave NE	6	15	0	2	52	15	0	0	0	0	0	0	90
208	Juanita Dr/97th Ave NE	86	526	7	26	1135	70	7	16	24	52	14	103	2066
209	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0
211	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0
301	NE 132nd St/120th Ave NE	2	442	68	169	435	3	173	7	485	0	5	6	1796
302	NE 130th St/120th Ave NE	26	30	36	210	3	59	7	545	169	25	258	6	1374
303	NE 128th St/120th Ave NE	184	183	187	176	264	29	125	504	131	12	320	216	2330
304	NE 132nd St/124th Ave NE	462	358	25	57	331	321	43	358	203	128	87	208	2579
306	NE 124th St/Slater Ave NE	226	966	68	266	1283	285	69	531	316	186	228	233	4658
307	Totem Lake Blvd/120th Ave NE	70	368	63	244	774	358	236	280	17	516	178	33	3136
310	NE 116th St/120th Ave NE	165	549	30	267	904	523	38	190	227	294	180	212	3577
311	NE 116th St/124th Ave NE	184	380	285	110	492	31	572	711	297	101	345	263	3772
312	NE 124th St/116th Way NE	154	796	103	280	1351	403	292	337	270	537	151	167	4842
313	NE 124th St/113th Ave NE	62	681	55	63	1480	146	195	44	185	107	21	94	3132
314	NE 120th St/Slater Ave NE	36	157	18	190	368	453	37	584	115	134	437	29	2558
315	NE 124th St/124th Ave NE	134	914	381	134	1146	475	439	715	197	275	380	234	5424
316	NE 132nd St/Totem Lake Blvd	123	418	193	63	458	21	317	223	109	5	109	60	2098
317	NE 124th St/SB I-405 off Ramp	0	892	6	0	1383	1	0	0	0	662	0	668	3612
318	NE 124th St/NB I-405 on/off Ramp	0	1257	0	0	1298	29	460	0	234	0	0	0	3278
319	n/a	58	509	88	315	1684	83	8	8	41	8	17	17	2798
320	NE 116th St/NB I-405 off Ramp	0	506	2	0	1367	0	654	2	349	0	0	0	2881
324	NE 128th St/116th Way NE	0	1	0	60	0	85	6	639	92	48	628	0	1558
325	NE 124th St/128th Lane NE	74	1191	21	47	1585	34	13	0	8	28	0	108	3109
401	NE 85th St/132nd Ave NE	164	1213	81	112	1379	944	64	360	32	232	132	65	4778
402	NE 85th St/124th Ave NE	401	1254	31	69	1072	322	108	385	37	198	143	183	4204
403	NE 85th St/120th Ave NE	313	1457	148	10	1292	62	320	162	53	138	79	271	4306
404	NE 100th St/124th Ave NE	8	10	23	72	14	242	21	1120	36	47	450	9	2053
406	NE 70th St/132nd Ave NE	153	446	57	171	614	124	138	346	131	85	167	59	2490
407	NE 70th St/116th Ave NE	303	508	387	257	386	30	225	469	257	9	111	178	3119
408	NE 90th St/124th Ave NE	342	63	69	48	91	37	97	865	39	19	434	131	2234
409	NE 85th St/122nd Ave NE	114	1536	70	39	1154	85	44	47	39	62	32	78	3298
410	116th Ave NE/I-405 NB off Ramp	576	0	68	0	0	0	420	384	1	3	177	514	2144
411	NE 70th St/I-405 SB off Ramp	22	1	0	283	0	293	0	920	168	189	686	0	2563
412	NE 85th St/128th Ave NE	49	1407	40	26	1458	76	58	61	55	38	15	15	3299
416	NE 80th St/132nd Ave NE	76	148	86	7	234	15	107	448	20	16	207	67	1429
999														0
501	NE 122nd Pl/Juanita Dr NE	3	3	3	114	5	32	8	820	169	11	369	3	1539
502	76th Pl NE/Juanita Dr NE	31	3	54	6	0	3	82	967	9	0	443	44	1643
503	NE 141st Street/Juanita Dr NE	26	10	21	103	16	68	16	704	104	62	379	26	1536
504	Juanita-Woodinville Way/100th Ave NE	31	15	29	365	35	59	34	1610	466	31	646	20	3341
505	NE 137th Street/100th Avenue NE	36	57	92	40	101	117	172	1437	94	65	588	40	2840
506	Simonds Road/100th Avenue NE	315	0	380	0	0	0	634	789	0	3	318	431	2869
507	NE 145th street/100th Avenue NE	6	11	10	413	23	277	19	828	255	88	333	5	2269
508	NE 145th Street/Juanita-Woodinville Way	294	14	55	8	10	28	205	489	21	46	458	564	2193
509	NE 140th Street/132nd Avenue NE	0	0	0	0	0	0	3	5	0	2	1	0	11
510	NE 132nd Street/132nd Avenue NE	201	119	233	22	226	287	326	701	40	45	266	82	2548
511	NE 144th Street/124th Avenue NE	57	95	14	132	125	404	55	739	161	128	311	17	2239
512	NE 124th Street/Willows Road NE	29	912	402	70	657	76	892	424	417	165	124	84	4252
3xx	120th Avenue NE/NE 118th Street	72	0	152	0	0	16	140	760	12	0	585	21	1758
3xx	NE 124th St/120th Pl NE	101	1258	101	95	1695	10	72	5	65	5	2	55	3464
3xx	NE 100th st/132nd Ave NE	17	0	81	31	7	8	261	1108	80	0	285	17	1897
3xx	NE 132nd Street/108th Ave NE	24	550	12	35	966	399	16	0	81	131	0	0	2214
3xx	NE 132nd Street/Juanita High School	2	442	93	121	888	6	56	0	67	3	0	2	1681
3xx	NE 124th Street/134th Ct	8	1271	21	8	1694	0	121	0	49	0	0	6	3178
3xx	116th Ave NE/NE 128th St	16	55	54	468	160	434	85	394	318	128	379	18	2509
3xx	NE 128th Street/Totem Lake Blvd	27	370	206	2	551	97	410	522	55	46	243	129	2657
4xx	NE 60th Street/132nd Ave NE	150	0	31	0	0	0	126	557	0	0	170	142	1177
4xx	NE 60th Street/116th Ave NE	2	1	2	79	1	125	2	636	79	76	122	2	1129
3xx	NE 132nd Street/132nd Avenue NE	0	0	0	3	0	0	0	44	0	0	52	0	99
3xx	NE 120th Street/124th Avenue NE	0	0	8	47	0	0	0	44	44	0	52	0	195
3xx	NE 128 St./I-405 HOV Ramps	7	0	8	44	0	16	0	1	44	6	0	5	131

Daily Trip Generation

Proposed Land Use	Size	Units	Trip Generation Rate ¹	Total Unadjusted Veh. Trips	Reduction for Internal Capture ²	Subtotal	Pass-by Rate ³	Reduction for Pass-by	New Daily Trips		
									Total	In	Out
Multifamily Housing Mid-Rise (LU 221)	370	DU	5.44	2,010	6	2,004	0%	0	2,004	1,002	1,002
Office (LU 710)	9	1,000 gsf	9.74	90	2	88	17%	14	74	37	37
Daycare (LU 565)	8.5	1,000 gsf	47.62	400	0	400	17%	68	332	166	166
Retail (LU 826)	5	1,000 gsf	37.75	190	6	184	17%	32	152	76	76
Total				2,690	14	2,676		114	2,562	1,281	1,281

1. Average trip rates and equations from ITE Trip Generation Manual, 10th edition (2017).
2. ITE Trip Generation Handbook, 3rd edition (2017) does not provide guidance to incorporating internal capture into daily trip generation. Internal capture subtracted from unadjusted trips represents the summation of AM and PM peak hour internal capture reductions.
3. Assumed daily pass-by rate to be average of AM and PM pass-by rates.

Weekday PM Peak Hour Trip Generation

Proposed Land Use	Size	Units	Trip Generation Rate ¹	% IN ²	Total Unadjusted Veh. Trips	Unadjusted Veh. Trips IN	Unadjusted Veh. Trips OUT	Reduction for Internal Capture ³	Internal Capture IN	Internal Capture OUT	Subtotal Driveway Trips			Pass-by Rate ⁴	Pass-by Trips	Pass-by IN	Pass-by OUT	Net New Offsite PM Peak Trips		
											Subtotal Trips	Subtotal IN	Subtotal OUT					Total	In	Out
Multifamily Housing Mid-Rise (LU 221)	370	DU	$LN(T) = 96 \times \ln(X) - 63$	61%	156	95	61	5	3	2	151	92	59	0%				151	92	59
Office (LU 710)	9	1,000 gsf	1.15	16%	10	2	8	2	1	1	8	1	7	0%				8	1	7
Daycare (LU 565)	8.5	1,000 gsf	11.12	47%	95	45	50	0	0	0	95	45	50	0%				95	45	50
Retail (LU 826)	5	1,000 gsf	3.81	48%	19	9	10	5	2	3	14	7	7	34%	4	2	2	10	5	5
Total					280	151	129	12	6	6	268	145	123		4	2	2	264	143	121

1. Average trip rates and equations from ITE Trip Generation Manual, 10th edition (2017).
2. In/out percentages based on ITE Trip Generation Manual, 10th edition (2017).
3. Internal capture methodology consistent with ITE Trip Generation Handbook, 3rd Edition (2017).
4. Pass-by rates based on ITE Trip Generation Handbook, 3rd Edition (2017).

Weekday AM Peak Hour Trip Generation

Proposed Land Use	Size	Units	Trip Generation Rate ¹	% IN ²	Total Unadjusted Veh. Trips	Unadjusted Veh. Trips IN	Unadjusted Veh. Trips OUT	Reduction for Internal Capture ³	Internal Capture IN	Internal Capture OUT	Subtotal Driveway Trips			Pass-by Rate ⁴	Pass-by Trips	Pass-by IN	Pass-by OUT	Net New Offsite AM Peak Trips		
											Subtotal Trips	Subtotal IN	Subtotal OUT					Total	In	Out
Multifamily Housing Mid-Rise (LU 221)	370	DU	0.36	26%	133	35	98	1		1	132	35	97	0%				132	35	97
Office (LU 710)	9	1,000 gsf	1.16	86%	10	9	1				10	9	1	0%				10	9	1
Daycare (LU 565)	8.5	1,000 gsf	11.00	53%	94	50	44	0	0	0	94	50	44	0%				94	50	44
Retail (LU 826)	5	1,000 gsf	0.94	62%	5	3	2	1	1		4	2	2	0%				4	2	2
Total					242	97	145	2	1	1	240	96	144		0	0	0	240	96	144

1. Average trip rates and equations from ITE Trip Generation Manual, 10th edition (2017).
2. In/out percentages based on ITE Trip Generation Manual, 10th edition (2017).
3. Internal capture methodology consistent with ITE Trip Generation Handbook, 3rd Edition (2017).
4. Assumed zero pass-by rate for LU 820 because ITE provides no AM pass-by rate

NCHRP 684 Internal Trip Capture Estimation Tool				
Project Name:	Proctor Willows		Organization:	Transpo Group
Project Location:			Performed By:	
Scenario Description:			Date:	
Analysis Year:			Checked By:	
Analysis Period:	PM Peak Hour		Date:	

Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				10	2	8
Retail				19	9	10
Restaurant				0		
Cinema/Entertainment				0		
Residential				156	95	61
Hotel				0		
All Other Land Uses ²				95	45	50
				280	151	129

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

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

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	0		0	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

	Total	Entering	Exiting
All Person-Trips	280	151	129
Internal Capture Percentage	4%	4%	5%
External Vehicle-Trips ⁵	268	145	123
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Land Use	Entering Trips	Exiting Trips
Office	50%	13%
Retail	22%	30%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	3%
Hotel	N/A	N/A

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

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

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

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

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

⁶Person-Trips

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

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

Project Name:	Proctor Willows
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	2	2	1.00	8	8
Retail	1.00	9	9	1.00	10	10
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	95	95	1.00	61	61
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	0		3	0	3	1
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	26	13	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	4	0
Retail	1		0	0	44	0
Restaurant	1	5		0	15	0
Cinema/Entertainment	0	0	0		4	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	1	1	2	1	0	0
Retail	2	7	9	7	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	92	95	92	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	45	45	45	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	1	7	8	7	0	0
Retail	3	7	10	7	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	59	61	59	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	50	50	50	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool				
Project Name:	Proctor Willows		Organization:	Transpo Group
Project Location:			Performed By:	
Scenario Description:			Date:	
Analysis Year:			Checked By:	
Analysis Period:	AM Street Peak Hour		Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				10	9	1
Retail				5	3	2
Restaurant				0		
Cinema/Entertainment				0		
Residential				133	35	98
Hotel				0		
All Other Land Uses ²				94	50	44
Total				242	97	145

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	242	97	145
Internal Capture Percentage	1%	1%	1%
External Vehicle-Trips ³	240	96	144
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	0%	0%
Retail	33%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	1%
Hotel	N/A	N/A

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

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

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

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

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Proctor Willows
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	9	9	1.00	1	1
Retail	1.00	3	3	1.00	2	2
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	35	35	1.00	98	98
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	20	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	0		0	0	1	0
Restaurant	1	0		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	9	9	9	0	0
Retail	1	2	3	2	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	35	35	35	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	50	50	50	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	1	1	1	0	0
Retail	0	2	2	2	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	97	98	97	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	44	44	44	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

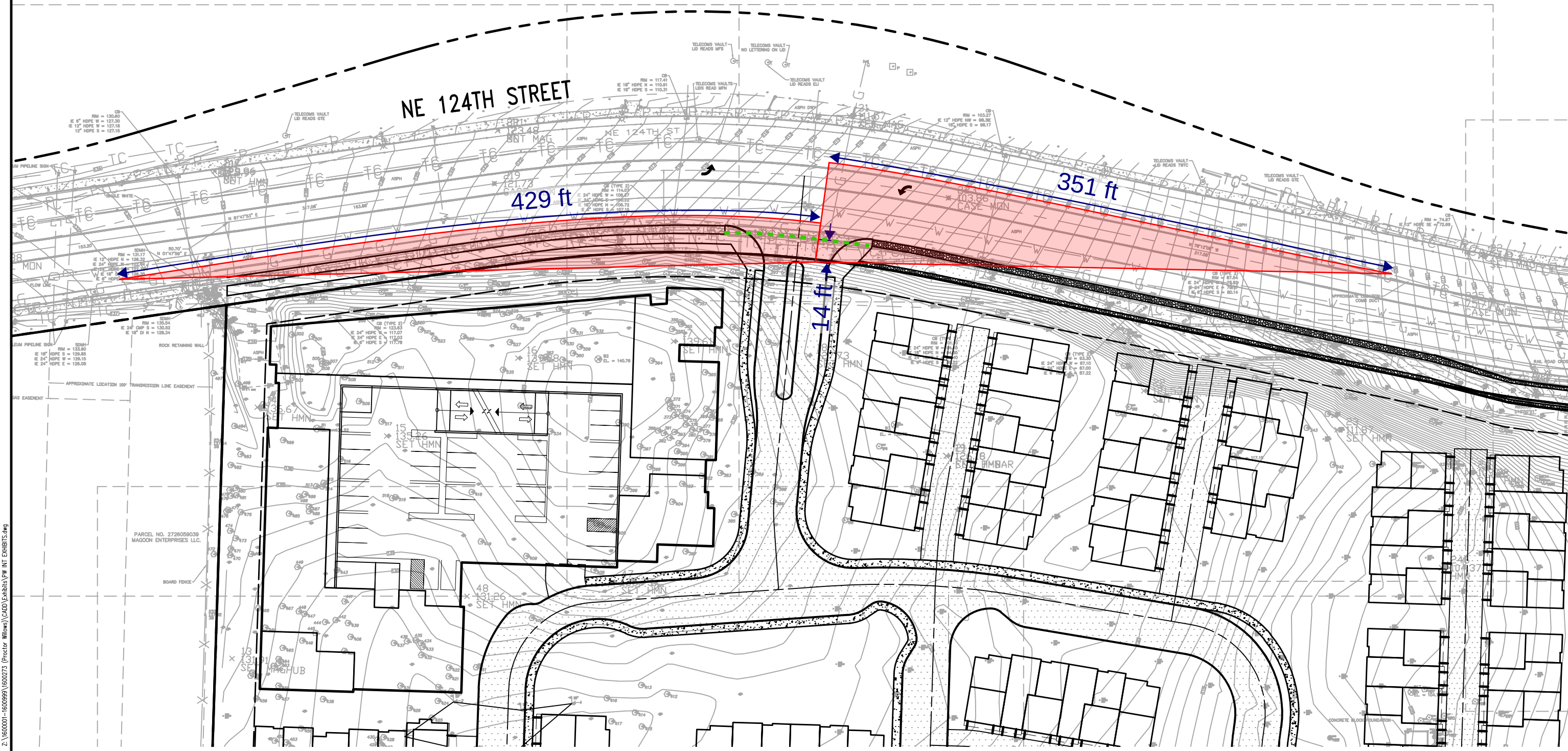
²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

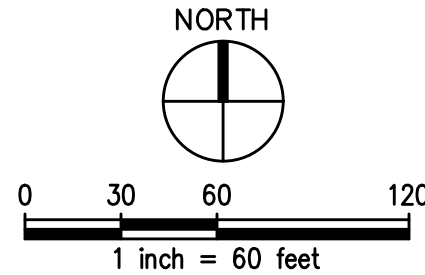
*Indicates computation that has been rounded to the nearest whole number.

Tube Counts (Outbound)				NB Approach (Trips)			
Time	Value	Rank	Percent	Left turn	Through	Right	Total
4:00 PM	82	1	100%	98	0	23	121
7:00 AM	80	2	97%	95	0	22	118
5:00 PM	76	3	92%	90	0	21	112
1:00 PM	73	4	89%	87	0	20	108
6:00 PM	73	5	89%	87	0	20	108
3:00 PM	72	6	87%	86	0	20	106
7:00 PM	66	7	80%	79	0	18	97
8:00 PM	65	8	79%	77	0	18	95
12:00 PM	63	9	77%	75	0	18	93
2:00 PM	62	10	76%	74	0	17	92
8:00 AM	62	11	75%	73	0	17	91
11:00 AM	57	12	69%	68	0	16	84
9:00 PM	54	13	66%	65	0	15	80
6:00 AM	51	14	62%	61	0	14	75
9:00 AM	42	15	51%	50	0	12	62
10:00 PM	39	16	48%	47	0	11	58
10:00 AM	38	17	46%	45	0	11	55
5:00 AM	27	18	33%	33	0	8	40
11:00 PM	22	19	27%	26	0	6	32
12:00 AM	13	20	16%	16	0	4	20
1:00 AM	11	21	14%	13	0	3	17
2:00 AM	7	22	9%	9	0	2	11
4:00 AM	7	23	9%	8	0	2	10
3:00 AM	5	24	6%	6	0	1	8

Z:\1600001-1600099\1600273 (Proctor Willow)\CAD\Exhibits\PW INT EXHIBITS.dwg
Jan 31, 2019 - 6:46am



NOTE:
CONTOURS SHOWN ON THIS SHEET ARE EXISTING.
DESIGN DEMONSTRATING COMPLIANCE WITH MINIMUM
SIGN DISTANCE STANDARDS FREE OF OBSTRUCTIONS
WILL BE PROVIDED FOR FUTURE SUBMISSIONS.



Project Title PROCTOR WILLOW MASTER PLAN		Drawing Title SIGHT DISTANCE TRIANGLE NE 124 STREET		ASI/RFI/CSK Number	
Client QUADRANT HOMES		 1601 5th Avenue, Suite 1600 Seattle, WA 98101 206.622.5822 www.kpff.com		Drawing Reference	Scale 1" = 60'
				Date 1/31/2019	Drawn/Ck'd By TAD/JSF

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

Totem Lake Blvd

of Lanes*=

2

Minor Street¹

120th Avenue NE

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 =$ 128.184

Daily Volumes

Entering Leg Volumes*

(Total of both approaches divided by two)

Minor Street Volume $V_2 =$ 0

127.1915	129.1765
0	0

Major

Minor

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	1	1	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	1.28%
$P_2 = V_2 / (5,000 \times f_2) =$	0.00%
$P_3 = V_1 / (15,000 \times f_3) =$	0.85%
$P_4 = V_2 / (2,500 \times f_4) =$	0.00%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	0.64%
$S_2 = (P_3 + P_4) / 2 =$	0.43%

Intersection Proportional Share = Maximum of S1 and S2 = 0.64%

Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li

Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

NE 124th St

of Lanes*=

2

Minor Street¹

Slater Ave NE

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 =$

Daily Volumes

704.55

Entering Leg Volumes *

512.4

896.7

Major

(Total of both approaches divided by two)

Minor Street Volume $V_2 =$

192.15

192.15

192.15

Minor

*Do not leave cell empty for zero volume

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	1	1	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	7.05%
$P_2 = V_2 / (5,000 \times f_2) =$	3.84%
$P_3 = V_1 / (15,000 \times f_3) =$	4.70%
$P_4 = V_2 / (2,500 \times f_4) =$	7.69%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	5.44%
$S_2 = (P_3 + P_4) / 2 =$	6.19%

Intersection Proportional Share = Maximum of S_1 and $S_2 =$ 6.19%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li
Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

NE 124th St

of Lanes*=

2

Minor Street¹

Totem Lake Boulevard

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 =$ 385.5444

Daily Volumes

Entering Leg Volumes*

(Total of both approaches divided by two)

Minor Street Volume $V_2 =$ 128.1

516.7059	254.383
128.1	128.1

Major

Minor

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	1	1	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	3.86%
$P_2 = V_2 / (5,000 \times f_2) =$	2.56%
$P_3 = V_1 / (15,000 \times f_3) =$	2.57%
$P_4 = V_2 / (2,500 \times f_4) =$	5.12%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	3.21%
$S_2 = (P_3 + P_4) / 2 =$	3.85%

Intersection Proportional Share = Maximum of S1 and S2 = 3.85%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li
Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

Slater Ave NE

of Lanes*=

1

Minor Street¹

NE 120th St

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 =$

Daily Volumes

192.276

Entering Leg Volumes *

193.7647

190.7872

Major

(Total of both approaches divided by two)

Minor Street Volume $V_2 =$

0

0

0

Minor

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	1	0.833	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	2.31%
$P_2 = V_2 / (5,000 \times f_2) =$	0.00%
$P_3 = V_1 / (15,000 \times f_3) =$	1.54%
$P_4 = V_2 / (2,500 \times f_4) =$	0.00%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	1.15%
$S_2 = (P_3 + P_4) / 2 =$	0.77%

Intersection Proportional Share = Maximum of S_1 and S_2 = 1.15%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li
Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

NE 124th St

of Lanes*=

2

Minor Street¹

WILLOWS ROADS NE

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 = 191.4362$

Daily Volumes

Entering Leg Volumes*

(Total of both approaches divided by two)

Minor Street Volume $V_2 = 95.39362$

183	199.8723
0	190.7872

Major

Minor

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	1	1	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	1.91%
$P_2 = V_2 / (5,000 \times f_2) =$	1.91%
$P_3 = V_1 / (15,000 \times f_3) =$	1.28%
$P_4 = V_2 / (2,500 \times f_4) =$	3.82%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	1.91%
$S_2 = (P_3 + P_4) / 2 =$	2.55%

Intersection Proportional Share = Maximum of S1 and S2 = 2.55%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li
Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:

Proctor Willows

Through Lanes¹

Major Street¹

124th Ave NE

of Lanes*=

1

Minor Street¹

NE 116th St

of Lanes*=

1

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

2/1/2017

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

Major Street Volume $V_1 = 96.38611$

Daily Volumes

Entering Leg Volumes*

(Total of both approaches divided by two)

Minor Street Volume $V_2 = 224.0738$

129.1765 63.59574

Major

254.383 193.7647

Minor

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	1	0.833	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	1.16%
$P_2 = V_2 / (5,000 \times f_2) =$	4.48%
$P_3 = V_1 / (15,000 \times f_3) =$	0.77%
$P_4 = V_2 / (2,500 \times f_4) =$	8.96%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	2.82%
$S_2 = (P_3 + P_4) / 2 =$	4.87%

Intersection Proportional Share = Maximum of S1 and S2 = 4.87%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Darwin Li
Company: Transpo Group

Intersection Description for Proportional Share Calculation

Codes	Intersections	Major ¹		Minor ¹		1. Lane configuration	
		Street	# of Thru Lanes	Street	# of Thru Lanes		
101	Lake Wash/NE 38th Pl	Lake Washington	1	NE 38th Pl	1		
102	Lake Wash/Lakeview Dr	Lake Washington	1	Lakeview Dr	1		
103	State St/NE 68th St	NE 68th St	1	State St	1		
104	108th Ave NE/NE 68th St	108th Ave NE	1	NE 68th St	1		
105	Central Way/6th St	Central Way	2	6th St	1		
106	Central Way/3rd St	Central Way	2	3rd St	1		
107	Central Way/Lake St	Central Way	2	Lake St	1		
108	Lake St/Kirkland Ave	Lake St	1	Kirkland Ave	1		
109	NE 85th St/114th Ave NE	NE 85th St	2	114th Ave NE	1		
110	6th St/4th Ave	6th St	1	4th Ave	1		
111	Kirkland Ave/3rd Ave	3rd Ave	1	Kirkland Ave	1		
112	Kirkland Way/6th St	6th St	1	Kirkland Way	1		
113	Kirkland Ave/6th St	6th St	1	Kirkland Ave	1		
201	98th Ave NE/Juanita Dr	98th Ave NE	2	Juanita Dr	1		
202	100th Ave NE/NE 124th St	100th Ave NE	2	NE 124th St	1		
203	100th Ave NE/NE 132nd St	100th Ave NE	2	NE 132nd St	1		
204	116th Way NE/NE 132nd St	NE 132nd St	1	116th Way NE	1		
205	Market St/Forbes Creek	Market St	1	Forbes Creek	1		
206	98th Ave NE/NE 120th Pl	98th Ave NE	2	NE 120th Pl	1		
207	Juanita Drive/93rd Ave NE	Juanita Dr	1	93rd Ave NE	1		
208	Juanita Dr/97th Ave NE	Juanita Dr	1	97th Ave NE	1		
209	Market St/7th Ave	Market St	1	7th Ave	1		
211	Market St/15th Ave	Market St	1	15th Ave	1		
301	120th Ave NE/NE 132nd St	NE 132nd St	1	120th Ave NE	1		
302	120th Ave NE/NE 130th St	120th Ave NE	1	NE 130th St	1		
303	120th Ave NE/NE 128th St	120th Ave NE	1	NE 128th St	1		
304	NE 132nd St/124th Ave NE	NE 132nd St	1	124th Ave NE	1		
306	NE 124th St/ Slater Ave NE	NE 124th St	2	Slater Ave NE	1		
307	Totem Lake Blvd/120th Ave NE	Totem Lake Blvd	2	120th Ave NE	1		
308	NE 124th St/120th Pl NE	NE 124th St	2	120th Pl NE	1		
309	NE 118th St/120th Ave NE	120th Ave NE	1	NE 118th St	1		
310	NE 116th St/120th Ave NE	NE 116th St	1	120th Ave NE	1		

Intersection+Proportionate+Share+Calc+Worksheet\ intersection description

Intersection Description for Proportional Share Calculation

311	NE 116th St/124th Ave NE	124th Ave NE	1	NE 116th St	1		
312	NE 124th St/116th Ave NE	NE 124th St	2	116th Ave NE	1		
313	NE 124th St/113th PI NE	NE 124th St	2	113th PI NE	1		
314	Slater Ave NE/NE 120th St	Slater Ave NE	1	NE 120th St	1		
315	NE 124th St/Totem Lake Blvd	NE 124th St	2	Totem Lake Blvd	1		
316	Totem Lake Blvd/NE 132nd St	NE 132nd St	1	Totem Lake Blvd	1		
317	I-405/SB Off NE 124th St	NE 124th St	2	I-405 SB	1		
318	I-405/NB Off NE 124th St	NE 124th St	2	I-405 NB	1		
319	I-405/SB Off NE 116th St	NE 116th St	1	I-405 SB	1		
320	I-405/NB Off NE 116th St	NE 116th St	1	I-405 NB	1		
321	120th Ave NE/NE 112th St	120th Ave NE	1	NE 112th St	1		
322	NE 116th St/NE 118th St	NE 116th St	1	NE 118th St	1		
323	Slater Ave NE/NE 116th St	NE 116th St	1	Slater Ave NE	1		
324	NE 128th St/116th Way NE	116th Way NE	2	NE 128th St	1		
325	NE 124th St/128th Ln NE	NE 124th St	2	128th Ln NE	1		
401	NE 85th St/ 132nd Ave NE	NE 85th St	2	132nd Ave NE	1		
402	NE 85th St/124th Ave NE	NE 85th St	2	124th Ave NE	1		
403	NE 85th St/ 120th Ave NE	NE 85th St	2	120th Ave NE	1		
404	124th Ave NE/NE 100th St	124th Ave NE	1	NE 100th St	1		
405	120th Ave NE/NE 80th St	NE 80th St	1	120th Ave NE	1		
406	NE 70th St/132nd Ave NE	132nd Ave NE	1	NE 70th St	1		
407	NE 70th St/116th Ave NE	116th Ave NE	1	NE 70th St	1		
408	NE 90th St/ 124th Ave NE	124th Ave NE	1	NE 90th St	1		
409	NE 85th St/122nd Ave NE	NE 85th St	2	122nd Ave NE	1		
412	NE 85th St/128th Ave NE	NE 85th St	2	128th Ave NE	1		
413	NE 60th St/132nd Ave NE	132nd Ave NE	1	NE 60th St	1		
414	NE 60th St/116th Ave NE	116th Ave NE	1	NE 60th St	1		
415	NE 70th St/120th Ave NE	NE 70th St	1	120th Ave NE	1		
416	NE 80th St/132nd Ave NE	132nd Ave NE	1	NE 80th St	1		
417	NE 100th St/132nd Ave NE	132nd Ave NE	1	NE 100th St	1		

City of Redmond

Impact Fees Schedule



Effective as of January 1, 2019, the next fee update will go into effect *January 1, 2020*.

The tables below provide Fire, Parks, Transportation, and Schools Impact Fees currently in effect. Projects are assessed by their land use type and the associated units of that land use type to determine what the impact fees shall be.

All impact fees shall be paid at building permit issuance.

Fire		
Land Use	Units	Impact Fee Per Unit
Single-Family Residences	1 housing unit	\$121.42
Mobile Homes and Detached Single-Family Manufactured Homes	1 housing unit	\$145.03
Multi-Family Residences	1 housing unit	\$205.09
Residential Suites	1 residential suite	\$102.55
Offices	1,000 sq. ft. of GFA	\$169.80
Retail Trade	1,000 sq. ft. of GFA	\$195.73
Manufacturing	1,000 sq. ft. of GFA	\$20.05

Parks		
Land Use	Units	Impact Fee Per Unit
Single-Family Residences (inclusive of Mobile Homes and Detached Single-Family Manufactured Homes)	1 housing unit	\$4,738.14
Multi-Family Residences	1 housing unit	\$3,289.31
Residential Suite	1 residential suite	\$1,787.78
Offices	1,000 sq. ft. of GFA	\$1,283.48
Retail Trade	1,000 sq. ft. of GFA	\$569.40
Manufacturing	1,000 sq. ft. of GFA	\$577.67

Transportation		Downtown Urban Center	Overlake Urban Center	Rest of City
Residential Land Uses	Units	Impact Fee Per Unit		
Single Family	Dwelling	\$5,725.58	\$5,923.07	\$7,008.68
Multiple Family	Dwelling	\$4,021.34	\$4,160.04	\$4,922.51
Residential Suites	Residential Suite	\$2,452.57	\$2,537.17	\$3,002.19
Retirement Community	Dwelling	\$1,837.31	\$1,900.69	\$2,249.05
Nursing Home	Bed	\$1,497.07	\$1,548.71	\$1,832.56
Congregate Care/Assisted Living	Dwelling	\$1,156.83	\$1,196.73	\$1,416.07
Hotel/Motel	Room	\$5,392.67	\$5,578.67	\$6,601.16
Institutional Land Uses	Units	Impact Fee Per Unit		
Elementary School	Student	\$474.06	\$490.41	\$580.29
High School	Student	\$462.21	\$478.15	\$565.79
Church/House of Worship	Per sq. ft. of GFA	\$3.06	\$3.17	\$3.75
Hospital	Per sq. ft. of GFA	\$4.40	\$4.55	\$5.39
Retail Shopping Center Land Uses	Units	Impact Fee Per Unit		
Up to 99,999 ft ²	Per sq. ft. of GLA	\$18.34	\$18.97	\$22.45
100,000 ft ² – 199,999 ft ²	Per sq. ft. of GLA	\$17.50	\$18.10	\$21.42
200,000 ft ² – 299,999 ft ²	Per sq. ft. of GLA	\$16.02	\$16.57	\$19.61
300,000 ft ² and Over	Per sq. ft. of GLA	\$15.44	\$15.97	\$18.90
Supermarket	Per sq. ft. of GFA	\$39.57	\$40.93	\$48.43
Convenience Market	Per sq. ft. of GFA	\$131.25	\$135.78	\$160.66
Free Standing Discount Store	Per sq. ft. of GFA	\$13.04	\$13.49	\$15.97
Miscellaneous Retail	Per sq. ft. of GFA	\$15.48	\$16.02	\$18.95
Furniture Store	Per sq. ft. of GFA	\$1.50	\$1.55	\$1.84
Car Sales – New/Used	Per sq. ft. of GFA	\$11.66	\$12.07	\$14.28
Services Land Uses	Units	Impact Fee Per Unit		
Bank/Savings and Loans	Per sq. ft. of GFA	\$67.62	\$69.95	\$82.77
Daycare	Per sq. ft. of GFA	\$51.50	\$53.28	\$63.05
Library	Per sq. ft. of GFA	\$30.47	\$31.52	\$37.30
Post Office	Per sq. ft. of GFA	\$46.83	\$48.45	\$57.32
Service Station	Fuel position	\$30,874.93	\$31,939.89	\$37,793.96
Service Station/Minimart	Fuel position	\$22,555.17	\$23,333.16	\$27,609.75
Movie Theater	Stall	\$331.12	\$342.54	\$405.32
Carwash	Seat	\$20,039.77	\$20,730.99	\$24,530.65

Health Club/Racquet Club	Per sq. ft. of GFA	\$19.80	\$20.49	\$24.24
Restaurant	Units	Impact Fee Per Unit		
Restaurant	Per sq. ft. of GFA	\$33.35	\$34.50	\$40.82
Fast Food Restaurant	Per sq. ft. of GFA	\$90.85	\$93.98	\$111.21
Administrative Office Land Uses	Units	Impact Fee Per Unit		
Up to 99,999 ft ²	Per sq. ft. of GFA	\$19.05	\$19.70	\$23.32
100,000 ft ² – 199,999 ft ²	Per sq. ft. of GFA	\$16.36	\$16.93	\$20.03
200,000 ft ² – 299,999 ft ²	Per sq. ft. of GFA	\$14.28	\$14.77	\$17.48
300,000 ft ² and Over	Per sq. ft. of GFA	\$13.39	\$13.85	\$16.39
Medical Office/Clinic	Per sq. ft. of GFA	\$19.56	\$20.23	\$23.94
Industrial Land Uses	Units	Impact Fee Per Unit		
Light Industrial/Manufacturing	Per sq. ft. of GFA	\$8.94	\$9.25	\$10.94
Industrial Park	Per sq. ft. of GFA	\$7.83	\$8.10	\$9.59
Warehousing/Storage	Per sq. ft. of GFA	\$2.95	\$3.05	\$3.61
Mini Warehouse	Per sq. ft. of GFA	\$1.75	\$1.81	\$2.14
Alternate Impact Fee Assessment*	Units	Impact Fee Per Unit		
Cost per Person Mile of Travel (PMT)	Mile of travel per person	\$2,892.60		

Schools**

Land Use	Units	Impact Fee Per Unit
Single-Family Residences (inclusive of Mobile Homes and Detached Single-Family Manufactured Homes)	1 housing unit	\$12,294.00
Multi-Family Residences	1 housing unit	\$624.00

Impact Fee Schedule Notes

* Requires an impact study to be conducted by a traffic engineer for the applicant. If the proposed land use does not fit into one of the categories of the Transportation Impact Fee Schedule, the applicant may choose to do an impact study to apply the PMT impact fee. Additionally, the applicant may choose to do an impact study to apply the PMT impact fee if he/she believes that the impacts generated by development are less than those assessed in the Transportation Impact Fee Schedule for a comparable land use.

** Impact Fee Basis: 2018-2023 LWSD Capital Facilities Plan approved on 6/25/2018

- **GFA** = Gross Floor Area
- **GLA** = Gross Leasable Area
- A \$65.00 school admin fee will be assessed to the School Impact fee.
- Fire, Parks, Transportation and School impact fees are effective per Ordinance 2935.