**CITY OF STANWOOD**

# CREEKSIDE PHASE 3 APARTMENTS
# TRAFFIC IMPACT ANALYSIS

**Prepared for**

**Joe Sievers**
**Maple Court 2020, LLC**
**2320 Hewitt Ave.**
**Everett, WA 98201**

**Prepared by**

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**Kirkland, Washington 98034**
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November 18, 2019

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November 18, 2019

Joe Sievers
Maple Court 2020, LLC
2320 Hewitt Ave.
Everett, WA 98201

Re: Creekside Phase 3 Apartments – City of Stanwood
Traffic Impact Analysis

Dear Mr. Sievers:

We are pleased to submit this traffic impact analysis (TIA) report for the proposed Creekside Phase 3 Apartment project. The Creekside Phase 3 project consists of 60 apartment units which are just to the south of Phase 1 and 2 (Preciously known as Maple Court). The Creekside Phase 3 project is located on the northeast corner of the Pioneer Hwy./72nd Ave. NW intersection in the City of Stanwood. Access to the site is onto Pioneer Hwy. and will interconnect with the existing Creekside sites which have vehicular access to 72nd Ave. Northwest.

This report follows the City of Stanwood guidelines for traffic impact analysis studies. We have prepared this report based on conversations with City staff. We previously prepared the Maple Court II – Revised Traffic Impact Analysis, May 24, 2014, where we visited the project site and surrounding street network. We have prepared this study in accordance with previous traffic studies for projects in the City of Stanwood.

## *PROJECT DESCRIPTION*

**Figure 1** is a vicinity map showing the location of the site and the surrounding street network.

**Figure 2** shows the preliminary site plan. The site plan shows the apartment buildings and internal circulation roads.

The proposed Creekside Phase 3 project will contain 60 new apartment units in 4 buildings. There will be 12, one-bedroom units and 48, two-bedroom units. The Creekside Phase 3 project is located adjacent to the south of the existing 48 unit Creekside Phase 2 (previously known as Maple Court II) and the 108 unit original Maple Court apartments complex. Access to the Creekside Phase 3 project is via the existing vehicular access to Pioneer Highway and with the two existing Creekside accesses onto 72nd Ave. NW. The Creekside Phase 3 apartment project will remove one existing occupied single family home.

The City of Stanwood has requested analysis of the following nearby intersections as part of the Creekside Phase 3 report:

SR 532/72nd Ave. NW
Pioneer Hwy./72nd Ave. NW
72nd Ave. NW/265th St. NW
72nd Ave. NW/267th St. NW

The proposed Creekside Phase 3 project is assumed to be completed within two years and therefore existing counts are increased by two years growth for future year calculations.

## *TRIP GENERATION AND DISTRIBUTION*

### Trip Generation

**Table 1** shows the vehicular trips expected to be generated by the Creekside Phase 3 project.

The trip generation is calculated using average rates from the Institute of Transportation Engineers (ITE) Trip Generation, Tenth Edition, 2017, for Multifamily Housing (Mid-Rise) (ITE Land Use Code 221), and Single Family Detached Housing (ITE Land Use Code 210).

A vehicle trip is defined as a single or one direction vehicle movement with either the origin or destination (exiting or entering) inside the proposed development. These trip generation values account for all site trips made by all vehicles for all purposes (including residents, visitors, and service and delivery vehicle trips).

Previous traffic studies in the project area have shown that the PM peak period is the critical period of the day and is therefore analyzed in this report. **Table 1** shows that the Creekside Phase 3 project will generate 316 net new daily trips with 21 net new AM peak hour trips and 25 net new PM peak hour trips.

### Trip Distribution

**Figure 3** shows the estimated trip distribution and the calculated net new site-generated PM peak hour traffic volumes for the proposed Creekside Phase 3 project. The trip distribution is based on the characteristics of the road network, existing traffic volume patterns, previous traffic studies, the location of likely trip origins and destinations (business, shopping, social and recreational opportunities), and expected travel times.

**TABLE 1**
**TRIP GENERATION**
**CREEKSIDE PHASE 3**

| *Time Period* | *Trip Rate* | *Trips Entering* | *Trips Exiting* | *Total* |
|---|---|---|---|---|
| **A. 48 New Apartment Units** | | | | |
| Average Weekday | 5.44 | 163<br>50% | 163<br>50% | 326 |
| AM Peak Hour | 0.36 | 6<br>26% | 16<br>74% | 22 |
| PM Peak Hour | 0.44 | 16<br>61% | 10<br>39% | 26 |
| **B. 1 Existing Single Family Home** | | | | |
| Average Weekday | 9.44 | 5<br>50% | 5<br>50% | 10 |
| AM Peak Hour | 0.74 | 0<br>25% | 1<br>75% | 1 |
| PM Peak Hour | 0.99 | 1<br>63% | 0<br>37% | 1 |
| **C. Net New Trips (A – B)** | | | | |
| Average Weekday | -- | 158<br>50% | 158<br>50% | 316 |
| AM Peak Hour | -- | 6<br>25% | 15<br>75% | 21 |
| PM Peak Hour | -- | 15<br>65% | 10<br>35% | 25 |

## *EXISTING TRAFFIC CONDITIONS*

Roadway Facilities

**Figure 4** shows existing traffic control, number of roadway lanes, number of approach lanes at intersections, and other pertinent information in the site vicinity.

The primary streets and the City's classifications within the site vicinity are:

| | |
|---|---|
| SR 532 | Principal Arterial |
| Pioneer Hwy | Major Collector |
| 72nd Ave. NW | Major Collector |
| 265th St. NW | Major Collector |
| 267th St. NW | Major Collector |

Weekday Traffic Volumes

**Figure 5** shows existing PM peak hour traffic volumes at the study intersections. The City provided two recent traffic studies from nearby projects – the Stanwood Cinema and the Stanwood High School. These reports were used for recent counts along with the previous Maple Court II study. There was no current count available at the 72nd Ave. NW/Pioneer Hwy intersection, so a new count was taken on Thursday, October 24, 2019 by Traffic Count Consultants. The count data for the 72nd Ave. NW/Pioneer Hwy intersection is attached.

Level of Service Analysis

Level of service (LOS) is a qualitative measure describing operational conditions within a traffic flow, and the perception of these conditions by drivers or passengers. These conditions include factors such as speed, delay, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Levels of service are given letter designations, from A to F, with LOS A representing the best operating conditions (free flow, little delay) and LOS F the worst conditions (congestion, long delays). Generally, LOS A and B are high, LOS C and D are moderate, and LOS E and F are low.

The LOS was calculated using the procedures in the Transportation Research Board Highway Capacity Manual, and the SYNCHRO/SimTraffic software. At stopped controlled intersections, LOS is determined by the calculated average control delay per vehicle for the worst movement. The LOS and corresponding average delay in seconds are as follows:

| TYPE OF INTERSECTION | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| Signalized | ≤10.0 | >10 and ≤20 | >20 and ≤35 | >35 and ≤55 | >55 and ≤80 | >80.0 |
| Stop Sign Control | ≤10.0 | >10 and ≤15 | >15 and ≤25 | >25 and ≤35 | >35 and ≤50 | >50.0 |

**Table 2** shows the calculated LOS and associated delays for existing conditions. All of the study intersections are operating at good levels, with LOS C being the lowest level at the SR 532/72nd Ave. NW intersection. The City's LOS standard is LOS D for intersections within the City and LOS E for State Highway intersections within the City.

## *FUTURE TRAFFIC CONDITIONS WITHOUT THE PROJECT*

Planned Roadway Improvement Projects

There are no planned City roadway improvement projects in the Creekside Phase 3 immediate vicinity on the City's six-year Transportation Improvement Program (TIP). The City's traffic impact fees account for any projects on the TIP list.

Additionally, there are no planned County roadway improvement projects in the Creekside Phase 3 vicinity on the County's Capital Improvement Program (CIP) list.

Traffic Volumes

**Figure 6** shows projected future PM peak hour traffic volumes at the study intersections without the Creekside Phase 3 project. These traffic volumes include pipeline traffic volumes from the Stanwood Cinema and Stanwood High School projects at the study intersections as provided by the City. Additionally, a traffic growth of 3.0 percent per year for two years was applied to the existing traffic volumes per the City's Comprehensive Plan.

## *FUTURE TRAFFIC CONDITIONS WITH PROJECT*

Traffic Volumes

**Figure 7** shows the projected future background PM peak hour traffic volumes with the proposed Creekside Phase 3 project. The site-generated PM peak hour traffic volumes shown on **Figure 3** were added to the projected future traffic volumes shown on **Figure 6** to obtain the **Figure 7** volumes. **Figure 7** also shows the expected traffic volumes at the site driveways. The two existing site driveways on 72nd Ave. NW are combined into one driveway for a worst-case scenario. The existing Creekside apartments traffic volumes are included in these driveway volumes and are also assumed to be contained in one driveway.

Levels of Service

**Table 2** shows calculated LOS for future PM peak hour conditions without and with the proposed Creekside Phase 3 project at the study intersections and the proposed site driveways.

The LOS is expected to remain at good levels for all of the study intersections for future conditions. The SR 532/72nd Ave. NW intersection is expected to operate at LOS C for future without or with project conditions. The unsignalized Pioneer Hwy./72nd Ave. NW intersection is expected to operate at LOS B for future conditions, and all other study intersections and site driveways are expected to operate at LOS A for future with project conditions.

Sight distance was observed in the field at the Creekside driveway onto Pioneer Highway in our previous report. There were no sight distance problems.

## *TRAFFIC IMPACT MITIGATION*

Traffic Impact Fees

The City's traffic 2015 impact fee program currently requires a payment of $2,584.56 per unit for apartments. Therefore the current fee for the Creekside Phase 3 project would be 60 X $2,584.56 = $155,073.60. However, it could be argued that since there is one single-family home being removed as a result of this project, that at least one apartment unit should be subtracted from this equation.

There are no actively scheduled City roadway projects in the Creekside Phase 3 vicinity. Therefore, there are no pro-rata mitigation contributions to any project.

Snohomish County requires pro rata share contributions to planned roadway projects which are impacted by site generated traffic. According to discussions with the County, there are no nearby CIP projects in the Creekside Phase 3 project vicinity that carry any site generated traffic. Therefore, there are no Snohomish County traffic impact fees for the Creekside Phase 3 project.

Additionally, Snohomish County requires mitigation for any identified Inadequate Roadway Condition (IRC) roadways or intersections. From discussion with County staff, there are no IRC roadways or intersections in the Creekside Phase 3 project vicinity and therefore no mitigation is required.

Roadway Improvements

The City of Stanwood requires frontage improvements as part of the development process. The existing Creekside project has frontage along 72nd Ave. NW with frontage improvements already in place. The Creekside Phase 3 project has only the one small section of roadway along Pioneer Hwy. at the site driveway. Presumably, the City would have asked for frontage improvements when the Phase 2 portion of the Creekside project as constructed if any were required.

The traffic volumes generated from the proposed Creekside Phase 3 project do not warrant any turn lanes on Pioneer Highway.

## *SUMMARY, CONCLUSIONS AND RECOMMENDATIONS*

This report uses existing traffic data collected at nearby intersections for analysis. Level of service analyses were performed for existing and projected weekday future conditions without and with project traffic volumes.

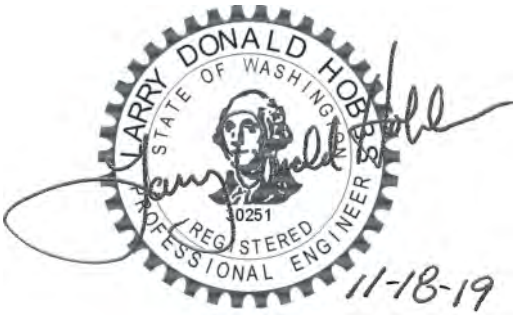
The future weekday conditions without the project were compared to the with project operations, which showed that the project will not cause any significant adverse effects on the weekday operation at the study intersections.

There are no adverse impacts to identified County key intersections or IRC locations, therefore no County mitigation fees are required. Additionally there are no County CIP projects in the Creekside Phase 3 project vicinity so no pro rata share contributions to County projects is required.

Based on the above information and analysis, we have the following conclusions and recommendations regarding traffic impacts and mitigation for the proposed Creekside Phase 3 project:

Remit $155,073.60 to the City for payment of the Creekside Phase 3 transportation impact fees.

No other traffic mitigation should be necessary. If you have any questions, please call 425-522-4118. You may also contact me via e-mail at larry@nwtraffex.com.



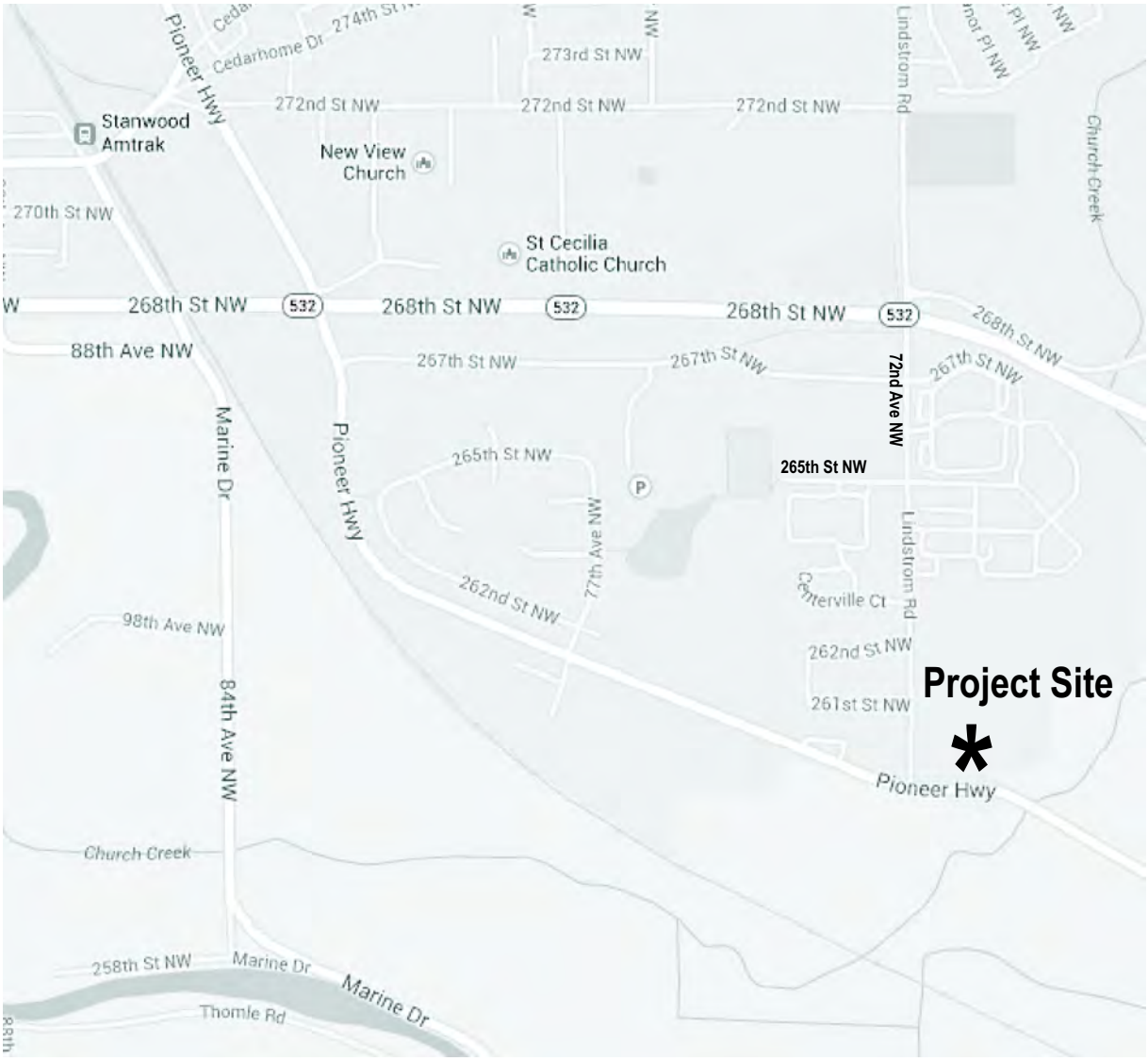

Very truly yours,

Larry D. Hobbs, P.E.
Principal, TraffEx

**TABLE 2**
**CREEKSIDE PHASE 3 APARTMENTS – CITY OF STANWOOD**
**LOS SUMMARY**

| INTERSECTION | EXISTING | FUTURE WITHOUT PROJECT | FUTURE WITH PROJECT |
|---|---|---|---|
| | PM | PM | PM |
| SR 532/72nd Ave. NW | C (23.3) | C (25.2) | C (25.6) |
| Pioneer Hwy./72nd Ave. NW | A SB (9.6) | A SB (9.7) | A SB (9.7) |
| 72nd Ave. NW/265th St. NW | A (4.6) | A (4.7) | A (4.6) |
| 72nd Ave. NW/267th St. NW | A (6.9) | A (7.1) | A (7.1) |
| Pioneer Hwy/Site Driveway | -- | -- | A SB (9.2) |
| 72nd Ave. NW/Site Driveway | -- | -- | A WB (9.7) |

Note: Number shown in () is the overall control delay at signalized intersections and is the average control delay in seconds per vehicle for directional movement at unsignalized intersections, which determines the LOS for intersections per the 2000 Highway Capacity Manual. At unsignalized intersections the direction of the worst operational movement is also shown.




**Creekside Phase 3**

**Vicinity Map**

**Figure 1**

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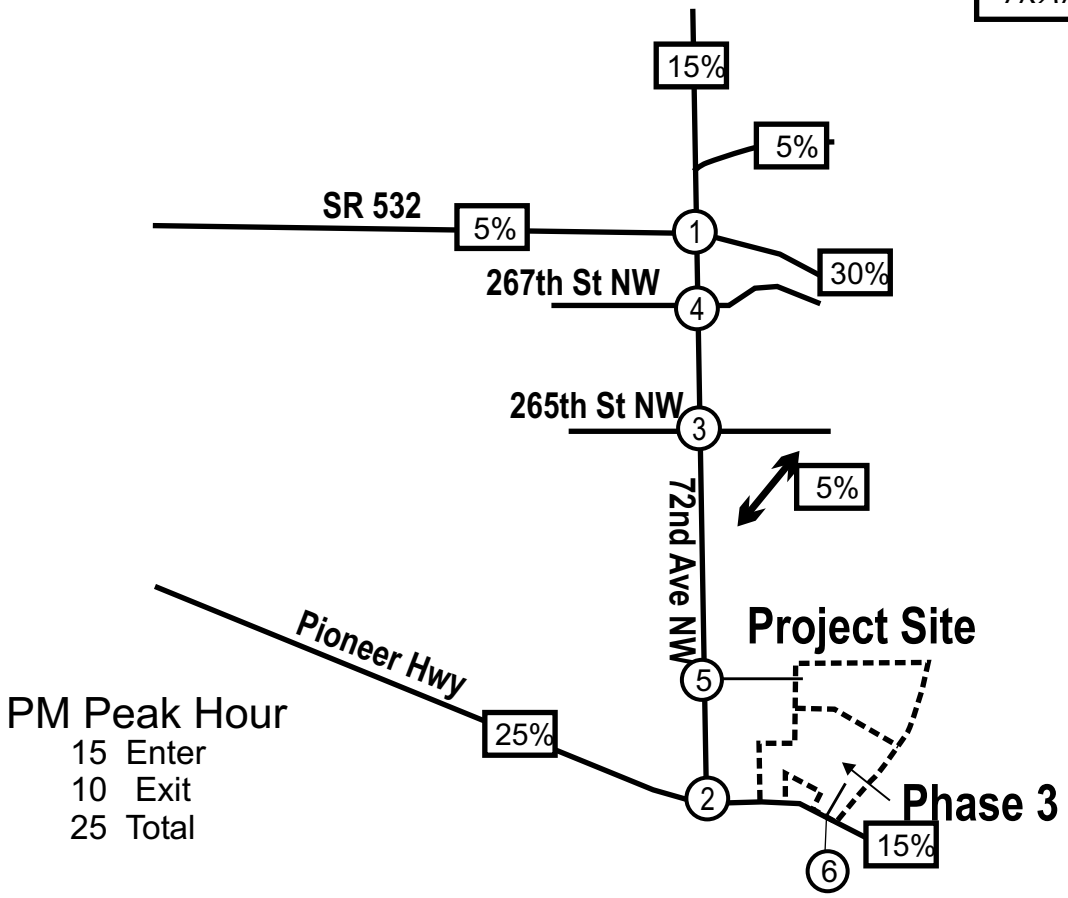
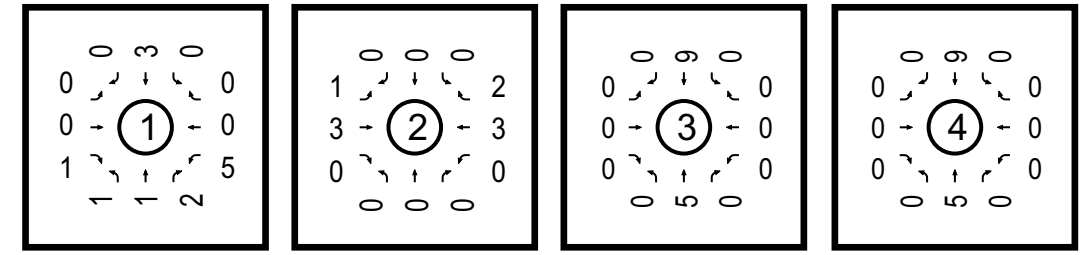
**Maple Court II**

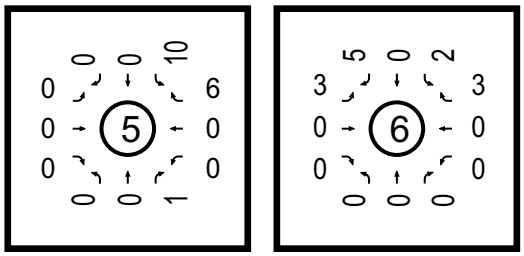
**Preliminary Site Plan**

**Figure 2**




SR 532/72nd Ave | 72nd/Pioneer | 72nd/265th St | 72nd/267th St




72nd/Driveway | Pioneer/Driveway

## Legend

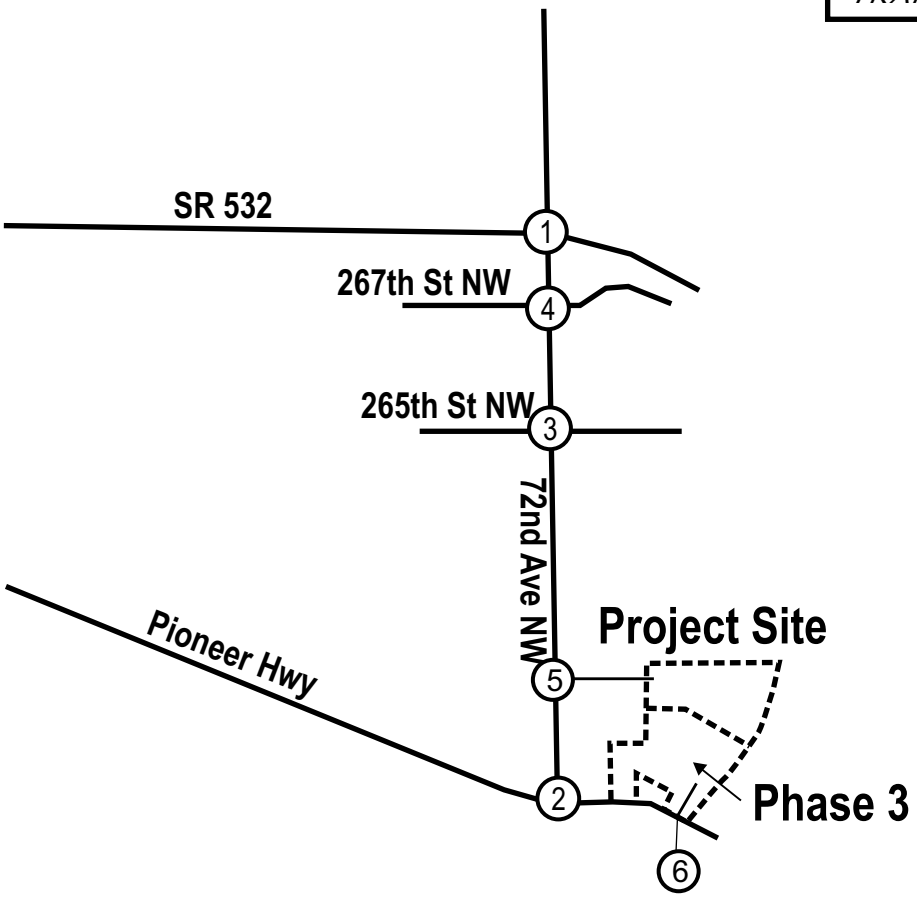
- XX% Percentage of Project Traffic
- ←XX PM Peak Hour Intersection Traffic Volume and Direction
- (X) Intersection Number

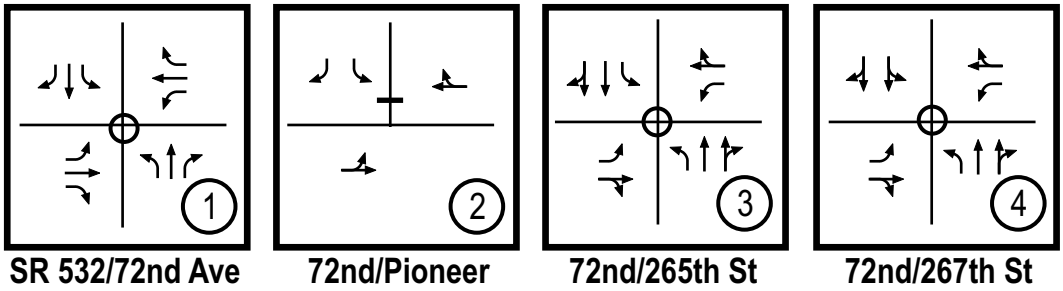
N

**Creekside Phase 3**

**Site Generated Traffic Volumes**

**Figure 3**

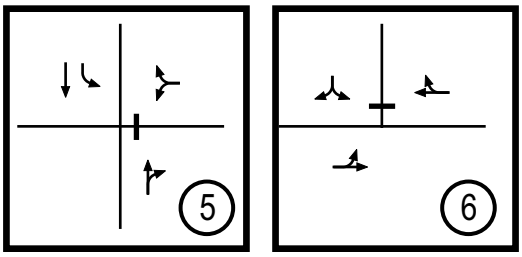



SR 532/72nd Ave | 72nd/Pioneer | 72nd/265th St | 72nd/267th St

Legend

- Lane Use and Direction
- XX MPH Speed Limit
- Stop Sign Control
- Traffic Signal
- (X) Intersection Number



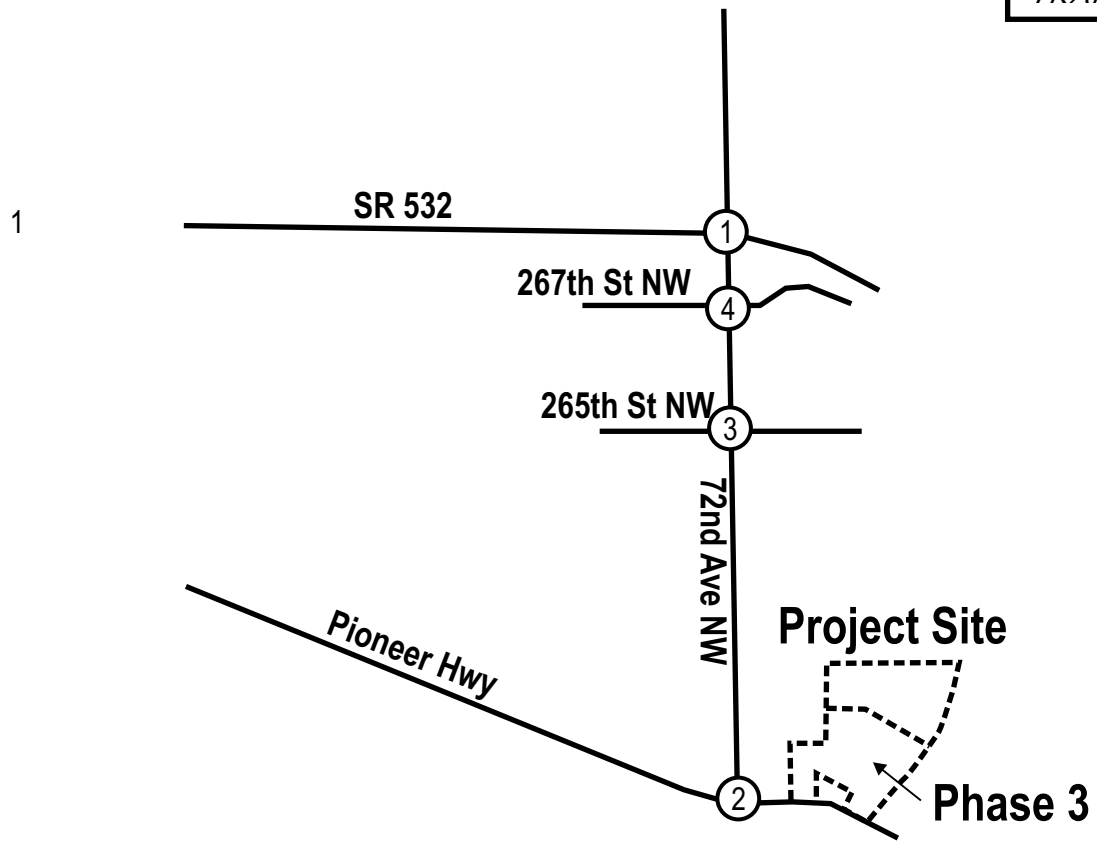

72nd/Driveway | Pioneer/Driveway

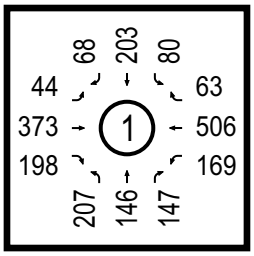
N

**Creekside Phase 3**

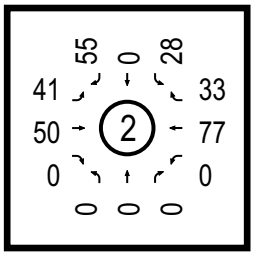
**Existing Conditions**

**Figure 4**

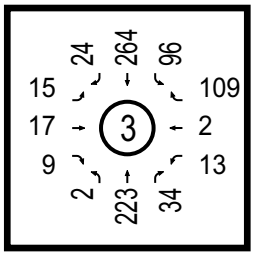


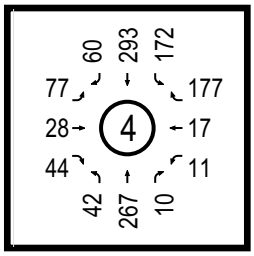

SR 532/72nd Ave




72nd/Pioneer




72nd/265th St




72nd/267th St

Legend

←XX PM Peak Hour Intersection Traffic Volume and Direction

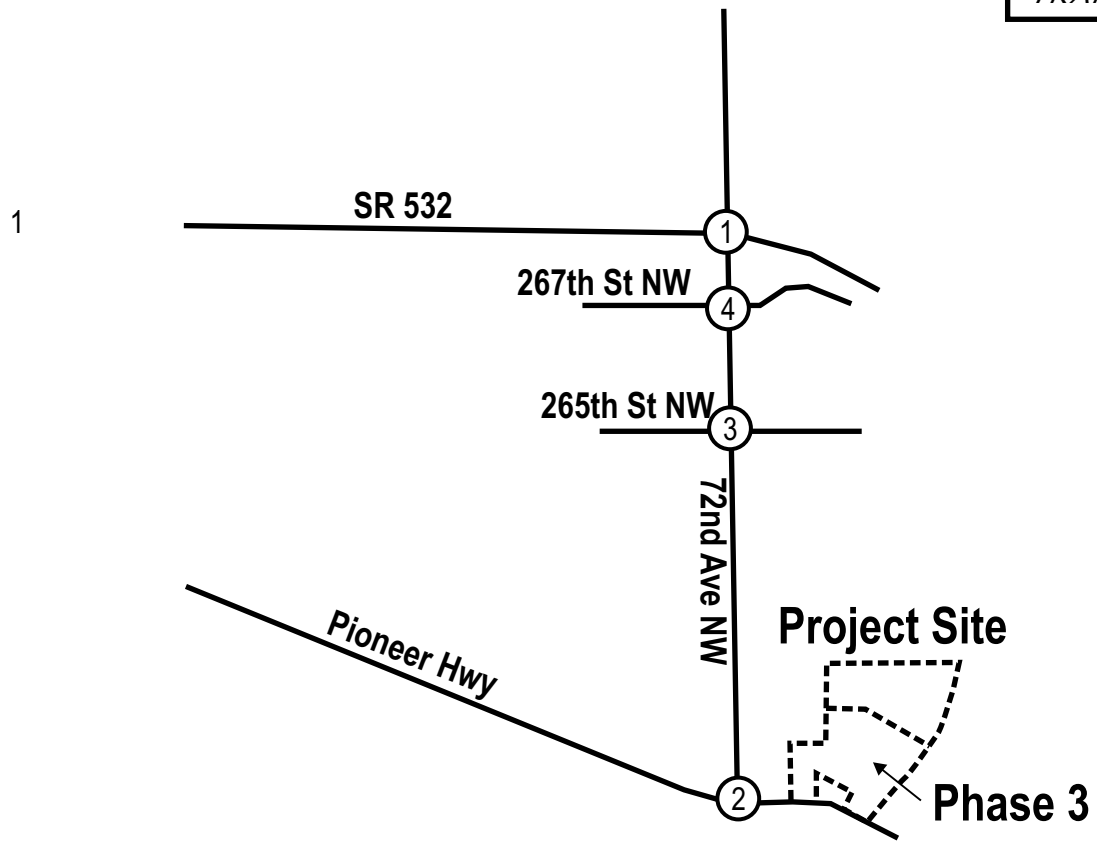
(X) Intersection Number

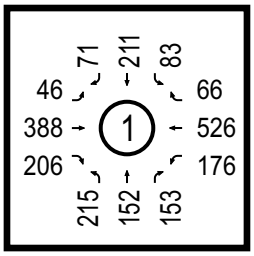
N

**Creekside Phase 3**

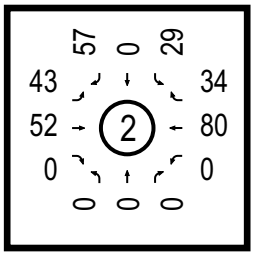
**Existing Traffic Volumes**

**Figure 5**

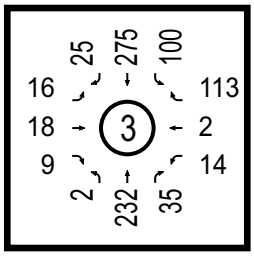


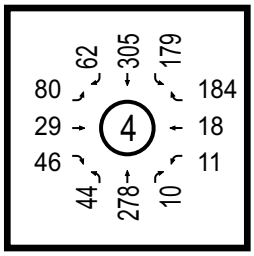

SR 532/72nd Ave




72nd/Pioneer




72nd/265th St




72nd/267th St

## Legend

←XX PM Peak Hour Intersection Traffic Volume and Direction

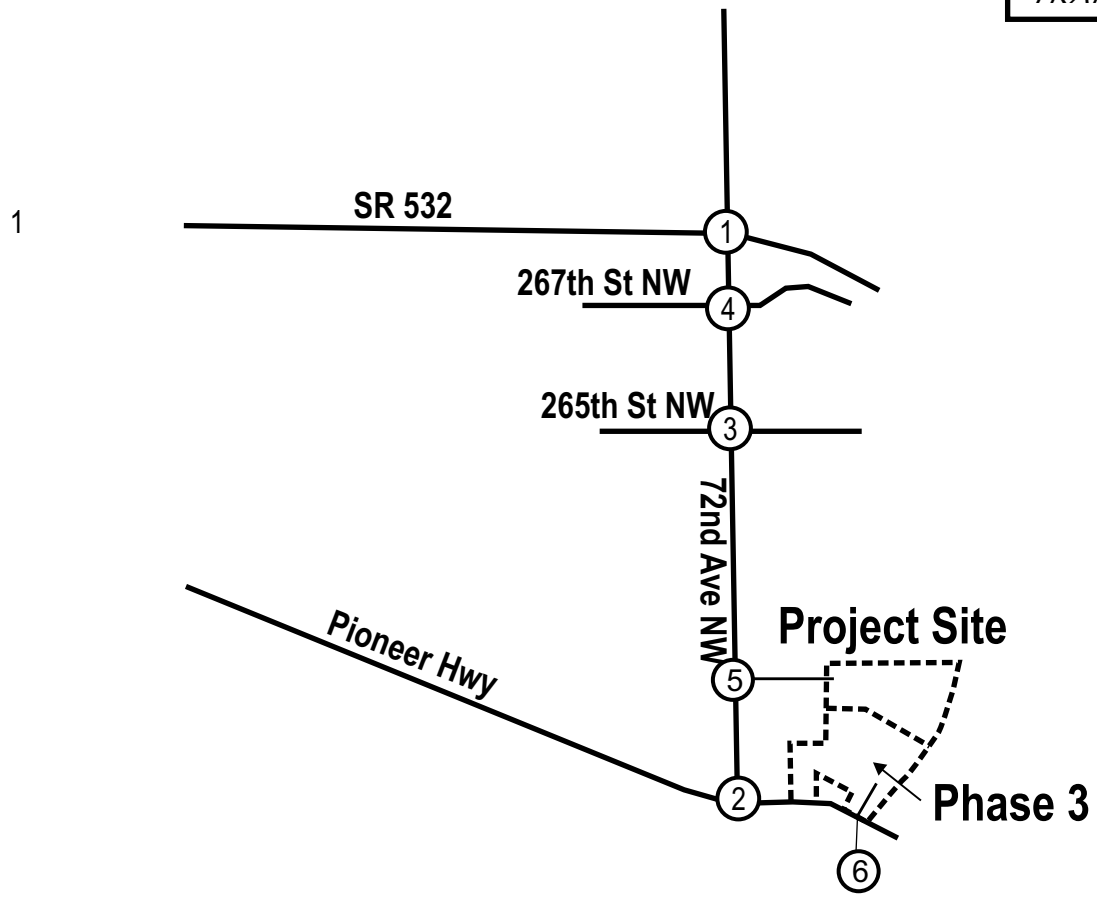
(X) Intersection Number

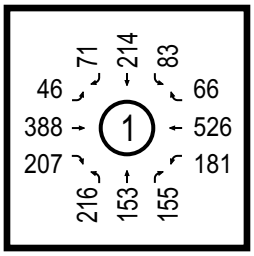
N

**Creekside Phase 3**

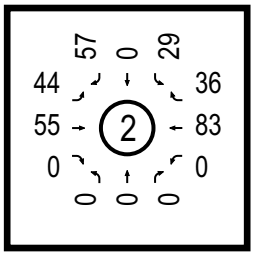
**Future Without Project Traffic Volumes**

**Figure 6**

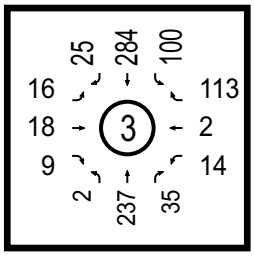


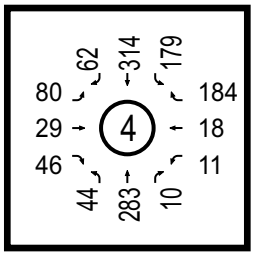

SR 532/72nd Ave



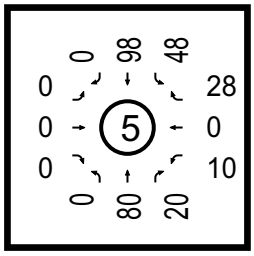

72nd/Pioneer



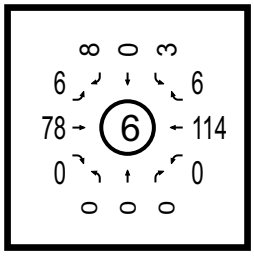

72nd/265th St




72nd/267th St




72nd/Driveway




Pioneer/Driveway

Legend

←XX PM Peak Hour Intersection Traffic Volume and Direction

(X) Intersection Number

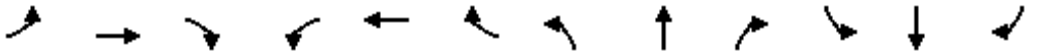
N

**Creekside Phase 3**

**Future With Project Traffic Volumes**

**Figure 7**

Existing
6: 72ND AVE NW & SR 532 11/2/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 44 | 373 | 198 | 169 | 506 | 63 | 207 | 146 | 147 | 80 | 203 | 68 |
| 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 | | 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 | 1727 | 1727 | 1727 | 1776 | 1776 | 1776 | 1810 | 1810 | 1810 | 1827 | 1827 | 1827 |
| Adj Flow Rate, veh/h | 49 | 414 | 220 | 197 | 588 | 73 | 256 | 180 | 181 | 94 | 239 | 80 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.81 | 0.81 | 0.81 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 7 | 7 | 7 | 5 | 5 | 5 | 4 | 4 | 4 |
| Cap, veh/h | 63 | 530 | 450 | 241 | 730 | 620 | 327 | 374 | 537 | 351 | 358 | 363 |
| Arrive On Green | 0.04 | 0.31 | 0.31 | 0.14 | 0.41 | 0.41 | 0.07 | 0.21 | 0.21 | 0.06 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Grp Volume(v), veh/h | 49 | 414 | 220 | 197 | 588 | 73 | 256 | 180 | 181 | 94 | 239 | 80 |
| Grp Sat Flow(s),veh/h/ln | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Q Serve(g_s), s | 1.7 | 12.3 | 6.9 | 6.4 | 16.4 | 1.7 | 4.0 | 4.9 | 4.9 | 2.4 | 6.8 | 2.3 |
| Cycle Q Clear(g_c), s | 1.7 | 12.3 | 6.9 | 6.4 | 16.4 | 1.7 | 4.0 | 4.9 | 4.9 | 2.4 | 6.8 | 2.3 |
| 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 | 63 | 530 | 450 | 241 | 730 | 620 | 327 | 374 | 537 | 351 | 358 | 363 |
| V/C Ratio(X) | 0.78 | 0.78 | 0.49 | 0.82 | 0.81 | 0.12 | 0.78 | 0.48 | 0.34 | 0.27 | 0.67 | 0.22 |
| Avail Cap(c_a), veh/h | 117 | 583 | 495 | 270 | 757 | 643 | 327 | 546 | 683 | 370 | 552 | 528 |
| 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 | 26.9 | 17.8 | 15.9 | 23.4 | 14.6 | 10.3 | 21.3 | 19.7 | 13.5 | 16.7 | 20.9 | 17.4 |
| Incr Delay (d2), s/veh | 18.8 | 6.2 | 0.8 | 16.1 | 6.2 | 0.1 | 11.7 | 1.0 | 0.4 | 0.4 | 2.2 | 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 | 1.1 | 6.8 | 2.9 | 4.0 | 9.3 | 0.7 | 3.1 | 2.5 | 2.1 | 1.2 | 3.6 | 1.0 |
| LnGrp Delay(d),s/veh | 45.7 | 24.0 | 16.7 | 39.6 | 20.8 | 10.3 | 33.0 | 20.6 | 13.9 | 17.1 | 23.1 | 17.7 |
| LnGrp LOS | D | C | B | D | C | B | C | C | B | B | C | B |
| Approach Vol, veh/h | | 683 | | | 858 | | | 617 | | | 413 | |
| Approach Delay, s/veh | | 23.2 | | | 24.2 | | | 23.8 | | | 20.7 | |
| Approach LOS | | C | | | C | | | 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 | 7.4 | 15.6 | 12.0 | 21.3 | 8.0 | 15.0 | 6.1 | 27.1 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 4.0 | 17.0 | 9.0 | 19.0 | 4.0 | 17.0 | 4.0 | 24.0 |
| Max Q Clear Time (g_c+I1), s | 4.4 | 6.9 | 8.4 | 14.3 | 6.0 | 8.8 | 3.7 | 18.4 |
| Green Ext Time (p_c), s | 0.0 | 2.5 | 0.0 | 3.0 | 0.0 | 2.2 | 0.0 | 3.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 23.3 |
| HCM 2010 LOS | C |

Existing
9: 72ND AVE NW & 267TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 77 | 28 | 44 | 11 | 17 | 177 | 42 | 267 | 10 | 172 | 293 | 60 |
| 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 | | 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 | 1845 | 1845 | 1900 | 1845 | 1845 | 1900 | 1900 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 84 | 30 | 48 | 13 | 20 | 213 | 48 | 303 | 11 | 187 | 318 | 65 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 477 | 197 | 315 | 616 | 41 | 438 | 539 | 1385 | 50 | 489 | 720 | 150 |
| Arrive On Green | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Sat Flow, veh/h | 1154 | 653 | 1044 | 1303 | 136 | 1452 | 986 | 3450 | 125 | 673 | 1794 | 375 |
| Grp Volume(v), veh/h | 84 | 0 | 78 | 13 | 0 | 233 | 48 | 153 | 161 | 293 | 0 | 277 |
| Grp Sat Flow(s),veh/h/ln | 1154 | 0 | 1697 | 1303 | 0 | 1588 | 986 | 1752 | 1823 | 1246 | 0 | 1596 |
| Q Serve(g_s), s | 1.7 | 0.0 | 0.9 | 0.2 | 0.0 | 3.2 | 1.0 | 1.5 | 1.6 | 3.3 | 0.0 | 3.4 |
| Cycle Q Clear(g_c), s | 5.0 | 0.0 | 0.9 | 1.1 | 0.0 | 3.2 | 4.4 | 1.5 | 1.6 | 4.9 | 0.0 | 3.4 |
| Prop In Lane | 1.00 | | 0.62 | 1.00 | | 0.91 | 1.00 | | 0.07 | 0.64 | | 0.23 |
| Lane Grp Cap(c), veh/h | 477 | 0 | 511 | 616 | 0 | 479 | 539 | 703 | 732 | 719 | 0 | 641 |
| V/C Ratio(X) | 0.18 | 0.00 | 0.15 | 0.02 | 0.00 | 0.49 | 0.09 | 0.22 | 0.22 | 0.41 | 0.00 | 0.43 |
| Avail Cap(c_a), veh/h | 815 | 0 | 1009 | 998 | 0 | 944 | 730 | 1042 | 1084 | 957 | 0 | 949 |
| 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 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 9.7 | 0.0 | 6.9 | 7.3 | 0.0 | 7.7 | 7.4 | 5.3 | 5.3 | 6.2 | 0.0 | 5.8 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.8 | 0.1 | 0.2 | 0.1 | 0.4 | 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 | 0.6 | 0.0 | 0.4 | 0.1 | 0.0 | 1.5 | 0.3 | 0.8 | 0.8 | 1.7 | 0.0 | 1.5 |
| LnGrp Delay(d),s/veh | 9.9 | 0.0 | 7.0 | 7.3 | 0.0 | 8.5 | 7.5 | 5.4 | 5.4 | 6.6 | 0.0 | 6.3 |
| LnGrp LOS | A | | A | A | | A | A | A | A | A | | A |
| Approach Vol, veh/h | | 162 | | | 246 | | | 362 | | | 570 | |
| Approach Delay, s/veh | | 8.5 | | | 8.4 | | | 5.7 | | | 6.4 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 14.8 | | 12.1 | | 14.8 | | 12.1 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 6.4 | | 7.0 | | 6.9 | | 5.2 |
| Green Ext Time (p_c), s | | 4.1 | | 1.6 | | 3.9 | | 1.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 6.9 |
| HCM 2010 LOS | A |

Existing
12: 72ND AVE NW & 265TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 15 | 17 | 9 | 13 | 2 | 109 | 2 | 223 | 34 | 96 | 264 | 24 |
| 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 | | 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 | 1900 | 1900 | 1900 | 1845 | 1845 | 1900 | 1827 | 1827 | 1900 | 1827 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 18 | 20 | 11 | 14 | 2 | 117 | 3 | 301 | 46 | 105 | 290 | 26 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.93 | 0.93 | 0.93 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 0 | 0 | 0 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 480 | 161 | 89 | 559 | 4 | 216 | 774 | 1291 | 195 | 757 | 1376 | 123 |
| Arrive On Green | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Sat Flow, veh/h | 1293 | 1154 | 634 | 1359 | 26 | 1546 | 1039 | 3024 | 457 | 1010 | 3225 | 287 |
| Grp Volume(v), veh/h | 18 | 0 | 31 | 14 | 0 | 119 | 3 | 171 | 176 | 105 | 155 | 161 |
| Grp Sat Flow(s),veh/h/ln | 1293 | 0 | 1788 | 1359 | 0 | 1572 | 1039 | 1736 | 1746 | 1010 | 1736 | 1776 |
| Q Serve(g_s), s | 0.2 | 0.0 | 0.3 | 0.2 | 0.0 | 1.3 | 0.0 | 1.2 | 1.2 | 1.4 | 1.0 | 1.1 |
| Cycle Q Clear(g_c), s | 1.5 | 0.0 | 0.3 | 0.4 | 0.0 | 1.3 | 1.1 | 1.2 | 1.2 | 2.5 | 1.0 | 1.1 |
| Prop In Lane | 1.00 | | 0.35 | 1.00 | | 0.98 | 1.00 | | 0.26 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 480 | 0 | 250 | 559 | 0 | 219 | 774 | 741 | 745 | 757 | 741 | 758 |
| V/C Ratio(X) | 0.04 | 0.00 | 0.12 | 0.03 | 0.00 | 0.54 | 0.00 | 0.23 | 0.24 | 0.14 | 0.21 | 0.21 |
| Avail Cap(c_a), veh/h | 1420 | 0 | 1551 | 1549 | 0 | 1363 | 1232 | 1505 | 1514 | 1201 | 1505 | 1540 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 8.1 | 0.0 | 7.0 | 7.1 | 0.0 | 7.4 | 3.7 | 3.4 | 3.4 | 4.2 | 3.3 | 3.3 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 2.1 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 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 | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.7 | 0.0 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 |
| LnGrp Delay(d),s/veh | 8.1 | 0.0 | 7.2 | 7.2 | 0.0 | 9.5 | 3.7 | 3.5 | 3.5 | 4.3 | 3.5 | 3.5 |
| LnGrp LOS | A | | A | A | | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 49 | | | 133 | | | 350 | | | 421 | |
| Approach Delay, s/veh | | 7.5 | | | 9.2 | | | 3.5 | | | 3.7 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 11.9 | | 6.6 | | 11.9 | | 6.6 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 3.2 | | 3.5 | | 4.5 | | 3.3 |
| Green Ext Time (p_c), s | | 3.7 | | 0.7 | | 3.5 | | 0.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 4.6 |
| HCM 2010 LOS | A |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 41 | 50 | 77 | 33 | 28 | 55 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 87 | 87 | 84 | 84 | 78 | 78 |
| Heavy Vehicles, % | 8 | 8 | 9 | 9 | 5 | 5 |
| Mvmt Flow | 47 | 57 | 92 | 39 | 36 | 71 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 131 | 0 | - | 0 | 263 | 111 |
| Stage 1 | - | - | - | - | 111 | - |
| Stage 2 | - | - | - | - | 152 | - |
| Critical Hdwy | 4.18 | - | - | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | 2.272 | - | - | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | 1418 | - | - | - | 720 | 934 |
| Stage 1 | - | - | - | - | 906 | - |
| Stage 2 | - | - | - | - | 869 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1418 | - | - | - | 696 | 934 |
| Mov Cap-2 Maneuver | - | - | - | - | 696 | - |
| Stage 1 | - | - | - | - | 906 | - |
| Stage 2 | - | - | - | - | 839 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.4 | 0 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1418 | - | - | - | 696 | 934 |
| HCM Lane V/C Ratio | 0.033 | - | - | - | 0.052 | 0.075 |
| HCM Control Delay (s) | 7.6 | 0 | - | - | 10.5 | 9.2 |
| HCM Lane LOS | A | A | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 | 0.2 |

Future without Project
6: 72ND AVE NW & SR 532 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 46 | 388 | 206 | 176 | 526 | 66 | 215 | 153 | 153 | 83 | 211 | 71 |
| 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 | | 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 | 1727 | 1727 | 1727 | 1776 | 1776 | 1776 | 1810 | 1810 | 1810 | 1827 | 1827 | 1827 |
| Adj Flow Rate, veh/h | 51 | 431 | 229 | 205 | 612 | 77 | 265 | 189 | 189 | 98 | 248 | 84 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.81 | 0.81 | 0.81 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 7 | 7 | 7 | 5 | 5 | 5 | 4 | 4 | 4 |
| Cap, veh/h | 64 | 531 | 452 | 248 | 738 | 628 | 318 | 373 | 543 | 345 | 364 | 369 |
| Arrive On Green | 0.04 | 0.31 | 0.31 | 0.15 | 0.42 | 0.42 | 0.07 | 0.21 | 0.21 | 0.06 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Grp Volume(v), veh/h | 51 | 431 | 229 | 205 | 612 | 77 | 265 | 189 | 189 | 98 | 248 | 84 |
| Grp Sat Flow(s),veh/h/ln | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Q Serve(g_s), s | 1.8 | 13.3 | 7.4 | 6.8 | 17.7 | 1.8 | 4.0 | 5.3 | 5.2 | 2.5 | 7.3 | 2.5 |
| Cycle Q Clear(g_c), s | 1.8 | 13.3 | 7.4 | 6.8 | 17.7 | 1.8 | 4.0 | 5.3 | 5.2 | 2.5 | 7.3 | 2.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 64 | 531 | 452 | 248 | 738 | 628 | 318 | 373 | 543 | 345 | 364 | 369 |
| V/C Ratio(X) | 0.80 | 0.81 | 0.51 | 0.83 | 0.83 | 0.12 | 0.83 | 0.51 | 0.35 | 0.28 | 0.68 | 0.23 |
| Avail Cap(c_a), veh/h | 114 | 568 | 483 | 264 | 738 | 628 | 318 | 533 | 679 | 357 | 538 | 517 |
| 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 | 27.5 | 18.4 | 16.4 | 23.9 | 15.0 | 10.4 | 22.2 | 20.3 | 13.8 | 16.9 | 21.4 | 17.7 |
| Incr Delay (d2), s/veh | 20.1 | 8.2 | 0.9 | 18.1 | 7.8 | 0.1 | 16.9 | 1.1 | 0.4 | 0.4 | 2.3 | 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 | 1.1 | 7.4 | 3.1 | 4.4 | 10.3 | 0.8 | 3.8 | 2.8 | 2.3 | 1.2 | 3.9 | 1.1 |
| LnGrp Delay(d),s/veh | 47.6 | 26.7 | 17.3 | 42.1 | 22.9 | 10.5 | 39.1 | 21.4 | 14.2 | 17.4 | 23.7 | 18.0 |
| LnGrp LOS | D | C | B | D | C | B | D | C | B | B | C | B |
| Approach Vol, veh/h | | 711 | | | 894 | | | 643 | | | 430 | |
| Approach Delay, s/veh | | 25.1 | | | 26.2 | | | 26.6 | | | 21.1 | |
| Approach LOS | | C | | | C | | | 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 | 7.6 | 15.9 | 12.5 | 21.8 | 8.0 | 15.5 | 6.2 | 28.0 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 4.0 | 17.0 | 9.0 | 19.0 | 4.0 | 17.0 | 4.0 | 24.0 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 7.3 | 8.8 | 15.3 | 6.0 | 9.3 | 3.8 | 19.7 |
| Green Ext Time (p_c), s | 0.0 | 2.6 | 0.0 | 2.5 | 0.0 | 2.2 | 0.0 | 2.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 25.2 |
| HCM 2010 LOS | C |

Future without Project
9: 72ND AVE NW & 267TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 80 | 29 | 46 | 11 | 18 | 184 | 44 | 278 | 10 | 179 | 305 | 62 |
| 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 | | 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 | 1845 | 1845 | 1900 | 1845 | 1845 | 1900 | 1900 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 87 | 32 | 50 | 13 | 22 | 222 | 50 | 316 | 11 | 195 | 332 | 67 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 465 | 205 | 320 | 611 | 44 | 446 | 522 | 1407 | 49 | 484 | 721 | 149 |
| Arrive On Green | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| Sat Flow, veh/h | 1143 | 663 | 1036 | 1298 | 143 | 1446 | 972 | 3456 | 120 | 671 | 1772 | 366 |
| Grp Volume(v), veh/h | 87 | 0 | 82 | 13 | 0 | 244 | 50 | 160 | 167 | 302 | 0 | 292 |
| Grp Sat Flow(s),veh/h/ln | 1143 | 0 | 1698 | 1298 | 0 | 1589 | 972 | 1752 | 1823 | 1211 | 0 | 1598 |
| Q Serve(g_s), s | 1.9 | 0.0 | 1.0 | 0.2 | 0.0 | 3.5 | 1.1 | 1.7 | 1.7 | 3.9 | 0.0 | 3.7 |
| Cycle Q Clear(g_c), s | 5.4 | 0.0 | 1.0 | 1.2 | 0.0 | 3.5 | 4.8 | 1.7 | 1.7 | 5.6 | 0.0 | 3.7 |
| Prop In Lane | 1.00 | | 0.61 | 1.00 | | 0.91 | 1.00 | | 0.07 | 0.65 | | 0.23 |
| Lane Grp Cap(c), veh/h | 465 | 0 | 524 | 611 | 0 | 491 | 522 | 713 | 742 | 704 | 0 | 650 |
| V/C Ratio(X) | 0.19 | 0.00 | 0.16 | 0.02 | 0.00 | 0.50 | 0.10 | 0.22 | 0.23 | 0.43 | 0.00 | 0.45 |
| Avail Cap(c_a), veh/h | 762 | 0 | 966 | 949 | 0 | 904 | 680 | 996 | 1037 | 900 | 0 | 909 |
| 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 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 10.2 | 0.0 | 7.1 | 7.5 | 0.0 | 7.9 | 7.8 | 5.4 | 5.4 | 6.5 | 0.0 | 6.1 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.8 | 0.1 | 0.2 | 0.2 | 0.4 | 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 | 0.6 | 0.0 | 0.5 | 0.1 | 0.0 | 1.6 | 0.3 | 0.8 | 0.9 | 1.8 | 0.0 | 1.7 |
| LnGrp Delay(d),s/veh | 10.3 | 0.0 | 7.2 | 7.5 | 0.0 | 8.7 | 7.9 | 5.6 | 5.6 | 7.0 | 0.0 | 6.5 |
| LnGrp LOS | B | | A | A | | A | A | A | A | A | | A |
| Approach Vol, veh/h | | 169 | | | 257 | | | 377 | | | 594 | |
| Approach Delay, s/veh | | 8.8 | | | 8.7 | | | 5.9 | | | 6.8 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 15.5 | | 12.7 | | 15.5 | | 12.7 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 6.8 | | 7.4 | | 7.6 | | 5.5 |
| Green Ext Time (p_c), s | | 4.1 | | 1.6 | | 3.9 | | 1.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 7.1 |
| HCM 2010 LOS | A |

Future without Project
12: 72ND AVE NW & 265TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 16 | 18 | 9 | 14 | 2 | 113 | 2 | 232 | 35 | 100 | 275 | 25 |
| 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 | | 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 | 1900 | 1900 | 1900 | 1845 | 1845 | 1900 | 1827 | 1827 | 1900 | 1827 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 19 | 22 | 11 | 15 | 2 | 122 | 3 | 314 | 47 | 110 | 302 | 27 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.93 | 0.93 | 0.93 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 0 | 0 | 0 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 473 | 176 | 88 | 556 | 4 | 227 | 762 | 1313 | 195 | 744 | 1396 | 124 |
| Arrive On Green | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Sat Flow, veh/h | 1287 | 1196 | 598 | 1357 | 25 | 1546 | 1027 | 3034 | 450 | 997 | 3225 | 286 |
| Grp Volume(v), veh/h | 19 | 0 | 33 | 15 | 0 | 124 | 3 | 178 | 183 | 110 | 162 | 167 |
| Grp Sat Flow(s),veh/h/ln | 1287 | 0 | 1794 | 1357 | 0 | 1572 | 1027 | 1736 | 1748 | 997 | 1736 | 1776 |
| Q Serve(g_s), s | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 1.4 | 0.0 | 1.2 | 1.3 | 1.5 | 1.1 | 1.1 |
| Cycle Q Clear(g_c), s | 1.7 | 0.0 | 0.3 | 0.5 | 0.0 | 1.4 | 1.2 | 1.2 | 1.3 | 2.8 | 1.1 | 1.1 |
| Prop In Lane | 1.00 | | 0.33 | 1.00 | | 0.98 | 1.00 | | 0.26 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 473 | 0 | 264 | 556 | 0 | 231 | 762 | 751 | 756 | 744 | 751 | 769 |
| V/C Ratio(X) | 0.04 | 0.00 | 0.13 | 0.03 | 0.00 | 0.54 | 0.00 | 0.24 | 0.24 | 0.15 | 0.22 | 0.22 |
| Avail Cap(c_a), veh/h | 1366 | 0 | 1508 | 1497 | 0 | 1321 | 1181 | 1459 | 1469 | 1150 | 1459 | 1493 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 8.3 | 0.0 | 7.1 | 7.3 | 0.0 | 7.5 | 3.7 | 3.4 | 3.4 | 4.3 | 3.4 | 3.4 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.9 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 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 | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.7 | 0.0 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 |
| LnGrp Delay(d),s/veh | 8.3 | 0.0 | 7.3 | 7.3 | 0.0 | 9.5 | 3.7 | 3.6 | 3.6 | 4.4 | 3.5 | 3.5 |
| LnGrp LOS | A | | A | A | | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 52 | | | 139 | | | 364 | | | 439 | |
| Approach Delay, s/veh | | 7.7 | | | 9.2 | | | 3.6 | | | 3.7 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 12.2 | | 6.8 | | 12.2 | | 6.8 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 3.3 | | 3.7 | | 4.8 | | 3.4 |
| Green Ext Time (p_c), s | | 3.9 | | 0.7 | | 3.6 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 4.7 |
| HCM 2010 LOS | A |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.1 |

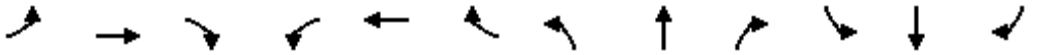
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 43 | 52 | 80 | 34 | 29 | 57 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 87 | 87 | 84 | 84 | 78 | 78 |
| Heavy Vehicles, % | 8 | 8 | 9 | 9 | 5 | 5 |
| Mvmt Flow | 49 | 60 | 95 | 40 | 37 | 73 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 136 | 0 | - | 0 | 274 | 115 |
| Stage 1 | - | - | - | - | 115 | - |
| Stage 2 | - | - | - | - | 159 | - |
| Critical Hdwy | 4.18 | - | - | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | 2.272 | - | - | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | 1412 | - | - | - | 709 | 929 |
| Stage 1 | - | - | - | - | 902 | - |
| Stage 2 | - | - | - | - | 862 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1412 | - | - | - | 683 | 929 |
| Mov Cap-2 Maneuver | - | - | - | - | 683 | - |
| Stage 1 | - | - | - | - | 902 | - |
| Stage 2 | - | - | - | - | 831 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.5 | 0 | 9.7 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1412 | - | - | - | 683 | 929 |
| HCM Lane V/C Ratio | 0.035 | - | - | - | 0.054 | 0.079 |
| HCM Control Delay (s) | 7.6 | 0 | - | - | 10.6 | 9.2 |
| HCM Lane LOS | A | A | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 | 0.3 |

Future with Project
6: 72ND AVE NW & SR 532 11/2/2019



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 46 | 388 | 207 | 181 | 526 | 66 | 216 | 153 | 155 | 83 | 214 | 71 |
| 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 | | 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 | 1727 | 1727 | 1727 | 1776 | 1776 | 1776 | 1810 | 1810 | 1810 | 1827 | 1827 | 1827 |
| Adj Flow Rate, veh/h | 51 | 431 | 230 | 210 | 612 | 77 | 267 | 189 | 191 | 98 | 252 | 84 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.86 | 0.86 | 0.86 | 0.81 | 0.81 | 0.81 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 10 | 10 | 10 | 7 | 7 | 7 | 5 | 5 | 5 | 4 | 4 | 4 |
| Cap, veh/h | 64 | 526 | 448 | 253 | 739 | 628 | 316 | 375 | 549 | 345 | 367 | 372 |
| Arrive On Green | 0.04 | 0.30 | 0.30 | 0.15 | 0.42 | 0.42 | 0.07 | 0.21 | 0.21 | 0.06 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Grp Volume(v), veh/h | 51 | 431 | 230 | 210 | 612 | 77 | 267 | 189 | 191 | 98 | 252 | 84 |
| Grp Sat Flow(s),veh/h/ln | 1645 | 1727 | 1468 | 1691 | 1776 | 1509 | 1723 | 1810 | 1538 | 1740 | 1827 | 1553 |
| Q Serve(g_s), s | 1.8 | 13.4 | 7.5 | 7.0 | 17.8 | 1.8 | 4.0 | 5.4 | 5.3 | 2.6 | 7.4 | 2.5 |
| Cycle Q Clear(g_c), s | 1.8 | 13.4 | 7.5 | 7.0 | 17.8 | 1.8 | 4.0 | 5.4 | 5.3 | 2.6 | 7.4 | 2.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 64 | 526 | 448 | 253 | 739 | 628 | 316 | 375 | 549 | 345 | 367 | 372 |
| V/C Ratio(X) | 0.80 | 0.82 | 0.51 | 0.83 | 0.83 | 0.12 | 0.84 | 0.50 | 0.35 | 0.28 | 0.69 | 0.23 |
| Avail Cap(c_a), veh/h | 113 | 566 | 481 | 262 | 739 | 628 | 316 | 530 | 681 | 357 | 535 | 515 |
| 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 | 27.7 | 18.7 | 16.6 | 23.9 | 15.1 | 10.4 | 22.4 | 20.4 | 13.7 | 16.9 | 21.5 | 17.7 |
| Incr Delay (d2), s/veh | 20.2 | 8.7 | 0.9 | 19.0 | 7.8 | 0.1 | 18.4 | 1.0 | 0.4 | 0.4 | 2.3 | 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 | 1.2 | 7.6 | 3.1 | 4.6 | 10.3 | 0.8 | 4.0 | 2.8 | 2.3 | 1.2 | 3.9 | 1.1 |
| LnGrp Delay(d),s/veh | 47.9 | 27.4 | 17.5 | 42.9 | 22.9 | 10.5 | 40.7 | 21.4 | 14.1 | 17.4 | 23.8 | 18.0 |
| LnGrp LOS | D | C | B | D | C | B | D | C | B | B | C | B |
| Approach Vol, veh/h | | 712 | | | 899 | | | 647 | | | 434 | |
| Approach Delay, s/veh | | 25.7 | | | 26.5 | | | 27.2 | | | 21.2 | |
| Approach LOS | | C | | | C | | | 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 | 7.6 | 16.0 | 12.7 | 21.7 | 8.0 | 15.6 | 6.2 | 28.1 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 4.0 | 17.0 | 9.0 | 19.0 | 4.0 | 17.0 | 4.0 | 24.0 |
| Max Q Clear Time (g_c+I1), s | 4.6 | 7.4 | 9.0 | 15.4 | 6.0 | 9.4 | 3.8 | 19.8 |
| Green Ext Time (p_c), s | 0.0 | 2.6 | 0.0 | 2.3 | 0.0 | 2.2 | 0.0 | 2.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 25.6 |
| HCM 2010 LOS | C |

Future with Project
9: 72ND AVE NW & 267TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 80 | 29 | 46 | 12 | 18 | 184 | 44 | 283 | 10 | 179 | 314 | 62 |
| 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 | | 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 | 1845 | 1845 | 1900 | 1845 | 1845 | 1900 | 1900 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 87 | 32 | 50 | 14 | 22 | 222 | 50 | 322 | 11 | 195 | 341 | 67 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.83 | 0.83 | 0.83 | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 464 | 204 | 319 | 609 | 44 | 446 | 518 | 1414 | 48 | 479 | 732 | 147 |
| Arrive On Green | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| Sat Flow, veh/h | 1143 | 663 | 1036 | 1298 | 143 | 1446 | 964 | 3458 | 118 | 661 | 1791 | 360 |
| Grp Volume(v), veh/h | 87 | 0 | 82 | 14 | 0 | 244 | 50 | 163 | 170 | 305 | 0 | 298 |
| Grp Sat Flow(s),veh/h/ln | 1143 | 0 | 1698 | 1298 | 0 | 1589 | 964 | 1752 | 1824 | 1213 | 0 | 1599 |
| Q Serve(g_s), s | 1.9 | 0.0 | 1.0 | 0.2 | 0.0 | 3.5 | 1.1 | 1.7 | 1.7 | 3.9 | 0.0 | 3.8 |
| Cycle Q Clear(g_c), s | 5.5 | 0.0 | 1.0 | 1.2 | 0.0 | 3.5 | 5.0 | 1.7 | 1.7 | 5.6 | 0.0 | 3.8 |
| Prop In Lane | 1.00 | | 0.61 | 1.00 | | 0.91 | 1.00 | | 0.06 | 0.64 | | 0.22 |
| Lane Grp Cap(c), veh/h | 464 | 0 | 524 | 609 | 0 | 490 | 518 | 716 | 746 | 705 | 0 | 654 |
| V/C Ratio(X) | 0.19 | 0.00 | 0.16 | 0.02 | 0.00 | 0.50 | 0.10 | 0.23 | 0.23 | 0.43 | 0.00 | 0.46 |
| Avail Cap(c_a), veh/h | 757 | 0 | 961 | 943 | 0 | 899 | 669 | 991 | 1032 | 895 | 0 | 904 |
| 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 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 10.2 | 0.0 | 7.1 | 7.6 | 0.0 | 8.0 | 7.9 | 5.4 | 5.5 | 6.5 | 0.0 | 6.1 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.8 | 0.1 | 0.2 | 0.2 | 0.4 | 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 | 0.6 | 0.0 | 0.5 | 0.1 | 0.0 | 1.6 | 0.3 | 0.8 | 0.9 | 1.9 | 0.0 | 1.7 |
| LnGrp Delay(d),s/veh | 10.4 | 0.0 | 7.2 | 7.6 | 0.0 | 8.8 | 8.0 | 5.6 | 5.6 | 7.0 | 0.0 | 6.6 |
| LnGrp LOS | B | | A | A | | A | A | A | A | A | | A |
| Approach Vol, veh/h | | 169 | | | 258 | | | 383 | | | 603 | |
| Approach Delay, s/veh | | 8.9 | | | 8.7 | | | 5.9 | | | 6.8 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 15.6 | | 12.7 | | 15.6 | | 12.7 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 7.0 | | 7.5 | | 7.6 | | 5.5 |
| Green Ext Time (p_c), s | | 4.2 | | 1.6 | | 3.9 | | 1.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 7.1 |
| HCM 2010 LOS | A |

Future with Project
12: 72ND AVE NW & 265TH ST NW 11/2/2019

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 16 | 18 | 9 | 14 | 2 | 113 | 2 | 237 | 35 | 100 | 284 | 25 |
| 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 | | 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 | 1900 | 1900 | 1900 | 1845 | 1845 | 1900 | 1827 | 1827 | 1900 | 1827 | 1827 | 1900 |
| Adj Flow Rate, veh/h | 19 | 22 | 11 | 15 | 2 | 122 | 3 | 320 | 47 | 110 | 312 | 27 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.93 | 0.93 | 0.93 | 0.74 | 0.74 | 0.74 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 0 | 0 | 0 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cap, veh/h | 470 | 176 | 88 | 553 | 4 | 227 | 757 | 1326 | 193 | 741 | 1411 | 121 |
| Arrive On Green | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| Sat Flow, veh/h | 1287 | 1196 | 598 | 1357 | 25 | 1546 | 1017 | 3042 | 443 | 991 | 3235 | 278 |
| Grp Volume(v), veh/h | 19 | 0 | 33 | 15 | 0 | 124 | 3 | 181 | 186 | 110 | 166 | 173 |
| Grp Sat Flow(s),veh/h/ln | 1287 | 0 | 1794 | 1357 | 0 | 1572 | 1017 | 1736 | 1749 | 991 | 1736 | 1778 |
| Q Serve(g_s), s | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 1.4 | 0.0 | 1.3 | 1.3 | 1.5 | 1.1 | 1.2 |
| Cycle Q Clear(g_c), s | 1.7 | 0.0 | 0.3 | 0.5 | 0.0 | 1.4 | 1.2 | 1.3 | 1.3 | 2.8 | 1.1 | 1.2 |
| Prop In Lane | 1.00 | | 0.33 | 1.00 | | 0.98 | 1.00 | | 0.25 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 470 | 0 | 263 | 553 | 0 | 231 | 757 | 757 | 763 | 741 | 757 | 775 |
| V/C Ratio(X) | 0.04 | 0.00 | 0.13 | 0.03 | 0.00 | 0.54 | 0.00 | 0.24 | 0.24 | 0.15 | 0.22 | 0.22 |
| Avail Cap(c_a), veh/h | 1355 | 0 | 1497 | 1486 | 0 | 1311 | 1162 | 1448 | 1459 | 1136 | 1448 | 1483 |
| 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 8.4 | 0.0 | 7.1 | 7.3 | 0.0 | 7.6 | 3.8 | 3.4 | 3.4 | 4.3 | 3.4 | 3.4 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.9 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 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 | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.7 | 0.0 | 0.6 | 0.7 | 0.4 | 0.5 | 0.6 |
| LnGrp Delay(d),s/veh | 8.4 | 0.0 | 7.3 | 7.3 | 0.0 | 9.5 | 3.8 | 3.6 | 3.6 | 4.4 | 3.5 | 3.5 |
| LnGrp LOS | A | | A | A | | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 52 | | | 139 | | | 370 | | | 449 | |
| Approach Delay, s/veh | | 7.7 | | | 9.3 | | | 3.6 | | | 3.7 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 12.4 | | 6.8 | | 12.4 | | 6.8 |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | | 16.0 | | 16.0 | | 16.0 | | 16.0 |
| Max Q Clear Time (g_c+I1), s | | 3.3 | | 3.7 | | 4.8 | | 3.4 |
| Green Ext Time (p_c), s | | 3.9 | | 0.7 | | 3.7 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 4.6 |
| HCM 2010 LOS | A |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 44 | 55 | 83 | 36 | 29 | 57 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 87 | 87 | 84 | 84 | 78 | 78 |
| Heavy Vehicles, % | 8 | 8 | 9 | 9 | 5 | 5 |
| Mvmt Flow | 51 | 63 | 99 | 43 | 37 | 73 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 142 | 0 | - | 0 | 284 | 120 |
| Stage 1 | - | - | - | - | 120 | - |
| Stage 2 | - | - | - | - | 164 | - |
| Critical Hdwy | 4.18 | - | - | - | 6.45 | 6.25 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | 2.272 | - | - | - | 3.545 | 3.345 |
| Pot Cap-1 Maneuver | 1405 | - | - | - | 700 | 923 |
| Stage 1 | - | - | - | - | 898 | - |
| Stage 2 | - | - | - | - | 858 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1405 | - | - | - | 673 | 923 |
| Mov Cap-2 Maneuver | - | - | - | - | 673 | - |
| Stage 1 | - | - | - | - | 898 | - |
| Stage 2 | - | - | - | - | 825 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.4 | 0 | 9.7 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1405 | - | - | - | 673 | 923 |
| HCM Lane V/C Ratio | 0.036 | - | - | - | 0.055 | 0.079 |
| HCM Control Delay (s) | 7.7 | 0 | - | - | 10.7 | 9.2 |
| HCM Lane LOS | A | A | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 6 | 78 | 114 | 6 | 3 | 8 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 84 | 84 | 100 | 100 | 84 | 84 |
| Heavy Vehicles, % | 9 | 9 | 9 | 9 | 2 | 2 |
| Mvmt Flow | 7 | 93 | 114 | 6 | 4 | 10 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 120 | 0 | - | 0 | 224 | 117 |
| Stage 1 | - | - | - | - | 117 | - |
| Stage 2 | - | - | - | - | 107 | - |
| Critical Hdwy | 4.19 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.281 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1425 | - | - | - | 764 | 935 |
| Stage 1 | - | - | - | - | 908 | - |
| Stage 2 | - | - | - | - | 917 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1425 | - | - | - | 760 | 935 |
| Mov Cap-2 Maneuver | - | - | - | - | 760 | - |
| Stage 1 | - | - | - | - | 908 | - |
| Stage 2 | - | - | - | - | 912 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1425 | - | - | - | 880 |
| HCM Lane V/C Ratio | 0.005 | - | - | - | 0.015 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.2 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Vol, veh/h | 10 | 28 | 80 | 20 | 48 | 98 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 78 | 78 | 78 | 78 | 78 | 78 |
| Heavy Vehicles, % | 2 | 2 | 5 | 5 | 5 | 5 |
| Mvmt Flow | 13 | 36 | 103 | 26 | 62 | 126 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 364 | 115 | 0 | 0 | 128 | 0 |
| Stage 1 | 115 | - | - | - | - | - |
| Stage 2 | 249 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.15 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.245 | - |
| Pot Cap-1 Maneuver | 635 | 937 | - | - | 1440 | - |
| Stage 1 | 910 | - | - | - | - | - |
| Stage 2 | 792 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 608 | 937 | - | - | 1440 | - |
| Mov Cap-2 Maneuver | 608 | - | - | - | - | - |
| Stage 1 | 910 | - | - | - | - | - |
| Stage 2 | 758 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.7 | 0 | 2.5 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 820 | 1440 | - |
| HCM Lane V/C Ratio | - | - | 0.059 | 0.043 | - |
| HCM Control Delay (s) | - | - | 9.7 | 7.6 | - |
| HCM Lane LOS | - | - | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.1 | - |

Prepared for: **Traffex**

*Traffic Count Consultants, Inc.*

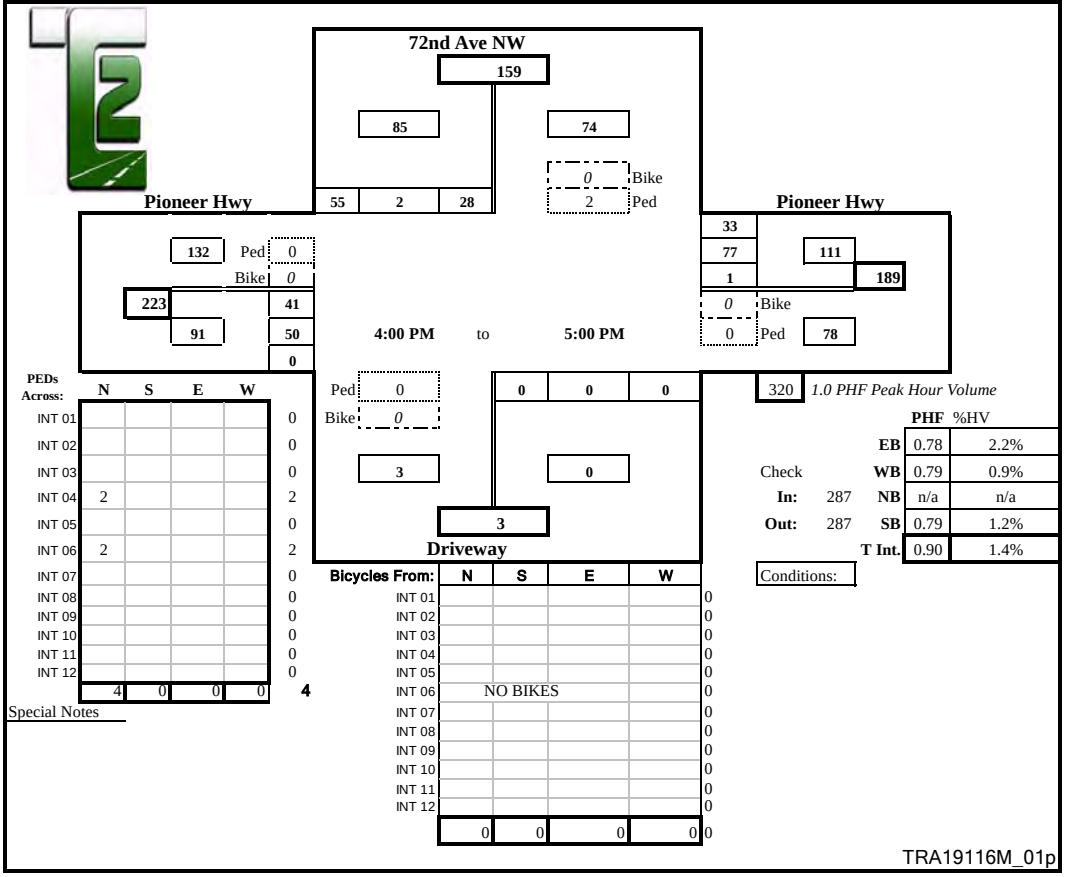
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

**Intersection:** 72nd Ave NW & Pioneer Hwy **Date of Count:** Thurs 10/24/2019

**Location:** Stanwood, Washington **Checked By:** Jess

| Time Interval | From North on (SB) 72nd Ave NW | | | | From South on (NB) Driveway | | | | From East on (WB) Pioneer Hwy | | | | From West on (EB) Pioneer Hwy | | | | Interval Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ending at | T | L | S | R | T | L | S | R | T | L | S | R | T | L | S | R | |
| 4:15 P | 0 | 7 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 8 | 1 | 12 | 13 | 0 | 74 |
| 4:30 P | 0 | 10 | 0 | 17 | 0 | 0 | 0 | 0 | 1 | 0 | 23 | 12 | 0 | 9 | 9 | 0 | 80 |
| 4:45 P | 1 | 7 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 15 | 9 | 0 | 8 | 11 | 0 | 63 |
| 5:00 P | 0 | 4 | 2 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 4 | 1 | 12 | 17 | 0 | 70 |
| 5:15 P | 1 | 6 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 9 | 1 | 15 | 11 | 0 | 67 |
| 5:30 P | 0 | 8 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 11 | 0 | 14 | 10 | 0 | 69 |
| 5:45 P | 1 | 7 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 4 | 0 | 10 | 10 | 0 | 59 |
| 6:00 P | 0 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 7 | 1 | 10 | 9 | 0 | 56 |
| 6:15 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 3 | 56 | 2 | 98 | 0 | 0 | 0 | 0 | 1 | 1 | 137 | 64 | 4 | 90 | 90 | 0 | 538 |
| Peak Hour: 4:00 PM to 5:00 PM | | | | | | | | | | | | | | | | | |
| Total | 1 | 28 | 2 | 55 | 0 | 0 | 0 | 0 | 1 | 1 | 77 | 33 | 2 | 41 | 50 | 0 | 287 |
| Approach | 85 | | | | 0 | | | | 111 | | | | 91 | | | | 287 |
| %HV | 1.2% | | | | n/a | | | | 0.9% | | | | 2.2% | | | | 1.4% |
| PHF | 0.79 | | | | n/a | | | | 0.79 | | | | 0.78 | | | | 0.90 |




Special Notes

TRA19116M_01p