

Revised Report

**Village at Camas Meadows
Traffic Impact Study**

June 6, 2016

H. Lee & Associates, PLLC

**VILLAGE AT CAMAS MEADOWS
REVISED TRAFFIC IMPACT STUDY**



6/6/16

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SECTION I STUDY SUMMARY

INTRODUCTION

This traffic impact analysis has been prepared to assess transportation impacts related to the proposed Village at Camas Meadows project in Camas, Washington. The project site is comprised of tax lot 175951-000 and is located at 6101 NW Nightshade Street in Camas, Washington. Figure 1 shows the project vicinity.

Initially in May 2015, Charbonneau Engineering, LLC conducted the original traffic impact study. H. Lee & Associates, PLLC recently conducted a traffic impact study for the Parklands at Camas Meadows project which is adjacent to the Village at Camas Meadows project. In comparing these studies, they were significantly different from one another. Since the public hearing for these projects are occurring together and city staff are reviewing both these applications concurrently, it was agreed upon that the traffic studies should be consistent with each other so staff can develop similar findings. Therefore, H. Lee & Associates, PLLC was contracted to take the Village at Camas Meadows traffic study and make it consistent with the Parklands at Camas Meadows traffic impact study.

Project Description

The proposed project is a residential development comprised of up to 46 single-family homes, 31 townhomes, and 138 apartment units on an approximately 19.5-acre site. Access will be provided by the extension of NW Camas Meadows Drive to the east, which will connect to NW Larkspur Street and NW Payne Street. There is one existing residence on site. Figure 2 shows the project site plan. Initial construction is expected to begin in 2016/2017 with full occupancy by 2020.

Scope of Traffic Impact Study

The scope of the traffic impact study was developed from known City of Camas and City of Vancouver traffic study requirements. From this information, the following intersections listed below were analyzed:

- NE 13th Street/NE 192nd Avenue
- SE 1st Street/NE & SE 192nd Avenue
- NW Lake Road/NW Parker Street/NW Larkspur Street
- NW Parker Street/NW 38th Avenue
- SE Brady Road/SE 192nd Avenue
- NE Goodwin Road/NE Ingle Road
- NE Goodwin Road/NW Camas Meadows Drive
- NW Parker Street/NW Pacific Rim Boulevard/NW Pacific Rim Drive
- NW Brady Road/NW 16th Avenue
- NW & SE Brady Road/NW McIntosh Road

- NW Payne Street/NW Lake Road

The remainder of this report presents the following analysis:

- Existing traffic conditions in the project study area.
- 2020 “Without Project” condition to establish the baseline condition by which the project impacts could be determined.
- Trip generation estimates for the proposed development.
- 2020 “With Project” condition to determine project traffic impacts.

SUMMARY OF FINDINGS

Findings

The following are the findings from the traffic analysis:

- The proposed development is expected to generate 1,651 net new daily, 128 net new A.M. peak hour (29 in, 99 out), and 163 net new P.M. peak hour (105 in, 58 out) trips.
- The TMZ corridors within the City of Vancouver impacted by 5 or more P.M. peak hour trips as shown below.

| TMZ Corridor | Limits of TMZ Corridor | P.M. Peak Hour Trip Impact |
|--------------------------|-----------------------------------------------------|----------------------------|
| 18 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 18 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 28 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 28 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 112 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 112 th Avenue | 28 th Street – 51 st Street | 0 |
| 136 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 138 th Avenue | 28 th Street – Fourth Plain Blvd | 0 |
| 162 nd Avenue | 1 st Street – Fourth Plain Blvd | 0 |
| 164 th Avenue | SR 14 – 1 st Street | 0 |
| 192 nd Avenue | SR 14 – 18 th Street | 90 |
| Andresen Road | Mill Plain Blvd – SR 500 | 0 |
| Andresen Road | SR 500 – 78 th Street | 0 |
| Burton Road | Andresen Road – 112 th Avenue | 0 |
| Fourth Plain Blvd | Port – I-5 | 0 |
| Fourth Plain Blvd | I-5 – Stapleton Road | 0 |
| Fourth Plain Blvd | Stapleton Road to I-205 | 0 |
| Fourth Plain Blvd | 117 th Avenue – 162 nd Avenue | 0 |
| Mill Plain Blvd | I-5 – Andresen Road | 0 |
| Mill Plain Blvd | Andresen Road – I-205 | 0 |
| Mill Plain Blvd | I-205 – 136 th Avenue | 0 |

| | | |
|--------------------------|-----------------------------------------------------|---|
| Mill Plain Blvd | 136 th Avenue – 164 th Avenue | 0 |
| Mill Plain Blvd | 164 th Avenue – 192 nd Avenue | 0 |
| St. James/St. Johns Road | Fourth Plain – 78 th Street | 0 |

- Per conversations with Olson Engineering, Inc. pertaining to the Green Mountain Development, the NE Goodwin Road/NE Ingle Road intersection will be converted to a signalized intersection with additional eastbound and westbound left turn lanes. The NE Goodwin Road/NE Ingle Road intersection was analyzed in the 2020 "Without Project" and "With Project" condition based on those improvements.

The 2015 existing and 2020 "Without Project" levels of service at the southbound approach of the NW Payne Street/NW Lake Road intersection are operating at LOS D and E, respectively. With the extension of NW Camas Meadows Drive to NW Larkspur Street and the resulting trip diversion, the level of service is projected to be LOS B in the 2020 "With Project" condition.

- NE 13th Street/NE 192nd Avenue
The southbound left turn movement in the 2020 "With Project" A.M. peak hour condition exceeds the available storage by 22 feet. This is less than one car length and is not significantly over the available storage. The southbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The city should monitor this condition periodically to see if it becomes an operations issue.
- SE Brady Road/NE 192nd Avenue
The westbound left turn movement in the 2020 "With Project" A.M. and P.M. peak hour conditions exceed the available storage by 279 and 7 feet, respectively. This queue exceeding the available storage may be partially mitigated by reallocating some of the green time from the eastbound through phase to the westbound left turn phase. Reallocating the green time from NE 192nd Avenue to the westbound left movement from SE Brady Road can reduce the excessive queues along SE Brady Road. Since overall levels of service is relatively low (LOS C in the A.M. peak and LOS B in the P.M. peak), it is likely that green time from NE 192nd Avenue can be reallocated to SE Brady Road. The westbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The City of Vancouver should monitor this movement periodically to see if it becomes a traffic operations issue.
- All of the study intersections are projected to operate at acceptable levels of service for the 2020 "With Project" condition.

Recommendations

- Based on the traffic impact analysis documented in this report, no off-site mitigation would be needed with the build out of the proposed project.

- Because the NW Camas Meadows Drive extension will be constructed for the Village at Camas Meadows project, the access intersections sight distances shall be verified later in the final engineering and construction stages of development.

Village at Camas Meadows TIA
Camas, WA

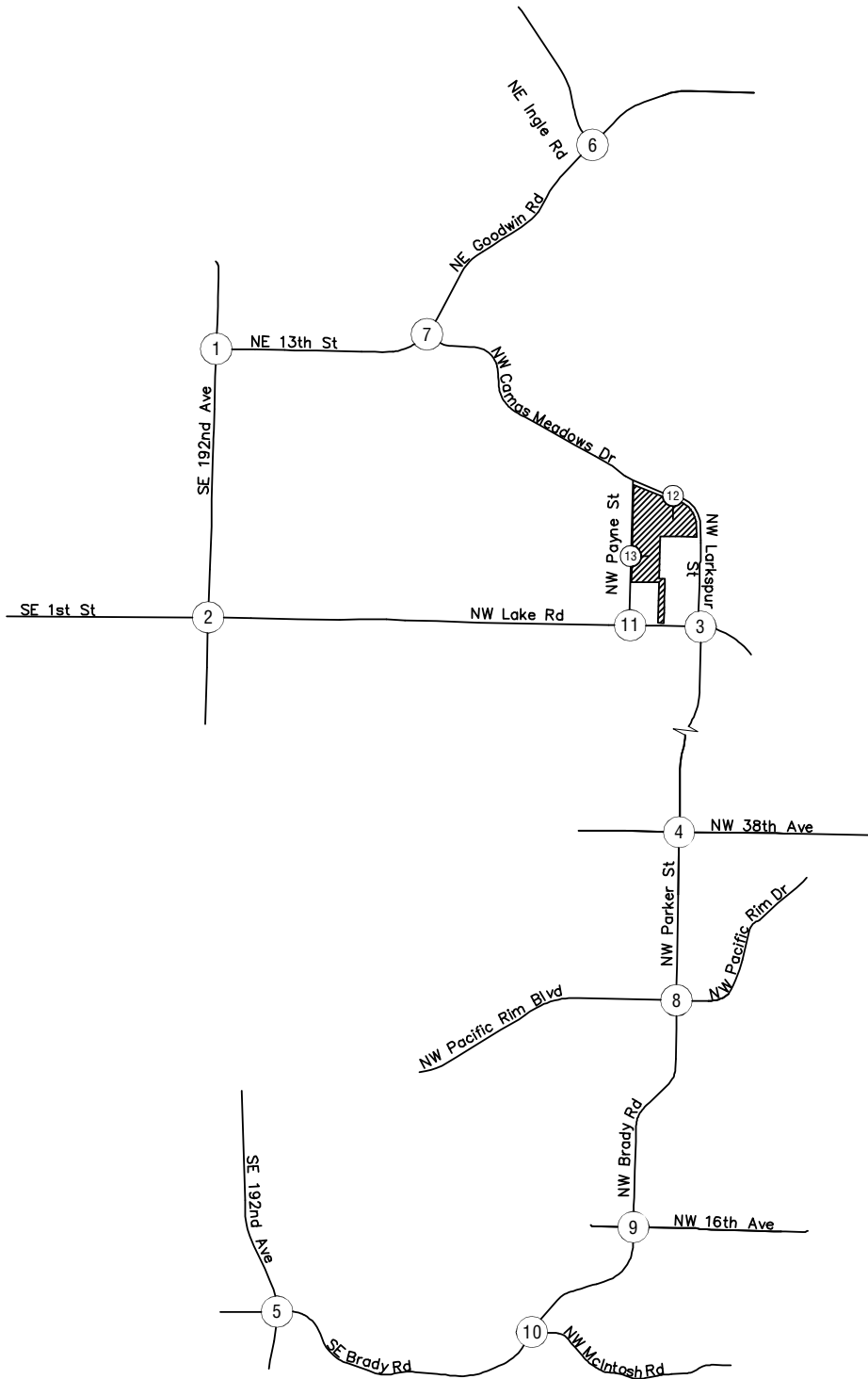


FIGURE 1
Site Vicinity Map



Village at Camas Meadows TIA Camas, WA

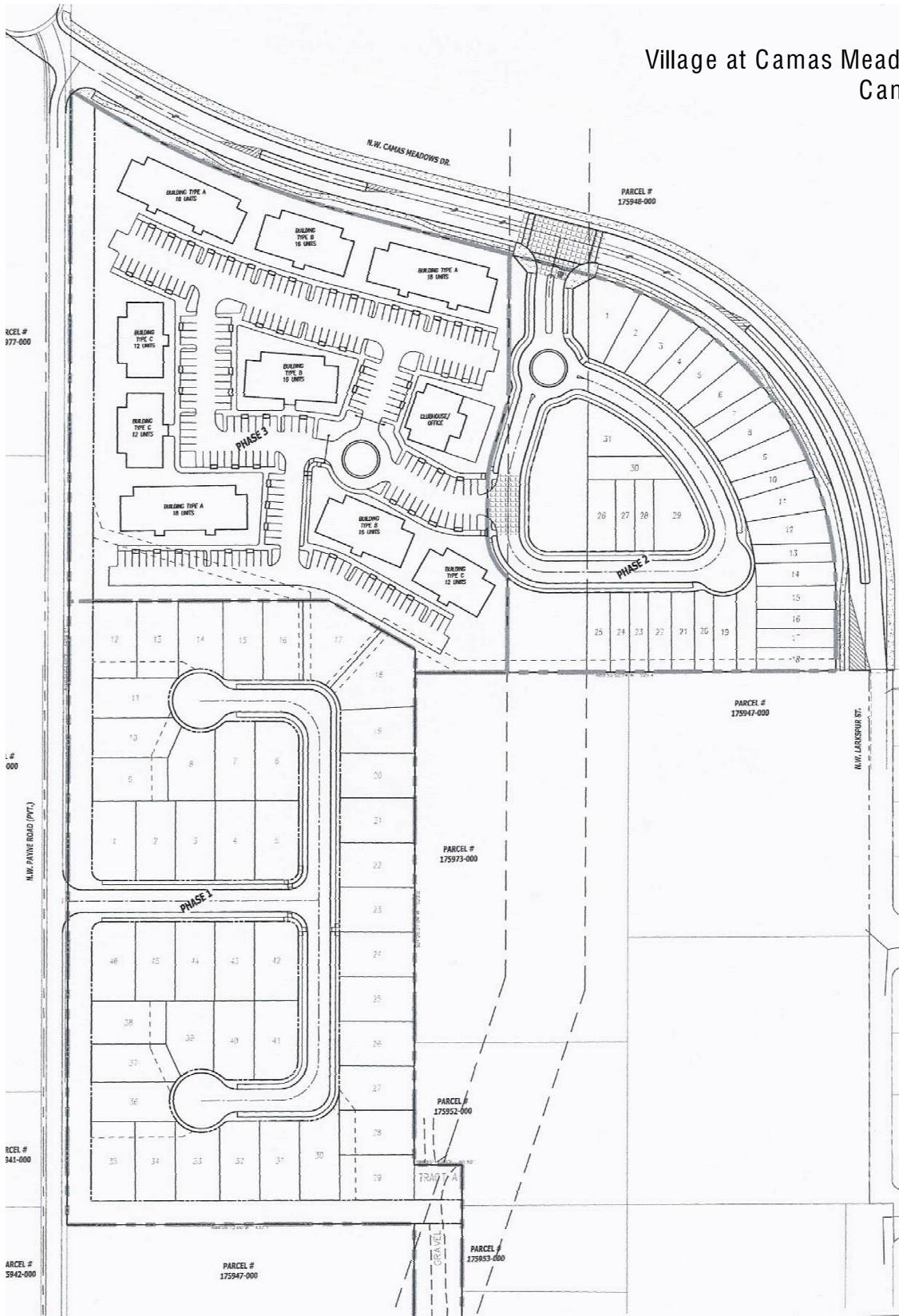


FIGURE 2
Site Plan

SECTION II EXISTING CONDITIONS

SITE CONDITION AND ADJACENT LAND USE

The proposed project site is comprised of tax lot: 175951-000. The proposed site has one existing residence. Camas Meadows Golf Course exists to the northwest. Residential uses exist to the east, west and south of the project site. Vacant land exists to the north of the site.

TRANSPORTATION FACILITIES

The following provides a description of the existing street system in the study area.

SE 1st Street: SE 1st Street is classified as a principal arterial east of SE 164th Avenue. West of SE 164th Avenue, SE 1st Street is a collector arterial. Between SE 192nd Avenue and SE 202nd Avenue, the roadway is comprised of four lanes with a center median, additional turn lanes at major intersections, bike lanes and sidewalks. West of SE 192nd Avenue, the roadway is comprised of two-lanes with additional turn lanes at major intersections. Intermittent sidewalks exist along both sides of the roadway. The posted speed limit is 40 mph.

NE 13th Street: NE 13th Street is classified as a collector arterial roadway. The roadway is comprised of two lanes. Intermittent sidewalks exist on the north side of the roadway. The posted speed limit is 35 mph.

NW 16th Avenue: NW 16th Avenue is classified as a collector roadway. The roadway is comprised of two to three lanes. West of NW Parker Street, sidewalks exist on the south side of the roadway. East of NW Parker Street sidewalks and bike lanes exist on both sides of the roadway. The posted speed limit is 35 mph.

NW 38th Avenue: NW 38th Avenue is classified as an arterial roadway. The roadway is comprised of two to three lanes. Intermittent sidewalks and bike lanes exist on both sides of the roadway. The posted speed limit is 35 mph.

NE & SE 192nd Avenue: NE 192nd Avenue is classified as a principal arterial roadway. North of NE 3rd Street, the roadway is comprised of two lanes and additional turn lanes at major intersections. South of NE 3rd Street, the roadway is comprised of four lanes with a center median and additional turn lanes at major intersections. Bike lanes and sidewalks exist on both sides of the roadway. The posted speed limit is 40 mph.

NW & SE Brady Road: NW & SE Brady Road is a two lane arterial roadway with medians and additional turn pockets at major intersections. The posted speed limit is 40 mph from SE 192nd Avenue to NW McIntosh Road. North of McIntosh Road the speed limit changes to 35 mph. Intermittent sidewalks and bike lanes exist along both sides of the roadway.

NW Parker Street: NW Parker Street is classified as an arterial roadway. Between NW 24th Avenue and NW 38th Avenue the roadway is comprised of four lanes and a center median with additional turn pockets at major intersections. Other sections of the roadway are comprised of two to three lanes with a center median and additional turn pockets at major intersections. Sidewalks and bike lanes exist on both sides of the roadway. The posted speed limit is 35 mph.

NW Pacific Rim Boulevard: NW Pacific Rim Boulevard is classified as an arterial roadway. The roadway is comprised of four to five lanes with an intermittent center median and additional turn pockets at major intersections. Sidewalks and bike lanes exist on both sides of the roadway. The posted speed limit is 40 mph.

NW Pacific Rim Drive: NW Pacific Rim Drive is classified as a collector roadway. The roadway is comprised of two lanes. Sidewalks exist on both sides of the roadway. The posted speed limit is 25 mph.

NW Lake Road: NW Lake Road is classified as an arterial roadway. The roadway is comprised of four to five lanes with an intermittent center median and additional turn pockets at major intersections. Sidewalks and bike lanes exist on both sides of the roadway. The posted speed limit is 40 mph west of NW Parker Street and 35 mph east of NW Parker Street.

NW Larkspur Street: NW Larkspur Street is classified as an arterial roadway. The roadway is comprised of two lanes with additional turn pockets at major intersections. Intermittent sidewalks exist along the west side of the roadway and continuous sidewalks exist along the east side of the roadway. There is no posted speed limit but it is assumed to be 25 mph.

NW Camas Meadows Drive: NW Camas Meadows Drive is classified as an arterial roadway. The roadway is comprised of two to three lanes. Sidewalks exist on both sides of the roadway. The posted speed limit is 35 mph.

NW McIntosh Road: NW McIntosh Road is classified as an arterial roadway. The roadway is comprised of two lanes. Intermittent sidewalks exist along both sides of the roadway. The posted speed limit is 35 mph.

NE Ingle Road: NE Ingle Road is classified as a collector roadway. The roadway is comprised of two lanes with additional turn pockets at major intersections. The posted speed limit is 35 mph.

NE Goodwin Road: NE Goodwin Road is classified as an arterial roadway. The roadway is comprised of two lanes. The posted speed limit is 50 mph.

NW Payne Street: NE Payne Street is classified as a private roadway. The roadway is comprised of two lanes and has no posted speed limit.

The scope of the traffic impact study was developed from known City of Camas and City of Vancouver traffic study requirements. From this information, the following intersections listed below were analyzed:

- NE 13th Street/NE 192nd Avenue
- SE 1st Street/NE & SE 192nd Avenue
- NW Lake Road/NW Parker Street/NW Larkspur Street
- NW Parker Street/NW 38th Avenue
- SE Brady Road/SE 192nd Avenue
- NE Goodwin Road/NE Ingle Road
- NE Goodwin Road/NW Camas Meadows Drive
- NW Parker Street/NW Pacific Rim Boulevard/NW Pacific Rim Drive
- NW Brady Road/NW 16th Avenue
- NW & SE Brady Road/NW McIntosh Road
- NW Payne Street/NW Lake Road

The following study area intersections are signalized:

- NE 13th Street/NE 192nd Avenue
- SE 1st Street/NE & SE 192nd Avenue
- NW Lake Road/NW Parker Street/NW Larkspur Street
- NW Parker Street/NW 38th Avenue
- SE Brady Road/SE 192nd Avenue

The following study area intersections are all-way-stop controlled:

- NW Parker Street/NW Pacific Rim Boulevard/NW Pacific Rim Drive
- NW Brady Road/NW 16th Avenue

The remainder of the study area intersections are unsignalized and operate under stop sign control. Figure 3 shows the existing lane configurations and traffic control at these intersections.

EXISTING TRAFFIC VOLUMES

A.M. and P.M. peak hour traffic counts were obtained at the study area intersections by H. Lee & Associates in January, April, June and July 2015. Below is a detailed list of when the traffic counts were conducted at the study area intersections.

- NE 13th St/NE 192nd Av – January 7 & 20, 2015 for A.M. and P.M. peak hours, respectively
- SE 1st St/NE & SE 192nd Av – April 1, 2015 for A.M. peak hour and January 15, 2015 for P.M. peak hour
- NW Lake R/NW Parker St/NW Larkspur St – June 9 & 10, 2015 for A.M. and P.M. peak hours, respectively
- NW Parker St/NW 38th Av – June 9, 2015 for both A.M. and P.M. peak hours
- SE Brady Rd/SE 192nd Av – June 9, 2015 for both A.M. and P.M. peak hours
- NE Goodwin Rd/NE Ingle Rd – June 10, 2015 for both A.M. and P.M. peak hours
- NE Goodwin Rd/NW Camas Meadows Dr – June 9, 2015 both A.M. and P.M. peak hours
- NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr – June 9 & 10, 2015 for A.M. and P.M. peak hours, respectively
- NW Brady Rd/NW 16th Av – June 11, 2015 for both A.M. and P.M. peak hours
- NW & SE Brady Rd/NW McIntosh Rd – June 9, 2015 for both A.M. and P.M. peak hours
- NW Payne St/NW Lake Rd – July 7, 2015 for both A.M. and P.M. peak hours

The existing A.M. and P.M. peak hour turning movement traffic counts are presented in Figure 4 and can be referenced in Appendix A. ADT's were collected at NW Payne Street, NW Larkspur Street and NW Camas Meadows Drive and can be referenced in Appendix A. Speed studies were also conducted at NW Camas Meadows Drive and NW Larkspur Street which can also be referenced in Appendix A.

EXISTING LEVEL OF SERVICE

Based on the traffic volumes presented in Figure 4, peak hour traffic operations were analyzed at the intersections identified above using the methodologies outlined in the 2010 Highway Capacity Manual (HCM). According to the HCM, there are six levels of service (LOS) by which the operational performance of an intersection may be described. These levels of service range between LOS "A" which indicates a relatively free-flowing condition and LOS "F" which indicates operational breakdown. LOS D is the City of Camas' adopted level of service standard for arterial/collector intersections. For non-arterial/collector intersections, LOS C is the adopted level of service standard.

The minimum level of service standard in the City of Vancouver can be referenced from Vancouver Municipal Code (VMC) Section 11.90.020(e) which states:

- 2) A proposed development that adds at least five (5) net new peak hour trips to a failing intersection approach within the required traffic impact analysis area may be denied based upon any of the following.

- a) For signalized intersections, when off-site intersection conditions are at a level of service “F”;
 - b) For signalized intersections, when the level of service is “E” and the volume to capacity ratio is greater than 0.95;
 - c) For unsignalized intersections, when the volume to capacity ratio for any lane on any approach is greater than 0.95;
 - d) When significant traffic hazards would be caused or materially aggravated by the proposed development;
 - e) Notwithstanding a through d of this subsection, traffic impacts to intersections on Corridors Built to Ultimate Capacity shall be evaluated against the level of service standards identified in an adopted Corridor Management Plan.
- 3) A proposed development that is subject to denial pursuant to this section may be approved subject to conditions of approval that address the impact of traffic generated by the proposed development. Proposed developments shall not be required to address an impact unless that impact causes the volume to capacity ratio on a lane of a failing intersection approach to exceed 0.95.

The City of Vancouver requires that the HCM levels of service be calculated by a software package called Synchro. All levels of service calculations have been conducted in Synchro.

Existing A.M. and P.M. peak hour levels of service are summarized in Table 1A for the City of Camas study area intersections. As indicated in Table 1A, all City of Camas study area intersections are currently operating at LOS C or better with the exception of NW Payne Street/NW Lake Road intersection where the southbound approach is operating at LOS D. Appendix C contains the LOS worksheets for the 2015 Existing Conditions.

Existing A.M. and P.M. peak hour levels of service are summarized in Table 1B for the City of Vancouver study area intersections. As shown in Table 1B, the signalized study area intersections are operating at an acceptable level of service of LOS D or better. All levels of service calculations have been conducted in Synchro and the actual signal timing was utilized. The signal timing cards can be referenced in Appendix B. The LOS calculation worksheets can be referenced in Appendix C.

Table 1A. 2015 Existing Levels of Service at City of Camas Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NW Lake Road/NW Parker Street/NW Larkspur Road | B | 15.5 | 0.48 | B | 16.1 | 0.52 |
| NW Parker Street/NW 38 th Avenue | B | 16.3 | 0.58 | B | 15.8 | 0.54 |
| All Way Stop Intersections | | | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | B | 13.1 | 0.35 | B | 12.4 | 0.30 |
| NW Brady Road/NW 16 th Avenue | B | 15.0 | 0.51 | B | 12.5 | 0.42 |
| Unsignalized Intersection | | | | | | |
| NE Goodwin Road/NE Ingle Road | | | | | | |
| Eastbound Left | A | 8.3 | 0.08 | A | 8.1 | 0.11 |
| Southbound Left | A | 14.1 | 0.13 | C | 22.2 | 0.35 |
| Southbound Right | B | 11.0 | 0.20 | B | 10.1 | 0.14 |
| NE Goodwin Road/NW Camas Meadows Drive | | | | | | |
| Westbound Left | C | 15.3 | 0.04 | C | 16.9 | 0.16 |
| Westbound Right | A | 9.1 | 0.06 | B | 11.6 | 0.13 |
| Southbound Left | A | 7.7 | 0.07 | A | 8.4 | 0.04 |
| NW & SE Brady Road/NW McIntosh Road | | | | | | |
| Westbound Left | C | 16.5 | 0.31 | C | 16.1 | 0.20 |
| Westbound Right | A | 9.5 | 0.01 | B | 11.4 | 0.04 |
| Southbound Left | A | 7.8 | 0.01 | A | 8.5 | 0.01 |
| NW Lake Road/NW Payne Street | | | | | | |
| Eastbound Left | A | 8.0 | 0.02 | A | 9.2 | 0.11 |
| Southbound Approach | B | 12.6 | 0.11 | D | 34.6 | 0.46 |

Table 1B. 2015 Existing Levels of Service at City of Vancouver Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|------------------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NE 13 th Street/NE 192 nd Avenue | | | | | | |
| Westbound Approach | C | 34.5 | 0.67 | D | 44.3 | 0.73 |
| Northbound Approach | C | 33.6 | 0.67 | C | 25.6 | 0.77 |
| Southbound Approach | C | 21.6 | 0.47 | B | 16.3 | 0.34 |
| SE 1 st Street/NE & SE 192 nd Avenue | | | | | | |
| Eastbound Approach | D | 37.1 | 0.54 | D | 42.3 | 0.51 |
| Westbound Approach | C | 33.8 | 0.53 | D | 45.5 | 0.68 |
| Northbound Approach | B | 12.3 | 0.25 | C | 20.0 | 0.36 |
| Southbound Approach | C | 22.3 | 0.29 | C | 27.8 | 0.31 |
| SE Brady Road/SE 192 nd Avenue | | | | | | |
| Eastbound Approach | C | 30.3 | 0.09 | B | 15.2 | 0.03 |
| Westbound Approach | E | 59.0 | 0.90 | C | 34.5 | 0.61 |
| Northbound Approach | B | 12.0 | 0.33 | B | 13.6 | 0.51 |
| Southbound Approach | B | 14.1 | 0.38 | B | 14.2 | 0.49 |

Table 2 shows the 95th percentile queue for the major movements at the study area intersections. These 95th percentile queues were obtained from the Synchro level of service output and can be referenced in Appendix C. As shown in Table 2, all of the 95th percentile queues are within the available storage areas with the exception of the westbound left turn movement at the SE 192nd Avenue/SE Brady Road intersection in the A.M. peak hour. The westbound left movement at the SE 192nd Avenue/ SE Brady Road intersection has a 95th percentile queue of 584 feet in the A.M. peak hour. The available storage for the westbound left movement is only 320 feet. This queue exceeding the available storage may be partially mitigated by reallocating some of the green time from the eastbound through phase to the westbound left turn phase. Reallocating the green time for the eastbound and westbound directions of travel should minimize the impacts to the signal coordination along NE 192nd Avenue. Also, since the level of service and v/c standards are not exceeded, no mitigation of this condition should be required. The City of Vancouver should monitor this movement periodically to see if it becomes a traffic operations issue.

Table 2. 95th Percentile Queuing at Study Area Intersections for 2015 Existing Conditions

| Signalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue | Available Storage | Storage Exceeded? |
|-----------------------------------------------------|-----------------------------------|----------------------|-------------------|-------------------|
| NE 13 th St/NE 192 nd Ave | | | | |
| Westbound Approach | 262 feet | 218 feet | continuous | No |
| Northbound Approach | 282 feet | 683 feet | continuous | No |
| Southbound Left | 276 feet | 123 feet | 377 feet | No |
| Southbound Through | 142 feet | 137 feet | continuous | No |
| SE 1 st St/NE & SE 192 nd Ave | | | | |
| Eastbound Left | 32 feet | 82 feet | 285 feet | No |
| Eastbound Through | 101 feet | 116 feet | continuous | No |
| Westbound Left | 100 feet | 165 feet | 345 feet | No |
| Westbound Through | 172 feet | 254 feet | continuous | No |
| Westbound Right | 25 feet | 31 feet | continuous | No |
| Northbound Left | 44 feet | 93 feet | 195 feet | No |
| Northbound Through | 79 feet | 202 feet | continuous | No |
| Northbound Right | 30 feet | 37 feet | 230 feet | No |
| Southbound Left | 79 feet | 122 feet | 295 feet | No |
| Southbound Through | 111 feet | 111 feet | continuous | No |
| NW Lake Rd/NW Parker St/NW Larkspur Rd | | | | |
| Eastbound Left | 30 feet | 58 feet | 215 feet | No |
| Eastbound Through | 134 feet | 353 feet | continuous | No |
| Eastbound Right | 25 feet | 19 feet | 185 feet | No |
| Westbound Left | 85 feet | 73 feet | continuous | No |
| Westbound Through | 93 feet | 97 feet | continuous | No |
| Northbound Left | 126 feet | 195 feet | 350 feet | No |
| Northbound Through/Right | 26 feet | 41 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 150 feet | No |
| Southbound Through/Right | 54 feet | 47 feet | continuous | No |

**Table 2. 95th Percentile Queuing at Study Area Intersections for
2015 Existing Conditions Continued**

| Signalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue | Available Storage | Storage Exceeded? |
|----------------------------------------------------|--------------------------------------|-------------------------|----------------------|----------------------|
| NW Parker St/NW 38 th Ave | | | | |
| Eastbound Left | 46 feet | 46 feet | 250 feet | No |
| Eastbound Through/Right | 27 feet | 144 feet | continuous | No |
| Westbound Left | 144 feet | 100 feet | 200 feet | No |
| Westbound Through/Right | 71 feet | 64 feet | continuous | No |
| Northbound Left | 31 feet | 46 feet | 180 feet | No |
| Northbound Through | 161 feet | 122 feet | continuous | No |
| Northbound Right | 25 feet | 31 feet | continuous | No |
| Southbound Left | 31 feet | 44 feet | 295 feet | No |
| Southbound Through | 125 feet | 120 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 190 feet | No |
| SE Brady Road/SE 192 nd Avenue | | | | |
| Eastbound Left | 25 feet | 25 feet | 180 feet | No |
| Eastbound Through/Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 584 feet | 251 feet | 320 feet | Yes |
| Westbound Through/Right | 25 feet | 29 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 325 feet | No |
| Northbound Through | 204 feet | 346 feet | continuous | No |
| Northbound Right | 25 feet | 32 feet | 205 feet | No |
| Southbound Left | 41 feet | 81 feet | 175 feet | No |
| Southbound Through | 214 feet | 334 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 205 feet | No |
| NE Goodwin Road/NE Ingle Road | | | | |
| Eastbound Left | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 38 feet | 140 | No |
| Southbound Right | 25 feet | 25 feet | continuous | No |
| All Way Stop Intersections | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | | | | |
| Eastbound Left | 38 feet | 53 feet | 180 feet | No |
| Eastbound Through | 25 feet | 25 feet | continuous | No |
| Eastbound Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 25 feet | 25 feet | 115 feet | No |
| Westbound Through | 25 feet | 25 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 188 feet | No |
| Northbound Through | 40 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 190 feet | No |
| Southbound Through | 58 feet | 48 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | continuous | No |
| NW Brady Road/NW 16 th Avenue | | | | |
| Eastbound Approach | 25 feet | 25 feet | continuous | No |
| Westbound Approach | 113 feet | 35 feet | continuous | No |
| Northbound Approach | 58 feet | 73 feet | continuous | No |
| Southbound Approach | 55 feet | 58 feet | continuous | No |
| NE Goodwin Road/NW Camas Meadows Drive | | | | |
| Westbound Left | 25 feet | 25 feet | 140 feet | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 85 feet | No |

**Table 2. 95th Percentile Queuing at Study Area Intersections
for 2015 Existing Conditions Continued**

| Unsignalized Intersection | A.M. Peak Hour Queue | P.M. Peak Hour Queue | Available Storage | Storage Exceeded? |
|-------------------------------------|-------------------------|-------------------------|----------------------|----------------------|
| NW & SE Brady Road/NW McIntosh Road | | | | |
| Westbound Left | 53 feet | 25 feet | continuous | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 105 feet | No |
| NW Lake Road/NW Payne Street | | | | |
| Eastbound Left | 25 feet | 25 feet | 230 feet | No |
| Southbound Through/Right | 25 feet | 55 feet | continuous | No |

ACCIDENT HISTORY

Accident data was obtained from the Washington State Department of Transportation (WSDOT) for the five year period between January 1, 2010 and December 31, 2014. The data includes total accidents and accidents by severity (i.e. fatal, injury or property damage only). This accident data is summarized in Table 3. Appendix D contains the accident data.

Table 3. Summary of Traffic Accident History in Study Area

| Intersection | Average Annual Accidents | | | | acc/mev ² |
|------------------------------------------------------------|--------------------------|--------|-------|-------|----------------------|
| | PDO ¹ | Injury | Fatal | Total | |
| NE 13 th Street/NE 192 nd Avenue | 0.8 | 0.8 | 0.0 | 1.6 | 0.26 |
| SE 1 st Street/NE & SE 192 nd Avenue | 0.2 | 1.6 | 0.0 | 1.8 | 0.16 |
| NW Lake Road/NW Parker Street/NW Larkspur Street | 0.6 | 0.0 | 0.0 | 0.6 | 0.09 |
| NW Parker Street/NW 38 th Avenue | 1.0 | 0.8 | 0.0 | 1.8 | 0.31 |
| SE Brady Road/SE 192 nd Avenue | 1.0 | 0.2 | 0.0 | 1.2 | 0.09 |
| NE Goodwin Road/NE Ingle Road | 1.2 | 0.6 | 0.0 | 1.8 | 0.45 |
| NE Goodwin Road/NW Camas Meadows Drive | 0.0 | 0.2 | 0.0 | 0.2 | 0.06 |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | 0.8 | 0.0 | 0.0 | 0.8 | 0.19 |
| NW Brady Road/NW 16 th Avenue | 0.6 | 0.2 | 0.0 | 0.8 | 0.19 |
| NW & SE Brady Road/NW McIntosh Road | 0.2 | 0.0 | 0.0 | 0.2 | 0.67 |
| NW Payne Street/NW Lake Road | 0.0 | 0.2 | 0.0 | 0.2 | 0.03 |

¹ PDO = property damage only

² acc/mev = accidents per million entering vehicles

As shown in Table 3, all of the study area intersections have an accident rate of less than 1.00 accidents per million entering vehicles. Generally, an accident rate of less than 1.00 accidents per million entering vehicles is considered acceptable and does not warrant further analysis.

EXISTING PUBLIC TRANSIT SERVICE

C-Tran provides public transit service in the City of Camas and the City of Vancouver. Currently there is no transit service in the project vicinity.

Route #38 Mill Plain/192nd provides the nearest service to the project site, Route #38 provides services along NE 3rd Street. Route #38 Mill Plain/192nd provides service to and from Downtown Vancouver, Hudson Bay High School, Kaiser Clinic Vancouver, ML King Elementary School, Town Plaza, Peace Health SW WA Medical Center, Kaiser Clinic Cascade Park, Vancouver Clinic, Clark College, 192nd Avenue, Shahala Middle School, and Union High School along Mill Plain Boulevard, Grand Boulevard, Andresen Road, NE 112th Avenue, NE 136th Avenue, SE 164th Avenue, SE 192nd Avenue, and SE 1st Street. On weekdays, Route #38, provides services from 4:45 A.M. to 12:44 P.M. in approximately 15 to 40 minute headways. Route #38 does not provide Saturday or Sunday services.

NON-MOTORIZED TRANSPORTATION

There are sidewalks along the north side of NW Camas Meadows Drive and the east side of NW Larkspur Street in the project vicinity.

PLANNED TRANSPORTATION IMPROVEMENTS

There are twenty-one known transportation improvement projects planned by the City of Camas in the project vicinity based on the City of Camas' 2015-2020 Six Year Transportation Program. These projects are listed below. The project number is the priority number based upon the Six Year Transportation Improvement Program list.

- #2 - NW Brady Road from NW 16th Avenue to NW 25th Avenue
This improvement project is to widen NW Brady Road and to build bike lanes. The project budget is estimated at \$5,800,000 and is to be funded in federal, state, and local dollars. Right of way acquisition is planned for July 2015. Construction is scheduled for June 2016.
- #3 - NW Camas Meadows Drive from NW Payne Street to NW 60th Avenue
This improvement project is the construction of a new roadway. The project budget is estimated at \$3,360,000 and is to be funded in state and local dollars. Preliminary engineering is scheduled to start in July 2016. Right of way acquisition is planned for July 2017. Construction is scheduled for June 2018.
- #4 – NW Larkspur Street from NW Lake Road to NW 60th Avenue
This improvement project is to widen NW Larkspur Street and to build sidewalks. The project budget is estimated at \$1,070,000 and is to be funded in state and local dollar. Preliminary engineering is scheduled to start in July 2016. Right of way acquisition is planned for July 2017. Construction is scheduled for June 2018.

- #5 - NW 38th Avenue from NW Parker Street to Grass Valley Park
This improvement project is to widen NW 38th Avenue and to build bike lanes. The project budget is estimated at \$3,380,000 and is to be funded in federal and local dollars. Preliminary engineering is scheduled for 2018.
- #8 – NW Pacific Rim Boulevard at SE Payne Road
A traffic signal is planned to be installed in 2018. The estimated cost of this traffic signal is \$290,000 and is to be funded in local dollars.
- #9 – NE Goodwin Road/NE 28th Street from NW Camas Meadows to NE 232nd Avenue
This improvement project is to widen NE Goodwin Road to five lanes with bike lanes west of NE Ingle Road and to widen the roadway to three lanes with bike lanes east of NE Ingle Road. The estimated project budget is \$20,000,000 and is to be funded in federal, state, and local dollars. Preliminary engineering is scheduled to begin in 2019.
- #19 – NW 18th Avenue from NW Whitman Street to NW Brady Road
This improvement project is the construction of a new roadway and includes bike lanes. The estimated project cost for the preliminary engineering is \$5,000. No other project cost have been developed. Preliminary engineering is scheduled to begin in 2020.
- #20 – NW 18th Avenue from NW Whitman Street to West City Limits
This improvement project is to widen NW 18th Avenue and building bike lanes. The estimated project cost for the preliminary engineering is \$5,000. No other project cost have been developed. Preliminary engineering is scheduled to begin in 2020.
- #23 – NW Friberg Street/NW Strunk Road to NW Larkspur Street
This improvement project is the new construction of a roadway. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #24 – NW Payne Street from NW Lake Road to NW Camas Meadows
This improvement project is to widen NW Payne Street. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #25 – North Dwyer Creek Master Plan Street “A” from NW Lake Road to NW Camas Meadows Drive
This improvement project is the new construction of a roadway. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #26 – NW McIntosh Road from NW Brady Road to NW 11th Avenue
This improvement project is to widen NW McIntosh Road and to build bike lanes. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2019.

- #29 – NE 18th Street from NE 192nd Avenue to NE Goodwin Road
This improvement project is the new construction of a roadway with a potential alternate alignment. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #31 – NW Camas Meadows Drive from NE 13th Street to NE 18th Street
This improvement project is the new construction of a roadway with a potential alternate alignment. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #35 – NE Ingle Road Extension from NE Goodwin Road to NE 232nd Avenue
This improvement project is the new construction of a roadway, which would extend NE Ingle Road from NE Goodwin Road to NE 232nd Avenue. The estimated project budget for preliminary engineering is \$5,000. No other project costs have been developed. The preliminary engineering is scheduled to start in 2020.
- #38 – NW Pacific Rim Boulevard at SE Payne Road
A traffic signal is planned to be installed in 2016. The estimated cost of this traffic signal is \$270,000.
- #36 – NW Brady Road at NW 16th Avenue
A traffic signal is planned to be installed in 2019. The estimated cost of this traffic signal is \$290,000.
- #38 – NW Goodwin Road at NW Camas Meadows Drive
A traffic signal is planned to be installed in 2019. The estimated cost of this traffic signal is \$290,000.
- #39 – NW Pacific Rim Boulevard at NW Parker Street
A traffic signal is planned at this intersection. Preliminary engineering is expected to begin in 2020. The project budget for preliminary engineering is \$5,000.
- #43 – NE Goodwin Road at NE Ingle Road
A traffic signal is planned at this intersection. Preliminary engineering is expected to begin in 2020. The project budget for preliminary engineering is \$5,000.
- #55 – NW 18th Avenue from SE 201st Avenue to NW Beech Street
A shared pedestrian path is planned along NW 18th Street from SE 201st Avenue to NW Beech Street. The estimated cost of this project is \$250,000. The project is scheduled to begin in 2014.

A review of the City of Vancouver's Six Year TIP, 2015-2020, revealed that there are no funded projects in the study area.

The following transportation improvement projects are partially funded:

- SE 1st Street - SE 164th Avenue to SE 192nd Avenue
The existing two lane roadway will be upgraded to urban standards. The roadway will be improved to a three and five lane principal arterial (one or two lanes in each direction plus a center turn lane). The roadway cross section will vary per segment. Street upgrades include sidewalks, bike lanes, street lights, and sound walls at required locations. The total project cost is estimated at \$16,270,000. PSE and ROW phases of the project are only partially funded. No funding has been secured for construction. This project is currently in the design phase. Start of construction is not known yet because funding is not secure.

The following transportation improvement projects are unfunded:

- NE 192nd Avenue - SE 1st Street to NE 18th Street
The existing two lane roadway will be upgraded to a five lane principal arterial with bike lanes, sidewalks, and street lights. The total project cost is estimated at \$4,215,763. The start of construction is not known yet because funding is not secure.
- NE 9th Street - NE 172nd Avenue to NE 192nd Avenue
This project is the construction of a new urban collector (one lane each direction plus a center turn lane) that includes sidewalks, bike lanes, and street lights. This planned roadway is in conjunction with the Section 30 Sub Area Plan concept. The total project cost is unknown at this time.

SECTION III TRAFFIC IMPACT ANALYSIS

ANALYSIS METHODOLOGY

The traffic impacts generated by the proposed Village at Camas Meadows during the A.M. and P.M. peak hour were analyzed as follows:

- For the City of Camas study area intersections, 2020 “Without Project” traffic volumes were established as the future baseline condition for the traffic analysis and to define a baseline by which project impacts could be determined. The 2020 “Without Project” condition traffic volumes were derived by adding “in-process” traffic volumes from fourteen previously approved developments yet to be built to the 2015 existing traffic volumes.

For the City of Vancouver study area intersections, 2020 “Without Project” traffic volumes were established as the future baseline condition for the traffic analysis and to define a baseline by which project impacts could be determined. The 2020 “Without Project” condition traffic volumes were derived by using a 2.0 percent annual, compounded growth factor.

- A.M., P.M., and daily trip generation was taken directly from the original May 2015, Charbonneau Engineering, LLC Village at Camas Meadows traffic impact study which based the trip generation from rates in "Trip Generation, 9th Edition," (Institute of Transportation Engineers, 2012).
- Trip distribution of site-generated traffic was developed from existing count information as well as logical travel paths to the major transportation facilities.
- Predicted A.M. and P.M. peak hour site-generated traffic from the proposed development was assigned to the roadway network and added to the 2020 “Without Project” traffic volumes to develop the 2020 “With Project” traffic volumes.

A detailed discussion of the methodology summarized above and the analysis results are contained in the remainder of this section.

2020 “WITHOUT PROJECT” TRAFFIC VOLUMES AND LEVELS OF SERVICE

The 2020 “Without Project” condition was analyzed as the future baseline condition for the traffic analysis and to define a baseline by which project impacts could be determined.

For the City of Camas study area intersections, the 2020 “Without Project” condition traffic volumes were derived by adding traffic generated by fourteen "in process" developments which are approved but not built to the existing traffic counts. The “in-process” traffic information was obtained from City of Camas staff. The fourteen “in process” developments are as follows:

- Alpha Tec
- Belz Place Development
- Bishop Subdivision
- Brady Road Subdivision
- C J Dens Subdivision
- Deerhaven Subdivision
- Fisher Creek Campus, Bldg 3
- Fisher Creek Campus, Bldg 4
- Green Mountain Mixed Use PRD
- Millshore Downs Development
- North Hills Subdivision
- Parker Village Subdivision
- Stoneleaf Subdivision
- Summit at Columbia Vista Subdivision

The 2020 “Without Project” traffic volumes for the City of Vancouver study area intersections were derived by using a 2.0 percent annual, compounded growth factor. The growth factor was obtained from the City of Vancouver Traffic Study Guidelines, January 2012.

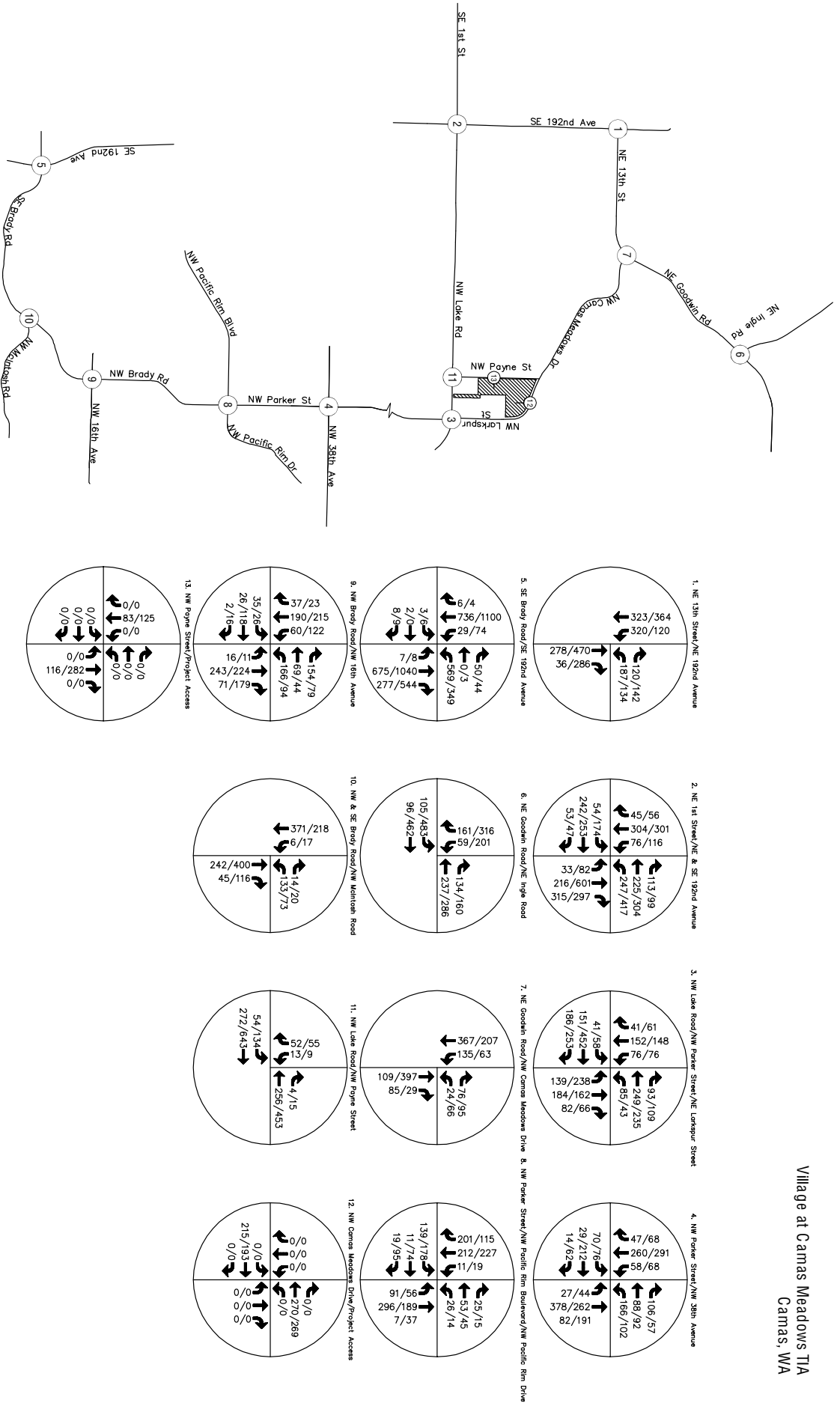
Figure 5 shows the 2020 “Without Project” traffic volumes for all of the study intersections.

Levels of service were calculated at the study area intersections with 2020 “Without Project” traffic volumes and the existing lane configurations shown earlier in Figure 3 with the exception of the NE Goodwin Road/NE Ingle Road intersection. Per conversations with Olson Engineering, Inc. pertaining to the Green Mountain Development, the NE Goodwin Road/NE Ingle Road intersection will be converted to a signalized intersection with additional eastbound and westbound left turn lanes. The NE Goodwin Road/NE Ingle Road intersection was analyzed in the 2020 “Without Project” condition based on those improvements. The results of the analysis are shown in Table 4A and 4B for all the study area intersections. The levels of service calculation worksheets can be referenced in Appendix E.

As shown in Table 4A, all City of Camas intersections are projected to operate at LOS C or better in the 2020 “Without Project” condition (which meets the City of Camas’ standards) with the exception of NW Payne Street/NW Lake Road intersection where the southbound approach is projected to operate at LOS E.

As shown in Table 4B, all City of Vancouver intersection approaches are projected to operate at an acceptable level of service of LOS D or better except the westbound approach at SE 192nd Avenue/SE Brady Road intersection which is projected to operate at LOS F.

Village at Camas Meadows TIA
Camas, WA



LEGEND
128/200
A.M./P.M. Peak Hour
Traffic Volume



FIGURE 5
2020 "Without Project"
A.M. and P.M. Peak Hour Traffic Volumes
31502107figures.Dwg

Table 4A. 2020 “Without Project” Levels of Service at City of Camas Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NW Lake Road/NW Parker Street/NW Larkspur Road | B | 15.5 | 0.49 | B | 17.9 | 0.56 |
| NW Parker Street/NW 38 th Avenue | B | 16.3 | 0.58 | B | 16.2 | 0.54 |
| NE Goodwin Road/NE Ingle Road | A | 8.3 | 0.40 | B | 14.8 | 0.56 |
| All Way Stop Intersections | | | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | B | 13.4 | 0.36 | B | 12.6 | 0.30 |
| NW Brady Road/NW 16 th Avenue | C | 21.4 | 0.63 | C | 15.9 | 0.52 |
| Unsignalized Intersection | | | | | | |
| NE Goodwin Road/NW Camas Meadows Drive | | | | | | |
| Westbound Left | C | 16.2 | 0.04 | C | 18.1 | 0.17 |
| Westbound Right | A | 9.2 | 0.07 | B | 11.9 | 0.13 |
| Southbound Left | A | 7.7 | 0.08 | A | 8.5 | 0.05 |
| NW & SE Brady Road/NW McIntosh Road | | | | | | |
| Westbound Left | C | 19.4 | 0.39 | C | 19.4 | 0.27 |
| Westbound Right | A | 9.6 | 0.01 | B | 12.1 | 0.05 |
| Southbound Left | A | 7.8 | 0.01 | A | 8.8 | 0.02 |
| NW Lake Road/NW Payne Street | | | | | | |
| Eastbound Left | A | 8.0 | 0.02 | A | 9.7 | 0.12 |
| Southbound Approach | B | 12.7 | 0.11 | E | 48.0 | 0.57 |

Table 4B. 2020 “Without Project” Levels of Service at City of Vancouver Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|------------------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NE 13 th Street/NE 192 nd Avenue | | | | | | |
| Westbound Approach | D | 38.9 | 0.73 | D | 45.8 | 0.76 |
| Northbound Approach | D | 38.0 | 0.72 | C | 34.2 | 0.87 |
| Southbound Approach | C | 24.4 | 0.51 | B | 17.4 | 0.37 |
| SE 1 st Street/NE & SE 192 nd Avenue | | | | | | |
| Eastbound Approach | D | 36.8 | 0.55 | D | 42.3 | 0.53 |
| Westbound Approach | C | 34.0 | 0.57 | D | 47.5 | 0.72 |
| Northbound Approach | B | 13.5 | 0.29 | C | 21.7 | 0.42 |
| Southbound Approach | C | 23.9 | 0.33 | C | 29.6 | 0.35 |
| SE Brady Road/SE 192 nd Avenue | | | | | | |
| Eastbound Approach | C | 29.6 | 0.10 | B | 15.9 | 0.03 |
| Westbound Approach | F | 84.7 | 0.99 | D | 35.0 | 0.63 |
| Northbound Approach | B | 12.4 | 0.36 | B | 15.4 | 0.58 |
| Southbound Approach | B | 14.6 | 0.42 | B | 15.7 | 0.56 |

Table 5 shows the 95th percentile queue for the major movements at the study area intersections for the 2020 “Without Project” conditions. These 95th percentile queues were obtained from the Synchro level of service output and can be referenced in Appendix E. As shown in Table 8, all of the 95th percentile queues are within the available storage areas with the exception of the westbound left turn movement at the SE 192nd Avenue/SE Brady Road intersection in the A.M. peak hour. The westbound left movement at the SE 192nd Avenue/ SE Brady Road intersection has a 95th percentile queue of 666 feet in the A.M. peak hour. The available storage for the westbound left movement is only 320 feet. This queue exceeding the available storage may be partially mitigated by reallocating some of the green time from the eastbound through phase to the westbound left turn phase. Reallocating the green time for the eastbound and westbound directions of travel should minimize the impacts to the signal coordination along NE 192nd Avenue. The City of Vancouver should monitor this movement periodically to see if it becomes a traffic operations issue.

Table 5. 95th Percentile Queuing at Study Area Intersections for 2020 “Without Project”

| Signalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue ¹ | Available Storage | Storage Exceeded? |
|-----------------------------------------------------|-----------------------------------|-----------------------------------|-------------------|-------------------|
| NE 13 th St/NE 192 nd Ave | | | | |
| Westbound Approach | 303 feet | 247 feet | continuous | No |
| Northbound Approach | 327 feet | 849feet | continuous | No |
| Southbound Left | 335 feet | 137 feet | 377 feet | No |
| Southbound Through | 175 feet | 166 feet | continuous | No |
| SE 1 st St/NE & SE 192 nd Ave | | | | |
| Eastbound Left | 34 feet | 89 feet | 285 feet | No |
| Eastbound Through | 108 feet | 128 feet | continuous | No |
| Westbound Left | 109 feet | 181 feet | 345 feet | No |
| Westbound Through | 186 feet | 304 feet | continuous | No |
| Westbound Right | 25 feet | 32 feet | continuous | No |
| Northbound Left | 47 feet | 100 feet | 195 feet | No |
| Northbound Through | 86 feet | 225 feet | continuous | No |
| Northbound Right | 51 feet | 61 feet | 230 feet | No |
| Southbound Left | 88 feet | 134 feet | 295 feet | No |
| Southbound Through | 128 feet | 123 feet | continuous | No |
| NW Lake Rd/NW Parker St/NW Larkspur Rd | | | | |
| Eastbound Left | 30 feet | 58 feet | 215 feet | No |
| Eastbound Through | 134 feet | 366 feet | continuous | No |
| Eastbound Right | 25 feet | 25 feet | 185 feet | No |
| Westbound Left | 85 feet | 73 feet | continuous | No |
| Westbound Through | 94 feet | 103 feet | continuous | No |
| Northbound Left | 128 feet | 279 feet | 350 feet | No |
| Northbound Through/Right | 27 feet | 41 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 150 feet | No |
| Southbound Through/Right | 54 feet | 47 feet | continuous | No |
| NW Parker St/NW 38 th Ave | | | | |
| Eastbound Left | 46 feet | 59 feet | 250 feet | No |
| Eastbound Through/Right | 27 feet | 144 feet | continuous | No |
| Westbound Left | 144 feet | 100 feet | 200 feet | No |
| Westbound Through/Right | 71 feet | 65 feet | continuous | No |
| Northbound Left | 31 feet | 46 feet | 180 feet | No |
| Northbound Through | 163 feet | 129 feet | continuous | No |
| Northbound Right | 25 feet | 31 feet | continuous | No |
| Southbound Left | 31 feet | 57 feet | 295 feet | No |
| Southbound Through | 126 feet | 127 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 190 feet | No |

**Table 5. 95th Percentile Queuing at Study Area Intersections for 2020 “Without Project”
Continued**

| Signalized Intersection | A.M. Peak Hour Queue | P.M. Peak Hour Queue | Available Storage | Storage Exceeded? |
|----------------------------------------------------|----------------------|----------------------|-------------------|-------------------|
| SE Brady Road/SE 192 nd Avenue | | | | |
| Eastbound Left | 25 feet | 25 feet | 180 feet | No |
| Eastbound Through/Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 666 feet | 311 feet | 320 feet | Yes |
| Westbound Through/Right | 25 feet | 31 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 325 feet | No |
| Northbound Through | 231 feet | 398 feet | continuous | No |
| Northbound Right | 25 feet | 33 feet | 205 feet | No |
| Southbound Left | 45 feet | 87 feet | 175 feet | No |
| Southbound Through | 242 feet | 385 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 205 feet | No |
| NE Goodwin Road/NE Ingle Road | | | | |
| Eastbound Left | 53 feet | 347 feet | TBD ¹ | No ¹ |
| Eastbound Through | 25 feet | 131 feet | TBD ¹ | No ¹ |
| Westbound Through/ | 100 feet | 160 feet | TBD ¹ | No ¹ |
| Westbound Right | 25 feet | 28 feet | TBD ¹ | No ¹ |
| Southbound Left | 40 feet | 116 feet | TBD ¹ | No ¹ |
| Southbound Right | 25 feet | 32 feet | TBD ¹ | No ¹ |
| All Way Stop Intersections | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | | | | |
| Eastbound Left | 40 feet | 53 feet | 180 feet | No |
| Eastbound Through | 25 feet | 25 feet | continuous | No |
| Eastbound Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 25 feet | 25 feet | 115 feet | No |
| Westbound Through | 25 feet | 25 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 188 feet | No |
| Northbound Through | 43 feet | 33 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 190 feet | No |
| Southbound Through | 60 feet | 25 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | continuous | No |
| NW Brady Road/NW 16 th Avenue | | | | |
| Eastbound Approach | 25 feet | 33 feet | continuous | No |
| Westbound Approach | 185 feet | 50 feet | continuous | No |
| Northbound Approach | 93 feet | 118 feet | continuous | No |
| Southbound Approach | 93 feet | 83 feet | continuous | No |
| Unsignalized Intersections | | | | |
| NE Goodwin Road/NW Camas Meadows Drive | | | | |
| Westbound Left | 25 feet | 25 feet | 140 feet | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 85 feet | No |
| NW & SE Brady Road/NW McIntosh Road | | | | |
| Westbound Left | 45 feet | 28 feet | continuous | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 105 feet | No |
| NW Lake Road/NW Payne Street | | | | |
| Eastbound Left | 25 feet | 25 feet | 230 feet | No |
| Southbound Left/Right | 25 feet | 75 feet | continuous | No |

¹ Future available storage to be determined with Green Mountain Development Traffic Study.

DEVELOPMENT PLANS

As stated in the previous section, the proposed project is a residential development comprised of up to 46 single-family homes, 31 townhomes, and 138 apartment units on an approximately 19.5-acre site. Access will be provided by the extension of NW Camas Meadows Drive to the east, which will connect to NW Larkspur Street and NW Payne Street. There is one existing residence on site. As previously shown, Figure 2 shows the project site plan. Initial construction is expected to begin in 2016/2017 with full occupancy by 2020.

TRIP GENERATION

A.M., P.M., and daily trip generation was taken directly from the original May 2015, Charbonneau Engineering, LLC Village at Camas Meadows traffic impact study which based the trip generation from rates in "Trip Generation, 9th Edition," (Institute of Transportation Engineers, 2012). The proposed development is expected to generate 1,651 net new daily trips, 128 net new A.M. peak hour (29 in, 99 out), and 163 net new P.M. peak hour (105 in, 58 out) trips. Table 6 summarizes the trip generation for Village at Camas Meadows residential development.

Table 6a. Trip Generation Summary for Village at Camas Meadows

| | Average Daily | A.M. Peak | | | P.M. Peak | | |
|-----------------------------------------|---------------|-----------|-----|-------|-----------|-----|-------|
| | | In | Out | Total | In | Out | Total |
| Single-Family (ITE Code 210) – 46 units | | | | | | | |
| Rate per Dwelling Unit (DU) | 9.52 | 25% | 75% | 0.75 | 63% | 37% | 1.00 |
| Net Trips | 438 | 9 | 26 | 35 | 29 | 17 | 46 |
| Single-Family (ITE Code 210) – 31 units | | | | | | | |
| Rate per Dwelling Unit (DU) | 9.52 | 25% | 75% | 0.75 | 63% | 37% | 1.00 |
| Net Trips | 295 | 6 | 17 | 23 | 20 | 11 | 31 |
| Apartment (ITE Code 220) – 138 units | | | | | | | |
| Rate per Dwelling Unit (DU) | 6.65 | 20% | 80% | 0.51 | 65% | 35% | 0.62 |
| Net Trips | 918 | 14 | 56 | 70 | 56 | 30 | 86 |
| Net Total | 1,651 | 29 | 99 | 128 | 105 | 58 | 163 |

TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution pattern from the residential use of the Parklands at Camas Meadows project was utilized to distribute the trips from the proposed Village at Camas Meadows project. The residential trip distribution pattern was based on primarily commute patterns, school locations, and shopping center locations. This is a significant change from the original May 2015, Charbonneau Engineering, LLC Village at Camas Meadows traffic impact study where a disproportional percentage of trips were sent to schools (20%), toward downtown Camas (8%), adjacent residential areas (9%), and rural areas

(7%). In comparison, this H. Lee & Associates, PLLC study only distributes 7% to schools, 3% to downtown Camas, 0% to adjacent residential areas, and 2% to rural areas. The difference in these percentages is 32% of the project-generated trips. H. Lee & Associates, PLLC's trip distribution pattern is much more regionally oriented and the majority of shopping trips are destined toward the NE 192nd Avenue corridor.

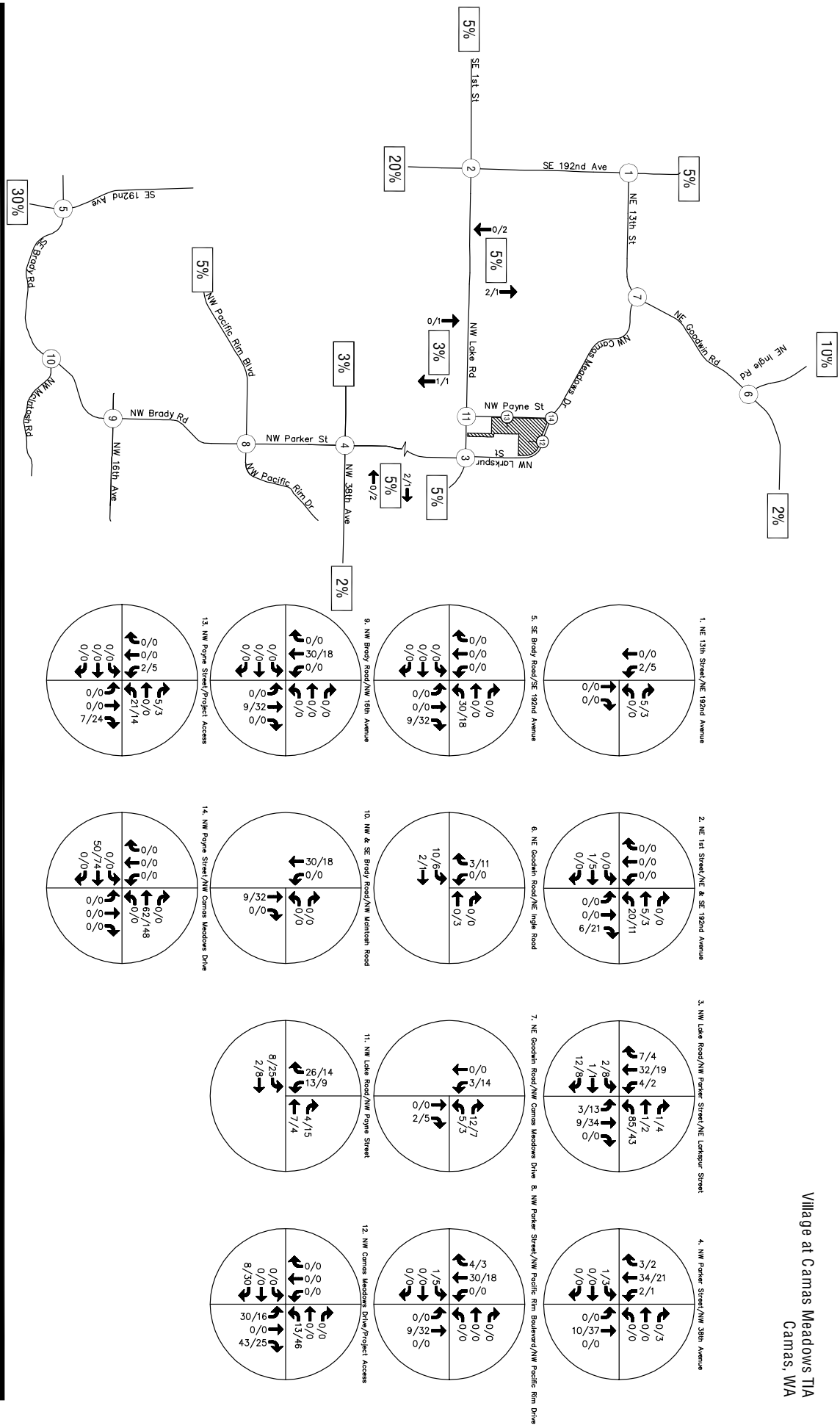
Any residential to residential trips are likely to occur in the off-peak and should not be represented in the peak hour trip distribution pattern of the project. Rural trips are nominal at best and the 7% previously used is not nominal. Nominal is a couple percent at best. Downtown Camas is not a strong attractor of work or shopping trips. Most of these trips should be oriented more regionally and at least toward the NE 192nd Avenue corridor where there are significant shopping opportunities. A slightly above nominal number of trips oriented toward downtown Camas is more appropriate such as 5% rather than 8%. Many school trips are off-peak especially when day care is utilized by parents. There are some school trips in the peak hours but it is a modest percentage of the overall total. The 20% utilized by the previous traffic study is not very realistic and the revised 7% is much more realistic.

Figure 6 shows the resulting trip distribution pattern and assignment of project generated trips for the residential uses. Table 7 summarizes project-generated P.M. peak hour trip impact to each of the City of Vancouver's TMZ corridors.

Table 7. TMZ Corridor Project Trip Impact

| TMZ Corridor | Limits of TMZ Corridor | P.M. Peak Hour Trip Impact |
|--------------------------|-----------------------------------------------------|----------------------------|
| 18 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 18 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 28 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 28 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 112 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 112 th Avenue | 28 th Street – 51 st Street | 0 |
| 136 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 138 th Avenue | 28 th Street – Fourth Plain Blvd | 0 |
| 162 nd Avenue | 1 st Street – Fourth Plain Blvd | 0 |
| 164 th Avenue | SR 14 – 1 st Street | 0 |
| 192 nd Avenue | SR 14 – 18 th Street | 90 |
| Andresen Road | Mill Plain Blvd – SR 500 | 0 |
| Andresen Road | SR 500 – 78 th Street | 0 |
| Burton Road | Andresen Road – 112 th Avenue | 0 |
| Fourth Plain Blvd | Port – I-5 | 0 |
| Fourth Plain Blvd | I-5 – Stapleton Road | 0 |
| Fourth Plain Blvd | Stapleton Road to I-205 | 0 |
| Fourth Plain Blvd | 117 th Avenue – 162 nd Avenue | 0 |
| Mill Plain Blvd | I-5 – Andresen Road | 0 |
| Mill Plain Blvd | Andresen Road – I-205 | 0 |
| Mill Plain Blvd | I-205 – 136 th Avenue | 0 |
| Mill Plain Blvd | 136 th Avenue – 164 th Avenue | 0 |
| Mill Plain Blvd | 164 th Avenue – 192 nd Avenue | 0 |
| St. James/St. Johns Road | Fourth Plain – 78 th Street | 0 |

Village at Camas Meadows TIA
Camas, WA



2020 “WITH PROJECT” TRAFFIC VOLUMES AND LEVELS OF SERVICE

To understand the cumulative effect of approving the Village at Camas Meadows project with the adjacent Parklands at Camas Meadows project, the Parklands at Camas Meadows project-generated traffic volumes were added to the traffic volumes shown in Figures 5 and 6 to arrive at the 2020 “With Project” A.M. and P.M. peak hour traffic volumes. Figure 7 shows these traffic volumes. Based on the traffic volumes shown in Figure 7 and the existing lane configurations shown in Figure 3 with the exception of the Green Mountain Development improvement at the NE Goodwin Road/NE Ingle Road intersection, levels of service were calculated for the 2020 “With Project” condition. Appendix F contains the LOS worksheets for the 2020 “With Project” condition. Table 8A and 8B shows the results of the analysis.

It should be noted that the 2020 “With Project” condition was based on the extension of NE Camas Meadows Drive to NW Larkspur Road. Based on this connection, traffic was diverted away from the NW Lake Road/NW Payne Street intersection. All of the southbound right turn movements at the NW Lake Road/NW Payne Street intersection were maintained while the southbound left turns were diverted to the NW Lake Road/NW Parker Street/NW Larkspur Road intersection.

As shown in Table 8A, all City of Camas study area intersections operate at LOS D or better which is within the City of Camas’ standard.

As shown in Table 8B, all City of Vancouver intersection approaches are projected to operate at an acceptable level of service of LOS D or better.

Table 9 shows the 95th percentile queue for the major movements at the study area intersections. These 95th percentile queues were obtained from the Synchro level of service output and can be referenced in Appendix F. As shown in Table 9, all of the 95th percentile queues are within the available storage areas with the exception of the following movements:

- NE 13th Street/NE 192nd Avenue
The southbound left turn movement in the 2020 “With Project” A.M. peak hour condition exceeds the available storage by 22 feet. This is less than one car length and is not significantly over the available storage. The southbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The city should monitor this condition periodically to see if it becomes an operations issue.
- SE Brady Road/NE 192nd Avenue
The westbound left turn movement in the 2020 “With Project” A.M. and P.M. peak hour conditions exceed the available storage by 279 and 7 feet, respectively. This queue exceeding the available storage may be partially mitigated by reallocating some of the green time from the eastbound through phase to the westbound left turn phase. Reallocating the green time from NE 192nd Avenue to the westbound left movement from SE Brady Road can reduce the excessive queues along SE Brady Road. Since overall levels of service is relatively

low (LOS C in the A.M. peak and LOS B in the P.M. peak), it is likely that green time from NE 192nd Avenue can be reallocated to SE Brady Road. The westbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The City of Vancouver should monitor this movement periodically to see if it becomes a traffic operations issue.

Table 8A. 2020 “With Project” Levels of Service at City of Camas Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|----------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NW Lake Road/NW Parker Street/NW Larkspur Road | C | 23.6 | 0.52 | C | 23.7 | 0.52 |
| NW Parker Street/NW 38 th Avenue | C | 22.5 | 0.59 | B | 17.4 | 0.42 |
| NE Goodwin Road/NW Ingle Road | A | 9.1 | 0.23 | D | 35.8 | 0.56 |
| All Way Stop Intersections | | | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | C | 16.8 | 0.44 | C | 16.0 | 0.38 |
| NW Brady Road/NW 16 th Avenue | D | 33.1 | 0.73 | C | 22.6 | 0.59 |
| Unsignalized Intersections | | | | | | |
| NE Goodwin Road/NW Camas Meadows Drive | | | | | | |
| Westbound Left | C | 19.5 | 0.12 | C | 22.3 | 0.25 |
| Westbound Right | A | 9.4 | 0.11 | B | 12.5 | 0.19 |
| Southbound Left | A | 7.8 | 0.11 | A | 8.6 | 0.07 |
| NW & SE Brady Road/NW McIntosh Road | | | | | | |
| Westbound Left | C | 24.8 | 0.47 | D | 25.0 | 0.34 |
| Westbound Right | B | 10.2 | 0.02 | B | 12.9 | 0.05 |
| Southbound Left | A | 8.0 | 0.01 | A | 9.1 | 0.02 |
| NW Lake Road/NW Payne Street | | | | | | |
| Eastbound Left | A | 8.0 | 0.05 | A | 8.9 | 0.14 |
| Southbound Approach | A | 10.4 | 0.10 | B | 13.4 | 0.14 |
| NW Camas Meadows Drive/Project Access | | | | | | |
| Eastbound Left | A | 7.7 | 0.01 | A | 7.8 | 0.04 |
| Westbound Left | A | 0.0 | 0.0 | A | 0.0 | 0.0 |
| Northbound Approach | B | 12.0 | 0.13 | B | 14.7 | 0.05 |
| Southbound Approach | A | 0.0 | 0.0 | A | 0.0 | 0.0 |
| NW Payne Street/Project Access | | | | | | |
| Westbound Approach | A | 9.7 | 0.04 | A | 9.9 | 0.04 |
| Southbound Left | B | 7.5 | 0.00 | B | 7.5 | 0.00 |

Table 8B. 2020 “With Project” Levels of Service at City of Vancouver Intersections

| Signalized Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|------------------------------------------------------------|----------------|---------------------|-----------|----------------|---------------------|-----------|
| | LOS | Average Delay (sec) | V/C Ratio | LOS | Average Delay (sec) | V/C Ratio |
| NE 13 th Street/NE 192 nd Avenue | | | | | | |
| Westbound Approach | D | 41.7 | 0.76 | D | 46.8 | 0.78 |
| Northbound Approach | D | 40.5 | 0.73 | D | 38.1 | 0.90 |
| Southbound Approach | C | 25.8 | 0.52 | B | 19.2 | 0.37 |
| Overall Intersection LOS | C | 33.3 | N/A | C | 33.6 | N/A |
| SE 1 st Street/NE & SE 192 nd Avenue | | | | | | |
| Eastbound Approach | C | 36.7 | 0.56 | D | 36.1 | 0.53 |
| Westbound Approach | C | 35.6 | 0.57 | D | 48.4 | 0.74 |
| Northbound Approach | B | 13.9 | 0.31 | C | 21.9 | 0.42 |
| Southbound Approach | C | 24.4 | 0.33 | C | 28.7 | 0.35 |
| Overall Intersection LOS | C | 27.0 | N/A | C | 33.4 | N/A |
| SE Brady Road/SE 192 nd Avenue | | | | | | |
| Eastbound Approach | C | 26.3 | 0.09 | B | 15.3 | 0.04 |
| Westbound Approach | C | 27.0 | 0.71 | C | 31.3 | 0.67 |
| Northbound Approach | B | 16.9 | 0.55 | B | 16.3 | 0.60 |
| Southbound Approach | C | 20.6 | 0.63 | B | 18.4 | 0.58 |
| Overall Intersection LOS | C | 20.9 | N/A | B | 18.9 | N/A |

Table 9. 95th Percentile Queuing at Study Area Intersections for 2020 “With Project”

| Signalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue ¹ | Available Storage | Storage Exceeded? |
|-----------------------------------------------------|-----------------------------------|-----------------------------------|-------------------|-------------------|
| NE 13 th St/NE 192 nd Ave | | | | |
| Westbound Approach | 323 feet | 271 feet | continuous | No |
| Northbound Approach | 327 feet | 903 feet | continuous | No |
| Southbound Left | 399 feet | 157 feet | 377 feet | Yes |
| Southbound Through | 175 feet | 178 feet | continuous | No |
| SE 1 st St/NE & SE 192 nd Ave | | | | |
| Eastbound Left | 34 feet | 83 feet | 285 feet | No |
| Eastbound Through | 112 feet | 111 feet | continuous | No |
| Westbound Left | 122 feet | 216 feet | 345 feet | No |
| Westbound Through | 190 feet | 247 feet | continuous | No |
| Westbound Right | 25 feet | 33 feet | continuous | No |
| Northbound Left | 47 feet | 92 feet | 195 feet | No |
| Northbound Through | 86 feet | 225 feet | continuous | No |
| Northbound Right | 72 feet | 65 feet | 230 feet | No |
| Southbound Left | 88 feet | 122 feet | 295 feet | No |
| Southbound Through | 130 feet | 124 feet | continuous | No |
| NW Lake Rd/NW Parker St/NW Larkspur Rd | | | | |
| Eastbound Left | 55 feet | 85 feet | 215 feet | No |
| Eastbound Through | 125 feet | 453 feet | continuous | No |
| Eastbound Right | 25 feet | 32 feet | 185 feet | No |
| Westbound Left | 86 feet | 57 feet | continuous | No |
| Westbound Through | 100 feet | 98 feet | continuous | No |
| Northbound Left | 120 feet | 222 feet | 350 feet | No |
| Northbound Through/Right | 169 feet | 175 feet | continuous | No |
| Southbound Left | 136 feet | 146 feet | 150 feet | No |
| Southbound Through/Right | 215 feet | 238 feet | continuous | No |

**Table 9. 95th Percentile Queuing at Study Area Intersections for 2020 “With Project”
Continued**

| Signalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue ¹ | Available Storage | Storage Exceeded? |
|----------------------------------------------------|-----------------------------------|-----------------------------------|-------------------|-------------------|
| NW Parker St/NW 38 th Ave | | | | |
| Eastbound Left | 58 feet | 64 feet | 250 feet | No |
| Eastbound Through/Right | 27 feet | 152 feet | continuous | No |
| Westbound Left | 148 feet | 79 feet | 200 feet | No |
| Westbound Through/Right | 77 feet | 73 feet | continuous | No |
| Northbound Left | 31 feet | 46 feet | 180 feet | No |
| Northbound Through | 285 feet | 175 feet | continuous | No |
| Northbound Right | 25 feet | 29 feet | continuous | No |
| Southbound Left | 69 feet | 81 feet | 295 feet | No |
| Southbound Through | 176 feet | 187 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 190 feet | No |
| SE Brady Road/SE 192 nd Avenue | | | | |
| Eastbound Left | 25 feet | 25 feet | 180 feet | No |
| Eastbound Through/Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 599 feet | 327 feet | 320 feet | Yes |
| Westbound Through/Right | 25 feet | 27 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 325 feet | No |
| Northbound Through | 230 feet | 423 feet | continuous | No |
| Northbound Right | 25 feet | 30 feet | 205 feet | No |
| Southbound Left | 42 feet | 87 feet | 175 feet | No |
| Southbound Through | 243 feet | 406 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | 205 feet | No |
| NE Goodwin Road/NE Ingle Road | | | | |
| Eastbound Left | 66 feet | 415 feet | TBD ¹ | No ¹ |
| Eastbound Through | 25 feet | 135 feet | TBD ¹ | No ¹ |
| Westbound Through | 106 feet | 144 feet | TBD ¹ | No ¹ |
| Westbound Right | 25 feet | 30 feet | TBD ¹ | No ¹ |
| Southbound Left | 41 feet | 113 feet | TBD ¹ | No ¹ |
| Southbound Right | 25 feet | 36 feet | TBD ¹ | No ¹ |
| All Way Stop Intersections | | | | |
| NW Parker St/NW Pacific Rim Blvd/NW Pacific Rim Dr | | | | |
| Eastbound Left | 55 feet | 65 feet | 180 feet | No |
| Eastbound Through | 25 feet | 25 feet | continuous | No |
| Eastbound Right | 25 feet | 25 feet | continuous | No |
| Westbound Left | 25 feet | 25 feet | 115 feet | No |
| Westbound Through | 25 feet | 25 feet | continuous | No |
| Westbound Through/Right | 25 feet | 25 feet | continuous | No |
| Northbound Left | 25 feet | 25 feet | 188 feet | No |
| Northbound Through | 78 feet | 45 feet | continuous | No |
| Northbound Through/Right | 30 feet | 30 feet | 190 feet | No |
| Southbound Left | 25 feet | 25 feet | 188 feet | No |
| Southbound Through | 108 feet | 108 feet | continuous | No |
| Southbound Right | 25 feet | 25 feet | continuous | No |
| NW Brady Road/NW 16 th Avenue | | | | |
| Eastbound Approach | 25 feet | 38 feet | continuous | No |
| Westbound Approach | 243 feet | 58 feet | continuous | No |
| Northbound Approach | 188 feet | 190 feet | continuous | No |
| Southbound Approach | 163 feet | 143 feet | continuous | No |

**Table 9. 95th Percentile Queuing at Study Area Intersections for 2020 “With Project”
Continued**

| Unsignalized Intersection | A.M. Peak Hour Queue ¹ | P.M. Peak Hour Queue ¹ | Available Storage | Storage Exceeded? |
|----------------------------------------|-----------------------------------|-----------------------------------|-------------------|-------------------|
| NE Goodwin Road/NW Camas Meadows Drive | | | | |
| Westbound Left | 25 feet | 25 feet | 140 feet | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 85 feet | No |
| NW & SE Brady Road/NW McIntosh Road | | | | |
| Westbound Left | 63 feet | 38 feet | continuous | No |
| Westbound Right | 25 feet | 25 feet | continuous | No |
| Southbound Left | 25 feet | 25 feet | 105 feet | No |
| NW Lake Road/NW Payne Street | | | | |
| Eastbound Left | 25 feet | 25 feet | 230 feet | No |
| Southbound Through/Right | 25 feet | 25 feet | continuous | No |

CONCLUSIONS

Findings

The following are the findings from the traffic analysis:

- The proposed development is expected to generate 1,651 net new daily, 128 net new A.M. peak hour (29 in, 99 out), and 163 net new P.M. peak hour (105 in, 58 out) trips.
- The TMZ corridors within the City of Vancouver impacted by 5 or more P.M. peak hour trips as shown below.

| TMZ Corridor | Limits of TMZ Corridor | P.M. Peak Hour Trip Impact |
|--------------------------|-----------------------------------------------------|----------------------------|
| 18 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 18 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 28 th Street | 112 th Avenue – 138 th Avenue | 0 |
| 28 th Street | 138 th Avenue – 162 nd Avenue | 0 |
| 112 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 112 th Avenue | 28 th Street – 51 st Street | 0 |
| 136 th Avenue | Mill Plain Blvd – 28 th Street | 0 |
| 138 th Avenue | 28 th Street – Fourth Plain Blvd | 0 |
| 162 nd Avenue | 1 st Street – Fourth Plain Blvd | 0 |
| 164 th Avenue | SR 14 – 1 st Street | 0 |
| 192 nd Avenue | SR 14 – 18 th Street | 90 |
| Andresen Road | Mill Plain Blvd – SR 500 | 0 |
| Andresen Road | SR 500 – 78 th Street | 0 |
| Burton Road | Andresen Road – 112 th Avenue | 0 |
| Fourth Plain Blvd | Port – I-5 | 0 |
| Fourth Plain Blvd | I-5 – Stapleton Road | 0 |
| Fourth Plain Blvd | Stapleton Road to I-205 | 0 |
| Fourth Plain Blvd | 117 th Avenue – 162 nd Avenue | 0 |
| Mill Plain Blvd | I-5 – Andresen Road | 0 |
| Mill Plain Blvd | Andresen Road – I-205 | 0 |
| Mill Plain Blvd | I-205 – 136 th Avenue | 0 |
| Mill Plain Blvd | 136 th Avenue – 164 th Avenue | 0 |
| Mill Plain Blvd | 164 th Avenue – 192 nd Avenue | 0 |
| St. James/St. Johns Road | Fourth Plain – 78 th Street | 0 |

- Per conversations with Olson Engineering, Inc. pertaining to the Green Mountain Development, the NE Goodwin Road/NE Ingle Road intersection will be converted to a signalized intersection with additional eastbound and westbound left turn lanes. The NE Goodwin Road/NE Ingle Road intersection was analyzed in the 2020 "Without Project" and "With Project" condition based on those improvements.

The 2015 existing and 2020 "Without Project" levels of service at the southbound approach of the NW Payne Street/NW Lake Road intersection are operating at LOS D and E, respectively.

With the extension of NW Camas Meadows Drive to NW Larkspur Street and the resulting trip diversion, the level of service is projected to be LOS B in the 2020 "With Project" condition.

- NE 13th Street/NE 192nd Avenue
The southbound left turn movement in the 2020 "With Project" A.M. peak hour condition exceeds the available storage by 22 feet. This is less than one car length and is not significantly over the available storage. The southbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The city should monitor this condition periodically to see if it becomes an operations issue.
- SE Brady Road/NE 192nd Avenue
The westbound left turn movement in the 2020 "With Project" A.M. and P.M. peak hour conditions exceed the available storage by 279 and 7 feet, respectively. This queue exceeding the available storage may be partially mitigated by reallocating some of the green time from the eastbound through phase to the westbound left turn phase. Reallocating the green time from NE 192nd Avenue to the westbound left movement from SE Brady Road can reduce the excessive queues along SE Brady Road. Since overall levels of service is relatively low (LOS C in the A.M. peak and LOS B in the P.M peak), it is likely that green time from NE 192nd Avenue can be reallocated to SE Brady Road. The westbound left turn movement LOS and v/c ratio meet the City of Vancouver standards so no mitigation is necessary. The City of Vancouver should monitor this movement periodically to see if it becomes a traffic operations issue.
- All of the study intersections are projected to operate at acceptable levels of service for the 2020 "With Project" condition.

Recommendations

- Based on the traffic impact analysis documented in this report, no off-site mitigation would be needed with the build out of the proposed project.
- Because the NW Camas Meadows Drive extension will be constructed for the Village at Camas Meadows project, the access intersections sight distances shall be verified later in the final engineering and construction stages of development.

APPENDIX A
EXISTING TRAFFIC COUNTS

Intersection: NE 13th Street/NE 192nd Avenue
 AM Peak Hour Turning Movement Volumes

Date: 01/07/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 0 | 75 | 34 | 5 | 30 | 0 | 40 | 1 | 6 | 50 | 0 | 2 | 0 | 0 | 0 | 0 | 235 |
| 7:15 - 7:30 AM | 0 | 76 | 80 | 3 | 18 | 0 | 42 | 3 | 8 | 66 | 0 | 14 | 0 | 0 | 0 | 0 | 290 |
| 7:30 - 7:45 AM | 0 | 75 | 67 | 4 | 20 | 0 | 41 | 7 | 8 | 64 | 0 | 9 | 0 | 0 | 0 | 0 | 275 |
| 7:45 - 8:00 AM | 0 | 67 | 85 | 2 | 29 | 0 | 46 | 1 | 11 | 72 | 0 | 6 | 0 | 0 | 0 | 0 | 310 |
| 8:00 - 8:15 AM | 0 | 42 | 25 | 2 | 16 | 0 | 39 | 1 | 8 | 23 | 0 | 5 | 0 | 0 | 0 | 0 | 153 |
| 8:15 - 8:30 AM | 0 | 36 | 37 | 4 | 13 | 0 | 32 | 2 | 11 | 29 | 0 | 2 | 0 | 0 | 0 | 0 | 158 |
| 8:30 - 8:45 AM | 0 | 40 | 21 | 2 | 15 | 0 | 43 | 3 | 7 | 24 | 0 | 3 | 0 | 0 | 0 | 0 | 150 |
| 8:45 - 9:00 AM | 0 | 28 | 9 | 1 | 16 | 0 | 37 | 0 | 9 | 28 | 0 | 1 | 0 | 0 | 0 | 0 | 127 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 0 | 293 | 266 | 14 | 97 | 0 | 169 | 12 | 33 | 252 | 0 | 31 | 0 | 0 | 0 | 0 | 1,110 |
| 7:15 - 8:15 AM | 0 | 260 | 257 | 11 | 83 | 0 | 168 | 12 | 35 | 225 | 0 | 34 | 0 | 0 | 0 | 0 | 1,028 |
| 7:30 - 8:30 AM | 0 | 220 | 214 | 12 | 78 | 0 | 158 | 11 | 38 | 188 | 0 | 22 | 0 | 0 | 0 | 0 | 896 |
| 7:45 - 8:45 AM | 0 | 185 | 168 | 10 | 73 | 0 | 160 | 7 | 37 | 148 | 0 | 16 | 0 | 0 | 0 | 0 | 771 |
| 8:00 - 9:00 AM | 0 | 146 | 92 | 9 | 60 | 0 | 151 | 6 | 35 | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 588 |
| Peak Hour 7:00 - 8:00 AM | 0 | 293 | 266 | 14 | 97 | 0 | 169 | 12 | 33 | 252 | 0 | 31 | 0 | 0 | 0 | 0 | 1,110 |
| Peak Hour Factor | 0.90 | | | | 0.89 | | | | 0.86 | | | | 0.00 | | | | 0.90 |
| Percent Trucks | 3% | | | | 5% | | | | 11% | | | | 0% | | | | |

Intersection: NE 13th Street/NE 192nd Avenue
 PM Peak Hour Turning Movement Volumes

Date: 01/20/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 0 | 63 | 21 | 1 | 37 | 0 | 44 | 2 | 56 | 115 | 0 | 3 | 0 | 0 | 0 | 0 | 336 |
| 4:15 - 4:30 PM | 0 | 94 | 31 | 5 | 29 | 0 | 35 | 1 | 75 | 104 | 0 | 3 | 0 | 0 | 0 | 0 | 368 |
| 4:30 - 4:45 PM | 0 | 68 | 13 | 1 | 22 | 0 | 28 | 1 | 58 | 111 | 0 | 1 | 0 | 0 | 0 | 0 | 300 |
| 4:45 - 5:00 PM | 0 | 83 | 29 | 2 | 23 | 0 | 35 | 1 | 62 | 106 | 0 | 2 | 0 | 0 | 0 | 0 | 338 |
| 5:00 - 5:15 PM | 0 | 85 | 27 | 4 | 38 | 0 | 23 | 0 | 64 | 105 | 0 | 4 | 0 | 0 | 0 | 0 | 342 |
| 5:15 - 5:30 PM | 0 | 90 | 34 | 4 | 29 | 0 | 29 | 0 | 50 | 120 | 0 | 2 | 0 | 0 | 0 | 0 | 352 |
| 5:30 - 5:45 PM | 0 | 87 | 19 | 3 | 30 | 0 | 35 | 1 | 50 | 87 | 0 | 4 | 0 | 0 | 0 | 0 | 308 |
| 5:45 - 6:00 PM | 0 | 70 | 26 | 2 | 24 | 0 | 38 | 1 | 59 | 85 | 0 | 1 | 0 | 0 | 0 | 0 | 302 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 0 | 308 | 94 | 9 | 111 | 0 | 142 | 5 | 251 | 436 | 0 | 9 | 0 | 0 | 0 | 0 | 1,342 |
| 4:15 - 5:15 PM | 0 | 330 | 100 | 12 | 112 | 0 | 121 | 3 | 259 | 426 | 0 | 10 | 0 | 0 | 0 | 0 | 1,348 |
| 4:30 - 5:30 PM | 0 | 326 | 103 | 11 | 112 | 0 | 115 | 2 | 234 | 442 | 0 | 9 | 0 | 0 | 0 | 0 | 1,332 |
| 4:45 - 5:45 PM | 0 | 345 | 109 | 13 | 120 | 0 | 122 | 2 | 226 | 418 | 0 | 12 | 0 | 0 | 0 | 0 | 1,340 |
| 5:00 - 6:00 PM | 0 | 332 | 106 | 13 | 121 | 0 | 125 | 2 | 223 | 397 | 0 | 11 | 0 | 0 | 0 | 0 | 1,304 |
| Peak Hour 4:15 - 5:15 PM | 0 | 330 | 100 | 12 | 112 | 0 | 121 | 3 | 259 | 426 | 0 | 10 | 0 | 0 | 0 | 0 | 1,348 |
| Peak Hour Factor | | 0.86 | | | | 0.91 | | | | 0.96 | | | | 0.00 | | | 0.92 |
| Percent Trucks | | 3% | | | | 1% | | | | 1% | | | | 0% | | | |

Intersection: NE 1st Street/NE & SE 192nd Avenue
 AM Peak Hour Turning Movement Volumes

Date: 04/01/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 6 | 58 | 21 | 7 | 28 | 44 | 34 | 11 | 75 | 44 | 7 | 9 | 9 | 50 | 11 | 7 | 387 |
| 7:15 - 7:30 AM | 10 | 72 | 15 | 6 | 36 | 56 | 74 | 20 | 104 | 50 | 6 | 2 | 10 | 74 | 11 | 5 | 518 |
| 7:30 - 7:45 AM | 16 | 79 | 14 | 9 | 21 | 69 | 72 | 4 | 47 | 53 | 11 | 4 | 12 | 55 | 16 | 4 | 465 |
| 7:45 - 8:00 AM | 9 | 66 | 19 | 4 | 17 | 31 | 34 | 4 | 36 | 49 | 6 | 10 | 17 | 31 | 11 | 3 | 326 |
| 8:00 - 8:15 AM | 18 | 52 | 8 | 2 | 11 | 40 | 28 | 2 | 27 | 61 | 7 | 9 | 11 | 20 | 16 | 4 | 299 |
| 8:15 - 8:30 AM | 17 | 54 | 14 | 2 | 7 | 37 | 34 | 4 | 40 | 51 | 7 | 8 | 9 | 27 | 7 | 3 | 304 |
| 8:30 - 8:45 AM | 13 | 72 | 15 | 8 | 16 | 63 | 59 | 8 | 45 | 57 | 7 | 9 | 14 | 38 | 7 | 2 | 406 |
| 8:45 - 9:00 AM | 18 | 54 | 14 | 4 | 9 | 70 | 63 | 10 | 82 | 59 | 4 | 10 | 11 | 44 | 17 | 8 | 445 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 41 | 275 | 69 | 26 | 102 | 200 | 214 | 39 | 262 | 196 | 30 | 25 | 48 | 210 | 49 | 19 | 1,696 |
| 7:15 - 8:15 AM | 53 | 269 | 56 | 21 | 85 | 196 | 208 | 30 | 214 | 213 | 30 | 25 | 50 | 180 | 54 | 16 | 1,608 |
| 7:30 - 8:30 AM | 60 | 251 | 55 | 17 | 56 | 177 | 168 | 14 | 150 | 214 | 31 | 31 | 49 | 133 | 50 | 14 | 1,394 |
| 7:45 - 8:45 AM | 57 | 244 | 56 | 16 | 51 | 171 | 155 | 18 | 148 | 218 | 27 | 36 | 51 | 116 | 41 | 12 | 1,335 |
| 8:00 - 9:00 AM | 66 | 232 | 51 | 16 | 43 | 210 | 184 | 24 | 194 | 228 | 25 | 36 | 45 | 129 | 47 | 17 | 1,454 |
| Peak Hour 7:00 - 8:00 AM | 41 | 275 | 69 | 26 | 102 | 200 | 214 | 39 | 262 | 196 | 30 | 25 | 48 | 210 | 49 | 19 | 1,696 |
| Peak Hour Factor | | 0.88 | | | | 0.78 | | | | 0.76 | | | | 0.81 | | | 0.82 |
| Percent Trucks | | 7% | | | | 8% | | | | 5% | | | | 6% | | | |

Intersection: NE 1st Street/NE & SE 192nd Avenue
 PM Peak Hour Turning Movement Volumes

Date: 01/15/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 12 | 63 | 11 | 6 | 14 | 67 | 84 | 7 | 49 | 118 | 23 | 2 | 17 | 65 | 49 | 3 | 572 |
| 4:15 - 4:30 PM | 13 | 71 | 10 | 2 | 15 | 64 | 95 | 3 | 58 | 151 | 15 | 6 | 9 | 51 | 47 | 4 | 599 |
| 4:30 - 4:45 PM | 23 | 49 | 16 | 2 | 13 | 74 | 84 | 3 | 57 | 128 | 16 | 7 | 12 | 39 | 52 | 3 | 563 |
| 4:45 - 5:00 PM | 19 | 56 | 13 | 1 | 26 | 68 | 88 | 4 | 47 | 115 | 18 | 5 | 12 | 53 | 42 | 3 | 557 |
| 5:00 - 5:15 PM | 14 | 70 | 23 | 7 | 29 | 80 | 113 | 6 | 80 | 148 | 19 | 2 | 2 | 32 | 23 | 0 | 633 |
| 5:15 - 5:30 PM | 8 | 65 | 17 | 0 | 20 | 61 | 80 | 4 | 57 | 145 | 26 | 7 | 17 | 74 | 56 | 0 | 626 |
| 5:30 - 5:45 PM | 16 | 69 | 34 | 0 | 19 | 61 | 89 | 0 | 57 | 130 | 20 | 4 | 8 | 73 | 42 | 0 | 618 |
| 5:45 - 6:00 PM | 13 | 69 | 31 | 0 | 22 | 66 | 74 | 3 | 61 | 121 | 9 | 3 | 16 | 46 | 37 | 0 | 565 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 67 | 239 | 50 | 11 | 68 | 273 | 351 | 17 | 211 | 512 | 72 | 20 | 50 | 208 | 190 | 13 | 2,291 |
| 4:15 - 5:15 PM | 69 | 246 | 62 | 12 | 83 | 286 | 380 | 16 | 242 | 542 | 68 | 20 | 35 | 175 | 164 | 10 | 2,352 |
| 4:30 - 5:30 PM | 64 | 240 | 69 | 10 | 88 | 283 | 365 | 17 | 241 | 536 | 79 | 21 | 43 | 198 | 173 | 6 | 2,379 |
| 4:45 - 5:45 PM | 57 | 260 | 87 | 8 | 94 | 270 | 370 | 14 | 241 | 538 | 83 | 18 | 39 | 232 | 163 | 3 | 2,434 |
| 5:00 - 6:00 PM | 51 | 273 | 105 | 7 | 90 | 268 | 356 | 13 | 255 | 544 | 74 | 16 | 43 | 225 | 158 | 0 | 2,442 |
| Peak Hour 5:00 - 6:00 PM | 51 | 273 | 105 | 7 | 90 | 268 | 356 | 13 | 255 | 544 | 74 | 16 | 43 | 225 | 158 | 0 | 2,442 |
| Peak Hour Factor | | 0.90 | | | | 0.80 | | | | 0.88 | | | | 0.72 | | | 0.96 |
| Percent Trucks | | 2% | | | | 2% | | | | 2% | | | | 0% | | | |

Intersection: NW Lake Road/NW Parker Street/NE Larkspur Street
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 8 | 4 | 9 | 0 | 3 | 44 | 10 | 1 | 5 | 3 | 24 | 2 | 17 | 35 | 4 | 5 | 166 |
| 7:15 - 7:30 AM | 0 | 8 | 2 | 0 | 2 | 59 | 18 | 5 | 6 | 1 | 28 | 3 | 13 | 26 | 4 | 1 | 167 |
| 7:30 - 7:45 AM | 5 | 13 | 2 | 1 | 1 | 70 | 30 | 1 | 18 | 4 | 50 | 6 | 45 | 39 | 3 | 7 | 280 |
| 7:45 - 8:00 AM | 11 | 13 | 2 | 0 | 0 | 80 | 35 | 2 | 48 | 7 | 56 | 1 | 79 | 46 | 4 | 2 | 381 |
| 8:00 - 8:15 AM | 6 | 8 | 1 | 0 | 1 | 78 | 13 | 3 | 13 | 4 | 22 | 0 | 54 | 44 | 7 | 8 | 251 |
| 8:15 - 8:30 AM | 10 | 6 | 3 | 1 | 1 | 58 | 7 | 2 | 3 | 0 | 29 | 2 | 34 | 42 | 5 | 10 | 198 |
| 8:30 - 8:45 AM | 7 | 9 | 1 | 1 | 1 | 56 | 9 | 2 | 11 | 3 | 26 | 9 | 14 | 46 | 5 | 4 | 188 |
| 8:45 - 9:00 AM | 9 | 4 | 3 | 0 | 2 | 97 | 8 | 3 | 10 | 4 | 38 | 8 | 20 | 45 | 5 | 3 | 245 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 24 | 38 | 15 | 1 | 6 | 253 | 93 | 9 | 77 | 15 | 158 | 12 | 154 | 146 | 15 | 15 | 994 |
| 7:15 - 8:15 AM | 22 | 42 | 7 | 1 | 4 | 287 | 96 | 11 | 85 | 16 | 156 | 10 | 191 | 155 | 18 | 18 | 1,079 |
| 7:30 - 8:30 AM | 32 | 40 | 8 | 2 | 3 | 286 | 85 | 8 | 82 | 15 | 157 | 9 | 212 | 171 | 19 | 27 | 1,110 |
| 7:45 - 8:45 AM | 34 | 36 | 7 | 2 | 3 | 272 | 64 | 9 | 75 | 14 | 133 | 12 | 181 | 178 | 21 | 24 | 1,018 |
| 8:00 - 9:00 AM | 32 | 27 | 8 | 2 | 5 | 289 | 37 | 10 | 37 | 11 | 115 | 19 | 122 | 177 | 22 | 25 | 882 |
| Peak Hour 7:30 - 8:30 AM | 32 | 40 | 8 | 2 | 3 | 286 | 85 | 8 | 82 | 15 | 157 | 9 | 212 | 171 | 19 | 27 | 1,110 |
| Peak Hour Factor | 0.77 | | | | 0.81 | | | | 0.57 | | | | 0.78 | | | | 0.73 |
| Percent Trucks | 3% | | | | 2% | | | | 4% | | | | 7% | | | | |

Intersection: NW Lake Road/NW Parker Street/NE Larkspur Street
 PM Peak Hour Turning Movement Volumes

Date: 06/10/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 13 | 8 | 5 | 0 | 2 | 75 | 9 | 2 | 5 | 6 | 45 | 0 | 41 | 98 | 17 | 0 | 324 |
| 4:15 - 4:30 PM | 10 | 3 | 2 | 1 | 4 | 97 | 4 | 3 | 11 | 4 | 51 | 1 | 37 | 118 | 8 | 1 | 349 |
| 4:30 - 4:45 PM | 13 | 0 | 0 | 1 | 0 | 87 | 8 | 2 | 6 | 1 | 43 | 2 | 32 | 117 | 12 | 1 | 319 |
| 4:45 - 5:00 PM | 8 | 2 | 2 | 0 | 2 | 88 | 10 | 0 | 8 | 6 | 39 | 2 | 53 | 99 | 7 | 2 | 324 |
| 5:00 - 5:15 PM | 14 | 7 | 2 | 2 | 3 | 69 | 10 | 1 | 26 | 4 | 81 | 2 | 66 | 113 | 14 | 7 | 409 |
| 5:15 - 5:30 PM | 11 | 3 | 0 | 0 | 4 | 64 | 15 | 0 | 12 | 5 | 37 | 2 | 82 | 149 | 9 | 0 | 391 |
| 5:30 - 5:45 PM | 12 | 7 | 2 | 0 | 0 | 91 | 5 | 0 | 9 | 6 | 49 | 0 | 69 | 113 | 14 | 2 | 377 |
| 5:45 - 6:00 PM | 6 | 1 | 1 | 0 | 4 | 67 | 13 | 0 | 19 | 7 | 72 | 1 | 18 | 110 | 8 | 0 | 326 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 44 | 13 | 9 | 2 | 8 | 347 | 31 | 7 | 30 | 17 | 178 | 5 | 163 | 432 | 44 | 4 | 1,316 |
| 4:15 - 5:15 PM | 45 | 12 | 6 | 4 | 9 | 341 | 32 | 6 | 51 | 15 | 214 | 7 | 188 | 447 | 41 | 11 | 1,401 |
| 4:30 - 5:30 PM | 46 | 12 | 4 | 3 | 9 | 308 | 43 | 3 | 52 | 16 | 200 | 8 | 233 | 478 | 42 | 10 | 1,443 |
| 4:45 - 5:45 PM | 45 | 19 | 6 | 2 | 9 | 312 | 40 | 1 | 55 | 21 | 206 | 6 | 270 | 474 | 44 | 11 | 1,501 |
| 5:00 - 6:00 PM | 43 | 18 | 5 | 2 | 11 | 291 | 43 | 1 | 66 | 22 | 239 | 5 | 235 | 485 | 45 | 9 | 1,503 |
| Peak Hour 5:00 - 6:00 PM | 43 | 18 | 5 | 2 | 11 | 291 | 43 | 1 | 66 | 22 | 239 | 5 | 235 | 485 | 45 | 9 | 1,503 |
| Peak Hour Factor | | 0.72 | | | | 0.90 | | | | 0.74 | | | | 0.80 | | | 0.92 |
| Percent Trucks | | 3% | | | | 0% | | | | 2% | | | | 1% | | | |

Intersection: NW Parker Street/NW 38th Avenue
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 2 | 18 | 0 | 1 | 7 | 19 | 44 | 3 | 23 | 40 | 4 | 2 | 2 | 8 | 4 | 1 | 171 |
| 7:15 - 7:30 AM | 11 | 30 | 3 | 1 | 21 | 17 | 47 | 1 | 5 | 60 | 4 | 5 | 1 | 9 | 9 | 1 | 217 |
| 7:30 - 7:45 AM | 8 | 66 | 9 | 0 | 44 | 27 | 36 | 3 | 29 | 98 | 11 | 12 | 5 | 7 | 22 | 2 | 362 |
| 7:45 - 8:00 AM | 10 | 85 | 11 | 1 | 17 | 26 | 48 | 0 | 33 | 84 | 4 | 2 | 3 | 9 | 14 | 1 | 344 |
| 8:00 - 8:15 AM | 7 | 37 | 4 | 13 | 4 | 18 | 35 | 0 | 15 | 36 | 8 | 1 | 5 | 4 | 9 | 0 | 182 |
| 8:15 - 8:30 AM | 3 | 36 | 4 | 9 | 6 | 20 | 27 | 0 | 28 | 33 | 3 | 7 | 8 | 16 | 3 | 3 | 187 |
| 8:30 - 8:45 AM | 3 | 30 | 2 | 3 | 6 | 24 | 49 | 0 | 40 | 48 | 6 | 12 | 4 | 10 | 9 | 2 | 231 |
| 8:45 - 9:00 AM | 6 | 29 | 5 | 5 | 6 | 52 | 54 | 1 | 25 | 42 | 5 | 3 | 3 | 15 | 3 | 0 | 245 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 31 | 199 | 23 | 3 | 89 | 89 | 175 | 7 | 90 | 282 | 23 | 21 | 11 | 33 | 49 | 5 | 1,094 |
| 7:15 - 8:15 AM | 36 | 218 | 27 | 15 | 86 | 88 | 166 | 4 | 82 | 278 | 27 | 20 | 14 | 29 | 54 | 4 | 1,105 |
| 7:30 - 8:30 AM | 28 | 224 | 28 | 23 | 71 | 91 | 146 | 3 | 105 | 251 | 26 | 22 | 21 | 36 | 48 | 6 | 1,075 |
| 7:45 - 8:45 AM | 23 | 188 | 21 | 26 | 33 | 88 | 159 | 0 | 116 | 201 | 21 | 22 | 20 | 39 | 35 | 6 | 944 |
| 8:00 - 9:00 AM | 19 | 132 | 15 | 30 | 22 | 114 | 165 | 1 | 108 | 159 | 22 | 23 | 20 | 45 | 24 | 5 | 845 |
| Peak Hour 7:15 - 8:15 AM | 36 | 218 | 27 | 15 | 71 | 88 | 166 | 4 | 82 | 278 | 27 | 20 | 14 | 29 | 54 | 4 | 1,090 |
| Peak Hour Factor | 0.66 | | | | 0.79 | | | | 0.70 | | | | 0.71 | | | | 0.76 |
| Percent Trucks | 5% | | | | 1% | | | | 5% | | | | 4% | | | | |

Intersection: NW Parker Street/NW 38th Avenue
 PM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 5 | 38 | 10 | 1 | 8 | 23 | 26 | 2 | 28 | 40 | 6 | 2 | 12 | 35 | 10 | 2 | 241 |
| 4:15 - 4:30 PM | 2 | 33 | 3 | 5 | 3 | 28 | 31 | 2 | 38 | 28 | 16 | 1 | 16 | 41 | 5 | 0 | 244 |
| 4:30 - 4:45 PM | 9 | 27 | 6 | 2 | 12 | 22 | 26 | 1 | 51 | 37 | 5 | 3 | 14 | 54 | 10 | 0 | 273 |
| 4:45 - 5:00 PM | 5 | 39 | 12 | 2 | 14 | 26 | 34 | 0 | 45 | 31 | 15 | 4 | 11 | 32 | 5 | 0 | 269 |
| 5:00 - 5:15 PM | 7 | 62 | 9 | 1 | 5 | 16 | 30 | 0 | 44 | 44 | 8 | 1 | 24 | 55 | 11 | 1 | 315 |
| 5:15 - 5:30 PM | 10 | 51 | 11 | 1 | 12 | 28 | 32 | 1 | 41 | 50 | 15 | 3 | 11 | 51 | 13 | 0 | 325 |
| 5:30 - 5:45 PM | 10 | 54 | 9 | 0 | 12 | 25 | 23 | 0 | 56 | 63 | 11 | 0 | 16 | 51 | 14 | 0 | 344 |
| 5:45 - 6:00 PM | 17 | 38 | 14 | 1 | 10 | 23 | 17 | 0 | 50 | 52 | 10 | 0 | 11 | 55 | 10 | 1 | 307 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 21 | 137 | 31 | 10 | 37 | 99 | 117 | 5 | 162 | 136 | 42 | 10 | 53 | 162 | 30 | 2 | 1,027 |
| 4:15 - 5:15 PM | 23 | 161 | 30 | 10 | 34 | 92 | 121 | 3 | 178 | 140 | 44 | 9 | 65 | 182 | 31 | 1 | 1,101 |
| 4:30 - 5:30 PM | 31 | 179 | 38 | 6 | 43 | 92 | 122 | 2 | 181 | 162 | 43 | 11 | 60 | 192 | 39 | 1 | 1,182 |
| 4:45 - 5:45 PM | 32 | 206 | 41 | 4 | 43 | 95 | 119 | 1 | 186 | 188 | 49 | 8 | 62 | 189 | 43 | 1 | 1,253 |
| 5:00 - 6:00 PM | 44 | 205 | 43 | 3 | 39 | 92 | 102 | 1 | 191 | 209 | 44 | 4 | 62 | 212 | 48 | 2 | 1,291 |
| Peak Hour 5:00 - 6:00 PM | 44 | 205 | 43 | 3 | 39 | 92 | 102 | 1 | 191 | 209 | 44 | 4 | 62 | 212 | 48 | 2 | 1,291 |
| Peak Hour Factor | | 0.94 | | | | 0.81 | | | | 0.85 | | | | 0.89 | | | 0.94 |
| Percent Trucks | | 1% | | | | 0% | | | | 1% | | | | 1% | | | |

Intersection: SE Brady Road/SE 192nd Avenue
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 0 | 177 | 2 | 4 | 4 | 0 | 151 | 0 | 25 | 114 | 2 | 14 | 4 | 0 | 0 | 4 | 479 |
| 7:15 - 7:30 AM | 2 | 162 | 4 | 2 | 14 | 0 | 133 | 1 | 43 | 141 | 2 | 12 | 4 | 0 | 0 | 3 | 505 |
| 7:30 - 7:45 AM | 2 | 172 | 6 | 6 | 3 | 0 | 117 | 2 | 59 | 168 | 1 | 12 | 1 | 1 | 1 | 2 | 531 |
| 7:45 - 8:00 AM | 1 | 162 | 7 | 9 | 14 | 0 | 127 | 2 | 56 | 178 | 2 | 12 | 0 | 1 | 0 | 0 | 548 |
| 8:00 - 8:15 AM | 0 | 171 | 9 | 5 | 14 | 0 | 120 | 1 | 45 | 124 | 1 | 7 | 2 | 0 | 2 | 4 | 488 |
| 8:15 - 8:30 AM | 1 | 156 | 7 | 7 | 15 | 0 | 97 | 0 | 43 | 128 | 3 | 11 | 0 | 0 | 0 | 0 | 450 |
| 8:30 - 8:45 AM | 1 | 149 | 5 | 6 | 14 | 0 | 118 | 0 | 57 | 132 | 3 | 15 | 3 | 0 | 2 | 4 | 484 |
| 8:45 - 9:00 AM | 2 | 145 | 7 | 8 | 20 | 1 | 119 | 6 | 50 | 170 | 2 | 8 | 0 | 0 | 0 | 0 | 516 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 5 | 673 | 19 | 21 | 35 | 0 | 528 | 5 | 183 | 601 | 7 | 50 | 9 | 2 | 1 | 9 | 2,063 |
| 7:15 - 8:15 AM | 5 | 667 | 26 | 22 | 45 | 0 | 497 | 6 | 203 | 611 | 6 | 43 | 7 | 2 | 3 | 9 | 2,072 |
| 7:30 - 8:30 AM | 4 | 661 | 29 | 27 | 46 | 0 | 461 | 5 | 203 | 598 | 7 | 42 | 3 | 2 | 3 | 6 | 2,017 |
| 7:45 - 8:45 AM | 3 | 638 | 28 | 27 | 57 | 0 | 462 | 3 | 201 | 562 | 9 | 45 | 5 | 1 | 4 | 8 | 1,970 |
| 8:00 - 9:00 AM | 4 | 621 | 28 | 26 | 63 | 1 | 454 | 7 | 195 | 554 | 9 | 41 | 5 | 0 | 4 | 8 | 1,938 |
| Peak Hour 7:15 - 8:15 AM | 5 | 667 | 26 | 22 | 45 | 0 | 497 | 6 | 203 | 611 | 6 | 43 | 7 | 2 | 3 | 9 | 2,072 |
| Peak Hour Factor | 0.97 | | | | 0.92 | | | | 0.87 | | | | 0.75 | | | | 0.95 |
| Percent Trucks | 3% | | | | 1% | | | | 5% | | | | 75% | | | | |

Intersection: SE Brady Road/SE 192nd Avenue
 PM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|-------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 2 | 251 | 17 | 3 | 14 | 0 | 79 | 2 | 90 | 187 | 3 | 7 | 7 | 2 | 5 | 1 | 657 |
| 4:15 - 4:30 PM | 0 | 216 | 10 | 3 | 13 | 0 | 73 | 2 | 102 | 195 | 5 | 7 | 3 | 0 | 1 | 0 | 618 |
| 4:30 - 4:45 PM | 1 | 249 | 23 | 2 | 16 | 0 | 71 | 2 | 100 | 206 | 0 | 5 | 4 | 0 | 1 | 0 | 671 |
| 4:45 - 5:00 PM | 2 | 201 | 23 | 3 | 16 | 3 | 60 | 1 | 112 | 236 | 4 | 6 | 1 | 0 | 2 | 0 | 660 |
| 5:00 - 5:15 PM | 2 | 313 | 18 | 0 | 2 | 0 | 78 | 0 | 101 | 225 | 1 | 3 | 2 | 0 | 2 | 1 | 744 |
| 5:15 - 5:30 PM | 0 | 261 | 12 | 1 | 13 | 0 | 71 | 1 | 123 | 234 | 1 | 4 | 2 | 0 | 1 | 1 | 718 |
| 5:30 - 5:45 PM | 0 | 221 | 14 | 4 | 9 | 0 | 66 | 1 | 134 | 247 | 1 | 4 | 3 | 0 | 0 | 0 | 695 |
| 5:45 - 6:00 PM | 0 | 161 | 15 | 3 | 9 | 0 | 62 | 0 | 113 | 208 | 0 | 2 | 2 | 0 | 0 | 0 | 570 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 5 | 917 | 73 | 11 | 59 | 3 | 283 | 7 | 404 | 824 | 12 | 25 | 15 | 2 | 9 | 1 | 2,606 |
| 4:15 - 5:15 PM | 5 | 979 | 74 | 8 | 47 | 3 | 282 | 5 | 415 | 862 | 10 | 21 | 10 | 0 | 6 | 1 | 2,693 |
| 4:30 - 5:30 PM | 5 | 1,024 | 76 | 6 | 47 | 3 | 280 | 4 | 436 | 901 | 6 | 18 | 9 | 0 | 6 | 2 | 2,793 |
| 4:45 - 5:45 PM | 4 | 996 | 67 | 8 | 40 | 3 | 275 | 3 | 470 | 942 | 7 | 17 | 8 | 0 | 5 | 2 | 2,817 |
| 5:00 - 6:00 PM | 2 | 956 | 59 | 8 | 33 | 0 | 277 | 2 | 471 | 914 | 3 | 13 | 9 | 0 | 3 | 2 | 2,727 |
| Peak Hour 4:45 - 5:45 PM | 4 | 996 | 67 | 8 | 40 | 3 | 275 | 3 | 470 | 942 | 7 | 17 | 8 | 0 | 5 | 2 | 2,817 |
| Peak Hour Factor | | 0.80 | | | | 0.95 | | | | 0.93 | | | | 0.81 | | | 0.95 |
| Percent Trucks | | 1% | | | | 1% | | | | 1% | | | | 15% | | | |

Intersection: NE Goodwin Road/NE Ingle Road
 AM Peak Hour Turning Movement Volumes

Date: 06/10/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 27 | 0 | 13 | 2 | 34 | 31 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 14 | 13 | 3 | 132 |
| 7:15 - 7:30 AM | 47 | 0 | 18 | 9 | 32 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 28 | 5 | 199 |
| 7:30 - 7:45 AM | 48 | 0 | 10 | 3 | 35 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 28 | 4 | 200 |
| 7:45 - 8:00 AM | 49 | 0 | 21 | 4 | 33 | 43 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 27 | 27 | 2 | 200 |
| 8:00 - 8:15 AM | 22 | 0 | 8 | 2 | 19 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 19 | 5 | 130 |
| 8:15 - 8:30 AM | 18 | 0 | 15 | 5 | 31 | 38 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 15 | 9 | 3 | 126 |
| 8:30 - 8:45 AM | 35 | 0 | 12 | 2 | 16 | 57 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16 | 15 | 4 | 151 |
| 8:45 - 9:00 AM | 20 | 0 | 10 | 3 | 16 | 45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 14 | 12 | 5 | 117 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 171 | 0 | 62 | 18 | 134 | 197 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 71 | 96 | 14 | 731 |
| 7:15 - 8:15 AM | 166 | 0 | 57 | 18 | 119 | 210 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 75 | 102 | 16 | 729 |
| 7:30 - 8:30 AM | 137 | 0 | 54 | 14 | 118 | 189 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 75 | 83 | 14 | 656 |
| 7:45 - 8:45 AM | 124 | 0 | 56 | 13 | 99 | 182 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 76 | 70 | 14 | 607 |
| 8:00 - 9:00 AM | 95 | 0 | 45 | 12 | 82 | 184 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 63 | 55 | 17 | 524 |
| Peak Hour 7:00 - 8:00 AM | 171 | 0 | 62 | 18 | 134 | 197 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 71 | 96 | 14 | 731 |
| Peak Hour Factor | 0.83 | | | | 0.84 | | | | 0.00 | | | | 0.77 | | | | 0.91 |
| Percent Trucks | 8% | | | | 1% | | | | 0% | | | | 8% | | | | |

Intersection: NE Goodwin Road/NE Ingle Road
 PM Peak Hour Turning Movement Volumes

Date: 06/10/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 17 | 0 | 22 | 3 | 12 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 22 | 2 | 165 |
| 4:15 - 4:30 PM | 14 | 0 | 32 | 0 | 14 | 34 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 60 | 22 | 5 | 176 |
| 4:30 - 4:45 PM | 23 | 0 | 22 | 2 | 20 | 37 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 69 | 39 | 3 | 210 |
| 4:45 - 5:00 PM | 32 | 0 | 23 | 2 | 23 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 24 | 2 | 215 |
| 5:00 - 5:15 PM | 26 | 0 | 34 | 2 | 23 | 37 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 60 | 43 | 1 | 223 |
| 5:15 - 5:30 PM | 32 | 0 | 28 | 2 | 26 | 41 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 64 | 34 | 2 | 225 |
| 5:30 - 5:45 PM | 35 | 0 | 23 | 3 | 8 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 37 | 2 | 185 |
| 5:45 - 6:00 PM | 30 | 0 | 27 | 5 | 11 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 22 | 0 | 178 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 86 | 0 | 99 | 7 | 69 | 145 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 260 | 107 | 12 | 766 |
| 4:15 - 5:15 PM | 95 | 0 | 111 | 6 | 80 | 152 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 258 | 128 | 11 | 824 |
| 4:30 - 5:30 PM | 113 | 0 | 107 | 8 | 92 | 159 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 262 | 140 | 8 | 873 |
| 4:45 - 5:45 PM | 125 | 0 | 108 | 9 | 80 | 151 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 246 | 138 | 7 | 848 |
| 5:00 - 6:00 PM | 123 | 0 | 112 | 12 | 68 | 131 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 241 | 136 | 5 | 811 |
| Peak Hour 4:30 - 5:30 PM | 113 | 0 | 107 | 8 | 92 | 159 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 262 | 140 | 8 | 873 |
| Peak Hour Factor | | 0.92 | | | | 0.94 | | | | 0.00 | | | | 0.93 | | | 0.97 |
| Percent Trucks | | 4% | | | | 2% | | | | 0% | | | | 2% | | | |

Intersection: NE Goodwin Road/NW Camas Meadows Drive
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 0 | 45 | 9 | 2 | 4 | 0 | 0 | 0 | 9 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 91 |
| 7:15 - 7:30 AM | 0 | 87 | 14 | 9 | 10 | 0 | 2 | 0 | 12 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 154 |
| 7:30 - 7:45 AM | 0 | 106 | 27 | 0 | 17 | 0 | 5 | 0 | 12 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 193 |
| 7:45 - 8:00 AM | 0 | 77 | 32 | 3 | 12 | 0 | 4 | 0 | 15 | 20 | 0 | 2 | 0 | 0 | 0 | 0 | 160 |
| 8:00 - 8:15 AM | 0 | 70 | 16 | 5 | 12 | 0 | 0 | 0 | 20 | 29 | 0 | 2 | 0 | 0 | 0 | 0 | 147 |
| 8:15 - 8:30 AM | 0 | 58 | 10 | 4 | 8 | 0 | 6 | 0 | 18 | 23 | 0 | 4 | 0 | 0 | 0 | 0 | 123 |
| 8:30 - 8:45 AM | 0 | 47 | 11 | 0 | 7 | 0 | 3 | 0 | 11 | 29 | 0 | 7 | 0 | 0 | 0 | 0 | 108 |
| 8:45 - 9:00 AM | 0 | 69 | 17 | 5 | 3 | 0 | 1 | 1 | 15 | 27 | 0 | 3 | 0 | 0 | 0 | 0 | 132 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 0 | 315 | 136 | 14 | 43 | 0 | 11 | 0 | 48 | 99 | 0 | 2 | 0 | 0 | 0 | 0 | 652 |
| 7:15 - 8:15 AM | 0 | 340 | 89 | 17 | 51 | 0 | 11 | 0 | 59 | 104 | 0 | 4 | 0 | 0 | 0 | 0 | 654 |
| 7:30 - 8:30 AM | 0 | 311 | 85 | 12 | 49 | 0 | 15 | 0 | 65 | 98 | 0 | 8 | 0 | 0 | 0 | 0 | 623 |
| 7:45 - 8:45 AM | 0 | 252 | 69 | 12 | 39 | 0 | 13 | 0 | 64 | 101 | 0 | 15 | 0 | 0 | 0 | 0 | 538 |
| 8:00 - 9:00 AM | 0 | 244 | 54 | 14 | 30 | 0 | 10 | 1 | 64 | 108 | 0 | 16 | 0 | 0 | 0 | 0 | 510 |
| Peak Hour 7:15 - 8:15 AM | 0 | 340 | 89 | 17 | 51 | 0 | 11 | 0 | 59 | 104 | 0 | 4 | 0 | 0 | 0 | 0 | 654 |
| Peak Hour Factor | | 0.81 | | | | 0.70 | | | | 0.83 | | | | 0.00 | | | 0.85 |
| Percent Trucks | | 4% | | | | 0% | | | | 2% | | | | 0% | | | |

Intersection: NE Goodwin Road/NW Camas Meadows Drive
 PM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 0 | 50 | 4 | 4 | 15 | 0 | 6 | 1 | 4 | 85 | 0 | 3 | 0 | 0 | 0 | 0 | 164 |
| 4:15 - 4:30 PM | 0 | 56 | 7 | 3 | 21 | 0 | 6 | 0 | 3 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 150 |
| 4:30 - 4:45 PM | 0 | 68 | 12 | 2 | 10 | 0 | 4 | 0 | 4 | 69 | 0 | 3 | 0 | 0 | 0 | 0 | 167 |
| 4:45 - 5:00 PM | 0 | 47 | 8 | 1 | 14 | 0 | 8 | 0 | 4 | 102 | 0 | 2 | 0 | 0 | 0 | 0 | 183 |
| 5:00 - 5:15 PM | 0 | 50 | 8 | 2 | 32 | 0 | 24 | 0 | 4 | 101 | 0 | 1 | 0 | 0 | 0 | 0 | 219 |
| 5:15 - 5:30 PM | 0 | 43 | 14 | 2 | 12 | 0 | 12 | 0 | 6 | 80 | 0 | 3 | 0 | 0 | 0 | 0 | 167 |
| 5:30 - 5:45 PM | 0 | 54 | 12 | 1 | 10 | 0 | 4 | 0 | 5 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 173 |
| 5:45 - 6:00 PM | 0 | 40 | 7 | 1 | 10 | 0 | 12 | 0 | 9 | 79 | 0 | 1 | 0 | 0 | 0 | 0 | 157 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 0 | 221 | 31 | 10 | 60 | 0 | 24 | 1 | 15 | 313 | 0 | 8 | 0 | 0 | 0 | 0 | 664 |
| 4:15 - 5:15 PM | 0 | 221 | 35 | 8 | 77 | 0 | 42 | 0 | 15 | 329 | 0 | 6 | 0 | 0 | 0 | 0 | 719 |
| 4:30 - 5:30 PM | 0 | 208 | 42 | 7 | 68 | 0 | 48 | 0 | 18 | 352 | 0 | 9 | 0 | 0 | 0 | 0 | 736 |
| 4:45 - 5:45 PM | 0 | 194 | 42 | 6 | 68 | 0 | 48 | 0 | 19 | 371 | 0 | 6 | 0 | 0 | 0 | 0 | 742 |
| 5:00 - 6:00 PM | 0 | 187 | 41 | 6 | 64 | 0 | 52 | 0 | 24 | 348 | 0 | 5 | 0 | 0 | 0 | 0 | 716 |
| Peak Hour 4:45 - 5:45 PM | 0 | 194 | 42 | 6 | 68 | 0 | 48 | 0 | 19 | 371 | 0 | 6 | 0 | 0 | 0 | 0 | 742 |
| Peak Hour Factor | | 0.89 | | | | 0.52 | | | | 0.92 | | | | 0.00 | | | 0.85 |
| Percent Trucks | | 3% | | | | 0% | | | | 2% | | | | 0% | | | |

Intersection: NW Parker Street/NW Pacific Rim Boulevard/NW Pacific Rim Drive
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 31 | 23 | 1 | 1 | 3 | 14 | 10 | 1 | 2 | 10 | 36 | 1 | 6 | 4 | 26 | 0 | 166 |
| 7:15 - 7:30 AM | 38 | 38 | 0 | 3 | 2 | 11 | 3 | 0 | 2 | 34 | 17 | 5 | 3 | 5 | 29 | 4 | 182 |
| 7:30 - 7:45 AM | 45 | 51 | 1 | 2 | 8 | 16 | 9 | 2 | 1 | 93 | 16 | 0 | 3 | 1 | 27 | 0 | 271 |
| 7:45 - 8:00 AM | 68 | 63 | 2 | 2 | 3 | 15 | 7 | 0 | 3 | 67 | 25 | 1 | 0 | 2 | 42 | 2 | 297 |
| 8:00 - 8:15 AM | 37 | 39 | 0 | 7 | 0 | 11 | 7 | 1 | 1 | 29 | 16 | 1 | 7 | 3 | 25 | 0 | 175 |
| 8:15 - 8:30 AM | 27 | 45 | 2 | 9 | 2 | 9 | 1 | 0 | 3 | 32 | 15 | 8 | 5 | 1 | 21 | 0 | 163 |
| 8:30 - 8:45 AM | 35 | 33 | 1 | 2 | 6 | 9 | 13 | 6 | 2 | 34 | 17 | 5 | 5 | 5 | 46 | 3 | 206 |
| 8:45 - 9:00 AM | 49 | 35 | 1 | 3 | 4 | 12 | 2 | 1 | 2 | 38 | 18 | 2 | 10 | 4 | 30 | 2 | 205 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 182 | 175 | 4 | 8 | 16 | 56 | 29 | 3 | 8 | 204 | 94 | 7 | 12 | 12 | 124 | 6 | 916 |
| 7:15 - 8:15 AM | 188 | 191 | 3 | 14 | 13 | 53 | 26 | 3 | 7 | 223 | 74 | 7 | 13 | 11 | 123 | 6 | 925 |
| 7:30 - 8:30 AM | 177 | 198 | 5 | 20 | 13 | 51 | 24 | 3 | 8 | 221 | 72 | 10 | 15 | 7 | 115 | 2 | 906 |
| 7:45 - 8:45 AM | 167 | 180 | 5 | 20 | 11 | 44 | 28 | 7 | 9 | 162 | 73 | 15 | 17 | 11 | 134 | 5 | 841 |
| 8:00 - 9:00 AM | 148 | 152 | 4 | 21 | 12 | 41 | 23 | 8 | 8 | 133 | 66 | 16 | 27 | 13 | 122 | 5 | 749 |
| Peak Hour 7:15 - 8:15 AM | 188 | 191 | 3 | 14 | 13 | 53 | 26 | 3 | 7 | 223 | 74 | 7 | 13 | 11 | 123 | 6 | 925 |
| Peak Hour Factor | | 0.72 | | | | 0.70 | | | | 0.69 | | | | 0.84 | | | 0.78 |
| Percent Trucks | | 4% | | | | 3% | | | | 2% | | | | 4% | | | |

Intersection: NW Parker Street/NW Pacific Rim Boulevard/NW Pacific Rim Drive
 PM Peak Hour Turning Movement Volumes

Date: 06/10/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 31 | 23 | 1 | 3 | 2 | 11 | 2 | 0 | 9 | 26 | 9 | 3 | 22 | 24 | 36 | 1 | 196 |
| 4:15 - 4:30 PM | 34 | 28 | 1 | 3 | 0 | 16 | 6 | 0 | 5 | 38 | 13 | 4 | 15 | 18 | 22 | 1 | 196 |
| 4:30 - 4:45 PM | 31 | 36 | 0 | 3 | 1 | 8 | 2 | 0 | 8 | 35 | 12 | 3 | 30 | 21 | 36 | 2 | 220 |
| 4:45 - 5:00 PM | 38 | 29 | 2 | 2 | 1 | 10 | 4 | 0 | 11 | 30 | 14 | 2 | 25 | 19 | 25 | 2 | 208 |
| 5:00 - 5:15 PM | 36 | 34 | 3 | 2 | 3 | 11 | 5 | 1 | 9 | 35 | 11 | 2 | 19 | 17 | 45 | 1 | 228 |
| 5:15 - 5:30 PM | 16 | 30 | 1 | 0 | 3 | 11 | 2 | 1 | 8 | 38 | 11 | 0 | 14 | 21 | 45 | 0 | 200 |
| 5:30 - 5:45 PM | 21 | 33 | 2 | 4 | 2 | 9 | 4 | 0 | 6 | 36 | 17 | 2 | 14 | 14 | 42 | 0 | 200 |
| 5:45 - 6:00 PM | 31 | 71 | 5 | 2 | 2 | 14 | 3 | 0 | 14 | 50 | 7 | 2 | 29 | 22 | 37 | 2 | 285 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 134 | 116 | 4 | 11 | 4 | 45 | 14 | 0 | 33 | 129 | 48 | 12 | 92 | 82 | 119 | 6 | 820 |
| 4:15 - 5:15 PM | 139 | 127 | 6 | 10 | 5 | 45 | 17 | 1 | 33 | 138 | 50 | 11 | 89 | 75 | 128 | 6 | 852 |
| 4:30 - 5:30 PM | 121 | 129 | 6 | 7 | 8 | 40 | 13 | 2 | 36 | 138 | 48 | 7 | 88 | 78 | 151 | 5 | 856 |
| 4:45 - 5:45 PM | 111 | 126 | 8 | 8 | 9 | 41 | 15 | 2 | 34 | 139 | 53 | 6 | 72 | 71 | 157 | 3 | 836 |
| 5:00 - 6:00 PM | 104 | 168 | 11 | 8 | 10 | 45 | 14 | 2 | 37 | 159 | 46 | 6 | 76 | 74 | 169 | 3 | 913 |
| Peak Hour 5:00 - 6:00 PM | 104 | 168 | 11 | 8 | 10 | 45 | 14 | 2 | 37 | 159 | 46 | 6 | 76 | 74 | 169 | 3 | 913 |
| Peak Hour Factor | | 0.66 | | | | 0.91 | | | | 0.85 | | | | 0.91 | | | 0.80 |
| Percent Trucks | | 3% | | | | 3% | | | | 2% | | | | 1% | | | |

Intersection: NW Brady Road/NW 16th Avenue
 AM Peak Hour Turning Movement Volumes

Date: 06/11/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| <u>15 Minute Totals</u> | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 2 | 43 | 2 | 3 | 12 | 14 | 51 | 1 | 6 | 27 | 1 | 5 | 0 | 6 | 4 | 2 | 168 |
| 7:15 - 7:30 AM | 3 | 27 | 3 | 2 | 21 | 10 | 31 | 1 | 6 | 43 | 1 | 4 | 1 | 0 | 3 | 1 | 149 |
| 7:30 - 7:45 AM | 4 | 37 | 10 | 2 | 62 | 19 | 39 | 6 | 12 | 51 | 4 | 4 | 1 | 9 | 11 | 2 | 259 |
| 7:45 - 8:00 AM | 4 | 34 | 24 | 3 | 35 | 13 | 34 | 1 | 18 | 46 | 4 | 6 | 0 | 10 | 6 | 0 | 228 |
| 8:00 - 8:15 AM | 11 | 49 | 16 | 2 | 21 | 19 | 37 | 1 | 14 | 29 | 3 | 2 | 0 | 4 | 6 | 0 | 209 |
| 8:15 - 8:30 AM | 1 | 27 | 5 | 10 | 16 | 17 | 37 | 3 | 9 | 18 | 5 | 3 | 2 | 7 | 1 | 0 | 145 |
| 8:30 - 8:45 AM | 5 | 29 | 7 | 8 | 20 | 24 | 37 | 3 | 13 | 28 | 13 | 7 | 7 | 13 | 2 | 1 | 198 |
| 8:45 - 9:00 AM | 22 | 27 | 7 | 5 | 15 | 46 | 24 | 3 | 12 | 32 | 32 | 5 | 23 | 29 | 12 | 8 | 281 |
| <u>Hourly Total by 15 minutes</u> | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 13 | 141 | 39 | 10 | 130 | 56 | 155 | 9 | 42 | 167 | 10 | 19 | 2 | 25 | 24 | 5 | 804 |
| 7:15 - 8:15 AM | 22 | 147 | 53 | 9 | 139 | 61 | 141 | 9 | 50 | 169 | 12 | 16 | 2 | 23 | 26 | 3 | 845 |
| 7:30 - 8:30 AM | 20 | 147 | 55 | 17 | 134 | 68 | 147 | 11 | 53 | 144 | 16 | 15 | 3 | 30 | 24 | 2 | 841 |
| 7:45 - 8:45 AM | 21 | 139 | 52 | 23 | 92 | 73 | 145 | 8 | 54 | 121 | 25 | 18 | 9 | 34 | 15 | 1 | 780 |
| 8:00 - 9:00 AM | 39 | 132 | 35 | 25 | 72 | 106 | 135 | 10 | 48 | 107 | 53 | 17 | 32 | 53 | 21 | 9 | 833 |
| Peak Hour 7:15 - 8:15 AM | 22 | 147 | 53 | 9 | 139 | 61 | 141 | 9 | 50 | 169 | 12 | 16 | 2 | 23 | 26 | 3 | 845 |
| Peak Hour Factor | 0.73 | | | | 0.71 | | | | 0.85 | | | | 0.61 | | | | 0.82 |
| Percent Trucks | 4% | | | | 3% | | | | 7% | | | | 6% | | | | |

Intersection: NW Brady Road/NW 16th Avenue
 PM Peak Hour Turning Movement Volumes

Date: 06/11/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| <u>15 Minute Totals</u> | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 3 | 21 | 13 | 1 | 12 | 17 | 19 | 1 | 32 | 24 | 2 | 2 | 5 | 29 | 4 | 0 | 181 |
| 4:15 - 4:30 PM | 2 | 28 | 14 | 0 | 13 | 13 | 12 | 1 | 18 | 37 | 6 | 0 | 6 | 27 | 5 | 0 | 181 |
| 4:30 - 4:45 PM | 6 | 38 | 20 | 0 | 13 | 18 | 24 | 1 | 33 | 29 | 3 | 1 | 6 | 20 | 2 | 0 | 212 |
| 4:45 - 5:00 PM | 1 | 32 | 12 | 0 | 23 | 15 | 17 | 0 | 36 | 43 | 2 | 0 | 4 | 25 | 4 | 0 | 214 |
| 5:00 - 5:15 PM | 4 | 48 | 29 | 1 | 14 | 11 | 23 | 0 | 38 | 38 | 1 | 0 | 3 | 38 | 0 | 0 | 247 |
| 5:15 - 5:30 PM | 1 | 32 | 29 | 0 | 20 | 12 | 22 | 0 | 36 | 36 | 2 | 2 | 4 | 25 | 1 | 0 | 220 |
| 5:30 - 5:45 PM | 3 | 36 | 23 | 2 | 21 | 7 | 15 | 1 | 41 | 49 | 4 | 4 | 4 | 28 | 4 | 0 | 235 |
| 5:45 - 6:00 PM | 3 | 35 | 27 | 1 | 13 | 9 | 18 | 2 | 36 | 52 | 4 | 1 | 5 | 17 | 4 | 0 | 223 |
| <u>Hourly Total by 15 minutes</u> | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 12 | 119 | 59 | 1 | 61 | 63 | 72 | 3 | 119 | 133 | 13 | 3 | 21 | 101 | 15 | 0 | 788 |
| 4:15 - 5:15 PM | 13 | 146 | 75 | 1 | 63 | 57 | 76 | 2 | 125 | 147 | 12 | 1 | 19 | 110 | 11 | 0 | 854 |
| 4:30 - 5:30 PM | 12 | 150 | 90 | 1 | 70 | 56 | 86 | 1 | 143 | 146 | 8 | 3 | 17 | 108 | 7 | 0 | 893 |
| 4:45 - 5:45 PM | 9 | 148 | 93 | 3 | 78 | 45 | 77 | 1 | 151 | 166 | 9 | 6 | 15 | 116 | 9 | 0 | 916 |
| 5:00 - 6:00 PM | 11 | 151 | 108 | 4 | 68 | 39 | 78 | 3 | 151 | 175 | 11 | 7 | 16 | 108 | 9 | 0 | 925 |
| Peak Hour 5:00 - 6:00 PM | 11 | 151 | 108 | 4 | 68 | 39 | 78 | 3 | 151 | 175 | 11 | 7 | 16 | 108 | 9 | 0 | 925 |
| Peak Hour Factor | | 0.83 | | | | 0.86 | | | | 0.90 | | | | 0.81 | | | 0.94 |
| Percent Trucks | | 1% | | | | 2% | | | | 2% | | | | 0% | | | |

Intersection: NW & SE Brady Road/NW McIntosh Road
 AM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-----|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 0 | 77 | 0 | 0 | 0 | 0 | 34 | 0 | 10 | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 156 |
| 7:15 - 7:30 AM | 0 | 86 | 0 | 1 | 2 | 0 | 26 | 1 | 9 | 59 | 0 | 3 | 0 | 0 | 0 | 0 | 182 |
| 7:30 - 7:45 AM | 0 | 90 | 2 | 1 | 3 | 0 | 32 | 1 | 16 | 52 | 0 | 2 | 0 | 0 | 0 | 0 | 195 |
| 7:45 - 8:00 AM | 0 | 51 | 3 | 1 | 2 | 0 | 26 | 0 | 5 | 29 | 0 | 2 | 0 | 0 | 0 | 0 | 116 |
| 8:00 - 8:15 AM | 0 | 63 | 3 | 1 | 3 | 0 | 34 | 0 | 10 | 31 | 0 | 2 | 0 | 0 | 0 | 0 | 144 |
| 8:15 - 8:30 AM | 0 | 79 | 3 | 0 | 4 | 0 | 37 | 0 | 17 | 41 | 0 | 4 | 0 | 0 | 0 | 0 | 181 |
| 8:30 - 8:45 AM | 0 | 58 | 2 | 2 | 6 | 0 | 45 | 3 | 13 | 39 | 0 | 2 | 0 | 0 | 0 | 0 | 163 |
| 8:45 - 9:00 AM | 0 | 46 | 1 | 1 | 0 | 0 | 36 | 1 | 13 | 25 | 0 | 1 | 0 | 0 | 0 | 0 | 121 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 0 | 304 | 5 | 3 | 7 | 0 | 118 | 2 | 40 | 175 | 0 | 8 | 0 | 0 | 0 | 0 | 649 |
| 7:15 - 8:15 AM | 0 | 290 | 8 | 4 | 10 | 0 | 118 | 2 | 40 | 171 | 0 | 9 | 0 | 0 | 0 | 0 | 637 |
| 7:30 - 8:30 AM | 0 | 283 | 11 | 3 | 12 | 0 | 129 | 1 | 48 | 153 | 0 | 10 | 0 | 0 | 0 | 0 | 636 |
| 7:45 - 8:45 AM | 0 | 251 | 11 | 4 | 15 | 0 | 142 | 3 | 45 | 140 | 0 | 10 | 0 | 0 | 0 | 0 | 604 |
| 8:00 - 9:00 AM | 0 | 246 | 9 | 4 | 13 | 0 | 152 | 4 | 53 | 136 | 0 | 9 | 0 | 0 | 0 | 0 | 609 |
| Peak Hour 7:00 - 8:00 AM | 0 | 304 | 5 | 3 | 7 | 0 | 118 | 2 | 40 | 175 | 0 | 8 | 0 | 0 | 0 | 0 | 649 |
| Peak Hour Factor | | 0.84 | | | | 0.89 | | | | 0.79 | | | | 0.00 | | | 0.83 |
| Percent Trucks | | 1% | | | | 2% | | | | 4% | | | | 0% | | | |

Intersection: NW & SE Brady Road/NW McIntosh Road
 PM Peak Hour Turning Movement Volumes

Date: 06/09/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-----------|------|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 0 | 65 | 5 | 1 | 4 | 0 | 31 | 1 | 20 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 180 |
| 4:15 - 4:30 PM | 0 | 41 | 5 | 1 | 4 | 0 | 22 | 2 | 24 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 171 |
| 4:30 - 4:45 PM | 0 | 33 | 5 | 3 | 4 | 0 | 18 | 1 | 24 | 51 | 0 | 2 | 0 | 0 | 0 | 0 | 135 |
| 4:45 - 5:00 PM | 0 | 27 | 1 | 0 | 0 | 0 | 15 | 0 | 22 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| 5:00 - 5:15 PM | 0 | 45 | 3 | 1 | 10 | 0 | 13 | 1 | 38 | 103 | 0 | 1 | 0 | 0 | 0 | 0 | 212 |
| 5:15 - 5:30 PM | 0 | 22 | 1 | 0 | 1 | 0 | 18 | 0 | 15 | 67 | 0 | 1 | 0 | 0 | 0 | 0 | 124 |
| 5:30 - 5:45 PM | 0 | 42 | 3 | 0 | 6 | 0 | 19 | 0 | 22 | 82 | 0 | 2 | 0 | 0 | 0 | 0 | 174 |
| 5:45 - 6:00 PM | 0 | 35 | 4 | 0 | 2 | 0 | 13 | 1 | 24 | 71 | 0 | 1 | 0 | 0 | 0 | 0 | 149 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 0 | 166 | 16 | 5 | 12 | 0 | 86 | 4 | 90 | 234 | 0 | 2 | 0 | 0 | 0 | 0 | 604 |
| 4:15 - 5:15 PM | 0 | 146 | 14 | 5 | 18 | 0 | 68 | 4 | 108 | 282 | 0 | 3 | 0 | 0 | 0 | 0 | 636 |
| 4:30 - 5:30 PM | 0 | 127 | 10 | 4 | 15 | 0 | 64 | 2 | 99 | 274 | 0 | 4 | 0 | 0 | 0 | 0 | 589 |
| 4:45 - 5:45 PM | 0 | 136 | 8 | 1 | 17 | 0 | 65 | 1 | 97 | 305 | 0 | 4 | 0 | 0 | 0 | 0 | 628 |
| 5:00 - 6:00 PM | 0 | 144 | 11 | 1 | 19 | 0 | 63 | 2 | 99 | 323 | 0 | 5 | 0 | 0 | 0 | 0 | 659 |
| Peak Hour 5:00 - 6:00 PM | 0 | 144 | 11 | 1 | 19 | 0 | 63 | 2 | 99 | 323 | 0 | 5 | 0 | 0 | 0 | 0 | 659 |
| Peak Hour Factor | | 0.81 | | | | 0.82 | | | | 0.75 | | | | 0.00 | | | 0.78 |
| Percent Trucks | | 1% | | | | 2% | | | | 1% | | | | 0% | | | |

Intersection: NW Lake Road/NW Payne Street
 AM Peak Hour Turning Movement Volumes

Date: 07/07/15

| Time | SB | | | | WB | | | | NB | | | | EB | | | | Total |
|-----------------------------------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 7:00 - 7:15 AM | 4 | 0 | 8 | 1 | 11 | 49 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 42 | 4 | 5 | 118 |
| 7:15 - 7:30 AM | 2 | 0 | 7 | 0 | 14 | 61 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 35 | 3 | 3 | 122 |
| 7:30 - 7:45 AM | 0 | 0 | 14 | 0 | 17 | 68 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 67 | 4 | 1 | 170 |
| 7:45 - 8:00 AM | 1 | 0 | 17 | 0 | 16 | 58 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 66 | 6 | 2 | 164 |
| 8:00 - 8:15 AM | 1 | 0 | 12 | 0 | 15 | 53 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 54 | 4 | 2 | 139 |
| 8:15 - 8:30 AM | 1 | 0 | 5 | 0 | 12 | 61 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 61 | 3 | 3 | 143 |
| 8:30 - 8:45 AM | 1 | 0 | 6 | 0 | 16 | 73 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 42 | 8 | 1 | 146 |
| 8:45 - 9:00 AM | 3 | 0 | 6 | 0 | 17 | 85 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 57 | 9 | 2 | 177 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 7:00 - 8:00 AM | 7 | 0 | 46 | 1 | 58 | 236 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 210 | 17 | 11 | 574 |
| 7:15 - 8:15 AM | 4 | 0 | 50 | 0 | 62 | 240 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 222 | 17 | 8 | 595 |
| 7:30 - 8:30 AM | 3 | 0 | 48 | 0 | 60 | 240 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 248 | 17 | 8 | 616 |
| 7:45 - 8:45 AM | 4 | 0 | 40 | 0 | 59 | 245 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 223 | 21 | 8 | 592 |
| 8:00 - 9:00 AM | 6 | 0 | 29 | 0 | 60 | 272 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 214 | 24 | 8 | 605 |
| Peak Hour 7:30 - 8:30 AM | 3 | 0 | 48 | 0 | 60 | 240 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 248 | 17 | 8 | 616 |
| Peak Hour Factor | 0.71 | | | | 0.88 | | | | 0.00 | | | | 0.92 | | | | 0.91 |
| Percent Trucks | 0% | | | | 2% | | | | 0% | | | | 3% | | | | |

Intersection: NW Lake Road/NW Payne Street
 PM Peak Hour Turning Movement Volumes

Date: 07/07/15

| Time | <u>SB</u> | | | | <u>WB</u> | | | | <u>NB</u> | | | | <u>EB</u> | | | | Total |
|-----------------------------------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-----------|-----|-----|--------|-------|
| | SBR | SBT | SBL | Trucks | WBR | WBT | WBL | Trucks | NBR | NBT | NBL | Trucks | EBR | EBT | EBL | Trucks | |
| 15 Minute Totals | | | | | | | | | | | | | | | | | |
| 4:00 - 4:15 PM | 3 | 0 | 7 | 0 | 12 | 98 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 103 | 6 | 3 | 229 |
| 4:15 - 4:30 PM | 5 | 0 | 7 | 0 | 16 | 102 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 119 | 9 | 1 | 258 |
| 4:30 - 4:45 PM | 4 | 0 | 8 | 1 | 10 | 94 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 130 | 5 | 2 | 251 |
| 4:45 - 5:00 PM | 6 | 0 | 13 | 0 | 15 | 110 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 132 | 6 | 0 | 282 |
| 5:00 - 5:15 PM | 3 | 0 | 18 | 0 | 24 | 109 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 156 | 12 | 1 | 322 |
| 5:15 - 5:30 PM | 7 | 0 | 24 | 0 | 44 | 101 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 178 | 26 | 0 | 380 |
| 5:30 - 5:45 PM | 6 | 0 | 22 | 0 | 35 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 156 | 29 | 1 | 360 |
| 5:45 - 6:00 PM | 3 | 0 | 10 | 0 | 45 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 25 | 0 | 324 |
| Hourly Total by 15 minutes | | | | | | | | | | | | | | | | | |
| 4:00 - 5:00 PM | 18 | 0 | 35 | 1 | 53 | 404 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 484 | 26 | 6 | 1,020 |
| 4:15 - 5:15 PM | 18 | 0 | 46 | 1 | 65 | 415 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 537 | 32 | 4 | 1,113 |
| 4:30 - 5:30 PM | 20 | 0 | 63 | 1 | 93 | 414 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 596 | 49 | 3 | 1,235 |
| 4:45 - 5:45 PM | 22 | 0 | 77 | 0 | 118 | 432 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 622 | 73 | 2 | 1,344 |
| 5:00 - 6:00 PM | 19 | 0 | 74 | 0 | 148 | 431 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 622 | 92 | 2 | 1,386 |
| Peak Hour 5:00 - 6:00 PM | 19 | 0 | 74 | 0 | 148 | 431 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 622 | 92 | 2 | 1,386 |
| Peak Hour Factor | 0.75 | | | | 0.94 | | | | 0.00 | | | | 0.88 | | | | 0.91 |
| Percent Trucks | 0% | | | | 1% | | | | 0% | | | | 0% | | | | |

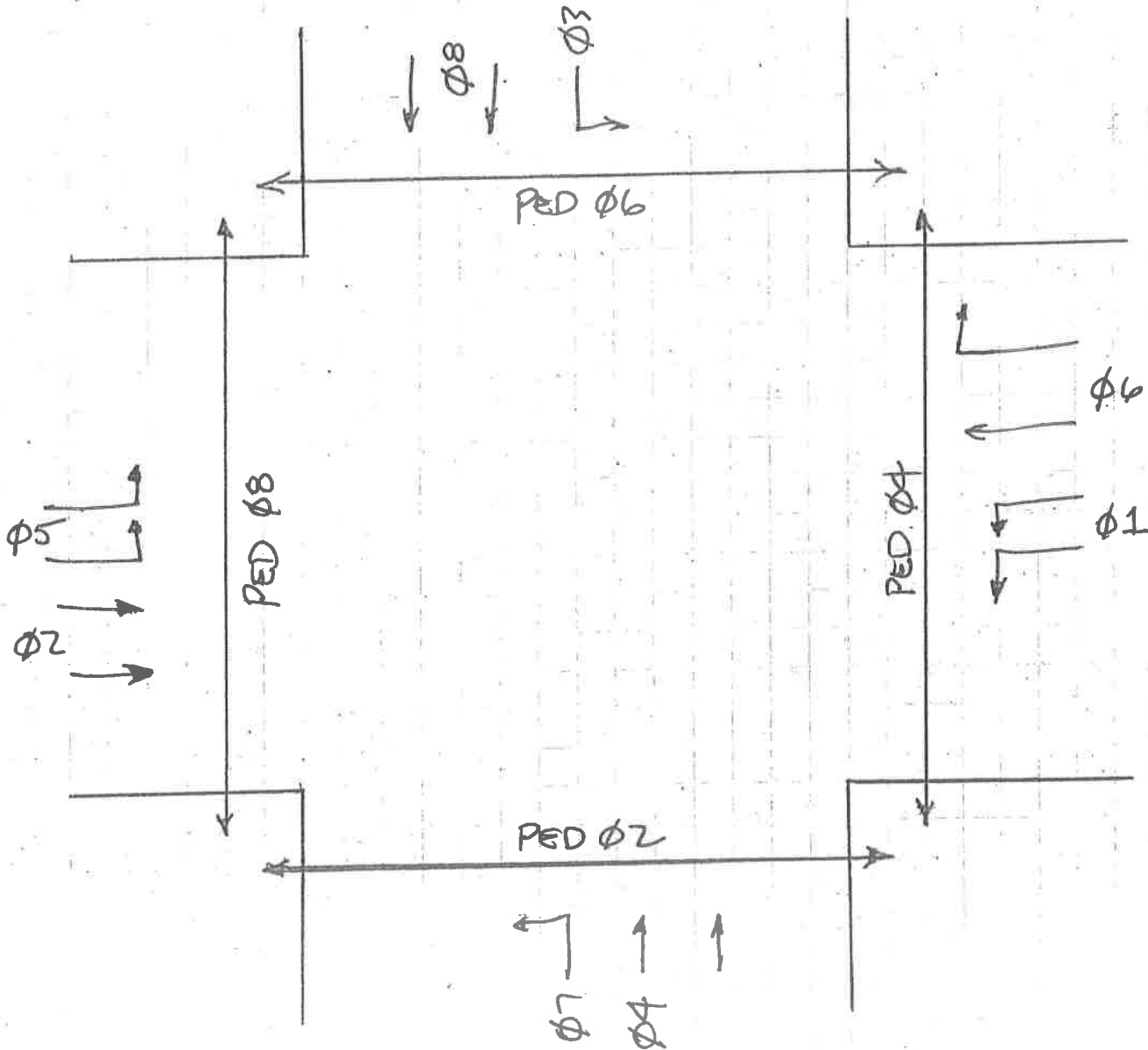
APPENDIX B
SIGNAL TIMING CARDS

DATE: 03/10/2015

INTERSECTION: SE 192ND AVE & SE 1ST ST

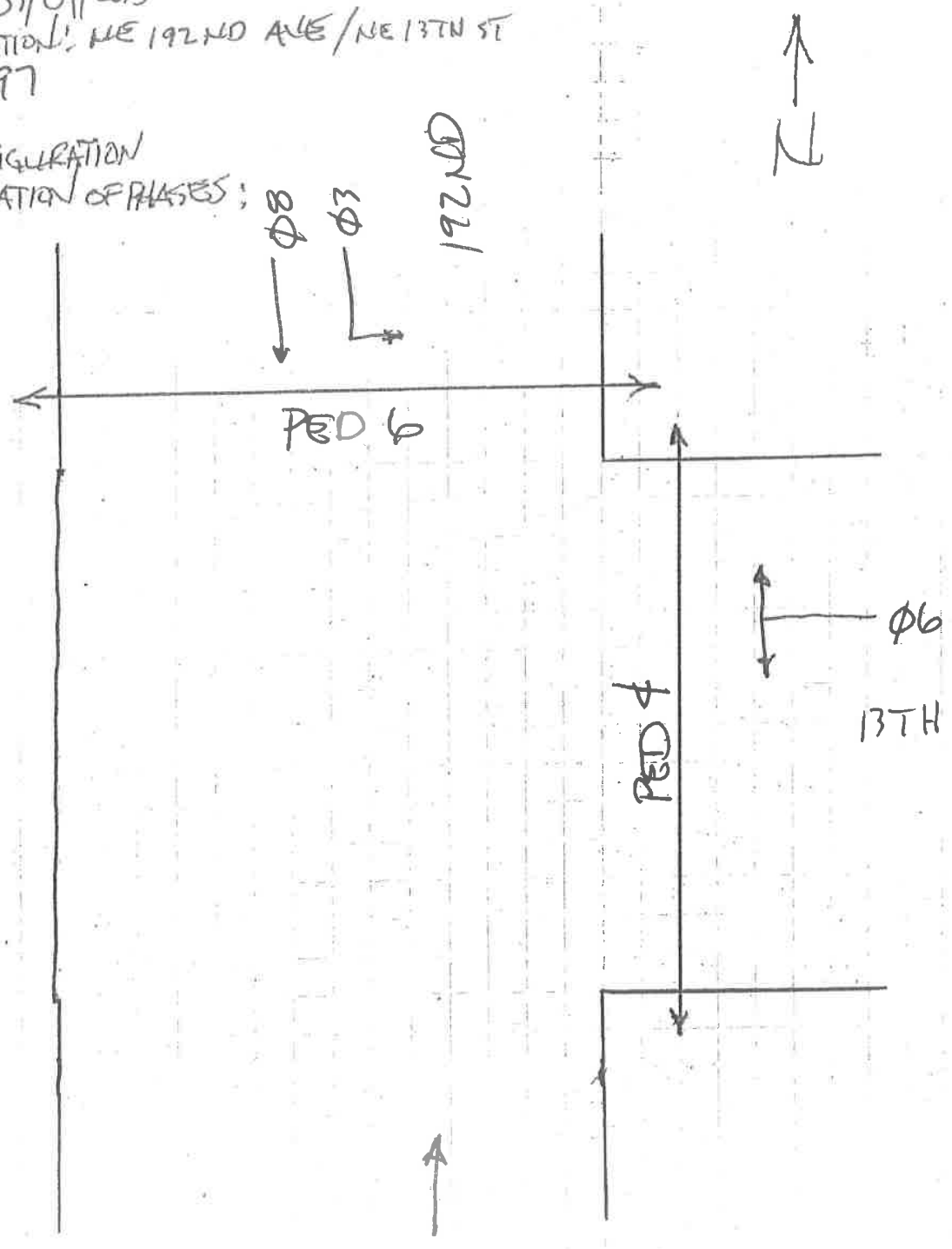
ICD: 267

LANE CONFIGURATION
& ORIENTATION OF PHASES:



DATE: 03/04/2015
 INTERSECTION: NE 192ND AVE / NE 13TH ST
 ICD: 197

LANE CONFIGURATION
 & ORIENTATION OF PHASES:



NOTES:

- SBLT IS FYA.
- SBLT FYA CONFLICTS WITH PED 4

$\phi 4$
 $\phi 12$

ID: 267

Name: 192 Ave & 1 St

Configuration: Standard

| Pattern | Cycle Time | Offset Time | Split Number | Seq Number |
|------------|------------|-------------|--------------|------------|
| Pattern 1 | 0 | 0 | 0 | 1 |
| Pattern 2 | 90 | 85 | 2 | 11 |
| Pattern 3 | 0 | 0 | 3 | 11 |
| Pattern 4 | 0 | 0 | 0 | 1 |
| Pattern 5 | 0 | 0 | 0 | 1 |
| Pattern 6 | 0 | 0 | 0 | 1 |
| Pattern 7 | 0 | 0 | 0 | 1 |
| Pattern 8 | 90 | 75 | 8 | 11 |
| Pattern 9 | 0 | 0 | 0 | 1 |
| Pattern 10 | 0 | 0 | 0 | 1 |
| Pattern 11 | 0 | 0 | 0 | 1 |
| Pattern 12 | 100 | 77 | 12 | 11 |
| Pattern 13 | 0 | 0 | 0 | 1 |
| Pattern 14 | 0 | 0 | 0 | 1 |
| Pattern 15 | 0 | 0 | 0 | 1 |
| Pattern 16 | 0 | 0 | 0 | 1 |
| Pattern 17 | 0 | 0 | 0 | 1 |
| Pattern 18 | 0 | 0 | 0 | 1 |
| Pattern 19 | 0 | 0 | 0 | 1 |
| Pattern 20 | 0 | 0 | 0 | 1 |

APPENDIX C

2015 EXISTING LEVELS OF SERVICE

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 169 | 97 | 252 | 33 | 266 | 293 |
| Future Volume (vph) | 169 | 97 | 252 | 33 | 266 | 293 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.951 | | 0.984 | | | |
| Flt Protected | 0.969 | | | | 0.950 | |
| Satd. Flow (prot) | 1668 | 0 | 1684 | 0 | 1752 | 1845 |
| Flt Permitted | 0.969 | | | | 0.950 | |
| Satd. Flow (perm) | 1668 | 0 | 1684 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 22 | | 6 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 5% | 5% | 11% | 11% | 3% | 3% |
| Adj. Flow (vph) | 188 | 108 | 280 | 37 | 296 | 326 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 296 | 0 | 317 | 0 | 296 | 326 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

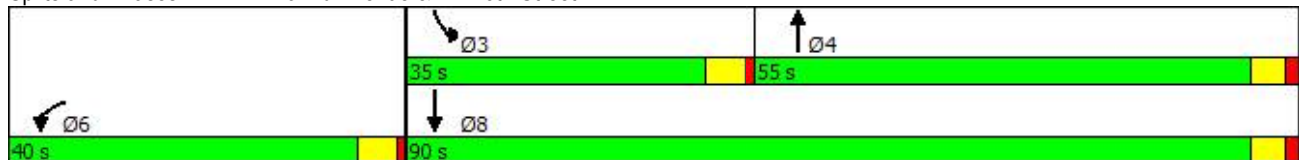


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 19.5 | | 21.6 | | 19.6 | 46.6 |
| Actuated g/C Ratio | 0.25 | | 0.28 | | 0.25 | 0.61 |
| v/c Ratio | 0.67 | | 0.67 | | 0.66 | 0.29 |
| Control Delay | 34.5 | | 33.6 | | 36.1 | 8.5 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 34.5 | | 33.6 | | 36.1 | 8.5 |
| LOS | C | | C | | D | A |
| Approach Delay | 34.5 | | 33.6 | | | 21.6 |
| Approach LOS | C | | C | | | C |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 76.9 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.67 |
| Intersection Signal Delay: | 27.8 |
| Intersection Capacity Utilization: | 57.8% |
| Analysis Period (min): | 15 |
| Intersection LOS: | C |
| ICU Level of Service: | B |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/4/2016













| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 296 | 317 | 296 | 326 |
| v/c Ratio | 0.67 | 0.67 | 0.66 | 0.29 |
| Control Delay | 34.5 | 33.6 | 36.1 | 8.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 34.5 | 33.6 | 36.1 | 8.5 |
| Queue Length 50th (ft) | 113 | 126 | 122 | 64 |
| Queue Length 95th (ft) | 262 | 282 | 276 | 142 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 830 | 1178 | 737 | 1745 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.27 | 0.40 | 0.19 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

| |  |  |  |  |  |  | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations |  | |  | |  |  | | |
| Traffic Volume (veh/h) | 169 | 97 | 252 | 33 | 266 | 293 | | |
| Future Volume (veh/h) | 169 | 97 | 252 | 33 | 266 | 293 | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1810 | 1900 | 1712 | 1900 | 1845 | 1845 | | |
| Adj Flow Rate, veh/h | 188 | 108 | 280 | 37 | 296 | 326 | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | | |
| Percent Heavy Veh, % | 0 | 0 | 11 | 11 | 3 | 3 | | |
| Cap, veh/h | 233 | 134 | 418 | 55 | 370 | 1084 | | |
| Arrive On Green | 0.22 | 0.22 | 0.28 | 0.28 | 0.21 | 0.59 | | |
| Sat Flow, veh/h | 1045 | 600 | 1481 | 196 | 1757 | 1845 | | |
| Grp Volume(v), veh/h | 297 | 0 | 0 | 317 | 296 | 326 | | |
| Grp Sat Flow(s),veh/h/ln | 1651 | 0 | 0 | 1677 | 1757 | 1845 | | |
| Q Serve(g_s), s | 9.0 | 0.0 | 0.0 | 8.8 | 8.4 | 4.7 | | |
| Cycle Q Clear(g_c), s | 9.0 | 0.0 | 0.0 | 8.8 | 8.4 | 4.7 | | |
| Prop In Lane | 0.63 | 0.36 | | 0.12 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 368 | 0 | 0 | 473 | 370 | 1084 | | |
| V/C Ratio(X) | 0.81 | 0.00 | 0.00 | 0.67 | 0.80 | 0.30 | | |
| Avail Cap(c_a), veh/h | 1097 | 0 | 0 | 1592 | 1001 | 2977 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(l) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 19.4 | 0.0 | 0.0 | 16.7 | 19.8 | 5.4 | | |
| Incr Delay (d2), s/veh | 4.2 | 0.0 | 0.0 | 1.6 | 4.1 | 0.2 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 4.5 | 0.0 | 0.0 | 4.3 | 4.4 | 2.4 | | |
| LnGrp Delay(d),s/veh | 23.6 | 0.0 | 0.0 | 18.4 | 23.8 | 5.6 | | |
| LnGrp LOS | C | | | B | C | A | | |
| Approach Vol, veh/h | 297 | | 317 | | | 622 | | |
| Approach Delay, s/veh | 23.6 | | 18.4 | | | 14.3 | | |
| Approach LOS | C | | B | | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 16.1 | 19.9 | | 16.7 | | 35.9 |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 |
| Max Q Clear Time (g_c+I1), s | | | 10.4 | 10.8 | | 11.0 | | 6.7 |
| Green Ext Time (p_c), s | | | 0.8 | 4.1 | | 0.9 | | 4.1 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 17.6 | | | | | |
| HCM 2010 LOS | | | B | | | | | |
| Notes | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↔↔ | ↕↔ | | ↔↔ | ↕ | ↔ | ↔ | ↕↕ | ↔ | ↔ | ↕↔ | |
| Traffic Volume (vph) | 49 | 210 | 48 | 214 | 200 | 102 | 30 | 196 | 262 | 69 | 275 | 41 |
| Future Volume (vph) | 49 | 210 | 48 | 214 | 200 | 102 | 30 | 196 | 262 | 69 | 275 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Fr | | 0.972 | | | | 0.850 | | | 0.850 | | 0.981 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3303 | 3310 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3303 | 3310 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | | 124 | | | 320 | | 18 | |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 8% | 8% | 8% | 5% | 5% | 5% | 7% | 7% | 7% |
| Adj. Flow (vph) | 60 | 256 | 59 | 261 | 244 | 124 | 37 | 239 | 320 | 84 | 335 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 60 | 315 | 0 | 261 | 244 | 124 | 37 | 239 | 320 | 84 | 385 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

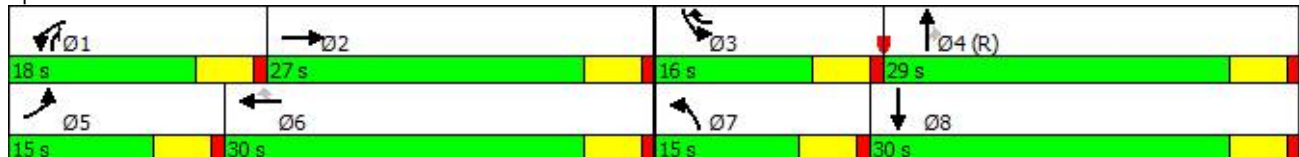


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.0 | 13.7 | | 11.7 | 20.4 | 35.2 | 7.4 | 34.9 | 51.6 | 9.7 | 41.6 | |
| Actuated g/C Ratio | 0.08 | 0.15 | | 0.13 | 0.23 | 0.39 | 0.08 | 0.39 | 0.57 | 0.11 | 0.46 | |
| v/c Ratio | 0.23 | 0.60 | | 0.62 | 0.61 | 0.19 | 0.26 | 0.18 | 0.31 | 0.46 | 0.25 | |
| Control Delay | 40.7 | 36.5 | | 43.7 | 38.5 | 3.6 | 42.6 | 20.8 | 2.5 | 45.1 | 17.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 40.7 | 36.5 | | 43.7 | 38.5 | 3.6 | 42.6 | 20.8 | 2.5 | 45.1 | 17.3 | |
| LOS | D | D | | D | D | A | D | C | A | D | B | |
| Approach Delay | | 37.1 | | | 33.8 | | | 12.3 | | | 22.3 | |
| Approach LOS | | D | | | C | | | B | | | C | |

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 77 (86%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 25.6
 Intersection LOS: C
 Intersection Capacity Utilization 48.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016
























| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 60 | 315 | 261 | 244 | 124 | 37 | 239 | 320 | 84 | 385 |
| v/c Ratio | 0.23 | 0.60 | 0.62 | 0.61 | 0.19 | 0.26 | 0.18 | 0.31 | 0.46 | 0.25 |
| Control Delay | 40.7 | 36.5 | 43.7 | 38.5 | 3.6 | 42.6 | 20.8 | 2.5 | 45.1 | 17.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 40.7 | 36.5 | 43.7 | 38.5 | 3.6 | 42.6 | 20.8 | 2.5 | 45.1 | 17.3 |
| Queue Length 50th (ft) | 17 | 81 | 72 | 129 | 0 | 20 | 46 | 0 | 46 | 70 |
| Queue Length 95th (ft) | 32 | 101 | 100 | 172 | 22 | 44 | 79 | 30 | 79 | 111 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 367 | 831 | 468 | 488 | 687 | 191 | 1333 | 1035 | 216 | 1538 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.16 | 0.38 | 0.56 | 0.50 | 0.18 | 0.19 | 0.18 | 0.31 | 0.39 | 0.25 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  | |
| Traffic Volume (veh/h) | 49 | 210 | 48 | 214 | 200 | 102 | 30 | 196 | 262 | 69 | 275 | 41 |
| Future Volume (veh/h) | 49 | 210 | 48 | 214 | 200 | 102 | 30 | 196 | 262 | 69 | 275 | 41 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1792 | 1792 | 1900 | 1759 | 1759 | 1759 | 1810 | 1810 | 1810 | 1776 | 1776 | 1900 |
| Adj Flow Rate, veh/h | 60 | 256 | 59 | 261 | 244 | 124 | 37 | 239 | 320 | 84 | 335 | 50 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 8 | 8 | 8 | 5 | 5 | 5 | 7 | 7 | 7 |
| Cap, veh/h | 143 | 394 | 89 | 338 | 358 | 354 | 58 | 1610 | 786 | 107 | 1468 | 217 |
| Arrive On Green | 0.04 | 0.14 | 0.14 | 0.10 | 0.20 | 0.20 | 0.03 | 0.47 | 0.47 | 0.06 | 0.50 | 0.50 |
| Sat Flow, veh/h | 3312 | 2760 | 625 | 3250 | 1759 | 1495 | 1723 | 3438 | 1538 | 1691 | 2949 | 436 |
| Grp Volume(v), veh/h | 60 | 156 | 159 | 261 | 244 | 124 | 37 | 239 | 320 | 84 | 190 | 195 |
| Grp Sat Flow(s),veh/h/ln | 1656 | 1703 | 1682 | 1625 | 1759 | 1495 | 1723 | 1719 | 1538 | 1691 | 1687 | 1699 |
| Q Serve(g_s), s | 1.6 | 7.8 | 8.0 | 7.0 | 11.5 | 6.2 | 1.9 | 3.6 | 11.6 | 4.4 | 5.7 | 5.9 |
| Cycle Q Clear(g_c), s | 1.6 | 7.8 | 8.0 | 7.0 | 11.5 | 6.2 | 1.9 | 3.6 | 11.6 | 4.4 | 5.7 | 5.9 |
| Prop In Lane | 1.00 | | 0.37 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 143 | 243 | 240 | 338 | 358 | 354 | 58 | 1610 | 786 | 107 | 840 | 845 |
| V/C Ratio(X) | 0.42 | 0.64 | 0.66 | 0.77 | 0.68 | 0.35 | 0.64 | 0.15 | 0.41 | 0.79 | 0.23 | 0.23 |
| Avail Cap(c_a), veh/h | 368 | 416 | 411 | 470 | 489 | 466 | 191 | 1610 | 786 | 207 | 840 | 845 |
| 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 | 0.88 | 0.88 | 0.88 |
| Uniform Delay (d), s/veh | 42.0 | 36.4 | 36.5 | 39.3 | 33.2 | 28.6 | 43.0 | 13.7 | 13.6 | 41.6 | 12.8 | 12.8 |
| Incr Delay (d2), s/veh | 2.0 | 2.8 | 3.1 | 5.2 | 2.3 | 0.6 | 11.2 | 0.2 | 1.6 | 10.7 | 0.6 | 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 | 0.8 | 3.8 | 4.0 | 3.4 | 5.9 | 2.6 | 1.1 | 1.7 | 5.2 | 2.4 | 2.8 | 2.9 |
| LnGrp Delay(d),s/veh | 43.9 | 39.2 | 39.6 | 44.5 | 35.4 | 29.2 | 54.2 | 13.9 | 15.1 | 52.3 | 13.3 | 13.4 |
| LnGrp LOS | D | D | D | D | D | C | D | B | B | D | B | B |
| Approach Vol, veh/h | | 375 | | | 629 | | | 596 | | | 469 | |
| Approach Delay, s/veh | | 40.2 | | | 38.0 | | | 17.0 | | | 20.3 | |
| Approach LOS | | D | | | D | | | B | | | 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 | 14.3 | 17.8 | 10.7 | 47.1 | 8.9 | 23.3 | 8.0 | 49.8 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 9.0 | 10.0 | 6.4 | 13.6 | 3.6 | 13.5 | 3.9 | 7.9 | | | | |
| Green Ext Time (p_c), s | 0.3 | 2.8 | 0.1 | 3.5 | 0.1 | 2.7 | 0.0 | 4.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 28.3 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↶ | → | ↷ | ↶ | ↷ | ↷ | ↶ | ↷ | ↷ | ↶ | ↷ | ↷ |
| Traffic Volume (vph) | 19 | 171 | 212 | 85 | 286 | 3 | 157 | 15 | 82 | 8 | 40 | 32 |
| Future Volume (vph) | 19 | 171 | 212 | 85 | 286 | 3 | 157 | 15 | 82 | 8 | 40 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.998 | | | 0.874 | | | 0.933 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1687 | 1776 | 1509 | 1770 | 3532 | 0 | 1736 | 1597 | 0 | 1752 | 1721 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1687 | 1776 | 1509 | 1770 | 3532 | 0 | 1736 | 1597 | 0 | 1752 | 1721 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 290 | | 1 | | | 112 | | | 39 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2447 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 41.7 | | | 171.3 | | | 22.1 | | | 36.2 | |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 2% | 2% | 2% | 4% | 4% | 4% | 3% | 3% | 3% |
| Adj. Flow (vph) | 26 | 234 | 290 | 116 | 392 | 4 | 215 | 21 | 112 | 11 | 55 | 44 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 26 | 234 | 290 | 116 | 396 | 0 | 215 | 133 | 0 | 11 | 99 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

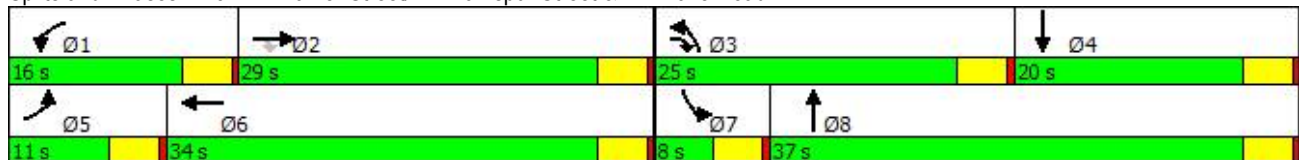


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.5 | 14.4 | 35.3 | 10.2 | 21.0 | | 13.8 | 21.7 | | 5.0 | 9.0 | |
| Actuated g/C Ratio | 0.13 | 0.25 | 0.62 | 0.18 | 0.37 | | 0.24 | 0.38 | | 0.09 | 0.16 | |
| v/c Ratio | 0.12 | 0.52 | 0.28 | 0.37 | 0.30 | | 0.51 | 0.20 | | 0.07 | 0.33 | |
| Control Delay | 32.4 | 27.3 | 2.0 | 31.0 | 16.1 | | 27.8 | 5.9 | | 35.1 | 22.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 32.4 | 27.3 | 2.0 | 31.0 | 16.1 | | 27.8 | 5.9 | | 35.1 | 22.2 | |
| LOS | C | C | A | C | B | | C | A | | D | C | |
| Approach Delay | | 14.2 | | | 19.5 | | | 19.4 | | | 23.5 | |
| Approach LOS | | B | | | B | | | B | | | C | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 57.1 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.52 |
| Intersection Signal Delay: | 17.8 |
| Intersection LOS: | B |
| Intersection Capacity Utilization: | 39.1% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

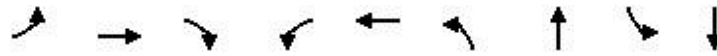
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016
























| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 26 | 234 | 290 | 116 | 396 | 215 | 133 | 11 | 99 |
| v/c Ratio | 0.12 | 0.52 | 0.28 | 0.37 | 0.30 | 0.51 | 0.20 | 0.07 | 0.33 |
| Control Delay | 32.4 | 27.3 | 2.0 | 31.0 | 16.1 | 27.8 | 5.9 | 35.1 | 22.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 32.4 | 27.3 | 2.0 | 31.0 | 16.1 | 27.8 | 5.9 | 35.1 | 22.2 |
| Queue Length 50th (ft) | 9 | 75 | 0 | 38 | 43 | 70 | 4 | 4 | 20 |
| Queue Length 95th (ft) | 30 | 134 | 12 | 85 | 93 | 126 | 26 | 18 | 54 |
| Internal Link Dist (ft) | | 2367 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 257 | 910 | 1138 | 463 | 2031 | 795 | 1021 | 152 | 626 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.26 | 0.25 | 0.25 | 0.19 | 0.27 | 0.13 | 0.07 | 0.16 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  | |  |  | |  |  | |
| Traffic Volume (veh/h) | 19 | 171 | 212 | 85 | 286 | 3 | 157 | 15 | 82 | 8 | 40 | 32 |
| Future Volume (veh/h) | 19 | 171 | 212 | 85 | 286 | 3 | 157 | 15 | 82 | 8 | 40 | 32 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1776 | 1776 | 1776 | 1863 | 1863 | 1900 | 1827 | 1827 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 26 | 234 | 290 | 116 | 392 | 4 | 215 | 21 | 112 | 11 | 55 | 44 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 42 | 490 | 661 | 151 | 1208 | 12 | 282 | 67 | 356 | 20 | 109 | 87 |
| Arrive On Green | 0.02 | 0.28 | 0.28 | 0.09 | 0.34 | 0.34 | 0.16 | 0.27 | 0.27 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1691 | 1776 | 1509 | 1774 | 3589 | 37 | 1740 | 251 | 1339 | 1757 | 950 | 760 |
| Grp Volume(v), veh/h | 26 | 234 | 290 | 116 | 193 | 203 | 215 | 0 | 133 | 11 | 0 | 99 |
| Grp Sat Flow(s),veh/h/ln | 1691 | 1776 | 1509 | 1774 | 1770 | 1856 | 1740 | 0 | 1591 | 1757 | 0 | 1711 |
| Q Serve(g_s), s | 0.7 | 4.9 | 5.9 | 2.8 | 3.6 | 3.6 | 5.2 | 0.0 | 3.0 | 0.3 | 0.0 | 2.4 |
| Cycle Q Clear(g_c), s | 0.7 | 4.9 | 5.9 | 2.8 | 3.6 | 3.6 | 5.2 | 0.0 | 3.0 | 0.3 | 0.0 | 2.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 1.00 | | 0.84 | 1.00 | | 0.44 |
| Lane Grp Cap(c), veh/h | 42 | 490 | 661 | 151 | 596 | 625 | 282 | 0 | 422 | 20 | 0 | 197 |
| V/C Ratio(X) | 0.62 | 0.48 | 0.44 | 0.77 | 0.32 | 0.32 | 0.76 | 0.00 | 0.32 | 0.55 | 0.00 | 0.50 |
| Avail Cap(c_a), veh/h | 268 | 1004 | 1098 | 481 | 1200 | 1259 | 826 | 0 | 1187 | 159 | 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 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 21.4 | 13.3 | 8.6 | 19.8 | 10.9 | 10.9 | 17.7 | 0.0 | 13.0 | 21.7 | 0.0 | 18.4 |
| Incr Delay (d2), s/veh | 14.1 | 0.7 | 0.5 | 7.8 | 0.3 | 0.3 | 4.3 | 0.0 | 0.4 | 21.2 | 0.0 | 2.0 |
| 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 | 0.5 | 2.4 | 2.5 | 1.7 | 1.8 | 1.9 | 2.8 | 0.0 | 1.3 | 0.2 | 0.0 | 1.2 |
| LnGrp Delay(d),s/veh | 35.5 | 14.1 | 9.1 | 27.6 | 11.2 | 11.2 | 22.0 | 0.0 | 13.4 | 43.0 | 0.0 | 20.4 |
| LnGrp LOS | D | B | A | C | B | B | C | | B | D | | C |
| Approach Vol, veh/h | | 550 | | | 512 | | | 348 | | | 110 | |
| Approach Delay, s/veh | | 12.5 | | | 14.9 | | | 18.7 | | | 22.6 | |
| Approach LOS | | B | | | B | | | B | | | 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 | 7.8 | 16.2 | 11.2 | 9.1 | 5.1 | 18.9 | 4.5 | 15.7 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.8 | 7.9 | 7.2 | 4.4 | 2.7 | 5.6 | 2.3 | 5.0 | | | | |
| Green Ext Time (p_c), s | 0.1 | 4.3 | 0.5 | 0.9 | 0.0 | 4.8 | 0.0 | 1.4 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 15.5 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 54 | 29 | 14 | 166 | 88 | 71 | 27 | 278 | 82 | 27 | 218 | 36 |
| Future Volume (vph) | 54 | 29 | 14 | 166 | 88 | 71 | 27 | 278 | 82 | 27 | 218 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.952 | | | 0.933 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1739 | 0 | 1787 | 1755 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1739 | 0 | 1787 | 1755 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | 66 | | | | 108 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 1% | 1% | 1% | 5% | 5% | 5% | 5% | 5% | 5% |
| Adj. Flow (vph) | 71 | 38 | 18 | 218 | 116 | 93 | 36 | 366 | 108 | 36 | 287 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 71 | 56 | 0 | 218 | 209 | 0 | 36 | 366 | 108 | 36 | 287 | 47 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.1 | 8.9 | | 8.4 | 15.2 | | 4.2 | 13.5 | 26.1 | 4.2 | 13.5 | 24.8 |
| Actuated g/C Ratio | 0.15 | 0.19 | | 0.18 | 0.33 | | 0.09 | 0.29 | 0.57 | 0.09 | 0.29 | 0.54 |
| v/c Ratio | 0.26 | 0.16 | | 0.67 | 0.33 | | 0.23 | 0.69 | 0.12 | 0.23 | 0.54 | 0.05 |
| Control Delay | 23.3 | 13.9 | | 36.1 | 13.6 | | 27.8 | 24.8 | 2.6 | 27.8 | 19.7 | 0.9 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.3 | 13.9 | | 36.1 | 13.6 | | 27.8 | 24.8 | 2.6 | 27.8 | 19.7 | 0.9 |
| LOS | C | B | | D | B | | C | C | A | C | B | A |
| Approach Delay | | 19.1 | | | 25.1 | | | 20.3 | | | 18.1 | |
| Approach LOS | | B | | | C | | | C | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 45.9 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.69 |
| Intersection Signal Delay: | 21.0 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 43.8% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| | | | |
| 12 s | 20 s | 8 s | 20 s |
| | | | |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 71 | 56 | 218 | 209 | 36 | 366 | 108 | 36 | 287 | 47 |
| v/c Ratio | 0.26 | 0.16 | 0.67 | 0.33 | 0.23 | 0.69 | 0.12 | 0.23 | 0.54 | 0.05 |
| Control Delay | 23.3 | 13.9 | 36.1 | 13.6 | 27.8 | 24.8 | 2.6 | 27.8 | 19.7 | 0.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.3 | 13.9 | 36.1 | 13.6 | 27.8 | 24.8 | 2.6 | 27.8 | 19.7 | 0.9 |
| Queue Length 50th (ft) | 15 | 8 | 49 | 30 | 8 | 71 | 0 | 8 | 53 | 0 |
| Queue Length 95th (ft) | 46 | 27 | #144 | 71 | 31 | 161 | 14 | 31 | 125 | 2 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 316 | 646 | 326 | 711 | 156 | 660 | 920 | 156 | 660 | 913 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.09 | 0.67 | 0.29 | 0.23 | 0.55 | 0.12 | 0.23 | 0.43 | 0.05 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 54 | 29 | 14 | 166 | 88 | 71 | 27 | 278 | 82 | 27 | 218 | 36 |
| Future Volume (veh/h) | 54 | 29 | 14 | 166 | 88 | 71 | 27 | 278 | 82 | 27 | 218 | 36 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1827 | 1827 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 |
| Adj Flow Rate, veh/h | 71 | 38 | 18 | 218 | 116 | 93 | 36 | 366 | 108 | 36 | 287 | 47 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 96 | 129 | 61 | 277 | 203 | 163 | 57 | 533 | 690 | 57 | 533 | 537 |
| Arrive On Green | 0.05 | 0.11 | 0.11 | 0.15 | 0.21 | 0.21 | 0.03 | 0.29 | 0.29 | 0.03 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1740 | 1173 | 556 | 1792 | 968 | 776 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Grp Volume(v), veh/h | 71 | 0 | 56 | 218 | 0 | 209 | 36 | 366 | 108 | 36 | 287 | 47 |
| Grp Sat Flow(s),veh/h/ln | 1740 | 0 | 1729 | 1792 | 0 | 1744 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Q Serve(g_s), s | 1.6 | 0.0 | 1.2 | 4.6 | 0.0 | 4.2 | 0.8 | 7.0 | 1.6 | 0.8 | 5.2 | 0.8 |
| Cycle Q Clear(g_c), s | 1.6 | 0.0 | 1.2 | 4.6 | 0.0 | 4.2 | 0.8 | 7.0 | 1.6 | 0.8 | 5.2 | 0.8 |
| Prop In Lane | 1.00 | | 0.32 | 1.00 | | 0.44 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 96 | 0 | 191 | 277 | 0 | 366 | 57 | 533 | 690 | 57 | 533 | 537 |
| V/C Ratio(X) | 0.74 | 0.00 | 0.29 | 0.79 | 0.00 | 0.57 | 0.63 | 0.69 | 0.16 | 0.63 | 0.54 | 0.09 |
| Avail Cap(c_a), veh/h | 355 | 0 | 705 | 365 | 0 | 711 | 176 | 738 | 865 | 176 | 738 | 712 |
| 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(l) | 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 | 18.3 | 0.0 | 16.0 | 16.0 | 0.0 | 13.9 | 18.7 | 12.2 | 6.4 | 18.7 | 11.6 | 8.6 |
| Incr Delay (d2), s/veh | 10.8 | 0.0 | 0.8 | 8.2 | 0.0 | 1.4 | 11.0 | 1.6 | 0.1 | 11.0 | 0.9 | 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 | 1.0 | 0.0 | 0.6 | 2.9 | 0.0 | 2.2 | 0.6 | 3.7 | 0.7 | 0.6 | 2.7 | 0.3 |
| LnGrp Delay(d),s/veh | 29.0 | 0.0 | 16.9 | 24.1 | 0.0 | 15.3 | 29.7 | 13.8 | 6.5 | 29.7 | 12.5 | 8.6 |
| LnGrp LOS | C | | B | C | | B | C | B | A | C | B | A |
| Approach Vol, veh/h | | 127 | | | 427 | | | 510 | | | 370 | |
| Approach Delay, s/veh | | 23.7 | | | 19.8 | | | 13.4 | | | 13.7 | |
| Approach LOS | | C | | | B | | | B | | | 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 | 10.1 | 8.3 | 5.3 | 15.5 | 6.2 | 12.2 | 5.3 | 15.5 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+1), s | 6.6 | 3.2 | 2.8 | 7.2 | 3.6 | 6.2 | 2.8 | 9.0 | | | | |
| Green Ext Time (p_c), s | 0.1 | 1.2 | 0.0 | 2.9 | 0.0 | 1.0 | 0.0 | 2.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 16.3 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↕ | ↗ | ↖ | ↕ | ↗ |
| Traffic Volume (vph) | 3 | 2 | 7 | 497 | 0 | 45 | 6 | 611 | 203 | 26 | 667 | 5 |
| Future Volume (vph) | 3 | 2 | 7 | 497 | 0 | 45 | 6 | 611 | 203 | 26 | 667 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Fr t | | 0.883 | | | 0.850 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1031 | 959 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1031 | 959 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 7 | | | 586 | | | | 214 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 75% | 75% | 75% | 1% | 1% | 1% | 5% | 5% | 5% | 3% | 3% | 3% |
| Adj. Flow (vph) | 3 | 2 | 7 | 523 | 0 | 47 | 6 | 643 | 214 | 27 | 702 | 5 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 9 | 0 | 523 | 47 | 0 | 6 | 643 | 214 | 27 | 702 | 5 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016

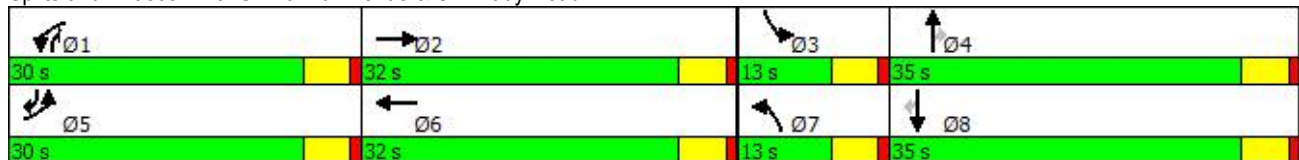


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 6.1 | 6.3 | | 26.5 | 26.6 | | 6.1 | 18.5 | 54.0 | 6.8 | 20.9 | 32.3 |
| Actuated g/C Ratio | 0.10 | 0.10 | | 0.43 | 0.43 | | 0.10 | 0.30 | 0.88 | 0.11 | 0.34 | 0.53 |
| v/c Ratio | 0.03 | 0.09 | | 0.68 | 0.05 | | 0.03 | 0.62 | 0.16 | 0.14 | 0.59 | 0.01 |
| Control Delay | 34.0 | 24.3 | | 25.1 | 0.1 | | 33.7 | 22.3 | 1.0 | 32.8 | 19.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 34.0 | 24.3 | | 25.1 | 0.1 | | 33.7 | 22.3 | 1.0 | 32.8 | 19.3 | 0.0 |
| LOS | C | C | | C | A | | C | C | A | C | B | A |
| Approach Delay | | 26.8 | | | 23.1 | | | 17.1 | | | 19.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 61.3 |
| Natural Cycle: | 90 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.68 |
| Intersection Signal Delay: | 19.6 |
| Intersection Capacity Utilization: | 64.1% |
| Analysis Period (min): | 15 |
| Intersection LOS: | B |
| ICU Level of Service: | C |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/4/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 3 | 9 | 523 | 47 | 6 | 643 | 214 | 27 | 702 | 5 |
| v/c Ratio | 0.03 | 0.09 | 0.68 | 0.05 | 0.03 | 0.62 | 0.16 | 0.14 | 0.59 | 0.01 |
| Control Delay | 34.0 | 24.3 | 25.1 | 0.1 | 33.7 | 22.3 | 1.0 | 32.8 | 19.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 34.0 | 24.3 | 25.1 | 0.1 | 33.7 | 22.3 | 1.0 | 32.8 | 19.3 | 0.0 |
| Queue Length 50th (ft) | 1 | 1 | 112 | 0 | 2 | 83 | 0 | 8 | 93 | 0 |
| Queue Length 95th (ft) | 10 | 16 | #516 | 0 | 16 | 214 | 22 | 40 | 230 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 445 | 451 | 771 | 1058 | 237 | 1781 | 1379 | 242 | 1848 | 1469 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.02 | 0.68 | 0.04 | 0.03 | 0.36 | 0.16 | 0.11 | 0.38 | 0.00 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

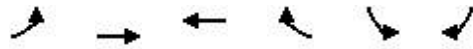
HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 3 | 2 | 7 | 497 | 0 | 45 | 6 | 611 | 203 | 26 | 667 | 5 |
| Future Volume (veh/h) | 3 | 2 | 7 | 497 | 0 | 45 | 6 | 611 | 203 | 26 | 667 | 5 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1086 | 1086 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1845 | 1845 | 1845 |
| Adj Flow Rate, veh/h | 3 | 2 | 7 | 523 | 0 | 47 | 6 | 643 | 214 | 27 | 702 | 5 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 75 | 75 | 75 | 1 | 1 | 1 | 5 | 5 | 5 | 3 | 3 | 3 |
| Cap, veh/h | 4 | 10 | 36 | 572 | 0 | 582 | 14 | 1081 | 490 | 51 | 1176 | 1027 |
| Arrive On Green | 0.00 | 0.05 | 0.05 | 0.32 | 0.00 | 0.36 | 0.01 | 0.31 | 0.31 | 0.03 | 0.34 | 0.34 |
| Sat Flow, veh/h | 1034 | 212 | 743 | 1792 | 0 | 1599 | 1723 | 3438 | 1538 | 1757 | 3505 | 1568 |
| Grp Volume(v), veh/h | 3 | 0 | 9 | 523 | 0 | 47 | 6 | 643 | 214 | 27 | 702 | 5 |
| Grp Sat Flow(s),veh/h/ln | 1034 | 0 | 955 | 1792 | 0 | 1599 | 1723 | 1719 | 1538 | 1757 | 1752 | 1568 |
| Q Serve(g_s), s | 0.2 | 0.0 | 0.6 | 19.5 | 0.0 | 1.3 | 0.2 | 10.9 | 7.6 | 1.1 | 11.5 | 0.1 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 0.6 | 19.5 | 0.0 | 1.3 | 0.2 | 10.9 | 7.6 | 1.1 | 11.5 | 0.1 |
| Prop In Lane | 1.00 | | 0.78 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 4 | 0 | 47 | 572 | 0 | 582 | 14 | 1081 | 490 | 51 | 1176 | 1027 |
| V/C Ratio(X) | 0.72 | 0.00 | 0.19 | 0.91 | 0.00 | 0.08 | 0.44 | 0.60 | 0.44 | 0.53 | 0.60 | 0.00 |
| Avail Cap(c_a), veh/h | 373 | 0 | 372 | 646 | 0 | 623 | 199 | 1487 | 672 | 203 | 1516 | 1179 |
| 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 | 34.5 | 0.0 | 31.7 | 22.7 | 0.0 | 14.4 | 34.3 | 20.1 | 18.7 | 33.2 | 19.1 | 4.1 |
| Incr Delay (d2), s/veh | 120.7 | 0.0 | 2.0 | 16.5 | 0.0 | 0.1 | 21.0 | 0.5 | 0.6 | 8.1 | 0.5 | 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 | 0.2 | 0.0 | 0.2 | 12.2 | 0.0 | 0.6 | 0.2 | 5.3 | 3.3 | 0.6 | 5.6 | 0.0 |
| LnGrp Delay(d),s/veh | 155.2 | 0.0 | 33.6 | 39.3 | 0.0 | 14.5 | 55.2 | 20.6 | 19.3 | 41.3 | 19.6 | 4.1 |
| LnGrp LOS | F | | C | D | | B | E | C | B | D | B | A |
| Approach Vol, veh/h | | 12 | | | 570 | | | 863 | | | 734 | |
| Approach Delay, s/veh | | 64.0 | | | 37.2 | | | 20.5 | | | 20.3 | |
| 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 | 27.1 | 8.4 | 7.0 | 26.8 | 5.3 | 30.2 | 5.5 | 28.3 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 21.5 | 2.6 | 3.1 | 12.9 | 2.2 | 3.3 | 2.2 | 13.5 | | | | |
| Green Ext Time (p_c), s | 0.7 | 0.2 | 0.0 | 8.9 | 0.0 | 0.2 | 0.0 | 8.7 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 25.1 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
 6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 83 | 75 | 189 | 118 | 54 | 137 |
| Future Volume (vph) | 83 | 75 | 189 | 118 | 54 | 137 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.948 | | | 0.850 |
| Fl _t Protected | | 0.974 | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1714 | 1783 | 0 | 1671 | 1495 |
| Fl _t Permitted | | 0.974 | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1714 | 1783 | 0 | 1671 | 1495 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 8% | 8% | 1% | 1% | 8% | 8% |
| Adj. Flow (vph) | 91 | 82 | 208 | 130 | 59 | 151 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 173 | 338 | 0 | 59 | 151 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 0 | 0 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 39.0% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 4.5 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 83 | 75 | 189 | 118 | 54 | 137 |
| Future Vol, veh/h | 83 | 75 | 189 | 118 | 54 | 137 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 8 | 8 | 1 | 1 | 8 | 8 |
| Mvmt Flow | 91 | 82 | 208 | 130 | 59 | 151 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 337 | 0 | 538 |
| Stage 1 | - | - | 273 |
| Stage 2 | - | - | 265 |
| Critical Hdwy | 4.18 | - | 6.48 |
| Critical Hdwy Stg 1 | - | - | 5.48 |
| Critical Hdwy Stg 2 | - | - | 5.48 |
| Follow-up Hdwy | 2.272 | - | 3.572 |
| Pot Cap-1 Maneuver | 1189 | - | 494 |
| Stage 1 | - | - | 759 |
| Stage 2 | - | - | 766 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1189 | - | 454 |
| Mov Cap-2 Maneuver | - | - | 454 |
| Stage 1 | - | - | 759 |
| Stage 2 | - | - | 705 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 4.3 | 0 | 11.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h) | 1189 | - | - | - | 454 | 752 |
| HCM Lane V/C Ratio | 0.077 | - | - | - | 0.131 | 0.2 |
| HCM Control Delay (s) | 8.3 | 0 | - | - | 14.1 | 11 |
| HCM Lane LOS | A | A | - | - | B | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.4 | 0.7 |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↙ | ↘ | ↑ | ↘ | ↙ | ↑ |
| Traffic Volume (vph) | 11 | 51 | 104 | 59 | 89 | 340 |
| Future Volume (vph) | 11 | 51 | 104 | 59 | 89 | 340 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 13 | 60 | 122 | 69 | 105 | 400 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 13 | 60 | 122 | 69 | 105 | 400 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 27.9% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|---|
| Int Delay, s/veh | 2 |
|------------------|---|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 11 | 51 | 104 | 59 | 89 | 340 |
| Future Vol, veh/h | 11 | 51 | 104 | 59 | 89 | 340 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 4 | 4 |
| Mvmt Flow | 13 | 60 | 122 | 69 | 105 | 400 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 731 | 122 | 0 0 122 0 |
| Stage 1 | 122 | - | - - - - |
| Stage 2 | 609 | - | - - - - |
| Critical Hdwy | 6.4 | 6.2 | - - 4.14 - |
| Critical Hdwy Stg 1 | 5.4 | - | - - - - |
| Critical Hdwy Stg 2 | 5.4 | - | - - - - |
| Follow-up Hdwy | 3.5 | 3.3 | - - 2.236 - |
| Pot Cap-1 Maneuver | 392 | 935 | - - 1453 - |
| Stage 1 | 908 | - | - - - - |
| Stage 2 | 547 | - | - - - - |
| Platoon blocked, % | | | - - - - |
| Mov Cap-1 Maneuver | 364 | 935 | - - 1453 - |
| Mov Cap-2 Maneuver | 364 | - | - - - - |
| Stage 1 | 908 | - | - - - - |
| Stage 2 | 507 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 10.2 | 0 | 1.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 364 | 935 | 1453 | - |
| HCM Lane V/C Ratio | - | - | 0.036 | 0.064 | 0.072 | - |
| HCM Control Delay (s) | - | - | 15.3 | 9.1 | 7.7 | - |
| HCM Lane LOS | - | - | C | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0.2 | 0.2 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations | ↖ | ↗ | ↘ | ↖ | ↔ | ↗ | ↖ | ↔ | ↘ | ↖ | ↗ | ↘ |
| Traffic Volume (vph) | 123 | 11 | 13 | 26 | 53 | 13 | 74 | 223 | 7 | 3 | 191 | 188 |
| Future Volume (vph) | 123 | 11 | 13 | 26 | 53 | 13 | 74 | 223 | 7 | 3 | 191 | 188 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.970 | | | 0.995 | | | | 0.850 |
| Fl _t Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1827 | 1553 | 1752 | 3400 | 0 | 1770 | 3522 | 0 | 1736 | 1827 | 1553 |
| Fl _t Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1827 | 1553 | 1752 | 3400 | 0 | 1770 | 3522 | 0 | 1736 | 1827 | 1553 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 3% | 3% | 3% | 2% | 2% | 2% | 4% | 4% | 4% |
| Adj. Flow (vph) | 158 | 14 | 17 | 33 | 68 | 17 | 95 | 286 | 9 | 4 | 245 | 241 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 158 | 14 | 17 | 33 | 85 | 0 | 95 | 295 | 0 | 4 | 245 | 241 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 37.6% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 13.1 |
| Intersection LOS | B |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 123 | 11 | 13 | 0 | 26 | 53 | 13 | 0 | 74 | 223 | 7 |
| Future Vol, veh/h | 0 | 123 | 11 | 13 | 0 | 26 | 53 | 13 | 0 | 74 | 223 | 7 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 158 | 14 | 17 | 0 | 33 | 68 | 17 | 0 | 95 | 286 | 9 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |

| Approach | EB | WB | NB |
|----------------------------|----|------|------|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 3 | 3 | 3 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 3 | 3 | 3 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 3 | 3 | 3 |
| HCM Control Delay | 14 | 11.1 | 12.3 |
| HCM LOS | B | B | B |

| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 91% | 0% | 100% | 0% | 0% | 100% | 58% | 0% | 100% |
| Vol Right, % | 0% | 0% | 9% | 0% | 0% | 100% | 0% | 0% | 42% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 74 | 149 | 81 | 123 | 11 | 13 | 26 | 35 | 31 | 3 | 191 |
| LT Vol | 74 | 0 | 0 | 123 | 0 | 0 | 26 | 0 | 0 | 3 | 0 |
| Through Vol | 0 | 149 | 74 | 0 | 11 | 0 | 0 | 35 | 18 | 0 | 191 |
| RT Vol | 0 | 0 | 7 | 0 | 0 | 13 | 0 | 0 | 13 | 0 | 0 |
| Lane Flow Rate | 95 | 191 | 104 | 158 | 14 | 17 | 33 | 45 | 39 | 4 | 245 |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Degree of Util (X) | 0.191 | 0.358 | 0.194 | 0.344 | 0.029 | 0.031 | 0.076 | 0.096 | 0.08 | 0.008 | 0.452 |
| Departure Headway (Hd) | 7.26 | 6.76 | 6.699 | 7.852 | 7.352 | 6.652 | 8.158 | 7.658 | 7.361 | 7.151 | 6.651 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 491 | 528 | 532 | 456 | 483 | 534 | 442 | 471 | 489 | 498 | 539 |
| Service Time | 5.049 | 4.549 | 4.488 | 5.649 | 5.149 | 4.449 | 5.858 | 5.358 | 5.061 | 4.936 | 4.436 |
| HCM Lane V/C Ratio | 0.193 | 0.362 | 0.195 | 0.346 | 0.029 | 0.032 | 0.075 | 0.096 | 0.08 | 0.008 | 0.455 |
| HCM Control Delay | 11.8 | 13.3 | 11.1 | 14.8 | 10.4 | 9.7 | 11.5 | 11.2 | 10.7 | 10 | 14.9 |
| HCM Lane LOS | B | B | B | B | B | A | B | B | B | A | B |
| HCM 95th-tile Q | 0.7 | 1.6 | 0.7 | 1.5 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0 | 2.3 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 3 | 191 | 188 |
| Future Vol, veh/h | 0 | 3 | 191 | 188 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 4 | 245 | 241 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

Opposing Approach NB
 Opposing Lanes 3
 Conflicting Approach Left WB
 Conflicting Lanes Left 3
 Conflicting Approach Right EB
 Conflicting Lanes Right 3
 HCM Control Delay 13.8
 HCM LOS B

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 26 | 23 | 2 | 141 | 61 | 139 | 12 | 169 | 50 | 53 | 147 | 22 |
| Future Volume (vph) | 26 | 23 | 2 | 141 | 61 | 139 | 12 | 169 | 50 | 53 | 147 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.945 | | | 0.971 | | | 0.987 | |
| Fl _t Protected | | 0.975 | | | 0.980 | | | 0.997 | | | 0.988 | |
| Satd. Flow (prot) | 0 | 1741 | 0 | 0 | 1708 | 0 | 0 | 1719 | 0 | 0 | 1782 | 0 |
| Fl _t Permitted | | 0.975 | | | 0.980 | | | 0.997 | | | 0.988 | |
| Satd. Flow (perm) | 0 | 1741 | 0 | 0 | 1708 | 0 | 0 | 1719 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 3% | 3% | 3% | 7% | 7% | 7% | 4% | 4% | 4% |
| Adj. Flow (vph) | 32 | 28 | 2 | 172 | 74 | 170 | 15 | 206 | 61 | 65 | 179 | 27 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 62 | 0 | 0 | 416 | 0 | 0 | 282 | 0 | 0 | 271 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 57.3% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

| Intersection | | | | | | | | | | | | |
|----------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Intersection Delay, s/veh | 15 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
| Traffic Vol, veh/h | 0 | 26 | 23 | 2 | 0 | 141 | 61 | 139 | 0 | 12 | 169 | 50 |
| Future Vol, veh/h | 0 | 26 | 23 | 2 | 0 | 141 | 61 | 139 | 0 | 12 | 169 | 50 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 6 | 6 | 6 | 2 | 3 | 3 | 3 | 2 | 7 | 7 | 7 |
| Mvmt Flow | 0 | 32 | 28 | 2 | 0 | 172 | 74 | 170 | 0 | 15 | 206 | 61 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Approach | | | | | | | | | | | | |
| | EB | | | | WB | | | | NB | | | |
| Opposing Approach | WB | | | | EB | | | | SB | | | |
| Opposing Lanes | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Left | SB | | | | NB | | | | EB | | | |
| Conflicting Lanes Left | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Right | NB | | | | SB | | | | WB | | | |
| Conflicting Lanes Right | 1 | | | | 1 | | | | 1 | | | |
| HCM Control Delay | 10.4 | | | | 17.7 | | | | 13.6 | | | |
| HCM LOS | B | | | | C | | | | B | | | |
| Lane | | | | | | | | | | | | |
| | NBLn1 | EBLn1 | WBLn1 | SBLn1 | | | | | | | | |
| Vol Left, % | 5% | 51% | 41% | 24% | | | | | | | | |
| Vol Thru, % | 73% | 45% | 18% | 66% | | | | | | | | |
| Vol Right, % | 22% | 4% | 41% | 10% | | | | | | | | |
| Sign Control | Stop | Stop | Stop | Stop | | | | | | | | |
| Traffic Vol by Lane | 231 | 51 | 341 | 222 | | | | | | | | |
| LT Vol | 12 | 26 | 141 | 53 | | | | | | | | |
| Through Vol | 169 | 23 | 61 | 147 | | | | | | | | |
| RT Vol | 50 | 2 | 139 | 22 | | | | | | | | |
| Lane Flow Rate | 282 | 62 | 416 | 271 | | | | | | | | |
| Geometry Grp | 1 | 1 | 1 | 1 | | | | | | | | |
| Degree of Util (X) | 0.452 | 0.112 | 0.635 | 0.44 | | | | | | | | |
| Departure Headway (Hd) | 5.781 | 6.493 | 5.494 | 5.853 | | | | | | | | |
| Convergence, Y/N | Yes | Yes | Yes | Yes | | | | | | | | |
| Cap | 620 | 547 | 653 | 612 | | | | | | | | |
| Service Time | 3.854 | 4.593 | 3.557 | 3.927 | | | | | | | | |
| HCM Lane V/C Ratio | 0.455 | 0.113 | 0.637 | 0.443 | | | | | | | | |
| HCM Control Delay | 13.6 | 10.4 | 17.7 | 13.5 | | | | | | | | |
| HCM Lane LOS | B | B | C | B | | | | | | | | |
| HCM 95th-tile Q | 2.3 | 0.4 | 4.5 | 2.2 | | | | | | | | |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 53 | 147 | 22 |
| Future Vol, veh/h | 0 | 53 | 147 | 22 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 65 | 179 | 27 |
| Number of Lanes | 0 | 0 | 1 | 0 |

Approach SB

| | |
|----------------------------|------|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 13.5 |
| HCM LOS | B |

Lane

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 118 | 7 | 175 | 40 | 5 | 304 |
| Future Volume (vph) | 118 | 7 | 175 | 40 | 5 | 304 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.975 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1781 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1781 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Heavy Vehicles (%) | 2% | 2% | 4% | 4% | 1% | 1% |
| Adj. Flow (vph) | 142 | 8 | 211 | 48 | 6 | 366 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 142 | 8 | 259 | 0 | 6 | 366 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 29.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 3.1 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 118 | 7 | 175 | 40 | 5 | 304 |
| Future Vol, veh/h | 118 | 7 | 175 | 40 | 5 | 304 |
| 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 | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 4 | 4 | 1 | 1 |
| Mvmt Flow | 142 | 8 | 211 | 48 | 6 | 366 |

| Major/Minor | Minor1 | Minor2 | Major1 | Major2 | Major3 | Major4 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 613 | 235 | 0 | 0 | 259 | 0 |
| Stage 1 | 235 | - | - | - | - | - |
| Stage 2 | 378 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.11 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.209 | - |
| Pot Cap-1 Maneuver | 456 | 804 | - | - | 1311 | - |
| Stage 1 | 804 | - | - | - | - | - |
| Stage 2 | 693 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 454 | 804 | - | - | 1311 | - |
| Mov Cap-2 Maneuver | 454 | - | - | - | - | - |
| Stage 1 | 804 | - | - | - | - | - |
| Stage 2 | 690 | - | - | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 16.1 | 0 | 0.1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 454 | 804 | 1311 | - |
| HCM Lane V/C Ratio | - | - | 0.313 | 0.01 | 0.005 | - |
| HCM Control Delay (s) | - | - | 16.5 | 9.5 | 7.8 | - |
| HCM Lane LOS | - | - | C | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.3 | 0 | 0 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 17 | 248 | 240 | 60 | 48 | 3 |
| Future Volume (vph) | 17 | 248 | 240 | 60 | 48 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Frt | | | 0.970 | | 0.993 | |
| Flt Protected | 0.950 | | | | 0.955 | |
| Satd. Flow (prot) | 1752 | 3505 | 3433 | 0 | 1802 | 0 |
| Flt Permitted | 0.950 | | | | 0.955 | |
| Satd. Flow (perm) | 1752 | 3505 | 3433 | 0 | 1802 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1220 | 2447 | | 1538 | |
| Travel Time (s) | | 20.8 | 41.7 | | 35.0 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 19 | 273 | 264 | 66 | 53 | 3 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 19 | 273 | 330 | 0 | 56 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 24.1% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.3 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 17 | 248 | 240 | 60 | 48 | 3 |
| Future Vol, veh/h | 17 | 248 | 240 | 60 | 48 | 3 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Mvmt Flow | 19 | 273 | 264 | 66 | 53 | 3 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 330 | 0 | 471 |
| Stage 1 | - | - | 297 |
| Stage 2 | - | - | 174 |
| Critical Hdwy | 4.16 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.23 | - | 3.5 |
| Pot Cap-1 Maneuver | 1219 | - | 527 |
| Stage 1 | - | - | 734 |
| Stage 2 | - | - | 845 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1219 | - | 519 |
| Mov Cap-2 Maneuver | - | - | 519 |
| Stage 1 | - | - | 734 |
| Stage 2 | - | - | 832 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.5 | 0 | 12.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1219 | - | - | - | 531 |
| HCM Lane V/C Ratio | 0.015 | - | - | - | 0.106 |
| HCM Control Delay (s) | 8 | - | - | - | 12.6 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 |

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 121 | 112 | 426 | 259 | 100 | 330 |
| Future Volume (vph) | 121 | 112 | 426 | 259 | 100 | 330 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | 0.935 | | 0.949 | | | |
| Fl _t Protected | 0.975 | | | | 0.950 | |
| Satd. Flow (prot) | 1715 | 0 | 1785 | 0 | 1752 | 1845 |
| Fl _t Permitted | 0.975 | | | | 0.950 | |
| Satd. Flow (perm) | 1715 | 0 | 1785 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 35 | | 27 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 3% | 3% |
| Adj. Flow (vph) | 132 | 122 | 463 | 282 | 109 | 359 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 254 | 0 | 745 | 0 | 109 | 359 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

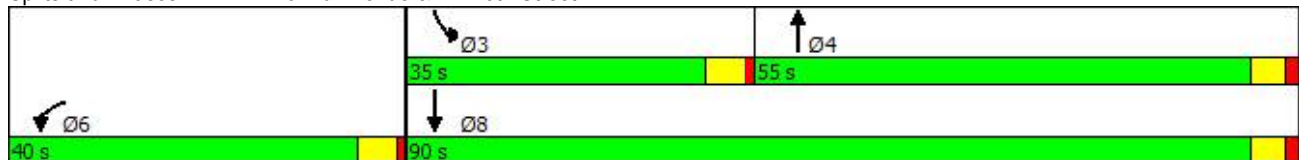


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 17.5 | | 50.4 | | 11.4 | 66.8 |
| Actuated g/C Ratio | 0.19 | | 0.53 | | 0.12 | 0.71 |
| v/c Ratio | 0.73 | | 0.77 | | 0.52 | 0.28 |
| Control Delay | 44.3 | | 25.6 | | 49.1 | 6.3 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 44.3 | | 25.6 | | 49.1 | 6.3 |
| LOS | D | | C | | D | A |
| Approach Delay | 44.3 | | 25.6 | | | 16.3 |
| Approach LOS | D | | C | | | B |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 94.4 |
| Natural Cycle: | 75 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.77 |
| Intersection Signal Delay: | 25.9 |
| Intersection Capacity Utilization: | 69.8% |
| Analysis Period (min): | 15 |
| Intersection LOS: | C |
| ICU Level of Service: | C |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/4/2016













| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 254 | 745 | 109 | 359 |
| v/c Ratio | 0.73 | 0.77 | 0.52 | 0.28 |
| Control Delay | 44.3 | 25.6 | 49.1 | 6.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.3 | 25.6 | 49.1 | 6.3 |
| Queue Length 50th (ft) | 124 | 321 | 62 | 66 |
| Queue Length 95th (ft) | 218 | #683 | 123 | 137 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 662 | 965 | 560 | 1666 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.38 | 0.77 | 0.19 | 0.22 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

| |  |  |  |  |  |  | | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | | |
| Lane Configurations |  | |  | |  |  | | | |
| Traffic Volume (veh/h) | 121 | 112 | 426 | 259 | 100 | 330 | | | |
| Future Volume (veh/h) | 121 | 112 | 426 | 259 | 100 | 330 | | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1881 | 1900 | 1881 | 1900 | 1845 | 1845 | | | |
| Adj Flow Rate, veh/h | 132 | 122 | 463 | 282 | 109 | 359 | | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | |
| Percent Heavy Veh, % | 0 | 0 | 1 | 1 | 3 | 3 | | | |
| Cap, veh/h | 162 | 149 | 557 | 340 | 144 | 1228 | | | |
| Arrive On Green | 0.18 | 0.18 | 0.51 | 0.51 | 0.08 | 0.67 | | | |
| Sat Flow, veh/h | 877 | 811 | 1096 | 667 | 1757 | 1845 | | | |
| Grp Volume(v), veh/h | 255 | 0 | 0 | 745 | 109 | 359 | | | |
| Grp Sat Flow(s),veh/h/ln | 1694 | 0 | 0 | 1763 | 1757 | 1845 | | | |
| Q Serve(g_s), s | 9.6 | 0.0 | 0.0 | 23.9 | 4.0 | 5.4 | | | |
| Cycle Q Clear(g_c), s | 9.6 | 0.0 | 0.0 | 23.9 | 4.0 | 5.4 | | | |
| Prop In Lane | 0.52 | 0.48 | | 0.38 | 1.00 | | | | |
| Lane Grp Cap(c), veh/h | 312 | 0 | 0 | 897 | 144 | 1228 | | | |
| V/C Ratio(X) | 0.82 | 0.00 | 0.00 | 0.83 | 0.76 | 0.29 | | | |
| Avail Cap(c_a), veh/h | 890 | 0 | 0 | 1323 | 791 | 2353 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(l) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 26.1 | 0.0 | 0.0 | 13.9 | 29.9 | 4.6 | | | |
| Incr Delay (d2), s/veh | 5.2 | 0.0 | 0.0 | 3.0 | 7.9 | 0.1 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 4.9 | 0.0 | 0.0 | 12.3 | 2.3 | 2.7 | | | |
| LnGrp Delay(d),s/veh | 31.3 | 0.0 | 0.0 | 16.9 | 37.8 | 4.8 | | | |
| LnGrp LOS | C | | | B | D | A | | | |
| Approach Vol, veh/h | 255 | | 745 | | | 468 | | | |
| Approach Delay, s/veh | 31.3 | | 16.9 | | | 12.4 | | | |
| Approach LOS | C | | B | | | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 | |
| Phs Duration (G+Y+Rc), s | | | 10.5 | 38.9 | | 17.3 | | 49.3 | |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 | |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 | |
| Max Q Clear Time (g_c+I1), s | | | 6.0 | 25.9 | | 11.6 | | 7.4 | |
| Green Ext Time (p_c), s | | | 0.3 | 7.9 | | 0.8 | | 9.6 | |
| Intersection Summary | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 18.0 | | | | | | |
| HCM 2010 LOS | | | B | | | | | | |
| Notes | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 158 | 225 | 43 | 356 | 268 | 90 | 74 | 544 | 255 | 105 | 273 | 51 |
| Future Volume (vph) | 158 | 225 | 43 | 356 | 268 | 90 | 74 | 544 | 255 | 105 | 273 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Fr t | | 0.976 | | | | 0.850 | | | 0.850 | | 0.976 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3502 | 3523 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3454 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3502 | 3523 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3454 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 23 | | | | 90 | | | 266 | | | 24 |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 165 | 234 | 45 | 371 | 279 | 94 | 77 | 567 | 266 | 109 | 284 | 53 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 165 | 279 | 0 | 371 | 279 | 94 | 77 | 567 | 266 | 109 | 337 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

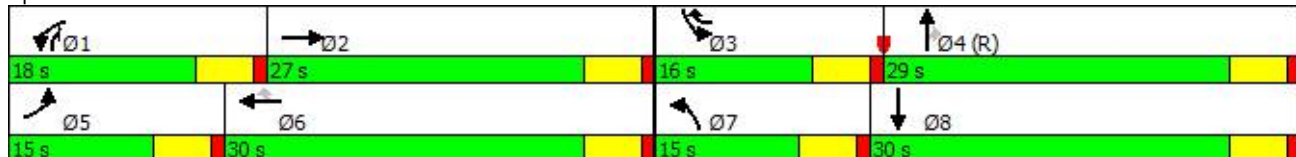


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 9.0 | 15.1 | | 12.6 | 18.7 | 33.7 | 8.7 | 32.3 | 49.9 | 10.0 | 35.7 | |
| Actuated g/C Ratio | 0.10 | 0.17 | | 0.14 | 0.21 | 0.37 | 0.10 | 0.36 | 0.55 | 0.11 | 0.40 | |
| v/c Ratio | 0.47 | 0.46 | | 0.77 | 0.72 | 0.14 | 0.45 | 0.45 | 0.27 | 0.55 | 0.24 | |
| Control Delay | 42.6 | 32.3 | | 49.2 | 43.7 | 4.3 | 46.4 | 25.2 | 2.6 | 48.4 | 20.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 42.6 | 32.3 | | 49.2 | 43.7 | 4.3 | 46.4 | 25.2 | 2.6 | 48.4 | 20.0 | |
| LOS | D | C | | D | D | A | D | C | A | D | C | |
| Approach Delay | | 36.1 | | | 41.5 | | | 20.4 | | | 27.0 | |
| Approach LOS | | D | | | D | | | C | | | C | |

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 77 (86%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 30.5
 Intersection LOS: C
 Intersection Capacity Utilization 56.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016


























| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 165 | 279 | 371 | 279 | 94 | 77 | 567 | 266 | 109 | 337 |
| v/c Ratio | 0.47 | 0.46 | 0.77 | 0.72 | 0.14 | 0.45 | 0.45 | 0.27 | 0.55 | 0.24 |
| Control Delay | 42.6 | 32.3 | 49.2 | 43.7 | 4.3 | 46.4 | 25.2 | 2.6 | 48.4 | 20.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.6 | 32.3 | 49.2 | 43.7 | 4.3 | 46.4 | 25.2 | 2.6 | 48.4 | 20.0 |
| Queue Length 50th (ft) | 45 | 69 | 105 | 149 | 1 | 42 | 131 | 0 | 59 | 64 |
| Queue Length 95th (ft) | 77 | 98 | #163 | 215 | 27 | 85 | 203 | 40 | 112 | 112 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 389 | 878 | 495 | 517 | 670 | 200 | 1268 | 1001 | 223 | 1385 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.42 | 0.32 | 0.75 | 0.54 | 0.14 | 0.39 | 0.45 | 0.27 | 0.49 | 0.24 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 158 | 225 | 43 | 356 | 268 | 90 | 74 | 544 | 255 | 105 | 273 | 51 |
| Future Volume (veh/h) | 158 | 225 | 43 | 356 | 268 | 90 | 74 | 544 | 255 | 105 | 273 | 51 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1900 | 1900 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 165 | 234 | 45 | 371 | 279 | 94 | 77 | 567 | 266 | 109 | 284 | 53 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 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, % | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 242 | 397 | 75 | 447 | 358 | 393 | 99 | 1554 | 804 | 138 | 1376 | 253 |
| Arrive On Green | 0.07 | 0.13 | 0.13 | 0.13 | 0.19 | 0.19 | 0.06 | 0.44 | 0.44 | 0.08 | 0.46 | 0.46 |
| Sat Flow, veh/h | 3510 | 3030 | 573 | 3442 | 1863 | 1583 | 1774 | 3539 | 1583 | 1774 | 2986 | 550 |
| Grp Volume(v), veh/h | 165 | 138 | 141 | 371 | 279 | 94 | 77 | 567 | 266 | 109 | 167 | 170 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 1805 | 1799 | 1721 | 1863 | 1583 | 1774 | 1770 | 1583 | 1774 | 1770 | 1766 |
| Q Serve(g_s), s | 4.1 | 6.5 | 6.7 | 9.5 | 12.8 | 4.3 | 3.9 | 9.6 | 8.9 | 5.4 | 5.0 | 5.2 |
| Cycle Q Clear(g_c), s | 4.1 | 6.5 | 6.7 | 9.5 | 12.8 | 4.3 | 3.9 | 9.6 | 8.9 | 5.4 | 5.0 | 5.2 |
| Prop In Lane | 1.00 | | 0.32 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.31 |
| Lane Grp Cap(c), veh/h | 242 | 236 | 236 | 447 | 358 | 393 | 99 | 1554 | 804 | 138 | 816 | 814 |
| V/C Ratio(X) | 0.68 | 0.58 | 0.60 | 0.83 | 0.78 | 0.24 | 0.78 | 0.36 | 0.33 | 0.79 | 0.20 | 0.21 |
| Avail Cap(c_a), veh/h | 390 | 441 | 440 | 497 | 517 | 528 | 197 | 1554 | 804 | 217 | 816 | 814 |
| 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 | 0.88 | 0.88 | 0.88 |
| Uniform Delay (d), s/veh | 40.9 | 36.8 | 36.9 | 38.2 | 34.6 | 27.1 | 41.9 | 16.9 | 13.1 | 40.8 | 14.4 | 14.5 |
| Incr Delay (d2), s/veh | 3.4 | 2.3 | 2.4 | 10.4 | 4.7 | 0.3 | 12.1 | 0.7 | 1.1 | 8.7 | 0.5 | 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 | 2.1 | 3.4 | 3.5 | 5.1 | 7.1 | 1.9 | 2.2 | 4.8 | 4.1 | 3.0 | 2.6 | 2.6 |
| LnGrp Delay(d),s/veh | 44.3 | 39.1 | 39.3 | 48.6 | 39.3 | 27.4 | 54.0 | 17.5 | 14.2 | 49.4 | 14.9 | 15.0 |
| LnGrp LOS | D | D | D | D | D | C | D | B | B | D | B | B |
| Approach Vol, veh/h | | 444 | | | 744 | | | 910 | | | 446 | |
| Approach Delay, s/veh | | 41.1 | | | 42.4 | | | 19.6 | | | 23.4 | |
| Approach LOS | | D | | | D | | | B | | | 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 | 16.7 | 16.8 | 12.0 | 44.5 | 11.2 | 22.3 | 10.0 | 46.5 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 11.5 | 8.7 | 7.4 | 11.6 | 6.1 | 14.8 | 5.9 | 7.2 | | | | |
| Green Ext Time (p_c), s | 0.2 | 2.8 | 0.1 | 5.1 | 0.2 | 2.5 | 0.0 | 6.2 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 30.7 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 485 | 235 | 43 | 291 | 11 | 239 | 22 | 66 | 5 | 18 | 43 |
| Future Volume (vph) | 45 | 485 | 235 | 43 | 291 | 11 | 239 | 22 | 66 | 5 | 18 | 43 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.995 | | | 0.887 | | | 0.895 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1805 | 3592 | 0 | 1770 | 1652 | 0 | 1752 | 1651 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1805 | 3592 | 0 | 1770 | 1652 | 0 | 1752 | 1651 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 255 | | 4 | | | 72 | | | 47 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2447 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 41.7 | | | 171.3 | | | 22.1 | | | 36.2 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 49 | 527 | 255 | 47 | 316 | 12 | 260 | 24 | 72 | 5 | 20 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 49 | 527 | 255 | 47 | 328 | 0 | 260 | 96 | 0 | 5 | 67 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

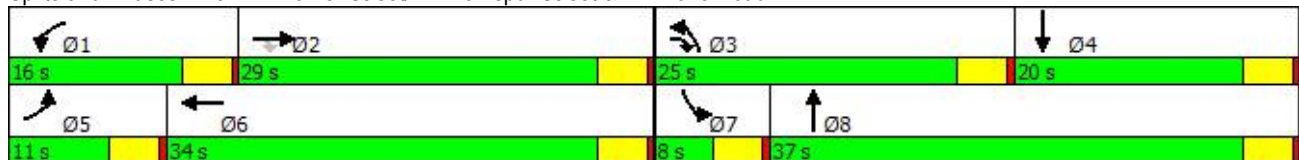


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 6.9 | 26.6 | 48.1 | 7.7 | 27.3 | | 14.8 | 19.4 | | 4.4 | 7.1 | |
| Actuated g/C Ratio | 0.11 | 0.43 | 0.77 | 0.12 | 0.44 | | 0.24 | 0.31 | | 0.07 | 0.11 | |
| v/c Ratio | 0.25 | 0.65 | 0.20 | 0.21 | 0.21 | | 0.62 | 0.17 | | 0.04 | 0.29 | |
| Control Delay | 35.4 | 25.6 | 1.4 | 32.9 | 15.2 | | 30.9 | 7.9 | | 36.2 | 18.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 35.4 | 25.6 | 1.4 | 32.9 | 15.2 | | 30.9 | 7.9 | | 36.2 | 18.9 | |
| LOS | D | C | A | C | B | | C | A | | D | B | |
| Approach Delay | | 18.7 | | | 17.5 | | | 24.7 | | | 20.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 62.1 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.65 |
| Intersection Signal Delay: | 19.8 |
| Intersection LOS: | B |
| Intersection Capacity Utilization: | 58.8% |
| ICU Level of Service: | B |
| Analysis Period (min): | 15 |

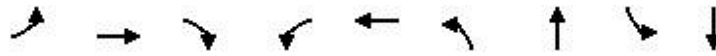
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 49 | 527 | 255 | 47 | 328 | 260 | 96 | 5 | 67 |
| v/c Ratio | 0.25 | 0.65 | 0.20 | 0.21 | 0.21 | 0.62 | 0.17 | 0.04 | 0.29 |
| Control Delay | 35.4 | 25.6 | 1.4 | 32.9 | 15.2 | 30.9 | 7.9 | 36.2 | 18.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 35.4 | 25.6 | 1.4 | 32.9 | 15.2 | 30.9 | 7.9 | 36.2 | 18.9 |
| Queue Length 50th (ft) | 20 | 199 | 0 | 19 | 50 | 103 | 7 | 2 | 8 |
| Queue Length 95th (ft) | 58 | #444 | 25 | 53 | 94 | 191 | 40 | 13 | 45 |
| Internal Link Dist (ft) | | 2367 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 219 | 825 | 1327 | 380 | 1894 | 653 | 987 | 122 | 497 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.64 | 0.19 | 0.12 | 0.17 | 0.40 | 0.10 | 0.04 | 0.13 |






















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  | |  |  | |  |  | |
| Traffic Volume (veh/h) | 45 | 485 | 235 | 43 | 291 | 11 | 239 | 22 | 66 | 5 | 18 | 43 |
| Future Volume (veh/h) | 45 | 485 | 235 | 43 | 291 | 11 | 239 | 22 | 66 | 5 | 18 | 43 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1881 | 1900 | 1900 | 1900 | 1863 | 1863 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 49 | 527 | 255 | 47 | 316 | 12 | 260 | 24 | 72 | 5 | 20 | 47 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 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 | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 3 | 3 |
| Cap, veh/h | 71 | 702 | 894 | 69 | 1319 | 50 | 330 | 108 | 325 | 9 | 40 | 95 |
| Arrive On Green | 0.04 | 0.37 | 0.37 | 0.04 | 0.37 | 0.37 | 0.19 | 0.26 | 0.26 | 0.01 | 0.08 | 0.08 |
| Sat Flow, veh/h | 1792 | 1881 | 1599 | 1810 | 3547 | 134 | 1774 | 411 | 1234 | 1757 | 490 | 1151 |
| Grp Volume(v), veh/h | 49 | 527 | 255 | 47 | 160 | 168 | 260 | 0 | 96 | 5 | 0 | 67 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 1881 | 1599 | 1810 | 1805 | 1876 | 1774 | 0 | 1645 | 1757 | 0 | 1641 |
| Q Serve(g_s), s | 1.4 | 12.2 | 4.2 | 1.3 | 3.1 | 3.1 | 7.0 | 0.0 | 2.3 | 0.1 | 0.0 | 2.0 |
| Cycle Q Clear(g_c), s | 1.4 | 12.2 | 4.2 | 1.3 | 3.1 | 3.1 | 7.0 | 0.0 | 2.3 | 0.1 | 0.0 | 2.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.07 | 1.00 | | 0.75 | 1.00 | | 0.70 |
| Lane Grp Cap(c), veh/h | 71 | 702 | 894 | 69 | 671 | 698 | 330 | 0 | 433 | 9 | 0 | 136 |
| V/C Ratio(X) | 0.69 | 0.75 | 0.29 | 0.68 | 0.24 | 0.24 | 0.79 | 0.00 | 0.22 | 0.53 | 0.00 | 0.49 |
| Avail Cap(c_a), veh/h | 251 | 940 | 1097 | 434 | 1083 | 1125 | 745 | 0 | 1085 | 140 | 0 | 525 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.7 | 13.7 | 5.8 | 23.7 | 10.8 | 10.8 | 19.4 | 0.0 | 14.4 | 24.8 | 0.0 | 21.9 |
| Incr Delay (d2), s/veh | 11.4 | 2.4 | 0.2 | 10.9 | 0.2 | 0.2 | 4.2 | 0.0 | 0.3 | 39.3 | 0.0 | 2.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 6.8 | 1.8 | 0.9 | 1.5 | 1.6 | 3.8 | 0.0 | 1.1 | 0.2 | 0.0 | 1.0 |
| LnGrp Delay(d),s/veh | 35.2 | 16.0 | 6.0 | 34.7 | 11.0 | 11.0 | 23.6 | 0.0 | 14.7 | 64.1 | 0.0 | 24.7 |
| LnGrp LOS | D | B | A | C | B | B | C | | B | E | | C |
| Approach Vol, veh/h | | 831 | | | 375 | | | 356 | | | 72 | |
| Approach Delay, s/veh | | 14.1 | | | 14.0 | | | 21.2 | | | 27.4 | |
| Approach LOS | | B | | | B | | | 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 | 5.9 | 22.7 | 13.3 | 8.1 | 6.0 | 22.6 | 4.3 | 17.2 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 3.3 | 14.2 | 9.0 | 4.0 | 3.4 | 5.1 | 2.1 | 4.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.5 | 0.6 | 0.6 | 0.0 | 6.4 | 0.0 | 0.9 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 16.2 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↗ | ↗ | ↖ | ↗ | ↗ |
| Traffic Volume (vph) | 48 | 212 | 62 | 102 | 92 | 39 | 44 | 209 | 191 | 43 | 205 | 44 |
| Future Volume (vph) | 48 | 212 | 62 | 102 | 92 | 39 | 44 | 209 | 191 | 43 | 205 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.966 | | | 0.956 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1817 | 0 | 1805 | 1816 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1817 | 0 | 1805 | 1816 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 24 | | | 34 | | | | 203 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 51 | 226 | 66 | 109 | 98 | 41 | 47 | 222 | 203 | 46 | 218 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 51 | 292 | 0 | 109 | 139 | 0 | 47 | 222 | 203 | 46 | 218 | 47 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.8 | 18.0 | | 8.3 | 20.7 | | 4.9 | 11.9 | 19.7 | 4.9 | 11.9 | 19.3 |
| Actuated g/C Ratio | 0.18 | 0.42 | | 0.19 | 0.48 | | 0.11 | 0.28 | 0.46 | 0.11 | 0.28 | 0.45 |
| v/c Ratio | 0.16 | 0.38 | | 0.32 | 0.16 | | 0.23 | 0.43 | 0.24 | 0.23 | 0.42 | 0.06 |
| Control Delay | 22.5 | 16.5 | | 23.9 | 12.4 | | 27.6 | 19.4 | 2.6 | 27.5 | 19.3 | 1.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.5 | 16.5 | | 23.9 | 12.4 | | 27.6 | 19.4 | 2.6 | 27.5 | 19.3 | 1.0 |
| LOS | C | B | | C | B | | C | B | A | C | B | A |
| Approach Delay | | 17.4 | | | 17.4 | | | 13.0 | | | 17.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 43.1 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.43 |
| Intersection Signal Delay: | 16.0 |
| Intersection LOS: | B |
| Intersection Capacity Utilization: | 48.2% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| | | | |
| 12 s | 20 s | 8 s | 20 s |
| | | | |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/4/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 51 | 292 | 109 | 139 | 47 | 222 | 203 | 46 | 218 | 47 |
| v/c Ratio | 0.16 | 0.38 | 0.32 | 0.16 | 0.23 | 0.43 | 0.24 | 0.23 | 0.42 | 0.06 |
| Control Delay | 22.5 | 16.5 | 23.9 | 12.4 | 27.6 | 19.4 | 2.6 | 27.5 | 19.3 | 1.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.5 | 16.5 | 23.9 | 12.4 | 27.6 | 19.4 | 2.6 | 27.5 | 19.3 | 1.0 |
| Queue Length 50th (ft) | 11 | 56 | 24 | 19 | 12 | 47 | 0 | 11 | 46 | 0 |
| Queue Length 95th (ft) | 44 | 152 | 79 | 68 | #46 | 122 | 29 | 44 | 120 | 6 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 406 | 838 | 409 | 884 | 203 | 854 | 892 | 203 | 854 | 835 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.13 | 0.35 | 0.27 | 0.16 | 0.23 | 0.26 | 0.23 | 0.23 | 0.26 | 0.06 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 48 | 212 | 62 | 102 | 92 | 39 | 44 | 209 | 191 | 43 | 205 | 44 |
| Future Volume (veh/h) | 48 | 212 | 62 | 102 | 92 | 39 | 44 | 209 | 191 | 43 | 205 | 44 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1900 | 1900 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 51 | 226 | 66 | 109 | 98 | 41 | 47 | 222 | 203 | 46 | 218 | 47 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 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, % | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 78 | 337 | 98 | 141 | 349 | 146 | 74 | 416 | 478 | 73 | 415 | 423 |
| Arrive On Green | 0.04 | 0.24 | 0.24 | 0.08 | 0.27 | 0.27 | 0.04 | 0.22 | 0.22 | 0.04 | 0.22 | 0.22 |
| Sat Flow, veh/h | 1792 | 1400 | 409 | 1810 | 1273 | 533 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Grp Volume(v), veh/h | 51 | 0 | 292 | 109 | 0 | 139 | 47 | 222 | 203 | 46 | 218 | 47 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 0 | 1809 | 1810 | 0 | 1806 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Q Serve(g_s), s | 1.1 | 0.0 | 5.6 | 2.3 | 0.0 | 2.3 | 1.0 | 4.0 | 3.9 | 1.0 | 3.9 | 0.8 |
| Cycle Q Clear(g_c), s | 1.1 | 0.0 | 5.6 | 2.3 | 0.0 | 2.3 | 1.0 | 4.0 | 3.9 | 1.0 | 3.9 | 0.8 |
| Prop In Lane | 1.00 | | 0.23 | 1.00 | | 0.29 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 78 | 0 | 435 | 141 | 0 | 496 | 74 | 416 | 478 | 73 | 415 | 423 |
| V/C Ratio(X) | 0.65 | 0.00 | 0.67 | 0.78 | 0.00 | 0.28 | 0.64 | 0.53 | 0.42 | 0.63 | 0.53 | 0.11 |
| Avail Cap(c_a), veh/h | 376 | 0 | 760 | 380 | 0 | 759 | 188 | 790 | 796 | 188 | 790 | 742 |
| 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(l) | 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 | 17.9 | 0.0 | 13.1 | 17.2 | 0.0 | 10.9 | 18.0 | 13.1 | 10.7 | 18.0 | 13.1 | 10.6 |
| Incr Delay (d2), s/veh | 8.7 | 0.0 | 1.8 | 8.8 | 0.0 | 0.3 | 8.8 | 1.1 | 0.6 | 8.8 | 1.0 | 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 | 0.7 | 0.0 | 3.0 | 1.5 | 0.0 | 1.2 | 0.7 | 2.2 | 1.8 | 0.7 | 2.1 | 0.4 |
| LnGrp Delay(d),s/veh | 26.6 | 0.0 | 14.9 | 26.0 | 0.0 | 11.2 | 26.8 | 14.2 | 11.3 | 26.8 | 14.1 | 10.7 |
| LnGrp LOS | C | | B | C | | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 343 | | | 248 | | | 472 | | | 311 | |
| Approach Delay, s/veh | | 16.6 | | | 17.7 | | | 14.2 | | | 15.5 | |
| Approach LOS | | B | | | B | | | B | | | 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 | 7.0 | 13.2 | 5.6 | 12.4 | 5.7 | 14.4 | 5.5 | 12.4 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.3 | 7.6 | 3.0 | 5.9 | 3.1 | 4.3 | 3.0 | 6.0 | | | | |
| Green Ext Time (p_c), s | 0.1 | 1.6 | 0.0 | 2.5 | 0.0 | 1.9 | 0.0 | 2.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 15.7 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 5 | 0 | 8 | 275 | 3 | 40 | 7 | 942 | 470 | 67 | 996 | 4 |
| Future Volume (vph) | 5 | 0 | 8 | 275 | 3 | 40 | 7 | 942 | 470 | 67 | 996 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 0.850 | | | 0.860 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1570 | 1404 | 0 | 1787 | 1618 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1570 | 1404 | 0 | 1787 | 1618 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 223 | | | 42 | | | | 495 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 15% | 15% | 15% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 5 | 0 | 8 | 289 | 3 | 42 | 7 | 992 | 495 | 71 | 1048 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 5 | 8 | 0 | 289 | 45 | 0 | 7 | 992 | 495 | 71 | 1048 | 4 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016

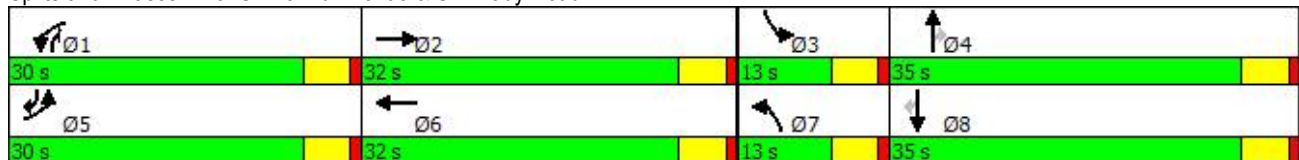


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 6.0 | 5.7 | | 16.8 | 16.6 | | 6.0 | 31.0 | 54.4 | 7.5 | 38.9 | 50.0 |
| Actuated g/C Ratio | 0.09 | 0.08 | | 0.24 | 0.24 | | 0.09 | 0.45 | 0.78 | 0.11 | 0.56 | 0.72 |
| v/c Ratio | 0.04 | 0.03 | | 0.67 | 0.11 | | 0.05 | 0.62 | 0.36 | 0.37 | 0.52 | 0.00 |
| Control Delay | 35.4 | 0.1 | | 33.2 | 9.2 | | 35.3 | 20.0 | 1.3 | 38.8 | 13.9 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 35.4 | 0.1 | | 33.2 | 9.2 | | 35.3 | 20.0 | 1.3 | 38.8 | 13.9 | 0.0 |
| LOS | D | A | | C | A | | D | B | A | D | B | A |
| Approach Delay | | 13.7 | | | 30.0 | | | 13.8 | | | 15.4 | |
| Approach LOS | | B | | | C | | | B | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 69.5 |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.67 |
| Intersection Signal Delay: | 16.2 |
| Intersection LOS: | B |
| Intersection Capacity Utilization: | 66.1% |
| ICU Level of Service: | C |
| Analysis Period (min): | 15 |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/4/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 5 | 8 | 289 | 45 | 7 | 992 | 495 | 71 | 1048 | 4 |
| v/c Ratio | 0.04 | 0.03 | 0.67 | 0.11 | 0.05 | 0.62 | 0.36 | 0.37 | 0.52 | 0.00 |
| Control Delay | 35.4 | 0.1 | 33.2 | 9.2 | 35.3 | 20.0 | 1.3 | 38.8 | 13.9 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 35.4 | 0.1 | 33.2 | 9.2 | 35.3 | 20.0 | 1.3 | 38.8 | 13.9 | 0.0 |
| Queue Length 50th (ft) | 2 | 0 | 113 | 1 | 3 | 172 | 0 | 29 | 115 | 0 |
| Queue Length 95th (ft) | 13 | 0 | 220 | 26 | 17 | 342 | 28 | 80 | 359 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 584 | 697 | 664 | 675 | 212 | 1595 | 1436 | 212 | 1998 | 1505 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.01 | 0.44 | 0.07 | 0.03 | 0.62 | 0.34 | 0.33 | 0.52 | 0.00 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 5 | 0 | 8 | 275 | 3 | 40 | 7 | 942 | 470 | 67 | 996 | 4 |
| Future Volume (veh/h) | 5 | 0 | 8 | 275 | 3 | 40 | 7 | 942 | 470 | 67 | 996 | 4 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1652 | 1652 | 1900 | 1881 | 1881 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 5 | 0 | 8 | 289 | 3 | 42 | 7 | 992 | 495 | 71 | 1048 | 4 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 15 | 15 | 15 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 10 | 0 | 69 | 347 | 25 | 356 | 16 | 1462 | 665 | 97 | 1623 | 1036 |
| Arrive On Green | 0.01 | 0.00 | 0.05 | 0.19 | 0.24 | 0.24 | 0.01 | 0.41 | 0.41 | 0.05 | 0.45 | 0.45 |
| Sat Flow, veh/h | 1573 | 0 | 1404 | 1792 | 108 | 1507 | 1792 | 3574 | 1599 | 1792 | 3574 | 1599 |
| Grp Volume(v), veh/h | 5 | 0 | 8 | 289 | 0 | 45 | 7 | 992 | 495 | 71 | 1048 | 4 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 0 | 1404 | 1792 | 0 | 1615 | 1792 | 1787 | 1599 | 1792 | 1787 | 1599 |
| Q Serve(g_s), s | 0.2 | 0.0 | 0.4 | 10.5 | 0.0 | 1.5 | 0.3 | 15.4 | 17.8 | 2.7 | 15.4 | 0.1 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 0.4 | 10.5 | 0.0 | 1.5 | 0.3 | 15.4 | 17.8 | 2.7 | 15.4 | 0.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.93 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 10 | 0 | 69 | 347 | 0 | 381 | 16 | 1462 | 665 | 97 | 1623 | 1036 |
| V/C Ratio(X) | 0.48 | 0.00 | 0.12 | 0.83 | 0.00 | 0.12 | 0.43 | 0.68 | 0.74 | 0.73 | 0.65 | 0.00 |
| Avail Cap(c_a), veh/h | 579 | 0 | 558 | 659 | 0 | 641 | 211 | 1577 | 716 | 211 | 1623 | 1036 |
| 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(l) | 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 | 33.7 | 0.0 | 30.9 | 26.4 | 0.0 | 20.4 | 33.5 | 16.4 | 16.8 | 31.7 | 14.3 | 4.2 |
| Incr Delay (d2), s/veh | 30.4 | 0.0 | 0.7 | 5.2 | 0.0 | 0.1 | 16.8 | 1.1 | 3.9 | 10.0 | 0.9 | 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 | 0.2 | 0.0 | 0.2 | 5.7 | 0.0 | 0.7 | 0.2 | 7.8 | 8.5 | 1.6 | 7.8 | 0.0 |
| LnGrp Delay(d),s/veh | 64.1 | 0.0 | 31.7 | 31.6 | 0.0 | 20.6 | 50.3 | 17.5 | 20.8 | 41.6 | 15.2 | 4.2 |
| LnGrp LOS | E | | C | C | | C | D | B | C | D | B | A |
| Approach Vol, veh/h | | | | | 334 | | | 1494 | | | 1123 | |
| Approach Delay, s/veh | | 44.1 | | | 30.1 | | | 18.7 | | | 16.9 | |
| Approach LOS | | D | | | C | | | B | | | 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 | 18.2 | 8.3 | 8.7 | 32.8 | 5.5 | 21.0 | 5.6 | 35.9 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 12.5 | 2.4 | 4.7 | 19.8 | 2.2 | 3.5 | 2.3 | 17.4 | | | | |
| Green Ext Time (p_c), s | 0.7 | 0.2 | 0.0 | 8.0 | 0.0 | 0.2 | 0.0 | 10.4 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 19.4 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
 6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations | | ↔ | ↔ | | ↔ | ↔ |
| Traffic Volume (vph) | 140 | 262 | 159 | 92 | 107 | 113 |
| Future Volume (vph) | 140 | 262 | 159 | 92 | 107 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.950 | | | 0.850 |
| Flt Protected | | 0.983 | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1831 | 1770 | 0 | 1736 | 1553 |
| Flt Permitted | | 0.983 | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1831 | 1770 | 0 | 1736 | 1553 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 144 | 270 | 164 | 95 | 110 | 116 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 414 | 259 | 0 | 110 | 116 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 0 | 0 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 51.4% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 5.3 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 140 | 262 | 159 | 92 | 107 | 113 |
| Future Vol, veh/h | 140 | 262 | 159 | 92 | 107 | 113 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 4 | 4 |
| Mvmt Flow | 144 | 270 | 164 | 95 | 110 | 116 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 259 | 0 | 211 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | 559 |
| Critical Hdwy | 4.12 | - | 6.24 |
| Critical Hdwy Stg 1 | - | - | 5.44 |
| Critical Hdwy Stg 2 | - | - | 5.44 |
| Follow-up Hdwy | 2.218 | - | 3.336 |
| Pot Cap-1 Maneuver | 1306 | - | 824 |
| Stage 1 | - | - | 819 |
| Stage 2 | - | - | 568 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1306 | - | 824 |
| Mov Cap-2 Maneuver | - | - | 318 |
| Stage 1 | - | - | 819 |
| Stage 2 | - | - | 494 |

| Approach | EB | WB | SB |
|----------------------|-----|----|----|
| HCM Control Delay, s | 2.8 | 0 | 16 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h) | 1306 | - | - | - | 318 | 824 |
| HCM Lane V/C Ratio | 0.111 | - | - | - | 0.347 | 0.141 |
| HCM Control Delay (s) | 8.1 | 0 | - | - | 22.2 | 10.1 |
| HCM Lane LOS | A | A | - | - | C | B |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 1.5 | 0.5 |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↙ | ↘ | ↑ | ↘ | ↙ | ↑ |
| Traffic Volume (vph) | 48 | 68 | 371 | 19 | 42 | 194 |
| Future Volume (vph) | 48 | 68 | 371 | 19 | 42 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 3% | 3% |
| Adj. Flow (vph) | 56 | 80 | 436 | 22 | 49 | 228 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 56 | 80 | 436 | 22 | 49 | 228 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 36.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

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

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 48 | 68 | 371 | 19 | 42 | 194 |
| Future Vol, veh/h | 48 | 68 | 371 | 19 | 42 | 194 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 3 | 3 |
| Mvmt Flow | 56 | 80 | 436 | 22 | 49 | 228 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|-----|--------|---|--------|---|
| Conflicting Flow All | 763 | 436 | 0 | 0 | 436 | 0 |
| Stage 1 | 436 | - | - | - | - | - |
| Stage 2 | 327 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.2 | - | - | 4.13 | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.3 | - | - | 2.227 | - |
| Pot Cap-1 Maneuver | 375 | 625 | - | - | 1118 | - |
| Stage 1 | 656 | - | - | - | - | - |
| Stage 2 | 735 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 359 | 625 | - | - | 1118 | - |
| Mov Cap-2 Maneuver | 359 | - | - | - | - | - |
| Stage 1 | 656 | - | - | - | - | - |
| Stage 2 | 703 | - | - | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 13.8 | 0 | 1.5 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 359 | 625 | 1118 | - |
| HCM Lane V/C Ratio | - | - | 0.157 | 0.128 | 0.044 | - |
| HCM Control Delay (s) | - | - | 16.9 | 11.6 | 8.4 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.6 | 0.4 | 0.1 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations | ↖ | ↗ | ↘ | ↖ | ↔ | | ↖ | ↔ | | ↖ | ↗ | ↘ |
| Traffic Volume (vph) | 169 | 74 | 76 | 14 | 45 | 10 | 46 | 159 | 37 | 11 | 168 | 104 |
| Future Volume (vph) | 169 | 74 | 76 | 14 | 45 | 10 | 46 | 159 | 37 | 11 | 168 | 104 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.972 | | | 0.972 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1752 | 3407 | 0 | 1770 | 3440 | 0 | 1752 | 1845 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1752 | 3407 | 0 | 1770 | 3440 | 0 | 1752 | 1845 | 1568 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 211 | 93 | 95 | 18 | 56 | 13 | 58 | 199 | 46 | 14 | 210 | 130 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 211 | 93 | 95 | 18 | 69 | 0 | 58 | 245 | 0 | 14 | 210 | 130 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 38.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 12.4 |
| Intersection LOS | B |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 169 | 74 | 76 | 0 | 14 | 45 | 10 | 0 | 46 | 159 | 37 |
| Future Vol, veh/h | 0 | 169 | 74 | 76 | 0 | 14 | 45 | 10 | 0 | 46 | 159 | 37 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 211 | 93 | 95 | 0 | 18 | 56 | 13 | 0 | 58 | 199 | 46 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |

Approach

| | EB | WB | NB |
|----------------------------|----|------|------|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 3 | 3 | 3 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 3 | 3 | 3 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 3 | 3 | 3 |
| HCM Control Delay | 13 | 10.8 | 11.6 |
| HCM LOS | B | B | B |

| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 59% | 0% | 100% | 0% | 0% | 100% | 60% | 0% | 100% |
| Vol Right, % | 0% | 0% | 41% | 0% | 0% | 100% | 0% | 0% | 40% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 46 | 106 | 90 | 169 | 74 | 76 | 14 | 30 | 25 | 11 | 168 |
| LT Vol | 46 | 0 | 0 | 169 | 0 | 0 | 14 | 0 | 0 | 11 | 0 |
| Through Vol | 0 | 106 | 53 | 0 | 74 | 0 | 0 | 30 | 15 | 0 | 168 |
| RT Vol | 0 | 0 | 37 | 0 | 0 | 76 | 0 | 0 | 10 | 0 | 0 |
| Lane Flow Rate | 58 | 132 | 112 | 211 | 92 | 95 | 18 | 38 | 31 | 14 | 210 |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Degree of Util (X) | 0.118 | 0.254 | 0.207 | 0.425 | 0.173 | 0.159 | 0.039 | 0.079 | 0.063 | 0.028 | 0.399 |
| Departure Headway (Hd) | 7.411 | 6.911 | 6.623 | 7.237 | 6.737 | 6.037 | 8.086 | 7.586 | 7.206 | 7.337 | 6.837 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 481 | 517 | 539 | 494 | 529 | 590 | 446 | 475 | 493 | 486 | 523 |
| Service Time | 5.195 | 4.695 | 4.407 | 5.016 | 4.516 | 3.816 | 5.786 | 5.286 | 5.006 | 5.116 | 4.616 |
| HCM Lane V/C Ratio | 0.121 | 0.255 | 0.208 | 0.427 | 0.174 | 0.161 | 0.04 | 0.08 | 0.063 | 0.029 | 0.402 |
| HCM Control Delay | 11.2 | 12.1 | 11.1 | 15.3 | 10.9 | 10 | 11.1 | 10.9 | 10.5 | 10.3 | 14.1 |
| HCM Lane LOS | B | B | B | C | B | A | B | B | B | B | B |
| HCM 95th-tile Q | 0.4 | 1 | 0.8 | 2.1 | 0.6 | 0.6 | 0.1 | 0.3 | 0.2 | 0.1 | 1.9 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 11 | 168 | 104 |
| Future Vol, veh/h | 0 | 11 | 168 | 104 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 3 | 3 | 3 |
| Mvmt Flow | 0 | 14 | 210 | 130 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

Opposing Approach NB
 Opposing Lanes 3
 Conflicting Approach Left WB
 Conflicting Lanes Left 3
 Conflicting Approach Right EB
 Conflicting Lanes Right 3
 HCM Control Delay 12.7
 HCM LOS B

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 9 | 108 | 16 | 78 | 39 | 68 | 11 | 175 | 151 | 108 | 151 | 11 |
| Future Volume (vph) | 9 | 108 | 16 | 78 | 39 | 68 | 11 | 175 | 151 | 108 | 151 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.984 | | | 0.950 | | | 0.939 | | | 0.994 | |
| Fl _t Protected | | 0.996 | | | 0.979 | | | 0.998 | | | 0.980 | |
| Satd. Flow (prot) | 0 | 1862 | 0 | 0 | 1732 | 0 | 0 | 1746 | 0 | 0 | 1833 | 0 |
| Fl _t Permitted | | 0.996 | | | 0.979 | | | 0.998 | | | 0.980 | |
| Satd. Flow (perm) | 0 | 1862 | 0 | 0 | 1732 | 0 | 0 | 1746 | 0 | 0 | 1833 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 1% | 1% | 1% |
| Adj. Flow (vph) | 10 | 115 | 17 | 83 | 41 | 72 | 12 | 186 | 161 | 115 | 161 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 142 | 0 | 0 | 196 | 0 | 0 | 359 | 0 | 0 | 288 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 64.6% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 12.5 |
| Intersection LOS | B |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 9 | 108 | 16 | 0 | 78 | 39 | 68 | 0 | 11 | 175 | 151 |
| Future Vol, veh/h | 0 | 9 | 108 | 16 | 0 | 78 | 39 | 68 | 0 | 11 | 175 | 151 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 115 | 17 | 0 | 83 | 41 | 72 | 0 | 12 | 186 | 161 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|----------------------------|------|------|------|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 10.8 | 11.5 | 13.5 |
| HCM LOS | B | B | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, % | 3% | 7% | 42% | 40% |
| Vol Thru, % | 52% | 81% | 21% | 56% |
| Vol Right, % | 45% | 12% | 37% | 4% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 337 | 133 | 185 | 270 |
| LT Vol | 11 | 9 | 78 | 108 |
| Through Vol | 175 | 108 | 39 | 151 |
| RT Vol | 151 | 16 | 68 | 11 |
| Lane Flow Rate | 359 | 141 | 197 | 287 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.512 | 0.234 | 0.316 | 0.441 |
| Departure Headway (Hd) | 5.144 | 5.945 | 5.784 | 5.529 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 699 | 601 | 618 | 649 |
| Service Time | 3.2 | 4.015 | 3.851 | 3.586 |
| HCM Lane V/C Ratio | 0.514 | 0.235 | 0.319 | 0.442 |
| HCM Control Delay | 13.5 | 10.8 | 11.5 | 12.9 |
| HCM Lane LOS | B | B | B | B |
| HCM 95th-tile Q | 2.9 | 0.9 | 1.4 | 2.3 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 108 | 151 | 11 |
| Future Vol, veh/h | 0 | 108 | 151 | 11 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 |
| Mvmt Flow | 0 | 115 | 161 | 12 |
| Number of Lanes | 0 | 0 | 1 | 0 |

Approach SB

| | |
|----------------------------|------|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 12.9 |
| HCM LOS | B |

Lane

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 63 | 19 | 323 | 99 | 11 | 144 |
| Future Volume (vph) | 63 | 19 | 323 | 99 | 11 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.968 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1821 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1821 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 2% | 2% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 81 | 24 | 414 | 127 | 14 | 185 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 81 | 24 | 541 | 0 | 14 | 185 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 33.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|---|
| Int Delay, s/veh | 2 |
|------------------|---|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 63 | 19 | 323 | 99 | 11 | 144 |
| Future Vol, veh/h | 63 | 19 | 323 | 99 | 11 | 144 |
| 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 | - | - | 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 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 81 | 24 | 414 | 127 | 14 | 185 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 691 | 478 | 541 |
| Stage 1 | 478 | - | - |
| Stage 2 | 213 | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.11 |
| Critical Hdwy Stg 1 | 5.42 | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.209 |
| Pot Cap-1 Maneuver | 410 | 587 | 1033 |
| Stage 1 | 624 | - | - |
| Stage 2 | 823 | - | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 404 | 587 | 1033 |
| Mov Cap-2 Maneuver | 404 | - | - |
| Stage 1 | 624 | - | - |
| Stage 2 | 812 | - | - |

| Approach | WB | NB | SB |
|----------------------|----|----|-----|
| HCM Control Delay, s | 15 | 0 | 0.6 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 404 | 587 | 1033 | - |
| HCM Lane V/C Ratio | - | - | 0.2 | 0.041 | 0.014 | - |
| HCM Control Delay (s) | - | - | 16.1 | 11.4 | 8.5 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.7 | 0.1 | 0 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 92 | 622 | 431 | 148 | 74 | 19 |
| Future Volume (vph) | 92 | 622 | 431 | 148 | 74 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Frt | | | 0.962 | | 0.972 | |
| Flt Protected | 0.950 | | | | 0.962 | |
| Satd. Flow (prot) | 1805 | 3610 | 3438 | 0 | 1777 | 0 |
| Flt Permitted | 0.950 | | | | 0.962 | |
| Satd. Flow (perm) | 1805 | 3610 | 3438 | 0 | 1777 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1220 | 2447 | | 1538 | |
| Travel Time (s) | | 20.8 | 41.7 | | 35.0 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 0% |
| Adj. Flow (vph) | 101 | 684 | 474 | 163 | 81 | 21 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 101 | 684 | 637 | 0 | 102 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 37.0% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 2.9 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 92 | 622 | 431 | 148 | 74 | 19 |
| Future Vol, veh/h | 92 | 622 | 431 | 148 | 74 | 19 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 0 | 0 | 1 | 1 | 0 | 0 |
| Mvmt Flow | 101 | 684 | 474 | 163 | 81 | 21 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 636 | 0 | 318 |
| Stage 1 | - | - | 555 |
| Stage 2 | - | - | 544 |
| Critical Hdwy | 4.1 | - | 6.9 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.2 | - | 3.3 |
| Pot Cap-1 Maneuver | 957 | - | 684 |
| Stage 1 | - | - | 544 |
| Stage 2 | - | - | 551 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 957 | - | 684 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | 544 |
| Stage 2 | - | - | 493 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.2 | 0 | 34.6 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 957 | - | - | - | 221 |
| HCM Lane V/C Ratio | 0.106 | - | - | - | 0.462 |
| HCM Control Delay (s) | 9.2 | - | - | - | 34.6 |
| HCM Lane LOS | A | - | - | - | D |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 2.2 |

APPENDIX D
ACCIDENT DATA



**Washington State
Department of Transportation**

Lynn Peterson
Secretary of Transportation

Transportation Data and GIS Office
7345 Linderson Way Sw, Fl 1
Tumwater, WA 98501

360-570-2464 / Fax 360-570-2449
TTY: 1-800-833-6388
www.wsdot.wa.gov

June 16, 2015

John Stonex
H. Lee & Associates
PO Box 1849
Vancouver WA 98668

Dear Mr. Stonex:

In accordance with the Public Records Act, RCW 42.56, this letter acknowledges receipt of your request for records dated June 10, 2015 (Request Number PDR-15-1702).

We have prepared a history of officer reported crashes that occurred on *all City Streets* in the Cities of Camas and Vancouver for the period of 1/1/2010 – available 2015 (*2015 data is considered partial and preliminary*).

Federal law 23 United States Code Section 409 governs use of the data you requested. Under this law, data maintained for purposes of evaluating potential highway safety enhancements:

“ . . . shall not be subject to discovery or admitted into evidence in a federal or state court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.” [Emphasis added.]

The Washington State Department of Transportation (WSDOT) is releasing this data to you with the understanding that you will not use this data contrary to the restrictions in Section 409, which means you will not use this data in discovery or as evidence at trial in any action for damages against the WSDOT, the State of Washington, or any other jurisdiction involved in the locations mentioned in the data. If you should attempt to use this data in an action for damages against WSDOT, the State of Washington, or any other jurisdiction involved in the locations mentioned in the data, these entities expressly reserve the right, under Section 409, to object to the use of the data, including any opinions drawn from the data.

Public Disclosure Request PDR-15-1702
June 16, 2015
Page 2

With this package, your request for records is complete and closed.

If you have any further questions you may contact me at 360-570-2464.

Sincerely,

A handwritten signature in blue ink that reads "Julie Brown". The signature is written in a cursive style with a large initial "J" and "B".

Julie Brown
Transportation Planning Technician 3
Transportation Data and GIS Office

OFFICER-REPORTED CRASHES THAT OCCURRED ON ALL CITY STREETS IN THE CITIES OF CAMAS AND VANCOUVER
 1/1/2010 - available 2015 (2015 data is considered partial and preliminary)

UNDER 21 UNITED STATES CODE - SECTION 49, THIS DATA CANNOT BE USED IN DISCOVERY OR AS EVIDENCE
 AT TRIAL IN ANY ACTION FOR DAMAGES AGAINST THE WSDOT OR ANY JURISDICTIONS INVOLVED IN THE DATA

| JURISDICTION | CITY | PRIMARY TRAFFICWAY | BLOCK NUMBER | INTERSECTING TRAFFICWAY | DIST FROM REF POINT | COMP DIR FROM REF POINT | REFERENCE POINT NAME | MILE POST | REPORT NUMBER | DATE | TIME | MOST SEVERE INJURY TYPE | # A | # B | # C | # D | # E | # F | # G | # H | # I | # J | VEHICLE 1 TYPE | VEHICLE 2 TYPE | JUNCTION RELATIONSHIP | ROADWAY SURFACE CONDITIONS | LIGHTING CONDITIONS | FIRST COLLISION TYPE / OBJECT STRUCK | VEH 1 ACTION | VEH 2 ACTION | MV DRIVER CONT CIRC 1 (UNIT 1) | MV DRIVER CONT CIRC 1 (UNIT 2) | VEH 1 COMP DIR FROM | VEH 1 COMP DIR TO | VEH 2 COMP DIR FROM | VEH 2 COMP DIR TO | IMPACT LOCATION (Effective for City, County & Mac 1/1/2010, SR# Indefinite) | | |
|--------------|-------|--------------------|--------------|-------------------------|---------------------|-------------------------|----------------------|-------------|---------------|------------|-------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------------------|--------------------------------------------------------------------|------------------------|--------------------------------|------------------------------------------|--------------------------------|---------------------|-------------------|---------------------|-------------------|-----------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| City Street | Camas | NE GOODWIN RD | 2300 | NE INGLE RD | | | | | 3253123 | 1/19/2010 | 14:40 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Wet | Daylight | Entering at angle | Making Right Turn | Stopped at Signal or Stop Sign | Exceeding Reas. Safe Speed | None | None | East | North | North | North | Vehicle Stopped | Intersecting Trafficway (WITH Intent to Access) |
| City Street | Camas | NE GOODWIN RD | 2300 | NE INGLE RD | | | | | 3810088 | 8/4/2013 | 23:28 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Dark-No Street Lights | Entering at angle | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | North | East | East | West | Lane of Primary Trafficway | |
| City Street | Camas | NE GOODWIN RD | | NE INGLE RD | | | | | 3170195 | 10/5/2010 | 16:45 | Evident Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Not Related | Dry | Daylight | From same direction - both going straight - both moving - rear-end | Going Straight Ahead | Going Straight Ahead | Follow Too Closely | None | None | Southwest | Northeast | Southwest | Northeast | Lane of Primary Trafficway | |
| City Street | Camas | NE GOODWIN RD | 2300 | NE INGLE RD | | | | | 3673206 | 5/10/2013 | 19:35 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Dry | Daylight | Entering at angle | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | South | East | East | West | Intersecting Trafficway (WITH Intent to Access) | |
| City Street | Camas | NE GOODWIN RD | | NE INGLE RD | | | | | E163123 | 3/29/2012 | 15:25 | Possible Injury | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Wet | Daylight | From same direction - both going straight - one stopped - rear-end | Going Straight Ahead | Stopped for Traffic | Exceeding Reas. Safe Speed | None | None | South | North | South | Vehicle Stopped | Lane of Primary Trafficway | |
| City Street | Camas | NE GOODWIN RD | 2500 | NE INGLE RD | | | | | 3677212 | 1/16/2015 | 17:23 | No Injury | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Dark-No Street Lights | From same direction - both going straight - one stopped - rear-end | Going Straight Ahead | Stopped for Traffic | Follow Too Closely | None | None | West | East | West | East | Lane of Primary Trafficway | |
| City Street | Camas | NE GOODWIN RD | 2400 | NE INGLE RD | 40 | F | SW | NE INGLE RD | E267479 | 8/27/2013 | 17:37 | Evident Injury | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | Intersection Related but Not at Intersection | Dry | Daylight | From same direction - one stopped - rear-end | Going Straight Ahead | Stopped for Traffic | Inattention | Driver Not Distracted | None | None | South | North | Vehicle Stopped | Vehicle Stopped | Lane of Primary Trafficway |
| City Street | Camas | NE GOODWIN RD | 2500 | NE INGLE RD | 346 | F | NE | NE INGLE RD | 3411805 | 8/30/2011 | 22:02 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Driveway | Dry | Dark-No Street Lights | From same direction - one left turn - one straight | Overtaking and Passing | Making Left Turn | Improper Passing | None | None | Northeast | Southwest | Northeast | Southeast | Lane of Primary Trafficway | |
| City Street | Camas | NE INGLE RD | 2800 | NE GOODWIN RD | | | | | E273386 | 9/28/2013 | 15:33 | No Injury | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | | At Intersection and Related | Wet | Daylight | Roadway Ditch | Going Straight Ahead | | Other Driver Distractions Inside Vehicle | None | None | North | South | | | Past the Outside Shoulder of Primary Trafficway | |
| City Street | Camas | NW 16TH AVE | 4100 | NW BRADY RD | | | | | E296456 | 12/23/2013 | 19:37 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Dark-Street Lights On | Entering at angle | Going Straight Ahead | Going Straight Ahead | None | Inattention | West | East | South | North | Lane of Primary Trafficway | | |
| City Street | Camas | NW 38TH AVE | | NW PARKER ST | | | | | 3411738 | 2/6/2013 | 14:10 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | East | South | West | East | Lane of Primary Trafficway | |
| City Street | Camas | NW 38TH AVE | 3400 | NW PARKER ST | | | | | 2984301 | 6/17/2011 | 17:04 | Possible Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | East | South | West | East | Lane of Primary Trafficway | |
| City Street | Camas | NW 38TH AVE | | NW PARKER ST | | | M | | E160269 | 3/13/2012 | 7:25 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Snow/Slush | Daylight | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | None | South | North | East | West | Lane of Primary Trafficway | |
| City Street | Camas | NW 38TH AVE | 3400 | NW PARKER ST | | | | | E042126 | 2/8/2010 | 16:03 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | None | South | North | East | West | Lane of Primary Trafficway | |
| City Street | Camas | NW 38TH AVE | 3400 | NW PARKER ST | | | | | 2984222 | 1/6/2011 | 17:43 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Dark-Street Lights On | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | East | South | West | East | Lane of Primary Trafficway | |
| City Street | Camas | NW 38TH AVE | 3400 | NW PARKER ST | | | | | E040987 | 1/28/2010 | 16:08 | Possible Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | School Bus | At Intersection and Related | Dry | Dark | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | None | South | North | West | East | Lane of Primary Trafficway | |
| City Street | Camas | NW BRADY RD | 1600 | NW 16TH AVE | | | | | E298816 | 1/7/2014 | 6:55 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Dark-No Street Lights | Entering at angle | Going Straight Ahead | Going Straight Ahead | Inattention | Inattention | East | West | South | North | Lane of Primary Trafficway | | |

OFFICER-REPORTED CRASHES THAT OCCURRED ON ALL CITY STREETS IN THE CITIES OF CAMAS AND VANCOUVER
 1/1/2010 - available 2015 (2015 data is considered partial and preliminary)

UNDER 21 UNITED STATES CODE - SECTION 409, THIS DATA CANNOT BE USED IN DISCOVERY OR AS EVIDENCE
 AT TRIAL IN ANY ACTION FOR DAMAGES AGAINST THE WSDOT OR ANY JURISDICTIONS INVOLVED IN THE DATA

| JURISDICTION | CITY | PRIMARY TRAFFICWAY | BLOCK NUMBER | INTERSECTING TRAFFICWAY | DIST FROM REF POINT | COMP DIR FROM REF POINT | REFERENCE POINT NAME | MILE POST | REPORT NUMBER | DATE | TIME | MOST SEVERE INJURY TYPE | # A | # B | # C | # D | # E | # F | # G | # H | # I | # J | VEHICLE 1 TYPE | VEHICLE 2 TYPE | JUNCTION RELATIONSHIP | ROADWAY SURFACE CONDITIONS | LIGHTING CONDITIONS | FIRST COLLISION TYPE / OBJECT STRUCK | VEH 1 ACTION | VEH 2 ACTION | MV DRIVER CONT CIRC 1 (UNIT 1) | MV DRIVER CONT CIRC 1 (UNIT 2) | VEH 1 COMP DIR FROM | VEH 1 COMP DIR TO | VEH 2 COMP DIR FROM | VEH 2 COMP DIR TO | IMPACT LOCATION (Effective for City, County & Mac 1/1/2010, SR# Indefinite) |
|--------------|-----------|---------------------|--------------|-------------------------|---------------------|-------------------------|----------------------|---------------------|---------------|------------|-------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------|-----------------------|--------------------------------------------------------------------|--------------------------|------------------------------|------------------------------------|--------------------------------|---------------------|-------------------|---------------------|-------------------------------------------------|-----------------------------------------------------------------------------|
| City Street | Camas | NW BRADY RD | 20800 | NW MCINTOSH RD | | | | | 2984193 | 8/8/2010 | 17:35 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | East | South | South | North | Lane of Primary Trafficway |
| City Street | Camas | NW BRADY RD | 1600 | | 31 | F | N | NW 16TH AVE | 2984211 | 10/1/2010 | 17:29 | Possible Injury | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | Intersection Related but Not at Intersection | Dry | Daylight | From same direction - both going straight - one stopped - rear-end | Going Straight Ahead | Stopped for Traffic | Follow Too Closely | None | North | South | North | Vehicle Stopped | Lane of Primary Trafficway |
| City Street | Camas | NW CAMAS MEADOWS DR | 4500 | | 0.33 | M | SE | NE GOODWIN RD | E169540 | 4/19/2012 | 15:47 | Evident Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Pickup Panel Truck or Vanette under 10,000 lb | At Driveway | Wet | Daylight | Entering at angle | Starting in Traffic Lane | Going Straight Ahead | Did Not Grant RW to Vehicle | None | North | South | East | West | Lane of Primary Trafficway |
| City Street | Camas | NW LAKE RD | 9900 | NW PARKER ST | | | | | E384156 | 12/15/2014 | 21:00 | No Injury | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | | At Intersection and Not Related | Dry | Dark-Street Lights On | Vehicle Strikes Deer | Going Straight Ahead | None | | West | East | | | Lane of Primary Trafficway | |
| City Street | Camas | NW PACIFIC RIM BLVD | | | 0.1 | M | W | NW PARKER ST | 3602176 | 3/18/2012 | 19:37 | No Injury | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | | At Driveway | Wet | Dark-Street Lights On | Curb, Raised Traffic Island or Raised Median Curb | Going Straight Ahead | Exceeding Stated Speed Limit | | West | East | | | Outside Shoulder of Primary Trafficway | |
| City Street | Camas | NW PARKER ST | 3800 | NW 38TH AVE | | | | | E116356 | 7/15/2011 | 9:50 | Possible Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup Panel Truck or Vanette under 10,000 lb | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Dry | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | North | East | South | North | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW 38TH AVE | | | | | 3677019 | 11/23/2014 | 18:20 | Possible Injury | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Dark-Street Lights On | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Inattention | None | North | West | North | South | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW 38TH AVE | | | | | 2984233 | 11/12/2010 | 17:10 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Dark-Street Lights On | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | East | West | North | South | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | 3500 | NW LAKE RD | | | | | 2984285 | 1/21/2011 | 18:57 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Wet | Dark-Street Lights On | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | South | West | North | South | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | 5500 | NW LAKE RD | | | | | E380692 | 12/4/2014 | 9:25 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Wet | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | South | West | North | South | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW PACIFIC RIM BLVD | | | | | 3411742 | 2/12/2013 | 17:55 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Wet | Dark-Street Lights On | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop Sign - Flashing Red | None | North | South | East | West | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW PACIFIC RIM BLVD | | | | | 3602177 | 3/19/2012 | 8:07 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Other | Other | South | West | North | South | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW PACIFIC RIM DR | | | | | 3691272 | 5/8/2014 | 20:54 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Dark-Street Lights On | Entering at angle | Starting in Traffic Lane | Starting in Traffic Lane | None | None | North | South | East | West | Lane of Primary Trafficway |
| City Street | Camas | NW PARKER ST | | NW PACIFIC RIM BLVD | 69 | F | N | NW PACIFIC RIM BLVD | 2984201 | 9/2/2010 | 8:10 | Unknown | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Not Stated | | Intersection Related but Not at Intersection | Dry | Daylight | Street Light Pole or Base | Making Left Turn | Exceeding Reas. Safe Speed | | West | North | | | Past the Outside Shoulder of Primary Trafficway | |
| City Street | Vancouver | NE 192 AV | | SE 1 ST | | | | | E132965 | 10/24/2011 | 13:55 | Evident Injury | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | | At Intersection and Related | Dry | Daylight | Vehicle turning right hits pedestrian | Right Turn | Going Straight Ahead | Fail to Yield Row to Pedestrian | | East | North | | | Intersecting Trafficway (WITH Intent to Access) |
| City Street | Vancouver | NE 192ND AVE | 19200 | 13TH ST NE | | | | | 3327133 | 10/15/2010 | 7:56 | Serious Injury | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Truck (Flatbed, Van, etc) | Passenger Car | At Intersection and Related | Dry | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | North | East | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 800 | NE 11TH ST | | | | | 3614086 | 7/24/2013 | 13:05 | Possible Injury | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Pickup Panel Truck or Vanette under 10,000 lb | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Not Related | Dry | Daylight | From same direction - both going straight - both moving - rear-end | Going Straight Ahead | Slowing | Follow Too Closely | None | South | North | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 900 | NE 11TH ST | | | | | 3472616 | 3/24/2014 | 16:36 | No Injury | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Passenger Car | Pickup Panel Truck or Vanette under 10,000 lb | At Intersection and Not Related | Dry | Daylight | From same direction - both going straight - one stopped - rear-end | Going Straight Ahead | Stopped for Traffic | Inattention | None | South | North | South | North | Lane of Primary Trafficway |

OFFICER-REPORTED CRASHES THAT OCCURRED ON ALL CITY STREETS IN THE CITIES OF CAMAS AND VANCOUVER
 1/1/2010 - available 2015 (2015 data is considered partial and preliminary)

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 AT TRIAL IN ANY ACTION FOR DAMAGES AGAINST THE WSDOT OR ANY JURISDICTIONS INVOLVED IN THE DATA

| JURISDICTION | CITY | PRIMARY TRAFFICWAY | BLOCK NUMBER | INTERSECTING TRAFFICWAY | DIST FROM REF POINT | MI FROM REF POINT | COMP DIR REF POINT | REFERENCE POINT NAME | MILE POST | REPORT NUMBER | DATE | TIME | MOST SEVERE INJURY TYPE | # A | # F | # V | # E | # D | VEHICLE 1 TYPE | VEHICLE 2 TYPE | JUNCTION RELATIONSHIP | ROADWAY SURFACE CONDITIONS | LIGHTING CONDITIONS | FIRST COLLISION TYPE / OBJECT STRUCK | VEH 1 ACTION | VEH 2 ACTION | MV DRIVER CONT CIRC 1 (UNIT 1) | MV DRIVER CONT CIRC 2 (UNIT 2) | VEH 1 COMP DIR FROM | VEH 1 COMP DIR TO | VEH 2 COMP DIR FROM | VEH 2 COMP DIR TO | IMPACT LOCATION (Effective for City, County & Mac 1/1/2010, SR# Indefinite) | |
|--------------|-----------|--------------------|--------------|-------------------------|---------------------|-------------------|--------------------|----------------------|-----------|---------------|------------|-------|-------------------------|-----|-----|-----|-----|-----|-----------------------------------------------|-----------------------------------------------|---------------------------------|----------------------------|---------------------|---------------------------------------------------------------------|------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------|-------------------|---------------------|-------------------|-----------------------------------------------------------------------------|-------------------------------------------------|
| City Street | Vancouver | NE 192ND AVE | 900 | NE 13TH ST | | | | | | E414042 | 4/5/2015 | 11:25 | No Injury | 0 | 0 | 2 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Daylight | From same direction - both going straight - both moving - sideswipe | Going Straight Ahead | Overtaking and Passing | None | Improper Passing | South | North | South | North | Lane of Primary Trafficway | |
| City Street | Vancouver | NE 192ND AVE | 1000 | NE 13TH ST | | | | | | 3318835 | 4/11/2012 | 9:36 | Possible Injury | 1 | 0 | 2 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | North | East | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 1000 | NE 13TH ST | | | | | | 3432403 | 5/22/2011 | 12:29 | No Injury | 0 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Related | Dry | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | North | East | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 900 | NE 13TH ST | | | | | | E397774 | 1/27/2015 | 15:17 | No Injury | 0 | 0 | 2 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Straight Ahead | Inattention | None | None | North | East | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 100 | SE 1ST ST | | | | | | 3573991 | 12/26/2014 | 7:30 | Possible Injury | 1 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Wet | Dawn | Entering at angle | Making Right Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | East | North | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | NE 192ND AVE | 1100 | | 357 | F | S | NE 13TH ST | | 3432724 | 11/21/2014 | 15:41 | Possible Injury | 1 | 0 | 3 | 0 | 0 | Passenger Car | Passenger Car | At Driveway | Wet | Dusk | Entering at angle | Making Left Turn | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | East | South | North | South | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192 AV | | SE 1ST | | | | | | 3327608 | 7/6/2011 | 17:22 | Possible Injury | 1 | 0 | 3 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Making Left Turn | Disregard Stop and Go Light | None | None | North | South | East | South | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192ND AVE | | SE 1ST ST | | | | | | E327934 | 5/13/2014 | 13:40 | Possible Injury | 1 | 0 | 3 | 0 | 0 | Passenger Car | Truck Tractor & Semi-Trailer | At Intersection and Related | Dry | Daylight | From same direction - one right turn - one straight | Overtaking and Passing | Making Right Turn | Improper Signal | None | None | North | East | South | Northeast | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192ND AVE | | SE 1ST ST | | | | | | 3432092 | 8/24/2013 | 18:59 | Evident Injury | 1 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | None | South | North | East | West | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192ND AVE | | SE 1ST ST | | | | | | 2993117 | 9/23/2013 | 12:27 | Evident Injury | 4 | 0 | 4 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Going Straight Ahead | Inattention | None | None | North | South | West | East | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192ND AVE | | SE BRADY RD | | | | | | E108096 | 6/4/2011 | 13:40 | No Injury | 0 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Pickup,Panel Truck or Vanette under 10,000 lb | At Intersection and Not Related | Dry | Daylight | From same direction - both going straight - both moving - sideswipe | Changing Lanes | Going Straight Ahead | Did Not Grant RW to Vehicle | None | None | South | North | South | North | Lane of Primary Trafficway |
| City Street | Vancouver | SE 192ND AVE | | SE BRADY RD | | | | | | 3677749 | 8/31/2014 | 17:48 | Possible Injury | 1 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Making Left Turn | Disregard Stop and Go Light | None | None | South | North | East | South | Lane of Primary Trafficway |
| City Street | Vancouver | SE 1ST ST | 19300 | SE 192ND AVE | | | | | | E430131 | 5/31/2015 | 18:10 | No Injury | 0 | 0 | 2 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Going Straight Ahead | Going Straight Ahead | Disregard Stop and Go Light | None | None | South | North | East | West | Lane of Primary Trafficway |
| City Street | Vancouver | SE 1ST ST | | SE 192ND AVE | | | | | | 3598355 | 11/23/2012 | 14:59 | Evident Injury | 1 | 0 | 1 | 1 | 0 | Not Stated | Not Stated | At Intersection and Related | Wet | Daylight | Vehicle turning right hits pedestrian | Making Right Turn | Going Right Turn | Fall to Yield Row to Pedestrian | None | None | East | North | | | Lane of Primary Trafficway |
| City Street | Vancouver | SE 1ST ST | | SE 19TH AVE | | | | | | E338273 | 6/29/2014 | 17:51 | Possible Injury | 1 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | From opposite direction - one left turn - one straight | Making Left Turn | Going Wrong Way on Divided Hwy | Improper Turn | None | None | West | North | East | West | Lane of Primary Trafficway |
| City Street | Vancouver | SE BRADY RD | 19900 | SE 192ND AVE | | | | | | 3598734 | 1/21/2013 | 8:10 | No Injury | 0 | 0 | 2 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | Entering at angle | Making Left Turn | Stopped at Signal or Stop Sign | Improper Turn | None | None | East | South | South | Vehicle Stopped | Intersecting Trafficway (WITH Intent to Access) |
| City Street | Vancouver | SE BRADY RD | | SE 192ND AVE | | | | | | 3319151 | 8/27/2011 | 6:00 | No Injury | 0 | 0 | 1 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Related | Dry | Daylight | Other Objects | Going Straight Ahead | Apparently Asleep | None | None | East | West | | | Past the Outside Shoulder of Primary Trafficway | |
| City Street | Vancouver | SE BRADY RD | 100 | SE 192ND AVE | | | | | | 3432047 | 9/9/2014 | 11:02 | No Injury | 0 | 0 | 1 | 0 | 0 | Pickup,Panel Truck or Vanette under 10,000 lb | Passenger Car | At Intersection and Not Related | Dry | Daylight | Roadway Ditch | Going Straight Ahead | Other | None | None | West | East | | | Past the Outside Shoulder of Primary Trafficway | |

OFFICER-REPORTED CRASHES THAT OCCURRED ON ALL CITY STREETS IN THE CITIES OF CAMAS AND VANCOUVER
 1/1/2010 - available 2015 (2015 data is considered partial and preliminary)

UNDER 21 UNITED STATES CODE - SECTION 490, THIS DATA CANNOT BE USED IN DISCOVERY OR AS EVIDENCE
 AT TRIAL IN ANY ACTION FOR DAMAGES AGAINST THE WSDOT OR ANY JURISDICTIONS INVOLVED IN THE DATA

| JURISDICTION | CITY | PRIMARY TRAFFICWAY | BLOCK NUMBER | INTERSECTING TRAFFICWAY | DIST FROM REF POINT FT | COMP DIR FROM REF POINT | REFERENCE POINT NAME | MILE POST | A | REPORT NUMBER | DATE | TIME | MOST SEVERE INJURY TYPE | # FATALS | # SERIOUS | # OTHER | VEHICLE 1 TYPE | VEHICLE 2 TYPE | JUNCTION RELATIONSHIP | ROADWAY SURFACE CONDITIONS | LIGHTING CONDITIONS | FIRST COLLISION TYPE / OBJECT STRUCK | VEH 1 ACTION | VEH 2 ACTION | MV DRIVER CONT CIRC 1 (UNIT 1) | MV DRIVER CONT CIRC 1 (UNIT 2) | VEH 1 COMP DIR FROM | VEH 1 COMP DIR TO | VEH 2 COMP DIR FROM | VEH 2 COMP DIR TO | IMPACT LOCATION (Effective for City, County & Mac 1/1/2010; Strs Indefinite) |
|--------------|-----------|--------------------|--------------|-------------------------|------------------------|-------------------------|----------------------|-----------|---|---------------|----------|------|-------------------------|----------|-----------|---------|----------------|----------------|-----------------------------|----------------------------|---------------------|--------------------------------------------------------------------|--------------------------------|--------------|--------------------------------|--------------------------------|---------------------|-------------------|---------------------|-------------------|------------------------------------------------------------------------------|
| City Street | Vancouver | SE BRADY RD | 19900 | SE 192ND AVE | | | | | | 3254048 | 3/9/2010 | 6:58 | No Injury | 0 | 0 | 0 | Passenger Car | Passenger Car | At Intersection and Related | Wet | Daylight | From same direction - both going straight - one stopped - rear-end | Stopped at Signal or Stop Sign | Blowing | Inattention | None | East | West | East | Vehicle Stopped | Lane of Primary Trafficway |

APPENDIX E

2020 “WITHOUT PROJECT” LEVEL OF SERVICE

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 187 | 120 | 278 | 36 | 320 | 323 |
| Future Volume (vph) | 187 | 120 | 278 | 36 | 320 | 323 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.947 | | 0.985 | | | |
| Flt Protected | 0.970 | | | | 0.950 | |
| Satd. Flow (prot) | 1662 | 0 | 1686 | 0 | 1752 | 1845 |
| Flt Permitted | 0.970 | | | | 0.950 | |
| Satd. Flow (perm) | 1662 | 0 | 1686 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 24 | | 6 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 5% | 5% | 11% | 11% | 3% | 3% |
| Adj. Flow (vph) | 208 | 133 | 309 | 40 | 356 | 359 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 341 | 0 | 349 | 0 | 356 | 359 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

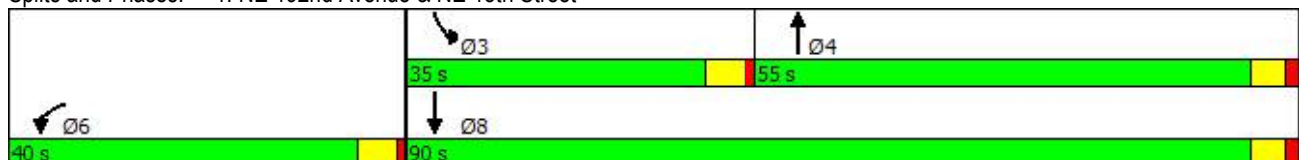


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 23.2 | | 25.0 | | 24.9 | 55.1 |
| Actuated g/C Ratio | 0.26 | | 0.28 | | 0.28 | 0.62 |
| v/c Ratio | 0.76 | | 0.73 | | 0.73 | 0.31 |
| Control Delay | 41.4 | | 40.1 | | 41.7 | 9.5 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 41.4 | | 40.1 | | 41.7 | 9.5 |
| LOS | D | | D | | D | A |
| Approach Delay | 41.4 | | 40.1 | | | 25.5 |
| Approach LOS | D | | D | | | C |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 89 |
| Natural Cycle: | 75 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.76 |
| Intersection Signal Delay: | 33.0 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 64.7% |
| ICU Level of Service: | C |
| Analysis Period (min): | 15 |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/4/2016













| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 341 | 349 | 356 | 359 |
| v/c Ratio | 0.76 | 0.73 | 0.73 | 0.31 |
| Control Delay | 41.4 | 40.1 | 41.7 | 9.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 41.4 | 40.1 | 41.7 | 9.5 |
| Queue Length 50th (ft) | 167 | 177 | 178 | 85 |
| Queue Length 95th (ft) | 317 | 327 | #396 | 175 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 707 | 1007 | 626 | 1677 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.35 | 0.57 | 0.21 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

| |  |  |  |  |  |  | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations |  | |  | |  |  | | |
| Traffic Volume (veh/h) | 187 | 120 | 278 | 36 | 320 | 323 | | |
| Future Volume (veh/h) | 187 | 120 | 278 | 36 | 320 | 323 | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1810 | 1900 | 1712 | 1900 | 1845 | 1845 | | |
| Adj Flow Rate, veh/h | 208 | 133 | 309 | 40 | 356 | 359 | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | | |
| Percent Heavy Veh, % | 0 | 0 | 11 | 11 | 3 | 3 | | |
| Cap, veh/h | 245 | 156 | 427 | 55 | 419 | 1111 | | |
| Arrive On Green | 0.24 | 0.24 | 0.29 | 0.29 | 0.24 | 0.60 | | |
| Sat Flow, veh/h | 1001 | 640 | 1485 | 192 | 1757 | 1845 | | |
| Grp Volume(v), veh/h | 342 | 0 | 0 | 349 | 356 | 359 | | |
| Grp Sat Flow(s),veh/h/ln | 1646 | 0 | 0 | 1678 | 1757 | 1845 | | |
| Q Serve(g_s), s | 12.9 | 0.0 | 0.0 | 12.2 | 12.6 | 6.3 | | |
| Cycle Q Clear(g_c), s | 12.9 | 0.0 | 0.0 | 12.2 | 12.6 | 6.3 | | |
| Prop In Lane | 0.61 | 0.39 | | 0.11 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 402 | 0 | 0 | 482 | 419 | 1111 | | |
| V/C Ratio(X) | 0.85 | 0.00 | 0.00 | 0.72 | 0.85 | 0.32 | | |
| Avail Cap(c_a), veh/h | 884 | 0 | 0 | 1287 | 809 | 2406 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 23.5 | 0.0 | 0.0 | 20.9 | 23.7 | 6.4 | | |
| Incr Delay (d2), s/veh | 5.1 | 0.0 | 0.0 | 2.1 | 4.9 | 0.2 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 6.4 | 0.0 | 0.0 | 5.9 | 6.7 | 3.2 | | |
| LnGrp Delay(d),s/veh | 28.6 | 0.0 | 0.0 | 23.0 | 28.6 | 6.6 | | |
| LnGrp LOS | C | | | C | C | A | | |
| Approach Vol, veh/h | 342 | | 349 | | | 715 | | |
| Approach Delay, s/veh | 28.6 | | 23.0 | | | 17.6 | | |
| Approach LOS | C | | C | | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 20.5 | 23.7 | | 20.9 | | 44.3 |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 |
| Max Q Clear Time (g_c+I1), s | | | 14.6 | 14.2 | | 14.9 | | 8.3 |
| Green Ext Time (p_c), s | | | 0.9 | 4.5 | | 1.0 | | 4.7 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 21.6 | | | | | |
| HCM 2010 LOS | | | C | | | | | |
| Notes | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖↗ | ↖↗ | | ↖↗ | ↖ | ↗ | ↖ | ↖↗ | ↗ | ↖ | ↖↗ | |
| Traffic Volume (vph) | 54 | 242 | 53 | 247 | 225 | 113 | 33 | 216 | 315 | 76 | 304 | 45 |
| Future Volume (vph) | 54 | 242 | 53 | 247 | 225 | 113 | 33 | 216 | 315 | 76 | 304 | 45 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.973 | | | | 0.850 | | | 0.850 | | 0.981 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3303 | 3314 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3303 | 3314 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 28 | | | | 138 | | | 283 | | 18 | |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 8% | 8% | 8% | 5% | 5% | 5% | 7% | 7% | 7% |
| Adj. Flow (vph) | 66 | 295 | 65 | 301 | 274 | 138 | 40 | 263 | 384 | 93 | 371 | 55 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 66 | 360 | 0 | 301 | 274 | 138 | 40 | 263 | 384 | 93 | 426 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

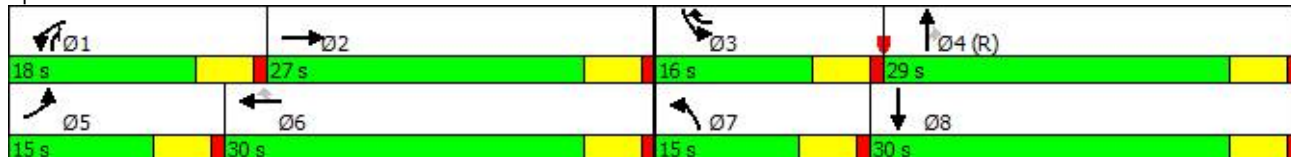


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.2 | 15.1 | | 12.2 | 22.2 | 36.9 | 7.6 | 33.0 | 50.2 | 9.7 | 39.5 | |
| Actuated g/C Ratio | 0.08 | 0.17 | | 0.14 | 0.25 | 0.41 | 0.08 | 0.37 | 0.56 | 0.11 | 0.44 | |
| v/c Ratio | 0.25 | 0.62 | | 0.69 | 0.63 | 0.20 | 0.28 | 0.21 | 0.39 | 0.51 | 0.29 | |
| Control Delay | 40.7 | 36.3 | | 45.7 | 37.7 | 3.4 | 42.7 | 22.1 | 5.1 | 47.5 | 19.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 40.7 | 36.3 | | 45.7 | 37.7 | 3.4 | 42.7 | 22.1 | 5.1 | 47.5 | 19.0 | |
| LOS | D | D | | D | D | A | D | C | A | D | B | |
| Approach Delay | | 37.0 | | | 34.4 | | | 13.8 | | | 24.1 | |
| Approach LOS | | D | | | C | | | B | | | C | |

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 77 (86%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 26.6
 Intersection LOS: C
 Intersection Capacity Utilization 49.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 66 | 360 | 301 | 274 | 138 | 40 | 263 | 384 | 93 | 426 |
| v/c Ratio | 0.25 | 0.62 | 0.69 | 0.63 | 0.20 | 0.28 | 0.21 | 0.39 | 0.51 | 0.29 |
| Control Delay | 40.7 | 36.3 | 45.7 | 37.7 | 3.4 | 42.7 | 22.1 | 5.1 | 47.5 | 19.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 40.7 | 36.3 | 45.7 | 37.7 | 3.4 | 42.7 | 22.1 | 5.1 | 47.5 | 19.0 |
| Queue Length 50th (ft) | 18 | 94 | 84 | 144 | 0 | 22 | 53 | 25 | 50 | 83 |
| Queue Length 95th (ft) | 34 | 113 | 114 | 187 | 23 | 47 | 86 | 68 | 88 | 128 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 367 | 831 | 468 | 490 | 717 | 191 | 1262 | 994 | 211 | 1463 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.43 | 0.64 | 0.56 | 0.19 | 0.21 | 0.21 | 0.39 | 0.44 | 0.29 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 54 | 242 | 53 | 247 | 225 | 113 | 33 | 216 | 315 | 76 | 304 | 45 |
| Future Volume (veh/h) | 54 | 242 | 53 | 247 | 225 | 113 | 33 | 216 | 315 | 76 | 304 | 45 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1792 | 1792 | 1900 | 1759 | 1759 | 1759 | 1810 | 1810 | 1810 | 1776 | 1776 | 1900 |
| Adj Flow Rate, veh/h | 66 | 295 | 65 | 301 | 274 | 138 | 40 | 263 | 384 | 93 | 371 | 55 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 8 | 8 | 8 | 5 | 5 | 5 | 7 | 7 | 7 |
| Cap, veh/h | 149 | 439 | 95 | 376 | 402 | 394 | 61 | 1495 | 738 | 118 | 1385 | 204 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.12 | 0.23 | 0.23 | 0.04 | 0.43 | 0.43 | 0.07 | 0.47 | 0.47 |
| Sat Flow, veh/h | 3312 | 2784 | 605 | 3250 | 1759 | 1495 | 1723 | 3438 | 1538 | 1691 | 2952 | 434 |
| Grp Volume(v), veh/h | 66 | 179 | 181 | 301 | 274 | 138 | 40 | 263 | 384 | 93 | 211 | 215 |
| Grp Sat Flow(s),veh/h/ln | 1656 | 1703 | 1686 | 1625 | 1759 | 1495 | 1723 | 1719 | 1538 | 1691 | 1687 | 1699 |
| Q Serve(g_s), s | 1.7 | 8.9 | 9.1 | 8.1 | 12.8 | 6.7 | 2.1 | 4.2 | 15.6 | 4.9 | 6.8 | 6.9 |
| Cycle Q Clear(g_c), s | 1.7 | 8.9 | 9.1 | 8.1 | 12.8 | 6.7 | 2.1 | 4.2 | 15.6 | 4.9 | 6.8 | 6.9 |
| Prop In Lane | 1.00 | | 0.36 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 149 | 268 | 266 | 376 | 402 | 394 | 61 | 1495 | 738 | 118 | 792 | 797 |
| V/C Ratio(X) | 0.44 | 0.67 | 0.68 | 0.80 | 0.68 | 0.35 | 0.66 | 0.18 | 0.52 | 0.79 | 0.27 | 0.27 |
| Avail Cap(c_a), veh/h | 368 | 416 | 412 | 470 | 489 | 468 | 191 | 1495 | 738 | 207 | 792 | 797 |
| 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(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.83 | 0.83 | 0.83 |
| Uniform Delay (d), s/veh | 41.9 | 35.7 | 35.8 | 38.8 | 31.7 | 26.9 | 42.9 | 15.6 | 16.2 | 41.2 | 14.5 | 14.5 |
| Incr Delay (d2), s/veh | 2.1 | 2.8 | 3.1 | 7.7 | 2.9 | 0.5 | 11.6 | 0.3 | 2.6 | 9.5 | 0.7 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 4.4 | 4.5 | 4.0 | 6.6 | 2.8 | 1.2 | 2.1 | 7.1 | 2.6 | 3.3 | 3.4 |
| LnGrp Delay(d),s/veh | 44.0 | 38.5 | 38.9 | 46.5 | 34.7 | 27.4 | 54.5 | 15.8 | 18.8 | 50.7 | 15.2 | 15.2 |
| LnGrp LOS | D | D | D | D | C | C | D | B | B | D | B | B |
| Approach Vol, veh/h | | 426 | | | 713 | | | 687 | | | 519 | |
| Approach Delay, s/veh | | 39.5 | | | 38.3 | | | 19.8 | | | 21.6 | |
| Approach LOS | | D | | | D | | | B | | | 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 | 15.4 | 19.2 | 11.3 | 44.1 | 9.0 | 25.6 | 8.2 | 47.2 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+l1), s | 10.1 | 11.1 | 6.9 | 17.6 | 3.7 | 14.8 | 4.1 | 8.9 | | | | |
| Green Ext Time (p_c), s | 0.3 | 3.1 | 0.1 | 2.9 | 0.1 | 2.9 | 0.0 | 5.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 29.4 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↘ | ↖ | ↗↘ | | ↖ | ↗ | | ↖ | ↗ | |
| Traffic Volume (vph) | 41 | 151 | 186 | 85 | 249 | 93 | 139 | 184 | 82 | 76 | 152 | 41 |
| Future Volume (vph) | 41 | 151 | 186 | 85 | 249 | 93 | 139 | 184 | 82 | 76 | 152 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.959 | | | 0.954 | | | 0.968 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1687 | 1776 | 1509 | 1770 | 3394 | 0 | 1736 | 1743 | 0 | 1752 | 1786 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1687 | 1776 | 1509 | 1770 | 3394 | 0 | 1736 | 1743 | 0 | 1752 | 1786 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 255 | | 64 | | | 28 | | | 13 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2066 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 35.2 | | | 171.3 | | | 22.1 | | | 36.2 | |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 2% | 2% | 2% | 4% | 4% | 4% | 3% | 3% | 3% |
| Adj. Flow (vph) | 56 | 207 | 255 | 116 | 341 | 127 | 190 | 252 | 112 | 104 | 208 | 56 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 56 | 207 | 255 | 116 | 468 | 0 | 190 | 364 | 0 | 104 | 264 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

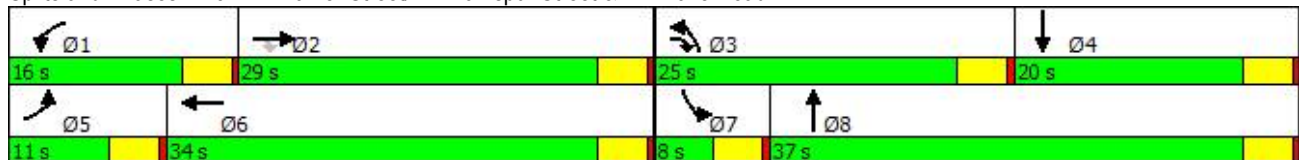


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.0 | 13.7 | 31.0 | 9.7 | 18.5 | | 12.9 | 22.8 | | 4.4 | 14.2 | |
| Actuated g/C Ratio | 0.11 | 0.21 | 0.48 | 0.15 | 0.29 | | 0.20 | 0.35 | | 0.07 | 0.22 | |
| v/c Ratio | 0.31 | 0.55 | 0.30 | 0.44 | 0.46 | | 0.55 | 0.57 | | 0.88 | 0.65 | |
| Control Delay | 37.4 | 31.8 | 2.6 | 35.0 | 19.3 | | 32.6 | 21.0 | | 97.3 | 34.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 37.4 | 31.8 | 2.6 | 35.0 | 19.3 | | 32.6 | 21.0 | | 97.3 | 34.5 | |
| LOS | D | C | A | D | B | | C | C | | F | C | |
| Approach Delay | | 18.0 | | | 22.4 | | | 25.0 | | | 52.2 | |
| Approach LOS | | B | | | C | | | C | | | D | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 64.4 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.88 |
| Intersection Signal Delay: | 27.4 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 45.4% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

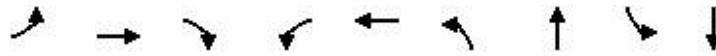
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016
























| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 56 | 207 | 255 | 116 | 468 | 190 | 364 | 104 | 264 |
| v/c Ratio | 0.31 | 0.55 | 0.30 | 0.44 | 0.46 | 0.55 | 0.57 | 0.88 | 0.65 |
| Control Delay | 37.4 | 31.8 | 2.6 | 35.0 | 19.3 | 32.6 | 21.0 | 97.3 | 34.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 37.4 | 31.8 | 2.6 | 35.0 | 19.3 | 32.6 | 21.0 | 97.3 | 34.5 |
| Queue Length 50th (ft) | 22 | 79 | 0 | 45 | 76 | 73 | 108 | ~45 | 94 |
| Queue Length 95th (ft) | 52 | 124 | 14 | 86 | 100 | 117 | 162 | #127 | 160 |
| Internal Link Dist (ft) | | 1986 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 199 | 751 | 1051 | 359 | 1754 | 617 | 985 | 118 | 493 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.28 | 0.24 | 0.32 | 0.27 | 0.31 | 0.37 | 0.88 | 0.54 |

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  | |  |  | |  |  | |
| Traffic Volume (veh/h) | 41 | 151 | 186 | 85 | 249 | 93 | 139 | 184 | 82 | 76 | 152 | 41 |
| Future Volume (veh/h) | 41 | 151 | 186 | 85 | 249 | 93 | 139 | 184 | 82 | 76 | 152 | 41 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1776 | 1776 | 1776 | 1863 | 1863 | 1900 | 1827 | 1827 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 56 | 207 | 255 | 116 | 341 | 127 | 190 | 252 | 112 | 104 | 208 | 56 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 71 | 435 | 583 | 151 | 732 | 268 | 246 | 355 | 158 | 131 | 321 | 86 |
| Arrive On Green | 0.04 | 0.25 | 0.25 | 0.09 | 0.29 | 0.29 | 0.14 | 0.30 | 0.30 | 0.07 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1691 | 1776 | 1509 | 1774 | 2538 | 930 | 1740 | 1200 | 533 | 1757 | 1401 | 377 |
| Grp Volume(v), veh/h | 56 | 207 | 255 | 116 | 236 | 232 | 190 | 0 | 364 | 104 | 0 | 264 |
| Grp Sat Flow(s),veh/h/ln | 1691 | 1776 | 1509 | 1774 | 1770 | 1699 | 1740 | 0 | 1733 | 1757 | 0 | 1778 |
| Q Serve(g_s), s | 1.8 | 5.3 | 6.7 | 3.4 | 5.9 | 6.0 | 5.6 | 0.0 | 10.0 | 3.1 | 0.0 | 7.2 |
| Cycle Q Clear(g_c), s | 1.8 | 5.3 | 6.7 | 3.4 | 5.9 | 6.0 | 5.6 | 0.0 | 10.0 | 3.1 | 0.0 | 7.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.55 | 1.00 | | 0.31 | 1.00 | | 0.21 |
| Lane Grp Cap(c), veh/h | 71 | 435 | 583 | 151 | 510 | 490 | 246 | 0 | 512 | 131 | 0 | 407 |
| V/C Ratio(X) | 0.78 | 0.48 | 0.44 | 0.77 | 0.46 | 0.47 | 0.77 | 0.00 | 0.71 | 0.79 | 0.00 | 0.65 |
| Avail Cap(c_a), veh/h | 221 | 830 | 919 | 398 | 992 | 953 | 683 | 0 | 1069 | 131 | 0 | 532 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.4 | 17.3 | 12.1 | 23.9 | 15.6 | 15.7 | 22.1 | 0.0 | 16.8 | 24.3 | 0.0 | 18.7 |
| Incr Delay (d2), s/veh | 16.8 | 0.8 | 0.5 | 7.9 | 0.7 | 0.7 | 5.1 | 0.0 | 1.8 | 27.2 | 0.0 | 1.7 |
| 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 | 1.1 | 2.7 | 2.8 | 2.0 | 2.9 | 2.9 | 3.0 | 0.0 | 5.0 | 2.5 | 0.0 | 3.7 |
| LnGrp Delay(d),s/veh | 42.2 | 18.1 | 12.6 | 31.8 | 16.3 | 16.4 | 27.3 | 0.0 | 18.6 | 51.5 | 0.0 | 20.4 |
| LnGrp LOS | D | B | B | C | B | B | C | | B | D | | C |
| Approach Vol, veh/h | | 518 | | | 584 | | | 554 | | | 368 | |
| Approach Delay, s/veh | | 18.0 | | | 19.4 | | | 21.6 | | | 29.2 | |
| Approach LOS | | B | | | B | | | 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 | 8.6 | 17.1 | 11.6 | 16.3 | 6.3 | 19.4 | 8.0 | 19.8 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 5.4 | 8.7 | 7.6 | 9.2 | 3.8 | 8.0 | 5.1 | 12.0 | | | | |
| Green Ext Time (p_c), s | 0.1 | 4.4 | 0.4 | 2.1 | 0.0 | 4.9 | 0.0 | 3.8 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 21.4 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 70 | 29 | 14 | 166 | 88 | 106 | 27 | 378 | 82 | 58 | 260 | 47 |
| Future Volume (vph) | 70 | 29 | 14 | 166 | 88 | 106 | 27 | 378 | 82 | 58 | 260 | 47 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.952 | | | 0.918 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1739 | 0 | 1787 | 1727 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1739 | 0 | 1787 | 1727 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | 98 | | | | 108 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 1% | 1% | 1% | 5% | 5% | 5% | 5% | 5% | 5% |
| Adj. Flow (vph) | 92 | 38 | 18 | 218 | 116 | 139 | 36 | 497 | 108 | 76 | 342 | 62 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 92 | 56 | 0 | 218 | 255 | 0 | 36 | 497 | 108 | 76 | 342 | 62 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.3 | 10.1 | | 8.1 | 13.4 | | 4.1 | 16.3 | 28.5 | 4.1 | 19.5 | 30.8 |
| Actuated g/C Ratio | 0.14 | 0.19 | | 0.15 | 0.25 | | 0.08 | 0.31 | 0.54 | 0.08 | 0.37 | 0.58 |
| v/c Ratio | 0.38 | 0.16 | | 0.79 | 0.50 | | 0.27 | 0.89 | 0.12 | 0.58 | 0.51 | 0.07 |
| Control Delay | 27.7 | 14.3 | | 49.1 | 16.0 | | 31.1 | 42.7 | 2.7 | 47.2 | 19.6 | 1.6 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.7 | 14.3 | | 49.1 | 16.0 | | 31.1 | 42.7 | 2.7 | 47.2 | 19.6 | 1.6 |
| LOS | C | B | | D | B | | C | D | A | D | B | A |
| Approach Delay | | 22.6 | | | 31.2 | | | 35.3 | | | 21.6 | |
| Approach LOS | | C | | | C | | | D | | | C | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 52.8 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.89 |
| Intersection Signal Delay: | 29.4 |
| Intersection Capacity Utilization | 51.6% |
| Analysis Period (min) | 15 |
| Intersection LOS: | C |
| ICU Level of Service | A |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| Ø1 | Ø2 | Ø3 | Ø4 |
| 12 s | 20 s | 8 s | 20 s |
| Ø5 | Ø6 | Ø7 | Ø8 |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 92 | 56 | 218 | 255 | 36 | 497 | 108 | 76 | 342 | 62 |
| v/c Ratio | 0.38 | 0.16 | 0.79 | 0.50 | 0.27 | 0.89 | 0.12 | 0.58 | 0.51 | 0.07 |
| Control Delay | 27.7 | 14.3 | 49.1 | 16.0 | 31.1 | 42.7 | 2.7 | 47.2 | 19.6 | 1.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.7 | 14.3 | 49.1 | 16.0 | 31.1 | 42.7 | 2.7 | 47.2 | 19.6 | 1.6 |
| Queue Length 50th (ft) | 27 | 10 | 70 | 46 | 11 | 154 | 0 | 25 | 71 | 0 |
| Queue Length 95th (ft) | 57 | 27 | #148 | 77 | 31 | #275 | 14 | #66 | 153 | 6 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 267 | 548 | 275 | 611 | 132 | 557 | 879 | 132 | 667 | 959 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.34 | 0.10 | 0.79 | 0.42 | 0.27 | 0.89 | 0.12 | 0.58 | 0.51 | 0.06 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 70 | 29 | 14 | 166 | 88 | 106 | 27 | 378 | 82 | 58 | 260 | 47 |
| Future Volume (veh/h) | 70 | 29 | 14 | 166 | 88 | 106 | 27 | 378 | 82 | 58 | 260 | 47 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1827 | 1827 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 |
| Adj Flow Rate, veh/h | 92 | 38 | 18 | 218 | 116 | 139 | 36 | 497 | 108 | 76 | 342 | 62 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 116 | 141 | 67 | 272 | 160 | 192 | 55 | 590 | 735 | 93 | 630 | 638 |
| Arrive On Green | 0.07 | 0.12 | 0.12 | 0.15 | 0.20 | 0.20 | 0.03 | 0.33 | 0.33 | 0.05 | 0.35 | 0.35 |
| Sat Flow, veh/h | 1740 | 1173 | 556 | 1792 | 781 | 935 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Grp Volume(v), veh/h | 92 | 0 | 56 | 218 | 0 | 255 | 36 | 497 | 108 | 76 | 342 | 62 |
| Grp Sat Flow(s),veh/h/ln | 1740 | 0 | 1729 | 1792 | 0 | 1716 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Q Serve(g_s), s | 2.4 | 0.0 | 1.4 | 5.4 | 0.0 | 6.4 | 0.9 | 11.7 | 1.8 | 2.0 | 7.0 | 1.1 |
| Cycle Q Clear(g_c), s | 2.4 | 0.0 | 1.4 | 5.4 | 0.0 | 6.4 | 0.9 | 11.7 | 1.8 | 2.0 | 7.0 | 1.1 |
| Prop In Lane | 1.00 | | 0.32 | 1.00 | | 0.55 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 116 | 0 | 207 | 272 | 0 | 352 | 55 | 590 | 735 | 93 | 630 | 638 |
| V/C Ratio(X) | 0.79 | 0.00 | 0.27 | 0.80 | 0.00 | 0.73 | 0.65 | 0.84 | 0.15 | 0.81 | 0.54 | 0.10 |
| Avail Cap(c_a), veh/h | 303 | 0 | 602 | 312 | 0 | 597 | 150 | 630 | 769 | 150 | 630 | 638 |
| 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 | 21.1 | 0.0 | 18.4 | 18.8 | 0.0 | 17.1 | 22.0 | 14.4 | 6.7 | 21.5 | 12.0 | 8.2 |
| Incr Delay (d2), s/veh | 11.3 | 0.0 | 0.7 | 12.4 | 0.0 | 2.9 | 12.2 | 9.6 | 0.1 | 16.1 | 1.0 | 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 | 1.5 | 0.0 | 0.7 | 3.6 | 0.0 | 3.3 | 0.6 | 7.4 | 0.8 | 1.4 | 3.6 | 0.5 |
| LnGrp Delay(d),s/veh | 32.4 | 0.0 | 19.1 | 31.2 | 0.0 | 19.9 | 34.2 | 24.0 | 6.8 | 37.7 | 13.0 | 8.3 |
| LnGrp LOS | C | | B | C | | B | C | C | A | D | B | A |
| Approach Vol, veh/h | | 148 | | | 473 | | | 641 | | | 480 | |
| Approach Delay, s/veh | | 27.4 | | | 25.1 | | | 21.7 | | | 16.3 | |
| Approach LOS | | C | | | C | | | 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 | 11.0 | 9.5 | 5.5 | 20.0 | 7.1 | 13.4 | 6.5 | 19.0 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 7.4 | 3.4 | 2.9 | 9.0 | 4.4 | 8.4 | 4.0 | 13.7 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.4 | 0.0 | 3.2 | 0.1 | 1.0 | 0.0 | 1.3 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 21.6 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↕ | ↗ | ↖ | ↕ | ↗ |
| Traffic Volume (vph) | 3 | 2 | 8 | 569 | 0 | 50 | 7 | 675 | 277 | 29 | 736 | 6 |
| Future Volume (vph) | 3 | 2 | 8 | 569 | 0 | 50 | 7 | 675 | 277 | 29 | 736 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 0.880 | | | 0.850 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1031 | 955 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1031 | 955 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 580 | | | | 292 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 75% | 75% | 75% | 1% | 1% | 1% | 5% | 5% | 5% | 3% | 3% | 3% |
| Adj. Flow (vph) | 3 | 2 | 8 | 599 | 0 | 53 | 7 | 711 | 292 | 31 | 775 | 6 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 10 | 0 | 599 | 53 | 0 | 7 | 711 | 292 | 31 | 775 | 6 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016

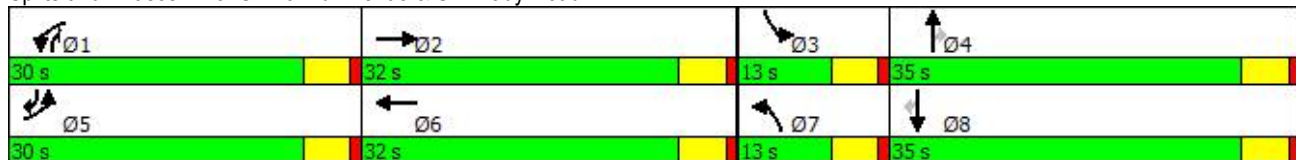


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 5.2 | 5.3 | | 26.0 | 26.1 | | 5.2 | 17.9 | 52.6 | 5.6 | 20.1 | 30.5 |
| Actuated g/C Ratio | 0.09 | 0.09 | | 0.44 | 0.44 | | 0.09 | 0.30 | 0.88 | 0.09 | 0.34 | 0.51 |
| v/c Ratio | 0.03 | 0.11 | | 0.77 | 0.05 | | 0.05 | 0.69 | 0.21 | 0.19 | 0.65 | 0.01 |
| Control Delay | 33.3 | 24.2 | | 26.9 | 0.1 | | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 33.3 | 24.2 | | 26.9 | 0.1 | | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| LOS | C | C | | C | A | | C | C | A | C | C | A |
| Approach Delay | | 26.3 | | | 24.7 | | | 17.0 | | | 20.6 | |
| Approach LOS | | C | | | C | | | B | | | C | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 59.5 |
| Natural Cycle: | 90 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.77 |
| Intersection Signal Delay: | 20.3 |
| Intersection Capacity Utilization | 70.6% |
| Analysis Period (min) | 15 |
| Intersection LOS: | C |
| ICU Level of Service | C |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/4/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 3 | 10 | 599 | 53 | 7 | 711 | 292 | 31 | 775 | 6 |
| v/c Ratio | 0.03 | 0.11 | 0.77 | 0.05 | 0.05 | 0.69 | 0.21 | 0.19 | 0.65 | 0.01 |
| Control Delay | 33.3 | 24.2 | 26.9 | 0.1 | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 33.3 | 24.2 | 26.9 | 0.1 | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Length 50th (ft) | 1 | 1 | 125 | 0 | 2 | 95 | 0 | 9 | 105 | 0 |
| Queue Length 95th (ft) | 10 | 16 | #561 | 0 | 16 | 230 | 23 | 42 | 243 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 450 | 455 | 780 | 1061 | 240 | 1803 | 1394 | 245 | 1838 | 1475 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.02 | 0.77 | 0.05 | 0.03 | 0.39 | 0.21 | 0.13 | 0.42 | 0.00 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 3 | 2 | 8 | 569 | 0 | 50 | 7 | 675 | 277 | 29 | 736 | 6 |
| Future Volume (veh/h) | 3 | 2 | 8 | 569 | 0 | 50 | 7 | 675 | 277 | 29 | 736 | 6 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1086 | 1086 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1845 | 1845 | 1845 |
| Adj Flow Rate, veh/h | 3 | 2 | 8 | 599 | 0 | 53 | 7 | 711 | 292 | 31 | 775 | 6 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 75 | 75 | 75 | 1 | 1 | 1 | 5 | 5 | 5 | 3 | 3 | 3 |
| Cap, veh/h | 4 | 10 | 39 | 634 | 0 | 641 | 16 | 934 | 424 | 57 | 1035 | 1018 |
| Arrive On Green | 0.00 | 0.05 | 0.05 | 0.35 | 0.00 | 0.40 | 0.01 | 0.27 | 0.27 | 0.03 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1034 | 190 | 761 | 1792 | 0 | 1599 | 1723 | 3438 | 1538 | 1757 | 3505 | 1568 |
| Grp Volume(v), veh/h | 3 | 0 | 10 | 599 | 0 | 53 | 7 | 711 | 292 | 31 | 775 | 6 |
| Grp Sat Flow(s),veh/h/ln | 1034 | 0 | 951 | 1792 | 0 | 1599 | 1723 | 1719 | 1538 | 1757 | 1752 | 1568 |
| Q Serve(g_s), s | 0.2 | 0.0 | 0.7 | 22.3 | 0.0 | 1.4 | 0.3 | 13.1 | 11.7 | 1.2 | 13.8 | 0.1 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 0.7 | 22.3 | 0.0 | 1.4 | 0.3 | 13.1 | 11.7 | 1.2 | 13.8 | 0.1 |
| Prop In Lane | 1.00 | | 0.80 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 4 | 0 | 48 | 634 | 0 | 641 | 16 | 934 | 424 | 57 | 1035 | 1018 |
| V/C Ratio(X) | 0.72 | 0.00 | 0.21 | 0.94 | 0.00 | 0.08 | 0.45 | 0.76 | 0.69 | 0.54 | 0.75 | 0.01 |
| Avail Cap(c_a), veh/h | 376 | 0 | 373 | 651 | 0 | 641 | 200 | 1500 | 677 | 204 | 1529 | 1239 |
| 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(l) | 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 | 34.2 | 0.0 | 31.3 | 21.6 | 0.0 | 12.8 | 33.9 | 23.0 | 22.3 | 32.8 | 21.9 | 4.2 |
| Incr Delay (d2), s/veh | 59.3 | 0.0 | 0.8 | 21.9 | 0.0 | 0.0 | 7.2 | 0.5 | 0.7 | 3.0 | 0.5 | 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 | 0.1 | 0.0 | 0.2 | 14.8 | 0.0 | 0.6 | 0.2 | 6.2 | 5.0 | 0.6 | 6.6 | 0.0 |
| LnGrp Delay(d),s/veh | 93.5 | 0.0 | 32.1 | 43.4 | 0.0 | 12.8 | 41.1 | 23.5 | 23.0 | 35.7 | 22.4 | 4.2 |
| LnGrp LOS | F | | C | D | | B | D | C | C | D | C | A |
| Approach Vol, veh/h | | | | | 652 | | | 1010 | | | 812 | |
| Approach Delay, s/veh | | 46.3 | | | 40.9 | | | 23.5 | | | 22.8 | |
| 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 | 29.4 | 8.5 | 7.2 | 23.7 | 5.3 | 32.6 | 5.6 | 25.3 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 24.3 | 2.7 | 3.2 | 15.1 | 2.2 | 3.4 | 2.3 | 15.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.1 | 0.0 | 3.6 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 27.9 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↖ | ↗ | ↖ | ↗ |
| Traffic Volume (vph) | 105 | 96 | 237 | 134 | 59 | 161 |
| Future Volume (vph) | 105 | 96 | 237 | 134 | 59 | 161 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1671 | 1759 | 1881 | 1599 | 1671 | 1495 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1671 | 1759 | 1881 | 1599 | 1671 | 1495 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 147 | | 177 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 8% | 8% | 1% | 1% | 8% | 8% |
| Adj. Flow (vph) | 115 | 105 | 260 | 147 | 65 | 177 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 115 | 105 | 260 | 147 | 65 | 177 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Number of Detectors | 1 | 2 | 2 | 1 | 1 | 1 |
| Detector Template | Left | Thru | Thru | Right | Left | Right |
| Leading Detector (ft) | 20 | 100 | 100 | 20 | 20 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | 6 | 20 | 20 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | 94 | | | |
| Detector 2 Size(ft) | | 6 | 6 | | | |
| Detector 2 Type | | Cl+Ex | Cl+Ex | | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | |
| Turn Type | Prot | NA | NA | pm+ov | Prot | pm+ov |
| Protected Phases | 5 | 2 | 6 | 4 | 4 | 5 |
| Permitted Phases | | | | 6 | | 4 |
| Detector Phase | 5 | 2 | 6 | 4 | 4 | 5 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split (s) | 15.0 | 40.0 | 25.0 | 20.0 | 20.0 | 15.0 |
| Total Split (%) | 25.0% | 66.7% | 41.7% | 33.3% | 33.3% | 25.0% |
| Maximum Green (s) | 11.0 | 36.0 | 21.0 | 16.0 | 16.0 | 11.0 |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | | Lag | | | Lead |
| Lead-Lag Optimize? | Yes | | Yes | | | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | Min | None | None | None |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 8.1 | 25.6 | 16.1 | 24.7 | 7.2 | 16.7 |
| Actuated g/C Ratio | 0.22 | 0.69 | 0.43 | 0.66 | 0.19 | 0.45 |
| v/c Ratio | 0.32 | 0.09 | 0.32 | 0.13 | 0.20 | 0.23 |
| Control Delay | 16.7 | 3.5 | 12.9 | 1.3 | 16.5 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 16.7 | 3.5 | 12.9 | 1.3 | 16.5 | 2.2 |
| LOS | B | A | B | A | B | A |
| Approach Delay | | 10.4 | 8.7 | | 6.0 | |
| Approach LOS | | B | A | | A | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 37.2 |
| Natural Cycle: | 50 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.32 |
| Intersection Signal Delay: | 8.4 |
| Intersection Capacity Utilization: | 31.6% |
| Analysis Period (min): | 15 |
| Intersection LOS: | A |
| ICU Level of Service: | A |

Splits and Phases: 6: NE Goodwin Road & NE Ingle Road



Queues

6: NE Goodwin Road & NE Ingle Road

6/4/2016















| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 115 | 105 | 260 | 147 | 65 | 177 |
| v/c Ratio | 0.32 | 0.09 | 0.32 | 0.13 | 0.20 | 0.23 |
| Control Delay | 16.7 | 3.5 | 12.9 | 1.3 | 16.5 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 16.7 | 3.5 | 12.9 | 1.3 | 16.5 | 2.2 |
| Queue Length 50th (ft) | 20 | 7 | 44 | 0 | 12 | 0 |
| Queue Length 95th (ft) | 61 | 21 | 106 | 14 | 41 | 21 |
| Internal Link Dist (ft) | | 2330 | 2530 | | 1720 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 517 | 1610 | 1177 | 1363 | 752 | 890 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.07 | 0.22 | 0.11 | 0.09 | 0.20 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 6: NE Goodwin Road & NE Ingle Road

6/4/2016

| |  |  |  |  |  |  | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|---|
| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
| Lane Configurations |  |  |  |  |  |  | | |
| Traffic Volume (veh/h) | 105 | 96 | 237 | 134 | 59 | 161 | | |
| Future Volume (veh/h) | 105 | 96 | 237 | 134 | 59 | 161 | | |
| Number | 5 | 2 | 6 | 16 | 7 | 14 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1759 | 1759 | 1881 | 1881 | 1759 | 1759 | | |
| Adj Flow Rate, veh/h | 115 | 105 | 260 | 147 | 65 | 177 | | |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | | |
| Percent Heavy Veh, % | 8 | 8 | 1 | 1 | 8 | 8 | | |
| Cap, veh/h | 147 | 916 | 519 | 703 | 275 | 376 | | |
| Arrive On Green | 0.09 | 0.52 | 0.28 | 0.28 | 0.16 | 0.16 | | |
| Sat Flow, veh/h | 1675 | 1759 | 1881 | 1599 | 1675 | 1495 | | |
| Grp Volume(v), veh/h | 115 | 105 | 260 | 147 | 65 | 177 | | |
| Grp Sat Flow(s),veh/h/ln | 1675 | 1759 | 1881 | 1599 | 1675 | 1495 | | |
| Q Serve(g_s), s | 1.7 | 0.8 | 2.9 | 1.4 | 0.9 | 2.6 | | |
| Cycle Q Clear(g_c), s | 1.7 | 0.8 | 2.9 | 1.4 | 0.9 | 2.6 | | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Lane Grp Cap(c), veh/h | 147 | 916 | 519 | 703 | 275 | 376 | | |
| V/C Ratio(X) | 0.78 | 0.11 | 0.50 | 0.21 | 0.24 | 0.47 | | |
| Avail Cap(c_a), veh/h | 726 | 2495 | 1556 | 1585 | 1056 | 1074 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 11.3 | 3.1 | 7.7 | 4.4 | 9.2 | 8.1 | | |
| Incr Delay (d2), s/veh | 8.8 | 0.1 | 0.8 | 0.1 | 0.4 | 0.9 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 1.1 | 0.4 | 1.6 | 0.8 | 0.4 | 2.3 | | |
| LnGrp Delay(d),s/veh | 20.2 | 3.2 | 8.5 | 4.5 | 9.7 | 9.0 | | |
| LnGrp LOS | C | A | A | A | A | A | | |
| Approach Vol, veh/h | | 220 | 407 | | 242 | | | |
| Approach Delay, s/veh | | 12.0 | 7.1 | | 9.2 | | | |
| Approach LOS | | B | A | | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 17.2 | | 8.2 | 6.2 | 11.0 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 36.0 | | 16.0 | 11.0 | 21.0 | | |
| Max Q Clear Time (g_c+I1), s | | 2.8 | | 4.6 | 3.7 | 4.9 | | |
| Green Ext Time (p_c), s | | 2.4 | | 0.5 | 0.1 | 2.1 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 8.9 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 24 | 76 | 109 | 85 | 135 | 367 |
| Future Volume (vph) | 24 | 76 | 109 | 85 | 135 | 367 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 28 | 89 | 128 | 100 | 159 | 432 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 28 | 89 | 128 | 100 | 159 | 432 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 29.3% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

Int Delay, s/veh 2.8

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 24 | 76 | 109 | 85 | 135 | 367 |
| Future Vol, veh/h | 24 | 76 | 109 | 85 | 135 | 367 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 4 | 4 |
| Mvmt Flow | 28 | 89 | 128 | 100 | 159 | 432 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 877 | 128 | 0 0 128 0 |
| Stage 1 | 128 | - | - - - - |
| Stage 2 | 749 | - | - - - - |
| Critical Hdwy | 6.4 | 6.2 | - - 4.14 - |
| Critical Hdwy Stg 1 | 5.4 | - | - - - - |
| Critical Hdwy Stg 2 | 5.4 | - | - - - - |
| Follow-up Hdwy | 3.5 | 3.3 | - - 2.236 - |
| Pot Cap-1 Maneuver | 322 | 927 | - - 1446 - |
| Stage 1 | 903 | - | - - - - |
| Stage 2 | 471 | - | - - - - |
| Platoon blocked, % | | | - - - - |
| Mov Cap-1 Maneuver | 287 | 927 | - - 1446 - |
| Mov Cap-2 Maneuver | 287 | - | - - - - |
| Stage 1 | 903 | - | - - - - |
| Stage 2 | 419 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 11.6 | 0 | 2.1 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|------|-----|
| Capacity (veh/h) | - | - | 287 | 927 | 1446 | - |
| HCM Lane V/C Ratio | - | - | 0.098 | 0.096 | 0.11 | - |
| HCM Control Delay (s) | - | - | 18.9 | 9.3 | 7.8 | - |
| HCM Lane LOS | - | - | C | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.3 | 0.3 | 0.4 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations | ↕ | → | ↘ | ↙ | ↕ | → | ↙ | ↕ | → | ↘ | ↕ | ↙ |
| Traffic Volume (vph) | 139 | 11 | 19 | 26 | 53 | 25 | 91 | 296 | 7 | 11 | 212 | 201 |
| Future Volume (vph) | 139 | 11 | 19 | 26 | 53 | 25 | 91 | 296 | 7 | 11 | 212 | 201 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.952 | | | 0.997 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1827 | 1553 | 1752 | 3337 | 0 | 1770 | 3529 | 0 | 1736 | 1827 | 1553 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1827 | 1553 | 1752 | 3337 | 0 | 1770 | 3529 | 0 | 1736 | 1827 | 1553 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 3% | 3% | 3% | 2% | 2% | 2% | 4% | 4% | 4% |
| Adj. Flow (vph) | 178 | 14 | 24 | 33 | 68 | 32 | 117 | 379 | 9 | 14 | 272 | 258 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 178 | 14 | 24 | 33 | 100 | 0 | 117 | 388 | 0 | 14 | 272 | 258 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 40.6% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 15.6 |
| Intersection LOS | C |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 139 | 11 | 19 | 0 | 26 | 53 | 25 | 0 | 91 | 296 | 7 |
| Future Vol, veh/h | 0 | 139 | 11 | 19 | 0 | 26 | 53 | 25 | 0 | 91 | 296 | 7 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 178 | 14 | 24 | 0 | 33 | 68 | 32 | 0 | 117 | 379 | 9 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |

Approach

| | EB | WB | NB |
|----------------------------|------|------|------|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 3 | 3 | 3 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 3 | 3 | 3 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 3 | 3 | 3 |
| HCM Control Delay | 16.3 | 12.1 | 15.1 |
| HCM LOS | C | B | C |

| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 93% | 0% | 100% | 0% | 0% | 100% | 41% | 0% | 100% |
| Vol Right, % | 0% | 0% | 7% | 0% | 0% | 100% | 0% | 0% | 59% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 91 | 197 | 106 | 139 | 11 | 19 | 26 | 35 | 43 | 11 | 212 |
| LT Vol | 91 | 0 | 0 | 139 | 0 | 0 | 26 | 0 | 0 | 11 | 0 |
| Through Vol | 0 | 197 | 99 | 0 | 11 | 0 | 0 | 35 | 18 | 0 | 212 |
| RT Vol | 0 | 0 | 7 | 0 | 0 | 19 | 0 | 0 | 25 | 0 | 0 |
| Lane Flow Rate | 117 | 253 | 135 | 178 | 14 | 24 | 33 | 45 | 55 | 14 | 272 |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Degree of Util (X) | 0.252 | 0.511 | 0.272 | 0.423 | 0.032 | 0.05 | 0.082 | 0.105 | 0.12 | 0.03 | 0.549 |
| Departure Headway (Hd) | 7.768 | 7.268 | 7.221 | 8.553 | 8.053 | 7.353 | 8.834 | 8.334 | 7.924 | 7.77 | 7.27 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 463 | 496 | 497 | 421 | 445 | 487 | 405 | 430 | 452 | 461 | 497 |
| Service Time | 5.511 | 5.011 | 4.965 | 6.303 | 5.803 | 5.103 | 6.589 | 6.089 | 5.679 | 5.513 | 5.013 |
| HCM Lane V/C Ratio | 0.253 | 0.51 | 0.272 | 0.423 | 0.031 | 0.049 | 0.081 | 0.105 | 0.122 | 0.03 | 0.547 |
| HCM Control Delay | 13.1 | 17.4 | 12.7 | 17.5 | 11.1 | 10.5 | 12.4 | 12.1 | 11.8 | 10.8 | 18.6 |
| HCM Lane LOS | B | C | B | C | B | B | B | B | B | B | C |
| HCM 95th-tile Q | 1 | 2.9 | 1.1 | 2.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.1 | 3.3 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 11 | 212 | 201 |
| Future Vol, veh/h | 0 | 11 | 212 | 201 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 14 | 272 | 258 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

Opposing Approach NB
 Opposing Lanes 3
 Conflicting Approach Left WB
 Conflicting Lanes Left 3
 Conflicting Approach Right EB
 Conflicting Lanes Right 3
 HCM Control Delay 16.7
 HCM LOS C

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 35 | 26 | 2 | 166 | 69 | 154 | 16 | 243 | 71 | 60 | 190 | 37 |
| Future Volume (vph) | 35 | 26 | 2 | 166 | 69 | 154 | 16 | 243 | 71 | 60 | 190 | 37 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.946 | | | 0.971 | | | 0.983 | |
| Fl _t Protected | | 0.973 | | | 0.979 | | | 0.998 | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1737 | 0 | 0 | 1708 | 0 | 0 | 1721 | 0 | 0 | 1778 | 0 |
| Fl _t Permitted | | 0.973 | | | 0.979 | | | 0.998 | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1737 | 0 | 0 | 1708 | 0 | 0 | 1721 | 0 | 0 | 1778 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 3% | 3% | 3% | 7% | 7% | 7% | 4% | 4% | 4% |
| Adj. Flow (vph) | 43 | 32 | 2 | 202 | 84 | 188 | 20 | 296 | 87 | 73 | 232 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 77 | 0 | 0 | 474 | 0 | 0 | 403 | 0 | 0 | 350 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 68.1% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

HCM 2010 AWSC
 9: NW Brady Road & NW 16th Avenue

6/4/2016

| Intersection | | | | | | | | | | | | |
|----------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Intersection Delay, s/veh | 28.2 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
| Traffic Vol, veh/h | 0 | 35 | 26 | 2 | 0 | 166 | 69 | 154 | 0 | 16 | 243 | 71 |
| Future Vol, veh/h | 0 | 35 | 26 | 2 | 0 | 166 | 69 | 154 | 0 | 16 | 243 | 71 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 6 | 6 | 6 | 2 | 3 | 3 | 3 | 2 | 7 | 7 | 7 |
| Mvmt Flow | 0 | 43 | 32 | 2 | 0 | 202 | 84 | 188 | 0 | 20 | 296 | 87 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Approach | EB | | | | WB | | | | NB | | | |
| Opposing Approach | WB | | | | EB | | | | SB | | | |
| Opposing Lanes | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Left | SB | | | | NB | | | | EB | | | |
| Conflicting Lanes Left | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Right | NB | | | | SB | | | | WB | | | |
| Conflicting Lanes Right | 1 | | | | 1 | | | | 1 | | | |
| HCM Control Delay | 12.9 | | | | 36.3 | | | | 26.8 | | | |
| HCM LOS | B | | | | E | | | | D | | | |
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 | | | | | | | | |
| Vol Left, % | 5% | 56% | 43% | 21% | | | | | | | | |
| Vol Thru, % | 74% | 41% | 18% | 66% | | | | | | | | |
| Vol Right, % | 22% | 3% | 40% | 13% | | | | | | | | |
| Sign Control | Stop | Stop | Stop | Stop | | | | | | | | |
| Traffic Vol by Lane | 330 | 63 | 389 | 287 | | | | | | | | |
| LT Vol | 16 | 35 | 166 | 60 | | | | | | | | |
| Through Vol | 243 | 26 | 69 | 190 | | | | | | | | |
| RT Vol | 71 | 2 | 154 | 37 | | | | | | | | |
| Lane Flow Rate | 402 | 77 | 474 | 350 | | | | | | | | |
| Geometry Grp | 1 | 1 | 1 | 1 | | | | | | | | |
| Degree of Util (X) | 0.743 | 0.174 | 0.851 | 0.661 | | | | | | | | |
| Departure Headway (Hd) | 6.649 | 8.144 | 6.457 | 6.897 | | | | | | | | |
| Convergence, Y/N | Yes | Yes | Yes | Yes | | | | | | | | |
| Cap | 539 | 443 | 555 | 529 | | | | | | | | |
| Service Time | 4.747 | 6.144 | 4.542 | 4.897 | | | | | | | | |
| HCM Lane V/C Ratio | 0.746 | 0.174 | 0.854 | 0.662 | | | | | | | | |
| HCM Control Delay | 26.8 | 12.9 | 36.3 | 22.3 | | | | | | | | |
| HCM Lane LOS | D | B | E | C | | | | | | | | |
| HCM 95th-tile Q | 6.3 | 0.6 | 9.1 | 4.8 | | | | | | | | |

| Intersection | | | | |
|----------------------------|------|------|------|------|
| Intersection Delay, s/veh | | | | |
| Intersection LOS | | | | |
| Movement | SBU | SBL | SBT | SBR |
| Traffic Vol, veh/h | 0 | 60 | 190 | 37 |
| Future Vol, veh/h | 0 | 60 | 190 | 37 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 73 | 232 | 45 |
| Number of Lanes | 0 | 0 | 1 | 0 |
| Approach | | SB | | |
| Opposing Approach | | NB | | |
| Opposing Lanes | | 1 | | |
| Conflicting Approach Left | | WB | | |
| Conflicting Lanes Left | | 1 | | |
| Conflicting Approach Right | | EB | | |
| Conflicting Lanes Right | | 1 | | |
| HCM Control Delay | | 22.3 | | |
| HCM LOS | | C | | |
| Lane | | | | |

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 133 | 14 | 242 | 45 | 6 | 371 |
| Future Volume (vph) | 133 | 14 | 242 | 45 | 6 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.979 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1789 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1789 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Heavy Vehicles (%) | 2% | 2% | 4% | 4% | 1% | 1% |
| Adj. Flow (vph) | 160 | 17 | 292 | 54 | 7 | 447 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 160 | 17 | 346 | 0 | 7 | 447 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 33.6% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 3.9 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 133 | 14 | 242 | 45 | 6 | 371 |
| Future Vol, veh/h | 133 | 14 | 242 | 45 | 6 | 371 |
| 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 | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 4 | 4 | 1 | 1 |
| Mvmt Flow | 160 | 17 | 292 | 54 | 7 | 447 |

| Major/Minor | Minor1 | Minor2 | Major1 | Major2 | Major3 | Major4 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 780 | 319 | 0 | 0 | 346 | 0 |
| Stage 1 | 319 | - | - | - | - | - |
| Stage 2 | 461 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.11 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.209 | - |
| Pot Cap-1 Maneuver | 364 | 722 | - | - | 1219 | - |
| Stage 1 | 737 | - | - | - | - | - |
| Stage 2 | 635 | - | - | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 362 | 722 | - | - | 1219 | - |
| Mov Cap-2 Maneuver | 362 | - | - | - | - | - |
| Stage 1 | 737 | - | - | - | - | - |
| Stage 2 | 631 | - | - | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 21.4 | 0 | 0.1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 362 | 722 | 1219 | - |
| HCM Lane V/C Ratio | - | - | 0.443 | 0.023 | 0.006 | - |
| HCM Control Delay (s) | - | - | 22.6 | 10.1 | 8 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 2.2 | 0.1 | 0 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 46 | 270 | 249 | 0 | 0 | 26 |
| Future Volume (vph) | 46 | 270 | 249 | 0 | 0 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Fr t | | | | | 0.865 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1752 | 3505 | 3539 | 0 | 1644 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1752 | 3505 | 3539 | 0 | 1644 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1600 | 2066 | | 1710 | |
| Travel Time (s) | | 27.3 | 35.2 | | 38.9 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 51 | 297 | 274 | 0 | 0 | 29 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 51 | 297 | 274 | 0 | 29 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 23.5% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

Int Delay, s/veh 1

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 46 | 270 | 249 | 0 | 0 | 26 |
| Future Vol, veh/h | 46 | 270 | 249 | 0 | 0 | 26 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Mvmt Flow | 51 | 297 | 274 | 0 | 0 | 29 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 274 | 0 | 523 |
| Stage 1 | - | - | 274 |
| Stage 2 | - | - | 249 |
| Critical Hdwy | 4.16 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.23 | - | 3.5 |
| Pot Cap-1 Maneuver | 1279 | - | 489 |
| Stage 1 | - | - | 753 |
| Stage 2 | - | - | 775 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1279 | - | 470 |
| Mov Cap-2 Maneuver | - | - | 470 |
| Stage 1 | - | - | 753 |
| Stage 2 | - | - | 744 |

| Approach | EB | WB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 1.2 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|------|-----|-----|-----|-------|
| Capacity (veh/h) | 1279 | - | - | - | 893 |
| HCM Lane V/C Ratio | 0.04 | - | - | - | 0.032 |
| HCM Control Delay (s) | 7.9 | - | - | - | 9.2 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 134 | 142 | 470 | 286 | 120 | 364 |
| Future Volume (vph) | 134 | 142 | 470 | 286 | 120 | 364 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.931 | | 0.949 | | | |
| Flt Protected | 0.976 | | | | 0.950 | |
| Satd. Flow (prot) | 1709 | 0 | 1785 | 0 | 1752 | 1845 |
| Flt Permitted | 0.976 | | | | 0.950 | |
| Satd. Flow (perm) | 1709 | 0 | 1785 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 40 | | 27 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 3% | 3% |
| Adj. Flow (vph) | 146 | 154 | 511 | 311 | 130 | 396 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 300 | 0 | 822 | 0 | 130 | 396 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

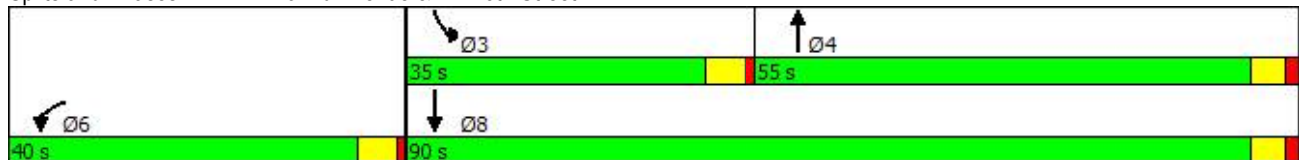


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 20.6 | | 50.5 | | 12.9 | 68.4 |
| Actuated g/C Ratio | 0.21 | | 0.51 | | 0.13 | 0.69 |
| v/c Ratio | 0.78 | | 0.89 | | 0.57 | 0.31 |
| Control Delay | 46.5 | | 37.0 | | 52.0 | 7.6 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 46.5 | | 37.0 | | 52.0 | 7.6 |
| LOS | D | | D | | D | A |
| Approach Delay | 46.5 | | 37.0 | | | 18.6 |
| Approach LOS | D | | D | | | B |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 99.1 |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.89 |
| Intersection Signal Delay: | 32.8 |
| Intersection Capacity Utilization | 77.5% |
| Analysis Period (min) | 15 |
| Intersection LOS: | C |
| ICU Level of Service | D |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/4/2016













| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 300 | 822 | 130 | 396 |
| v/c Ratio | 0.78 | 0.89 | 0.57 | 0.31 |
| Control Delay | 46.5 | 37.0 | 52.0 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 46.5 | 37.0 | 52.0 | 7.6 |
| Queue Length 50th (ft) | 155 | 429 | 77 | 86 |
| Queue Length 95th (ft) | 265 | #886 | 150 | 175 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 635 | 922 | 535 | 1598 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.89 | 0.24 | 0.25 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

| |  |  |  |  |  |  | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations |  | |  | |  |  | | |
| Traffic Volume (veh/h) | 134 | 142 | 470 | 286 | 120 | 364 | | |
| Future Volume (veh/h) | 134 | 142 | 470 | 286 | 120 | 364 | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1881 | 1900 | 1881 | 1900 | 1845 | 1845 | | |
| Adj Flow Rate, veh/h | 146 | 154 | 511 | 311 | 130 | 396 | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 0 | 0 | 1 | 1 | 3 | 3 | | |
| Cap, veh/h | 169 | 178 | 570 | 347 | 167 | 1245 | | |
| Arrive On Green | 0.21 | 0.21 | 0.52 | 0.52 | 0.09 | 0.67 | | |
| Sat Flow, veh/h | 819 | 864 | 1096 | 667 | 1757 | 1845 | | |
| Grp Volume(v), veh/h | 301 | 0 | 0 | 822 | 130 | 396 | | |
| Grp Sat Flow(s),veh/h/ln | 1688 | 0 | 0 | 1763 | 1757 | 1845 | | |
| Q Serve(g_s), s | 14.5 | 0.0 | 0.0 | 35.2 | 6.1 | 7.5 | | |
| Cycle Q Clear(g_c), s | 14.5 | 0.0 | 0.0 | 35.2 | 6.1 | 7.5 | | |
| Prop In Lane | 0.49 | 0.51 | | 0.38 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 348 | 0 | 0 | 917 | 167 | 1245 | | |
| V/C Ratio(X) | 0.86 | 0.00 | 0.00 | 0.90 | 0.78 | 0.32 | | |
| Avail Cap(c_a), veh/h | 703 | 0 | 0 | 1049 | 627 | 1866 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(l) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 32.2 | 0.0 | 0.0 | 18.1 | 37.2 | 5.7 | | |
| Incr Delay (d2), s/veh | 6.4 | 0.0 | 0.0 | 9.3 | 7.6 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.4 | 0.0 | 0.0 | 19.3 | 3.3 | 3.8 | | |
| LnGrp Delay(d),s/veh | 38.7 | 0.0 | 0.0 | 27.4 | 44.8 | 5.8 | | |
| LnGrp LOS | D | | | C | D | A | | |
| Approach Vol, veh/h | 301 | | 822 | | | 526 | | |
| Approach Delay, s/veh | 38.7 | | 27.4 | | | 15.4 | | |
| Approach LOS | D | | C | | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 13.0 | 48.7 | | 22.3 | | 61.7 |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 |
| Max Q Clear Time (g_c+I1), s | | | 8.1 | 37.2 | | 16.5 | | 9.5 |
| Green Ext Time (p_c), s | | | 0.3 | 6.5 | | 0.9 | | 11.5 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 25.7 | | | | | |
| HCM 2010 LOS | | | C | | | | | |
| Notes | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 253 | 47 | 417 | 304 | 99 | 82 | 601 | 297 | 116 | 301 | 56 |
| Future Volume (vph) | 174 | 253 | 47 | 417 | 304 | 99 | 82 | 601 | 297 | 116 | 301 | 56 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.977 | | | | 0.850 | | | 0.850 | | 0.977 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3502 | 3527 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3458 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3502 | 3527 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3458 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 22 | | | | 85 | | | 278 | | | 23 |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 181 | 264 | 49 | 434 | 317 | 103 | 85 | 626 | 309 | 121 | 314 | 58 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 181 | 313 | 0 | 434 | 317 | 103 | 85 | 626 | 309 | 121 | 372 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

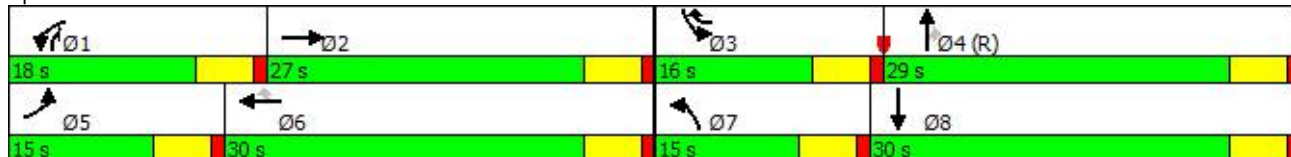


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 9.2 | 16.5 | | 13.0 | 20.3 | 35.6 | 9.0 | 30.2 | 48.2 | 10.4 | 33.8 | |
| Actuated g/C Ratio | 0.10 | 0.18 | | 0.14 | 0.23 | 0.40 | 0.10 | 0.34 | 0.54 | 0.12 | 0.38 | |
| v/c Ratio | 0.51 | 0.47 | | 0.88 | 0.76 | 0.15 | 0.48 | 0.53 | 0.32 | 0.60 | 0.28 | |
| Control Delay | 43.3 | 31.9 | | 58.1 | 44.2 | 5.2 | 47.4 | 27.7 | 3.5 | 50.0 | 21.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 43.3 | 31.9 | | 58.1 | 44.2 | 5.2 | 47.4 | 27.7 | 3.5 | 50.0 | 21.6 | |
| LOS | D | C | | E | D | A | D | C | A | D | C | |
| Approach Delay | | 36.1 | | | 46.5 | | | 22.0 | | | 28.6 | |
| Approach LOS | | D | | | D | | | C | | | C | |

Intersection Summary

| | |
|------------------------------------|-----------------------------------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 77 (86%), Referenced to phase 4:NBT, Start of Green |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Coordinated |
| Maximum v/c Ratio: | 0.88 |
| Intersection Signal Delay: | 32.9 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 60.7% |
| ICU Level of Service: | B |
| Analysis Period (min): | 15 |

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016


























| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 181 | 313 | 434 | 317 | 103 | 85 | 626 | 309 | 121 | 372 |
| v/c Ratio | 0.51 | 0.47 | 0.88 | 0.76 | 0.15 | 0.48 | 0.53 | 0.32 | 0.60 | 0.28 |
| Control Delay | 43.3 | 31.9 | 58.1 | 44.2 | 5.2 | 47.4 | 27.7 | 3.5 | 50.0 | 21.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.3 | 31.9 | 58.1 | 44.2 | 5.2 | 47.4 | 27.7 | 3.5 | 50.0 | 21.6 |
| Queue Length 50th (ft) | 50 | 76 | 126 | 169 | 6 | 46 | 155 | 8 | 66 | 76 |
| Queue Length 95th (ft) | 83 | 109 | #208 | 245 | 33 | 92 | 225 | 54 | 122 | 124 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 389 | 878 | 495 | 517 | 695 | 201 | 1186 | 976 | 225 | 1311 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.36 | 0.88 | 0.61 | 0.15 | 0.42 | 0.53 | 0.32 | 0.54 | 0.28 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 174 | 253 | 47 | 417 | 304 | 99 | 82 | 601 | 297 | 116 | 301 | 56 |
| Future Volume (veh/h) | 174 | 253 | 47 | 417 | 304 | 99 | 82 | 601 | 297 | 116 | 301 | 56 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1900 | 1900 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 181 | 264 | 49 | 434 | 317 | 103 | 85 | 626 | 309 | 121 | 314 | 58 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 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, % | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 259 | 430 | 79 | 497 | 395 | 433 | 109 | 1439 | 760 | 152 | 1288 | 235 |
| Arrive On Green | 0.07 | 0.14 | 0.14 | 0.14 | 0.21 | 0.21 | 0.06 | 0.41 | 0.41 | 0.09 | 0.43 | 0.43 |
| Sat Flow, veh/h | 3510 | 3049 | 558 | 3442 | 1863 | 1583 | 1774 | 3539 | 1583 | 1774 | 2990 | 546 |
| Grp Volume(v), veh/h | 181 | 155 | 158 | 434 | 317 | 103 | 85 | 626 | 309 | 121 | 184 | 188 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 1805 | 1802 | 1721 | 1863 | 1583 | 1774 | 1770 | 1583 | 1774 | 1770 | 1766 |
| Q Serve(g_s), s | 4.5 | 7.2 | 7.4 | 11.1 | 14.5 | 4.5 | 4.3 | 11.5 | 11.3 | 6.0 | 6.0 | 6.1 |
| Cycle Q Clear(g_c), s | 4.5 | 7.2 | 7.4 | 11.1 | 14.5 | 4.5 | 4.3 | 11.5 | 11.3 | 6.0 | 6.0 | 6.1 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.31 |
| Lane Grp Cap(c), veh/h | 259 | 255 | 254 | 497 | 395 | 433 | 109 | 1439 | 760 | 152 | 762 | 761 |
| V/C Ratio(X) | 0.70 | 0.61 | 0.62 | 0.87 | 0.80 | 0.24 | 0.78 | 0.43 | 0.41 | 0.80 | 0.24 | 0.25 |
| Avail Cap(c_a), veh/h | 390 | 441 | 440 | 497 | 517 | 537 | 197 | 1439 | 760 | 217 | 762 | 761 |
| 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 | 0.85 | 0.85 | 0.85 |
| Uniform Delay (d), s/veh | 40.7 | 36.3 | 36.4 | 37.7 | 33.7 | 25.4 | 41.6 | 19.2 | 15.1 | 40.4 | 16.3 | 16.3 |
| Incr Delay (d2), s/veh | 3.4 | 2.3 | 2.5 | 15.7 | 6.8 | 0.3 | 11.2 | 1.0 | 1.6 | 10.9 | 0.6 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.3 | 3.8 | 3.9 | 6.3 | 8.2 | 2.0 | 2.4 | 5.8 | 5.3 | 3.4 | 3.1 | 3.1 |
| LnGrp Delay(d),s/veh | 44.1 | 38.6 | 38.9 | 53.3 | 40.5 | 25.7 | 52.8 | 20.2 | 16.7 | 51.2 | 16.9 | 17.0 |
| LnGrp LOS | D | D | D | D | D | C | D | C | B | D | B | B |
| Approach Vol, veh/h | | 494 | | | 854 | | | 1020 | | | | 493 |
| Approach Delay, s/veh | | 40.7 | | | 45.2 | | | 21.9 | | | | 25.4 |
| 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 | 18.0 | 17.7 | 12.7 | 41.6 | 11.6 | 24.1 | 10.5 | 43.8 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 13.1 | 9.4 | 8.0 | 13.5 | 6.5 | 16.5 | 6.3 | 8.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.1 | 0.1 | 5.2 | 0.2 | 2.5 | 0.0 | 6.8 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 32.7 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↘ | ↖ | ↗↘ | | ↖ | ↗ | | ↖ | ↗ | |
| Traffic Volume (vph) | 58 | 452 | 253 | 43 | 235 | 109 | 238 | 162 | 66 | 76 | 148 | 61 |
| Future Volume (vph) | 58 | 452 | 253 | 43 | 235 | 109 | 238 | 162 | 66 | 76 | 148 | 61 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.953 | | | 0.956 | | | 0.956 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1805 | 3440 | 0 | 1770 | 1781 | 0 | 1752 | 1763 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1805 | 3440 | 0 | 1770 | 1781 | 0 | 1752 | 1763 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 275 | | 91 | | | 26 | | | 20 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2066 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 35.2 | | | 171.3 | | | 22.1 | | | 36.2 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 63 | 491 | 275 | 47 | 255 | 118 | 259 | 176 | 72 | 83 | 161 | 66 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 63 | 491 | 275 | 47 | 373 | 0 | 259 | 248 | 0 | 83 | 227 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

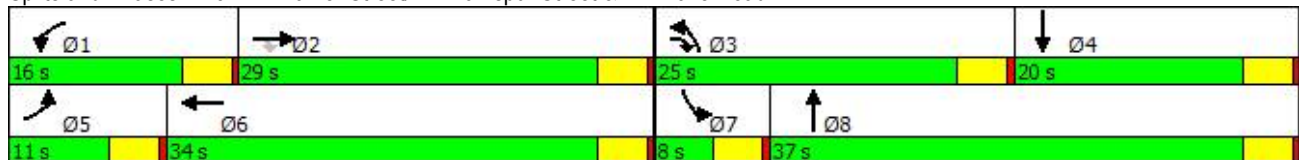


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 6.9 | 23.6 | 43.5 | 7.7 | 24.5 | | 15.7 | 24.7 | | 4.3 | 13.2 | |
| Actuated g/C Ratio | 0.10 | 0.33 | 0.61 | 0.11 | 0.34 | | 0.22 | 0.34 | | 0.06 | 0.18 | |
| v/c Ratio | 0.37 | 0.80 | 0.26 | 0.24 | 0.30 | | 0.67 | 0.39 | | 0.80 | 0.67 | |
| Control Delay | 42.8 | 37.1 | 1.9 | 37.8 | 15.7 | | 37.4 | 19.0 | | 90.4 | 38.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 42.8 | 37.1 | 1.9 | 37.8 | 15.7 | | 37.4 | 19.0 | | 90.4 | 38.4 | |
| LOS | D | D | A | D | B | | D | B | | F | D | |
| Approach Delay | | 25.9 | | | 18.1 | | | 28.4 | | | 52.3 | |
| Approach LOS | | C | | | B | | | C | | | D | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 71.8 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.80 |
| Intersection Signal Delay: | 28.9 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 65.1% |
| ICU Level of Service: | C |
| Analysis Period (min): | 15 |

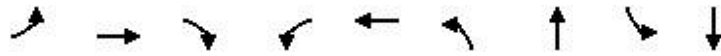
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 63 | 491 | 275 | 47 | 373 | 259 | 248 | 83 | 227 |
| v/c Ratio | 0.37 | 0.80 | 0.26 | 0.24 | 0.30 | 0.67 | 0.39 | 0.80 | 0.67 |
| Control Delay | 42.8 | 37.1 | 1.9 | 37.8 | 15.7 | 37.4 | 19.0 | 90.4 | 38.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.8 | 37.1 | 1.9 | 37.8 | 15.7 | 37.4 | 19.0 | 90.4 | 38.4 |
| Queue Length 50th (ft) | 31 | 229 | 0 | 22 | 54 | 121 | 82 | 43 | 97 |
| Queue Length 95th (ft) | 74 | #452 | 32 | 57 | 96 | 210 | 148 | #142 | #200 |
| Internal Link Dist (ft) | | 1986 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 185 | 697 | 1200 | 321 | 1581 | 551 | 885 | 104 | 433 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.34 | 0.70 | 0.23 | 0.15 | 0.24 | 0.47 | 0.28 | 0.80 | 0.52 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 58 | 452 | 253 | 43 | 235 | 109 | 238 | 162 | 66 | 76 | 148 | 61 |
| Future Volume (veh/h) | 58 | 452 | 253 | 43 | 235 | 109 | 238 | 162 | 66 | 76 | 148 | 61 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1881 | 1900 | 1900 | 1900 | 1863 | 1863 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 63 | 491 | 275 | 47 | 255 | 118 | 259 | 176 | 72 | 83 | 161 | 66 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 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 | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 3 | 3 |
| Cap, veh/h | 80 | 632 | 825 | 66 | 794 | 357 | 320 | 378 | 155 | 105 | 225 | 92 |
| Arrive On Green | 0.04 | 0.34 | 0.34 | 0.04 | 0.33 | 0.33 | 0.18 | 0.30 | 0.30 | 0.06 | 0.18 | 0.18 |
| Sat Flow, veh/h | 1792 | 1881 | 1599 | 1810 | 2423 | 1089 | 1774 | 1258 | 514 | 1757 | 1244 | 510 |
| Grp Volume(v), veh/h | 63 | 491 | 275 | 47 | 188 | 185 | 259 | 0 | 248 | 83 | 0 | 227 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 1881 | 1599 | 1810 | 1805 | 1708 | 1774 | 0 | 1772 | 1757 | 0 | 1755 |
| Q Serve(g_s), s | 2.1 | 14.0 | 6.0 | 1.5 | 4.7 | 4.9 | 8.4 | 0.0 | 6.8 | 2.8 | 0.0 | 7.3 |
| Cycle Q Clear(g_c), s | 2.1 | 14.0 | 6.0 | 1.5 | 4.7 | 4.9 | 8.4 | 0.0 | 6.8 | 2.8 | 0.0 | 7.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.64 | 1.00 | | 0.29 | 1.00 | | 0.29 |
| Lane Grp Cap(c), veh/h | 80 | 632 | 825 | 66 | 591 | 559 | 320 | 0 | 533 | 105 | 0 | 317 |
| V/C Ratio(X) | 0.79 | 0.78 | 0.33 | 0.72 | 0.32 | 0.33 | 0.81 | 0.00 | 0.47 | 0.79 | 0.00 | 0.72 |
| Avail Cap(c_a), veh/h | 209 | 785 | 956 | 363 | 904 | 856 | 622 | 0 | 977 | 117 | 0 | 469 |
| 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(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.3 | 17.9 | 8.5 | 28.6 | 15.1 | 15.2 | 23.6 | 0.0 | 17.0 | 27.8 | 0.0 | 23.1 |
| Incr Delay (d2), s/veh | 15.6 | 3.9 | 0.2 | 13.6 | 0.3 | 0.3 | 4.9 | 0.0 | 0.6 | 26.9 | 0.0 | 3.0 |
| 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 | 1.4 | 7.9 | 2.7 | 1.0 | 2.3 | 2.4 | 4.5 | 0.0 | 3.4 | 2.1 | 0.0 | 3.8 |
| LnGrp Delay(d),s/veh | 44.0 | 21.8 | 8.7 | 42.1 | 15.4 | 15.5 | 28.5 | 0.0 | 17.6 | 54.7 | 0.0 | 26.1 |
| LnGrp LOS | D | C | A | D | B | B | C | | B | D | | C |
| Approach Vol, veh/h | | 829 | | | 420 | | | 507 | | | 310 | |
| Approach Delay, s/veh | | 19.2 | | | 18.5 | | | 23.2 | | | 33.8 | |
| Approach LOS | | B | | | B | | | 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 | 6.2 | 24.1 | 14.8 | 14.8 | 6.7 | 23.6 | 7.6 | 22.0 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+1), s | 3.5 | 16.0 | 10.4 | 9.3 | 4.1 | 6.9 | 4.8 | 8.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.1 | 0.5 | 1.5 | 0.0 | 6.5 | 0.0 | 2.8 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 22.2 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 76 | 212 | 62 | 102 | 92 | 57 | 44 | 262 | 191 | 68 | 291 | 68 |
| Future Volume (vph) | 76 | 212 | 62 | 102 | 92 | 57 | 44 | 262 | 191 | 68 | 291 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.966 | | | 0.942 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1817 | 0 | 1805 | 1790 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1817 | 0 | 1805 | 1790 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 24 | | | 51 | | | | 203 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 81 | 226 | 66 | 109 | 98 | 61 | 47 | 279 | 203 | 72 | 310 | 72 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 81 | 292 | 0 | 109 | 159 | 0 | 47 | 279 | 203 | 72 | 310 | 72 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.8 | 12.9 | | 7.9 | 13.0 | | 4.6 | 13.0 | 25.5 | 4.6 | 14.4 | 26.8 |
| Actuated g/C Ratio | 0.16 | 0.27 | | 0.17 | 0.27 | | 0.10 | 0.27 | 0.54 | 0.10 | 0.30 | 0.56 |
| v/c Ratio | 0.28 | 0.57 | | 0.36 | 0.30 | | 0.27 | 0.54 | 0.21 | 0.42 | 0.54 | 0.08 |
| Control Delay | 25.3 | 21.4 | | 26.5 | 14.0 | | 30.3 | 22.0 | 2.4 | 36.9 | 20.6 | 2.1 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.3 | 21.4 | | 26.5 | 14.0 | | 30.3 | 22.0 | 2.4 | 36.9 | 20.6 | 2.1 |
| LOS | C | C | | C | B | | C | C | A | D | C | A |
| Approach Delay | | 22.2 | | | 19.1 | | | 15.2 | | | 20.3 | |
| Approach LOS | | C | | | B | | | B | | | C | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 47.5 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.57 |
| Intersection Signal Delay: | 18.9 |
| Intersection Capacity Utilization | 52.6% |
| Analysis Period (min) | 15 |
| Intersection LOS: | B |
| ICU Level of Service | A |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| | | | |
| 12 s | 20 s | 8 s | 20 s |
| | | | |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 81 | 292 | 109 | 159 | 47 | 279 | 203 | 72 | 310 | 72 |
| v/c Ratio | 0.28 | 0.57 | 0.36 | 0.30 | 0.27 | 0.54 | 0.21 | 0.42 | 0.54 | 0.08 |
| Control Delay | 25.3 | 21.4 | 26.5 | 14.0 | 30.3 | 22.0 | 2.4 | 36.9 | 20.6 | 2.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.3 | 21.4 | 26.5 | 14.0 | 30.3 | 22.0 | 2.4 | 36.9 | 20.6 | 2.1 |
| Queue Length 50th (ft) | 24 | 77 | 33 | 28 | 15 | 81 | 0 | 23 | 71 | 0 |
| Queue Length 95th (ft) | 62 | 152 | 79 | 72 | #46 | 153 | 29 | #80 | 171 | 13 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 344 | 715 | 347 | 721 | 172 | 724 | 989 | 172 | 760 | 985 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.41 | 0.31 | 0.22 | 0.27 | 0.39 | 0.21 | 0.42 | 0.41 | 0.07 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 76 | 212 | 62 | 102 | 92 | 57 | 44 | 262 | 191 | 68 | 291 | 68 |
| Future Volume (veh/h) | 76 | 212 | 62 | 102 | 92 | 57 | 44 | 262 | 191 | 68 | 291 | 68 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1900 | 1900 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 81 | 226 | 66 | 109 | 98 | 61 | 47 | 279 | 203 | 72 | 310 | 72 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 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, % | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 105 | 328 | 96 | 141 | 278 | 173 | 72 | 468 | 523 | 97 | 495 | 514 |
| Arrive On Green | 0.06 | 0.23 | 0.23 | 0.08 | 0.25 | 0.25 | 0.04 | 0.25 | 0.25 | 0.05 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1792 | 1400 | 409 | 1810 | 1097 | 683 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Grp Volume(v), veh/h | 81 | 0 | 292 | 109 | 0 | 159 | 47 | 279 | 203 | 72 | 310 | 72 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 0 | 1809 | 1810 | 0 | 1780 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Q Serve(g_s), s | 1.9 | 0.0 | 6.1 | 2.5 | 0.0 | 3.0 | 1.1 | 5.4 | 4.1 | 1.6 | 6.0 | 1.3 |
| Cycle Q Clear(g_c), s | 1.9 | 0.0 | 6.1 | 2.5 | 0.0 | 3.0 | 1.1 | 5.4 | 4.1 | 1.6 | 6.0 | 1.3 |
| Prop In Lane | 1.00 | | 0.23 | 1.00 | | 0.38 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 105 | 0 | 424 | 141 | 0 | 451 | 72 | 468 | 523 | 97 | 495 | 514 |
| V/C Ratio(X) | 0.77 | 0.00 | 0.69 | 0.77 | 0.00 | 0.35 | 0.65 | 0.60 | 0.39 | 0.74 | 0.63 | 0.14 |
| Avail Cap(c_a), veh/h | 345 | 0 | 696 | 348 | 0 | 685 | 172 | 724 | 740 | 172 | 724 | 709 |
| 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 | 19.3 | 0.0 | 14.5 | 18.8 | 0.0 | 12.7 | 19.7 | 13.8 | 10.8 | 19.4 | 13.5 | 10.0 |
| Incr Delay (d2), s/veh | 11.4 | 0.0 | 2.0 | 8.6 | 0.0 | 0.5 | 9.5 | 1.2 | 0.5 | 10.4 | 1.3 | 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 | 1.2 | 0.0 | 3.2 | 1.5 | 0.0 | 1.6 | 0.7 | 2.9 | 1.8 | 1.1 | 3.3 | 0.6 |
| LnGrp Delay(d),s/veh | 30.7 | 0.0 | 16.6 | 27.4 | 0.0 | 13.2 | 29.1 | 15.0 | 11.3 | 29.8 | 14.8 | 10.2 |
| LnGrp LOS | C | | B | C | | B | C | B | B | C | B | B |
| Approach Vol, veh/h | | 373 | | | 268 | | | 529 | | | 454 | |
| Approach Delay, s/veh | | 19.6 | | | 19.0 | | | 14.8 | | | 16.5 | |
| Approach LOS | | B | | | B | | | B | | | 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 | 7.2 | 13.7 | 5.7 | 14.9 | 6.4 | 14.5 | 6.3 | 14.4 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.5 | 8.1 | 3.1 | 8.0 | 3.9 | 5.0 | 3.6 | 7.4 | | | | |
| Green Ext Time (p_c), s | 0.1 | 1.6 | 0.0 | 2.8 | 0.1 | 2.0 | 0.0 | 2.9 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 17.1 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↑↑ | ↗ | ↖ | ↑↑ | ↗ |
| Traffic Volume (vph) | 6 | 0 | 9 | 349 | 3 | 44 | 8 | 1040 | 544 | 74 | 1100 | 4 |
| Future Volume (vph) | 6 | 0 | 9 | 349 | 3 | 44 | 8 | 1040 | 544 | 74 | 1100 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 0.850 | | | 0.859 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1570 | 1404 | 0 | 1787 | 1616 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1570 | 1404 | 0 | 1787 | 1616 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 191 | | | 46 | | | | 573 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 15% | 15% | 15% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 6 | 0 | 9 | 367 | 3 | 46 | 8 | 1095 | 573 | 78 | 1158 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 6 | 9 | 0 | 367 | 49 | 0 | 8 | 1095 | 573 | 78 | 1158 | 4 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016

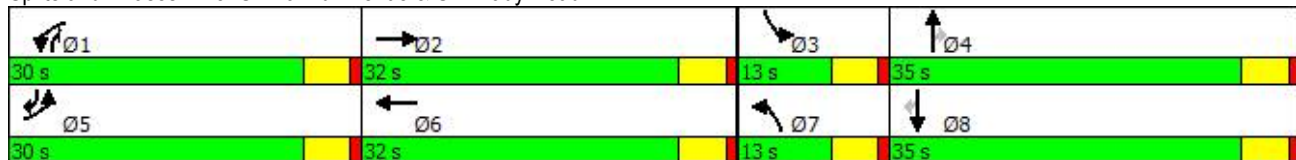


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 5.1 | 5.1 | | 19.6 | 19.6 | | 5.1 | 30.9 | 57.0 | 6.8 | 38.4 | 48.7 |
| Actuated g/C Ratio | 0.07 | 0.07 | | 0.27 | 0.27 | | 0.07 | 0.43 | 0.80 | 0.09 | 0.54 | 0.68 |
| v/c Ratio | 0.05 | 0.03 | | 0.75 | 0.10 | | 0.06 | 0.71 | 0.41 | 0.46 | 0.60 | 0.00 |
| Control Delay | 37.5 | 0.2 | | 35.7 | 8.4 | | 37.6 | 22.9 | 1.4 | 43.5 | 15.6 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 37.5 | 0.2 | | 35.7 | 8.4 | | 37.6 | 22.9 | 1.4 | 43.5 | 15.6 | 0.0 |
| LOS | D | A | | D | A | | D | C | A | D | B | A |
| Approach Delay | | 15.1 | | | 32.5 | | | 15.6 | | | 17.3 | |
| Approach LOS | | B | | | C | | | B | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 71.6 |
| Natural Cycle: | 90 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.75 |
| Intersection Signal Delay: | 18.4 |
| Intersection Capacity Utilization: | 73.1% |
| Analysis Period (min): | 15 |
| Intersection LOS: | B |
| ICU Level of Service: | D |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 6 | 9 | 367 | 49 | 8 | 1095 | 573 | 78 | 1158 | 4 |
| v/c Ratio | 0.05 | 0.03 | 0.75 | 0.10 | 0.06 | 0.71 | 0.41 | 0.46 | 0.60 | 0.00 |
| Control Delay | 37.5 | 0.2 | 35.7 | 8.4 | 37.6 | 22.9 | 1.4 | 43.5 | 15.6 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 37.5 | 0.2 | 35.7 | 8.4 | 37.6 | 22.9 | 1.4 | 43.5 | 15.6 | 0.0 |
| Queue Length 50th (ft) | 3 | 0 | 148 | 1 | 4 | 213 | 0 | 34 | 155 | 0 |
| Queue Length 95th (ft) | 16 | 0 | #288 | 27 | 19 | #423 | 29 | 87 | #406 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 564 | 662 | 642 | 655 | 205 | 1541 | 1429 | 205 | 1919 | 1497 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.01 | 0.57 | 0.07 | 0.04 | 0.71 | 0.40 | 0.38 | 0.60 | 0.00 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

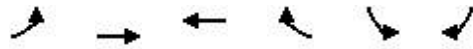
HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 6 | 0 | 9 | 349 | 3 | 44 | 8 | 1040 | 544 | 74 | 1100 | 4 |
| Future Volume (veh/h) | 6 | 0 | 9 | 349 | 3 | 44 | 8 | 1040 | 544 | 74 | 1100 | 4 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1652 | 1652 | 1900 | 1881 | 1881 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 6 | 0 | 9 | 367 | 3 | 46 | 8 | 1095 | 573 | 78 | 1158 | 4 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 15 | 15 | 15 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 12 | 0 | 70 | 409 | 27 | 410 | 18 | 1387 | 633 | 100 | 1551 | 1059 |
| Arrive On Green | 0.01 | 0.00 | 0.05 | 0.23 | 0.27 | 0.27 | 0.01 | 0.39 | 0.39 | 0.06 | 0.43 | 0.43 |
| Sat Flow, veh/h | 1573 | 0 | 1404 | 1792 | 99 | 1515 | 1792 | 3574 | 1599 | 1792 | 3574 | 1599 |
| Grp Volume(v), veh/h | 6 | 0 | 9 | 367 | 0 | 49 | 8 | 1095 | 573 | 78 | 1158 | 4 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 0 | 1404 | 1792 | 0 | 1614 | 1792 | 1787 | 1599 | 1792 | 1787 | 1599 |
| Q Serve(g_s), s | 0.3 | 0.0 | 0.4 | 14.3 | 0.0 | 1.6 | 0.3 | 19.5 | 24.3 | 3.1 | 19.5 | 0.1 |
| Cycle Q Clear(g_c), s | 0.3 | 0.0 | 0.4 | 14.3 | 0.0 | 1.6 | 0.3 | 19.5 | 24.3 | 3.1 | 19.5 | 0.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.94 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 12 | 0 | 70 | 409 | 0 | 436 | 18 | 1387 | 633 | 100 | 1551 | 1059 |
| V/C Ratio(X) | 0.49 | 0.00 | 0.13 | 0.90 | 0.00 | 0.11 | 0.43 | 0.79 | 0.90 | 0.78 | 0.75 | 0.00 |
| Avail Cap(c_a), veh/h | 546 | 0 | 526 | 622 | 0 | 605 | 199 | 1488 | 678 | 199 | 1551 | 1059 |
| 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(l) | 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 | 35.6 | 0.0 | 32.7 | 27.0 | 0.0 | 19.8 | 35.4 | 19.4 | 20.5 | 33.6 | 17.1 | 4.1 |
| Incr Delay (d2), s/veh | 10.5 | 0.0 | 0.3 | 8.1 | 0.0 | 0.0 | 5.9 | 2.4 | 14.4 | 4.8 | 1.8 | 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 | 0.2 | 0.0 | 0.2 | 8.0 | 0.0 | 0.7 | 0.2 | 10.1 | 13.1 | 1.7 | 9.9 | 0.0 |
| LnGrp Delay(d),s/veh | 46.1 | 0.0 | 33.0 | 35.1 | 0.0 | 19.8 | 41.3 | 21.9 | 34.9 | 38.4 | 18.9 | 4.1 |
| LnGrp LOS | D | | C | D | | B | D | C | C | D | B | A |
| Approach Vol, veh/h | | 15 | | | 416 | | | 1676 | | | 1240 | |
| Approach Delay, s/veh | | 38.3 | | | 33.3 | | | 26.4 | | | 20.1 | |
| Approach LOS | | D | | | 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 | 21.4 | 8.6 | 9.0 | 33.0 | 5.6 | 24.5 | 5.7 | 36.3 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+l1), s | 16.3 | 2.4 | 5.1 | 26.3 | 2.3 | 3.6 | 2.3 | 21.5 | | | | |
| Green Ext Time (p_c), s | 0.1 | 0.1 | 0.0 | 1.7 | 0.0 | 0.1 | 0.0 | 4.6 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 25.0 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↖ | ↗ | ↖ | ↗ |
| Traffic Volume (vph) | 483 | 462 | 286 | 160 | 201 | 316 |
| Future Volume (vph) | 483 | 462 | 286 | 160 | 201 | 316 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1863 | 1863 | 1583 | 1736 | 1553 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1863 | 1863 | 1583 | 1736 | 1553 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 27 | | 326 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 498 | 476 | 295 | 165 | 207 | 326 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 498 | 476 | 295 | 165 | 207 | 326 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Number of Detectors | 1 | 2 | 2 | 1 | 1 | 1 |
| Detector Template | Left | Thru | Thru | Right | Left | Right |
| Leading Detector (ft) | 20 | 100 | 100 | 20 | 20 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | 6 | 20 | 20 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | 94 | | | |
| Detector 2 Size(ft) | | 6 | 6 | | | |
| Detector 2 Type | | Cl+Ex | Cl+Ex | | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | |
| Turn Type | Prot | NA | NA | pm+ov | Prot | pm+ov |
| Protected Phases | 5 | 2 | 6 | 4 | 4 | 5 |
| Permitted Phases | | | | 6 | | 4 |
| Detector Phase | 5 | 2 | 6 | 4 | 4 | 5 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split (s) | 15.0 | 40.0 | 25.0 | 20.0 | 20.0 | 15.0 |
| Total Split (%) | 25.0% | 66.7% | 41.7% | 33.3% | 33.3% | 25.0% |
| Maximum Green (s) | 11.0 | 36.0 | 21.0 | 16.0 | 16.0 | 11.0 |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | | Lag | | | Lead |
| Lead-Lag Optimize? | Yes | | Yes | | | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | Min | None | None | None |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 11.3 | 28.0 | 12.7 | 27.6 | 10.8 | 26.1 |
| Actuated g/C Ratio | 0.24 | 0.60 | 0.27 | 0.59 | 0.23 | 0.56 |
| v/c Ratio | 1.18 | 0.43 | 0.59 | 0.18 | 0.52 | 0.32 |
| Control Delay | 126.8 | 7.1 | 20.5 | 3.8 | 21.7 | 2.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 126.8 | 7.1 | 20.5 | 3.8 | 21.7 | 2.0 |
| LOS | F | A | C | A | C | A |
| Approach Delay | | 68.3 | 14.5 | | 9.6 | |
| Approach LOS | | E | B | | A | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 47 |
| Natural Cycle: | 65 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 1.18 |
| Intersection Signal Delay: | 39.8 |
| Intersection Capacity Utilization | 62.9% |
| Analysis Period (min) | 15 |
| Intersection LOS: | D |
| ICU Level of Service | B |

Splits and Phases: 6: NE Goodwin Road & NE Ingle Road



Queues

6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|------|------|------|------|------|
| Lane Group Flow (vph) | 498 | 476 | 295 | 165 | 207 | 326 |
| v/c Ratio | 1.18 | 0.43 | 0.59 | 0.18 | 0.52 | 0.32 |
| Control Delay | 126.8 | 7.1 | 20.5 | 3.8 | 21.7 | 2.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 126.8 | 7.1 | 20.5 | 3.8 | 21.7 | 2.0 |
| Queue Length 50th (ft) | ~168 | 57 | 68 | 14 | 48 | 0 |
| Queue Length 95th (ft) | #408 | 135 | 142 | 30 | 112 | 30 |
| Internal Link Dist (ft) | | 2330 | 2530 | | 1720 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 423 | 1459 | 851 | 1123 | 604 | 1008 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.18 | 0.33 | 0.35 | 0.15 | 0.34 | 0.32 |

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
|------------------------------|-------|------|------|------|------|------|---|---|
| Lane Configurations | ↖ | ↑ | ↗ | ↑ | ↖ | ↘ | | |
| Traffic Volume (veh/h) | 483 | 462 | 286 | 160 | 201 | 316 | | |
| Future Volume (veh/h) | 483 | 462 | 286 | 160 | 201 | 316 | | |
| Number | 5 | 2 | 6 | 16 | 7 | 14 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1827 | 1827 | | |
| Adj Flow Rate, veh/h | 498 | 476 | 295 | 165 | 207 | 326 | | |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 4 | 4 | | |
| Cap, veh/h | 438 | 1131 | 504 | 765 | 371 | 714 | | |
| Arrive On Green | 0.25 | 0.61 | 0.27 | 0.27 | 0.21 | 0.21 | | |
| Sat Flow, veh/h | 1774 | 1863 | 1863 | 1583 | 1740 | 1553 | | |
| Grp Volume(v), veh/h | 498 | 476 | 295 | 165 | 207 | 326 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1863 | 1863 | 1583 | 1740 | 1553 | | |
| Q Serve(g_s), s | 11.0 | 6.0 | 6.1 | 2.7 | 4.7 | 6.4 | | |
| Cycle Q Clear(g_c), s | 11.0 | 6.0 | 6.1 | 2.7 | 4.7 | 6.4 | | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Lane Grp Cap(c), veh/h | 438 | 1131 | 504 | 765 | 371 | 714 | | |
| V/C Ratio(X) | 1.14 | 0.42 | 0.59 | 0.22 | 0.56 | 0.46 | | |
| Avail Cap(c_a), veh/h | 438 | 1506 | 879 | 1084 | 625 | 942 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 16.8 | 4.6 | 14.1 | 6.6 | 15.6 | 8.2 | | |
| Incr Delay (d2), s/veh | 85.8 | 0.2 | 1.1 | 0.1 | 1.3 | 0.5 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 15.7 | 3.1 | 3.3 | 1.7 | 2.4 | 6.3 | | |
| LnGrp Delay(d),s/veh | 102.6 | 4.9 | 15.2 | 6.8 | 17.0 | 8.7 | | |
| LnGrp LOS | F | A | B | A | B | A | | |
| Approach Vol, veh/h | | 974 | 460 | | 533 | | | |
| Approach Delay, s/veh | | 54.8 | 12.2 | | 11.9 | | | |
| Approach LOS | | D | B | | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 31.0 | | 13.5 | 15.0 | 16.0 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 36.0 | | 16.0 | 11.0 | 21.0 | | |
| Max Q Clear Time (g_c+I1), s | | 8.0 | | 8.4 | 13.0 | 8.1 | | |
| Green Ext Time (p_c), s | | 5.1 | | 1.1 | 0.0 | 3.9 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 33.2 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↙ | ↘ | ↑ | ↘ | ↙ | ↑ |
| Traffic Volume (vph) | 66 | 95 | 397 | 29 | 63 | 207 |
| Future Volume (vph) | 66 | 95 | 397 | 29 | 63 | 207 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 3% | 3% |
| Adj. Flow (vph) | 78 | 112 | 467 | 34 | 74 | 244 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 78 | 112 | 467 | 34 | 74 | 244 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 38.0% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 3.6 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 66 | 95 | 397 | 29 | 63 | 207 |
| Future Vol, veh/h | 66 | 95 | 397 | 29 | 63 | 207 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 3 | 3 |
| Mvmt Flow | 78 | 112 | 467 | 34 | 74 | 244 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 859 | 467 | 0 0 467 0 |
| Stage 1 | 467 | - | - - - - |
| Stage 2 | 392 | - | - - - - |
| Critical Hdwy | 6.4 | 6.2 | - - 4.13 - |
| Critical Hdwy Stg 1 | 5.4 | - | - - - - |
| Critical Hdwy Stg 2 | 5.4 | - | - - - - |
| Follow-up Hdwy | 3.5 | 3.3 | - - 2.227 - |
| Pot Cap-1 Maneuver | 329 | 600 | - - 1089 - |
| Stage 1 | 635 | - | - - - - |
| Stage 2 | 687 | - | - - - - |
| Platoon blocked, % | | | - - - |
| Mov Cap-1 Maneuver | 307 | 600 | - - 1089 - |
| Mov Cap-2 Maneuver | 307 | - | - - - - |
| Stage 1 | 635 | - | - - - - |
| Stage 2 | 640 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 15.8 | 0 | 2 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 307 | 600 | 1089 | - |
| HCM Lane V/C Ratio | - | - | 0.253 | 0.186 | 0.068 | - |
| HCM Control Delay (s) | - | - | 20.7 | 12.4 | 8.5 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1 | 0.7 | 0.2 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations | ↕ | → | ↗ | ↖ | ↑ | → | ↖ | ↑ | → | ↗ | ↑ | ↗ |
| Traffic Volume (vph) | 178 | 74 | 95 | 14 | 45 | 15 | 56 | 189 | 37 | 19 | 227 | 115 |
| Future Volume (vph) | 178 | 74 | 95 | 14 | 45 | 15 | 56 | 189 | 37 | 19 | 227 | 115 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.962 | | | 0.976 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1752 | 3372 | 0 | 1770 | 3454 | 0 | 1752 | 1845 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1752 | 3372 | 0 | 1770 | 3454 | 0 | 1752 | 1845 | 1568 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 223 | 93 | 119 | 18 | 56 | 19 | 70 | 236 | 46 | 24 | 284 | 144 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 223 | 93 | 119 | 18 | 75 | 0 | 70 | 282 | 0 | 24 | 284 | 144 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 41.8% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 14.6 |
| Intersection LOS | B |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 178 | 74 | 95 | 0 | 14 | 45 | 15 | 0 | 56 | 189 | 37 |
| Future Vol, veh/h | 0 | 178 | 74 | 95 | 0 | 14 | 45 | 15 | 0 | 56 | 189 | 37 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 223 | 93 | 119 | 0 | 18 | 56 | 19 | 0 | 70 | 236 | 46 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |

| Approach | EB | WB | NB |
|----------------------------|------|------|----|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 3 | 3 | 3 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 3 | 3 | 3 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 3 | 3 | 3 |
| HCM Control Delay | 14.7 | 11.6 | 13 |
| HCM LOS | B | B | B |

| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 63% | 0% | 100% | 0% | 0% | 100% | 50% | 0% | 100% |
| Vol Right, % | 0% | 0% | 37% | 0% | 0% | 100% | 0% | 0% | 50% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 56 | 126 | 100 | 178 | 74 | 95 | 14 | 30 | 30 | 19 | 227 |
| LT Vol | 56 | 0 | 0 | 178 | 0 | 0 | 14 | 0 | 0 | 19 | 0 |
| Through Vol | 0 | 126 | 63 | 0 | 74 | 0 | 0 | 30 | 15 | 0 | 227 |
| RT Vol | 0 | 0 | 37 | 0 | 0 | 95 | 0 | 0 | 15 | 0 | 0 |
| Lane Flow Rate | 70 | 158 | 125 | 222 | 92 | 119 | 18 | 38 | 38 | 24 | 284 |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Degree of Util (X) | 0.155 | 0.327 | 0.25 | 0.484 | 0.189 | 0.219 | 0.042 | 0.086 | 0.082 | 0.051 | 0.574 |
| Departure Headway (Hd) | 7.968 | 7.468 | 7.209 | 7.838 | 7.338 | 6.638 | 8.737 | 8.237 | 7.887 | 7.787 | 7.287 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 451 | 482 | 499 | 461 | 489 | 542 | 410 | 435 | 454 | 461 | 497 |
| Service Time | 5.706 | 5.206 | 4.947 | 5.575 | 5.075 | 4.375 | 6.487 | 5.987 | 5.637 | 5.523 | 5.023 |
| HCM Lane V/C Ratio | 0.155 | 0.328 | 0.251 | 0.482 | 0.188 | 0.22 | 0.044 | 0.087 | 0.084 | 0.052 | 0.571 |
| HCM Control Delay | 12.2 | 13.8 | 12.3 | 17.7 | 11.8 | 11.2 | 11.9 | 11.8 | 11.3 | 10.9 | 19.4 |
| HCM Lane LOS | B | B | B | C | B | B | B | B | B | B | C |
| HCM 95th-tile Q | 0.5 | 1.4 | 1 | 2.6 | 0.7 | 0.8 | 0.1 | 0.3 | 0.3 | 0.2 | 3.6 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 19 | 227 | 115 |
| Future Vol, veh/h | 0 | 19 | 227 | 115 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 3 | 3 | 3 |
| Mvmt Flow | 0 | 24 | 284 | 144 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

Opposing Approach NB
 Opposing Lanes 3
 Conflicting Approach Left WB
 Conflicting Lanes Left 3
 Conflicting Approach Right EB
 Conflicting Lanes Right 3
 HCM Control Delay 16.5
 HCM LOS C

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 26 | 118 | 16 | 94 | 44 | 79 | 11 | 224 | 179 | 122 | 215 | 23 |
| Future Volume (vph) | 26 | 118 | 16 | 94 | 44 | 79 | 11 | 224 | 179 | 122 | 215 | 23 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.987 | | | 0.951 | | | 0.942 | | | 0.992 | |
| Fl _t Protected | | 0.992 | | | 0.979 | | | 0.999 | | | 0.983 | |
| Satd. Flow (prot) | 0 | 1860 | 0 | 0 | 1734 | 0 | 0 | 1753 | 0 | 0 | 1834 | 0 |
| Fl _t Permitted | | 0.992 | | | 0.979 | | | 0.999 | | | 0.983 | |
| Satd. Flow (perm) | 0 | 1860 | 0 | 0 | 1734 | 0 | 0 | 1753 | 0 | 0 | 1834 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 1% | 1% | 1% |
| Adj. Flow (vph) | 28 | 126 | 17 | 100 | 47 | 84 | 12 | 238 | 190 | 130 | 229 | 24 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 171 | 0 | 0 | 231 | 0 | 0 | 440 | 0 | 0 | 383 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 77.1% |
| ICU Level of Service | D |
| Analysis Period (min) | 15 |

| Intersection | | | | | | | | | | | | |
|----------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Intersection Delay, s/veh | 19.2 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
| Traffic Vol, veh/h | 0 | 26 | 118 | 16 | 0 | 94 | 44 | 79 | 0 | 11 | 224 | 179 |
| Future Vol, veh/h | 0 | 26 | 118 | 16 | 0 | 94 | 44 | 79 | 0 | 11 | 224 | 179 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 28 | 126 | 17 | 0 | 100 | 47 | 84 | 0 | 12 | 238 | 190 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Approach | | EB | | | WB | | | NB | | | | |
| Opposing Approach | WB | | | EB | | | SB | | | | | |
| Opposing Lanes | 1 | | | 1 | | | 1 | | | | | |
| Conflicting Approach Left | SB | | | NB | | | EB | | | | | |
| Conflicting Lanes Left | 1 | | | 1 | | | 1 | | | | | |
| Conflicting Approach Right | NB | | | SB | | | WB | | | | | |
| Conflicting Lanes Right | 1 | | | 1 | | | 1 | | | | | |
| HCM Control Delay | 13.5 | | | 14.8 | | | 22.5 | | | | | |
| HCM LOS | B | | | B | | | C | | | | | |
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 | | | | | | | | |
| Vol Left, % | 3% | 16% | 43% | 34% | | | | | | | | |
| Vol Thru, % | 54% | 74% | 20% | 60% | | | | | | | | |
| Vol Right, % | 43% | 10% | 36% | 6% | | | | | | | | |
| Sign Control | Stop | Stop | Stop | Stop | | | | | | | | |
| Traffic Vol by Lane | 414 | 160 | 217 | 360 | | | | | | | | |
| LT Vol | 11 | 26 | 94 | 122 | | | | | | | | |
| Through Vol | 224 | 118 | 44 | 215 | | | | | | | | |
| RT Vol | 179 | 16 | 79 | 23 | | | | | | | | |
| Lane Flow Rate | 440 | 170 | 231 | 383 | | | | | | | | |
| Geometry Grp | 1 | 1 | 1 | 1 | | | | | | | | |
| Degree of Util (X) | 0.717 | 0.33 | 0.431 | 0.66 | | | | | | | | |
| Departure Headway (Hd) | 5.864 | 6.976 | 6.72 | 6.208 | | | | | | | | |
| Convergence, Y/N | Yes | Yes | Yes | Yes | | | | | | | | |
| Cap | 612 | 512 | 533 | 578 | | | | | | | | |
| Service Time | 3.927 | 5.057 | 4.794 | 4.274 | | | | | | | | |
| HCM Lane V/C Ratio | 0.719 | 0.332 | 0.433 | 0.663 | | | | | | | | |
| HCM Control Delay | 22.5 | 13.5 | 14.8 | 20.6 | | | | | | | | |
| HCM Lane LOS | C | B | B | C | | | | | | | | |
| HCM 95th-tile Q | 6 | 1.4 | 2.1 | 4.9 | | | | | | | | |

| Intersection | | | | |
|----------------------------|------|------|------|------|
| Intersection Delay, s/veh | | | | |
| Intersection LOS | | | | |
| Movement | SBU | SBL | SBT | SBR |
| Traffic Vol, veh/h | 0 | 122 | 215 | 23 |
| Future Vol, veh/h | 0 | 122 | 215 | 23 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 |
| Mvmt Flow | 0 | 130 | 229 | 24 |
| Number of Lanes | 0 | 0 | 1 | 0 |
| Approach | | SB | | |
| Opposing Approach | | NB | | |
| Opposing Lanes | | 1 | | |
| Conflicting Approach Left | | WB | | |
| Conflicting Lanes Left | | 1 | | |
| Conflicting Approach Right | | EB | | |
| Conflicting Lanes Right | | 1 | | |
| HCM Control Delay | | 20.6 | | |
| HCM LOS | | C | | |
| Lane | | | | |

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | ↙ | ↘ | ↕ | ↘ | ↙ | ↕ |
| Traffic Volume (vph) | 73 | 20 | 400 | 116 | 17 | 218 |
| Future Volume (vph) | 73 | 20 | 400 | 116 | 17 | 218 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.970 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1825 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1825 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 2% | 2% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 94 | 26 | 513 | 149 | 22 | 279 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 94 | 26 | 662 | 0 | 22 | 279 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 38.8% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 2.4 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 73 | 20 | 400 | 116 | 17 | 218 |
| Future Vol, veh/h | 73 | 20 | 400 | 116 | 17 | 218 |
| 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 | - | - | 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 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 94 | 26 | 513 | 149 | 22 | 279 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 910 | 587 | 662 |
| Stage 1 | 587 | - | - |
| Stage 2 | 323 | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.11 |
| Critical Hdwy Stg 1 | 5.42 | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.209 |
| Pot Cap-1 Maneuver | 305 | 510 | 931 |
| Stage 1 | 556 | - | - |
| Stage 2 | 734 | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 298 | 510 | 931 |
| Mov Cap-2 Maneuver | 298 | - | - |
| Stage 1 | 556 | - | - |
| Stage 2 | 717 | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 20.3 | 0 | 0.6 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 298 | 510 | 931 | - |
| HCM Lane V/C Ratio | - | - | 0.314 | 0.05 | 0.023 | - |
| HCM Control Delay (s) | - | - | 22.5 | 12.4 | 9 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.3 | 0.2 | 0.1 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 109 | 635 | 449 | 0 | 0 | 41 |
| Future Volume (vph) | 109 | 635 | 449 | 0 | 0 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Fr t | | | | | 0.865 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1805 | 3610 | 3574 | 0 | 1644 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1805 | 3610 | 3574 | 0 | 1644 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1600 | 2066 | | 1710 | |
| Travel Time (s) | | 27.3 | 35.2 | | 38.9 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 0% |
| Adj. Flow (vph) | 120 | 698 | 493 | 0 | 0 | 45 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 120 | 698 | 493 | 0 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 31.8% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.1 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 109 | 635 | 449 | 0 | 0 | 41 |
| Future Vol, veh/h | 109 | 635 | 449 | 0 | 0 | 41 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 0 | 0 | 1 | 1 | 0 | 0 |
| Mvmt Flow | 120 | 698 | 493 | 0 | 0 | 45 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 493 | 0 | 1081 |
| Stage 1 | - | - | 493 |
| Stage 2 | - | - | 588 |
| Critical Hdwy | 4.1 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.2 | - | 3.5 |
| Pot Cap-1 Maneuver | 1081 | - | 216 |
| Stage 1 | - | - | 585 |
| Stage 2 | - | - | 524 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1081 | - | 192 |
| Mov Cap-2 Maneuver | - | - | 192 |
| Stage 1 | - | - | 585 |
| Stage 2 | - | - | 466 |

| Approach | EB | WB | SB |
|----------------------|-----|----|----|
| HCM Control Delay, s | 1.3 | 0 | 10 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1081 | - | - | - | 759 |
| HCM Lane V/C Ratio | 0.111 | - | - | - | 0.059 |
| HCM Control Delay (s) | 8.7 | - | - | - | 10 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 0.2 |

APPENDIX F

2020 “WITH PROJECT” LEVEL OF SERVICE

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

6/6/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 187 | 125 | 278 | 36 | 322 | 323 |
| Future Volume (vph) | 187 | 125 | 278 | 36 | 322 | 323 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | 0.946 | | 0.985 | | | |
| Fl _t Protected | 0.971 | | | | 0.950 | |
| Satd. Flow (prot) | 1662 | 0 | 1686 | 0 | 1752 | 1845 |
| Fl _t Permitted | 0.971 | | | | 0.950 | |
| Satd. Flow (perm) | 1662 | 0 | 1686 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 25 | | 6 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 5% | 5% | 11% | 11% | 3% | 3% |
| Adj. Flow (vph) | 208 | 139 | 309 | 40 | 358 | 359 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 347 | 0 | 349 | 0 | 358 | 359 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/6/2016

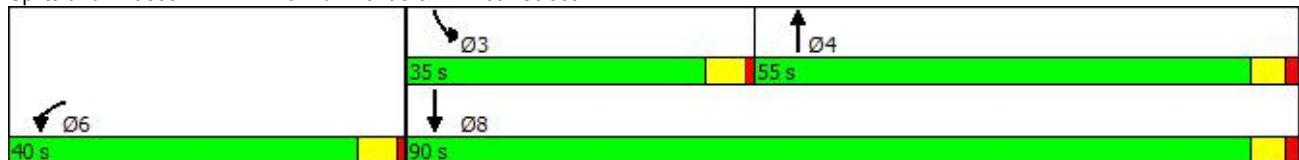


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 23.7 | | 25.1 | | 25.1 | 55.5 |
| Actuated g/C Ratio | 0.26 | | 0.28 | | 0.28 | 0.62 |
| v/c Ratio | 0.76 | | 0.73 | | 0.73 | 0.31 |
| Control Delay | 41.7 | | 40.5 | | 42.1 | 9.6 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 41.7 | | 40.5 | | 42.1 | 9.6 |
| LOS | D | | D | | D | A |
| Approach Delay | 41.7 | | 40.5 | | | 25.8 |
| Approach LOS | D | | D | | | C |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 89.8 |
| Natural Cycle: | 75 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.76 |
| Intersection Signal Delay: | 33.3 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 65.2% |
| ICU Level of Service: | C |
| Analysis Period (min): | 15 |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/6/2016



| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 347 | 349 | 358 | 359 |
| v/c Ratio | 0.76 | 0.73 | 0.73 | 0.31 |
| Control Delay | 41.7 | 40.5 | 42.1 | 9.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 41.7 | 40.5 | 42.1 | 9.6 |
| Queue Length 50th (ft) | 172 | 180 | 181 | 86 |
| Queue Length 95th (ft) | 323 | 327 | #399 | 175 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 701 | 997 | 620 | 1650 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.35 | 0.58 | 0.22 |











Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/6/2016

| |  |  |  |  |  |  | | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | | |
| Lane Configurations |  | |  | |  |  | | | |
| Traffic Volume (veh/h) | 187 | 125 | 278 | 36 | 322 | 323 | | | |
| Future Volume (veh/h) | 187 | 125 | 278 | 36 | 322 | 323 | | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1810 | 1900 | 1712 | 1900 | 1845 | 1845 | | | |
| Adj Flow Rate, veh/h | 208 | 139 | 309 | 40 | 358 | 359 | | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | | | |
| Percent Heavy Veh, % | 0 | 0 | 11 | 11 | 3 | 3 | | | |
| Cap, veh/h | 244 | 163 | 425 | 55 | 420 | 1108 | | | |
| Arrive On Green | 0.25 | 0.25 | 0.29 | 0.29 | 0.24 | 0.60 | | | |
| Sat Flow, veh/h | 983 | 657 | 1485 | 192 | 1757 | 1845 | | | |
| Grp Volume(v), veh/h | 348 | 0 | 0 | 349 | 358 | 359 | | | |
| Grp Sat Flow(s),veh/h/ln | 1644 | 0 | 0 | 1678 | 1757 | 1845 | | | |
| Q Serve(g_s), s | 13.3 | 0.0 | 0.0 | 12.4 | 12.9 | 6.4 | | | |
| Cycle Q Clear(g_c), s | 13.3 | 0.0 | 0.0 | 12.4 | 12.9 | 6.4 | | | |
| Prop In Lane | 0.60 | 0.40 | | 0.11 | 1.00 | | | | |
| Lane Grp Cap(c), veh/h | 407 | 0 | 0 | 480 | 420 | 1108 | | | |
| V/C Ratio(X) | 0.85 | 0.00 | 0.00 | 0.73 | 0.85 | 0.32 | | | |
| Avail Cap(c_a), veh/h | 871 | 0 | 0 | 1270 | 798 | 2374 | | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(l) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 23.7 | 0.0 | 0.0 | 21.2 | 24.0 | 6.5 | | | |
| Incr Delay (d2), s/veh | 5.2 | 0.0 | 0.0 | 2.1 | 5.0 | 0.2 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 6.6 | 0.0 | 0.0 | 6.0 | 6.7 | 3.2 | | | |
| LnGrp Delay(d),s/veh | 28.9 | 0.0 | 0.0 | 23.4 | 29.0 | 6.7 | | | |
| LnGrp LOS | C | | | C | C | A | | | |
| Approach Vol, veh/h | 348 | | 349 | | | 717 | | | |
| Approach Delay, s/veh | 28.9 | | 23.4 | | | 17.8 | | | |
| Approach LOS | C | | C | | | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 | |
| Phs Duration (G+Y+Rc), s | | | 20.8 | 23.9 | | 21.4 | | 44.7 | |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 | |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 | |
| Max Q Clear Time (g_c+I1), s | | | 14.9 | 14.4 | | 15.3 | | 8.4 | |
| Green Ext Time (p_c), s | | | 0.9 | 4.5 | | 1.1 | | 4.7 | |
| Intersection Summary | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 21.9 | | | | | | |
| HCM 2010 LOS | | | C | | | | | | |
| Notes | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/6/2016

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 54 | 243 | 53 | 267 | 230 | 113 | 33 | 216 | 321 | 76 | 304 | 45 |
| Future Volume (vph) | 54 | 243 | 53 | 267 | 230 | 113 | 33 | 216 | 321 | 76 | 304 | 45 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.973 | | | | 0.850 | | | 0.850 | | 0.981 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3303 | 3314 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3303 | 3314 | 0 | 3242 | 1759 | 1495 | 1719 | 3438 | 1538 | 1687 | 3310 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 28 | | | | 138 | | | 282 | | | 18 |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 8% | 8% | 8% | 5% | 5% | 5% | 7% | 7% | 7% |
| Adj. Flow (vph) | 66 | 296 | 65 | 326 | 280 | 138 | 40 | 263 | 391 | 93 | 371 | 55 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 66 | 361 | 0 | 326 | 280 | 138 | 40 | 263 | 391 | 93 | 426 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/6/2016

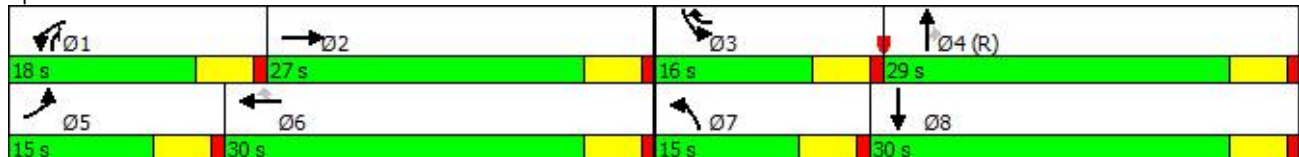


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.2 | 15.3 | | 12.4 | 22.5 | 37.2 | 7.6 | 32.7 | 50.1 | 9.6 | 39.1 | |
| Actuated g/C Ratio | 0.08 | 0.17 | | 0.14 | 0.25 | 0.41 | 0.08 | 0.36 | 0.56 | 0.11 | 0.43 | |
| v/c Ratio | 0.25 | 0.62 | | 0.73 | 0.64 | 0.20 | 0.28 | 0.21 | 0.40 | 0.52 | 0.29 | |
| Control Delay | 40.7 | 36.0 | | 47.6 | 37.5 | 3.4 | 42.7 | 22.2 | 5.3 | 47.9 | 19.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 40.7 | 36.0 | | 47.6 | 37.5 | 3.4 | 42.7 | 22.2 | 5.3 | 47.9 | 19.3 | |
| LOS | D | D | | D | D | A | D | C | A | D | B | |
| Approach Delay | | 36.7 | | | 35.6 | | | 13.9 | | | 24.4 | |
| Approach LOS | | D | | | D | | | B | | | C | |

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 77 (86%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 27.0
 Intersection LOS: C
 Intersection Capacity Utilization 49.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/6/2016

































| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 66 | 361 | 326 | 280 | 138 | 40 | 263 | 391 | 93 | 426 |
| v/c Ratio | 0.25 | 0.62 | 0.73 | 0.64 | 0.20 | 0.28 | 0.21 | 0.40 | 0.52 | 0.29 |
| Control Delay | 40.7 | 36.0 | 47.6 | 37.5 | 3.4 | 42.7 | 22.2 | 5.3 | 47.9 | 19.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 40.7 | 36.0 | 47.6 | 37.5 | 3.4 | 42.7 | 22.2 | 5.3 | 47.9 | 19.3 |
| Queue Length 50th (ft) | 18 | 94 | 92 | 148 | 0 | 22 | 53 | 27 | 50 | 83 |
| Queue Length 95th (ft) | 34 | 112 | 122 | 190 | 23 | 47 | 86 | 72 | 88 | 130 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 367 | 831 | 468 | 494 | 721 | 191 | 1250 | 989 | 210 | 1449 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.43 | 0.70 | 0.57 | 0.19 | 0.21 | 0.21 | 0.40 | 0.44 | 0.29 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/6/2016

| |  |  |  |  |  |  |  |  |  |  |  | |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |   |   | |   |  |   |   |   |   |   |   | |
| Traffic Volume (veh/h) | 54 | 243 | 53 | 267 | 230 | 113 | 33 | 216 | 321 | 76 | 304 | 45 |
| Future Volume (veh/h) | 54 | 243 | 53 | 267 | 230 | 113 | 33 | 216 | 321 | 76 | 304 | 45 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1792 | 1792 | 1900 | 1759 | 1759 | 1759 | 1810 | 1810 | 1810 | 1776 | 1776 | 1900 |
| Adj Flow Rate, veh/h | 66 | 296 | 65 | 326 | 280 | 138 | 40 | 263 | 391 | 93 | 371 | 55 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Percent Heavy Veh, % | 6 | 6 | 6 | 8 | 8 | 8 | 5 | 5 | 5 | 7 | 7 | 7 |
| Cap, veh/h | 149 | 441 | 95 | 399 | 415 | 406 | 61 | 1469 | 726 | 118 | 1363 | 200 |
| Arrive On Green | 0.04 | 0.16 | 0.16 | 0.12 | 0.24 | 0.24 | 0.04 | 0.43 | 0.43 | 0.07 | 0.46 | 0.46 |
| Sat Flow, veh/h | 3312 | 2786 | 603 | 3250 | 1759 | 1495 | 1723 | 3438 | 1538 | 1691 | 2952 | 434 |
| Grp Volume(v), veh/h | 66 | 179 | 182 | 326 | 280 | 138 | 40 | 263 | 391 | 93 | 211 | 215 |
| Grp Sat Flow(s),veh/h/ln | 1656 | 1703 | 1686 | 1625 | 1759 | 1495 | 1723 | 1719 | 1538 | 1691 | 1687 | 1699 |
| Q Serve(g_s), s | 1.7 | 8.9 | 9.2 | 8.8 | 13.0 | 6.7 | 2.1 | 4.3 | 16.2 | 4.9 | 6.9 | 7.0 |
| Cycle Q Clear(g_c), s | 1.7 | 8.9 | 9.2 | 8.8 | 13.0 | 6.7 | 2.1 | 4.3 | 16.2 | 4.9 | 6.9 | 7.0 |
| Prop In Lane | 1.00 | | 0.36 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.26 |
| Lane Grp Cap(c), veh/h | 149 | 269 | 267 | 399 | 415 | 406 | 61 | 1469 | 726 | 118 | 779 | 784 |
| V/C Ratio(X) | 0.44 | 0.67 | 0.68 | 0.82 | 0.67 | 0.34 | 0.66 | 0.18 | 0.54 | 0.79 | 0.27 | 0.27 |
| Avail Cap(c_a), veh/h | 368 | 416 | 412 | 470 | 489 | 468 | 191 | 1469 | 726 | 207 | 779 | 784 |
| 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 | 0.83 | 0.83 | 0.83 |
| Uniform Delay (d), s/veh | 41.9 | 35.6 | 35.7 | 38.5 | 31.2 | 26.3 | 42.9 | 16.0 | 16.8 | 41.2 | 14.9 | 14.9 |
| Incr Delay (d2), s/veh | 2.1 | 2.8 | 3.1 | 9.4 | 2.9 | 0.5 | 11.6 | 0.3 | 2.9 | 9.4 | 0.7 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 4.4 | 4.5 | 4.5 | 6.6 | 2.8 | 1.2 | 2.1 | 7.4 | 2.6 | 3.4 | 3.4 |
| LnGrp Delay(d),s/veh | 44.0 | 38.5 | 38.8 | 47.8 | 34.1 | 26.8 | 54.5 | 16.3 | 19.7 | 50.7 | 15.6 | 15.7 |
| LnGrp LOS | D | D | D | D | C | C | D | B | B | D | B | B |
| Approach Vol, veh/h | | 427 | | | 744 | | | 694 | | | 519 | |
| Approach Delay, s/veh | | 39.5 | | | 38.8 | | | 20.4 | | | 21.9 | |
| 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 | 16.1 | 19.2 | 11.3 | 43.4 | 9.0 | 26.3 | 8.2 | 46.5 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 10.8 | 11.2 | 6.9 | 18.2 | 3.7 | 15.0 | 4.1 | 9.0 | | | | |
| Green Ext Time (p_c), s | 0.3 | 3.1 | 0.1 | 2.7 | 0.1 | 2.9 | 0.0 | 5.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 29.9 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 43 | 152 | 198 | 85 | 250 | 94 | 142 | 193 | 82 | 80 | 184 | 48 |
| Future Volume (vph) | 43 | 152 | 198 | 85 | 250 | 94 | 142 | 193 | 82 | 80 | 184 | 48 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.959 | | | 0.955 | | | 0.969 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1687 | 1776 | 1509 | 1770 | 3394 | 0 | 1736 | 1745 | 0 | 1752 | 1787 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1687 | 1776 | 1509 | 1770 | 3394 | 0 | 1736 | 1745 | 0 | 1752 | 1787 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 231 | | 65 | | | 27 | | | 13 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2066 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 35.2 | | | 171.3 | | | 22.1 | | | 36.2 | |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Heavy Vehicles (%) | 7% | 7% | 7% | 2% | 2% | 2% | 4% | 4% | 4% | 3% | 3% | 3% |
| Adj. Flow (vph) | 59 | 208 | 271 | 116 | 342 | 129 | 195 | 264 | 112 | 110 | 252 | 66 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 59 | 208 | 271 | 116 | 471 | 0 | 195 | 376 | 0 | 110 | 318 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/6/2016

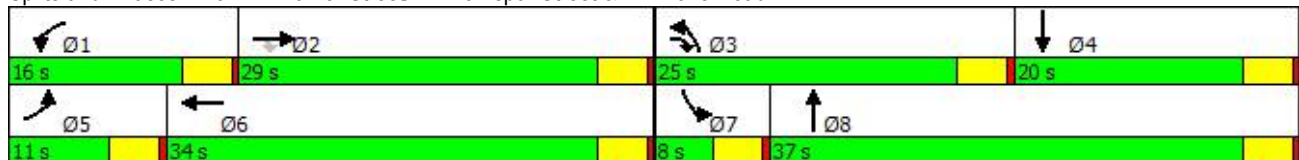


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|-------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 6.9 | 13.7 | 31.0 | 9.6 | 18.5 | | 13.1 | 25.3 | | 4.2 | 16.5 | |
| Actuated g/C Ratio | 0.10 | 0.21 | 0.47 | 0.14 | 0.28 | | 0.20 | 0.38 | | 0.06 | 0.25 | |
| v/c Ratio | 0.34 | 0.57 | 0.33 | 0.45 | 0.48 | | 0.57 | 0.55 | | 0.99 | 0.71 | |
| Control Delay | 38.7 | 32.8 | 3.8 | 36.0 | 19.9 | | 33.6 | 20.5 | | 126.6 | 36.8 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 38.7 | 32.8 | 3.8 | 36.0 | 19.9 | | 33.6 | 20.5 | | 126.6 | 36.8 | |
| LOS | D | C | A | D | B | | C | C | | F | D | |
| Approach Delay | | 18.8 | | | 23.1 | | | 25.0 | | | 59.9 | |
| Approach LOS | | B | | | C | | | C | | | E | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 66.6 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.99 |
| Intersection Signal Delay: | 29.9 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 47.1% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

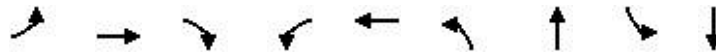
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|-------|------|
| Lane Group Flow (vph) | 59 | 208 | 271 | 116 | 471 | 195 | 376 | 110 | 318 |
| v/c Ratio | 0.34 | 0.57 | 0.33 | 0.45 | 0.48 | 0.57 | 0.55 | 0.99 | 0.71 |
| Control Delay | 38.7 | 32.8 | 3.8 | 36.0 | 19.9 | 33.6 | 20.5 | 126.6 | 36.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 38.7 | 32.8 | 3.8 | 36.0 | 19.9 | 33.6 | 20.5 | 126.6 | 36.8 |
| Queue Length 50th (ft) | 24 | 80 | 9 | 45 | 77 | 75 | 114 | ~52 | 119 |
| Queue Length 95th (ft) | 55 | 125 | 24 | 86 | 100 | 120 | 169 | #136 | #215 |
| Internal Link Dist (ft) | | 1986 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 187 | 705 | 1000 | 337 | 1650 | 578 | 926 | 111 | 463 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.32 | 0.30 | 0.27 | 0.34 | 0.29 | 0.34 | 0.41 | 0.99 | 0.69 |

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/6/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 43 | 152 | 198 | 85 | 250 | 94 | 142 | 193 | 82 | 80 | 184 | 48 |
| Future Volume (veh/h) | 43 | 152 | 198 | 85 | 250 | 94 | 142 | 193 | 82 | 80 | 184 | 48 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1776 | 1776 | 1776 | 1863 | 1863 | 1900 | 1827 | 1827 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 59 | 208 | 271 | 116 | 342 | 129 | 195 | 264 | 112 | 110 | 252 | 66 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 73 | 442 | 593 | 151 | 736 | 273 | 251 | 374 | 159 | 126 | 331 | 87 |
| Arrive On Green | 0.04 | 0.25 | 0.25 | 0.09 | 0.29 | 0.29 | 0.14 | 0.31 | 0.31 | 0.07 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1691 | 1776 | 1509 | 1774 | 2529 | 938 | 1740 | 1219 | 517 | 1757 | 1410 | 369 |
| Grp Volume(v), veh/h | 59 | 208 | 271 | 116 | 238 | 233 | 195 | 0 | 376 | 110 | 0 | 318 |
| Grp Sat Flow(s),veh/h/ln | 1691 | 1776 | 1509 | 1774 | 1770 | 1697 | 1740 | 0 | 1736 | 1757 | 0 | 1779 |
| Q Serve(g_s), s | 1.9 | 5.5 | 7.4 | 3.6 | 6.1 | 6.3 | 6.0 | 0.0 | 10.7 | 3.5 | 0.0 | 9.3 |
| Cycle Q Clear(g_c), s | 1.9 | 5.5 | 7.4 | 3.6 | 6.1 | 6.3 | 6.0 | 0.0 | 10.7 | 3.5 | 0.0 | 9.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.55 | 1.00 | | 0.30 | 1.00 | | 0.21 |
| Lane Grp Cap(c), veh/h | 73 | 442 | 593 | 151 | 515 | 494 | 251 | 0 | 533 | 126 | 0 | 418 |
| V/C Ratio(X) | 0.81 | 0.47 | 0.46 | 0.77 | 0.46 | 0.47 | 0.78 | 0.00 | 0.71 | 0.87 | 0.00 | 0.76 |
| Avail Cap(c_a), veh/h | 213 | 798 | 895 | 382 | 954 | 915 | 656 | 0 | 1029 | 126 | 0 | 511 |
| 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(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.4 | 17.8 | 12.5 | 24.9 | 16.2 | 16.2 | 23.0 | 0.0 | 17.1 | 25.6 | 0.0 | 19.9 |
| Incr Delay (d2), s/veh | 18.8 | 0.8 | 0.6 | 7.9 | 0.6 | 0.7 | 5.2 | 0.0 | 1.7 | 43.9 | 0.0 | 5.3 |
| 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 | 2.8 | 3.2 | 2.1 | 3.1 | 3.0 | 3.2 | 0.0 | 5.3 | 3.2 | 0.0 | 5.1 |
| LnGrp Delay(d),s/veh | 45.2 | 18.6 | 13.1 | 32.8 | 16.8 | 16.9 | 28.1 | 0.0 | 18.8 | 69.4 | 0.0 | 25.2 |
| LnGrp LOS | D | B | B | C | B | B | C | | B | E | | C |
| Approach Vol, veh/h | | 538 | | | 587 | | | 571 | | | 428 | |
| Approach Delay, s/veh | | 18.7 | | | 20.0 | | | 22.0 | | | 36.6 | |
| Approach LOS | | B | | | C | | | C | | | 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 | 8.7 | 17.8 | 12.0 | 17.1 | 6.4 | 20.2 | 8.0 | 21.1 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 5.6 | 9.4 | 8.0 | 11.3 | 3.9 | 8.3 | 5.5 | 12.7 | | | | |
| Green Ext Time (p_c), s | 0.1 | 4.4 | 0.4 | 1.8 | 0.0 | 5.0 | 0.0 | 4.2 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 23.6 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↗ | ↗ | ↖ | ↗ | ↗ |
| Traffic Volume (vph) | 71 | 29 | 14 | 166 | 88 | 106 | 27 | 388 | 82 | 60 | 294 | 50 |
| Future Volume (vph) | 71 | 29 | 14 | 166 | 88 | 106 | 27 | 388 | 82 | 60 | 294 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.952 | | | 0.918 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1739 | 0 | 1787 | 1727 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1739 | 0 | 1787 | 1727 | 0 | 1719 | 1810 | 1538 | 1719 | 1810 | 1538 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | 98 | | | | 108 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 1% | 1% | 1% | 5% | 5% | 5% | 5% | 5% | 5% |
| Adj. Flow (vph) | 93 | 38 | 18 | 218 | 116 | 139 | 36 | 511 | 108 | 79 | 387 | 66 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 93 | 56 | 0 | 218 | 255 | 0 | 36 | 511 | 108 | 79 | 387 | 66 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.3 | 10.1 | | 8.1 | 13.4 | | 4.1 | 16.3 | 28.5 | 4.1 | 19.5 | 30.8 |
| Actuated g/C Ratio | 0.14 | 0.19 | | 0.15 | 0.25 | | 0.08 | 0.31 | 0.54 | 0.08 | 0.37 | 0.58 |
| v/c Ratio | 0.39 | 0.16 | | 0.79 | 0.50 | | 0.27 | 0.92 | 0.12 | 0.60 | 0.58 | 0.07 |
| Control Delay | 27.8 | 14.3 | | 49.1 | 16.0 | | 31.1 | 46.4 | 2.7 | 48.9 | 21.6 | 1.8 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.8 | 14.3 | | 49.1 | 16.0 | | 31.1 | 46.4 | 2.7 | 48.9 | 21.6 | 1.8 |
| LOS | C | B | | D | B | | C | D | A | D | C | A |
| Approach Delay | | 22.7 | | | 31.2 | | | 38.3 | | | 23.2 | |
| Approach LOS | | C | | | C | | | D | | | C | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 52.8 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.92 |
| Intersection Signal Delay: | 30.7 |
| Intersection Capacity Utilization | 52.1% |
| Analysis Period (min) | 15 |
| Intersection LOS: | C |
| ICU Level of Service | A |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| | | | |
| 12 s | 20 s | 8 s | 20 s |
| | | | |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/6/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 93 | 56 | 218 | 255 | 36 | 511 | 108 | 79 | 387 | 66 |
| v/c Ratio | 0.39 | 0.16 | 0.79 | 0.50 | 0.27 | 0.92 | 0.12 | 0.60 | 0.58 | 0.07 |
| Control Delay | 27.8 | 14.3 | 49.1 | 16.0 | 31.1 | 46.4 | 2.7 | 48.9 | 21.6 | 1.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.8 | 14.3 | 49.1 | 16.0 | 31.1 | 46.4 | 2.7 | 48.9 | 21.6 | 1.8 |
| Queue Length 50th (ft) | 28 | 10 | 70 | 46 | 11 | 161 | 0 | 26 | 83 | 0 |
| Queue Length 95th (ft) | 58 | 27 | #148 | 77 | 31 | #285 | 14 | #69 | #176 | 7 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 267 | 548 | 275 | 611 | 132 | 557 | 879 | 132 | 667 | 959 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.35 | 0.10 | 0.79 | 0.42 | 0.27 | 0.92 | 0.12 | 0.60 | 0.58 | 0.07 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/6/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 71 | 29 | 14 | 166 | 88 | 106 | 27 | 388 | 82 | 60 | 294 | 50 |
| Future Volume (veh/h) | 71 | 29 | 14 | 166 | 88 | 106 | 27 | 388 | 82 | 60 | 294 | 50 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1827 | 1827 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 |
| Adj Flow Rate, veh/h | 93 | 38 | 18 | 218 | 116 | 139 | 36 | 511 | 108 | 79 | 387 | 66 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 118 | 141 | 67 | 272 | 160 | 191 | 55 | 591 | 735 | 97 | 635 | 644 |
| Arrive On Green | 0.07 | 0.12 | 0.12 | 0.15 | 0.20 | 0.20 | 0.03 | 0.33 | 0.33 | 0.06 | 0.35 | 0.35 |
| Sat Flow, veh/h | 1740 | 1173 | 556 | 1792 | 781 | 935 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Grp Volume(v), veh/h | 93 | 0 | 56 | 218 | 0 | 255 | 36 | 511 | 108 | 79 | 387 | 66 |
| Grp Sat Flow(s),veh/h/ln | 1740 | 0 | 1729 | 1792 | 0 | 1716 | 1723 | 1810 | 1538 | 1723 | 1810 | 1538 |
| Q Serve(g_s), s | 2.4 | 0.0 | 1.4 | 5.4 | 0.0 | 6.4 | 1.0 | 12.3 | 1.8 | 2.1 | 8.2 | 1.2 |
| Cycle Q Clear(g_c), s | 2.4 | 0.0 | 1.4 | 5.4 | 0.0 | 6.4 | 1.0 | 12.3 | 1.8 | 2.1 | 8.2 | 1.2 |
| Prop In Lane | 1.00 | | 0.32 | 1.00 | | 0.55 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 118 | 0 | 208 | 272 | 0 | 351 | 55 | 591 | 735 | 97 | 635 | 644 |
| V/C Ratio(X) | 0.79 | 0.00 | 0.27 | 0.80 | 0.00 | 0.73 | 0.65 | 0.87 | 0.15 | 0.81 | 0.61 | 0.10 |
| Avail Cap(c_a), veh/h | 300 | 0 | 597 | 309 | 0 | 592 | 149 | 624 | 764 | 149 | 635 | 644 |
| 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 | 21.3 | 0.0 | 18.5 | 19.0 | 0.0 | 17.2 | 22.2 | 14.7 | 6.8 | 21.6 | 12.4 | 8.2 |
| Incr Delay (d2), s/veh | 11.1 | 0.0 | 0.7 | 12.6 | 0.0 | 2.9 | 12.3 | 11.7 | 0.1 | 17.5 | 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 | 1.5 | 0.0 | 0.7 | 3.6 | 0.0 | 3.3 | 0.6 | 8.0 | 0.8 | 1.5 | 4.4 | 0.5 |
| LnGrp Delay(d),s/veh | 32.4 | 0.0 | 19.2 | 31.6 | 0.0 | 20.1 | 34.5 | 26.4 | 6.9 | 39.1 | 14.1 | 8.3 |
| LnGrp LOS | C | | B | C | | C | C | C | A | D | B | A |
| Approach Vol, veh/h | | 149 | | | 473 | | | 655 | | | 532 | |
| Approach Delay, s/veh | | 27.4 | | | 25.4 | | | 23.6 | | | 17.1 | |
| Approach LOS | | C | | | C | | | 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 | 11.0 | 9.6 | 5.5 | 20.3 | 7.1 | 13.5 | 6.6 | 19.1 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 7.4 | 3.4 | 3.0 | 10.2 | 4.4 | 8.4 | 4.1 | 14.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.4 | 0.0 | 3.0 | 0.1 | 1.0 | 0.0 | 0.8 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 22.5 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↕ | ↗ | ↖ | ↕ | ↗ |
| Traffic Volume (vph) | 3 | 2 | 8 | 599 | 0 | 50 | 7 | 675 | 286 | 29 | 736 | 6 |
| Future Volume (vph) | 3 | 2 | 8 | 599 | 0 | 50 | 7 | 675 | 286 | 29 | 736 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 0.880 | | | 0.850 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1031 | 955 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1031 | 955 | 0 | 1787 | 1599 | 0 | 1719 | 3438 | 1538 | 1752 | 3505 | 1568 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 580 | | | | 301 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 75% | 75% | 75% | 1% | 1% | 1% | 5% | 5% | 5% | 3% | 3% | 3% |
| Adj. Flow (vph) | 3 | 2 | 8 | 631 | 0 | 53 | 7 | 711 | 301 | 31 | 775 | 6 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 10 | 0 | 631 | 53 | 0 | 7 | 711 | 301 | 31 | 775 | 6 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/6/2016

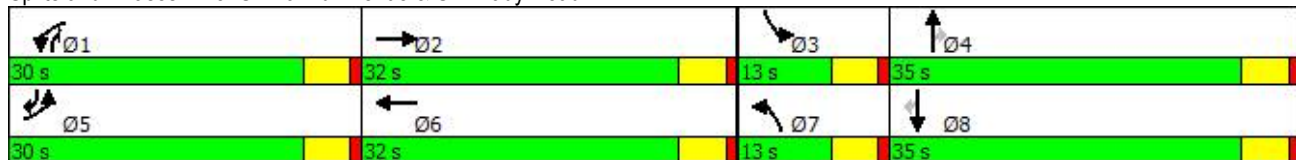


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 5.2 | 5.3 | | 26.0 | 26.1 | | 5.2 | 17.9 | 52.6 | 5.6 | 20.1 | 30.5 |
| Actuated g/C Ratio | 0.09 | 0.09 | | 0.44 | 0.44 | | 0.09 | 0.30 | 0.88 | 0.09 | 0.34 | 0.51 |
| v/c Ratio | 0.03 | 0.11 | | 0.81 | 0.05 | | 0.05 | 0.69 | 0.22 | 0.19 | 0.65 | 0.01 |
| Control Delay | 33.3 | 24.2 | | 29.3 | 0.1 | | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 33.3 | 24.2 | | 29.3 | 0.1 | | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| LOS | C | C | | C | A | | C | C | A | C | C | A |
| Approach Delay | | 26.3 | | | 27.0 | | | 16.9 | | | 20.6 | |
| Approach LOS | | C | | | C | | | B | | | C | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 59.5 |
| Natural Cycle: | 90 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.81 |
| Intersection Signal Delay: | 20.9 |
| Intersection Capacity Utilization: | 72.3% |
| Analysis Period (min): | 15 |
| Intersection LOS: | C |
| ICU Level of Service: | C |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/6/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 3 | 10 | 631 | 53 | 7 | 711 | 301 | 31 | 775 | 6 |
| v/c Ratio | 0.03 | 0.11 | 0.81 | 0.05 | 0.05 | 0.69 | 0.22 | 0.19 | 0.65 | 0.01 |
| Control Delay | 33.3 | 24.2 | 29.3 | 0.1 | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 33.3 | 24.2 | 29.3 | 0.1 | 32.4 | 23.5 | 1.0 | 32.8 | 20.3 | 0.0 |
| Queue Length 50th (ft) | 1 | 1 | 135 | 0 | 2 | 95 | 0 | 9 | 105 | 0 |
| Queue Length 95th (ft) | 10 | 16 | #599 | 0 | 16 | 230 | 23 | 42 | 243 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 450 | 455 | 780 | 1061 | 240 | 1803 | 1395 | 245 | 1838 | 1475 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.02 | 0.81 | 0.05 | 0.03 | 0.39 | 0.22 | 0.13 | 0.42 | 0.00 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

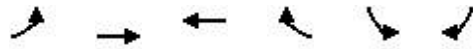
HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/6/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 3 | 2 | 8 | 599 | 0 | 50 | 7 | 675 | 286 | 29 | 736 | 6 |
| Future Volume (veh/h) | 3 | 2 | 8 | 599 | 0 | 50 | 7 | 675 | 286 | 29 | 736 | 6 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1086 | 1086 | 1900 | 1881 | 1881 | 1900 | 1810 | 1810 | 1810 | 1845 | 1845 | 1845 |
| Adj Flow Rate, veh/h | 3 | 2 | 8 | 631 | 0 | 53 | 7 | 711 | 301 | 31 | 775 | 6 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 75 | 75 | 75 | 1 | 1 | 1 | 5 | 5 | 5 | 3 | 3 | 3 |
| Cap, veh/h | 4 | 10 | 38 | 643 | 0 | 648 | 16 | 931 | 423 | 57 | 1031 | 1024 |
| Arrive On Green | 0.00 | 0.05 | 0.05 | 0.36 | 0.00 | 0.41 | 0.01 | 0.27 | 0.27 | 0.03 | 0.29 | 0.29 |
| Sat Flow, veh/h | 1034 | 190 | 761 | 1792 | 0 | 1599 | 1723 | 3438 | 1538 | 1757 | 3505 | 1568 |
| Grp Volume(v), veh/h | 3 | 0 | 10 | 631 | 0 | 53 | 7 | 711 | 301 | 31 | 775 | 6 |
| Grp Sat Flow(s),veh/h/ln | 1034 | 0 | 951 | 1792 | 0 | 1599 | 1723 | 1719 | 1538 | 1757 | 1752 | 1568 |
| Q Serve(g_s), s | 0.2 | 0.0 | 0.7 | 24.3 | 0.0 | 1.4 | 0.3 | 13.2 | 12.3 | 1.2 | 14.0 | 0.1 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 0.7 | 24.3 | 0.0 | 1.4 | 0.3 | 13.2 | 12.3 | 1.2 | 14.0 | 0.1 |
| Prop In Lane | 1.00 | | 0.80 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 4 | 0 | 48 | 643 | 0 | 648 | 16 | 931 | 423 | 57 | 1031 | 1024 |
| V/C Ratio(X) | 0.72 | 0.00 | 0.21 | 0.98 | 0.00 | 0.08 | 0.45 | 0.76 | 0.71 | 0.54 | 0.75 | 0.01 |
| Avail Cap(c_a), veh/h | 371 | 0 | 369 | 643 | 0 | 648 | 198 | 1481 | 669 | 202 | 1510 | 1238 |
| 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(l) | 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 | 34.6 | 0.0 | 31.7 | 22.1 | 0.0 | 12.7 | 34.3 | 23.3 | 22.8 | 33.2 | 22.3 | 4.2 |
| Incr Delay (d2), s/veh | 59.4 | 0.0 | 0.8 | 30.5 | 0.0 | 0.0 | 7.2 | 0.5 | 0.8 | 3.0 | 0.5 | 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 | 0.1 | 0.0 | 0.2 | 17.4 | 0.0 | 0.6 | 0.2 | 6.3 | 5.3 | 0.6 | 6.8 | 0.0 |
| LnGrp Delay(d),s/veh | 94.0 | 0.0 | 32.5 | 52.6 | 0.0 | 12.8 | 41.5 | 23.8 | 23.6 | 36.2 | 22.8 | 4.2 |
| LnGrp LOS | F | | C | D | | B | D | C | C | D | C | A |
| Approach Vol, veh/h | | | | | 684 | | | 1019 | | | 812 | |
| Approach Delay, s/veh | | 46.7 | | | 49.5 | | | 23.9 | | | 23.2 | |
| 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 | 30.0 | 8.5 | 7.3 | 23.9 | 5.3 | 33.2 | 5.6 | 25.5 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 26.3 | 2.7 | 3.2 | 15.2 | 2.2 | 3.4 | 2.3 | 16.0 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 0.1 | 0.0 | 3.6 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 30.7 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/6/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↖ | ↗ | ↖ | ↗ |
| Traffic Volume (vph) | 115 | 98 | 237 | 134 | 59 | 164 |
| Future Volume (vph) | 115 | 98 | 237 | 134 | 59 | 164 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1671 | 1759 | 1881 | 1599 | 1671 | 1495 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1671 | 1759 | 1881 | 1599 | 1671 | 1495 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 147 | | 180 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 8% | 8% | 1% | 1% | 8% | 8% |
| Adj. Flow (vph) | 126 | 108 | 260 | 147 | 65 | 180 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 126 | 108 | 260 | 147 | 65 | 180 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Number of Detectors | 1 | 2 | 2 | 1 | 1 | 1 |
| Detector Template | Left | Thru | Thru | Right | Left | Right |
| Leading Detector (ft) | 20 | 100 | 100 | 20 | 20 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | 6 | 20 | 20 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | 94 | | | |
| Detector 2 Size(ft) | | 6 | 6 | | | |
| Detector 2 Type | | Cl+Ex | Cl+Ex | | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | |
| Turn Type | Prot | NA | NA | pm+ov | Prot | pm+ov |
| Protected Phases | 5 | 2 | 6 | 4 | 4 | 5 |
| Permitted Phases | | | | 6 | | 4 |
| Detector Phase | 5 | 2 | 6 | 4 | 4 | 5 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/6/2016

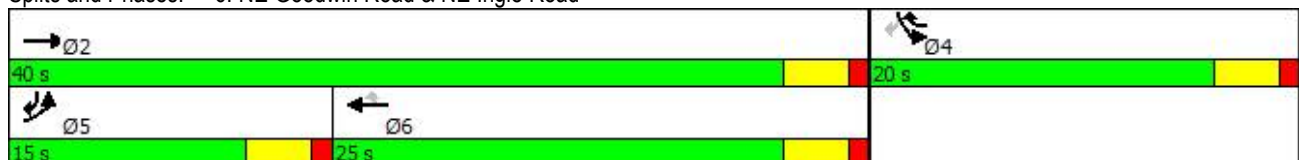


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split (s) | 15.0 | 40.0 | 25.0 | 20.0 | 20.0 | 15.0 |
| Total Split (%) | 25.0% | 66.7% | 41.7% | 33.3% | 33.3% | 25.0% |
| Maximum Green (s) | 11.0 | 36.0 | 21.0 | 16.0 | 16.0 | 11.0 |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | | Lag | | | Lead |
| Lead-Lag Optimize? | Yes | | Yes | | | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | Min | None | None | None |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 8.3 | 25.8 | 16.2 | 24.8 | 7.2 | 16.9 |
| Actuated g/C Ratio | 0.22 | 0.69 | 0.43 | 0.66 | 0.19 | 0.45 |
| v/c Ratio | 0.34 | 0.09 | 0.32 | 0.13 | 0.20 | 0.23 |
| Control Delay | 16.9 | 3.5 | 13.0 | 1.3 | 16.6 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 16.9 | 3.5 | 13.0 | 1.3 | 16.6 | 2.2 |
| LOS | B | A | B | A | B | A |
| Approach Delay | | 10.7 | 8.8 | | 6.0 | |
| Approach LOS | | B | A | | A | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 37.4 |
| Natural Cycle: | 50 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.34 |
| Intersection Signal Delay: | 8.5 |
| Intersection Capacity Utilization: | 32.2% |
| Analysis Period (min): | 15 |
| Intersection LOS: | A |
| ICU Level of Service: | A |

Splits and Phases: 6: NE Goodwin Road & NE Ingle Road



Queues

6: NE Goodwin Road & NE Ingle Road

6/6/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 126 | 108 | 260 | 147 | 65 | 180 |
| v/c Ratio | 0.34 | 0.09 | 0.32 | 0.13 | 0.20 | 0.23 |
| Control Delay | 16.9 | 3.5 | 13.0 | 1.3 | 16.6 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 16.9 | 3.5 | 13.0 | 1.3 | 16.6 | 2.2 |
| Queue Length 50th (ft) | 22 | 7 | 44 | 0 | 12 | 0 |
| Queue Length 95th (ft) | 66 | 21 | 106 | 14 | 41 | 21 |
| Internal Link Dist (ft) | | 2330 | 2530 | | 1720 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 514 | 1604 | 1171 | 1358 | 748 | 887 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.25 | 0.07 | 0.22 | 0.11 | 0.09 | 0.20 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 6: NE Goodwin Road & NE Ingle Road

6/6/2016



| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | ↖ | ↑ | ↗ | ↗ | ↖ | ↖ | | |
| Traffic Volume (veh/h) | 115 | 98 | 237 | 134 | 59 | 164 | | |
| Future Volume (veh/h) | 115 | 98 | 237 | 134 | 59 | 164 | | |
| Number | 5 | 2 | 6 | 16 | 7 | 14 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1759 | 1759 | 1881 | 1881 | 1759 | 1759 | | |
| Adj Flow Rate, veh/h | 126 | 108 | 260 | 147 | 65 | 180 | | |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | | |
| Percent Heavy Veh, % | 8 | 8 | 1 | 1 | 8 | 8 | | |
| Cap, veh/h | 156 | 921 | 516 | 703 | 277 | 387 | | |
| Arrive On Green | 0.09 | 0.52 | 0.27 | 0.27 | 0.17 | 0.17 | | |
| Sat Flow, veh/h | 1675 | 1759 | 1881 | 1599 | 1675 | 1495 | | |
| Grp Volume(v), veh/h | 126 | 108 | 260 | 147 | 65 | 180 | | |
| Grp Sat Flow(s),veh/h/ln | 1675 | 1759 | 1881 | 1599 | 1675 | 1495 | | |
| Q Serve(g_s), s | 1.9 | 0.8 | 3.0 | 1.5 | 0.9 | 2.6 | | |
| Cycle Q Clear(g_c), s | 1.9 | 0.8 | 3.0 | 1.5 | 0.9 | 2.6 | | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Lane Grp Cap(c), veh/h | 156 | 921 | 516 | 703 | 277 | 387 | | |
| V/C Ratio(X) | 0.81 | 0.12 | 0.50 | 0.21 | 0.23 | 0.47 | | |
| Avail Cap(c_a), veh/h | 717 | 2464 | 1537 | 1571 | 1043 | 1070 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 11.4 | 3.1 | 7.9 | 4.4 | 9.3 | 8.0 | | |
| Incr Delay (d2), s/veh | 9.3 | 0.1 | 0.8 | 0.1 | 0.4 | 0.9 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 1.2 | 0.4 | 1.6 | 0.8 | 0.4 | 2.3 | | |
| LnGrp Delay(d),s/veh | 20.7 | 3.2 | 8.6 | 4.6 | 9.7 | 8.9 | | |
| LnGrp LOS | C | A | A | A | A | A | | |
| Approach Vol, veh/h | | 234 | 407 | | 245 | | | |
| Approach Delay, s/veh | | 12.6 | 7.2 | | 9.1 | | | |
| Approach LOS | | B | A | | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 17.5 | | 8.3 | 6.4 | 11.1 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 36.0 | | 16.0 | 11.0 | 21.0 | | |
| Max Q Clear Time (g_c+I1), s | | 2.8 | | 4.6 | 3.9 | 5.0 | | |
| Green Ext Time (p_c), s | | 2.4 | | 0.5 | 0.1 | 2.1 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 9.1 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/6/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↙ | ↘ | ↑ | ↘ | ↙ | ↑ |
| Traffic Volume (vph) | 29 | 88 | 109 | 87 | 138 | 367 |
| Future Volume (vph) | 29 | 88 | 109 | 87 | 138 | 367 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1736 | 1827 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 34 | 104 | 128 | 102 | 162 | 432 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 34 | 104 | 128 | 102 | 162 | 432 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 29.3% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|---|
| Int Delay, s/veh | 3 |
|------------------|---|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 29 | 88 | 109 | 87 | 138 | 367 |
| Future Vol, veh/h | 29 | 88 | 109 | 87 | 138 | 367 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 4 | 4 |
| Mvmt Flow | 34 | 104 | 128 | 102 | 162 | 432 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 884 | 128 | 0 0 128 0 |
| Stage 1 | 128 | - | - - - - |
| Stage 2 | 756 | - | - - - - |
| Critical Hdwy | 6.4 | 6.2 | - - 4.14 - |
| Critical Hdwy Stg 1 | 5.4 | - | - - - - |
| Critical Hdwy Stg 2 | 5.4 | - | - - - - |
| Follow-up Hdwy | 3.5 | 3.3 | - - 2.236 - |
| Pot Cap-1 Maneuver | 318 | 927 | - - 1446 - |
| Stage 1 | 903 | - | - - - - |
| Stage 2 | 467 | - | - - - - |
| Platoon blocked, % | | | - - - |
| Mov Cap-1 Maneuver | 282 | 927 | - - 1446 - |
| Mov Cap-2 Maneuver | 282 | - | - - - - |
| Stage 1 | 903 | - | - - - - |
| Stage 2 | 415 | - | - - - - |























| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 11.9 | 0 | 2.1 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 282 | 927 | 1446 | - |
| HCM Lane V/C Ratio | - | - | 0.121 | 0.112 | 0.112 | - |
| HCM Control Delay (s) | - | - | 19.5 | 9.4 | 7.8 | - |
| HCM Lane LOS | - | - | C | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.4 | 0.4 | 0.4 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/6/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  | |  |  | |  |  |  |
| Traffic Volume (vph) | 140 | 11 | 19 | 26 | 53 | 25 | 91 | 305 | 7 | 11 | 242 | 205 |
| Future Volume (vph) | 140 | 11 | 19 | 26 | 53 | 25 | 91 | 305 | 7 | 11 | 242 | 205 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.952 | | | 0.997 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1736 | 1827 | 1553 | 1752 | 3337 | 0 | 1770 | 3529 | 0 | 1736 | 1827 | 1553 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1736 | 1827 | 1553 | 1752 | 3337 | 0 | 1770 | 3529 | 0 | 1736 | 1827 | 1553 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 3% | 3% | 3% | 2% | 2% | 2% | 4% | 4% | 4% |
| Adj. Flow (vph) | 179 | 14 | 24 | 33 | 68 | 32 | 117 | 391 | 9 | 14 | 310 | 263 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 179 | 14 | 24 | 33 | 100 | 0 | 117 | 400 | 0 | 14 | 310 | 263 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 42.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

| Intersection | | | | | | | | | | | | |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Intersection Delay, s/veh | 16.8 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
| Traffic Vol, veh/h | 0 | 140 | 11 | 19 | 0 | 26 | 53 | 25 | 0 | 91 | 305 | 7 |
| Future Vol, veh/h | 0 | 140 | 11 | 19 | 0 | 26 | 53 | 25 | 0 | 91 | 305 | 7 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 179 | 14 | 24 | 0 | 33 | 68 | 32 | 0 | 117 | 391 | 9 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |
| Approach | EB | | | WB | | | | NB | | | | |
| Opposing Approach | WB | | | EB | | | | SB | | | | |
| Opposing Lanes | 3 | | | 3 | | | | 3 | | | | |
| Conflicting Approach Left | SB | | | NB | | | | EB | | | | |
| Conflicting Lanes Left | 3 | | | 3 | | | | 3 | | | | |
| Conflicting Approach Right | NB | | | SB | | | | WB | | | | |
| Conflicting Lanes Right | 3 | | | 3 | | | | 3 | | | | |
| HCM Control Delay | 16.8 | | | 12.3 | | | | 15.8 | | | | |
| HCM LOS | C | | | B | | | | C | | | | |
| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 | |
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| Vol Thru, % | 0% | 100% | 94% | 0% | 100% | 0% | 0% | 100% | 41% | 0% | 100% | |
| Vol Right, % | 0% | 0% | 6% | 0% | 0% | 100% | 0% | 0% | 59% | 0% | 0% | |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | |
| Traffic Vol by Lane | 91 | 203 | 109 | 140 | 11 | 19 | 26 | 35 | 43 | 11 | 242 | |
| LT Vol | 91 | 0 | 0 | 140 | 0 | 0 | 26 | 0 | 0 | 11 | 0 | |
| Through Vol | 0 | 203 | 102 | 0 | 11 | 0 | 0 | 35 | 18 | 0 | 242 | |
| RT Vol | 0 | 0 | 7 | 0 | 0 | 19 | 0 | 0 | 25 | 0 | 0 | |
| Lane Flow Rate | 117 | 261 | 139 | 179 | 14 | 24 | 33 | 45 | 55 | 14 | 310 | |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | |
| Degree of Util (X) | 0.256 | 0.536 | 0.285 | 0.435 | 0.032 | 0.051 | 0.083 | 0.107 | 0.123 | 0.031 | 0.633 | |
| Departure Headway (Hd) | 7.904 | 7.404 | 7.359 | 8.724 | 8.224 | 7.524 | 9.017 | 8.517 | 8.107 | 7.846 | 7.346 | |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Cap | 455 | 487 | 488 | 413 | 435 | 475 | 397 | 420 | 441 | 457 | 493 | |
| Service Time | 5.65 | 5.15 | 5.105 | 6.478 | 5.978 | 5.278 | 6.778 | 6.278 | 5.868 | 5.589 | 5.089 | |
| HCM Lane V/C Ratio | 0.257 | 0.536 | 0.285 | 0.433 | 0.032 | 0.051 | 0.083 | 0.107 | 0.125 | 0.031 | 0.629 | |
| HCM Control Delay | 13.4 | 18.4 | 13 | 18.1 | 11.3 | 10.7 | 12.6 | 12.3 | 12 | 10.8 | 22 | |
| HCM Lane LOS | B | C | B | C | B | B | B | B | B | B | C | |
| HCM 95th-tile Q | 1 | 3.1 | 1.2 | 2.2 | 0.1 | 0.2 | 0.3 | 0.4 | 0.4 | 0.1 | 4.3 | |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 11 | 242 | 205 |
| Future Vol, veh/h | 0 | 11 | 242 | 205 |
| Peak Hour Factor | 0.92 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 14 | 310 | 263 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

Opposing Approach NB
 Opposing Lanes 3
 Conflicting Approach Left WB
 Conflicting Lanes Left 3
 Conflicting Approach Right EB
 Conflicting Lanes Right 3
 HCM Control Delay 18.8
 HCM LOS C

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 35 | 26 | 2 | 166 | 69 | 154 | 16 | 252 | 71 | 60 | 220 | 37 |
| Future Volume (vph) | 35 | 26 | 2 | 166 | 69 | 154 | 16 | 252 | 71 | 60 | 220 | 37 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.946 | | | 0.972 | | | 0.984 | |
| Fl _t Protected | | 0.973 | | | 0.979 | | | 0.998 | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1737 | 0 | 0 | 1708 | 0 | 0 | 1723 | 0 | 0 | 1782 | 0 |
| Fl _t Permitted | | 0.973 | | | 0.979 | | | 0.998 | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1737 | 0 | 0 | 1708 | 0 | 0 | 1723 | 0 | 0 | 1782 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| Peak Hour Factor | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 3% | 3% | 3% | 7% | 7% | 7% | 4% | 4% | 4% |
| Adj. Flow (vph) | 43 | 32 | 2 | 202 | 84 | 188 | 20 | 307 | 87 | 73 | 268 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 77 | 0 | 0 | 474 | 0 | 0 | 414 | 0 | 0 | 386 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 69.6% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

HCM 2010 AWSC
 9: NW Brady Road & NW 16th Avenue

6/6/2016

| Intersection | | | | | | | | | | | | |
|----------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Intersection Delay, s/veh | 33.1 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
| Traffic Vol, veh/h | 0 | 35 | 26 | 2 | 0 | 166 | 69 | 154 | 0 | 16 | 252 | 71 |
| Future Vol, veh/h | 0 | 35 | 26 | 2 | 0 | 166 | 69 | 154 | 0 | 16 | 252 | 71 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 6 | 6 | 6 | 2 | 3 | 3 | 3 | 2 | 7 | 7 | 7 |
| Mvmt Flow | 0 | 43 | 32 | 2 | 0 | 202 | 84 | 188 | 0 | 20 | 307 | 87 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Approach | EB | | | | WB | | | | NB | | | |
| Opposing Approach | WB | | | | EB | | | | SB | | | |
| Opposing Lanes | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Left | SB | | | | NB | | | | EB | | | |
| Conflicting Lanes Left | 1 | | | | 1 | | | | 1 | | | |
| Conflicting Approach Right | NB | | | | SB | | | | WB | | | |
| Conflicting Lanes Right | 1 | | | | 1 | | | | 1 | | | |
| HCM Control Delay | 13.4 | | | | 40.9 | | | | 31.9 | | | |
| HCM LOS | B | | | | E | | | | D | | | |
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 | | | | | | | | |
| Vol Left, % | 5% | 56% | 43% | 19% | | | | | | | | |
| Vol Thru, % | 74% | 41% | 18% | 69% | | | | | | | | |
| Vol Right, % | 21% | 3% | 40% | 12% | | | | | | | | |
| Sign Control | Stop | Stop | Stop | Stop | | | | | | | | |
| Traffic Vol by Lane | 339 | 63 | 389 | 317 | | | | | | | | |
| LT Vol | 16 | 35 | 166 | 60 | | | | | | | | |
| Through Vol | 252 | 26 | 69 | 220 | | | | | | | | |
| RT Vol | 71 | 2 | 154 | 37 | | | | | | | | |
| Lane Flow Rate | 413 | 77 | 474 | 387 | | | | | | | | |
| Geometry Grp | 1 | 1 | 1 | 1 | | | | | | | | |
| Degree of Util (X) | 0.796 | 0.181 | 0.877 | 0.755 | | | | | | | | |
| Departure Headway (Hd) | 6.934 | 8.491 | 6.799 | 7.027 | | | | | | | | |
| Convergence, Y/N | Yes | Yes | Yes | Yes | | | | | | | | |
| Cap | 525 | 422 | 536 | 518 | | | | | | | | |
| Service Time | 4.959 | 6.555 | 4.799 | 5.053 | | | | | | | | |
| HCM Lane V/C Ratio | 0.787 | 0.182 | 0.884 | 0.747 | | | | | | | | |
| HCM Control Delay | 31.9 | 13.4 | 40.9 | 28.7 | | | | | | | | |
| HCM Lane LOS | D | B | E | D | | | | | | | | |
| HCM 95th-tile Q | 7.5 | 0.7 | 9.7 | 6.5 | | | | | | | | |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 60 | 220 | 37 |
| Future Vol, veh/h | 0 | 60 | 220 | 37 |
| Peak Hour Factor | 0.92 | 0.82 | 0.82 | 0.82 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 73 | 268 | 45 |
| Number of Lanes | 0 | 0 | 1 | 0 |

Approach SB

| | |
|----------------------------|------|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 28.7 |
| HCM LOS | D |

Lane

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/6/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 133 | 14 | 251 | 45 | 6 | 401 |
| Future Volume (vph) | 133 | 14 | 251 | 45 | 6 | 401 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.980 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1790 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1790 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| Heavy Vehicles (%) | 2% | 2% | 4% | 4% | 1% | 1% |
| Adj. Flow (vph) | 160 | 17 | 302 | 54 | 7 | 483 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 160 | 17 | 356 | 0 | 7 | 483 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 35.1% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

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

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 133 | 14 | 251 | 45 | 6 | 401 |
| Future Vol, veh/h | 133 | 14 | 251 | 45 | 6 | 401 |
| 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 | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 4 | 4 | 1 | 1 |
| Mvmt Flow | 160 | 17 | 302 | 54 | 7 | 483 |

| Major/Minor | Minor1 | Minor2 | Major1 | Major2 | Major3 | Major4 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 828 | 330 | 0 | 0 | 357 | 0 |
| Stage 1 | 330 | - | - | - | - | - |
| Stage 2 | 498 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.11 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.209 | - |
| Pot Cap-1 Maneuver | 341 | 712 | - | - | 1207 | - |
| Stage 1 | 728 | - | - | - | - | - |
| Stage 2 | 611 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 339 | 712 | - | - | 1207 | - |
| Mov Cap-2 Maneuver | 339 | - | - | - | - | - |
| Stage 1 | 728 | - | - | - | - | - |
| Stage 2 | 607 | - | - | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 23.4 | 0 | 0.1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 339 | 712 | 1207 | - |
| HCM Lane V/C Ratio | - | - | 0.473 | 0.024 | 0.006 | - |
| HCM Control Delay (s) | - | - | 24.8 | 10.2 | 8 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 2.4 | 0.1 | 0 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/6/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 54 | 272 | 256 | 4 | 13 | 52 |
| Future Volume (vph) | 54 | 272 | 256 | 4 | 13 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Frt | | | 0.998 | | 0.892 | |
| Flt Protected | 0.950 | | | | 0.990 | |
| Satd. Flow (prot) | 1752 | 3505 | 3532 | 0 | 1678 | 0 |
| Flt Permitted | 0.950 | | | | 0.990 | |
| Satd. Flow (perm) | 1752 | 3505 | 3532 | 0 | 1678 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1600 | 2066 | | 960 | |
| Travel Time (s) | | 27.3 | 35.2 | | 21.8 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 59 | 299 | 281 | 4 | 14 | 57 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 59 | 299 | 285 | 0 | 71 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 24.5% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.7 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 54 | 272 | 256 | 4 | 13 | 52 |
| Future Vol, veh/h | 54 | 272 | 256 | 4 | 13 | 52 |
| 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Mvmt Flow | 59 | 299 | 281 | 4 | 14 | 57 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 286 | 0 | 143 |
| Stage 1 | - | - | 284 |
| Stage 2 | - | - | 268 |
| Critical Hdwy | 4.16 | - | 6.9 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.23 | - | 3.3 |
| Pot Cap-1 Maneuver | 1266 | - | 885 |
| Stage 1 | - | - | 745 |
| Stage 2 | - | - | 759 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1266 | - | 885 |
| Mov Cap-2 Maneuver | - | - | 447 |
| Stage 1 | - | - | 745 |
| Stage 2 | - | - | 724 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.3 | 0 | 10.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1266 | - | - | - | 740 |
| HCM Lane V/C Ratio | 0.047 | - | - | - | 0.097 |
| HCM Control Delay (s) | 8 | - | - | - | 10.4 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.3 |

Lanes, Volumes, Timings

12: Project Access & NW Camas Meadows Drive

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|------|------|-------|-------|------|-------|------|------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 215 | 8 | 13 | 270 | 0 | 30 | 0 | 43 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 215 | 8 | 13 | 270 | 0 | 30 | 0 | 43 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | 0.994 | | | | | | 0.921 | | | | | |
| Flt Protected | | | 0.950 | | | | 0.980 | | | | | |
| Satd. Flow (prot) | 1863 | 1852 | 0 | 1770 | 1863 | 0 | 0 | 1681 | 0 | 0 | 1863 | 0 |
| Flt Permitted | | | 0.950 | | | | 0.980 | | | | | |
| Satd. Flow (perm) | 1863 | 1852 | 0 | 1770 | 1863 | 0 | 0 | 1681 | 0 | 0 | 1863 | 0 |
| Link Speed (mph) | 35 | | | | 35 | | 25 | | | | 25 | |
| Link Distance (ft) | 1552 | | | | 818 | | 348 | | | | 246 | |
| Travel Time (s) | 30.2 | | | | 15.9 | | 9.5 | | | | 6.7 | |
| 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 |
| Adj. Flow (vph) | 0 | 234 | 9 | 14 | 293 | 0 | 33 | 0 | 47 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 243 | 0 | 14 | 293 | 0 | 0 | 80 | 0 | 0 | 0 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 12 | | | | 12 | | 0 | | | | 0 | |
| Link Offset(ft) | 0 | | | | 0 | | 0 | | | | 0 | |
| Crosswalk Width(ft) | 16 | | | | 16 | | 16 | | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | Free | | | | Free | | Stop | | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 25.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

HCM 2010 TWSC
 12: Project Access & NW Camas Meadows Drive

6/6/2016

Intersection

Int Delay, s/veh 1.7

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 215 | 8 | 13 | 270 | 0 | 30 | 0 | 43 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 215 | 8 | 13 | 270 | 0 | 30 | 0 | 43 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | 0 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 234 | 9 | 14 | 293 | 0 | 33 | 0 | 47 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 293 | 0 | 0 | 242 | 0 | 0 | 560 | 560 | 238 | 583 | 564 | 293 |
| Stage 1 | - | - | - | - | - | - | 238 | 238 | - | 322 | 322 | - |
| Stage 2 | - | - | - | - | - | - | 322 | 322 | - | 261 | 242 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1269 | - | - | 1324 | - | - | 439 | 437 | 801 | 424 | 435 | 746 |
| Stage 1 | - | - | - | - | - | - | 765 | 708 | - | 690 | 651 | - |
| Stage 2 | - | - | - | - | - | - | 690 | 651 | - | 744 | 705 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1269 | - | - | 1324 | - | - | 435 | 432 | 801 | 396 | 430 | 746 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 435 | 432 | - | 396 | 430 | - |
| Stage 1 | - | - | - | - | - | - | 765 | 708 | - | 690 | 644 | - |
| Stage 2 | - | - | - | - | - | - | 683 | 644 | - | 701 | 705 | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|-----|----|----|
| HCM Control Delay, s | 0 | 0.4 | 12 | 0 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 595 | 1269 | - | - | 1324 | - | - | - |
| HCM Lane V/C Ratio | 0.133 | - | - | - | 0.011 | - | - | - |
| HCM Control Delay (s) | 12 | 0 | - | - | 7.7 | - | - | 0 |
| HCM Lane LOS | B | A | - | - | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.5 | 0 | - | - | 0 | - | - | - |

Lanes, Volumes, Timings
 13: NW Payne Street & Project Access

6/6/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 21 | 5 | 116 | 7 | 2 | 83 |
| Future Volume (vph) | 21 | 5 | 116 | 7 | 2 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.976 | | 0.992 | | | |
| Flt Protected | 0.961 | | | | | 0.999 |
| Satd. Flow (prot) | 1747 | 0 | 1848 | 0 | 0 | 1861 |
| Flt Permitted | 0.961 | | | | | 0.999 |
| Satd. Flow (perm) | 1747 | 0 | 1848 | 0 | 0 | 1861 |
| Link Speed (mph) | 25 | | 30 | | | 30 |
| Link Distance (ft) | 302 | | 960 | | | 750 |
| Travel Time (s) | 8.2 | | 21.8 | | | 17.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 23 | 5 | 126 | 8 | 2 | 90 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 28 | 0 | 134 | 0 | 0 | 92 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 0 | | | 0 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 16.5% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.2 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 21 | 5 | 116 | 7 | 2 | 83 |
| Future Vol, veh/h | 21 | 5 | 116 | 7 | 2 | 83 |
| 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 23 | 5 | 126 | 8 | 2 | 90 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 225 | 130 | 0 0 134 0 |
| Stage 1 | 130 | - | - - - - |
| Stage 2 | 95 | - | - - - - |
| Critical Hdwy | 6.42 | 6.22 | - - 4.12 - |
| Critical Hdwy Stg 1 | 5.42 | - | - - - - |
| Critical Hdwy Stg 2 | 5.42 | - | - - - - |
| Follow-up Hdwy | 3.518 | 3.318 | - - 2.218 - |
| Pot Cap-1 Maneuver | 763 | 920 | - - 1451 - |
| Stage 1 | 896 | - | - - - - |
| Stage 2 | 929 | - | - - - - |
| Platoon blocked, % | | | - - - - |
| Mov Cap-1 Maneuver | 762 | 920 | - - 1451 - |
| Mov Cap-2 Maneuver | 762 | - | - - - - |
| Stage 1 | 896 | - | - - - - |
| Stage 2 | 928 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 9.7 | 0 | 0.2 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-----|
| Capacity (veh/h) | - | - | 788 | 1451 | - |
| HCM Lane V/C Ratio | - | - | 0.036 | 0.001 | - |
| HCM Control Delay (s) | - | - | 9.7 | 7.5 | 0 |
| HCM Lane LOS | - | - | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0 | - |

Lanes, Volumes, Timings
1: NE 192nd Avenue & NE 13th Street

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 134 | 145 | 470 | 286 | 125 | 364 |
| Future Volume (vph) | 134 | 145 | 470 | 286 | 125 | 364 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.930 | | 0.949 | | | |
| Flt Protected | 0.977 | | | | 0.950 | |
| Satd. Flow (prot) | 1709 | 0 | 1785 | 0 | 1752 | 1845 |
| Flt Permitted | 0.977 | | | | 0.950 | |
| Satd. Flow (perm) | 1709 | 0 | 1785 | 0 | 1752 | 1845 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | 41 | | 27 | | | |
| Link Speed (mph) | 35 | | 40 | | | 40 |
| Link Distance (ft) | 2662 | | 3859 | | | 1400 |
| Travel Time (s) | 51.9 | | 65.8 | | | 23.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 3% | 3% |
| Adj. Flow (vph) | 146 | 158 | 511 | 311 | 136 | 396 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 304 | 0 | 822 | 0 | 136 | 396 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Number of Detectors | 1 | | 2 | | 1 | 2 |
| Detector Template | Left | | Thru | | Left | Thru |
| Leading Detector (ft) | 20 | | 100 | | 20 | 100 |
| Trailing Detector (ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Position(ft) | 0 | | 0 | | 0 | 0 |
| Detector 1 Size(ft) | 20 | | 6 | | 20 | 6 |
| Detector 1 Type | Cl+Ex | | Cl+Ex | | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(ft) | | | 94 | | | 94 |
| Detector 2 Size(ft) | | | 6 | | | 6 |
| Detector 2 Type | | | Cl+Ex | | | Cl+Ex |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | | 0.0 | | | 0.0 |
| Turn Type | Prot | | NA | | Prot | NA |
| Protected Phases | 6 | | 4 | | 3 | 8 |
| Permitted Phases | | | | | | |
| Detector Phase | 6 | | 4 | | 3 | 8 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

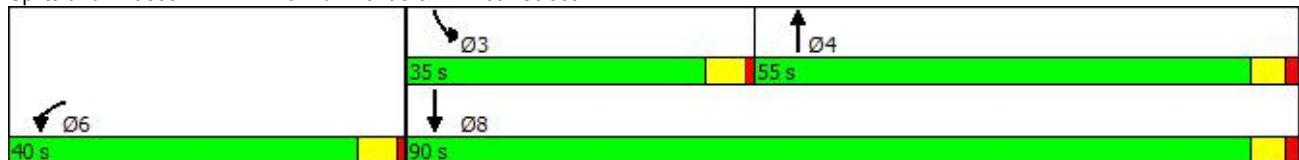


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|-------|-----|-------|-----|-------|-------|
| Minimum Initial (s) | 5.0 | | 7.0 | | 5.0 | 15.0 |
| Minimum Split (s) | 25.0 | | 28.0 | | 10.0 | 20.0 |
| Total Split (s) | 40.0 | | 55.0 | | 35.0 | 90.0 |
| Total Split (%) | 30.8% | | 42.3% | | 26.9% | 69.2% |
| Maximum Green (s) | 35.0 | | 50.0 | | 30.0 | 85.0 |
| Yellow Time (s) | 4.0 | | 3.4 | | 4.0 | 3.4 |
| All-Red Time (s) | 1.0 | | 1.6 | | 1.0 | 1.6 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | | 5.0 | | 5.0 | 5.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | | Min | | None | Min |
| Walk Time (s) | 7.0 | | 7.0 | | | 0.0 |
| Flash Dont Walk (s) | 13.0 | | 16.0 | | | 0.0 |
| Pedestrian Calls (#/hr) | 0 | | 0 | | | 0 |
| Act Effct Green (s) | 20.9 | | 50.5 | | 13.3 | 68.8 |
| Actuated g/C Ratio | 0.21 | | 0.51 | | 0.13 | 0.69 |
| v/c Ratio | 0.78 | | 0.90 | | 0.59 | 0.31 |
| Control Delay | 46.8 | | 38.1 | | 52.4 | 7.7 |
| Queue Delay | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay | 46.8 | | 38.1 | | 52.4 | 7.7 |
| LOS | D | | D | | D | A |
| Approach Delay | 46.8 | | 38.1 | | | 19.2 |
| Approach LOS | D | | D | | | B |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 130 |
| Actuated Cycle Length: | 99.8 |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.90 |
| Intersection Signal Delay: | 33.6 |
| Intersection Capacity Utilization: | 77.9% |
| Analysis Period (min): | 15 |
| Intersection LOS: | C |
| ICU Level of Service: | D |

Splits and Phases: 1: NE 192nd Avenue & NE 13th Street



Queues

1: NE 192nd Avenue & NE 13th Street

6/4/2016













| Lane Group | WBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 304 | 822 | 136 | 396 |
| v/c Ratio | 0.78 | 0.90 | 0.59 | 0.31 |
| Control Delay | 46.8 | 38.1 | 52.4 | 7.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 46.8 | 38.1 | 52.4 | 7.7 |
| Queue Length 50th (ft) | 158 | 436 | 82 | 87 |
| Queue Length 95th (ft) | 271 | #903 | 157 | 178 |
| Internal Link Dist (ft) | 2582 | 3779 | | 1320 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 631 | 916 | 531 | 1587 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.90 | 0.26 | 0.25 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 1: NE 192nd Avenue & NE 13th Street

6/4/2016

| |  |  |  |  |  |  | | |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations |  | |  | |  |  | | |
| Traffic Volume (veh/h) | 134 | 145 | 470 | 286 | 125 | 364 | | |
| Future Volume (veh/h) | 134 | 145 | 470 | 286 | 125 | 364 | | |
| Number | 1 | 16 | 4 | 14 | 3 | 8 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1881 | 1900 | 1881 | 1900 | 1845 | 1845 | | |
| Adj Flow Rate, veh/h | 146 | 158 | 511 | 311 | 136 | 396 | | |
| Adj No. of Lanes | 0 | 0 | 1 | 0 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 0 | 0 | 1 | 1 | 3 | 3 | | |
| Cap, veh/h | 168 | 182 | 567 | 345 | 173 | 1245 | | |
| Arrive On Green | 0.21 | 0.21 | 0.52 | 0.52 | 0.10 | 0.67 | | |
| Sat Flow, veh/h | 807 | 874 | 1096 | 667 | 1757 | 1845 | | |
| Grp Volume(v), veh/h | 305 | 0 | 0 | 822 | 136 | 396 | | |
| Grp Sat Flow(s),veh/h/ln | 1687 | 0 | 0 | 1763 | 1757 | 1845 | | |
| Q Serve(g_s), s | 14.9 | 0.0 | 0.0 | 36.0 | 6.5 | 7.6 | | |
| Cycle Q Clear(g_c), s | 14.9 | 0.0 | 0.0 | 36.0 | 6.5 | 7.6 | | |
| Prop In Lane | 0.48 | 0.52 | | 0.38 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 351 | 0 | 0 | 913 | 173 | 1245 | | |
| V/C Ratio(X) | 0.87 | 0.00 | 0.00 | 0.90 | 0.78 | 0.32 | | |
| Avail Cap(c_a), veh/h | 690 | 0 | 0 | 1031 | 616 | 1833 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(l) | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 32.7 | 0.0 | 0.0 | 18.6 | 37.7 | 5.8 | | |
| Incr Delay (d2), s/veh | 6.6 | 0.0 | 0.0 | 10.0 | 7.6 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.6 | 0.0 | 0.0 | 19.9 | 3.5 | 3.9 | | |
| LnGrp Delay(d),s/veh | 39.3 | 0.0 | 0.0 | 28.6 | 45.2 | 5.9 | | |
| LnGrp LOS | D | | | C | D | A | | |
| Approach Vol, veh/h | 305 | | 822 | | | 532 | | |
| Approach Delay, s/veh | 39.3 | | 28.6 | | | 16.0 | | |
| Approach LOS | D | | C | | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 13.4 | 49.3 | | 22.8 | | 62.7 |
| Change Period (Y+Rc), s | | | 5.0 | * 5 | | 5.0 | | * 5 |
| Max Green Setting (Gmax), s | | | 30.0 | * 50 | | 35.0 | | * 85 |
| Max Q Clear Time (g_c+I1), s | | | 8.5 | 38.0 | | 16.9 | | 9.6 |
| Green Ext Time (p_c), s | | | 0.3 | 6.2 | | 0.9 | | 11.5 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 26.5 | | | | | |
| HCM 2010 LOS | | | C | | | | | |
| Notes | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖↖ | ↖↗ | | ↖↖ | ↖ | ↖ | ↖ | ↖↖ | ↖ | ↖ | ↖↗ | |
| Traffic Volume (vph) | 174 | 258 | 47 | 428 | 307 | 99 | 82 | 601 | 318 | 116 | 301 | 56 |
| Future Volume (vph) | 174 | 258 | 47 | 428 | 307 | 99 | 82 | 601 | 318 | 116 | 301 | 56 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.97 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Fr t | | 0.977 | | | | 0.850 | | | 0.850 | | 0.977 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3502 | 3527 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3458 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 3502 | 3527 | 0 | 3433 | 1863 | 1583 | 1770 | 3539 | 1583 | 1770 | 3458 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 22 | | | | 85 | | | 273 | | | 23 |
| Link Speed (mph) | | 40 | | | 40 | | | 40 | | | 40 | |
| Link Distance (ft) | | 5794 | | | 3629 | | | 4001 | | | 3859 | |
| Travel Time (s) | | 98.8 | | | 61.9 | | | 68.2 | | | 65.8 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 181 | 269 | 49 | 446 | 320 | 103 | 85 | 626 | 331 | 121 | 314 | 58 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 181 | 318 | 0 | 446 | 320 | 103 | 85 | 626 | 331 | 121 | 372 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 24 | | | 24 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov | Prot | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Permitted Phases | | | | | | 6 | | | 4 | | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 3 | 7 | 4 | 1 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

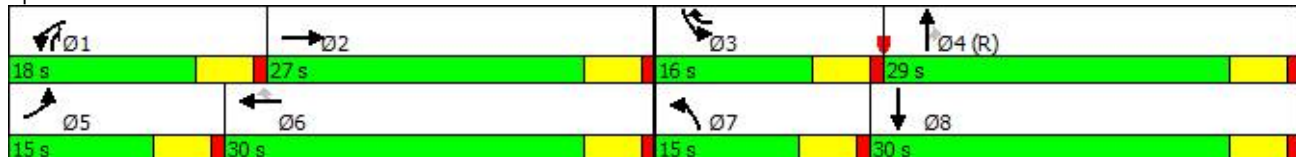


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | |
| Minimum Split (s) | 10.0 | 27.0 | | 10.0 | 30.0 | 10.0 | 10.0 | 29.0 | 10.0 | 10.0 | 29.0 | |
| Total Split (s) | 15.0 | 27.0 | | 18.0 | 30.0 | 16.0 | 15.0 | 29.0 | 18.0 | 16.0 | 30.0 | |
| Total Split (%) | 16.7% | 30.0% | | 20.0% | 33.3% | 17.8% | 16.7% | 32.2% | 20.0% | 17.8% | 33.3% | |
| Maximum Green (s) | 10.0 | 22.0 | | 13.0 | 25.0 | 11.0 | 10.0 | 24.0 | 13.0 | 11.0 | 25.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | None | None | C-Max | None | None | Max | |
| Walk Time (s) | | 6.0 | | | 6.0 | | | 6.0 | | | 6.0 | |
| Flash Dont Walk (s) | | 16.0 | | | 19.0 | | | 18.0 | | | 18.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 9.2 | 16.5 | | 13.0 | 20.3 | 35.7 | 9.0 | 30.1 | 48.1 | 10.3 | 33.7 | |
| Actuated g/C Ratio | 0.10 | 0.18 | | 0.14 | 0.23 | 0.40 | 0.10 | 0.33 | 0.53 | 0.11 | 0.37 | |
| v/c Ratio | 0.51 | 0.48 | | 0.90 | 0.76 | 0.15 | 0.48 | 0.53 | 0.34 | 0.60 | 0.28 | |
| Control Delay | 43.3 | 32.0 | | 61.2 | 44.4 | 5.2 | 47.4 | 27.7 | 4.2 | 50.1 | 21.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 43.3 | 32.0 | | 61.2 | 44.4 | 5.2 | 47.4 | 27.7 | 4.2 | 50.1 | 21.7 | |
| LOS | D | C | | E | D | A | D | C | A | D | C | |
| Approach Delay | | 36.1 | | | 48.4 | | | 21.9 | | | 28.7 | |
| Approach LOS | | D | | | D | | | C | | | C | |

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 77 (86%), Referenced to phase 4:NBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 33.4
 Intersection LOS: C
 Intersection Capacity Utilization 60.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street



Queues

2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 181 | 318 | 446 | 320 | 103 | 85 | 626 | 331 | 121 | 372 |
| v/c Ratio | 0.51 | 0.48 | 0.90 | 0.76 | 0.15 | 0.48 | 0.53 | 0.34 | 0.60 | 0.28 |
| Control Delay | 43.3 | 32.0 | 61.2 | 44.4 | 5.2 | 47.4 | 27.7 | 4.2 | 50.1 | 21.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.3 | 32.0 | 61.2 | 44.4 | 5.2 | 47.4 | 27.7 | 4.2 | 50.1 | 21.7 |
| Queue Length 50th (ft) | 50 | 78 | 130 | 170 | 6 | 46 | 155 | 16 | 66 | 76 |
| Queue Length 95th (ft) | 83 | 111 | #216 | 247 | 33 | 92 | 225 | 65 | 122 | 124 |
| Internal Link Dist (ft) | | 5714 | | 3549 | | | 3921 | | | 3779 |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 389 | 878 | 495 | 517 | 696 | 201 | 1184 | 973 | 224 | 1308 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.36 | 0.90 | 0.62 | 0.15 | 0.42 | 0.53 | 0.34 | 0.54 | 0.28 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 2: SE 192nd Avenue/NE 192nd Avenue & SE 1st Street

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 174 | 258 | 47 | 428 | 307 | 99 | 82 | 601 | 318 | 116 | 301 | 56 |
| Future Volume (veh/h) | 174 | 258 | 47 | 428 | 307 | 99 | 82 | 601 | 318 | 116 | 301 | 56 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1900 | 1900 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 181 | 269 | 49 | 446 | 320 | 103 | 85 | 626 | 331 | 121 | 314 | 58 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 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, % | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 259 | 436 | 78 | 497 | 398 | 436 | 109 | 1434 | 758 | 152 | 1283 | 234 |
| Arrive On Green | 0.07 | 0.14 | 0.14 | 0.14 | 0.21 | 0.21 | 0.06 | 0.41 | 0.41 | 0.09 | 0.43 | 0.43 |
| Sat Flow, veh/h | 3510 | 3059 | 550 | 3442 | 1863 | 1583 | 1774 | 3539 | 1583 | 1774 | 2990 | 546 |
| Grp Volume(v), veh/h | 181 | 157 | 161 | 446 | 320 | 103 | 85 | 626 | 331 | 121 | 184 | 188 |
| Grp Sat Flow(s),veh/h/ln | 1755 | 1805 | 1803 | 1721 | 1863 | 1583 | 1774 | 1770 | 1583 | 1774 | 1770 | 1766 |
| Q Serve(g_s), s | 4.5 | 7.4 | 7.6 | 11.5 | 14.7 | 4.5 | 4.3 | 11.5 | 12.4 | 6.0 | 6.0 | 6.1 |
| Cycle Q Clear(g_c), s | 4.5 | 7.4 | 7.6 | 11.5 | 14.7 | 4.5 | 4.3 | 11.5 | 12.4 | 6.0 | 6.0 | 6.1 |
| Prop In Lane | 1.00 | | 0.30 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.31 |
| Lane Grp Cap(c), veh/h | 259 | 258 | 257 | 497 | 398 | 436 | 109 | 1434 | 758 | 152 | 759 | 758 |
| V/C Ratio(X) | 0.70 | 0.61 | 0.62 | 0.90 | 0.80 | 0.24 | 0.78 | 0.44 | 0.44 | 0.80 | 0.24 | 0.25 |
| Avail Cap(c_a), veh/h | 390 | 441 | 441 | 497 | 517 | 537 | 197 | 1434 | 758 | 217 | 759 | 758 |
| 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(l) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.85 | 0.85 | 0.85 |
| Uniform Delay (d), s/veh | 40.7 | 36.2 | 36.3 | 37.8 | 33.6 | 25.3 | 41.6 | 19.3 | 15.5 | 40.4 | 16.4 | 16.4 |
| Incr Delay (d2), s/veh | 3.4 | 2.3 | 2.5 | 18.8 | 6.9 | 0.3 | 11.2 | 1.0 | 1.8 | 10.8 | 0.6 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.3 | 3.8 | 3.9 | 6.8 | 8.3 | 2.0 | 2.4 | 5.8 | 5.8 | 3.4 | 3.1 | 3.1 |
| LnGrp Delay(d),s/veh | 44.1 | 38.6 | 38.8 | 56.7 | 40.6 | 25.6 | 52.8 | 20.3 | 17.3 | 51.2 | 17.0 | 17.1 |
| LnGrp LOS | D | D | D | E | D | C | D | C | B | D | B | B |
| Approach Vol, veh/h | | 499 | | | 869 | | | 1042 | | | 493 | |
| Approach Delay, s/veh | | 40.7 | | | 47.1 | | | 22.0 | | | 25.4 | |
| 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 | 18.0 | 17.8 | 12.7 | 41.5 | 11.6 | 24.2 | 10.5 | 43.6 | | | | |
| 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 | 13.0 | 22.0 | 11.0 | 24.0 | 10.0 | 25.0 | 10.0 | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 13.5 | 9.6 | 8.0 | 14.4 | 6.5 | 16.7 | 6.3 | 8.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.2 | 0.1 | 4.9 | 0.2 | 2.5 | 0.0 | 6.9 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 33.3 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 66 | 453 | 261 | 43 | 237 | 113 | 251 | 196 | 66 | 78 | 167 | 65 |
| Future Volume (vph) | 66 | 453 | 261 | 43 | 237 | 113 | 251 | 196 | 66 | 78 | 167 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.850 | | 0.952 | | | 0.962 | | | 0.958 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1805 | 3437 | 0 | 1770 | 1792 | 0 | 1752 | 1767 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1805 | 3437 | 0 | 1770 | 1792 | 0 | 1752 | 1767 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 284 | | 95 | | | 21 | | | 19 | |
| Link Speed (mph) | | 40 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 2066 | | | 8793 | | | 1133 | | | 1857 | |
| Travel Time (s) | | 35.2 | | | 171.3 | | | 22.1 | | | 36.2 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 72 | 492 | 284 | 47 | 258 | 123 | 273 | 213 | 72 | 85 | 182 | 71 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 72 | 492 | 284 | 47 | 381 | 0 | 273 | 285 | 0 | 85 | 253 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | | 20 | 100 | | 20 | 100 | |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Detector 1 Size(ft) | 20 | 6 | 20 | 20 | 6 | | 20 | 6 | | 20 | 6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | | Prot | NA | | Prot | NA | |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

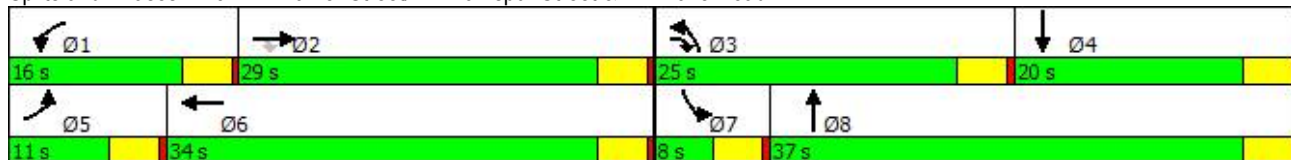


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-------|-------|-------|-----|-------|-------|-----|------|-------|-----|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Minimum Split (s) | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | |
| Total Split (s) | 11.0 | 29.0 | 25.0 | 16.0 | 34.0 | | 25.0 | 37.0 | | 8.0 | 20.0 | |
| Total Split (%) | 12.2% | 32.2% | 27.8% | 17.8% | 37.8% | | 27.8% | 41.1% | | 8.9% | 22.2% | |
| Maximum Green (s) | 7.0 | 25.0 | 21.0 | 12.0 | 30.0 | | 21.0 | 33.0 | | 4.0 | 16.0 | |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Min | None | None | Min | | None | None | | None | None | |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.0 | 23.8 | 44.2 | 7.7 | 22.0 | | 16.2 | 26.1 | | 4.2 | 14.1 | |
| Actuated g/C Ratio | 0.10 | 0.32 | 0.60 | 0.11 | 0.30 | | 0.22 | 0.36 | | 0.06 | 0.19 | |
| v/c Ratio | 0.43 | 0.81 | 0.26 | 0.25 | 0.35 | | 0.70 | 0.44 | | 0.85 | 0.71 | |
| Control Delay | 45.0 | 38.5 | 1.9 | 38.3 | 17.1 | | 38.7 | 20.0 | | 99.8 | 41.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 45.0 | 38.5 | 1.9 | 38.3 | 17.1 | | 38.7 | 20.0 | | 99.8 | 41.5 | |
| LOS | D | D | A | D | B | | D | C | | F | D | |
| Approach Delay | | 26.8 | | | 19.4 | | | 29.2 | | | 56.1 | |
| Approach LOS | | C | | | B | | | C | | | E | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 73.3 |
| Natural Cycle: | 70 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.85 |
| Intersection Signal Delay: | 30.5 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 67.2% |
| ICU Level of Service: | C |
| Analysis Period (min): | 15 |

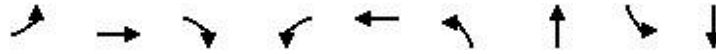
Splits and Phases: 3: NW Parker Street/NW Larkspur Street & NW Lake Road



Queues

3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 72 | 492 | 284 | 47 | 381 | 273 | 285 | 85 | 253 |
| v/c Ratio | 0.43 | 0.81 | 0.26 | 0.25 | 0.35 | 0.70 | 0.44 | 0.85 | 0.71 |
| Control Delay | 45.0 | 38.5 | 1.9 | 38.3 | 17.1 | 38.7 | 20.0 | 99.8 | 41.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 45.0 | 38.5 | 1.9 | 38.3 | 17.1 | 38.7 | 20.0 | 99.8 | 41.5 |
| Queue Length 50th (ft) | 36 | 237 | 0 | 23 | 57 | 131 | 100 | 45 | 113 |
| Queue Length 95th (ft) | #85 | #453 | 32 | 57 | 98 | 222 | 175 | #146 | #238 |
| Internal Link Dist (ft) | | 1986 | | | 8713 | | 1053 | | 1777 |
| Turn Bay Length (ft) | | | | | | | | | |
| Base Capacity (vph) | 180 | 677 | 1183 | 312 | 1539 | 535 | 863 | 100 | 421 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.73 | 0.24 | 0.15 | 0.25 | 0.51 | 0.33 | 0.85 | 0.60 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 3: NW Parker Street/NW Larkspur Street & NW Lake Road

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 66 | 453 | 261 | 43 | 237 | 113 | 251 | 196 | 66 | 78 | 167 | 65 |
| Future Volume (veh/h) | 66 | 453 | 261 | 43 | 237 | 113 | 251 | 196 | 66 | 78 | 167 | 65 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1881 | 1900 | 1900 | 1900 | 1863 | 1863 | 1900 | 1845 | 1845 | 1900 |
| Adj Flow Rate, veh/h | 72 | 492 | 284 | 47 | 258 | 123 | 273 | 213 | 72 | 85 | 182 | 71 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 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 | 0 | 0 | 0 | 2 | 2 | 2 | 3 | 3 | 3 |
| Cap, veh/h | 92 | 622 | 827 | 65 | 755 | 349 | 332 | 423 | 143 | 108 | 243 | 95 |
| Arrive On Green | 0.05 | 0.33 | 0.33 | 0.04 | 0.31 | 0.31 | 0.19 | 0.32 | 0.32 | 0.06 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1792 | 1881 | 1599 | 1810 | 2398 | 1111 | 1774 | 1333 | 451 | 1757 | 1264 | 493 |
| Grp Volume(v), veh/h | 72 | 492 | 284 | 47 | 192 | 189 | 273 | 0 | 285 | 85 | 0 | 253 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 1881 | 1599 | 1810 | 1805 | 1704 | 1774 | 0 | 1783 | 1757 | 0 | 1758 |
| Q Serve(g_s), s | 2.5 | 14.9 | 6.5 | 1.6 | 5.1 | 5.4 | 9.3 | 0.0 | 8.1 | 3.0 | 0.0 | 8.5 |
| Cycle Q Clear(g_c), s | 2.5 | 14.9 | 6.5 | 1.6 | 5.1 | 5.4 | 9.3 | 0.0 | 8.1 | 3.0 | 0.0 | 8.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.65 | 1.00 | | 0.25 | 1.00 | | 0.28 |
| Lane Grp Cap(c), veh/h | 92 | 622 | 827 | 65 | 568 | 536 | 332 | 0 | 566 | 108 | 0 | 337 |
| V/C Ratio(X) | 0.78 | 0.79 | 0.34 | 0.73 | 0.34 | 0.35 | 0.82 | 0.00 | 0.50 | 0.79 | 0.00 | 0.75 |
| Avail Cap(c_a), veh/h | 200 | 750 | 936 | 346 | 863 | 815 | 594 | 0 | 938 | 112 | 0 | 448 |
| 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 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.4 | 19.0 | 8.9 | 30.0 | 16.5 | 16.6 | 24.5 | 0.0 | 17.4 | 29.0 | 0.0 | 23.9 |
| Incr Delay (d2), s/veh | 13.2 | 4.8 | 0.2 | 14.5 | 0.4 | 0.4 | 5.1 | 0.0 | 0.7 | 29.3 | 0.0 | 4.9 |
| 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 | 1.6 | 8.5 | 2.9 | 1.1 | 2.6 | 2.6 | 5.0 | 0.0 | 4.1 | 2.3 | 0.0 | 4.6 |
| LnGrp Delay(d),s/veh | 42.6 | 23.9 | 9.1 | 44.4 | 16.8 | 17.0 | 29.6 | 0.0 | 18.1 | 58.3 | 0.0 | 28.8 |
| LnGrp LOS | D | C | A | D | B | B | C | | B | E | | C |
| Approach Vol, veh/h | | 848 | | | 428 | | | 558 | | | 338 | |
| Approach Delay, s/veh | | 20.5 | | | 19.9 | | | 23.7 | | | 36.2 | |
| Approach LOS | | C | | | B | | | C | | | 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 | 6.2 | 24.7 | 15.7 | 16.0 | 7.2 | 23.7 | 7.9 | 23.9 | | | | |
| 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 | 12.0 | 25.0 | 21.0 | 16.0 | 7.0 | 30.0 | 4.0 | 33.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 3.6 | 16.9 | 11.3 | 10.5 | 4.5 | 7.4 | 5.0 | 10.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.9 | 0.6 | 1.5 | 0.0 | 6.5 | 0.0 | 3.2 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 23.7 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 79 | 212 | 62 | 102 | 92 | 60 | 44 | 299 | 191 | 69 | 312 | 70 |
| Future Volume (vph) | 79 | 212 | 62 | 102 | 92 | 60 | 44 | 299 | 191 | 69 | 312 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | 0.966 | | | 0.941 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1817 | 0 | 1805 | 1788 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1817 | 0 | 1805 | 1788 | 0 | 1787 | 1881 | 1599 | 1787 | 1881 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 24 | | | 53 | | | | 203 | | | 91 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 5118 | | | 2897 | | | 2475 | | | 2991 | |
| Travel Time (s) | | 99.7 | | | 56.4 | | | 48.2 | | | 58.3 | |
| 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 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 84 | 226 | 66 | 109 | 98 | 64 | 47 | 318 | 203 | 73 | 332 | 74 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 84 | 292 | 0 | 109 | 162 | 0 | 47 | 318 | 203 | 73 | 332 | 74 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | | | 4 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | | 8.0 | 20.0 | | 8.0 | 20.0 | 8.0 | 8.0 | 20.0 | 8.0 |
| Total Split (s) | 12.0 | 20.0 | | 12.0 | 20.0 | | 8.0 | 20.0 | 12.0 | 8.0 | 20.0 | 12.0 |
| Total Split (%) | 20.0% | 33.3% | | 20.0% | 33.3% | | 13.3% | 33.3% | 20.0% | 13.3% | 33.3% | 20.0% |
| Maximum Green (s) | 8.0 | 16.0 | | 8.0 | 16.0 | | 4.0 | 16.0 | 8.0 | 4.0 | 16.0 | 8.0 |
| Yellow Time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | | None | Min | | None | None | None | None | None | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 7.8 | 13.0 | | 7.9 | 13.1 | | 4.6 | 13.7 | 26.2 | 4.6 | 13.7 | 26.1 |
| Actuated g/C Ratio | 0.16 | 0.27 | | 0.16 | 0.27 | | 0.10 | 0.28 | 0.54 | 0.10 | 0.28 | 0.54 |
| v/c Ratio | 0.29 | 0.58 | | 0.37 | 0.31 | | 0.28 | 0.59 | 0.21 | 0.43 | 0.62 | 0.08 |
| Control Delay | 25.7 | 21.7 | | 26.9 | 14.1 | | 30.6 | 23.0 | 2.4 | 37.8 | 23.9 | 2.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.7 | 21.7 | | 26.9 | 14.1 | | 30.6 | 23.0 | 2.4 | 37.8 | 23.9 | 2.2 |
| LOS | C | C | | C | B | | C | C | A | D | C | A |
| Approach Delay | | 22.6 | | | 19.2 | | | 16.3 | | | 22.7 | |
| Approach LOS | | C | | | B | | | B | | | C | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 48.3 |
| Natural Cycle: | 60 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.62 |
| Intersection Signal Delay: | 20.0 |
| Intersection LOS: | B |
| Intersection Capacity Utilization: | 53.7% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

Splits and Phases: 4: NW Parker Street & NW 38th Avenue

| | | | |
|------|------|-----|------|
| | | | |
| 12 s | 20 s | 8 s | 20 s |
| | | | |
| 12 s | 20 s | 8 s | 20 s |

Queues

4: NW Parker Street & NW 38th Avenue

6/4/2016



| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 84 | 292 | 109 | 162 | 47 | 318 | 203 | 73 | 332 | 74 |
| v/c Ratio | 0.29 | 0.58 | 0.37 | 0.31 | 0.28 | 0.59 | 0.21 | 0.43 | 0.62 | 0.08 |
| Control Delay | 25.7 | 21.7 | 26.9 | 14.1 | 30.6 | 23.0 | 2.4 | 37.8 | 23.9 | 2.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.7 | 21.7 | 26.9 | 14.1 | 30.6 | 23.0 | 2.4 | 37.8 | 23.9 | 2.2 |
| Queue Length 50th (ft) | 26 | 81 | 34 | 30 | 16 | 94 | 0 | 25 | 99 | 0 |
| Queue Length 95th (ft) | 64 | 152 | 79 | 73 | #46 | 175 | 29 | #81 | #187 | 14 |
| Internal Link Dist (ft) | | 5038 | | 2817 | | 2395 | | | 2911 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 338 | 702 | 341 | 709 | 169 | 711 | 996 | 169 | 711 | 947 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.25 | 0.42 | 0.32 | 0.23 | 0.28 | 0.45 | 0.20 | 0.43 | 0.47 | 0.08 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 4: NW Parker Street & NW 38th Avenue

6/4/2016

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 79 | 212 | 62 | 102 | 92 | 60 | 44 | 299 | 191 | 69 | 312 | 70 |
| Future Volume (veh/h) | 79 | 212 | 62 | 102 | 92 | 60 | 44 | 299 | 191 | 69 | 312 | 70 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | | 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 | 1900 | 1900 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 84 | 226 | 66 | 109 | 98 | 64 | 47 | 318 | 203 | 73 | 332 | 74 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 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, % | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 107 | 324 | 95 | 141 | 269 | 175 | 72 | 497 | 547 | 97 | 524 | 540 |
| Arrive On Green | 0.06 | 0.23 | 0.23 | 0.08 | 0.25 | 0.25 | 0.04 | 0.26 | 0.26 | 0.05 | 0.28 | 0.28 |
| Sat Flow, veh/h | 1792 | 1400 | 409 | 1810 | 1074 | 702 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Grp Volume(v), veh/h | 84 | 0 | 292 | 109 | 0 | 162 | 47 | 318 | 203 | 73 | 332 | 74 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 0 | 1809 | 1810 | 0 | 1776 | 1792 | 1881 | 1599 | 1792 | 1881 | 1599 |
| Q Serve(g_s), s | 2.0 | 0.0 | 6.4 | 2.5 | 0.0 | 3.2 | 1.1 | 6.4 | 4.1 | 1.7 | 6.6 | 1.4 |
| Cycle Q Clear(g_c), s | 2.0 | 0.0 | 6.4 | 2.5 | 0.0 | 3.2 | 1.1 | 6.4 | 4.1 | 1.7 | 6.6 | 1.4 |
| Prop In Lane | 1.00 | | 0.23 | 1.00 | | 0.40 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 107 | 0 | 419 | 141 | 0 | 444 | 72 | 497 | 547 | 97 | 524 | 540 |
| V/C Ratio(X) | 0.79 | 0.00 | 0.70 | 0.77 | 0.00 | 0.36 | 0.66 | 0.64 | 0.37 | 0.75 | 0.63 | 0.14 |
| Avail Cap(c_a), veh/h | 333 | 0 | 673 | 337 | 0 | 661 | 167 | 700 | 720 | 167 | 700 | 690 |
| 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 | 19.9 | 0.0 | 15.1 | 19.4 | 0.0 | 13.3 | 20.3 | 14.0 | 10.7 | 20.0 | 13.6 | 9.9 |
| Incr Delay (d2), s/veh | 12.0 | 0.0 | 2.1 | 8.6 | 0.0 | 0.5 | 9.8 | 1.4 | 0.4 | 11.1 | 1.3 | 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 | 1.3 | 0.0 | 3.4 | 1.6 | 0.0 | 1.6 | 0.7 | 3.5 | 1.8 | 1.2 | 3.6 | 0.6 |
| LnGrp Delay(d),s/veh | 32.0 | 0.0 | 17.2 | 28.0 | 0.0 | 13.8 | 30.1 | 15.4 | 11.1 | 31.1 | 14.9 | 10.0 |
| LnGrp LOS | C | | B | C | | B | C | B | B | C | B | A |
| Approach Vol, veh/h | | 376 | | | 271 | | | 568 | | | 479 | |
| Approach Delay, s/veh | | 20.5 | | | 19.5 | | | 15.1 | | | 16.6 | |
| Approach LOS | | C | | | B | | | B | | | 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 | 7.4 | 13.9 | 5.7 | 16.0 | 6.6 | 14.7 | 6.3 | 15.4 | | | | |
| 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 | 8.0 | 16.0 | 4.0 | 16.0 | 8.0 | 16.0 | 4.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 4.5 | 8.4 | 3.1 | 8.6 | 4.0 | 5.2 | 3.7 | 8.4 | | | | |
| Green Ext Time (p_c), s | 0.1 | 1.6 | 0.0 | 2.9 | 0.1 | 2.0 | 0.0 | 2.9 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 17.4 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | | ↖ | ↗ | | ↖ | ↑↑ | ↗ | ↖ | ↑↑ | ↗ |
| Traffic Volume (vph) | 6 | 0 | 9 | 367 | 3 | 44 | 8 | 1040 | 576 | 74 | 1100 | 4 |
| Future Volume (vph) | 6 | 0 | 9 | 367 | 3 | 44 | 8 | 1040 | 576 | 74 | 1100 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 0.850 | | | 0.859 | | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1570 | 1404 | 0 | 1787 | 1616 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1570 | 1404 | 0 | 1787 | 1616 | 0 | 1787 | 3574 | 1599 | 1787 | 3574 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 186 | | | 46 | | | | 606 | | | 69 |
| Link Speed (mph) | | 35 | | | 35 | | | 40 | | | 40 | |
| Link Distance (ft) | | 974 | | | 1416 | | | 814 | | | 3365 | |
| Travel Time (s) | | 19.0 | | | 27.6 | | | 13.9 | | | 57.4 | |
| 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 |
| Heavy Vehicles (%) | 15% | 15% | 15% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 6 | 0 | 9 | 386 | 3 | 46 | 8 | 1095 | 606 | 78 | 1158 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 6 | 9 | 0 | 386 | 49 | 0 | 8 | 1095 | 606 | 78 | 1158 | 4 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (ft) | 20 | 100 | | 20 | 100 | | 20 | 100 | 20 | 20 | 100 | 20 |
| Trailing Detector (ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | | 20 | 6 | | 20 | 6 | 20 | 20 | 6 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | | | 94 | | | 94 | | | 94 | |
| Detector 2 Size(ft) | | 6 | | | 6 | | | 6 | | | 6 | |
| Detector 2 Type | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Prot | NA | pm+ov | Prot | NA | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Permitted Phases | | | | | | | | | 4 | | | 8 |
| Detector Phase | 5 | 2 | | 1 | 6 | | 7 | 4 | 1 | 3 | 8 | 5 |
| Switch Phase | | | | | | | | | | | | |

Lanes, Volumes, Timings
5: SE 192nd Avenue & SE Brady Road

6/4/2016

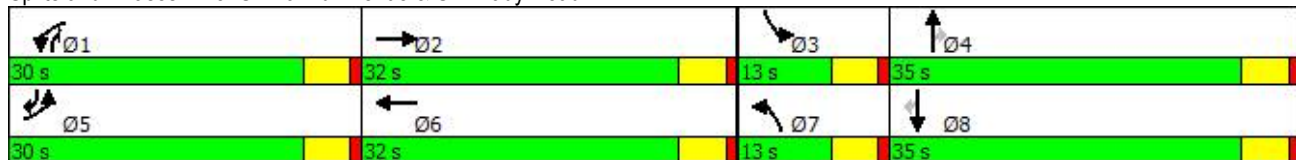


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 15.0 | 5.0 | 5.0 | 15.0 | 5.0 |
| Minimum Split (s) | 10.0 | 21.0 | | 10.0 | 21.0 | | 10.0 | 21.0 | 10.0 | 10.0 | 21.0 | 10.0 |
| Total Split (s) | 30.0 | 32.0 | | 30.0 | 32.0 | | 13.0 | 35.0 | 30.0 | 13.0 | 35.0 | 30.0 |
| Total Split (%) | 27.3% | 29.1% | | 27.3% | 29.1% | | 11.8% | 31.8% | 27.3% | 11.8% | 31.8% | 27.3% |
| Maximum Green (s) | 25.0 | 27.0 | | 25.0 | 27.0 | | 8.0 | 30.0 | 25.0 | 8.0 | 30.0 | 25.0 |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | Lead | Lead | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Recall Mode | None | None | | None | None | | None | Min | None | None | Min | None |
| Walk Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 5.1 | 5.1 | | 21.7 | 21.7 | | 5.1 | 30.7 | 58.8 | 6.7 | 38.3 | 48.5 |
| Actuated g/C Ratio | 0.07 | 0.07 | | 0.30 | 0.30 | | 0.07 | 0.42 | 0.80 | 0.09 | 0.52 | 0.66 |
| v/c Ratio | 0.06 | 0.03 | | 0.73 | 0.10 | | 0.06 | 0.73 | 0.43 | 0.48 | 0.62 | 0.00 |
| Control Delay | 38.0 | 0.2 | | 34.3 | 8.2 | | 38.0 | 24.3 | 1.4 | 44.9 | 16.6 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 38.0 | 0.2 | | 34.3 | 8.2 | | 38.0 | 24.3 | 1.4 | 44.9 | 16.6 | 0.0 |
| LOS | D | A | | C | A | | D | C | A | D | B | A |
| Approach Delay | | 15.3 | | | 31.3 | | | 16.3 | | | 18.4 | |
| Approach LOS | | B | | | C | | | B | | | B | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 110 |
| Actuated Cycle Length: | 73.5 |
| Natural Cycle: | 90 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.73 |
| Intersection Signal Delay: | 18.9 |
| Intersection Capacity Utilization: | 74.1% |
| Analysis Period (min): | 15 |
| Intersection LOS: | B |
| ICU Level of Service: | D |

Splits and Phases: 5: SE 192nd Avenue & SE Brady Road



Queues

5: SE 192nd Avenue & SE Brady Road

6/4/2016

























| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 6 | 9 | 386 | 49 | 8 | 1095 | 606 | 78 | 1158 | 4 |
| v/c Ratio | 0.06 | 0.03 | 0.73 | 0.10 | 0.06 | 0.73 | 0.43 | 0.48 | 0.62 | 0.00 |
| Control Delay | 38.0 | 0.2 | 34.3 | 8.2 | 38.0 | 24.3 | 1.4 | 44.9 | 16.6 | 0.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 38.0 | 0.2 | 34.3 | 8.2 | 38.0 | 24.3 | 1.4 | 44.9 | 16.6 | 0.0 |
| Queue Length 50th (ft) | 3 | 0 | 158 | 1 | 4 | 225 | 0 | 35 | 168 | 0 |
| Queue Length 95th (ft) | 16 | 0 | #327 | 27 | 19 | #423 | 30 | 87 | #406 | 0 |
| Internal Link Dist (ft) | | 894 | | 1336 | | 734 | | | 3285 | |
| Turn Bay Length (ft) | | | | | | | | | | |
| Base Capacity (vph) | 547 | 644 | 622 | 636 | 199 | 1493 | 1418 | 199 | 1860 | 1478 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.01 | 0.62 | 0.08 | 0.04 | 0.73 | 0.43 | 0.39 | 0.62 | 0.00 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

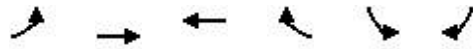
HCM 2010 Signalized Intersection Summary
 5: SE 192nd Avenue & SE Brady Road

6/4/2016

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 6 | 0 | 9 | 367 | 3 | 44 | 8 | 1040 | 576 | 74 | 1100 | 4 |
| Future Volume (veh/h) | 6 | 0 | 9 | 367 | 3 | 44 | 8 | 1040 | 576 | 74 | 1100 | 4 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 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 | 1652 | 1652 | 1900 | 1881 | 1881 | 1900 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 6 | 0 | 9 | 386 | 3 | 46 | 8 | 1095 | 606 | 78 | 1158 | 4 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 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, % | 15 | 15 | 15 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 12 | 0 | 69 | 425 | 28 | 422 | 18 | 1407 | 642 | 100 | 1571 | 1082 |
| Arrive On Green | 0.01 | 0.00 | 0.05 | 0.24 | 0.28 | 0.28 | 0.01 | 0.39 | 0.39 | 0.06 | 0.44 | 0.44 |
| Sat Flow, veh/h | 1573 | 0 | 1404 | 1792 | 99 | 1515 | 1792 | 3574 | 1599 | 1792 | 3574 | 1599 |
| Grp Volume(v), veh/h | 6 | 0 | 9 | 386 | 0 | 49 | 8 | 1095 | 606 | 78 | 1158 | 4 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 0 | 1404 | 1792 | 0 | 1614 | 1792 | 1787 | 1599 | 1792 | 1787 | 1599 |
| Q Serve(g_s), s | 0.3 | 0.0 | 0.5 | 15.9 | 0.0 | 1.7 | 0.3 | 20.3 | 27.7 | 3.3 | 20.3 | 0.1 |
| Cycle Q Clear(g_c), s | 0.3 | 0.0 | 0.5 | 15.9 | 0.0 | 1.7 | 0.3 | 20.3 | 27.7 | 3.3 | 20.3 | 0.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.94 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 12 | 0 | 69 | 425 | 0 | 449 | 18 | 1407 | 642 | 100 | 1571 | 1082 |
| V/C Ratio(X) | 0.49 | 0.00 | 0.13 | 0.91 | 0.00 | 0.11 | 0.44 | 0.78 | 0.94 | 0.78 | 0.74 | 0.00 |
| Avail Cap(c_a), veh/h | 519 | 0 | 501 | 591 | 0 | 575 | 189 | 1416 | 646 | 189 | 1571 | 1082 |
| 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 | 37.4 | 0.0 | 34.5 | 28.1 | 0.0 | 20.3 | 37.3 | 20.1 | 21.8 | 35.3 | 17.6 | 4.0 |
| Incr Delay (d2), s/veh | 10.6 | 0.0 | 0.3 | 11.7 | 0.0 | 0.0 | 6.0 | 2.5 | 22.2 | 4.8 | 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 | 0.2 | 0.0 | 0.2 | 9.2 | 0.0 | 0.8 | 0.2 | 10.4 | 16.1 | 1.7 | 10.3 | 0.0 |
| LnGrp Delay(d),s/veh | 48.0 | 0.0 | 34.8 | 39.8 | 0.0 | 20.4 | 43.2 | 22.6 | 44.0 | 40.1 | 19.2 | 4.0 |
| LnGrp LOS | D | | C | D | | C | D | C | D | D | B | A |
| Approach Vol, veh/h | | 15 | | | 435 | | | 1709 | | | 1240 | |
| Approach Delay, s/veh | | 40.1 | | | 37.6 | | | 30.3 | | | 20.5 | |
| 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 | 23.0 | 8.7 | 9.2 | 34.8 | 5.6 | 26.1 | 5.8 | 38.3 | | | | |
| 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 | 27.0 | 8.0 | 30.0 | 25.0 | 27.0 | 8.0 | 30.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 17.9 | 2.5 | 5.3 | 29.7 | 2.3 | 3.7 | 2.3 | 22.3 | | | | |
| Green Ext Time (p_c), s | 0.1 | 0.1 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 4.4 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 27.7 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | ↖ | ↗ | ↗ | ↖ | ↖ | ↖ |
| Traffic Volume (vph) | 489 | 463 | 289 | 160 | 201 | 327 |
| Future Volume (vph) | 489 | 463 | 289 | 160 | 201 | 327 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1863 | 1863 | 1583 | 1736 | 1553 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1863 | 1863 | 1583 | 1736 | 1553 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 26 | | 337 |
| Link Speed (mph) | | 50 | 50 | | 50 | |
| Link Distance (ft) | | 2410 | 2610 | | 1800 | |
| Travel Time (s) | | 32.9 | 35.6 | | 24.5 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 4% | 4% |
| Adj. Flow (vph) | 504 | 477 | 298 | 165 | 207 | 337 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 504 | 477 | 298 | 165 | 207 | 337 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Number of Detectors | 1 | 2 | 2 | 1 | 1 | 1 |
| Detector Template | Left | Thru | Thru | Right | Left | Right |
| Leading Detector (ft) | 20 | 100 | 100 | 20 | 20 | 20 |
| Trailing Detector (ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 |
| Detector 1 Size(ft) | 20 | 6 | 6 | 20 | 20 | 20 |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(ft) | | 94 | 94 | | | |
| Detector 2 Size(ft) | | 6 | 6 | | | |
| Detector 2 Type | | Cl+Ex | Cl+Ex | | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | |
| Turn Type | Prot | NA | NA | pm+ov | Prot | pm+ov |
| Protected Phases | 5 | 2 | 6 | 4 | 4 | 5 |
| Permitted Phases | | | | 6 | | 4 |
| Detector Phase | 5 | 2 | 6 | 4 | 4 | 5 |
| Switch Phase | | | | | | |

Lanes, Volumes, Timings
6: NE Goodwin Road & NE Ingle Road

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 8.0 | 20.0 | 20.0 | 20.0 | 20.0 | 8.0 |
| Total Split (s) | 15.0 | 40.0 | 25.0 | 20.0 | 20.0 | 15.0 |
| Total Split (%) | 25.0% | 66.7% | 41.7% | 33.3% | 33.3% | 25.0% |
| Maximum Green (s) | 11.0 | 36.0 | 21.0 | 16.0 | 16.0 | 11.0 |
| Yellow Time (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | | Lag | | | Lead |
| Lead-Lag Optimize? | Yes | | Yes | | | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | Min | Min | None | None | None |
| Walk Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 11.3 | 28.1 | 12.7 | 27.7 | 10.8 | 26.2 |
| Actuated g/C Ratio | 0.24 | 0.60 | 0.27 | 0.59 | 0.23 | 0.56 |
| v/c Ratio | 1.19 | 0.43 | 0.59 | 0.18 | 0.52 | 0.33 |
| Control Delay | 133.1 | 7.1 | 20.6 | 3.9 | 21.7 | 2.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 133.1 | 7.1 | 20.6 | 3.9 | 21.7 | 2.0 |
| LOS | F | A | C | A | C | A |
| Approach Delay | | 71.8 | 14.6 | | 9.5 | |
| Approach LOS | | E | B | | A | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 47.1 |
| Natural Cycle: | 65 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 1.19 |
| Intersection Signal Delay: | 41.4 |
| Intersection Capacity Utilization | 63.4% |
| Analysis Period (min) | 15 |
| Intersection LOS: | D |
| ICU Level of Service | B |

Splits and Phases: 6: NE Goodwin Road & NE Ingle Road



Queues

6: NE Goodwin Road & NE Ingle Road

6/4/2016

















| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-------|------|------|------|------|------|
| Lane Group Flow (vph) | 504 | 477 | 298 | 165 | 207 | 337 |
| v/c Ratio | 1.19 | 0.43 | 0.59 | 0.18 | 0.52 | 0.33 |
| Control Delay | 133.1 | 7.1 | 20.6 | 3.9 | 21.7 | 2.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 133.1 | 7.1 | 20.6 | 3.9 | 21.7 | 2.0 |
| Queue Length 50th (ft) | ~172 | 57 | 68 | 14 | 48 | 0 |
| Queue Length 95th (ft) | #415 | 135 | 144 | 30 | 113 | 30 |
| Internal Link Dist (ft) | | 2330 | 2530 | | 1720 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | 422 | 1456 | 849 | 1123 | 603 | 1013 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.19 | 0.33 | 0.35 | 0.15 | 0.34 | 0.33 |

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
 6: NE Goodwin Road & NE Ingle Road

6/4/2016

| |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Movement | EBL | EBT | WBT | WBR | SBL | SBR | |
| Lane Configurations |  |  |  |  |  |  |  |
| Traffic Volume (veh/h) | 489 | 463 | 289 | 160 | 201 | 327 | |
| Future Volume (veh/h) | 489 | 463 | 289 | 160 | 201 | 327 | |
| Number | 5 | 2 | 6 | 16 | 7 | 14 | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1827 | 1827 | |
| Adj Flow Rate, veh/h | 504 | 477 | 298 | 165 | 207 | 337 | |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 4 | 4 | |
| Cap, veh/h | 434 | 1125 | 504 | 774 | 379 | 718 | |
| Arrive On Green | 0.24 | 0.60 | 0.27 | 0.27 | 0.22 | 0.22 | |
| Sat Flow, veh/h | 1774 | 1863 | 1863 | 1583 | 1740 | 1553 | |
| Grp Volume(v), veh/h | 504 | 477 | 298 | 165 | 207 | 337 | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1863 | 1863 | 1583 | 1740 | 1553 | |
| Q Serve(g_s), s | 11.0 | 6.1 | 6.2 | 2.7 | 4.7 | 6.7 | |
| Cycle Q Clear(g_c), s | 11.0 | 6.1 | 6.2 | 2.7 | 4.7 | 6.7 | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | |
| Lane Grp Cap(c), veh/h | 434 | 1125 | 504 | 774 | 379 | 718 | |
| V/C Ratio(X) | 1.16 | 0.42 | 0.59 | 0.21 | 0.55 | 0.47 | |
| Avail Cap(c_a), veh/h | 434 | 1491 | 870 | 1084 | 619 | 932 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Uniform Delay (d), s/veh | 17.0 | 4.7 | 14.2 | 6.6 | 15.6 | 8.3 | |
| Incr Delay (d2), s/veh | 95.4 | 0.3 | 1.1 | 0.1 | 1.2 | 0.5 | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| %ile BackOfQ(50%),veh/ln | 16.8 | 3.1 | 3.3 | 1.7 | 2.4 | 6.5 | |
| LnGrp Delay(d),s/veh | 112.4 | 5.0 | 15.3 | 6.7 | 16.8 | 8.8 | |
| LnGrp LOS | F | A | B | A | B | A | |
| Approach Vol, veh/h | | 981 | 463 | | 544 | | |
| Approach Delay, s/veh | | 60.2 | 12.3 | | 11.8 | | |
| Approach LOS | | E | B | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | |
| Phs Duration (G+Y+Rc), s | | 31.2 | | 13.8 | 15.0 | 16.2 | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | |
| Max Green Setting (Gmax), s | | 36.0 | | 16.0 | 11.0 | 21.0 | |
| Max Q Clear Time (g_c+I1), s | | 8.1 | | 8.7 | 13.0 | 8.2 | |
| Green Ext Time (p_c), s | | 5.1 | | 1.1 | 0.0 | 3.9 | |
| Intersection Summary | | | | | | | |
| HCM 2010 Ctrl Delay | | | 35.8 | | | | |
| HCM 2010 LOS | | | D | | | | |

Lanes, Volumes, Timings
 7: NE Goodwin Road & NW Camas Meadows Drive

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 69 | 102 | 397 | 34 | 77 | 207 |
| Future Volume (vph) | 69 | 102 | 397 | 34 | 77 | 207 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1805 | 1615 | 1863 | 1583 | 1752 | 1845 |
| Link Speed (mph) | 35 | | 50 | | | 50 |
| Link Distance (ft) | 1963 | | 2608 | | | 3163 |
| Travel Time (s) | 38.2 | | 35.6 | | | 43.1 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 2% | 3% | 3% |
| Adj. Flow (vph) | 81 | 120 | 467 | 40 | 91 | 244 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 81 | 120 | 467 | 40 | 91 | 244 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 39.0% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 3.9 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 69 | 102 | 397 | 34 | 77 | 207 |
| Future Vol, veh/h | 69 | 102 | 397 | 34 | 77 | 207 |
| 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 | - | 0 | 0 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 0 | 0 | 2 | 2 | 3 | 3 |
| Mvmt Flow | 81 | 120 | 467 | 40 | 91 | 244 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 892 | 467 | 0 0 467 0 |
| Stage 1 | 467 | - | - - - - |
| Stage 2 | 425 | - | - - - - |
| Critical Hdwy | 6.4 | 6.2 | - - 4.13 - |
| Critical Hdwy Stg 1 | 5.4 | - | - - - - |
| Critical Hdwy Stg 2 | 5.4 | - | - - - - |
| Follow-up Hdwy | 3.5 | 3.3 | - - 2.227 - |
| Pot Cap-1 Maneuver | 315 | 600 | - - 1089 - |
| Stage 1 | 635 | - | - - - - |
| Stage 2 | 664 | - | - - - - |
| Platoon blocked, % | | | - - - |
| Mov Cap-1 Maneuver | 289 | 600 | - - 1089 - |
| Mov Cap-2 Maneuver | 289 | - | - - - - |
| Stage 1 | 635 | - | - - - - |
| Stage 2 | 609 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 16.5 | 0 | 2.3 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 289 | 600 | 1089 | - |
| HCM Lane V/C Ratio | - | - | 0.281 | 0.2 | 0.083 | - |
| HCM Control Delay (s) | - | - | 22.3 | 12.5 | 8.6 | - |
| HCM Lane LOS | - | - | C | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.1 | 0.7 | 0.3 | - |

Lanes, Volumes, Timings

8: NW Parker Street & NW Pacific Rim Boulevard/NW Pacific Rim Drive

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Lane Configurations | ↖ | ↗ | ↘ | ↖ | ↔ | | ↖ | ↔ | | ↖ | ↗ | ↘ |
| Traffic Volume (vph) | 183 | 74 | 95 | 14 | 45 | 15 | 56 | 221 | 37 | 19 | 245 | 118 |
| Future Volume (vph) | 183 | 74 | 95 | 14 | 45 | 15 | 56 | 221 | 37 | 19 | 245 | 118 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | 0.850 | | 0.962 | | | 0.979 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1787 | 1881 | 1599 | 1752 | 3372 | 0 | 1770 | 3465 | 0 | 1752 | 1845 | 1568 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 1787 | 1881 | 1599 | 1752 | 3372 | 0 | 1770 | 3465 | 0 | 1752 | 1845 | 1568 |
| Link Speed (mph) | | 35 | | | 25 | | | 35 | | | 35 | |
| Link Distance (ft) | | 3054 | | | 516 | | | 842 | | | 2475 | |
| Travel Time (s) | | 59.5 | | | 14.1 | | | 16.4 | | | 48.2 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 3% | 3% | 3% |
| Adj. Flow (vph) | 229 | 93 | 119 | 18 | 56 | 19 | 70 | 276 | 46 | 24 | 306 | 148 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 229 | 93 | 119 | 18 | 75 | 0 | 70 | 322 | 0 | 24 | 306 | 148 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 12 | | | 12 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 43.0% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|---------------------------|----|
| Intersection Delay, s/veh | 16 |
| Intersection LOS | C |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 183 | 74 | 95 | 0 | 14 | 45 | 15 | 0 | 56 | 221 | 37 |
| Future Vol, veh/h | 0 | 183 | 74 | 95 | 0 | 14 | 45 | 15 | 0 | 56 | 221 | 37 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 229 | 93 | 119 | 0 | 18 | 56 | 19 | 0 | 70 | 276 | 46 |
| Number of Lanes | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 2 | 0 |

Approach

| | EB | WB | NB |
|----------------------------|------|----|----|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 3 | 3 | 3 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 3 | 3 | 3 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 3 | 3 | 3 |
| HCM Control Delay | 15.6 | 12 | 14 |
| HCM LOS | C | B | B |

| Lane | NBLn1 | NBLn2 | NBLn3 | EBLn1 | EBLn2 | EBLn3 | WBLn1 | WBLn2 | WBLn3 | SBLn1 | SBLn2 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Vol Left, % | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 0% |
| Vol Thru, % | 0% | 100% | 67% | 0% | 100% | 0% | 0% | 100% | 50% | 0% | 100% |
| Vol Right, % | 0% | 0% | 33% | 0% | 0% | 100% | 0% | 0% | 50% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 56 | 147 | 111 | 183 | 74 | 95 | 14 | 30 | 30 | 19 | 245 |
| LT Vol | 56 | 0 | 0 | 183 | 0 | 0 | 14 | 0 | 0 | 19 | 0 |
| Through Vol | 0 | 147 | 74 | 0 | 74 | 0 | 0 | 30 | 15 | 0 | 245 |
| RT Vol | 0 | 0 | 37 | 0 | 0 | 95 | 0 | 0 | 15 | 0 | 0 |
| Lane Flow Rate | 70 | 184 | 138 | 229 | 92 | 119 | 18 | 38 | 38 | 24 | 306 |
| Geometry Grp | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Degree of Util (X) | 0.158 | 0.39 | 0.284 | 0.512 | 0.194 | 0.226 | 0.044 | 0.089 | 0.085 | 0.053 | 0.635 |
| Departure Headway (Hd) | 8.116 | 7.616 | 7.382 | 8.061 | 7.561 | 6.861 | 9.01 | 8.51 | 8.16 | 7.96 | 7.46 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Cap | 442 | 473 | 487 | 448 | 475 | 523 | 397 | 420 | 438 | 450 | 484 |
| Service Time | 5.864 | 5.364 | 5.13 | 5.81 | 5.31 | 4.61 | 6.773 | 6.273 | 5.923 | 5.706 | 5.206 |
| HCM Lane V/C Ratio | 0.158 | 0.389 | 0.283 | 0.511 | 0.194 | 0.228 | 0.045 | 0.09 | 0.087 | 0.053 | 0.632 |
| HCM Control Delay | 12.4 | 15.2 | 13.1 | 19 | 12.1 | 11.6 | 12.2 | 12.1 | 11.7 | 11.2 | 22.4 |
| HCM Lane LOS | B | C | B | C | B | B | B | B | B | B | C |
| HCM 95th-tile Q | 0.6 | 1.8 | 1.2 | 2.8 | 0.7 | 0.9 | 0.1 | 0.3 | 0.3 | 0.2 | 4.4 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 19 | 245 | 118 |
| Future Vol, veh/h | 0 | 19 | 245 | 118 |
| Peak Hour Factor | 0.92 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles, % | 2 | 3 | 3 | 3 |
| Mvmt Flow | 0 | 24 | 306 | 148 |
| Number of Lanes | 0 | 1 | 1 | 1 |

Approach SB

| | |
|----------------------------|------|
| Opposing Approach | NB |
| Opposing Lanes | 3 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 3 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 3 |
| HCM Control Delay | 18.7 |
| HCM LOS | C |

Lane SBLn3

Lanes, Volumes, Timings
 9: NW Brady Road & NW 16th Avenue

6/4/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 26 | 118 | 16 | 94 | 44 | 79 | 11 | 256 | 179 | 122 | 233 | 23 |
| Future Volume (vph) | 26 | 118 | 16 | 94 | 44 | 79 | 11 | 256 | 179 | 122 | 233 | 23 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.987 | | | 0.951 | | | 0.946 | | | 0.992 | |
| Fl _t Protected | | 0.992 | | | 0.979 | | | 0.999 | | | 0.984 | |
| Satd. Flow (prot) | 0 | 1860 | 0 | 0 | 1734 | 0 | 0 | 1760 | 0 | 0 | 1836 | 0 |
| Fl _t Permitted | | 0.992 | | | 0.979 | | | 0.999 | | | 0.984 | |
| Satd. Flow (perm) | 0 | 1860 | 0 | 0 | 1734 | 0 | 0 | 1760 | 0 | 0 | 1836 | 0 |
| Link Speed (mph) | | 35 | | | 35 | | | 35 | | | 35 | |
| Link Distance (ft) | | 1920 | | | 2588 | | | 408 | | | 1696 | |
| Travel Time (s) | | 37.4 | | | 50.4 | | | 7.9 | | | 33.0 | |
| 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 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 2% | 2% | 2% | 2% | 2% | 1% | 1% | 1% |
| Adj. Flow (vph) | 28 | 126 | 17 | 100 | 47 | 84 | 12 | 272 | 190 | 130 | 248 | 24 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 171 | 0 | 0 | 231 | 0 | 0 | 474 | 0 | 0 | 402 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 79.7% |
| ICU Level of Service | D |
| Analysis Period (min) | 15 |

Intersection

Intersection Delay, s/veh 22.6
 Intersection LOS C

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 26 | 118 | 16 | 0 | 94 | 44 | 79 | 0 | 11 | 256 | 179 |
| Future Vol, veh/h | 0 | 26 | 118 | 16 | 0 | 94 | 44 | 79 | 0 | 11 | 256 | 179 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 28 | 126 | 17 | 0 | 100 | 47 | 84 | 0 | 12 | 272 | 190 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |

Approach

| | EB | WB | NB |
|----------------------------|------|------|------|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 1 | 1 | 1 |
| HCM Control Delay | 14.1 | 15.6 | 28.1 |
| HCM LOS | B | C | D |

Lane

| | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, % | 2% | 16% | 43% | 32% |
| Vol Thru, % | 57% | 74% | 20% | 62% |
| Vol Right, % | 40% | 10% | 36% | 6% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 446 | 160 | 217 | 378 |
| LT Vol | 11 | 26 | 94 | 122 |
| Through Vol | 256 | 118 | 44 | 233 |
| RT Vol | 179 | 16 | 79 | 23 |
| Lane Flow Rate | 474 | 170 | 231 | 402 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.79 | 0.346 | 0.445 | 0.709 |
| Departure Headway (Hd) | 5.992 | 7.323 | 7.051 | 6.347 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 598 | 494 | 515 | 567 |
| Service Time | 4.077 | 5.323 | 5.051 | 4.437 |
| HCM Lane V/C Ratio | 0.793 | 0.344 | 0.449 | 0.709 |
| HCM Control Delay | 28.1 | 14.1 | 15.6 | 23.6 |
| HCM Lane LOS | D | B | C | C |
| HCM 95th-tile Q | 7.6 | 1.5 | 2.3 | 5.7 |

Intersection

Intersection Delay, s/veh
 Intersection LOS

| Movement | SBU | SBL | SBT | SBR |
|--------------------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 122 | 233 | 23 |
| Future Vol, veh/h | 0 | 122 | 233 | 23 |
| Peak Hour Factor | 0.92 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 |
| Mvmt Flow | 0 | 130 | 248 | 24 |
| Number of Lanes | 0 | 0 | 1 | 0 |

Approach SB

| | |
|----------------------------|------|
| Opposing Approach | NB |
| Opposing Lanes | 1 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 23.6 |
| HCM LOS | C |

Lane

Lanes, Volumes, Timings
 10: SE Brady Road & NW McIntosh Road

6/4/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 73 | 20 | 432 | 116 | 17 | 236 |
| Future Volume (vph) | 73 | 20 | 432 | 116 | 17 | 236 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1770 | 1583 | 1827 | 0 | 1787 | 1881 |
| Flt Permitted | 0.950 | | | | 0.950 | |
| Satd. Flow (perm) | 1770 | 1583 | 1827 | 0 | 1787 | 1881 |
| Link Speed (mph) | 35 | | 35 | | | 35 |
| Link Distance (ft) | 4348 | | 613 | | | 577 |
| Travel Time (s) | 84.7 | | 11.9 | | | 11.2 |
| Peak Hour Factor | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Heavy Vehicles (%) | 2% | 2% | 1% | 1% | 1% | 1% |
| Adj. Flow (vph) | 94 | 26 | 554 | 149 | 22 | 303 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 94 | 26 | 703 | 0 | 22 | 303 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 12 | | | 12 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 40.5% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 2.5 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 73 | 20 | 432 | 116 | 17 | 236 |
| Future Vol, veh/h | 73 | 20 | 432 | 116 | 17 | 236 |
| 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 | - | - | 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 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 94 | 26 | 554 | 149 | 22 | 303 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 974 | 628 | 703 |
| Stage 1 | 628 | - | - |
| Stage 2 | 346 | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.11 |
| Critical Hdwy Stg 1 | 5.42 | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.209 |
| Pot Cap-1 Maneuver | 279 | 483 | 899 |
| Stage 1 | 532 | - | - |
| Stage 2 | 716 | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 272 | 483 | 899 |
| Mov Cap-2 Maneuver | 272 | - | - |
| Stage 1 | 532 | - | - |
| Stage 2 | 698 | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 22.4 | 0 | 0.6 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 272 | 483 | 899 | - |
| HCM Lane V/C Ratio | - | - | 0.344 | 0.053 | 0.024 | - |
| HCM Control Delay (s) | - | - | 25 | 12.9 | 9.1 | - |
| HCM Lane LOS | - | - | D | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.5 | 0.2 | 0.1 | - |

Lanes, Volumes, Timings
 11: NW Lake Road & NW Payne Street

6/4/2016



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------|-------|------|-------|-------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 134 | 643 | 453 | 15 | 9 | 55 |
| Future Volume (vph) | 134 | 643 | 453 | 15 | 9 | 55 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 |
| Frt | | | 0.995 | | 0.884 | |
| Flt Protected | 0.950 | | | | 0.993 | |
| Satd. Flow (prot) | 1805 | 3610 | 3556 | 0 | 1668 | 0 |
| Flt Permitted | 0.950 | | | | 0.993 | |
| Satd. Flow (perm) | 1805 | 3610 | 3556 | 0 | 1668 | 0 |
| Link Speed (mph) | | 40 | 40 | | 30 | |
| Link Distance (ft) | | 1600 | 2066 | | 1710 | |
| Travel Time (s) | | 27.3 | 35.2 | | 38.9 | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 0% |
| Adj. Flow (vph) | 147 | 707 | 498 | 16 | 10 | 60 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 147 | 707 | 514 | 0 | 70 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(ft) | | 12 | 12 | | 12 | |
| Link Offset(ft) | | 0 | 0 | | 0 | |
| Crosswalk Width(ft) | | 16 | 16 | | 16 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | | 9 | 15 | 9 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 34.3% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.5 |
|------------------|-----|

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 134 | 643 | 453 | 15 | 9 | 55 |
| Future Vol, veh/h | 134 | 643 | 453 | 15 | 9 | 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 | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 0 | 0 | 1 | 1 | 0 | 0 |
| Mvmt Flow | 147 | 707 | 498 | 16 | 10 | 60 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 514 | 0 | 1154 |
| Stage 1 | - | - | 506 |
| Stage 2 | - | - | 648 |
| Critical Hdwy | 4.1 | - | 6.8 |
| Critical Hdwy Stg 1 | - | - | 5.8 |
| Critical Hdwy Stg 2 | - | - | 5.8 |
| Follow-up Hdwy | 2.2 | - | 3.5 |
| Pot Cap-1 Maneuver | 1062 | - | 193 |
| Stage 1 | - | - | 576 |
| Stage 2 | - | - | 488 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1062 | - | 166 |
| Mov Cap-2 Maneuver | - | - | 166 |
| Stage 1 | - | - | 576 |
| Stage 2 | - | - | 420 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 1.5 | 0 | 13.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1062 | - | - | - | 501 |
| HCM Lane V/C Ratio | 0.139 | - | - | - | 0.14 |
| HCM Control Delay (s) | 8.9 | - | - | - | 13.4 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.5 | - | - | - | 0.5 |

Lanes, Volumes, Timings

12: Project Access & NW Camas Meadows Drive

6/6/2016



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|------|-------|-------|------|-------|------|------|-------|-------|------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 193 | 30 | 46 | 269 | 0 | 16 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 193 | 30 | 46 | 269 | 0 | 16 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr t | 0.980 | | | | | | | | | | | |
| Flt Protected | | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1863 | 1825 | 0 | 1770 | 1863 | 0 | 0 | 1770 | 0 | 0 | 1863 | 0 |
| Flt Permitted | | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (perm) | 1863 | 1825 | 0 | 1770 | 1863 | 0 | 0 | 1770 | 0 | 0 | 1863 | 0 |
| Link Speed (mph) | 35 | | | | 35 | | 25 | | | | 25 | |
| Link Distance (ft) | 1472 | | | | 898 | | 366 | | | | 330 | |
| Travel Time (s) | 28.7 | | | | 17.5 | | 10.0 | | | | 9.0 | |
| 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 |
| Adj. Flow (vph) | 0 | 210 | 33 | 50 | 292 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 243 | 0 | 50 | 292 | 0 | 0 | 17 | 0 | 0 | 0 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | 12 | | | | 12 | | 0 | | | | 0 | |
| Link Offset(ft) | 0 | | | | 0 | | 0 | | | | 0 | |
| Crosswalk Width(ft) | 16 | | | | 16 | | 16 | | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Sign Control | Free | | | | Free | | Stop | | | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 30.8% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

HCM 2010 TWSC
 12: Project Access & NW Camas Meadows Drive

6/6/2016

Intersection

Int Delay, s/veh 1.1

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 0 | 193 | 30 | 46 | 269 | 0 | 16 | 0 | 0 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 193 | 30 | 46 | 269 | 0 | 16 | 0 | 0 | 0 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | 0 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 210 | 33 | 50 | 292 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 292 | 0 | 0 | 242 | 0 | 0 | 618 | 618 | 226 | 618 | 634 | 292 |
| Stage 1 | - | - | - | - | - | - | 226 | 226 | - | 392 | 392 | - |
| Stage 2 | - | - | - | - | - | - | 392 | 392 | - | 226 | 242 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1270 | - | - | 1324 | - | - | 402 | 405 | 813 | 402 | 397 | 747 |
| Stage 1 | - | - | - | - | - | - | 777 | 717 | - | 633 | 606 | - |
| Stage 2 | - | - | - | - | - | - | 633 | 606 | - | 777 | 705 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1270 | - | - | 1324 | - | - | 390 | 390 | 813 | 390 | 382 | 747 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 390 | 390 | - | 390 | 382 | - |
| Stage 1 | - | - | - | - | - | - | 777 | 717 | - | 633 | 583 | - |
| Stage 2 | - | - | - | - | - | - | 609 | 583 | - | 777 | 705 | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|-----|------|----|
| HCM Control Delay, s | 0 | 1.1 | 14.7 | 0 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 390 | 1270 | - | - | 1324 | - | - | - |
| HCM Lane V/C Ratio | 0.045 | - | - | - | 0.038 | - | - | - |
| HCM Control Delay (s) | 14.7 | 0 | - | - | 7.8 | - | - | 0 |
| HCM Lane LOS | B | A | - | - | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.1 | 0 | - | - | 0.1 | - | - | - |

Lanes, Volumes, Timings
 13: NW Payne Street & Project Access

6/6/2016



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 21 | 5 | 116 | 7 | 2 | 83 |
| Future Volume (vph) | 21 | 5 | 116 | 7 | 2 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.976 | | 0.992 | | | |
| Flt Protected | 0.961 | | | | | 0.999 |
| Satd. Flow (prot) | 1747 | 0 | 1848 | 0 | 0 | 1861 |
| Flt Permitted | 0.961 | | | | | 0.999 |
| Satd. Flow (perm) | 1747 | 0 | 1848 | 0 | 0 | 1861 |
| Link Speed (mph) | 25 | | 30 | | | 30 |
| Link Distance (ft) | 425 | | 940 | | | 597 |
| Travel Time (s) | 11.6 | | 21.4 | | | 13.6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 23 | 5 | 126 | 8 | 2 | 90 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 28 | 0 | 134 | 0 | 0 | 92 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(ft) | 12 | | 0 | | | 0 |
| Link Offset(ft) | 0 | | 0 | | | 0 |
| Crosswalk Width(ft) | 16 | | 16 | | | 16 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | 9 | | 9 | 15 | |
| Sign Control | Stop | | Free | | | Free |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 16.5% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |

Intersection

| | |
|------------------|-----|
| Int Delay, s/veh | 1.2 |
|------------------|-----|

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Traffic Vol, veh/h | 21 | 5 | 116 | 7 | 2 | 83 |
| Future Vol, veh/h | 21 | 5 | 116 | 7 | 2 | 83 |
| 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 23 | 5 | 126 | 8 | 2 | 90 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|-------------|
| Conflicting Flow All | 225 | 130 | 0 0 134 0 |
| Stage 1 | 130 | - | - - - - |
| Stage 2 | 95 | - | - - - - |
| Critical Hdwy | 7.12 | 6.22 | - - 4.12 - |
| Critical Hdwy Stg 1 | 6.12 | - | - - - - |
| Critical Hdwy Stg 2 | 6.12 | - | - - - - |
| Follow-up Hdwy | 3.518 | 3.318 | - - 2.218 - |
| Pot Cap-1 Maneuver | 730 | 920 | - - 1451 - |
| Stage 1 | 874 | - | - - - - |
| Stage 2 | 912 | - | - - - - |
| Platoon blocked, % | | | - - - - |
| Mov Cap-1 Maneuver | 729 | 920 | - - 1451 - |
| Mov Cap-2 Maneuver | 729 | - | - - - - |
| Stage 1 | 874 | - | - - - - |
| Stage 2 | 911 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 9.9 | 0 | 0.2 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-----|
| Capacity (veh/h) | - | - | 759 | 1451 | - |
| HCM Lane V/C Ratio | - | - | 0.037 | 0.001 | - |
| HCM Control Delay (s) | - | - | 9.9 | 7.5 | 0 |
| HCM Lane LOS | - | - | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0 | - |