# Appendix A
# Scoping Memorandum

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
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# DRAFT SCOPING MEMORANDUM #1

**Date:** August 22, 2012 Project #: 12116

**To:** Kaaren Hofmann, P.E., Tony Doran, City of Tualatin
Jinde Zhu, P.E., Washington County
Avi Tayar, P.E., Doug Baumgartner, Marah Danielson, ODOT

**From:** Matt Hughart, AICP; Chris Brehmer, P.E.; Mark Vandehey, P.E.

**Project:** Nyberg Woods II – Tualatin, OR

**Subject:** Proposed Traffic Study Scope of Work

The purpose of this memorandum is to provide an opportunity for the City of Tualatin, Washington County, and ODOT staff to review and provide guidance on project assumptions associated with conducting a traffic study for a proposed partial redevelopment of the existing K-Mart shopping center in Tualatin, Oregon. Details of the proposed project assumptions are documented below.

## Proposed Development Plan

The project entails a partial redevelopment of the existing shopping center currently anchored by a K-Mart and supported by a number of other retail uses. While a specific site plan and tenant mix is still being developed, the redevelopment will likely entail the following components:

- K-Mart will close and its existing 96,799 square foot building will be removed.
- The existing adult cabaret will close and its 4,800 square foot building will be removed.
- Approximately 208,180 square feet of new shopping center uses and 30,000 square feet of office space will be constructed on the site.
- The existing 3,500 square foot building currently occupied by a Wendy's will be relocated to a new pad within the shopping center site.
- All other existing buildings will remain and their uses will continue to operate as is.
- The existing 75th Avenue access to SW Nyberg Road is proposed to be closed.

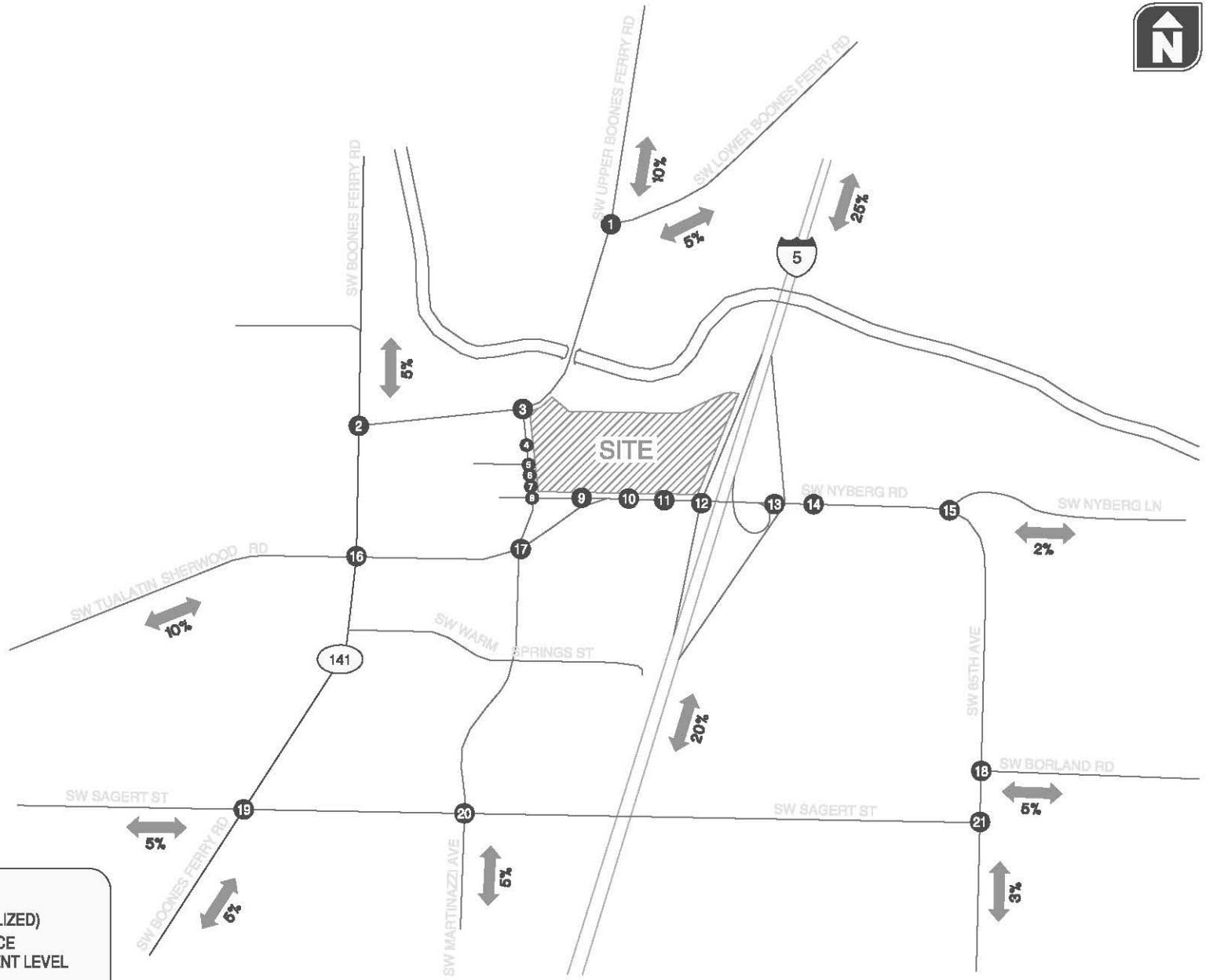
- The existing signalized access on SW Nyberg Road that currently serves the site and the Fred Meyer site will remain. The traffic study will look at potential enhancements to this intersection to better accommodate site traffic and vehicle queuing.
- The traffic study will look at different access scenarios to SW Martinazzi Avenue and SW Boones Ferry Road. Specifically, the impacts/improvements necessary to realign the existing SW Martinazzi Avenue driveway (adjacent to the library/city hall) to access SW Martinazzi Avenue across from Seneca Street and a new site access driveway to SW Boones Ferry Road.

## Proposed Study Intersections

A preliminary list of study intersections was identified based on the size of the anticipated development and its location. This list of intersections is identified below. Figures 1 and 2 illustrate their location and associated lane configurations/traffic control devices.

- SW Martinazzi Avenue/SW Boones Ferry Road (#3)
- SW Martinazzi Avenue/Existing Site Driveway (near City Hall) (#4)
- SW Martinazzi Avenue/SW Seneca Street (#5)
- SW Martinazzi Avenue/Existing Site Driveway (#6)
- SW Martinazzi Avenue/Existing Right-Out Only Driveway (#7)
- SW Tualatin-Sherwood Road/SW Martinazzi Avenue (#17)
- SW Nyberg Street/SW Martinazzi Avenue (#8)
- SW Nyberg Street/Unsignalized Site Driveway (#9)
- SW Nyberg Street/SW Tualatin-Sherwood Road/Fred Meyer/Site Driveway (#10)
- SW Nyberg Street/SW 75th Avenue (#11)
- SW Nyberg Street/I-5 SB Ramp Terminal (#12)
- SW Nyberg Street/I-5 NB Ramp Terminal (#13)
- SW Nyberg Street/Signalized entrance to Nyberg Woods (#14)

In anticipation of the need to study these intersections at a minimum, traffic counts were obtained in May 2012 (before the end of the spring school semester) during the analysis periods discussed in the following section.




**LEGEND**

CM = CRITICAL MOVEMENT (UNSIGNALIZED)

LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)

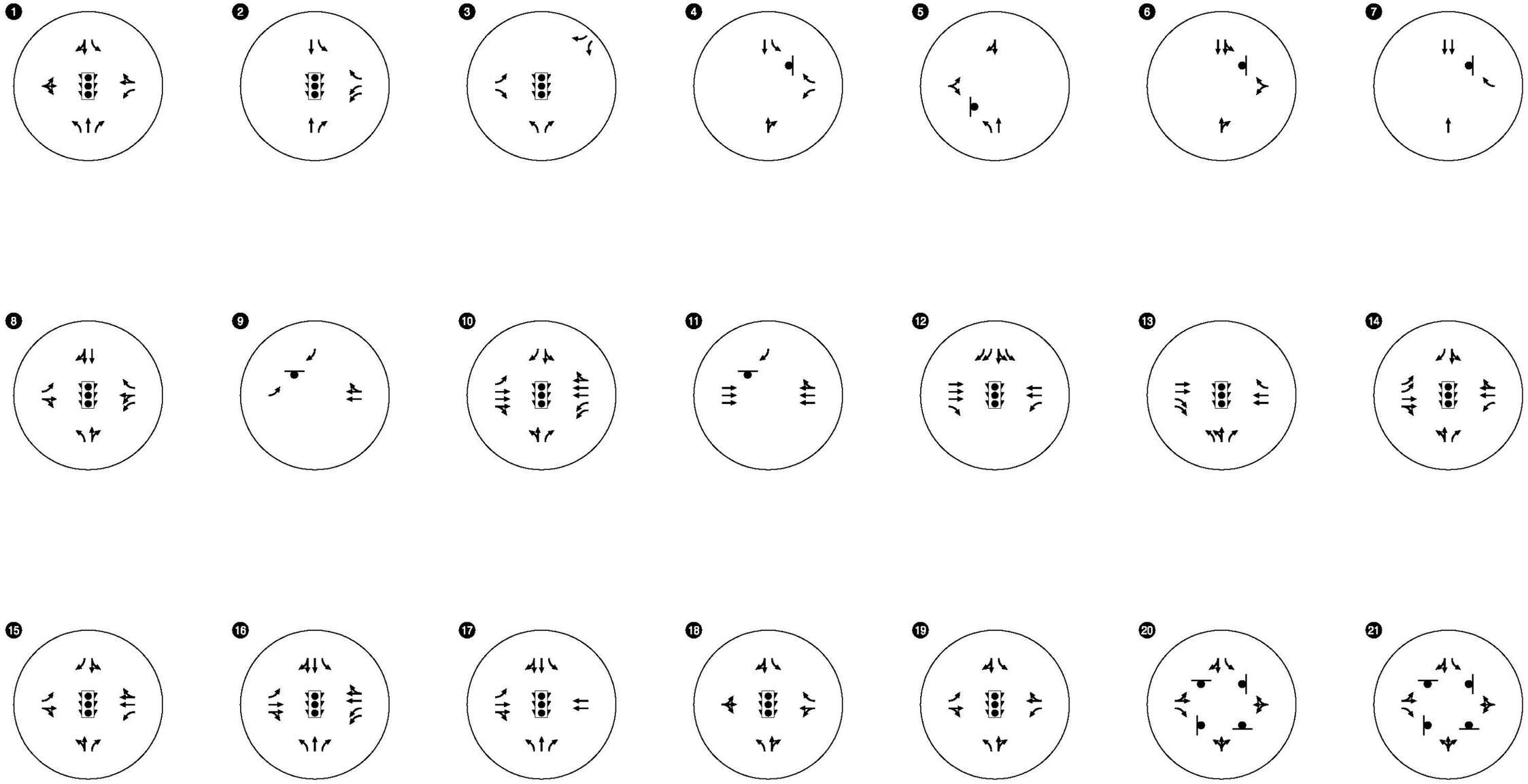
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**STUDY INTERSECTIONS AND TRIP DISTRIBUTION PATTERN**
**TUALATIN, OREGON**

FIGURE 1

H:\projfile\12116 - Nyberg Woods\dwgs\figs\Fig01.dwg Aug 16, 2012 - 6:55pm - zclark Layout Tab: Fig01




**LEGEND**

- STOP SIGN
- TRAFFIC SIGNAL

LANE CONFIGURATION AND TRAFFIC CONTROL DEVICES
TUALATIN, OREGON

FIGURE
2

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H:\projfile\12116 - Nyberg Woods\dwgs\figs\Fig01.dwg Aug 16, 2012 - 4:18pm - zclark Layout Tab: Fig02

# Traffic Analysis Periods and Scenarios

In order to assess the impact of the proposed development, traffic conditions are proposed to be analyzed during the peak hour of the following time periods:

- Weekday evening roadway peak hour (3:00-6:00 p.m.)
- Saturday midday peak hour (11:00 a.m. - 2:00 p.m.)

The proposed redevelopment is anticipated to be completed by 2014. Intersections are proposed to be analyzed for the following three time periods:

- Existing (2012)
- Background (without shopping center redevelopment) (2014)
- Total Traffic (with shopping center redevelopment) (2014)

## EXISTING CONDITIONS ANALYSIS

The existing operations will be assessed at the identified study intersections during the weekday evening and Saturday midday peak periods using the traffic data collected. Synchro 8 analysis software will be used in accordance with the methodology in the *2010 Highway Capacity Manual* and the *ODOT Analysis Procedures Manual* (where applicable). The most recent 5-year crash data at each study intersection will be obtained and reviewed.

## BACKGROUND ANALYSIS

This analysis will assess traffic operations at the study intersections during the two study periods in the year 2014 without any improvements or changes to the roadway network. Traffic volumes for the year 2014 will be based on an assumed growth rate of 1.0% per year. This near-term growth rate was derived from a review of Washington County traffic counts on Tualatin-Sherwood Road and Nyberg Street. In-process development data will be obtained from the City of Tualatin and Washington County and included as part of year 2014 forecast traffic volumes.

## TRIP GENERATION

Given that the proposed project is only a partial redevelopment of the larger shopping center, a trip generation methodology was developed that would more accurately reflect the characteristics of a unified and vibrant shopping center. This methodology is outlined in greater detail in Appendix A. The resulting trip estimate is summarized in Table 1 below.

Table 1 Trip Generation

| | ITE Code | Size (sq. ft.) | Weekday PM Peak Hour | | | Saturday Midday Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | In | Out | Total | In | Out |
| Existing Site | | | | | | | | |
| Existing Site Driveways[1] | - | - | 945 | 435 | 510 | 970 | 490 | 480 |
| *Less Existing Library[2]* | *590* | *22,123* | *(160)* | *(75)* | *(85)* | *(150)* | *(80)* | *(70)* |
| *Less Existing Civic Uses[3]* | *715* | *~10,000* | *(50)* | *(10)* | *(40)* | - | - | - |
| **Total Existing Retail** | | | **735** | **350** | **385** | **820** | **410** | **410** |
| Future Site | | | | | | | | |
| Shopping Center | 820 | 264,924[4] | 1,225 | 600 | 625 | 1,615 | 840 | 775 |
| *Less Existing Retail Driveway Counts* | - | - | *(735)* | *(350)* | *(385)* | *(820)* | *(410)* | *(410)* |
| Sub Total | - | - | 490 | 250 | 240 | 795 | 430 | 365 |
| *Pass-by Trips (Weekday 34%, Sat. 26%)* | - | - | *(160)* | *(80)* | *(80)* | *(190)* | *(95)* | *(95)* |
| Office | 710 | 30,000 | 45 | 10 | 35 | 10 | 5 | 5 |
| **Net New Trips** | | | **375** | **180** | **195** | **615** | **340** | **275** |

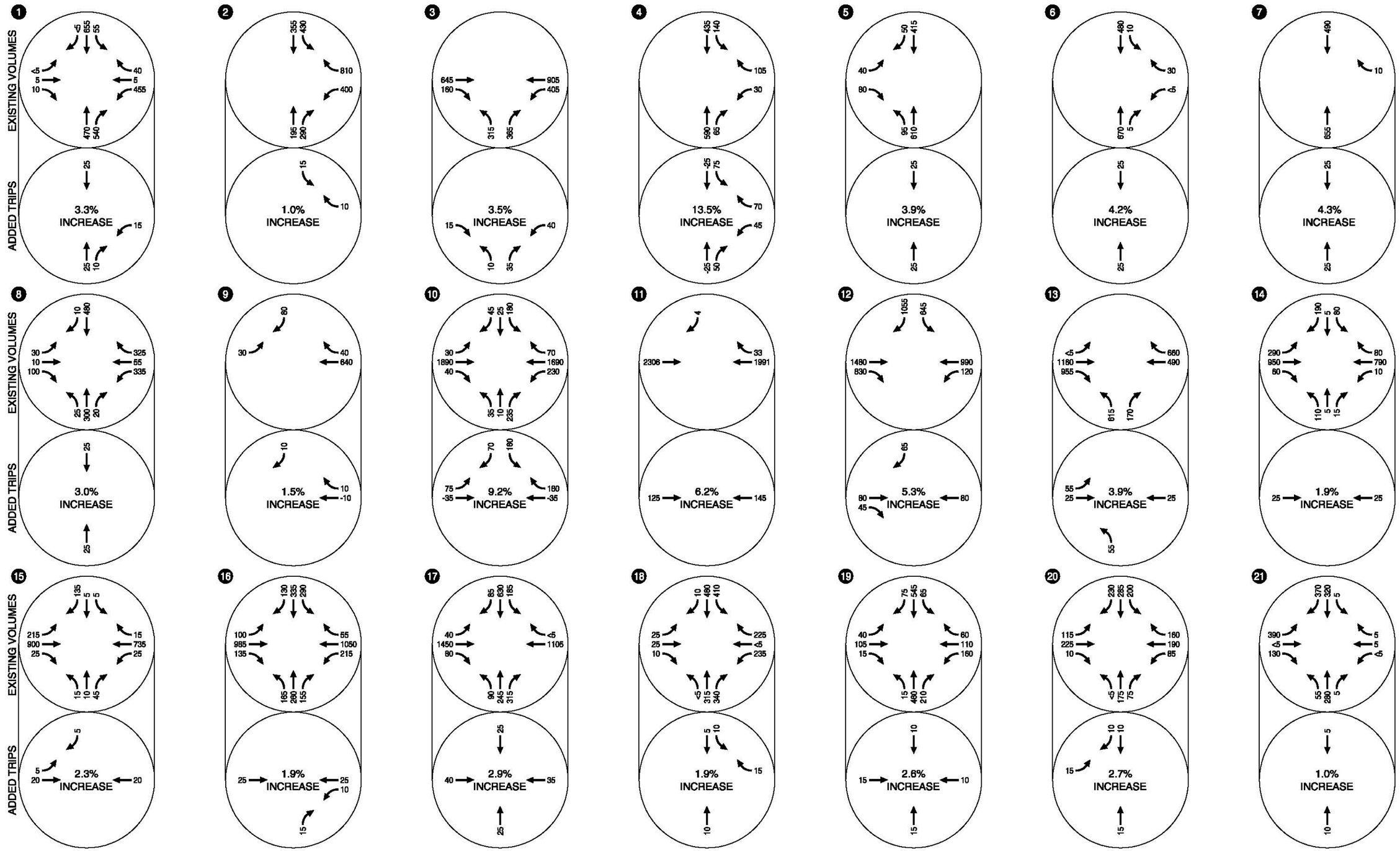
[1]Represents the total site driveway counts during the weekday p.m. peak hour of 4:35-5:35 p.m. and Saturday midday peak hour of 12:10-1:10 p.m. This is the traffic volume being generated by the existing 158,343 square feet of shopping center currently residing on the site.
[2]The library traffic counts were estimated using the *Library* land use in ITE Trip Generation.
[3]The City Hall traffic counts were estimated using the *Single Tenant Office Building* land use in ITE Trip Generation. The existing City Hall square footage was estimated to be approximately 10,000 square feet in size.
[4]Includes the 158,343 square feet of existing shopping center (minus the 96,799 square foot K-Mart and 4,800 square foot adult cabaret) plus the 208,180 square feet of proposed shopping center uses.

## TRIP ASSIGNMENT

The trip distribution pattern for the proposed project was estimated based on a select zone assignment obtained from Washington County's travel demand model. The resulting trip distribution pattern is also shown in Figure 1.

## PROPORTIONATE SHARE IMPACT

City staff requested a proportional impact analysis for the project based on the proposed trip generation and distribution for the site at the May 30, 2012 preliminary project meeting with the City of Tualatin. To complete this analysis, regionally significant traffic counts used in the on-going Tualatin Transportation System Plan Update were reused. The resulting proportional impact of the net new site-generate trips at each regionally significant intersection is illustrated in Figure 3. Based on these findings, we request that City, County, and ODOT staff review these impacts and confirm the need to study the remaining list of intersections not previously identified earlier in this memorandum.




NOTE: SEE FIGURE 1 FOR LEGEND

PROPORTIONAL SHARE IMPACT
SITE GENERATED TRIPS - WEEKDAY PM PEAK HOUR
TUALATIN, OREGON

FIGURE 3

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We trust that this memorandum provide adequate documentation of the proposed development plan, study intersections, analysis scenarios, and estimated trip generation. We formally request that the City of Tualatin, Washington County, and ODOT provide written confirmation regarding the proposed methodology and project assumptions as soon as possible. If you have any questions, please give us a call at (503)228-5230.

# Appendix A
# Trip Generation Methodology

## PROPOSED TRIP GENERATION METHODOLOGY

The proposed project is only a partial redevelopment of the larger shopping center. In order to avoid overestimating the trip generation characteristics of the net new retail uses, the following trip generation methodology is proposed:

- Traffic counts were conducted at all of the site driveways to quantify the trip generation profile of the existing retail and civic uses currently operating on the site.
- Recognizing that the City offices/library are not retail uses and the layout of the site/parking fields prevents a accurate quantification of trips being generated by these uses, estimates were developed using the standard reference manual, *Trip Generation*. The Library and Single Tenant Office Building land uses were used in the estimate process. The resulting estimates were then subtracted from the existing site driveway counts to produce a trip profile estimate for the existing 158,343 square feet of retail building space at the site.
- A trip generation rate was calculated using the Shopping Center land use in ITE *Trip Generation* for the 208,180 square feet of new retail use plus the 56,744 square feet of remaining retail uses (158,343 square feet of existing retail minus 96,799 square foot K-Mart and 4,800 square foot adult cabaret). A separate estimate for the 30,000 square foot of office use was also prepared.
- The existing site retail traffic estimate was then subtracted from the total shopping center and office trip generation estimate to arrive at a total trip estimate for the net increase in shopping center and office square footage. A pass-by rate reduction of 34% was assumed for the shopping center component to generate the Net New Trip estimate for the site.

Table 2 below illustrates the trip generation calculation process.

Table 2 Trip Generation Estimate

| | ITE Code | Size (sq. ft.) | Weekday PM Peak Hour | | | Saturday Midday Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | In | Out | Total | In | Out |
| Existing Site | | | | | | | | |
| Existing Site Driveways[1] | - | - | 945 | 435 | 510 | 970 | 490 | 480 |
| *Less Existing Library[2]* | *590* | *22,123* | *(160)* | *(75)* | *(85)* | *(150)* | *(80)* | *(70)* |
| *Less Existing Civic Uses[3]* | *715* | *~10,000* | *(50)* | *(10)* | *(40)* | - | - | - |
| **Total Existing Retail** | | | **735** | **350** | **385** | **820** | **410** | **410** |
| Future Site | | | | | | | | |
| Shopping Center | 820 | 264,924[4] | 1,225 | 600 | 625 | 1,615 | 840 | 775 |
| *Less Existing Retail Driveway Counts* | - | - | *(735)* | *(350)* | *(385)* | *(820)* | *(410)* | *(410)* |
| Sub Total | - | - | 490 | 250 | 240 | 795 | 430 | 365 |
| *Pass-by Trips (Weekday 34%, Sat. 26%)* | - | - | *(160)* | *(80)* | *(80)* | *(190)* | *(95)* | *(95)* |
| Office | 710 | 30,000 | 45 | 10 | 35 | 10 | 5 | 5 |
| **Net New Trips** | | | **375** | **180** | **195** | **615** | **340** | **275** |

[1]Represents the total site driveway counts during the weekday p.m. peak hour of 4:35-5:35 p.m. and Saturday midday peak hour of 12:10-1:10 p.m. This is the traffic volume being generated by the existing 158,343 square feet of shopping center currently residing on the site.
[2]The library traffic counts were estimated using the *Library* land use in ITE Trip Generation.
[3]The City Hall traffic counts were estimated using the *Single Tenant Office Building* land use in ITE Trip Generation. The existing City Hall square footage was estimated to be approximately 10,000 square feet in size.
[4]Includes the 158,343 square feet of existing shopping center (minus the 96,799 square foot K-Mart and 4,800 square foot adult cabaret) plus the 208,180 square feet of proposed shopping center uses.

As shown in Table 2, the combined 264,180 square feet of shopping center use is estimated to generate 1,225 weekday p.m. peak hour trips and 1,615 Saturday midday peak hour trips, respectfully. To check the validity of this methodology, weekday p.m. and Saturday midday peak hour traffic counts were taken at the previously developed 215,000 square foot Nyberg Woods shopping center on the east side of I-5. Based on these counts, it was determined that this shopping center is generating approximately 3.76 trips/1,000 square feet during the weekday p.m. peak hour and 4.76 trips/1,000 square feet during the Saturday midday peak period. Applying these rates to proposed addition of 208,180 square feet of new retail space indicates that the proposed trip generation methodology is consistent with or more conservative than actual trip generation observations at similar retail centers.

# Appendix B
# Traffic Count Data

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

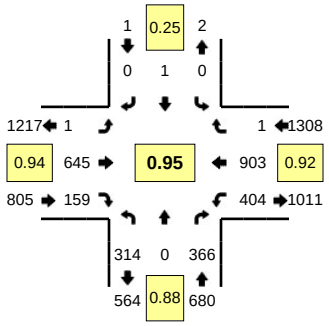
**LOCATION:** SW Martinazzi Ave -- SW Boones Ferry Rd

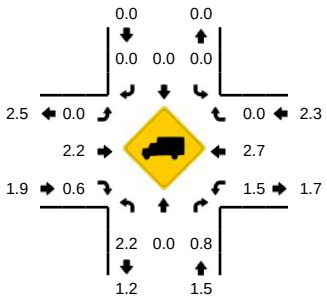
**QC JOB #:** 10772125

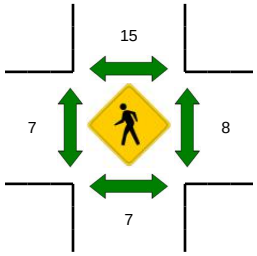
**CITY/STATE:** Tualatin, OR

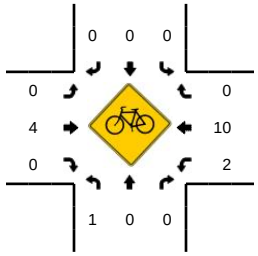
**DATE:** Tue, Jun 05 2012

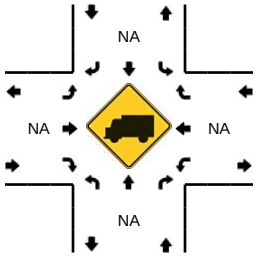
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

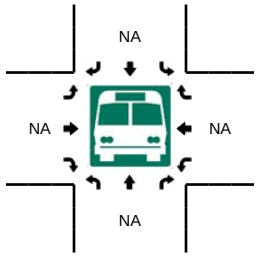



| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Boones Ferry Rd (Eastbound) | | | | SW Boones Ferry Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 27 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 12 | 0 | 25 | 70 | 0 | 0 | 202 | 2305 |
| 4:05 PM | 27 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 16 | 0 | 21 | 64 | 0 | 0 | 227 | 2346 |
| 4:10 PM | 32 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 1 | 48 | 15 | 0 | 26 | 70 | 0 | 0 | 221 | 2370 |
| 4:15 PM | 29 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 8 | 0 | 30 | 81 | 0 | 0 | 245 | 2431 |
| 4:20 PM | 27 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 12 | 0 | 24 | 67 | 0 | 0 | 211 | 2464 |
| 4:25 PM | 38 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 13 | 0 | 26 | 64 | 0 | 0 | 211 | 2509 |
| 4:30 PM | 17 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 12 | 0 | 32 | 76 | 0 | 0 | 202 | 2516 |
| 4:35 PM | 39 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 12 | 0 | 19 | 65 | 0 | 0 | 225 | 2545 |
| 4:40 PM | 22 | 0 | 27 | 0 | 0 | 1 | 0 | 0 | 0 | 47 | 15 | 0 | 35 | 90 | 0 | 0 | 237 | 2583 |
| 4:45 PM | 23 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 16 | 0 | 33 | 74 | 1 | 0 | 230 | 2599 |
| 4:50 PM | 20 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 1 | 64 | 14 | 0 | 30 | 81 | 0 | 0 | 229 | 2622 |
| 4:55 PM | 28 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 15 | 0 | 29 | 70 | 0 | 0 | 215 | 2655 |
| 5:00 PM | 26 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 12 | 0 | 36 | 75 | 0 | 0 | 244 | 2697 |
| 5:05 PM | 25 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 9 | 0 | 43 | 81 | 0 | 0 | 244 | 2714 |
| 5:10 PM | 29 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 15 | 0 | 41 | 79 | 0 | 0 | 250 | 2743 |
| 5:15 PM | 25 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 15 | 0 | 28 | 78 | 0 | 0 | 238 | 2736 |
| 5:20 PM | 23 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 10 | 0 | 42 | 78 | 0 | 0 | 237 | 2762 |
| 5:25 PM | 25 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 14 | 0 | 38 | 66 | 0 | 0 | 228 | 2779 |
| 5:30 PM | 29 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 12 | 0 | 30 | 66 | 0 | 0 | 217 | 2794 |
| 5:35 PM | 35 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 12 | 0 | 30 | 73 | 1 | 0 | 228 | 2797 |
| 5:40 PM | 28 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 12 | 0 | 31 | 76 | 0 | 0 | 215 | 2775 |
| 5:45 PM | 36 | 0 | 22 | 0 | 0 | 0 | 1 | 0 | 0 | 39 | 12 | 0 | 30 | 75 | 0 | 0 | 215 | 2760 |
| 5:50 PM | 26 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 5 | 0 | 31 | 81 | 0 | 0 | 208 | 2739 |
| 5:55 PM | 28 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 9 | 0 | 24 | 61 | 0 | 0 | 178 | 2702 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 320 | 0 | 452 | 0 | 0 | 0 | 0 | 0 | 0 | 616 | 144 | 0 | 480 | 940 | 0 | 0 | 2952 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 0 | | 8 | 8 | 0 | | 28 |
| Pedestrians | | 4 | | | | 12 | | | | 8 | | | | 12 | | | 36 |
| Bicycles | 1 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 2 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

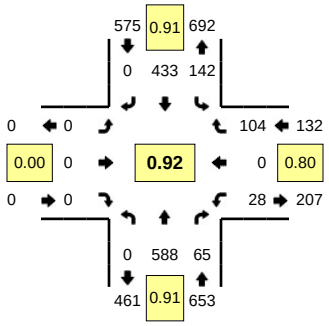
**LOCATION:** SW Martinazzi Ave -- Existing Site Dwy near City Hall

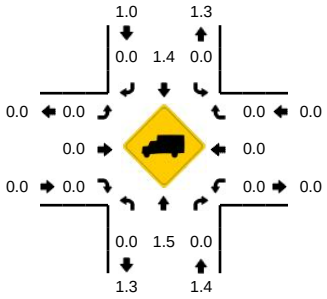
**QC JOB #:** 10772123

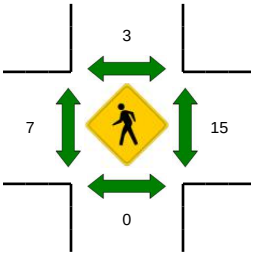
**CITY/STATE:** Tualatin, OR

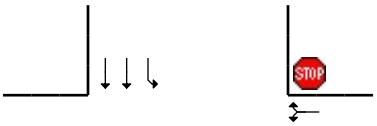
**DATE:** Tue, Jun 05 2012

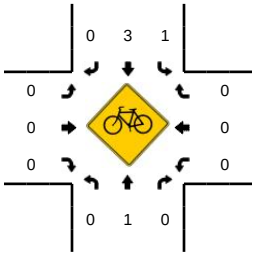
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

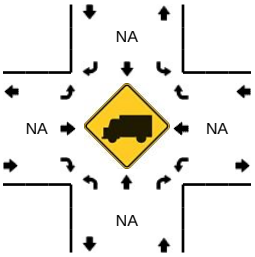


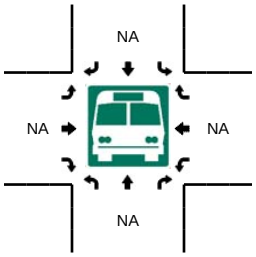








| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Site Dwy near City Hall (Eastbound) | | | | Existing Site Dwy near City Hall (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 39 | 8 | 0 | 14 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 102 | 1149 |
| 4:05 PM | 0 | 57 | 6 | 0 | 14 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 11 | 0 | 109 | 1166 |
| 4:10 PM | 0 | 54 | 5 | 0 | 8 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 14 | 0 | 116 | 1192 |
| 4:15 PM | 0 | 50 | 3 | 0 | 13 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 110 | 1208 |
| 4:20 PM | 0 | 42 | 9 | 0 | 11 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 97 | 1210 |
| 4:25 PM | 0 | 48 | 7 | 0 | 11 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 14 | 0 | 108 | 1226 |
| 4:30 PM | 0 | 37 | 8 | 0 | 12 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 98 | 1228 |
| 4:35 PM | 0 | 58 | 3 | 0 | 13 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 18 | 0 | 122 | 1252 |
| 4:40 PM | 0 | 47 | 5 | 0 | 15 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 112 | 1275 |
| 4:45 PM | 0 | 37 | 5 | 0 | 12 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 102 | 1283 |
| 4:50 PM | 0 | 42 | 6 | 0 | 10 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 108 | 1276 |
| 4:55 PM | 0 | 50 | 3 | 0 | 14 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 105 | 1289 |
| 5:00 PM | 0 | 54 | 5 | 0 | 13 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 | 0 | 128 | 1315 |
| 5:05 PM | 0 | 47 | 7 | 0 | 7 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 118 | 1324 |
| 5:10 PM | 0 | 59 | 7 | 0 | 14 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 122 | 1330 |
| 5:15 PM | 0 | 49 | 10 | 0 | 14 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 114 | 1334 |
| 5:20 PM | 0 | 44 | 6 | 0 | 11 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 109 | 1346 |
| 5:25 PM | 0 | 52 | 4 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 113 | 1351 |
| 5:30 PM | 0 | 49 | 4 | 0 | 9 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 107 | 1360 |
| 5:35 PM | 0 | 57 | 5 | 0 | 9 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 110 | 1348 |
| 5:40 PM | 0 | 46 | 6 | 0 | 9 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 110 | 1346 |
| 5:45 PM | 0 | 48 | 4 | 0 | 4 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 7 | 0 | 103 | 1347 |
| 5:50 PM | 0 | 47 | 4 | 0 | 6 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 104 | 1343 |
| 5:55 PM | 0 | 44 | 3 | 0 | 9 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 83 | 1321 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 640 | 76 | 0 | 136 | 496 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 96 | 0 | 1472 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 12 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

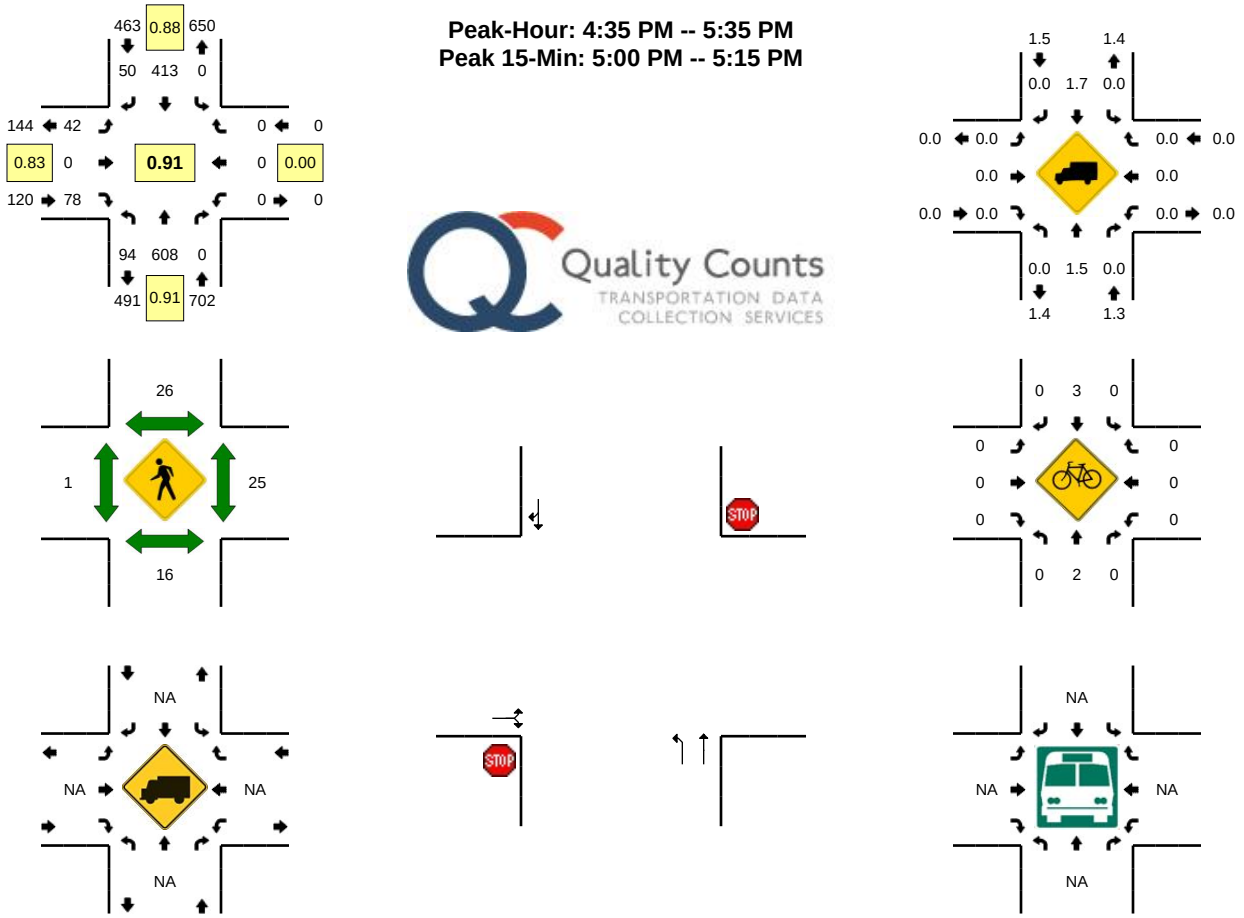
**LOCATION:** SW Martinazzi Ave -- SW Seneca St

**CITY/STATE:** Tualatin, OR

**QC JOB #:** 10772121

**DATE:** Tue, Jun 05 2012

**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**




| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Seneca St (Eastbound) | | | | SW Seneca St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 6 | 43 | 0 | 0 | 0 | 24 | 7 | 0 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 87 | 1076 |
| 4:05 PM | 6 | 66 | 0 | 0 | 0 | 25 | 2 | 0 | 3 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 111 | 1101 |
| 4:10 PM | 11 | 46 | 0 | 0 | 0 | 29 | 4 | 0 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 98 | 1109 |
| 4:15 PM | 7 | 57 | 0 | 0 | 0 | 32 | 1 | 0 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 105 | 1130 |
| 4:20 PM | 7 | 43 | 0 | 0 | 0 | 22 | 5 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 87 | 1128 |
| 4:25 PM | 10 | 56 | 0 | 0 | 0 | 31 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 104 | 1140 |
| 4:30 PM | 9 | 36 | 0 | 0 | 0 | 34 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 86 | 1130 |
| 4:35 PM | 6 | 62 | 0 | 0 | 0 | 27 | 1 | 0 | 3 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 106 | 1153 |
| 4:40 PM | 9 | 47 | 0 | 0 | 0 | 30 | 5 | 0 | 2 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 103 | 1174 |
| 4:45 PM | 10 | 45 | 0 | 0 | 0 | 41 | 1 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 104 | 1186 |
| 4:50 PM | 1 | 45 | 0 | 0 | 0 | 30 | 5 | 0 | 4 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 95 | 1179 |
| 4:55 PM | 9 | 48 | 0 | 0 | 0 | 32 | 5 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 102 | 1188 |
| 5:00 PM | 12 | 60 | 0 | 0 | 0 | 38 | 5 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 122 | 1223 |
| 5:05 PM | 7 | 56 | 0 | 0 | 0 | 46 | 1 | 0 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 121 | 1233 |
| 5:10 PM | 5 | 53 | 0 | 0 | 0 | 37 | 5 | 0 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 110 | 1245 |
| 5:15 PM | 8 | 51 | 0 | 0 | 0 | 20 | 3 | 0 | 7 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 97 | 1237 |
| 5:20 PM | 9 | 42 | 0 | 0 | 0 | 38 | 5 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 102 | 1252 |
| 5:25 PM | 12 | 55 | 0 | 0 | 0 | 40 | 7 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 120 | 1268 |
| 5:30 PM | 6 | 44 | 0 | 0 | 0 | 34 | 7 | 0 | 3 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 103 | 1285 |
| 5:35 PM | 10 | 66 | 0 | 0 | 0 | 25 | 6 | 0 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 116 | 1295 |
| 5:40 PM | 9 | 43 | 0 | 0 | 0 | 35 | 4 | 0 | 5 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 106 | 1298 |
| 5:45 PM | 5 | 59 | 0 | 0 | 0 | 38 | 4 | 0 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 115 | 1309 |
| 5:50 PM | 6 | 41 | 0 | 0 | 0 | 36 | 5 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 93 | 1307 |
| 5:55 PM | 3 | 49 | 0 | 0 | 0 | 25 | 2 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 84 | 1289 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 96 | 676 | 0 | 0 | 0 | 484 | 44 | 0 | 36 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 1412 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 12 |
| Pedestrians | | 4 | | | | 20 | | | | 0 | | | | 8 | | | 32 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

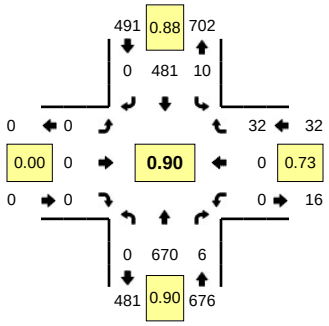
**LOCATION:** SW Martinazzi Ave -- Existing Site Dwy

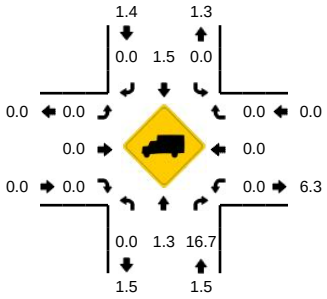
**QC JOB #:** 10772119

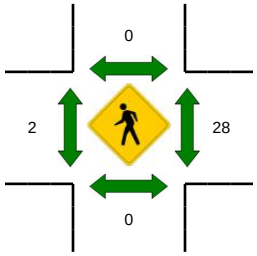
**CITY/STATE:** Tualatin, OR

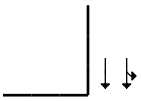
**DATE:** Tue, Jun 05 2012

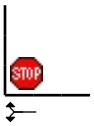
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

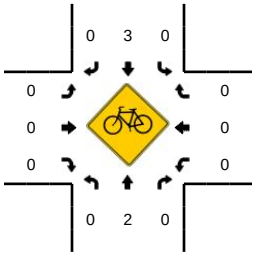


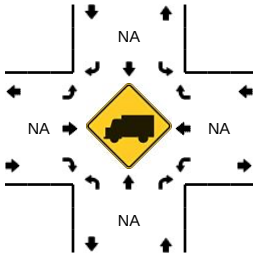



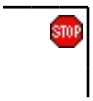



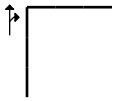



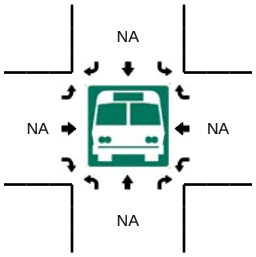





| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Site Dwy (Eastbound) | | | | Existing Site Dwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 48 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 78 | 978 |
| 4:05 PM | 0 | 72 | 1 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 108 | 1007 |
| 4:10 PM | 0 | 52 | 0 | 0 | 1 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 92 | 1013 |
| 4:15 PM | 0 | 63 | 1 | 0 | 1 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 103 | 1044 |
| 4:20 PM | 0 | 47 | 0 | 0 | 2 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 78 | 1037 |
| 4:25 PM | 0 | 62 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 101 | 1054 |
| 4:30 PM | 0 | 44 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 81 | 1051 |
| 4:35 PM | 0 | 61 | 1 | 0 | 1 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 103 | 1075 |
| 4:40 PM | 0 | 55 | 0 | 0 | 1 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 96 | 1095 |
| 4:45 PM | 0 | 54 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 100 | 1117 |
| 4:50 PM | 0 | 42 | 1 | 0 | 1 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 87 | 1113 |
| 4:55 PM | 0 | 55 | 1 | 0 | 2 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 97 | 1124 |
| 5:00 PM | 0 | 71 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 116 | 1162 |
| 5:05 PM | 0 | 59 | 1 | 0 | 4 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 119 | 1173 |
| 5:10 PM | 0 | 55 | 0 | 0 | 1 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 99 | 1180 |
| 5:15 PM | 0 | 55 | 2 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 89 | 1166 |
| 5:20 PM | 0 | 48 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 90 | 1178 |
| 5:25 PM | 0 | 66 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 110 | 1187 |
| 5:30 PM | 0 | 49 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 93 | 1199 |
| 5:35 PM | 0 | 74 | 1 | 0 | 1 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 109 | 1205 |
| 5:40 PM | 0 | 47 | 0 | 0 | 2 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 97 | 1206 |
| 5:45 PM | 0 | 62 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 109 | 1215 |
| 5:50 PM | 0 | 47 | 1 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 1215 |
| 5:55 PM | 0 | 52 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 1196 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 740 | 4 | 0 | 20 | 540 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 1336 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 12 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 12 | | | 12 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

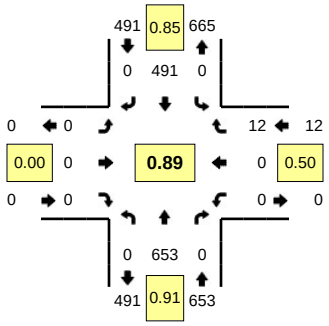
**LOCATION:** SW Martinazzi Ave -- Existing Right-Out Only Dwy

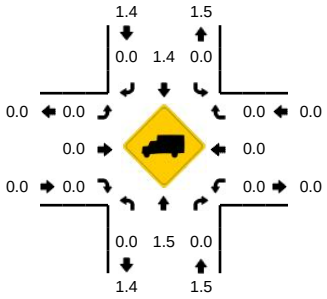
**QC JOB #:** 10772117

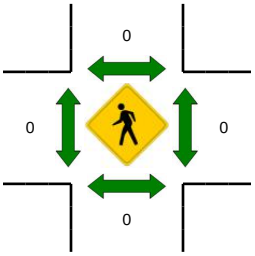
**CITY/STATE:** Tualatin, OR

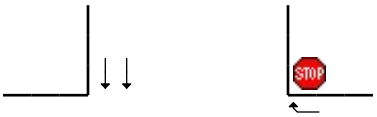
**DATE:** Tue, Jun 05 2012

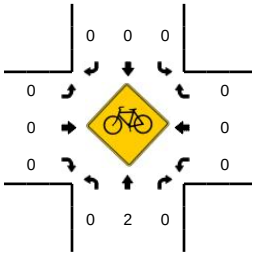
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

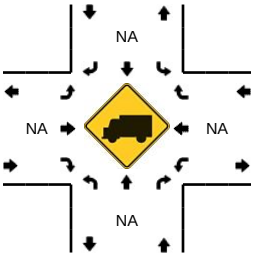


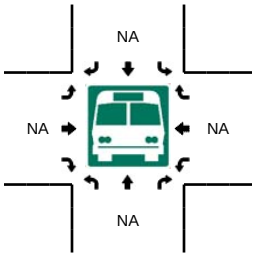






| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Right-Out Only Dwy (Eastbound) | | | | Existing Right-Out Only Dwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 51 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 962 |
| 4:05 PM | 0 | 70 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 106 | 989 |
| 4:10 PM | 0 | 50 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 990 |
| 4:15 PM | 0 | 61 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 97 | 1018 |
| 4:20 PM | 0 | 45 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 84 | 1009 |
| 4:25 PM | 0 | 62 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 1027 |
| 4:30 PM | 0 | 39 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 80 | 1029 |
| 4:35 PM | 0 | 62 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 93 | 1041 |
| 4:40 PM | 0 | 52 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 92 | 1059 |
| 4:45 PM | 0 | 52 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 1074 |
| 4:50 PM | 0 | 43 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 1080 |
| 4:55 PM | 0 | 53 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 1084 |
| 5:00 PM | 0 | 66 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 114 | 1119 |
| 5:05 PM | 0 | 58 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 1117 |
| 5:10 PM | 0 | 55 | 0 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 | 1140 |
| 5:15 PM | 0 | 54 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 89 | 1132 |
| 5:20 PM | 0 | 46 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 81 | 1129 |
| 5:25 PM | 0 | 63 | 0 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 116 | 1142 |
| 5:30 PM | 0 | 49 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 94 | 1156 |
| 5:35 PM | 0 | 75 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 1176 |
| 5:40 PM | 0 | 45 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 1167 |
| 5:45 PM | 0 | 60 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 | 1185 |
| 5:50 PM | 0 | 48 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 1183 |
| 5:55 PM | 0 | 51 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 1173 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 716 | 0 | 0 | 0 | 576 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1300 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 12 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

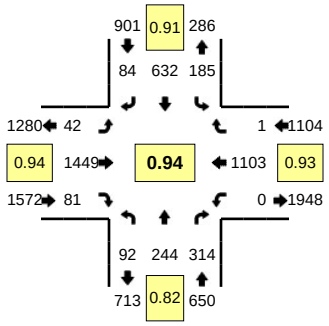
**LOCATION:** SW Martinazzi Ave -- SW Tualatin-Sherwood Rd

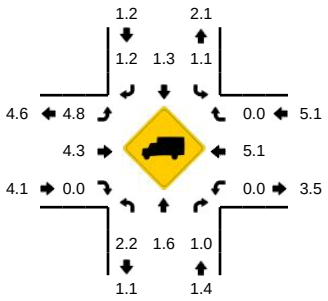
**QC JOB #:** 10772115

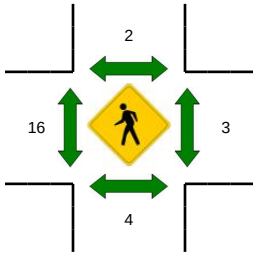
**CITY/STATE:** Tualatin, OR

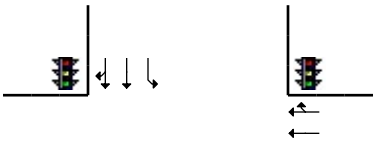
**DATE:** Wed, Jun 06 2012

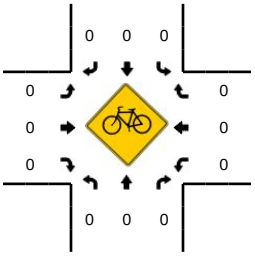
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

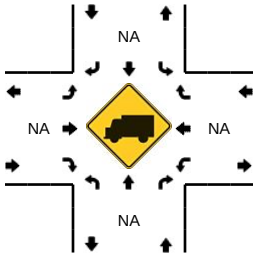


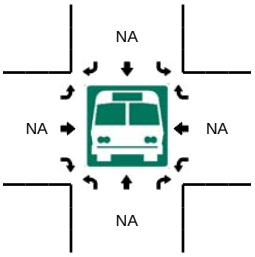








| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Tualatin-Sherwood Rd (Eastbound) | | | | SW Tualatin-Sherwood Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 7 | 23 | 22 | 0 | 11 | 42 | 4 | 0 | 4 | 116 | 6 | 0 | 0 | 86 | 0 | 0 | 321 | 3812 |
| 4:05 PM | 5 | 16 | 25 | 0 | 10 | 42 | 5 | 0 | 4 | 109 | 8 | 0 | 0 | 119 | 0 | 0 | 343 | 3845 |
| 4:10 PM | 12 | 28 | 21 | 0 | 19 | 45 | 12 | 0 | 4 | 90 | 5 | 0 | 0 | 86 | 0 | 0 | 322 | 3893 |
| 4:15 PM | 6 | 16 | 25 | 0 | 16 | 39 | 5 | 0 | 5 | 141 | 11 | 0 | 0 | 106 | 0 | 0 | 370 | 3950 |
| 4:20 PM | 8 | 13 | 11 | 0 | 20 | 38 | 7 | 0 | 4 | 129 | 7 | 0 | 0 | 77 | 0 | 0 | 314 | 3971 |
| 4:25 PM | 7 | 23 | 33 | 0 | 5 | 58 | 9 | 0 | 8 | 114 | 4 | 0 | 0 | 83 | 0 | 0 | 344 | 4000 |
| 4:30 PM | 7 | 13 | 14 | 0 | 10 | 30 | 1 | 0 | 7 | 140 | 5 | 0 | 0 | 104 | 0 | 0 | 331 | 3990 |
| 4:35 PM | 8 | 27 | 35 | 0 | 17 | 71 | 7 | 0 | 2 | 100 | 8 | 0 | 0 | 79 | 0 | 0 | 354 | 4039 |
| 4:40 PM | 6 | 22 | 26 | 0 | 14 | 37 | 1 | 0 | 4 | 141 | 6 | 1 | 0 | 130 | 0 | 0 | 388 | 4058 |
| 4:45 PM | 10 | 17 | 20 | 0 | 18 | 32 | 6 | 0 | 1 | 112 | 3 | 0 | 0 | 73 | 0 | 0 | 292 | 4061 |
| 4:50 PM | 7 | 11 | 24 | 0 | 11 | 48 | 8 | 0 | 5 | 119 | 5 | 0 | 0 | 94 | 0 | 0 | 332 | 4060 |
| 4:55 PM | 11 | 18 | 18 | 0 | 26 | 53 | 11 | 0 | 0 | 109 | 4 | 0 | 0 | 69 | 0 | 0 | 319 | 4030 |
| 5:00 PM | 6 | 22 | 20 | 0 | 12 | 45 | 13 | 0 | 8 | 127 | 5 | 0 | 0 | 84 | 0 | 0 | 342 | 4051 |
| 5:05 PM | 12 | 22 | 33 | 0 | 15 | 45 | 4 | 0 | 2 | 127 | 6 | 0 | 0 | 103 | 0 | 0 | 369 | 4077 |
| 5:10 PM | 7 | 34 | 36 | 0 | 15 | 78 | 9 | 0 | 4 | 116 | 3 | 0 | 0 | 78 | 1 | 0 | 381 | 4136 |
| 5:15 PM | 6 | 25 | 22 | 0 | 11 | 43 | 7 | 0 | 5 | 133 | 7 | 0 | 0 | 111 | 0 | 0 | 370 | 4136 |
| 5:20 PM | 14 | 16 | 31 | 0 | 21 | 57 | 3 | 0 | 4 | 119 | 9 | 0 | 0 | 93 | 0 | 0 | 367 | 4189 |
| 5:25 PM | 0 | 17 | 27 | 0 | 13 | 83 | 10 | 0 | 4 | 123 | 15 | 0 | 0 | 91 | 0 | 0 | 383 | 4228 |
| 5:30 PM | 5 | 13 | 22 | 0 | 12 | 40 | 5 | 0 | 2 | 123 | 10 | 0 | 0 | 98 | 0 | 0 | 330 | 4227 |
| 5:35 PM | 12 | 19 | 29 | 0 | 19 | 66 | 5 | 0 | 5 | 59 | 2 | 0 | 0 | 94 | 0 | 0 | 310 | 4183 |
| 5:40 PM | 3 | 3 | 19 | 0 | 12 | 37 | 10 | 0 | 5 | 124 | 4 | 0 | 1 | 97 | 0 | 0 | 315 | 4110 |
| 5:45 PM | 8 | 17 | 25 | 0 | 21 | 51 | 8 | 0 | 6 | 79 | 13 | 0 | 0 | 79 | 0 | 0 | 307 | 4125 |
| 5:50 PM | 5 | 24 | 20 | 0 | 10 | 42 | 4 | 0 | 5 | 78 | 6 | 0 | 0 | 139 | 0 | 0 | 333 | 4126 |
| 5:55 PM | 9 | 18 | 15 | 1 | 17 | 50 | 11 | 0 | 5 | 80 | 7 | 0 | 0 | 69 | 0 | 0 | 282 | 4089 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 100 | 324 | 364 | 0 | 164 | 664 | 80 | 0 | 44 | 1504 | 64 | 0 | 0 | 1168 | 4 | 0 | 4480 |
| Heavy Trucks | 0 | 4 | 4 | | 0 | 4 | 0 | | 4 | 40 | 0 | | 0 | 68 | 0 | | 124 |
| Pedestrians | | 0 | | | | 4 | | | | 32 | | | | 0 | | | 36 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

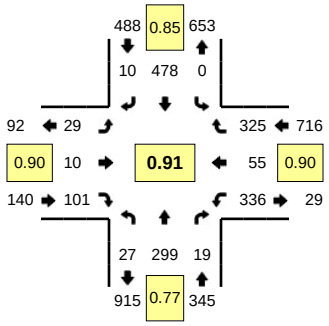
**LOCATION:** SW Martinazzi Ave -- SW Nyberg St

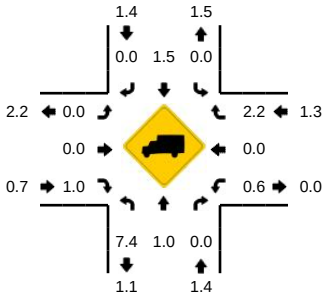
**CITY/STATE:** Tualatin, OR

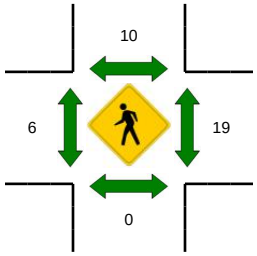
**QC JOB #:** 10772113

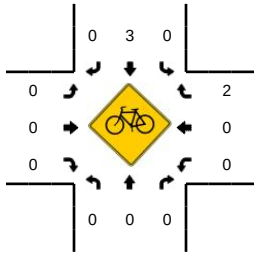
**DATE:** Tue, Jun 05 2012

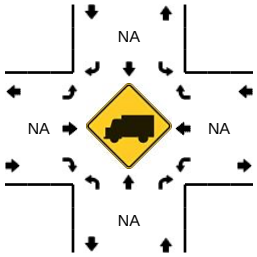
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

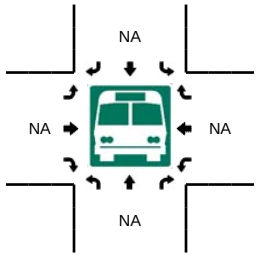



| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 20 | 2 | 0 | 0 | 27 | 1 | 0 | 1 | 2 | 13 | 0 | 17 | 3 | 30 | 0 | 116 | 1367 |
| 4:05 PM | 1 | 27 | 3 | 0 | 0 | 32 | 1 | 0 | 4 | 0 | 8 | 0 | 24 | 2 | 39 | 0 | 141 | 1392 |
| 4:10 PM | 2 | 26 | 0 | 0 | 0 | 36 | 1 | 0 | 4 | 0 | 5 | 0 | 20 | 5 | 20 | 0 | 119 | 1395 |
| 4:15 PM | 2 | 31 | 2 | 0 | 0 | 30 | 2 | 0 | 2 | 0 | 13 | 0 | 25 | 3 | 28 | 0 | 138 | 1424 |
| 4:20 PM | 2 | 18 | 2 | 0 | 0 | 36 | 1 | 0 | 1 | 1 | 5 | 0 | 22 | 3 | 26 | 0 | 117 | 1417 |
| 4:25 PM | 1 | 28 | 0 | 0 | 0 | 32 | 3 | 0 | 2 | 0 | 6 | 0 | 32 | 3 | 32 | 0 | 139 | 1445 |
| 4:30 PM | 0 | 13 | 0 | 0 | 0 | 33 | 3 | 0 | 3 | 1 | 6 | 0 | 22 | 2 | 23 | 0 | 106 | 1441 |
| 4:35 PM | 3 | 32 | 0 | 0 | 0 | 34 | 3 | 0 | 3 | 2 | 8 | 0 | 23 | 2 | 27 | 0 | 137 | 1466 |
| 4:40 PM | 1 | 25 | 1 | 0 | 0 | 36 | 1 | 0 | 0 | 0 | 8 | 0 | 25 | 3 | 27 | 0 | 127 | 1489 |
| 4:45 PM | 3 | 22 | 3 | 0 | 0 | 41 | 1 | 0 | 5 | 2 | 10 | 0 | 25 | 5 | 25 | 0 | 142 | 1536 |
| 4:50 PM | 4 | 15 | 3 | 0 | 0 | 41 | 0 | 0 | 1 | 0 | 7 | 0 | 27 | 6 | 27 | 0 | 131 | 1547 |
| 4:55 PM | 0 | 21 | 0 | 0 | 0 | 34 | 1 | 0 | 2 | 0 | 11 | 0 | 35 | 5 | 30 | 0 | 139 | 1552 |
| 5:00 PM | 2 | 35 | 2 | 0 | 0 | 47 | 0 | 0 | 5 | 1 | 9 | 0 | 33 | 7 | 26 | 0 | 167 | 1603 |
| 5:05 PM | 1 | 30 | 0 | 0 | 0 | 42 | 1 | 0 | 1 | 1 | 9 | 0 | 31 | 6 | 27 | 0 | 149 | 1611 |
| 5:10 PM | 5 | 33 | 4 | 0 | 0 | 54 | 0 | 0 | 1 | 3 | 9 | 0 | 14 | 2 | 21 | 0 | 146 | 1638 |
| 5:15 PM | 1 | 20 | 1 | 0 | 0 | 33 | 1 | 0 | 2 | 0 | 6 | 0 | 27 | 7 | 32 | 0 | 130 | 1630 |
| 5:20 PM | 2 | 21 | 2 | 0 | 0 | 31 | 0 | 0 | 3 | 1 | 8 | 0 | 26 | 1 | 22 | 0 | 117 | 1630 |
| 5:25 PM | 1 | 27 | 2 | 0 | 0 | 50 | 1 | 0 | 4 | 0 | 10 | 0 | 32 | 6 | 32 | 0 | 165 | 1656 |
| 5:30 PM | 4 | 18 | 1 | 0 | 0 | 35 | 1 | 0 | 2 | 0 | 6 | 0 | 38 | 5 | 29 | 0 | 139 | 1689 |
| 5:35 PM | 3 | 40 | 1 | 0 | 0 | 45 | 1 | 0 | 6 | 0 | 8 | 0 | 24 | 6 | 29 | 0 | 163 | 1715 |
| 5:40 PM | 0 | 17 | 2 | 0 | 0 | 36 | 2 | 0 | 1 | 0 | 6 | 0 | 23 | 1 | 27 | 0 | 115 | 1703 |
| 5:45 PM | 2 | 24 | 2 | 0 | 0 | 48 | 0 | 0 | 2 | 0 | 7 | 0 | 32 | 4 | 34 | 0 | 155 | 1716 |
| 5:50 PM | 1 | 15 | 2 | 0 | 0 | 36 | 2 | 0 | 1 | 0 | 6 | 0 | 31 | 1 | 32 | 0 | 127 | 1712 |
| 5:55 PM | 2 | 17 | 0 | 0 | 0 | 26 | 1 | 0 | 1 | 2 | 12 | 0 | 31 | 4 | 33 | 0 | 129 | 1702 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 32 | 392 | 24 | 0 | 0 | 572 | 4 | 0 | 28 | 20 | 108 | 0 | 312 | 60 | 296 | 0 | 1848 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 0 | 0 | | 4 | 0 | 4 | | 20 |
| Pedestrians | | 0 | | | | 8 | | | | 0 | | | | 16 | | | 24 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 1 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

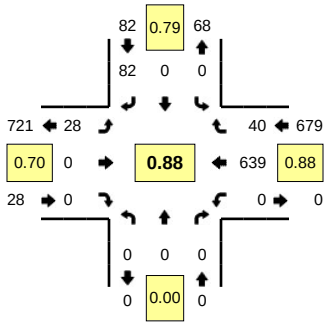
**LOCATION:** Unsignalized Site Dwy -- SW Nyberg St

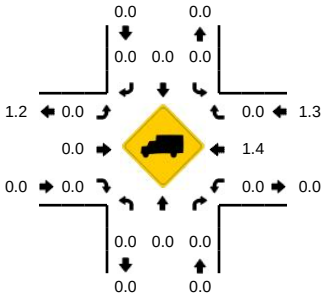
**CITY/STATE:** Tualatin, OR

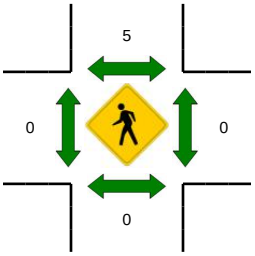
**QC JOB #:** 10772111

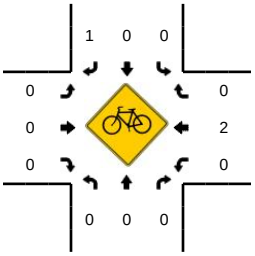
**DATE:** Tue, Jun 05 2012

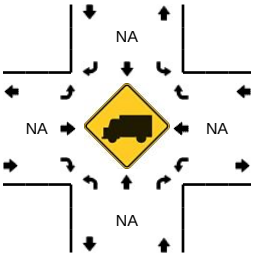
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 4:50 PM -- 5:05 PM**

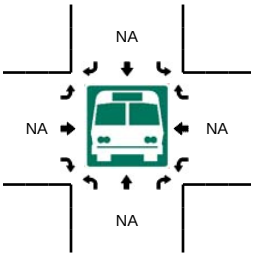







| 5-Min Count Period Beginning At | Unsignalized Site Dwy (Northbound) | | | | Unsignalized Site Dwy (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 48 | 5 | 0 | 60 | 668 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 51 | 5 | 0 | 72 | 696 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 53 | 3 | 0 | 60 | 700 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 46 | 1 | 0 | 55 | 700 |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 43 | 2 | 0 | 54 | 699 |
| 4:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 2 | 0 | 71 | 715 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 45 | 7 | 0 | 56 | 722 |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 53 | 3 | 0 | 63 | 729 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 40 | 3 | 0 | 52 | 729 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 41 | 5 | 0 | 56 | 724 |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 62 | 4 | 0 | 76 | 736 |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 47 | 5 | 0 | 65 | 740 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 72 | 2 | 0 | 84 | 764 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 52 | 744 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 53 | 8 | 0 | 69 | 753 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 53 | 1 | 0 | 59 | 757 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 39 | 3 | 0 | 52 | 755 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 74 | 3 | 0 | 87 | 771 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 59 | 3 | 0 | 74 | 789 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 56 | 5 | 0 | 66 | 792 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 53 | 4 | 0 | 64 | 804 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 2 | 0 | 69 | 817 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 68 | 6 | 0 | 79 | 820 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 3 | 0 | 54 | 809 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 0 | 28 | 0 | 0 | 0 | 0 | 724 | 44 | 0 | 900 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 12 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

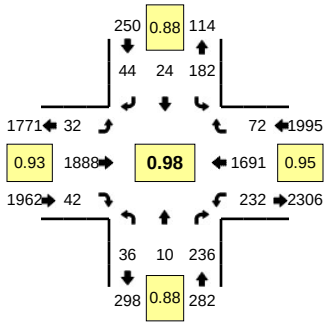
Type of peak hour being reported: User-Defined

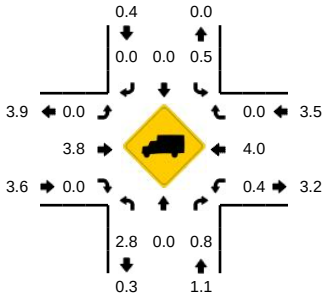
Method for determining peak hour: Total Entering Volume

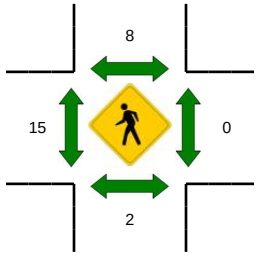
**LOCATION:** Fred Meyer/Site Dwy -- SW Nyberg St/SW Tualatin-Sherwood Rd
**CITY/STATE:** Tualatin, OR

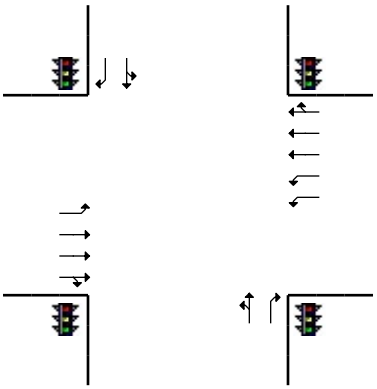
**QC JOB #:** 10772109
**DATE:** Tue, Jun 05 2012

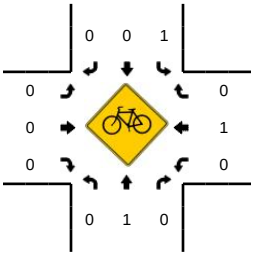
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

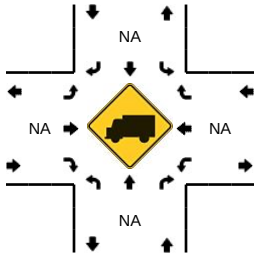


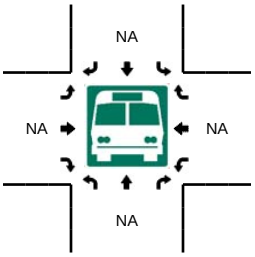






| 5-Min Count Period Beginning At | Fred Meyer/Site Dwy (Northbound) | | | | Fred Meyer/Site Dwy (Southbound) | | | | SW Nyberg St/SW Tualatin-Sherwood Rd (Eastbound) | | | | SW Nyberg St/SW Tualatin-Sherwood Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 5 | 3 | 15 | 0 | 15 | 1 | 1 | 0 | 1 | 133 | 0 | 0 | 16 | 115 | 6 | 0 | 311 | 4116 |
| 4:05 PM | 4 | 0 | 20 | 0 | 15 | 1 | 7 | 0 | 1 | 178 | 0 | 0 | 12 | 137 | 9 | 0 | 384 | 4156 |
| 4:10 PM | 2 | 3 | 25 | 0 | 19 | 3 | 3 | 0 | 1 | 124 | 8 | 0 | 26 | 133 | 6 | 0 | 353 | 4151 |
| 4:15 PM | 2 | 2 | 26 | 0 | 9 | 5 | 6 | 0 | 1 | 176 | 9 | 0 | 23 | 150 | 6 | 0 | 415 | 4256 |
| 4:20 PM | 4 | 5 | 27 | 0 | 6 | 4 | 3 | 0 | 6 | 133 | 0 | 1 | 28 | 138 | 11 | 0 | 366 | 4255 |
| 4:25 PM | 2 | 1 | 17 | 0 | 26 | 1 | 6 | 0 | 4 | 140 | 3 | 0 | 12 | 134 | 13 | 0 | 359 | 4289 |
| 4:30 PM | 3 | 0 | 15 | 0 | 7 | 2 | 2 | 0 | 1 | 180 | 8 | 0 | 16 | 162 | 5 | 0 | 401 | 4351 |
| 4:35 PM | 4 | 1 | 27 | 0 | 19 | 2 | 4 | 0 | 3 | 134 | 2 | 0 | 26 | 117 | 11 | 0 | 350 | 4340 |
| 4:40 PM | 1 | 2 | 16 | 0 | 7 | 0 | 2 | 0 | 5 | 185 | 5 | 0 | 7 | 168 | 4 | 0 | 402 | 4386 |
| 4:45 PM | 2 | 2 | 24 | 0 | 19 | 2 | 3 | 0 | 2 | 143 | 4 | 0 | 24 | 123 | 5 | 0 | 353 | 4422 |
| 4:50 PM | 3 | 3 | 16 | 0 | 15 | 2 | 2 | 0 | 5 | 176 | 2 | 0 | 13 | 145 | 5 | 0 | 387 | 4406 |
| 4:55 PM | 2 | 0 | 26 | 0 | 15 | 1 | 3 | 0 | 2 | 149 | 2 | 0 | 21 | 150 | 6 | 0 | 377 | 4458 |
| 5:00 PM | 7 | 0 | 23 | 0 | 20 | 3 | 3 | 0 | 5 | 155 | 2 | 0 | 14 | 137 | 4 | 0 | 373 | 4520 |
| 5:05 PM | 0 | 0 | 17 | 0 | 16 | 3 | 3 | 0 | 2 | 162 | 1 | 0 | 19 | 135 | 5 | 0 | 363 | 4499 |
| 5:10 PM | 2 | 1 | 23 | 0 | 12 | 2 | 3 | 0 | 1 | 155 | 5 | 0 | 27 | 150 | 3 | 0 | 384 | 4530 |
| 5:15 PM | 0 | 1 | 10 | 0 | 13 | 2 | 3 | 0 | 2 | 162 | 5 | 0 | 16 | 132 | 5 | 0 | 351 | 4466 |
| 5:20 PM | 5 | 0 | 25 | 0 | 13 | 2 | 4 | 0 | 0 | 141 | 3 | 0 | 22 | 137 | 7 | 0 | 359 | 4459 |
| 5:25 PM | 7 | 0 | 16 | 0 | 20 | 4 | 10 | 0 | 1 | 144 | 4 | 0 | 17 | 143 | 10 | 0 | 376 | 4476 |
| 5:30 PM | 3 | 0 | 13 | 0 | 13 | 1 | 4 | 0 | 4 | 182 | 7 | 0 | 26 | 154 | 7 | 0 | 414 | 4489 |
| 5:35 PM | 1 | 1 | 17 | 0 | 12 | 2 | 5 | 0 | 0 | 124 | 3 | 0 | 26 | 138 | 6 | 0 | 335 | 4474 |
| 5:40 PM | 1 | 2 | 11 | 0 | 16 | 0 | 2 | 0 | 5 | 156 | 5 | 0 | 17 | 163 | 8 | 0 | 386 | 4458 |
| 5:45 PM | 3 | 1 | 18 | 0 | 16 | 2 | 0 | 0 | 2 | 132 | 5 | 1 | 26 | 164 | 5 | 0 | 375 | 4480 |
| 5:50 PM | 4 | 3 | 11 | 0 | 8 | 6 | 6 | 0 | 4 | 117 | 2 | 0 | 9 | 155 | 3 | 0 | 328 | 4421 |
| 5:55 PM | 2 | 1 | 19 | 0 | 5 | 1 | 4 | 0 | 2 | 126 | 4 | 0 | 26 | 135 | 6 | 0 | 331 | 4375 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 60 | 0 | 216 | 0 | 184 | 28 | 72 | 0 | 20 | 1868 | 56 | 0 | 260 | 1736 | 96 | 0 | 4596 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 112 | 0 | | 0 | 60 | 0 | | 172 |
| Pedestrians | | 0 | | | | 24 | | | | 28 | | | | 0 | | | 52 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

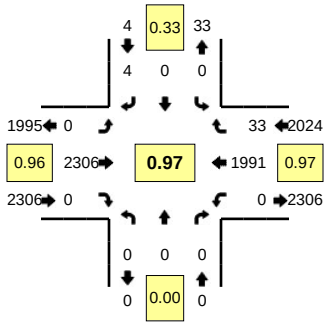
**LOCATION:** SW 75th Ave -- SW Nyberg St

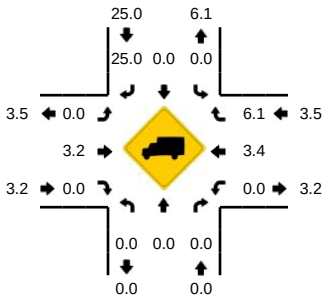
**CITY/STATE:** Tualatin, OR

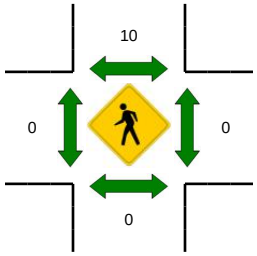
**QC JOB #:** 10772107

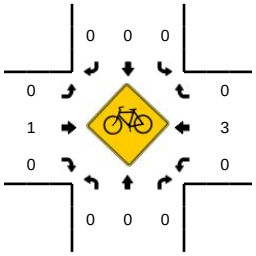
**DATE:** Tue, Jun 05 2012

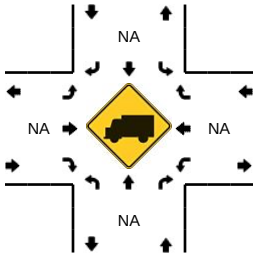
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 4:50 PM -- 5:05 PM**

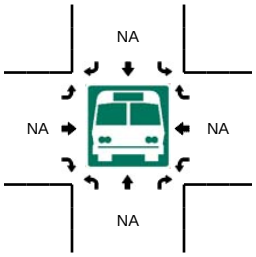







| 5-Min Count Period Beginning At | SW 75th Ave (Northbound) | | | | SW 75th Ave (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 163 | 0 | 0 | 0 | 149 | 5 | 0 | 318 | 4008 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 213 | 0 | 0 | 0 | 149 | 6 | 0 | 369 | 4056 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 168 | 0 | 0 | 0 | 177 | 9 | 0 | 354 | 4060 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 0 | 0 | 0 | 167 | 5 | 0 | 383 | 4136 |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 | 0 | 0 | 0 | 164 | 3 | 0 | 333 | 4126 |
| 4:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 183 | 0 | 0 | 0 | 184 | 1 | 0 | 369 | 4172 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 202 | 0 | 0 | 0 | 170 | 1 | 0 | 373 | 4213 |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 | 0 | 0 | 0 | 181 | 1 | 0 | 362 | 4218 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 0 | 0 | 0 | 156 | 4 | 0 | 368 | 4257 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 186 | 0 | 0 | 0 | 153 | 5 | 0 | 344 | 4266 |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 0 | 0 | 0 | 171 | 4 | 0 | 382 | 4259 |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 190 | 0 | 0 | 0 | 174 | 2 | 0 | 367 | 4322 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 198 | 0 | 0 | 0 | 167 | 3 | 0 | 369 | 4373 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 195 | 0 | 0 | 0 | 153 | 2 | 0 | 351 | 4355 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 190 | 0 | 0 | 0 | 169 | 5 | 0 | 364 | 4365 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 185 | 0 | 0 | 0 | 158 | 4 | 0 | 347 | 4329 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 179 | 0 | 0 | 0 | 152 | 1 | 0 | 333 | 4329 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 | 0 | 0 | 0 | 171 | 1 | 0 | 352 | 4312 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 0 | 0 | 0 | 186 | 1 | 0 | 395 | 4334 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 0 | 0 | 0 | 167 | 4 | 0 | 324 | 4296 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 0 | 0 | 0 | 180 | 6 | 0 | 369 | 4297 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 166 | 0 | 0 | 0 | 196 | 5 | 0 | 369 | 4322 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 136 | 0 | 0 | 0 | 168 | 2 | 0 | 306 | 4246 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 163 | 2 | 0 | 315 | 4194 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2380 | 0 | 0 | 0 | 2048 | 36 | 0 | 4472 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 72 | 0 | | 0 | 84 | 0 | | 156 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

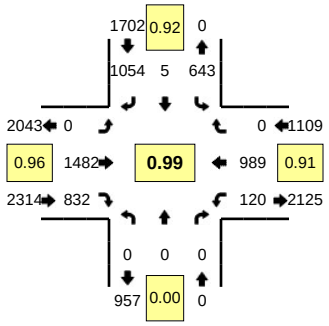
**LOCATION:** I-5 SB Ramp Terminal -- SW Nyberg St

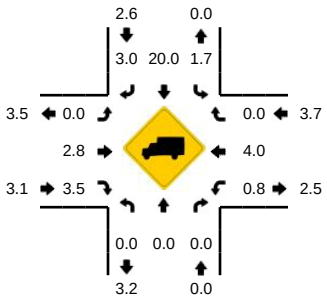
**CITY/STATE:** Tualatin, OR

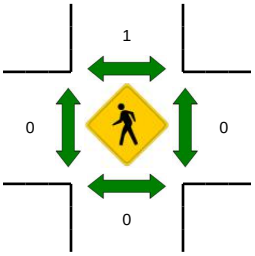
**QC JOB #:** 10772105

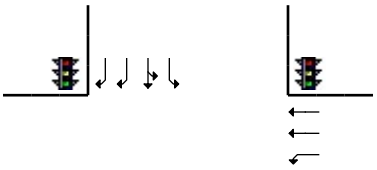
**DATE:** Tue, Jun 05 2012

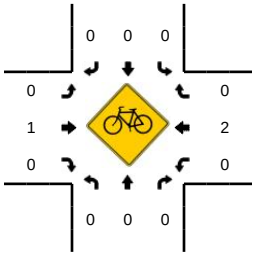
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

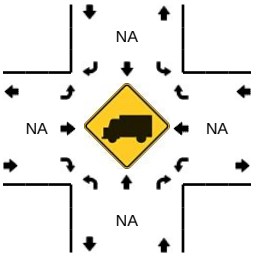


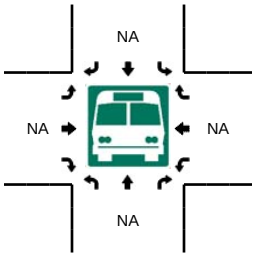








| 5-Min Count Period Beginning At | I-5 SB Ramp Terminal (Northbound) | | | | I-5 SB Ramp Terminal (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 42 | 0 | 66 | 0 | 0 | 104 | 55 | 0 | 15 | 86 | 0 | 0 | 368 | 4708 |
| 4:05 PM | 0 | 0 | 0 | 0 | 49 | 0 | 89 | 0 | 0 | 102 | 83 | 0 | 10 | 72 | 0 | 0 | 405 | 4759 |
| 4:10 PM | 0 | 0 | 0 | 0 | 34 | 0 | 65 | 0 | 0 | 154 | 67 | 0 | 13 | 107 | 0 | 0 | 440 | 4797 |
| 4:15 PM | 0 | 0 | 0 | 0 | 44 | 0 | 93 | 0 | 0 | 116 | 63 | 0 | 8 | 84 | 0 | 0 | 408 | 4837 |
| 4:20 PM | 0 | 0 | 0 | 0 | 47 | 0 | 82 | 0 | 0 | 128 | 64 | 0 | 15 | 80 | 0 | 0 | 416 | 4856 |
| 4:25 PM | 0 | 0 | 0 | 0 | 33 | 0 | 79 | 0 | 0 | 121 | 54 | 0 | 6 | 111 | 0 | 0 | 404 | 4851 |
| 4:30 PM | 0 | 0 | 0 | 0 | 54 | 1 | 105 | 0 | 0 | 103 | 65 | 0 | 12 | 64 | 0 | 0 | 404 | 4855 |
| 4:35 PM | 0 | 0 | 0 | 0 | 44 | 0 | 73 | 0 | 0 | 146 | 69 | 0 | 8 | 106 | 0 | 0 | 446 | 4902 |
| 4:40 PM | 0 | 0 | 0 | 0 | 68 | 2 | 84 | 0 | 0 | 115 | 76 | 0 | 8 | 76 | 0 | 0 | 429 | 4917 |
| 4:45 PM | 0 | 0 | 0 | 0 | 53 | 0 | 78 | 0 | 0 | 112 | 65 | 0 | 19 | 77 | 0 | 0 | 404 | 4908 |
| 4:50 PM | 0 | 0 | 0 | 0 | 39 | 0 | 76 | 0 | 0 | 162 | 69 | 0 | 9 | 97 | 0 | 0 | 452 | 4950 |
| 4:55 PM | 0 | 0 | 0 | 0 | 58 | 1 | 106 | 0 | 0 | 106 | 61 | 0 | 14 | 72 | 0 | 0 | 418 | 4994 |
| 5:00 PM | 0 | 0 | 0 | 0 | 41 | 0 | 69 | 0 | 0 | 131 | 72 | 0 | 12 | 102 | 0 | 0 | 427 | 5053 |
| 5:05 PM | 0 | 0 | 0 | 0 | 64 | 1 | 86 | 0 | 0 | 110 | 71 | 0 | 5 | 76 | 0 | 0 | 413 | 5061 |
| 5:10 PM | 0 | 0 | 0 | 0 | 36 | 1 | 95 | 0 | 0 | 131 | 71 | 0 | 11 | 83 | 0 | 0 | 428 | 5049 |
| 5:15 PM | 0 | 0 | 0 | 0 | 66 | 0 | 96 | 0 | 0 | 106 | 63 | 0 | 12 | 66 | 0 | 0 | 409 | 5050 |
| 5:20 PM | 0 | 0 | 0 | 0 | 57 | 0 | 89 | 0 | 0 | 128 | 70 | 0 | 11 | 65 | 0 | 0 | 420 | 5054 |
| 5:25 PM | 0 | 0 | 0 | 0 | 47 | 0 | 88 | 0 | 0 | 135 | 64 | 0 | 7 | 90 | 0 | 0 | 431 | 5081 |
| 5:30 PM | 0 | 0 | 0 | 0 | 70 | 0 | 114 | 0 | 0 | 100 | 81 | 0 | 4 | 79 | 0 | 0 | 448 | 5125 |
| 5:35 PM | 0 | 0 | 0 | 0 | 46 | 0 | 82 | 0 | 0 | 101 | 61 | 0 | 18 | 90 | 0 | 0 | 398 | 5077 |
| 5:40 PM | 0 | 0 | 0 | 0 | 64 | 1 | 84 | 0 | 0 | 127 | 66 | 0 | 10 | 101 | 0 | 0 | 453 | 5101 |
| 5:45 PM | 0 | 0 | 0 | 0 | 50 | 0 | 111 | 0 | 0 | 109 | 49 | 0 | 14 | 93 | 0 | 0 | 426 | 5123 |
| 5:50 PM | 0 | 0 | 0 | 0 | 64 | 0 | 96 | 0 | 0 | 119 | 56 | 0 | 10 | 78 | 0 | 0 | 423 | 5094 |
| 5:55 PM | 0 | 0 | 0 | 0 | 43 | 0 | 96 | 0 | 0 | 88 | 45 | 0 | 10 | 72 | 0 | 0 | 354 | 5030 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 696 | 0 | 1164 | 0 | 0 | 1452 | 860 | 0 | 88 | 936 | 0 | 0 | 5196 |
| Heavy Trucks | 0 | 0 | 0 | | 24 | 0 | 32 | | 0 | 48 | 44 | | 4 | 28 | 0 | | 180 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

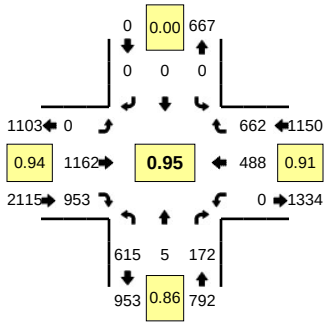
**LOCATION:** I-5 NB Ramp Terminal -- SW Nyberg St

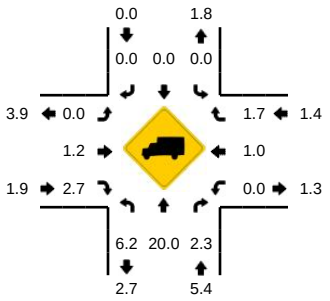
**CITY/STATE:** Tualatin, OR

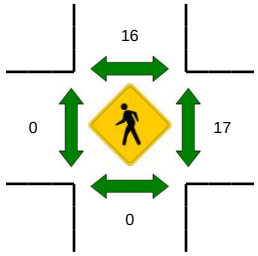
**QC JOB #:** 10772103

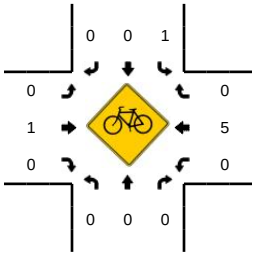
**DATE:** Tue, Jun 05 2012

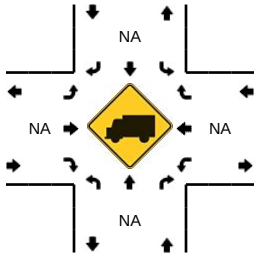
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 4:45 PM -- 5:00 PM**

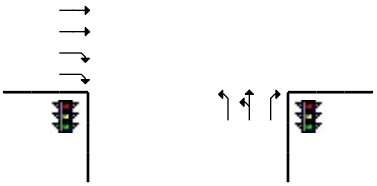


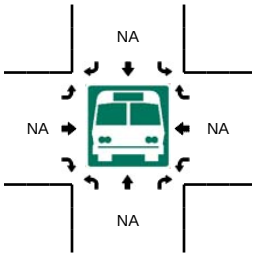








| 5-Min Count Period Beginning At | I-5 NB Ramp Terminal (Northbound) | | | | I-5 NB Ramp Terminal (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 35 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 74 | 0 | 0 | 45 | 46 | 0 | 299 | 3767 |
| 4:05 PM | 51 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 54 | 0 | 0 | 41 | 48 | 0 | 295 | 3763 |
| 4:10 PM | 60 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 102 | 0 | 0 | 57 | 56 | 0 | 363 | 3795 |
| 4:15 PM | 44 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 90 | 0 | 0 | 39 | 52 | 0 | 302 | 3824 |
| 4:20 PM | 96 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 84 | 0 | 0 | 27 | 46 | 0 | 341 | 3829 |
| 4:25 PM | 46 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 85 | 0 | 0 | 39 | 52 | 0 | 324 | 3818 |
| 4:30 PM | 61 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 72 | 0 | 0 | 33 | 46 | 0 | 308 | 3823 |
| 4:35 PM | 63 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 96 | 0 | 0 | 33 | 46 | 0 | 331 | 3851 |
| 4:40 PM | 46 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 67 | 0 | 0 | 49 | 60 | 0 | 355 | 3852 |
| 4:45 PM | 67 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 85 | 0 | 0 | 39 | 56 | 0 | 338 | 3864 |
| 4:50 PM | 39 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 108 | 101 | 0 | 0 | 41 | 65 | 0 | 375 | 3918 |
| 4:55 PM | 75 | 1 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 77 | 0 | 0 | 30 | 64 | 0 | 359 | 3990 |
| 5:00 PM | 43 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 88 | 0 | 0 | 52 | 55 | 0 | 338 | 4029 |
| 5:05 PM | 49 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 68 | 0 | 0 | 37 | 62 | 0 | 342 | 4076 |
| 5:10 PM | 51 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 91 | 0 | 0 | 50 | 59 | 0 | 336 | 4049 |
| 5:15 PM | 30 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 62 | 0 | 0 | 49 | 56 | 0 | 306 | 4053 |
| 5:20 PM | 46 | 1 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 78 | 0 | 0 | 31 | 58 | 0 | 329 | 4041 |
| 5:25 PM | 54 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 79 | 0 | 0 | 41 | 47 | 0 | 327 | 4044 |
| 5:30 PM | 52 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 61 | 0 | 0 | 36 | 34 | 0 | 321 | 4057 |
| 5:35 PM | 72 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 64 | 0 | 0 | 40 | 44 | 0 | 320 | 4046 |
| 5:40 PM | 57 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 114 | 83 | 0 | 0 | 49 | 48 | 0 | 374 | 4065 |
| 5:45 PM | 70 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 92 | 57 | 0 | 0 | 35 | 47 | 0 | 318 | 4045 |
| 5:50 PM | 39 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 81 | 0 | 0 | 44 | 52 | 0 | 339 | 4009 |
| 5:55 PM | 45 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 53 | 0 | 0 | 35 | 52 | 0 | 278 | 3928 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 724 | 8 | 188 | 0 | 0 | 0 | 0 | 0 | 0 | 1136 | 1052 | 0 | 0 | 440 | 740 | 0 | 4288 |
| Heavy Trucks | 56 | 0 | 4 | | 0 | 0 | 0 | | 0 | 8 | 20 | | 0 | 0 | 20 | | 108 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 4 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

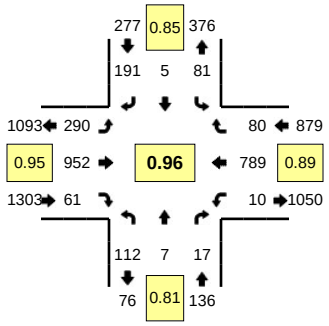
**LOCATION:** Signalized Entrance to Nyberg Woods -- SW Nyberg St

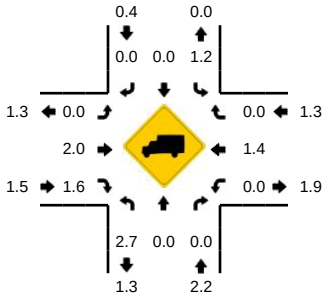
**CITY/STATE:** Tualatin, OR

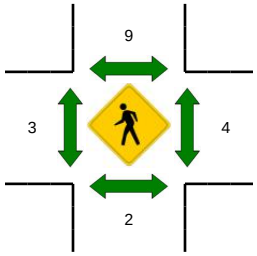
**QC JOB #:** 10772101

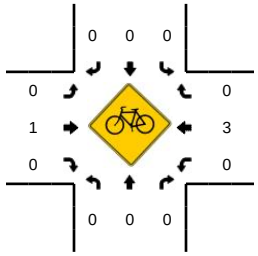
**DATE:** Tue, Jun 05 2012

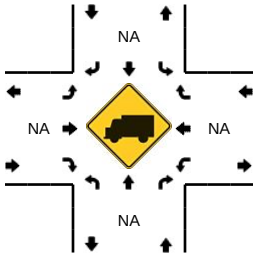
**Peak-Hour: 4:35 PM -- 5:35 PM**
**Peak 15-Min: 5:05 PM -- 5:20 PM**

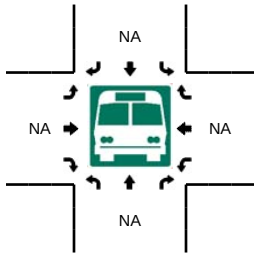



| 5-Min Count Period Beginning At | Signalized Entrance to Nyberg Woods (Northbound) | | | | Signalized Entrance to Nyberg Woods (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 5 | 1 | 2 | 0 | 7 | 0 | 16 | 0 | 15 | 76 | 1 | 0 | 2 | 67 | 6 | 0 | 198 | 2420 |
| 4:05 PM | 13 | 1 | 2 | 0 | 11 | 0 | 18 | 0 | 20 | 64 | 5 | 0 | 3 | 66 | 4 | 0 | 207 | 2443 |
| 4:10 PM | 9 | 1 | 0 | 0 | 9 | 0 | 14 | 0 | 17 | 82 | 6 | 0 | 1 | 73 | 8 | 0 | 220 | 2454 |
| 4:15 PM | 3 | 0 | 1 | 0 | 9 | 0 | 19 | 0 | 28 | 38 | 2 | 0 | 1 | 60 | 5 | 1 | 167 | 2439 |
| 4:20 PM | 5 | 0 | 1 | 0 | 8 | 1 | 13 | 0 | 21 | 83 | 5 | 0 | 0 | 65 | 2 | 0 | 204 | 2445 |
| 4:25 PM | 6 | 0 | 2 | 0 | 4 | 1 | 15 | 0 | 20 | 64 | 4 | 0 | 1 | 52 | 5 | 0 | 174 | 2382 |
| 4:30 PM | 7 | 0 | 2 | 0 | 5 | 0 | 15 | 0 | 13 | 67 | 6 | 0 | 0 | 60 | 7 | 0 | 182 | 2375 |
| 4:35 PM | 9 | 1 | 0 | 0 | 9 | 0 | 13 | 0 | 22 | 85 | 6 | 0 | 1 | 66 | 5 | 0 | 217 | 2400 |
| 4:40 PM | 9 | 1 | 1 | 0 | 4 | 1 | 16 | 0 | 29 | 86 | 6 | 0 | 0 | 78 | 5 | 0 | 236 | 2415 |
| 4:45 PM | 13 | 0 | 1 | 0 | 5 | 1 | 13 | 0 | 16 | 70 | 1 | 0 | 0 | 64 | 7 | 0 | 191 | 2386 |
| 4:50 PM | 12 | 3 | 0 | 0 | 2 | 1 | 14 | 0 | 32 | 78 | 10 | 0 | 1 | 70 | 6 | 0 | 229 | 2427 |
| 4:55 PM | 12 | 0 | 1 | 0 | 7 | 0 | 19 | 0 | 23 | 82 | 4 | 0 | 0 | 61 | 13 | 0 | 222 | 2447 |
| 5:00 PM | 8 | 0 | 3 | 0 | 10 | 0 | 17 | 0 | 18 | 69 | 4 | 0 | 1 | 63 | 5 | 0 | 198 | 2447 |
| 5:05 PM | 9 | 0 | 4 | 0 | 4 | 1 | 19 | 0 | 28 | 89 | 5 | 0 | 1 | 69 | 6 | 0 | 235 | 2475 |
| 5:10 PM | 11 | 1 | 1 | 0 | 5 | 0 | 15 | 0 | 20 | 67 | 4 | 0 | 1 | 80 | 7 | 0 | 212 | 2467 |
| 5:15 PM | 8 | 1 | 0 | 0 | 11 | 0 | 21 | 0 | 18 | 85 | 2 | 0 | 1 | 76 | 7 | 0 | 230 | 2530 |
| 5:20 PM | 6 | 0 | 2 | 0 | 12 | 1 | 11 | 0 | 24 | 81 | 4 | 0 | 1 | 53 | 3 | 0 | 198 | 2524 |
| 5:25 PM | 9 | 0 | 1 | 0 | 6 | 0 | 19 | 0 | 25 | 89 | 7 | 1 | 3 | 59 | 3 | 0 | 222 | 2572 |
| 5:30 PM | 6 | 0 | 3 | 0 | 6 | 0 | 14 | 0 | 34 | 71 | 8 | 0 | 0 | 50 | 13 | 0 | 205 | 2595 |
| 5:35 PM | 8 | 0 | 0 | 0 | 3 | 2 | 21 | 0 | 25 | 101 | 7 | 0 | 2 | 52 | 7 | 0 | 228 | 2606 |
| 5:40 PM | 3 | 1 | 0 | 0 | 10 | 0 | 14 | 0 | 31 | 79 | 9 | 0 | 1 | 68 | 6 | 0 | 222 | 2592 |
| 5:45 PM | 4 | 1 | 1 | 0 | 7 | 1 | 17 | 0 | 35 | 88 | 7 | 0 | 0 | 48 | 3 | 0 | 212 | 2613 |
| 5:50 PM | 6 | 1 | 2 | 0 | 7 | 1 | 15 | 0 | 26 | 78 | 5 | 0 | 1 | 68 | 6 | 0 | 216 | 2600 |
| 5:55 PM | 8 | 0 | 3 | 0 | 17 | 2 | 16 | 0 | 21 | 61 | 4 | 0 | 0 | 59 | 9 | 0 | 200 | 2578 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 112 | 8 | 20 | 0 | 80 | 4 | 220 | 0 | 264 | 964 | 44 | 0 | 12 | 900 | 80 | 0 | 2708 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 20 | 0 | | 32 |
| Pedestrians | | 0 | | | | 12 | | | | 4 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

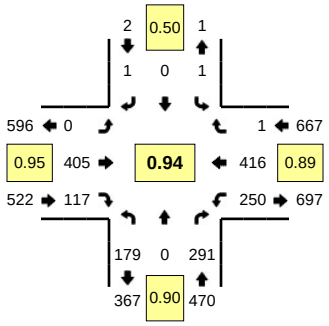
**LOCATION:** SW Martinazzi Ave -- SW Boones Ferry Rd

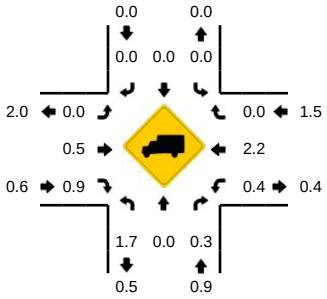
**QC JOB #:** 10772126

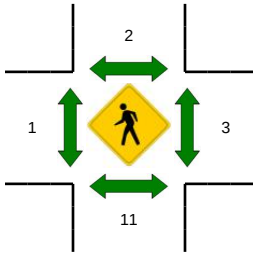
**CITY/STATE:** Tualatin, OR

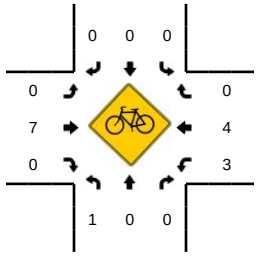
**DATE:** Sat, Jun 09 2012

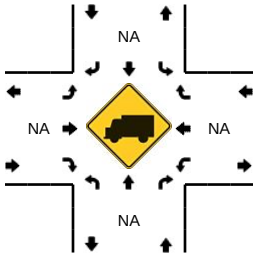
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:50 PM -- 1:05 PM**

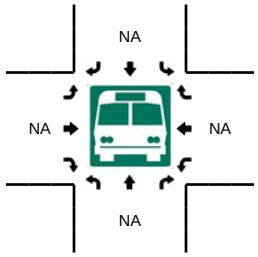



| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Boones Ferry Rd (Eastbound) | | | | SW Boones Ferry Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 16 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 5 | 0 | 31 | 38 | 0 | 0 | 148 | |
| 11:45 AM | 13 | 1 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 8 | 0 | 21 | 40 | 0 | 0 | 143 | |
| 11:50 AM | 18 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 10 | 0 | 26 | 39 | 0 | 0 | 162 | |
| 11:55 AM | 20 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 9 | 0 | 15 | 37 | 0 | 0 | 127 | 1525 |
| 12:00 PM | 15 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 9 | 0 | 21 | 35 | 0 | 0 | 139 | 1560 |
| 12:05 PM | 7 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 7 | 0 | 17 | 49 | 0 | 0 | 134 | 1576 |
| 12:10 PM | 8 | 0 | 34 | 0 | 1 | 0 | 0 | 0 | 0 | 32 | 14 | 0 | 22 | 26 | 1 | 0 | 138 | 1603 |
| 12:15 PM | 14 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 4 | 0 | 20 | 36 | 0 | 0 | 141 | 1631 |
| 12:20 PM | 12 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 6 | 0 | 20 | 35 | 0 | 0 | 133 | 1635 |
| 12:25 PM | 16 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 17 | 0 | 33 | 34 | 0 | 0 | 152 | 1663 |
| 12:30 PM | 21 | 0 | 24 | 0 | 0 | 0 | 1 | 0 | 0 | 30 | 9 | 0 | 20 | 32 | 0 | 0 | 137 | 1690 |
| 12:35 PM | 15 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 8 | 0 | 14 | 30 | 0 | 0 | 128 | 1682 |
| 12:40 PM | 7 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 8 | 0 | 16 | 33 | 0 | 0 | 114 | 1648 |
| 12:45 PM | 19 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 9 | 0 | 17 | 44 | 0 | 0 | 152 | 1657 |
| 12:50 PM | 16 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 10 | 0 | 21 | 40 | 0 | 0 | 142 | 1637 |
| 12:55 PM | 20 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 7 | 0 | 29 | 33 | 0 | 0 | 142 | 1652 |
| 1:00 PM | 22 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 13 | 0 | 22 | 42 | 0 | 0 | 158 | 1671 |
| 1:05 PM | 9 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 12 | 0 | 16 | 31 | 0 | 0 | 124 | 1661 |
| 1:10 PM | 9 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 4 | 0 | 18 | 38 | 0 | 0 | 124 | 1647 |
| 1:15 PM | 11 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 4 | 0 | 25 | 38 | 0 | 0 | 132 | 1638 |
| 1:20 PM | 18 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3 | 0 | 24 | 39 | 0 | 0 | 129 | 1634 |
| 1:25 PM | 13 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 5 | 0 | 18 | 36 | 0 | 0 | 135 | 1617 |
| 1:30 PM | 19 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 9 | 0 | 18 | 40 | 0 | 0 | 138 | 1618 |
| 1:35 PM | 14 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 6 | 0 | 26 | 40 | 0 | 0 | 146 | 1636 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 232 | 0 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | 396 | 120 | 0 | 288 | 460 | 0 | 0 | 1768 |
| Heavy Trucks | 8 | 0 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 24 |
| Pedestrians | | 12 | | | | 0 | | | | 0 | | | | 4 | | | 16 |
| Bicycles | 1 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

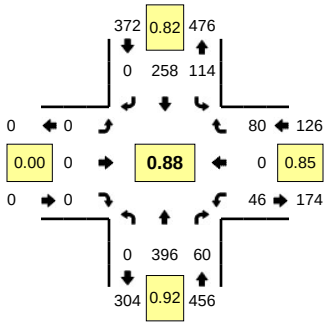
**LOCATION:** SW Martinazzi Ave -- Existing Site Dwy near City Hall

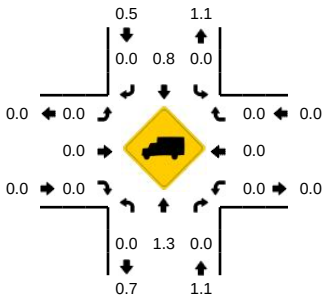
**QC JOB #:** 10772124

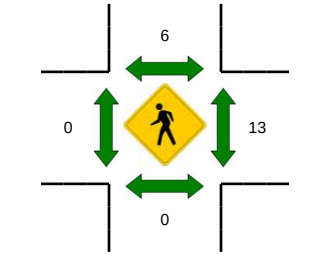
**CITY/STATE:** Tualatin, OR

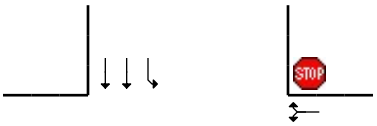
**DATE:** Sat, Jun 09 2012

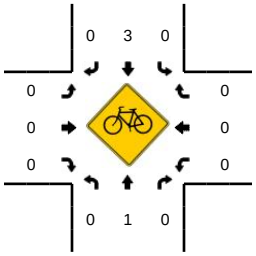
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:20 PM -- 12:35 PM**

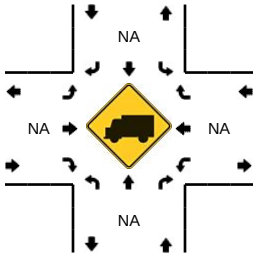


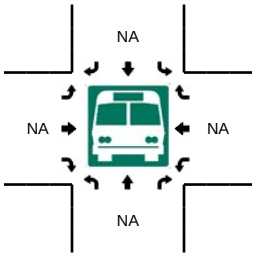








| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Site Dwy near City Hall (Eastbound) | | | | Existing Site Dwy near City Hall (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 31 | 10 | 0 | 11 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 81 | |
| 11:45 AM | 0 | 32 | 7 | 0 | 8 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 75 | |
| 11:50 AM | 0 | 31 | 5 | 0 | 13 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 84 | |
| 11:55 AM | 0 | 32 | 4 | 0 | 7 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 69 | 831 |
| 12:00 PM | 0 | 33 | 3 | 0 | 9 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 71 | 845 |
| 12:05 PM | 0 | 23 | 4 | 0 | 7 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 62 | 843 |
| 12:10 PM | 0 | 30 | 4 | 0 | 9 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 10 | 0 | 82 | 864 |
| 12:15 PM | 0 | 35 | 9 | 0 | 8 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 75 | 877 |
| 12:20 PM | 0 | 28 | 6 | 0 | 15 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 78 | 885 |
| 12:25 PM | 0 | 38 | 6 | 0 | 17 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 11 | 0 | 104 | 913 |
| 12:30 PM | 0 | 39 | 3 | 0 | 14 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 88 | 939 |
| 12:35 PM | 0 | 34 | 4 | 0 | 6 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 71 | 940 |
| 12:40 PM | 0 | 21 | 9 | 0 | 2 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 60 | 919 |
| 12:45 PM | 0 | 38 | 2 | 0 | 7 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 0 | 77 | 921 |
| 12:50 PM | 0 | 37 | 5 | 0 | 13 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 81 | 918 |
| 12:55 PM | 0 | 32 | 5 | 0 | 8 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 85 | 934 |
| 1:00 PM | 0 | 37 | 2 | 0 | 5 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 85 | 948 |
| 1:05 PM | 0 | 27 | 5 | 0 | 10 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 68 | 954 |
| 1:10 PM | 0 | 21 | 3 | 0 | 3 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 56 | 928 |
| 1:15 PM | 0 | 25 | 5 | 0 | 7 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 69 | 922 |
| 1:20 PM | 0 | 31 | 6 | 0 | 4 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 68 | 912 |
| 1:25 PM | 0 | 34 | 5 | 0 | 7 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 | 0 | 75 | 883 |
| 1:30 PM | 0 | 31 | 6 | 0 | 6 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 70 | 865 |
| 1:35 PM | 0 | 33 | 5 | 0 | 11 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 0 | 82 | 876 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 420 | 60 | 0 | 184 | 268 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 92 | 0 | 1080 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 8 | | | 8 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

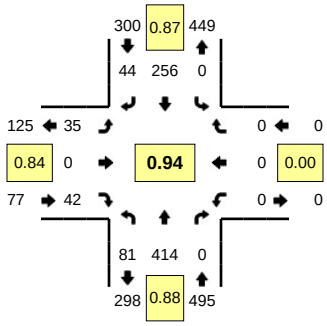
**LOCATION:** SW Martinazzi Ave -- SW Seneca St

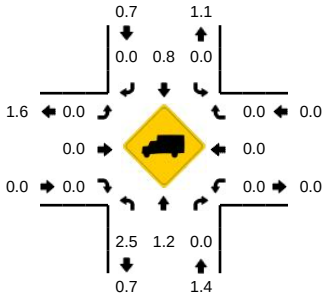
**QC JOB #:** 10772122

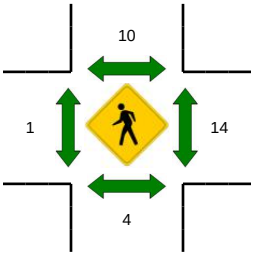
**CITY/STATE:** Tualatin, OR

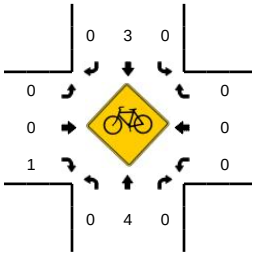
**DATE:** Sat, Jun 09 2012

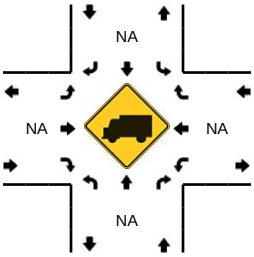
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:45 PM -- 1:00 PM**

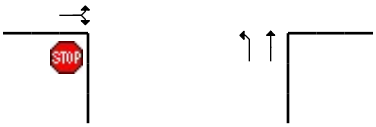


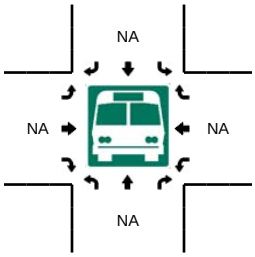






| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Seneca St (Eastbound) | | | | SW Seneca St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 4 | 35 | 0 | 0 | 0 | 28 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 72 | |
| 11:45 AM | 4 | 41 | 0 | 0 | 0 | 24 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 75 | |
| 11:50 AM | 5 | 36 | 0 | 0 | 0 | 18 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 66 | |
| 11:55 AM | 10 | 28 | 0 | 0 | 0 | 15 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 764 |
| 12:00 PM | 5 | 32 | 0 | 0 | 0 | 23 | 5 | 0 | 3 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 75 | 776 |
| 12:05 PM | 8 | 26 | 0 | 0 | 0 | 24 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 62 | 778 |
| 12:10 PM | 10 | 35 | 0 | 0 | 0 | 22 | 2 | 0 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 79 | 801 |
| 12:15 PM | 3 | 42 | 0 | 0 | 0 | 17 | 3 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 72 | 808 |
| 12:20 PM | 5 | 29 | 0 | 0 | 0 | 19 | 3 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 62 | 816 |
| 12:25 PM | 5 | 43 | 0 | 0 | 0 | 26 | 4 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 82 | 829 |
| 12:30 PM | 8 | 33 | 0 | 0 | 0 | 21 | 3 | 0 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 73 | 845 |
| 12:35 PM | 4 | 32 | 0 | 0 | 0 | 14 | 5 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 62 | 837 |
| 12:40 PM | 3 | 25 | 0 | 0 | 0 | 22 | 5 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 60 | 825 |
| 12:45 PM | 9 | 42 | 0 | 0 | 0 | 24 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 82 | 832 |
| 12:50 PM | 6 | 41 | 0 | 0 | 0 | 21 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 74 | 840 |
| 12:55 PM | 10 | 33 | 0 | 0 | 0 | 25 | 7 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 77 | 860 |
| 1:00 PM | 8 | 33 | 0 | 0 | 0 | 23 | 4 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 76 | 861 |
| 1:05 PM | 10 | 26 | 0 | 0 | 0 | 22 | 5 | 0 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 73 | 872 |
| 1:10 PM | 5 | 28 | 0 | 0 | 0 | 15 | 3 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 57 | 850 |
| 1:15 PM | 6 | 29 | 0 | 0 | 0 | 22 | 4 | 0 | 5 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 74 | 852 |
| 1:20 PM | 8 | 33 | 0 | 0 | 0 | 21 | 3 | 0 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 73 | 863 |
| 1:25 PM | 5 | 40 | 0 | 0 | 0 | 14 | 6 | 0 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 74 | 855 |
| 1:30 PM | 7 | 26 | 0 | 0 | 0 | 19 | 4 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 63 | 845 |
| 1:35 PM | 6 | 37 | 0 | 0 | 0 | 21 | 6 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 76 | 859 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 100 | 464 | 0 | 0 | 0 | 280 | 40 | 0 | 16 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 932 |
| Heavy Trucks | 4 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Pedestrians | | 8 | | | | 12 | | | | 4 | | | | 28 | | | 52 |
| Bicycles | 0 | 2 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

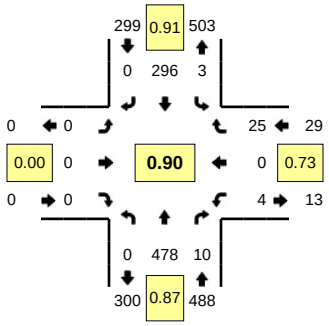
**LOCATION:** SW Martinazzi Ave -- Existing Site Dwy

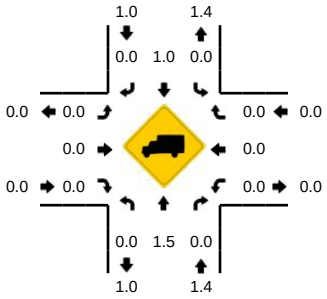
**QC JOB #:** 10772120

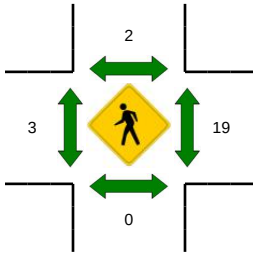
**CITY/STATE:** Tualatin, OR

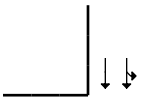
**DATE:** Sat, Jun 09 2012

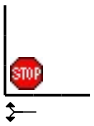
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:45 PM -- 1:00 PM**

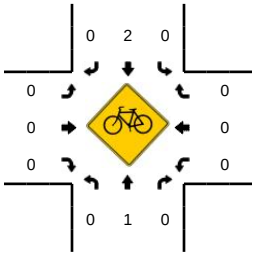


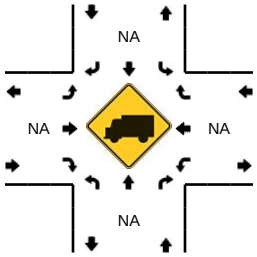



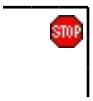



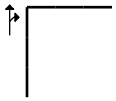



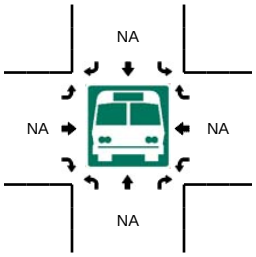





| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Site Dwy (Eastbound) | | | | Existing Site Dwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 39 | 1 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 72 | |
| 11:45 AM | 0 | 44 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 71 | |
| 11:50 AM | 0 | 35 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 63 | |
| 11:55 AM | 0 | 37 | 2 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 57 | 725 |
| 12:00 PM | 0 | 35 | 1 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 69 | 738 |
| 12:05 PM | 0 | 34 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 736 |
| 12:10 PM | 0 | 41 | 1 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 72 | 761 |
| 12:15 PM | 0 | 49 | 2 | 0 | 1 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 772 |
| 12:20 PM | 0 | 33 | 1 | 0 | 1 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 58 | 781 |
| 12:25 PM | 0 | 43 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 74 | 789 |
| 12:30 PM | 0 | 37 | 1 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 67 | 800 |
| 12:35 PM | 0 | 33 | 2 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 54 | 789 |
| 12:40 PM | 0 | 31 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 56 | 773 |
| 12:45 PM | 0 | 50 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 77 | 779 |
| 12:50 PM | 0 | 45 | 1 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 76 | 792 |
| 12:55 PM | 0 | 42 | 2 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 73 | 808 |
| 1:00 PM | 0 | 37 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 69 | 808 |
| 1:05 PM | 0 | 37 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 66 | 816 |
| 1:10 PM | 0 | 26 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 47 | 791 |
| 1:15 PM | 0 | 34 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 783 |
| 1:20 PM | 0 | 43 | 1 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 71 | 796 |
| 1:25 PM | 0 | 41 | 0 | 0 | 1 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 63 | 785 |
| 1:30 PM | 0 | 33 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 60 | 778 |
| 1:35 PM | 0 | 41 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 66 | 790 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 548 | 12 | 0 | 4 | 308 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 904 |
| Heavy Trucks | 0 | 20 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Pedestrians | | 0 | | | | 4 | | | | 12 | | | | 36 | | | 52 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

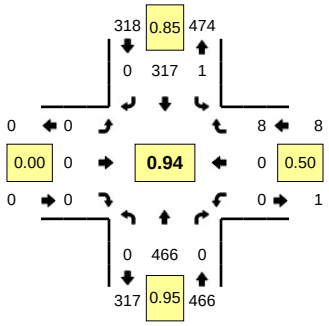
**LOCATION:** SW Martinazzi Ave -- Existing Right-Out Only Dwy

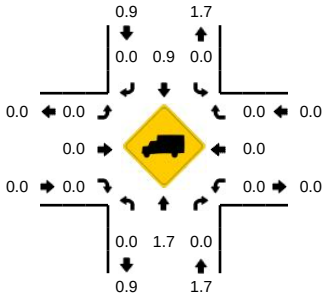
**QC JOB #:** 10772118

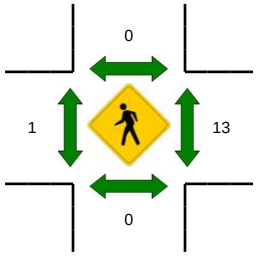
**CITY/STATE:** Tualatin, OR

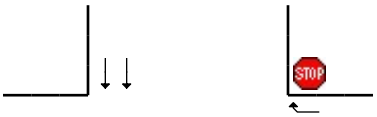
**DATE:** Sat, Jun 09 2012

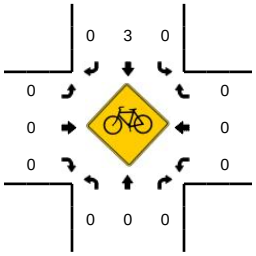
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:50 PM -- 1:05 PM**

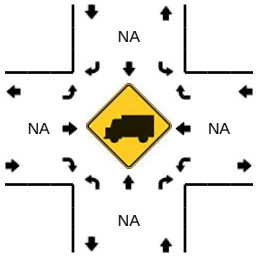


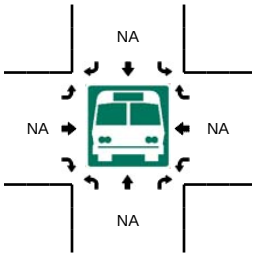






| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | Existing Right-Out Only Dwy (Eastbound) | | | | Existing Right-Out Only Dwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 35 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | |
| 11:45 AM | 0 | 42 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 68 | |
| 11:50 AM | 0 | 35 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | |
| 11:55 AM | 0 | 37 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 56 | 707 |
| 12:00 PM | 0 | 37 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 70 | 716 |
| 12:05 PM | 0 | 31 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 717 |
| 12:10 PM | 0 | 41 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 74 | 737 |
| 12:15 PM | 0 | 44 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 744 |
| 12:20 PM | 0 | 34 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 748 |
| 12:25 PM | 0 | 43 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 761 |
| 12:30 PM | 0 | 43 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 774 |
| 12:35 PM | 0 | 29 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 756 |
| 12:40 PM | 0 | 33 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 62 | 753 |
| 12:45 PM | 0 | 43 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 71 | 756 |
| 12:50 PM | 0 | 45 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 72 | 770 |
| 12:55 PM | 0 | 33 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 771 |
| 1:00 PM | 0 | 44 | 0 | 0 | 1 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 783 |
| 1:05 PM | 0 | 34 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 67 | 792 |
| 1:10 PM | 0 | 23 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 49 | 767 |
| 1:15 PM | 0 | 33 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 65 | 767 |
| 1:20 PM | 0 | 45 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 80 | 791 |
| 1:25 PM | 0 | 37 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 60 | 780 |
| 1:30 PM | 0 | 31 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 59 | 771 |
| 1:35 PM | 0 | 43 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 73 | 797 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 488 | 0 | 0 | 4 | 348 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 844 |
| Heavy Trucks | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 16 |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 24 | | | 28 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

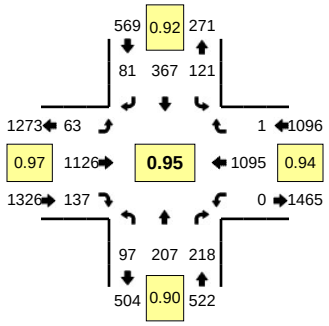
**LOCATION:** SW Martinazzi Ave -- SW Tualatin-Sherwood Rd

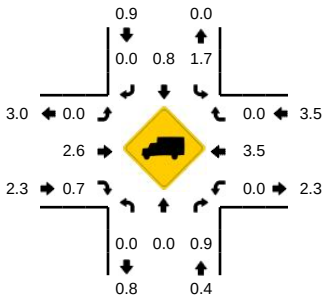
**QC JOB #:** 10772116

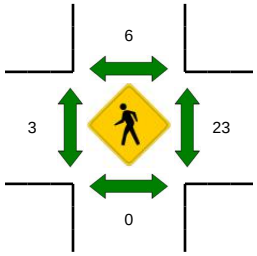
**CITY/STATE:** Tualatin, OR

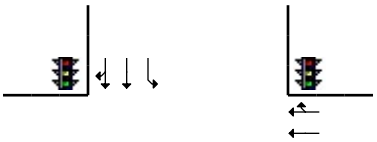
**DATE:** Sat, Jun 09 2012

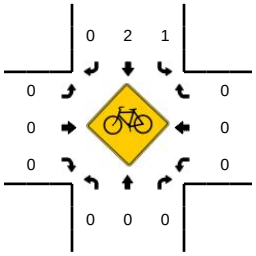
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:25 PM -- 12:40 PM**

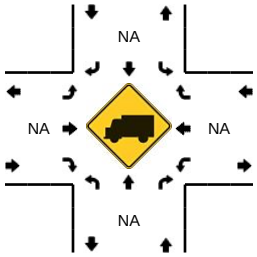


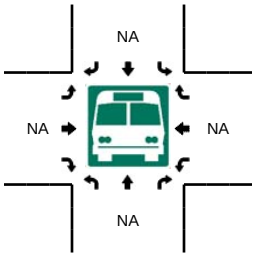








| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Tualatin-Sherwood Rd (Eastbound) | | | | SW Tualatin-Sherwood Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 8 | 25 | 16 | 0 | 11 | 29 | 9 | 0 | 6 | 84 | 10 | 0 | 0 | 82 | 0 | 0 | 280 | |
| 11:45 AM | 6 | 14 | 27 | 0 | 10 | 38 | 6 | 0 | 7 | 83 | 9 | 0 | 0 | 100 | 0 | 0 | 300 | |
| 11:50 AM | 12 | 20 | 20 | 0 | 9 | 26 | 9 | 0 | 5 | 111 | 21 | 0 | 0 | 80 | 0 | 0 | 313 | |
| 11:55 AM | 6 | 14 | 23 | 0 | 8 | 24 | 8 | 0 | 6 | 87 | 7 | 0 | 0 | 104 | 0 | 0 | 287 | 3388 |
| 12:00 PM | 14 | 10 | 19 | 0 | 10 | 30 | 9 | 0 | 1 | 97 | 14 | 0 | 0 | 85 | 1 | 0 | 290 | 3416 |
| 12:05 PM | 3 | 17 | 23 | 0 | 8 | 35 | 9 | 0 | 1 | 88 | 7 | 0 | 0 | 86 | 0 | 0 | 277 | 3411 |
| 12:10 PM | 10 | 15 | 16 | 0 | 15 | 25 | 3 | 0 | 4 | 98 | 14 | 0 | 0 | 74 | 0 | 0 | 274 | 3429 |
| 12:15 PM | 10 | 16 | 12 | 0 | 9 | 46 | 5 | 0 | 6 | 93 | 10 | 0 | 0 | 106 | 0 | 0 | 313 | 3450 |
| 12:20 PM | 5 | 19 | 15 | 0 | 2 | 29 | 12 | 0 | 5 | 80 | 6 | 0 | 0 | 95 | 1 | 0 | 269 | 3452 |
| 12:25 PM | 10 | 13 | 19 | 0 | 5 | 35 | 9 | 0 | 7 | 114 | 17 | 0 | 0 | 90 | 0 | 0 | 319 | 3511 |
| 12:30 PM | 11 | 24 | 21 | 0 | 17 | 39 | 2 | 0 | 7 | 81 | 15 | 0 | 0 | 96 | 0 | 0 | 313 | 3547 |
| 12:35 PM | 8 | 18 | 21 | 0 | 14 | 29 | 4 | 0 | 6 | 87 | 8 | 0 | 0 | 97 | 0 | 0 | 292 | 3527 |
| 12:40 PM | 7 | 14 | 16 | 0 | 5 | 29 | 10 | 0 | 3 | 113 | 11 | 0 | 0 | 89 | 0 | 0 | 297 | 3544 |
| 12:45 PM | 4 | 27 | 20 | 0 | 10 | 36 | 7 | 0 | 5 | 81 | 14 | 0 | 0 | 74 | 0 | 0 | 278 | 3522 |
| 12:50 PM | 11 | 10 | 18 | 0 | 12 | 20 | 5 | 0 | 7 | 95 | 13 | 0 | 0 | 98 | 0 | 0 | 289 | 3498 |
| 12:55 PM | 8 | 15 | 17 | 0 | 7 | 36 | 4 | 0 | 7 | 95 | 3 | 0 | 0 | 97 | 0 | 0 | 289 | 3500 |
| 1:00 PM | 5 | 16 | 24 | 0 | 12 | 26 | 14 | 0 | 3 | 75 | 15 | 0 | 0 | 88 | 0 | 0 | 278 | 3488 |
| 1:05 PM | 8 | 20 | 19 | 0 | 13 | 17 | 6 | 0 | 3 | 114 | 11 | 0 | 0 | 91 | 0 | 0 | 302 | 3513 |
| 1:10 PM | 15 | 15 | 22 | 0 | 16 | 37 | 5 | 0 | 4 | 91 | 10 | 0 | 0 | 73 | 0 | 0 | 288 | 3527 |
| 1:15 PM | 10 | 13 | 12 | 0 | 11 | 39 | 4 | 0 | 5 | 74 | 7 | 0 | 0 | 75 | 0 | 0 | 250 | 3464 |
| 1:20 PM | 7 | 17 | 22 | 0 | 14 | 36 | 8 | 0 | 9 | 115 | 10 | 0 | 0 | 107 | 0 | 0 | 345 | 3540 |
| 1:25 PM | 7 | 11 | 16 | 0 | 11 | 30 | 4 | 0 | 6 | 102 | 16 | 0 | 0 | 108 | 0 | 0 | 311 | 3532 |
| 1:30 PM | 11 | 20 | 25 | 0 | 9 | 44 | 6 | 0 | 6 | 88 | 9 | 0 | 0 | 72 | 0 | 0 | 290 | 3509 |
| 1:35 PM | 14 | 17 | 19 | 0 | 9 | 25 | 5 | 0 | 4 | 108 | 8 | 0 | 0 | 104 | 0 | 0 | 313 | 3530 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 116 | 220 | 244 | 0 | 144 | 412 | 60 | 0 | 80 | 1128 | 160 | 0 | 0 | 1132 | 0 | 0 | 3696 |
| Heavy Trucks | 0 | 0 | 4 | | 4 | 4 | 0 | | 0 | 44 | 0 | | 0 | 24 | 0 | | 80 |
| Pedestrians | | 0 | | | | 8 | | | | 8 | | | | 4 | | | 20 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

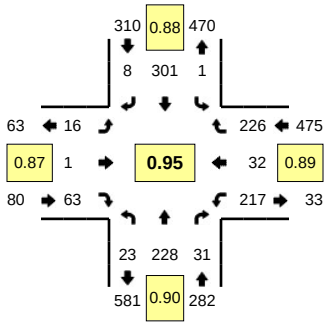
**LOCATION:** SW Martinazzi Ave -- SW Nyberg St

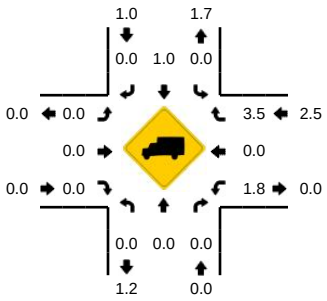
**CITY/STATE:** Tualatin, OR

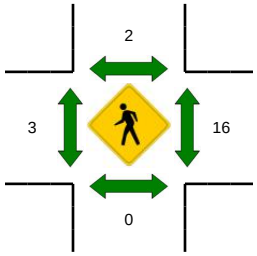
**QC JOB #:** 10772114

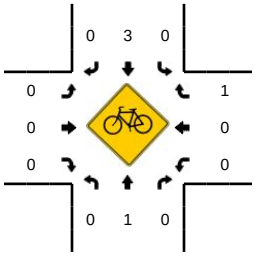
**DATE:** Sat, Jun 09 2012

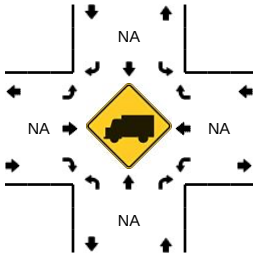
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:20 PM -- 12:35 PM**

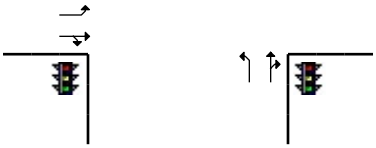


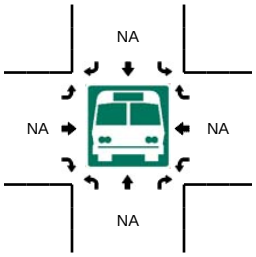








| 5-Min Count Period Beginning At | SW Martinazzi Ave (Northbound) | | | | SW Martinazzi Ave (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 1 | 17 | 2 | 0 | 0 | 30 | 1 | 0 | 1 | 0 | 4 | 0 | 15 | 3 | 20 | 0 | 94 | |
| 11:45 AM | 2 | 16 | 5 | 0 | 0 | 27 | 0 | 0 | 1 | 0 | 5 | 0 | 25 | 4 | 22 | 0 | 107 | |
| 11:50 AM | 5 | 17 | 1 | 0 | 0 | 23 | 0 | 0 | 1 | 0 | 4 | 0 | 15 | 5 | 17 | 0 | 88 | |
| 11:55 AM | 2 | 15 | 2 | 0 | 0 | 19 | 0 | 0 | 1 | 0 | 7 | 0 | 15 | 3 | 23 | 0 | 87 | 1043 |
| 12:00 PM | 0 | 16 | 1 | 0 | 0 | 28 | 0 | 0 | 1 | 0 | 3 | 0 | 19 | 4 | 22 | 0 | 94 | 1052 |
| 12:05 PM | 0 | 15 | 0 | 0 | 0 | 32 | 0 | 0 | 1 | 0 | 7 | 0 | 16 | 4 | 16 | 0 | 91 | 1059 |
| 12:10 PM | 0 | 17 | 4 | 0 | 0 | 27 | 1 | 0 | 1 | 0 | 2 | 0 | 22 | 6 | 25 | 0 | 105 | 1086 |
| 12:15 PM | 4 | 26 | 1 | 0 | 1 | 22 | 2 | 0 | 3 | 0 | 6 | 0 | 11 | 2 | 11 | 0 | 89 | 1087 |
| 12:20 PM | 1 | 13 | 1 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 8 | 0 | 22 | 4 | 21 | 0 | 92 | 1107 |
| 12:25 PM | 2 | 21 | 4 | 0 | 0 | 25 | 1 | 0 | 3 | 0 | 2 | 0 | 21 | 1 | 18 | 0 | 98 | 1123 |
| 12:30 PM | 2 | 27 | 1 | 0 | 0 | 29 | 0 | 0 | 2 | 0 | 5 | 0 | 26 | 4 | 17 | 0 | 113 | 1151 |
| 12:35 PM | 1 | 17 | 1 | 0 | 0 | 16 | 0 | 0 | 1 | 0 | 9 | 0 | 22 | 1 | 12 | 0 | 80 | 1138 |
| 12:40 PM | 5 | 14 | 3 | 0 | 0 | 24 | 2 | 0 | 1 | 0 | 5 | 0 | 27 | 0 | 18 | 0 | 99 | 1143 |
| 12:45 PM | 2 | 21 | 7 | 0 | 0 | 26 | 0 | 0 | 0 | 1 | 6 | 0 | 14 | 4 | 22 | 0 | 103 | 1139 |
| 12:50 PM | 1 | 24 | 1 | 0 | 0 | 24 | 0 | 0 | 1 | 0 | 6 | 0 | 11 | 1 | 21 | 0 | 90 | 1141 |
| 12:55 PM | 3 | 16 | 1 | 0 | 0 | 30 | 1 | 0 | 3 | 0 | 3 | 0 | 14 | 1 | 26 | 0 | 98 | 1152 |
| 1:00 PM | 0 | 9 | 2 | 0 | 0 | 29 | 0 | 0 | 1 | 0 | 6 | 0 | 9 | 3 | 22 | 0 | 81 | 1139 |
| 1:05 PM | 2 | 23 | 5 | 0 | 0 | 27 | 1 | 0 | 0 | 0 | 5 | 0 | 18 | 5 | 13 | 0 | 99 | 1147 |
| 1:10 PM | 2 | 12 | 1 | 0 | 0 | 22 | 0 | 0 | 1 | 0 | 9 | 0 | 23 | 1 | 11 | 0 | 82 | 1124 |
| 1:15 PM | 1 | 18 | 1 | 0 | 0 | 31 | 0 | 0 | 1 | 0 | 3 | 0 | 25 | 1 | 15 | 0 | 96 | 1131 |
| 1:20 PM | 1 | 22 | 0 | 0 | 0 | 32 | 0 | 0 | 2 | 0 | 5 | 0 | 16 | 6 | 18 | 0 | 102 | 1141 |
| 1:25 PM | 0 | 24 | 4 | 0 | 0 | 18 | 0 | 0 | 1 | 0 | 6 | 0 | 27 | 5 | 12 | 0 | 97 | 1140 |
| 1:30 PM | 0 | 12 | 4 | 0 | 0 | 24 | 2 | 0 | 1 | 1 | 7 | 0 | 16 | 2 | 18 | 0 | 87 | 1114 |
| 1:35 PM | 1 | 24 | 2 | 0 | 0 | 28 | 2 | 0 | 2 | 1 | 4 | 0 | 16 | 2 | 18 | 0 | 100 | 1134 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 20 | 244 | 24 | 0 | 0 | 304 | 4 | 0 | 20 | 0 | 60 | 0 | 276 | 36 | 224 | 0 | 1212 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 8 | 0 | 8 | | 20 |
| Pedestrians | | 0 | | | | 0 | | | | 4 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

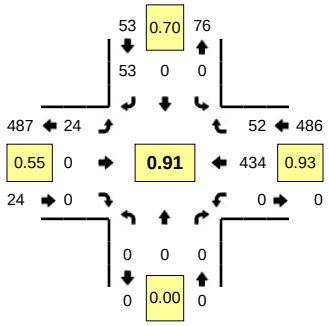
**LOCATION:** Unsignalized Site Dwy -- SW Nyberg St

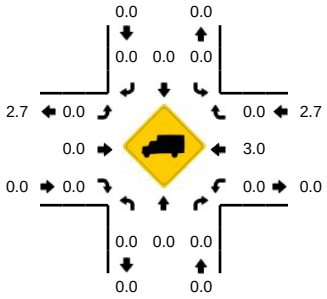
**CITY/STATE:** Tualatin, OR

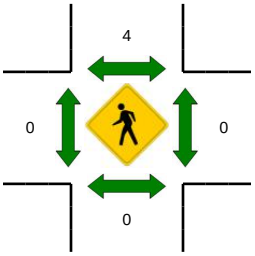
**QC JOB #:** 10772112

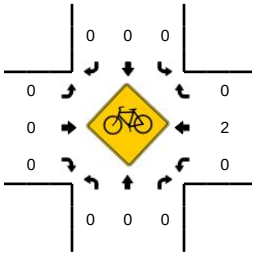
**DATE:** Sat, Jun 09 2012

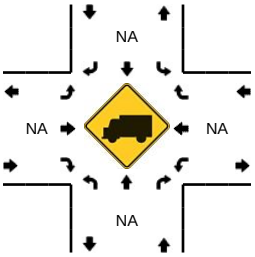
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:20 PM -- 12:35 PM**

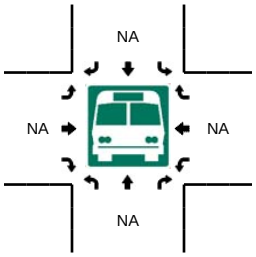







| 5-Min Count Period Beginning At | Unsignalized Site Dwy (Northbound) | | | | Unsignalized Site Dwy (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 34 | 2 | 0 | 40 | |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 37 | 5 | 0 | 54 | |
| 11:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 31 | 4 | 0 | 41 | |
| 11:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 40 | 1 | 0 | 42 | 481 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 39 | 3 | 0 | 49 | 497 |
| 12:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 27 | 2 | 0 | 35 | 488 |
| 12:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 48 | 4 | 0 | 57 | 508 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 35 | 4 | 0 | 41 | 515 |
| 12:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 33 | 5 | 0 | 47 | 527 |
| 12:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 38 | 6 | 0 | 55 | 540 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 43 | 5 | 0 | 52 | 557 |
| 12:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 28 | 4 | 0 | 41 | 554 |
| 12:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 34 | 4 | 0 | 47 | 561 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 34 | 3 | 0 | 46 | 553 |
| 12:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 35 | 4 | 0 | 46 | 558 |
| 12:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 35 | 4 | 0 | 46 | 562 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 42 | 4 | 0 | 49 | 562 |
| 1:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 5 | 0 | 36 | 563 |
| 1:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 6 | 0 | 39 | 545 |
| 1:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 31 | 5 | 0 | 42 | 546 |
| 1:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 32 | 4 | 0 | 44 | 543 |
| 1:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 40 | 9 | 0 | 58 | 546 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 39 | 2 | 0 | 50 | 544 |
| 1:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 31 | 5 | 0 | 43 | 546 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 20 | 0 | 0 | 0 | 0 | 456 | 64 | 0 | 616 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 16 | 0 | | 16 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:46 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

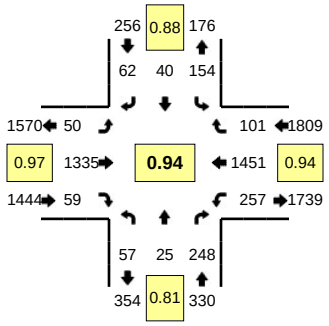
**LOCATION:** Fred Meyer/Site Dwy -- SW Nyberg St/SW Tualatin-Sherwood Rd

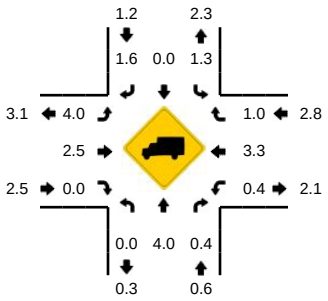
**QC JOB #:** 10772110

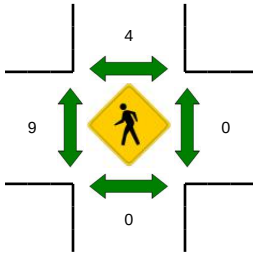
**CITY/STATE:** Tualatin, OR

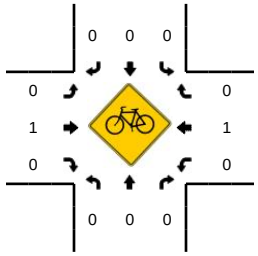
**DATE:** Sat, Jun 09 2012

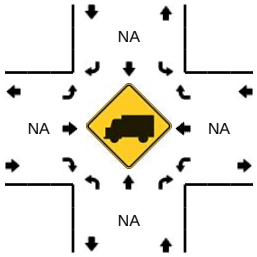
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:25 PM -- 12:40 PM**

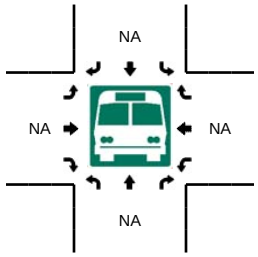



| 5-Min Count Period Beginning At | Fred Meyer/Site Dwy (Northbound) | | | | Fred Meyer/Site Dwy (Southbound) | | | | SW Nyberg St/SW Tualatin-Sherwood Rd (Eastbound) | | | | SW Nyberg St/SW Tualatin-Sherwood Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 3 | 3 | 19 | 0 | 12 | 4 | 3 | 0 | 3 | 110 | 4 | 0 | 18 | 114 | 4 | 0 | 297 | |
| 11:45 AM | 4 | 2 | 21 | 0 | 10 | 2 | 4 | 0 | 4 | 101 | 6 | 0 | 18 | 143 | 9 | 1 | 325 | |
| 11:50 AM | 3 | 1 | 12 | 0 | 10 | 6 | 1 | 0 | 5 | 133 | 1 | 0 | 13 | 110 | 5 | 0 | 300 | |
| 11:55 AM | 4 | 2 | 20 | 0 | 14 | 3 | 5 | 0 | 6 | 118 | 5 | 0 | 21 | 124 | 13 | 1 | 336 | 3590 |
| 12:00 PM | 3 | 2 | 17 | 0 | 12 | 3 | 3 | 0 | 2 | 108 | 9 | 0 | 26 | 128 | 7 | 0 | 320 | 3602 |
| 12:05 PM | 3 | 1 | 12 | 0 | 13 | 3 | 3 | 0 | 5 | 115 | 4 | 0 | 17 | 106 | 9 | 0 | 291 | 3617 |
| 12:10 PM | 5 | 4 | 26 | 0 | 9 | 3 | 5 | 0 | 5 | 104 | 9 | 0 | 29 | 130 | 13 | 0 | 342 | 3663 |
| 12:15 PM | 1 | 1 | 15 | 0 | 14 | 3 | 7 | 0 | 5 | 99 | 10 | 0 | 20 | 122 | 10 | 0 | 307 | 3687 |
| 12:20 PM | 8 | 2 | 26 | 0 | 14 | 1 | 10 | 0 | 6 | 92 | 2 | 0 | 26 | 120 | 10 | 0 | 317 | 3717 |
| 12:25 PM | 7 | 2 | 17 | 0 | 14 | 3 | 4 | 0 | 4 | 127 | 3 | 0 | 19 | 130 | 8 | 0 | 338 | 3776 |
| 12:30 PM | 7 | 1 | 32 | 0 | 15 | 4 | 6 | 0 | 5 | 105 | 3 | 0 | 25 | 121 | 11 | 2 | 337 | 3803 |
| 12:35 PM | 6 | 3 | 27 | 0 | 17 | 6 | 2 | 0 | 4 | 113 | 5 | 0 | 20 | 129 | 10 | 0 | 342 | 3852 |
| 12:40 PM | 4 | 1 | 16 | 0 | 14 | 3 | 6 | 0 | 4 | 117 | 5 | 0 | 13 | 113 | 9 | 0 | 305 | 3860 |
| 12:45 PM | 4 | 3 | 23 | 0 | 19 | 1 | 4 | 0 | 4 | 102 | 4 | 0 | 26 | 103 | 4 | 0 | 297 | 3832 |
| 12:50 PM | 4 | 1 | 19 | 0 | 11 | 3 | 7 | 0 | 0 | 129 | 5 | 0 | 21 | 135 | 8 | 0 | 343 | 3875 |
| 12:55 PM | 3 | 2 | 19 | 0 | 11 | 4 | 2 | 0 | 6 | 102 | 4 | 0 | 13 | 131 | 5 | 0 | 302 | 3841 |
| 1:00 PM | 5 | 2 | 16 | 0 | 9 | 4 | 6 | 0 | 4 | 112 | 3 | 0 | 22 | 101 | 5 | 0 | 289 | 3810 |
| 1:05 PM | 3 | 3 | 12 | 0 | 7 | 5 | 3 | 0 | 3 | 133 | 6 | 0 | 21 | 116 | 8 | 0 | 320 | 3839 |
| 1:10 PM | 7 | 2 | 21 | 0 | 11 | 5 | 2 | 0 | 9 | 117 | 2 | 0 | 24 | 106 | 4 | 0 | 310 | 3807 |
| 1:15 PM | 4 | 0 | 21 | 0 | 8 | 4 | 4 | 0 | 3 | 105 | 7 | 0 | 19 | 108 | 7 | 0 | 290 | 3790 |
| 1:20 PM | 6 | 1 | 19 | 0 | 13 | 2 | 2 | 0 | 5 | 125 | 6 | 0 | 18 | 140 | 11 | 0 | 348 | 3821 |
| 1:25 PM | 1 | 1 | 17 | 0 | 12 | 0 | 4 | 0 | 5 | 134 | 2 | 0 | 12 | 137 | 5 | 0 | 330 | 3813 |
| 1:30 PM | 9 | 0 | 14 | 0 | 10 | 4 | 10 | 0 | 0 | 101 | 3 | 0 | 25 | 119 | 11 | 0 | 306 | 3782 |
| 1:35 PM | 5 | 1 | 18 | 0 | 4 | 3 | 4 | 0 | 3 | 126 | 10 | 0 | 22 | 121 | 5 | 0 | 322 | 3762 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 80 | 24 | 304 | 0 | 184 | 52 | 48 | 0 | 52 | 1380 | 44 | 0 | 256 | 1520 | 116 | 8 | 4068 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 0 | | 8 | 48 | 0 | | 4 | 40 | 0 | | 104 |
| Pedestrians | | 0 | | | | 4 | | | | 12 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:45 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

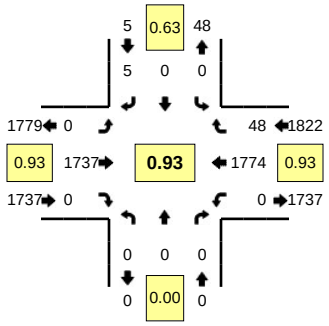
**LOCATION:** SW 75th Ave -- SW Nyberg St

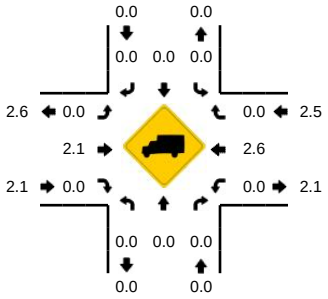
**CITY/STATE:** Tualatin, OR

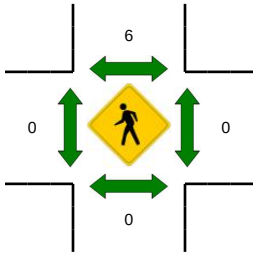
**QC JOB #:** 10772108

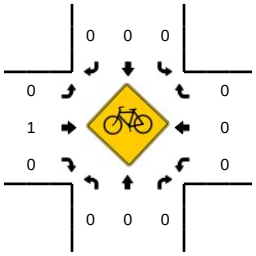
**DATE:** Sat, Jun 09 2012

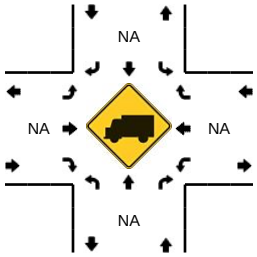
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:25 PM -- 12:40 PM**

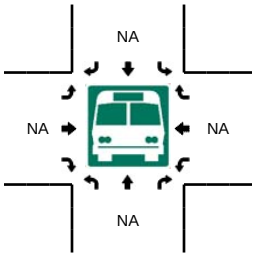







| 5-Min Count Period Beginning At | SW 75th Ave (Northbound) | | | | SW 75th Ave (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 0 | 0 | 0 | 147 | 6 | 0 | 294 | |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 0 | 0 | 0 | 167 | 6 | 0 | 305 | |
| 11:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 0 | 0 | 0 | 137 | 5 | 0 | 297 | |
| 11:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 152 | 0 | 0 | 0 | 155 | 2 | 0 | 309 | 3418 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 137 | 0 | 0 | 0 | 161 | 1 | 0 | 299 | 3435 |
| 12:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 | 0 | 0 | 0 | 137 | 3 | 0 | 280 | 3449 |
| 12:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 0 | 0 | 0 | 157 | 5 | 0 | 301 | 3464 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 | 0 | 0 | 0 | 161 | 0 | 0 | 289 | 3510 |
| 12:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 132 | 0 | 0 | 0 | 145 | 2 | 0 | 280 | 3502 |
| 12:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 0 | 0 | 0 | 161 | 3 | 0 | 322 | 3554 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 152 | 0 | 0 | 0 | 164 | 4 | 0 | 321 | 3588 |
| 12:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 0 | 0 | 0 | 150 | 7 | 0 | 314 | 3611 |
| 12:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 147 | 0 | 0 | 0 | 125 | 4 | 0 | 277 | 3594 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 0 | 0 | 0 | 132 | 5 | 0 | 281 | 3570 |
| 12:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 159 | 0 | 0 | 0 | 159 | 2 | 0 | 321 | 3594 |
| 12:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 0 | 0 | 0 | 156 | 5 | 0 | 293 | 3578 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 137 | 0 | 0 | 0 | 114 | 6 | 0 | 258 | 3537 |
| 1:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 152 | 0 | 0 | 0 | 150 | 5 | 0 | 307 | 3564 |
| 1:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 | 0 | 0 | 0 | 133 | 5 | 0 | 287 | 3550 |
| 1:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 0 | 0 | 0 | 133 | 6 | 0 | 273 | 3534 |
| 1:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 0 | 0 | 0 | 165 | 4 | 0 | 326 | 3580 |
| 1:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 163 | 0 | 0 | 0 | 138 | 7 | 0 | 309 | 3567 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 152 | 3 | 0 | 280 | 3526 |
| 1:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 148 | 0 | 0 | 0 | 133 | 5 | 0 | 288 | 3500 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1868 | 0 | 0 | 0 | 1900 | 56 | 0 | 3828 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 52 | 0 | | 0 | 44 | 0 | | 96 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:45 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

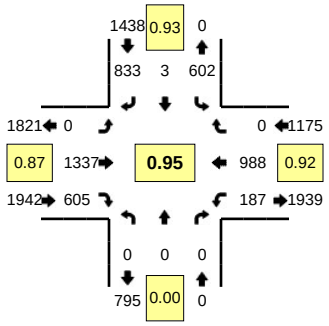
**LOCATION:** I-5 SB Ramp Terminal -- SW Nyberg St

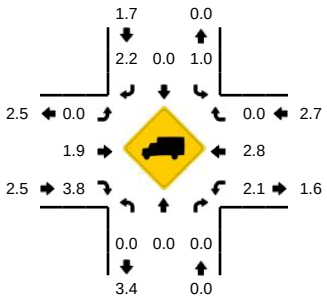
**CITY/STATE:** Tualatin, OR

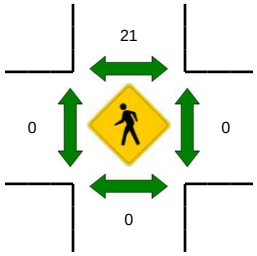
**QC JOB #:** 10772106

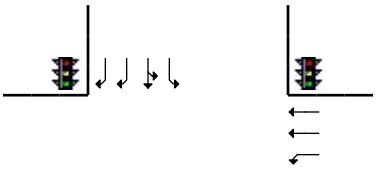
**DATE:** Sat, Jun 16 2012

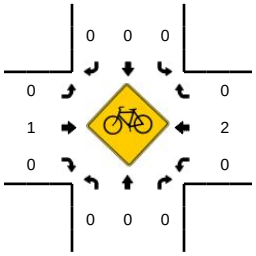
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:50 PM -- 1:05 PM**

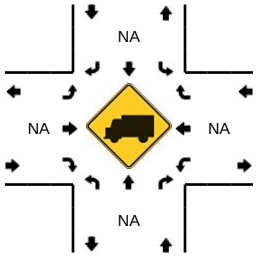


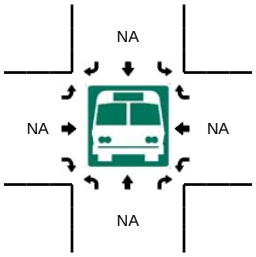








| 5-Min Count Period Beginning At | I-5 SB Ramp Terminal (Northbound) | | | | I-5 SB Ramp Terminal (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 0 | 0 | 0 | 0 | 39 | 0 | 82 | 0 | 0 | 80 | 57 | 0 | 6 | 77 | 0 | 0 | 341 | |
| 11:45 AM | 0 | 0 | 0 | 0 | 32 | 1 | 49 | 0 | 0 | 100 | 44 | 0 | 13 | 87 | 0 | 0 | 326 | |
| 11:50 AM | 0 | 0 | 0 | 0 | 54 | 0 | 90 | 0 | 0 | 103 | 55 | 0 | 10 | 80 | 0 | 0 | 392 | |
| 11:55 AM | 0 | 0 | 0 | 0 | 39 | 0 | 68 | 0 | 0 | 99 | 49 | 0 | 15 | 75 | 0 | 0 | 345 | 4077 |
| 12:00 PM | 0 | 0 | 0 | 0 | 30 | 0 | 58 | 0 | 0 | 109 | 52 | 0 | 12 | 99 | 0 | 0 | 360 | 4127 |
| 12:05 PM | 0 | 0 | 0 | 0 | 47 | 0 | 57 | 0 | 0 | 81 | 53 | 0 | 17 | 59 | 0 | 0 | 314 | 4126 |
| 12:10 PM | 0 | 0 | 0 | 0 | 47 | 0 | 75 | 0 | 0 | 136 | 50 | 0 | 11 | 92 | 0 | 0 | 411 | 4197 |
| 12:15 PM | 0 | 0 | 0 | 0 | 41 | 0 | 71 | 0 | 0 | 105 | 41 | 0 | 18 | 100 | 0 | 0 | 376 | 4216 |
| 12:20 PM | 0 | 0 | 0 | 0 | 49 | 0 | 74 | 0 | 0 | 90 | 44 | 0 | 19 | 79 | 0 | 0 | 355 | 4287 |
| 12:25 PM | 0 | 0 | 0 | 0 | 44 | 0 | 63 | 0 | 0 | 115 | 43 | 0 | 12 | 74 | 0 | 0 | 351 | 4287 |
| 12:30 PM | 0 | 0 | 0 | 0 | 55 | 1 | 55 | 0 | 0 | 90 | 54 | 0 | 20 | 60 | 0 | 0 | 335 | 4250 |
| 12:35 PM | 0 | 0 | 0 | 0 | 54 | 1 | 74 | 0 | 0 | 127 | 47 | 0 | 12 | 93 | 0 | 0 | 408 | 4314 |
| 12:40 PM | 0 | 0 | 0 | 0 | 51 | 0 | 67 | 0 | 0 | 112 | 54 | 0 | 15 | 102 | 0 | 0 | 401 | 4374 |
| 12:45 PM | 0 | 0 | 0 | 0 | 55 | 0 | 72 | 0 | 0 | 105 | 51 | 0 | 22 | 57 | 0 | 0 | 362 | 4410 |
| 12:50 PM | 0 | 0 | 0 | 0 | 39 | 0 | 64 | 0 | 0 | 144 | 60 | 0 | 13 | 89 | 0 | 0 | 409 | 4427 |
| 12:55 PM | 0 | 0 | 0 | 0 | 68 | 0 | 71 | 0 | 0 | 106 | 54 | 0 | 19 | 69 | 0 | 0 | 387 | 4469 |
| 1:00 PM | 0 | 0 | 0 | 0 | 34 | 1 | 58 | 0 | 0 | 131 | 62 | 0 | 8 | 103 | 0 | 0 | 397 | 4506 |
| 1:05 PM | 0 | 0 | 0 | 0 | 65 | 0 | 89 | 0 | 0 | 76 | 45 | 0 | 18 | 70 | 0 | 0 | 363 | 4555 |
| 1:10 PM | 0 | 0 | 0 | 0 | 48 | 1 | 67 | 0 | 0 | 102 | 64 | 0 | 10 | 89 | 0 | 0 | 381 | 4525 |
| 1:15 PM | 0 | 0 | 0 | 0 | 50 | 0 | 67 | 0 | 0 | 95 | 50 | 0 | 19 | 75 | 0 | 0 | 356 | 4505 |
| 1:20 PM | 0 | 0 | 0 | 0 | 64 | 0 | 74 | 0 | 0 | 92 | 56 | 0 | 13 | 63 | 0 | 0 | 362 | 4512 |
| 1:25 PM | 0 | 0 | 0 | 0 | 53 | 0 | 68 | 0 | 0 | 105 | 44 | 0 | 11 | 95 | 0 | 0 | 376 | 4537 |
| 1:30 PM | 0 | 0 | 0 | 0 | 59 | 0 | 74 | 0 | 0 | 112 | 49 | 0 | 11 | 81 | 0 | 0 | 386 | 4588 |
| 1:35 PM | 0 | 0 | 0 | 0 | 60 | 0 | 87 | 0 | 0 | 89 | 51 | 0 | 21 | 57 | 0 | 0 | 365 | 4545 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 0 | 0 | 0 | 564 | 4 | 772 | 0 | 0 | 1524 | 704 | 0 | 160 | 1044 | 0 | 0 | 4772 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 8 | | 0 | 24 | 16 | | 4 | 24 | 0 | | 80 |
| Pedestrians | | 0 | | | | 16 | | | | 0 | | | | 0 | | | 16 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:45 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

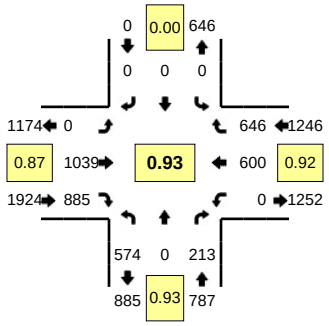
**LOCATION:** I-5 NB Ramp Terminal -- SW Nyberg St

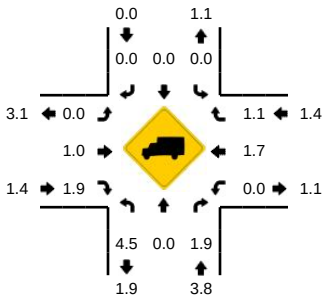
**CITY/STATE:** Tualatin, OR

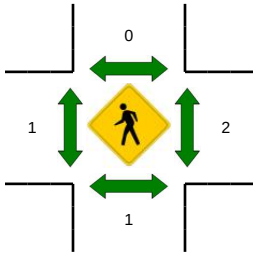
**QC JOB #:** 10772104

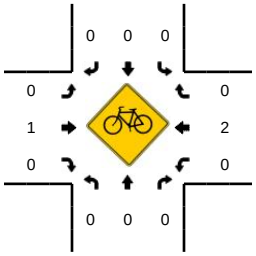
**DATE:** Sat, Jun 16 2012

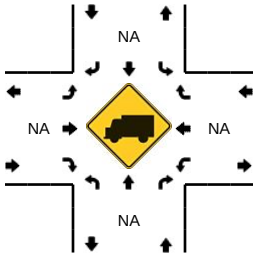
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:45 PM -- 1:00 PM**

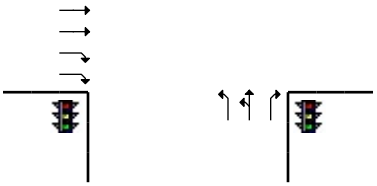


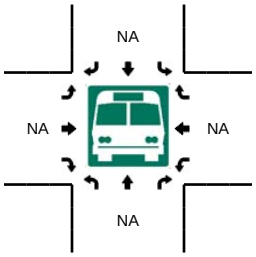








| 5-Min Count Period Beginning At | I-5 NB Ramp Terminal (Northbound) | | | | I-5 NB Ramp Terminal (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 40 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 62 | 0 | 0 | 43 | 50 | 0 | 273 | |
| 11:45 AM | 63 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 58 | 0 | 0 | 36 | 57 | 0 | 295 | |
| 11:50 AM | 49 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 72 | 0 | 0 | 42 | 58 | 0 | 318 | |
| 11:55 AM | 35 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 69 | 0 | 0 | 50 | 36 | 0 | 293 | 3449 |
| 12:00 PM | 63 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 66 | 0 | 0 | 46 | 55 | 0 | 316 | 3498 |
| 12:05 PM | 36 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 61 | 0 | 0 | 51 | 61 | 0 | 295 | 3558 |
| 12:10 PM | 55 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 81 | 0 | 0 | 40 | 50 | 0 | 325 | 3605 |
| 12:15 PM | 67 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 63 | 0 | 0 | 48 | 43 | 0 | 320 | 3616 |
| 12:20 PM | 36 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 64 | 0 | 0 | 62 | 41 | 0 | 300 | 3654 |
| 12:25 PM | 38 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 64 | 0 | 0 | 45 | 66 | 0 | 314 | 3687 |
| 12:30 PM | 28 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 63 | 0 | 0 | 58 | 66 | 0 | 327 | 3705 |
| 12:35 PM | 57 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 79 | 0 | 0 | 44 | 50 | 0 | 338 | 3714 |
| 12:40 PM | 60 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 57 | 0 | 0 | 55 | 55 | 0 | 323 | 3764 |
| 12:45 PM | 33 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 95 | 0 | 0 | 47 | 56 | 0 | 353 | 3822 |
| 12:50 PM | 53 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 91 | 0 | 0 | 41 | 60 | 0 | 336 | 3840 |
| 12:55 PM | 40 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 97 | 0 | 0 | 59 | 56 | 0 | 373 | 3920 |
| 1:00 PM | 59 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 73 | 0 | 0 | 48 | 44 | 0 | 323 | 3927 |
| 1:05 PM | 48 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 58 | 0 | 0 | 53 | 59 | 0 | 325 | 3957 |
| 1:10 PM | 42 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 72 | 0 | 0 | 47 | 51 | 0 | 302 | 3934 |
| 1:15 PM | 51 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 39 | 0 | 0 | 45 | 46 | 0 | 283 | 3897 |
| 1:20 PM | 41 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 81 | 0 | 0 | 43 | 59 | 0 | 347 | 3944 |
| 1:25 PM | 51 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 67 | 0 | 0 | 41 | 43 | 0 | 302 | 3932 |
| 1:30 PM | 49 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 67 | 0 | 0 | 43 | 49 | 0 | 314 | 3919 |
| 1:35 PM | 37 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 74 | 0 | 0 | 48 | 50 | 0 | 335 | 3916 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 504 | 0 | 264 | 0 | 0 | 0 | 0 | 0 | 0 | 1072 | 1132 | 0 | 0 | 588 | 688 | 0 | 4248 |
| Heavy Trucks | 16 | 0 | 4 | | 0 | 0 | 0 | | 0 | 8 | 16 | | 0 | 24 | 8 | | 76 |
| Pedestrians | | 4 | | | | 0 | | | | 4 | | | | 4 | | | 12 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:45 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

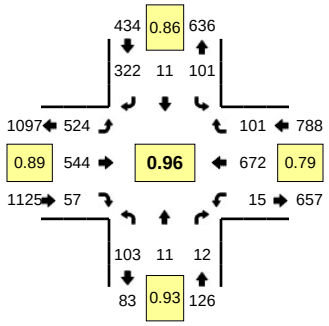
**LOCATION:** Signalized Entrance to Nyberg Woods -- SW Nyberg St

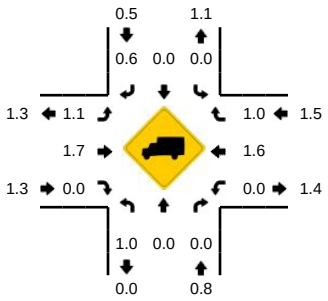
**CITY/STATE:** Tualatin, OR

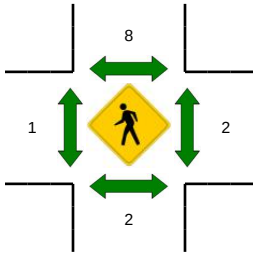
**QC JOB #:** 10772102

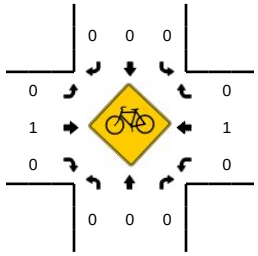
**DATE:** Sat, Jun 09 2012

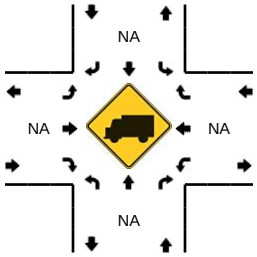
**Peak-Hour: 12:10 PM -- 1:10 PM**
**Peak 15-Min: 12:35 PM -- 12:50 PM**

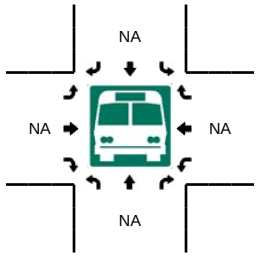



| 5-Min Count Period Beginning At | Signalized Entrance to Nyberg Woods (Northbound) | | | | Signalized Entrance to Nyberg Woods (Southbound) | | | | SW Nyberg St (Eastbound) | | | | SW Nyberg St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 11:40 AM | 3 | 0 | 1 | 0 | 13 | 0 | 21 | 0 | 41 | 41 | 4 | 0 | 1 | 49 | 8 | 0 | 182 | |
| 11:45 AM | 3 | 4 | 0 | 0 | 9 | 2 | 20 | 0 | 22 | 45 | 4 | 1 | 0 | 46 | 17 | 0 | 173 | |
| 11:50 AM | 7 | 1 | 0 | 0 | 8 | 0 | 23 | 0 | 32 | 43 | 5 | 0 | 2 | 54 | 12 | 0 | 187 | |
| 11:55 AM | 7 | 1 | 1 | 0 | 5 | 0 | 25 | 0 | 45 | 44 | 6 | 0 | 0 | 55 | 7 | 0 | 196 | 2141 |
| 12:00 PM | 10 | 1 | 1 | 0 | 6 | 3 | 31 | 0 | 27 | 47 | 3 | 0 | 0 | 64 | 11 | 0 | 204 | 2170 |
| 12:05 PM | 8 | 0 | 2 | 0 | 8 | 2 | 19 | 0 | 58 | 44 | 7 | 1 | 1 | 77 | 10 | 0 | 237 | 2239 |
| 12:10 PM | 12 | 1 | 0 | 0 | 5 | 0 | 28 | 0 | 34 | 38 | 4 | 0 | 0 | 82 | 11 | 0 | 215 | 2310 |
| 12:15 PM | 9 | 2 | 0 | 0 | 6 | 2 | 26 | 0 | 41 | 34 | 3 | 0 | 1 | 77 | 6 | 0 | 207 | 2327 |
| 12:20 PM | 5 | 1 | 0 | 0 | 13 | 1 | 28 | 0 | 46 | 39 | 6 | 0 | 1 | 56 | 14 | 0 | 210 | 2348 |
| 12:25 PM | 9 | 0 | 3 | 0 | 8 | 1 | 28 | 0 | 32 | 44 | 4 | 0 | 2 | 62 | 13 | 0 | 206 | 2377 |
| 12:30 PM | 8 | 2 | 2 | 0 | 5 | 0 | 26 | 0 | 39 | 42 | 6 | 0 | 0 | 53 | 8 | 0 | 191 | 2393 |
| 12:35 PM | 8 | 0 | 1 | 0 | 10 | 0 | 29 | 0 | 61 | 37 | 7 | 0 | 3 | 51 | 15 | 0 | 222 | 2430 |
| 12:40 PM | 11 | 1 | 1 | 0 | 13 | 1 | 33 | 0 | 44 | 54 | 4 | 0 | 1 | 42 | 8 | 0 | 213 | 2461 |
| 12:45 PM | 5 | 1 | 1 | 0 | 8 | 0 | 30 | 0 | 42 | 43 | 6 | 0 | 2 | 67 | 4 | 0 | 209 | 2497 |
| 12:50 PM | 10 | 1 | 0 | 0 | 11 | 1 | 29 | 0 | 57 | 53 | 2 | 0 | 1 | 33 | 8 | 0 | 206 | 2516 |
| 12:55 PM | 2 | 0 | 1 | 0 | 4 | 1 | 15 | 0 | 43 | 55 | 7 | 0 | 0 | 58 | 4 | 0 | 190 | 2510 |
| 1:00 PM | 12 | 1 | 2 | 0 | 12 | 2 | 25 | 0 | 44 | 51 | 3 | 0 | 2 | 42 | 5 | 0 | 201 | 2507 |
| 1:05 PM | 12 | 1 | 1 | 0 | 6 | 2 | 25 | 0 | 41 | 54 | 5 | 0 | 2 | 49 | 5 | 0 | 203 | 2473 |
| 1:10 PM | 10 | 3 | 3 | 0 | 5 | 0 | 31 | 0 | 34 | 50 | 2 | 0 | 0 | 38 | 6 | 0 | 182 | 2440 |
| 1:15 PM | 9 | 3 | 0 | 0 | 8 | 0 | 24 | 0 | 34 | 54 | 7 | 0 | 2 | 52 | 9 | 0 | 202 | 2435 |
| 1:20 PM | 5 | 2 | 1 | 0 | 2 | 1 | 32 | 0 | 46 | 47 | 1 | 0 | 2 | 48 | 12 | 0 | 199 | 2424 |
| 1:25 PM | 10 | 0 | 0 | 0 | 8 | 1 | 25 | 0 | 45 | 50 | 5 | 0 | 1 | 36 | 10 | 0 | 191 | 2409 |
| 1:30 PM | 6 | 1 | 1 | 0 | 5 | 0 | 32 | 0 | 26 | 58 | 1 | 0 | 2 | 44 | 5 | 0 | 181 | 2399 |
| 1:35 PM | 5 | 2 | 0 | 0 | 6 | 0 | 28 | 0 | 29 | 45 | 6 | 0 | 0 | 45 | 6 | 0 | 172 | 2349 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 96 | 8 | 12 | 0 | 124 | 4 | 368 | 0 | 588 | 536 | 68 | 0 | 24 | 640 | 108 | 0 | 2576 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 8 | 4 | 0 | | 0 | 20 | 0 | | 32 |
| Pedestrians | | 4 | | | | 16 | | | | 0 | | | | 8 | | | 28 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:* N

Report generated on 6/19/2012 3:45 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

| | | | Total Vehicle Volumes | | | | | | | | | | | | | | | Heavy Vehicle Percentages | | | | | | | | | | | | Pedestrian Volumes | | | | | Bicycle Volumes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | | | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | | Intersection Leg | | | | | Approach Leg | | | | |
| *Raw Count Data (unadjusted)* | Count Date | Peak Hr Start | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | TEV | PHF | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | N | S | E | W | TOTALS | N | S | E | W | TOTALS |
| I-5 SB Ramps & SW Nyberg Rd | 10/18/11 | 4:00 PM | 0 | 0 | 0 | 622 | 1 | 990 | 0 | 1,178 | 750 | 137 | 870 | 0 | 4,548 | 0.87 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 3 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 5 |
| SW Martinazzi Ave & SW Tualatin Sherwood Rd | 10/18/11 | 4:05 PM | 96 | 305 | 350 | 155 | 519 | 81 | 54 | 1,398 | 90 | 0 | 1,117 | 2 | 4,167 | 0.94 | 2 | 5 | 3 | 1 | 2 | 0 | 0 | 4 | 4 | 0 | 7 | 0 | 5 | 8 | 17 | 11 | 41 | 1 | 1 | 0 | 3 | 5 |
| SW Boones Ferry Rd & SW Tualatin Sherwood Rd | 10/18/11 | 4:00 PM | 166 | 260 | 154 | 288 | 335 | 129 | 100 | 984 | 134 | 217 | 1,051 | 54 | 3,872 | 0.99 | 4 | 5 | 3 | 2 | 4 | 3 | 6 | 7 | 3 | 0 | 7 | 6 | 15 | 0 | 20 | 0 | 35 | 1 | 1 | 1 | 2 | 5 |
| I-5 NB Ramps & SW Nyberg Rd | 10/18/11 | 4:00 PM | 584 | 1 | 152 | 0 | 0 | 0 | 0 | 1,147 | 711 | 0 | 478 | 706 | 3,779 | 0.94 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 1 | 30 | 0 | 6 | 0 | 36 | 0 | 0 | 2 | 3 | 5 |
| SW Boones Ferry Rd & SW Lower Boones Ferry Rd | 10/18/11 | 4:30 PM | 0 | 470 | 541 | 57 | 656 | 1 | 1 | 7 | 9 | 455 | 7 | 39 | 2,243 | 0.96 | 0 | 3 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 12 | 1 | 18 | 4 | 1 | 0 | 0 | 5 |
| SW Boones Ferry Rd & SW Avery St | 10/18/11 | 4:35 PM | 167 | 494 | 28 | 13 | 654 | 80 | 168 | 107 | 246 | 36 | 53 | 12 | 2,058 | 0.94 | 3 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 9 | 9 | 11 | 2 | 31 | 1 | 2 | 1 | 1 | 5 |
| SW Teton Ave & SW Avery St | 10/18/11 | 4:30 PM | 3 | 36 | 21 | 179 | 81 | 110 | 87 | 279 | 29 | 33 | 169 | 130 | 1,157 | 0.90 | 0 | 6 | 5 | 1 | 1 | 5 | 5 | 1 | 0 | 3 | 0 | 3 | 3 | 3 | 0 | 0 | 6 | 0 | 0 | 3 | 2 | 5 |
| I-5 NB Ramps & SW Lower Boones Ferry Rd | 10/19/11 | 4:40 PM | 552 | 3 | 585 | 0 | 0 | 0 | 632 | 1,142 | 0 | 0 | 1,198 | 585 | 4,697 | 0.91 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 8 | 10 | 0 | 0 | 18 | 0 | 0 | 3 | 1 | 4 |
| SW Martinazzi Ave & SW Avery St | 10/18/11 | 4:55 PM | 8 | 138 | 1 | 29 | 301 | 58 | 82 | 8 | 20 | 4 | 7 | 20 | 676 | 0.90 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 10 | 0 | 0 | 0 | 6 | 5 | 11 | 10 | 32 | 2 | 2 | 0 | 0 | 4 |
| SW 72nd Ave & Lower Boones Ferry Rd | 10/18/11 | 4:35 PM | 19 | 86 | 621 | 529 | 165 | 70 | 42 | 635 | 10 | 532 | 541 | 572 | 3,822 | 0.95 | 0 | 6 | 1 | 1 | 4 | 0 | 0 | 1 | 0 | 3 | 1 | 1 | 3 | 9 | 0 | 1 | 13 | 0 | 0 | 1 | 2 | 3 |
| SW Teton Ave & SW Tualatin Sherwood Rd | 10/18/11 | 4:25 PM | 13 | 185 | 114 | 229 | 210 | 15 | 28 | 694 | 22 | 136 | 722 | 202 | 2,570 | 0.93 | 0 | 5 | 4 | 6 | 1 | 20 | 11 | 4 | 0 | 4 | 5 | 12 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 1 | 2 | 3 |
| SW 90th Ave & SW Tualatin Sherwood Rd | **10/19/11** | 4:10 PM | 11 | 20 | 48 | 106 | 6 | 82 | 101 | 1,054 | 9 | 23 | 941 | 147 | 2,548 | 0.94 | 9 | 0 | 0 | 2 | 0 | 2 | 0 | 6 | 11 | 13 | 6 | 3 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 3 |
| SW 124th Ave & SW Tualatin Sherwood Rd | 10/18/11 | 4:35 PM | 0 | 0 | 0 | 182 | 0 | 72 | 67 | 837 | 0 | 0 | 902 | 90 | 2,150 | 0.94 | 0 | 0 | 0 | 1 | 0 | 3 | 7 | 2 | 0 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 3 |
| SW 90th Ave & SW Tualatin Rd | 10/18/11 | 4:30 PM | 228 | 0 | 7 | 14 | 6 | 9 | 1 | 640 | 171 | 3 | 829 | 5 | 1,913 | 0.96 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 0 | 11 | 0 | 4 | 6 | 21 | 0 | 0 | 2 | 1 | 3 |
| SW Boones Ferry Rd & SW Sagert St | 10/18/11 | 4:25 PM | 16 | 462 | 212 | 63 | 545 | 73 | 41 | 104 | 13 | 161 | 109 | 62 | 1,861 | 0.92 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 1 | 2 | 7 | 5 | 9 | 5 | 26 | 2 | 1 | 0 | 0 | 3 |
| SW 124th Ave & SW Herman Rd | 10/18/11 | 4:25 PM | 11 | 173 | 23 | 42 | 159 | 18 | 63 | 144 | 15 | 54 | 268 | 102 | 1,072 | 0.84 | 0 | 1 | 4 | 5 | 4 | 11 | 2 | 2 | 0 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 |
| SW 105th Ave & SW Avery St | 10/18/11 | 4:25 PM | 53 | 0 | 139 | 0 | 0 | 0 | 0 | 256 | 166 | 160 | 135 | 0 | 909 | 0.89 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 3 |
| SW Tualatin Rd & SW Boones Ferry Rd | 10/18/11 | 4:30 PM | 0 | 194 | 289 | 430 | 354 | 0 | 0 | 0 | 0 | 398 | 0 | 810 | 2,475 | 0.96 | 0 | 1 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 16 | 0 | 18 | 2 | 0 | 0 | 0 | 2 |
| SW 65th Ave & SW Borland Rd | 10/18/11 | 4:40 PM | 2 | 315 | 339 | 411 | 460 | 10 | 23 | 23 | 10 | 233 | 0 | 227 | 2,053 | 0.95 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 11 | 0 | 7 | 7 | 25 | 1 | 1 | 0 | 0 | 2 |
| SW Tualatin Rd & SW Herman Rd | 10/18/11 | 4:30 PM | 0 | 0 | 0 | 371 | 0 | 1 | 10 | 405 | 0 | 0 | 273 | 760 | 1,820 | 0.95 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 2 |
| SW 65th Ave & SW Sagert St | 10/18/11 | 4:35 PM | 56 | 280 | 3 | 3 | 321 | 369 | 389 | 2 | 131 | 2 | 7 | 6 | 1,569 | 0.93 | 0 | 1 | 0 | 0 | 4 | 1 | 3 | 0 | 1 | 0 | 14 | 0 | 0 | 1 | 2 | 3 | 6 | 1 | 1 | 0 | 0 | 2 |
| SW Teton Ave & SW Tualatin Rd | 10/18/11 | 4:45 PM | 208 | 0 | 63 | 0 | 0 | 0 | 0 | 318 | 93 | 34 | 694 | 0 | 1,410 | 0.91 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 19 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| SW Teton Ave & SW Herman Rd | 10/18/11 | 4:25 PM | 185 | 227 | 42 | 22 | 133 | 4 | 3 | 291 | 155 | 43 | 251 | 14 | 1,370 | 0.90 | 8 | 3 | 5 | 0 | 13 | 25 | 0 | 0 | 6 | 9 | 3 | 0 | 2 | 0 | 2 | 1 | 5 | 2 | 0 | 0 | 0 | 2 |
| SW 124th Ave & Hwy 99W | 10/18/11 | 4:00 PM | 501 | 0 | 482 | 0 | 0 | 0 | 0 | 922 | 139 | 310 | 776 | 0 | 3,130 | 0.89 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 8 | 6 | 2 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 1 | 1 |
| SW Martinazzi Ave & SW Boones Ferry Rd | 10/18/11 | 4:40 PM | 317 | 0 | 333 | 0 | 0 | 0 | 0 | 653 | 121 | 329 | 856 | 0 | 2,609 | 0.98 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 4 | 2 | 2 | 0 | 0 | 33 | 12 | 7 | 52 | 0 | 0 | 0 | 1 | 1 |
| SW Avery St & SW Tualatin Sherwood Rd | 10/18/11 | 4:35 PM | 176 | 6 | 4 | 22 | 5 | 29 | 4 | 712 | 362 | 2 | 745 | 10 | 2,077 | 0.93 | 1 | 0 | 0 | 9 | 0 | 7 | 0 | 4 | 1 | 0 | 4 | 20 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1 |
| SW Boones Ferry Rd & SW Ibach St | 10/18/11 | 4:35 PM | 130 | 531 | 2 | 4 | 658 | 243 | 154 | 0 | 150 | 0 | 0 | 2 | 1,874 | 0.89 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 47 | 1 | 60 | 4 | 112 | 0 | 1 | 0 | 0 | 1 |
| SW Martinazzi Ave & SW Sagert St | 10/18/11 | 4:40 PM | 2 | 175 | 74 | 201 | 287 | 232 | 114 | 226 | 12 | 87 | 189 | 159 | 1,758 | 0.90 | 0 | 1 | 3 | 2 | 1 | 2 | 4 | 0 | 8 | 0 | 0 | 3 | 8 | 4 | 9 | 10 | 31 | 0 | 0 | 0 | 1 | 1 |
| SW 124th Ave & SW Tualatin Rd | 10/18/11 | 4:30 PM | 0 | 465 | 42 | 334 | 204 | 0 | 0 | 0 | 0 | 10 | 0 | 567 | 1,622 | 0.84 | 0 | 1 | 2 | 5 | 4 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| I-5 SB Ramps & SW Lower Boones Ferry Rd | 10/18/11 | 4:50 PM | 0 | 0 | 0 | 508 | 0 | 580 | 0 | 1,200 | 579 | 670 | 1,066 | 0 | 4,603 | 0.91 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 2 | 1 | 1 | 0 | 5 | 6 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 |

# Appendix C
# Description of Level-of-Service Methods and Criteria

# APPENDIX C LEVEL-OF-SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from "A" to "F".[1]

## SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table C1. Additionally, Table C2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service "D" is generally considered to represent the minimum acceptable design standard.

Table C-1 Level-of-Service Definitions (Signalized Intersections)

| Level of Service | Average Delay per Vehicle |
|---|---|
| A | Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay. |
| B | Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay. |
| C | Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping. |
| D | Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. |
| E | Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences. |
| F | Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values. |

[1] Most of the material in this appendix is adapted from the Transportation Research Board, *Highway Capacity Manual*, (2000).

Table C2 Level-of-Service Criteria for Signalized Intersections

| Level of Service | Average Control Delay per Vehicle (Seconds) |
|---|---|
| A | <10.0 |
| B | >10 and ≤20 |
| C | >20 and ≤35 |
| D | >35 and ≤55 |
| E | >55 and ≤80 |
| F | >80 |

## UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The 2000 *Highway Capacity Manual* (HCM) provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table C3. A quantitative definition of level of service for unsignalized intersections is presented in Table C4. Using this definition, Level of Service "E" is generally considered to represent the minimum acceptable design standard.

Table C3 Level-of-Service Criteria for Unsignalized Intersections

| Level of Service | Average Delay per Vehicle to Minor Street |
|---|---|
| A | • Nearly all drivers find freedom of operation.<br>• Very seldom is there more than one vehicle in queue. |
| B | • Some drivers begin to consider the delay an inconvenience.<br>• Occasionally there is more than one vehicle in queue. |
| C | • Many times there is more than one vehicle in queue.<br>• Most drivers feel restricted, but not objectionably so. |
| D | • Often there is more than one vehicle in queue.<br>• Drivers feel quite restricted. |
| E | • Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement.<br>• There is almost always more than one vehicle in queue.<br>• Drivers find the delays approaching intolerable levels. |
| F | • Forced flow.<br>• Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection. |

Table C4 Level-of-Service Criteria for Unsignalized Intersections

| Level of Service | Average Control Delay per Vehicle (Seconds) |
|---|---|
| A | <10.0 |
| B | >10.0 and ≤ 15.0 |
| C | >15.0 and ≤ 25.0 |
| D | >25.0 and ≤ 35.0 |
| E | >35.0 and ≤ 50.0 |
| F | >50.0 |

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

# Appendix D
# Existing Operations Worksheets

# HCM Signalized Intersection Capacity Analysis
## 1: Lower Boones Ferry Rd & SW Upper Boones Ferry Rd

4/15/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1 | 7 | 9 | 455 | 7 | 39 | 0 | 470 | 541 | 57 | 656 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 3.5 | | 3.5 | 3.5 | | | 4.0 | 3.5 | 3.5 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.94 | | 1.00 | 1.00 | | | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | 1.00 | 0.87 | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1655 | | 1752 | 1657 | | | 1845 | 1567 | 1770 | 1881 | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1655 | | 1752 | 1657 | | | 1845 | 1567 | 1770 | 1881 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1 | 7 | 9 | 474 | 7 | 41 | 0 | 490 | 564 | 59 | 683 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 25 | 0 | 0 | 0 | 153 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 8 | 0 | 474 | 23 | 0 | 0 | 490 | 411 | 59 | 684 | 0 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 12 | | 1 | 1 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 3% | 0% | 0% | 0% | 3% | 2% | 2% | 1% | 0% |
| Turn Type | Split | | | Split | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | 4 | 5 | 2 | |
| Permitted Phases | | | | | | | | | 6 | | | |
| Actuated Green, G (s) | | 1.7 | | 32.1 | 32.1 | | | 27.0 | 59.1 | 5.2 | 36.2 | |
| Effective Green, g (s) | | 2.2 | | 32.6 | 32.6 | | | 27.5 | 60.1 | 5.7 | 36.7 | |
| Actuated g/C Ratio | | 0.03 | | 0.40 | 0.40 | | | 0.33 | 0.73 | 0.07 | 0.44 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | 4.5 | 4.0 | 4.0 | 4.5 | |
| Vehicle Extension (s) | | 2.5 | | 2.2 | 2.2 | | | 3.5 | 2.2 | 2.2 | 3.5 | |
| Lane Grp Cap (vph) | | 44 | | 692 | 655 | | | 615 | 1142 | 122 | 837 | |
| v/s Ratio Prot | | c0.00 | | c0.27 | 0.01 | | | 0.27 | 0.14 | 0.03 | c0.36 | |
| v/s Ratio Perm | | | | | | | | | 0.12 | | | |
| v/c Ratio | | 0.19 | | 0.68 | 0.04 | | | 0.80 | 0.36 | 0.48 | 0.82 | |
| Uniform Delay, d1 | | 39.3 | | 20.7 | 15.3 | | | 25.0 | 4.1 | 37.0 | 20.0 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.5 | | 2.4 | 0.0 | | | 7.3 | 0.1 | 1.5 | 6.4 | |
| Delay (s) | | 40.8 | | 23.1 | 15.3 | | | 32.3 | 4.2 | 38.5 | 26.4 | |
| Level of Service | | D | | C | B | | | C | A | D | C | |
| Approach Delay (s) | | 40.8 | | | 22.4 | | | 17.3 | | | 27.3 | |
| Approach LOS | | D | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 82.5 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 398 | 810 | 194 | 289 | 430 | 354 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 | 3.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 1881 | 1553 | 1787 | 1881 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 1881 | 1553 | 1787 | 1881 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 415 | 844 | 202 | 301 | 448 | 369 |
| RTOR Reduction (vph) | 0 | 208 | 0 | 84 | 0 | 0 |
| Lane Group Flow (vph) | 415 | 636 | 202 | 217 | 448 | 369 |
| Confl. Peds. (#/hr) | 2 | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 1% | 4% | 1% | 1% |
| Turn Type | | pm+ov | | pm+ov | Prot | |
| Protected Phases | 8 | 1 | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 11.2 | 29.9 | 10.5 | 21.7 | 18.7 | 32.7 |
| Effective Green, g (s) | 11.7 | 30.9 | 11.0 | 22.7 | 19.2 | 33.2 |
| Actuated g/C Ratio | 0.23 | 0.60 | 0.21 | 0.44 | 0.37 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 2.0 | 5.0 | 3.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 774 | 1049 | 399 | 679 | 661 | 1203 |
| v/s Ratio Prot | 0.12 | c0.22 | c0.11 | 0.07 | 0.25 | 0.20 |
| v/s Ratio Perm | | 0.18 | | 0.07 | | |
| v/c Ratio | 0.54 | 0.61 | 0.51 | 0.32 | 0.68 | 0.31 |
| Uniform Delay, d1 | 17.7 | 6.6 | 18.1 | 9.6 | 13.7 | 4.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.7 | 2.1 | 0.3 | 2.2 | 0.1 |
| Delay (s) | 18.4 | 7.3 | 20.2 | 9.8 | 15.9 | 4.2 |
| Level of Service | B | A | C | A | B | A |
| Approach Delay (s) | 11.0 | | 14.0 | | | 10.7 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 51.9 | Sum of lost time (s) | 6.5 |
| Intersection Capacity Utilization | 67.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 645 | 170 | 410 | 903 | 320 | 380 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1572 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1572 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 679 | 179 | 432 | 951 | 337 | 400 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 679 | 128 | 432 | 951 | 337 | 359 |
| Confl. Peds. (#/hr) | | 7 | 7 | | 7 | 8 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 41.2 | 41.2 | 29.2 | 75.4 | 21.1 | 50.3 |
| Effective Green, g (s) | 41.7 | 41.7 | 29.7 | 75.9 | 21.6 | 51.3 |
| Actuated g/C Ratio | 0.39 | 0.39 | 0.28 | 0.71 | 0.20 | 0.48 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 729 | 626 | 498 | 1315 | 359 | 824 |
| v/s Ratio Prot | c0.36 | 0.08 | c0.24 | 0.52 | c0.19 | 0.12 |
| v/s Ratio Perm | | | | | | 0.11 |
| v/c Ratio | 0.93 | 0.20 | 0.87 | 0.72 | 0.94 | 0.44 |
| Uniform Delay, d1 | 31.0 | 21.4 | 36.5 | 9.1 | 41.8 | 18.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 18.6 | 0.2 | 14.7 | 2.0 | 31.7 | 0.4 |
| Delay (s) | 49.6 | 21.6 | 51.3 | 11.1 | 73.5 | 18.5 |
| Level of Service | D | C | D | B | E | B |
| Approach Delay (s) | 43.8 | | | 23.6 | 43.6 | |
| Approach LOS | D | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 106.5 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 30 | 100 | 580 | 60 | 142 | 438 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 33 | 110 | 637 | 66 | 156 | 481 |
| Pedestrians | 25 | | 16 | | | 26 |
| Lane Width (ft) | 12.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 2 | | 1 | | | 2 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 428 | | | 355 |
| pX, platoon unblocked | 0.90 | 0.90 | | | 0.90 | |
| vC, conflicting volume | 1505 | 721 | | | 728 | |
| vC1, stage 1 conf vol | 695 | | | | | |
| vC2, stage 2 conf vol | 809 | | | | | |
| vCu, unblocked vol | 1505 | 630 | | | 638 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 89 | 74 | | | 81 | |
| cM capacity (veh/h) | 292 | 416 | | | 838 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 33 | 110 | 703 | 156 | 481 |
| Volume Left | 33 | 0 | 0 | 156 | 0 |
| Volume Right | 0 | 110 | 66 | 0 | 0 |
| cSH | 292 | 416 | 1700 | 838 | 1700 |
| Volume to Capacity | 0.11 | 0.26 | 0.41 | 0.19 | 0.28 |
| Queue Length 95th (ft) | 10 | 27 | 0 | 18 | 0 |
| Control Delay (s) | 18.9 | 16.7 | 0.0 | 10.3 | 0.0 |
| Lane LOS | C | C | | B | |
| Approach Delay (s) | 17.2 | | 0.0 | 2.5 | |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 61.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 42 | 80 | 80 | 600 | 418 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 47 | 90 | 90 | 674 | 470 | 56 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 308 | 475 | |
| pX, platoon unblocked | 0.88 | | | | | |
| vC, conflicting volume | 1352 | 498 | 526 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1332 | 498 | 526 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 66 | 84 | 91 | | | |
| cM capacity (veh/h) | 139 | 577 | 1051 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 137 | 90 | 674 | 526 |
| Volume Left | 47 | 90 | 0 | 0 |
| Volume Right | 90 | 0 | 0 | 56 |
| cSH | 276 | 1051 | 1700 | 1700 |
| Volume to Capacity | 0.50 | 0.09 | 0.40 | 0.31 |
| Queue Length 95th (ft) | 67 | 7 | 0 | 0 |
| Control Delay (s) | 30.2 | 8.7 | 0.0 | 0.0 |
| Lane LOS | D | A | | |
| Approach Delay (s) | 30.2 | 1.0 | | 0.0 |
| Approach LOS | D | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.5 | | |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 32 | 650 | 6 | 10 | 488 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 0 | 35 | 714 | 7 | 11 | 536 |
| Pedestrians | 25 | | 16 | | | 26 |
| Lane Width (ft) | 12.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 2 | | 1 | | | 2 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 227 | | | 556 |
| pX, platoon unblocked | 0.85 | 0.85 | | | 0.85 | |
| vC, conflicting volume | 1049 | 769 | | | 746 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 969 | 639 | | | 612 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 90 | | | 99 | |
| cM capacity (veh/h) | 206 | 345 | | | 812 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 35 | 721 | 190 | 358 |
| Volume Left | 0 | 0 | 11 | 0 |
| Volume Right | 35 | 7 | 0 | 0 |
| cSH | 345 | 1700 | 812 | 1700 |
| Volume to Capacity | 0.10 | 0.42 | 0.01 | 0.21 |
| Queue Length 95th (ft) | 9 | 0 | 1 | 0 |
| Control Delay (s) | 16.6 | 0.0 | 0.7 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 16.6 | 0.0 | 0.2 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 50.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 12 | 655 | 0 | 0 | 488 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 13 | 736 | 0 | 0 | 548 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 125 | | | 658 |
| pX, platoon unblocked | 0.84 | 0.84 | | | 0.84 | |
| vC, conflicting volume | 1010 | 736 | | | 736 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 918 | 592 | | | 592 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 96 | | | 100 | |
| cM capacity (veh/h) | 231 | 382 | | | 836 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 13 | 736 | 274 | 274 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 13 | 0 | 0 | 0 |
| cSH | 382 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.43 | 0.16 | 0.16 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 0 |
| Control Delay (s) | 14.8 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | | | |
| Approach Delay (s) | 14.8 | 0.0 | 0.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 44.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 10 | 101 | 338 | 55 | 327 | 27 | 299 | 19 | 0 | 478 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1626 | | 1698 | 1730 | 1526 | 1681 | 1860 | | | 3562 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.43 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1626 | | 1698 | 1730 | 1526 | 768 | 1860 | | | 3562 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 32 | 11 | 111 | 371 | 60 | 359 | 30 | 329 | 21 | 0 | 525 | 11 |
| RTOR Reduction (vph) | 0 | 98 | 0 | 0 | 0 | 276 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 32 | 24 | 0 | 215 | 216 | 83 | 30 | 347 | 0 | 0 | 534 | 0 |
| Confl. Peds. (#/hr) | 10 | | | | | 10 | 6 | | 19 | 19 | | 6 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 4.8 | 4.8 | | 10.4 | 10.4 | 10.4 | 13.8 | 13.8 | | | 13.8 | |
| Effective Green, g (s) | 5.3 | 5.3 | | 10.9 | 10.9 | 10.9 | 14.3 | 14.3 | | | 14.3 | |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.23 | 0.23 | 0.23 | 0.30 | 0.30 | | | 0.30 | |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | | 6.0 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 204 | 183 | | 394 | 401 | 354 | 234 | 566 | | | 1084 | |
| v/s Ratio Prot | c0.02 | 0.01 | | c0.13 | 0.12 | | | c0.19 | | | 0.15 | |
| v/s Ratio Perm | | | | | | 0.05 | 0.04 | | | | | |
| v/c Ratio | 0.16 | 0.13 | | 0.55 | 0.54 | 0.24 | 0.13 | 0.61 | | | 0.49 | |
| Uniform Delay, d1 | 18.8 | 18.8 | | 15.9 | 15.8 | 14.7 | 11.8 | 14.0 | | | 13.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.2 | | 1.2 | 1.1 | 0.3 | 0.5 | 2.8 | | | 0.7 | |
| Delay (s) | 19.1 | 19.0 | | 17.1 | 16.9 | 14.9 | 12.4 | 16.8 | | | 14.1 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 19.0 | | | 16.1 | | | 16.5 | | | 14.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 47.0 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 58.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 29 | 0 | 639 | 40 | 0 | 82 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 33 | 0 | 726 | 45 | 0 | 93 |
| Pedestrians | | | | | 5 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 242 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 777 | | | | 820 | 391 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 777 | | | | 820 | 391 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 85 |
| cM capacity (veh/h) | 845 | | | | 304 | 611 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 33 | 484 | 288 | 93 |
| Volume Left | 33 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 45 | 93 |
| cSH | 845 | 1700 | 1700 | 611 |
| Volume to Capacity | 0.04 | 0.28 | 0.17 | 0.15 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 14 |
| Control Delay (s) | 9.4 | 0.0 | 0.0 | 11.9 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 9.4 | 0.0 | | 11.9 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 30.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 32 | 1877 | 42 | 232 | 1691 | 72 | 36 | 10 | 236 | 182 | 24 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | | | 5.0 | 4.5 | | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 4099 | | 3502 | 4956 | | | 1768 | 1599 | | 1803 | 1565 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.54 | 1.00 | | 0.72 | 1.00 |
| Satd. Flow (perm) | 1805 | 4099 | | 3502 | 4956 | | | 1000 | 1599 | | 1350 | 1565 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 33 | 1915 | 43 | 237 | 1726 | 73 | 37 | 10 | 241 | 186 | 24 | 45 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 33 | 1957 | 0 | 237 | 1796 | 0 | 0 | 47 | 241 | 0 | 210 | 8 |
| Confl. Peds. (#/hr) | | | 2 | | | 8 | 15 | | | | | 15 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | pm+ov | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | 1 | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 5.4 | 73.7 | | 11.8 | 80.1 | | | 22.5 | 34.3 | | 22.5 | 22.5 |
| Effective Green, g (s) | 5.9 | 74.2 | | 12.3 | 80.6 | | | 23.0 | 35.3 | | 23.0 | 23.0 |
| Actuated g/C Ratio | 0.05 | 0.59 | | 0.10 | 0.64 | | | 0.18 | 0.28 | | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | | | 5.5 | 5.0 | | 5.5 | 5.5 |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | | | 2.5 | 2.5 | | 2.5 | 2.5 |
| Lane Grp Cap (vph) | 85 | 2433 | | 345 | 3196 | | | 184 | 452 | | 248 | 288 |
| v/s Ratio Prot | 0.02 | c0.48 | | c0.07 | 0.36 | | | | 0.05 | | | |
| v/s Ratio Perm | | | | | | | | 0.05 | 0.10 | | c0.16 | 0.01 |
| v/c Ratio | 0.39 | 0.80 | | 0.69 | 0.56 | | | 0.26 | 0.53 | | 0.85 | 0.03 |
| Uniform Delay, d1 | 57.8 | 19.8 | | 54.5 | 12.4 | | | 43.7 | 37.9 | | 49.3 | 41.8 |
| Progression Factor | 0.76 | 0.49 | | 0.99 | 0.98 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 1.6 | | 3.7 | 0.5 | | | 0.5 | 0.9 | | 22.2 | 0.0 |
| Delay (s) | 45.1 | 11.3 | | 57.7 | 12.7 | | | 44.2 | 38.8 | | 71.5 | 41.9 |
| Level of Service | D | B | | E | B | | | D | D | | E | D |
| Approach Delay (s) | | 11.8 | | | 17.9 | | | 39.7 | | | 66.3 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 81.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 2295 | 1995 | 35 | 0 | 4 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Hourly flow rate (vph) | 0 | 2318 | 2015 | 35 | 0 | 4 |
| Pedestrians | | | | | 1 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 373 | 260 | | | |
| pX, platoon unblocked | 0.81 | | | | 0.75 | 0.81 |
| vC, conflicting volume | 2052 | | | | 2807 | 690 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1465 | | | | 477 | 0 |
| tC, single (s) | 4.1 | | | | 6.8 | 7.0 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 376 | | | | 385 | 872 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 773 | 773 | 773 | 806 | 806 | 438 | 4 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 35 | 4 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 872 |
| Volume to Capacity | 0.45 | 0.45 | 0.45 | 0.47 | 0.47 | 0.26 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.1 |
| Lane LOS | | | | | | | A |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 9.1 |
| Approach LOS | | | | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 49.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1480 | 815 | 119 | 984 | 0 | 0 | 0 | 0 | 640 | 5 | 1045 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1495 | 823 | 120 | 994 | 0 | 0 | 0 | 0 | 646 | 5 | 1056 |
| RTOR Reduction (vph) | 0 | 0 | 346 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| Lane Group Flow (vph) | 0 | 1495 | 477 | 120 | 994 | 0 | 0 | 0 | 0 | 323 | 328 | 1024 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 58.8 | 58.8 | 11.0 | 53.8 | | | | | 37.2 | 37.2 | 59.2 |
| Effective Green, g (s) | | 59.3 | 59.3 | 11.5 | 54.3 | | | | | 37.7 | 37.7 | 59.7 |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.09 | 0.43 | | | | | 0.30 | 0.30 | 0.48 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1969 | 744 | 164 | 1508 | | | | | 507 | 507 | 1318 |
| v/s Ratio Prot | | c0.36 | | 0.07 | c0.29 | | | | | 0.19 | 0.20 | c0.37 |
| v/s Ratio Perm | | | 0.30 | | | | | | | | | |
| v/c Ratio | | 0.76 | 0.64 | 0.73 | 0.66 | | | | | 0.64 | 0.65 | 0.78 |
| Uniform Delay, d1 | | 27.0 | 24.8 | 55.2 | 28.0 | | | | | 37.7 | 37.9 | 27.1 |
| Progression Factor | | 0.71 | 0.50 | 1.26 | 0.62 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.8 | 2.7 | 13.5 | 2.2 | | | | | 2.2 | 2.4 | 2.8 |
| Delay (s) | | 21.0 | 15.1 | 83.2 | 19.5 | | | | | 39.9 | 40.2 | 29.9 |
| Level of Service | | C | B | F | B | | | | | D | D | C |
| Approach Delay (s) | | 18.9 | | | 26.3 | | | 0.0 | | | 33.8 | |
| Approach LOS | | B | | | C | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 88.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1161 | 952 | 0 | 488 | 662 | 615 | 5 | 172 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.96 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1222 | 1002 | 0 | 514 | 697 | 647 | 5 | 181 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 320 | 0 | 0 | 240 | 0 | 0 | 25 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1222 | 682 | 0 | 514 | 457 | 323 | 329 | 156 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | 16 | | | 17 | | | |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 82.0 | 82.0 | | 81.5 | 81.5 | 31.0 | 31.0 | 31.0 | | | |
| Effective Green, g (s) | | 82.5 | 82.5 | | 82.0 | 82.0 | 31.5 | 31.5 | 31.5 | | | |
| Actuated g/C Ratio | | 0.66 | 0.66 | | 0.66 | 0.66 | 0.25 | 0.25 | 0.25 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2359 | 1822 | | 2345 | 985 | 408 | 408 | 381 | | | |
| v/s Ratio Prot | | c0.34 | | | 0.14 | | 0.20 | c0.20 | | | | |
| v/s Ratio Perm | | | 0.25 | | | 0.30 | | | 0.10 | | | |
| v/c Ratio | | 0.52 | 0.37 | | 0.22 | 0.46 | 0.79 | 0.81 | 0.41 | | | |
| Uniform Delay, d1 | | 11.0 | 9.6 | | 8.6 | 10.6 | 43.7 | 43.9 | 39.0 | | | |
| Progression Factor | | 0.45 | 0.24 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.6 | 0.4 | | 0.2 | 1.6 | 9.6 | 10.7 | 0.4 | | | |
| Delay (s) | | 5.5 | 2.8 | | 8.9 | 12.2 | 53.3 | 54.6 | 39.4 | | | |
| Level of Service | | A | A | | A | B | D | D | D | | | |
| Approach Delay (s) | | 4.3 | | | 10.8 | | | 50.8 | | | 0.0 | |
| Approach LOS | | A | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 952 | 61 | 10 | 789 | 80 | 112 | 7 | 17 | 81 | 5 | 191 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 3502 | 3502 | | 1805 | 3522 | | | 1761 | 1590 | | 1793 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.67 | 1.00 | | 0.65 | 1.00 |
| Satd. Flow (perm) | 3502 | 3502 | | 1805 | 3522 | | | 1243 | 1590 | | 1221 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 302 | 992 | 64 | 10 | 822 | 83 | 117 | 7 | 18 | 84 | 5 | 199 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 302 | 1052 | 0 | 10 | 898 | 0 | 0 | 124 | 3 | 0 | 89 | 35 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 8.9 | 32.0 | | 0.7 | 23.8 | | | 10.2 | 10.2 | | 10.2 | 10.2 |
| Effective Green, g (s) | 9.4 | 32.5 | | 1.2 | 24.3 | | | 10.7 | 10.7 | | 10.7 | 10.7 |
| Actuated g/C Ratio | 0.15 | 0.53 | | 0.02 | 0.40 | | | 0.18 | 0.18 | | 0.18 | 0.18 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 541 | 1869 | | 36 | 1405 | | | 218 | 279 | | 215 | 280 |
| v/s Ratio Prot | c0.09 | c0.30 | | 0.01 | c0.25 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.07 | 0.02 |
| v/c Ratio | 0.56 | 0.56 | | 0.28 | 0.64 | | | 0.57 | 0.01 | | 0.41 | 0.12 |
| Uniform Delay, d1 | 23.8 | 9.5 | | 29.4 | 14.8 | | | 23.0 | 20.7 | | 22.3 | 21.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 0.3 | | 2.7 | 0.8 | | | 2.6 | 0.0 | | 0.8 | 0.1 |
| Delay (s) | 24.7 | 9.8 | | 32.2 | 15.6 | | | 25.6 | 20.7 | | 23.1 | 21.3 |
| Level of Service | C | A | | C | B | | | C | C | | C | C |
| Approach Delay (s) | | 13.1 | | | 15.8 | | | 25.0 | | | 21.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.9 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 217 | 900 | 26 | 24 | 737 | 16 | 17 | 9 | 45 | 5 | 7 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 5.6 | 5.6 | | 5.3 | 4.8 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 1867 | | 1805 | 3563 | | | 1762 | 1583 | | 1861 | 1607 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.69 | 1.00 |
| Satd. Flow (perm) | 1805 | 1867 | | 1805 | 3563 | | | 1762 | 1583 | | 1313 | 1607 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 231 | 957 | 28 | 26 | 784 | 17 | 18 | 10 | 48 | 5 | 7 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 45 | 0 | 0 | 115 |
| Lane Group Flow (vph) | 231 | 985 | 0 | 26 | 800 | 0 | 0 | 28 | 3 | 0 | 12 | 29 |
| Confl. Peds. (#/hr) | | | 30 | 30 | | | 6 | | | | | 6 |
| Heavy Vehicles (%) | 0% | 1% | 5% | 0% | 1% | 1% | 7% | 0% | 2% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Perm | | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | | | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 11.6 | 48.9 | | 1.7 | 39.0 | | | 4.1 | 4.1 | | 3.6 | 15.2 |
| Effective Green, g (s) | 12.1 | 49.4 | | 2.2 | 39.5 | | | 4.6 | 4.6 | | 4.1 | 16.2 |
| Actuated g/C Ratio | 0.15 | 0.61 | | 0.03 | 0.49 | | | 0.06 | 0.06 | | 0.05 | 0.20 |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | | | 6.1 | 6.1 | | 5.8 | 5.3 |
| Vehicle Extension (s) | 2.5 | 3.0 | | 1.0 | 3.0 | | | 1.0 | 1.0 | | 2.0 | 2.5 |
| Lane Grp Cap (vph) | 270 | 1141 | | 49 | 1742 | | | 100 | 90 | | 67 | 322 |
| v/s Ratio Prot | c0.13 | c0.53 | | 0.01 | 0.22 | | | c0.02 | | | | 0.01 |
| v/s Ratio Perm | | | | | | | | | 0.00 | | c0.01 | 0.00 |
| v/c Ratio | 0.86 | 0.86 | | 0.53 | 0.46 | | | 0.28 | 0.03 | | 0.18 | 0.09 |
| Uniform Delay, d1 | 33.5 | 12.9 | | 38.8 | 13.6 | | | 36.5 | 36.0 | | 36.7 | 26.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.1 | 6.9 | | 5.4 | 0.2 | | | 0.6 | 0.1 | | 0.5 | 0.1 |
| Delay (s) | 55.6 | 19.8 | | 44.2 | 13.8 | | | 37.1 | 36.0 | | 37.2 | 26.4 |
| Level of Service | E | B | | D | B | | | D | D | | D | C |
| Approach Delay (s) | | 26.6 | | | 14.8 | | | 36.4 | | | 27.2 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 80.8 | Sum of lost time (s) | 15.7 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 984 | 134 | 217 | 1051 | 54 | 166 | 260 | 154 | 288 | 335 | 129 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | 4.5 | 5.5 | | 4.5 | 5.0 | 4.5 | 4.5 | 5.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1703 | 3319 | | 3502 | 3338 | | 1732 | 1810 | 1542 | 1761 | 3313 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.42 | 1.00 | 1.00 | 0.60 | 1.00 | |
| Satd. Flow (perm) | 1703 | 3319 | | 3502 | 3338 | | 760 | 1810 | 1542 | 1107 | 3313 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 101 | 994 | 135 | 219 | 1062 | 55 | 168 | 263 | 156 | 291 | 338 | 130 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 59 | 0 | 35 | 0 |
| Lane Group Flow (vph) | 101 | 1121 | 0 | 219 | 1114 | 0 | 168 | 263 | 97 | 291 | 433 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 6% | 7% | 3% | 0% | 7% | 6% | 4% | 5% | 3% | 2% | 4% | 3% |
| Turn Type | Prot | | | Prot | | | pm+pt | | pm+ov | pm+pt | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Actuated Green, G (s) | 10.0 | 56.7 | | 9.4 | 56.1 | | 20.9 | 20.9 | 30.3 | 26.6 | 26.1 | |
| Effective Green, g (s) | 10.5 | 57.2 | | 9.9 | 56.6 | | 21.4 | 21.4 | 31.3 | 27.1 | 26.6 | |
| Actuated g/C Ratio | 0.08 | 0.46 | | 0.08 | 0.45 | | 0.17 | 0.17 | 0.25 | 0.22 | 0.21 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | 2.0 | 3.5 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lane Grp Cap (vph) | 143 | 1519 | | 277 | 1511 | | 222 | 310 | 386 | 329 | 705 | |
| v/s Ratio Prot | 0.06 | c0.34 | | 0.06 | c0.33 | | 0.07 | c0.15 | 0.02 | c0.12 | 0.13 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.04 | c0.07 | | |
| v/c Ratio | 0.71 | 0.74 | | 0.79 | 0.74 | | 0.76 | 0.85 | 0.25 | 0.88 | 0.61 | |
| Uniform Delay, d1 | 55.7 | 27.8 | | 56.5 | 28.1 | | 47.7 | 50.2 | 37.5 | 46.2 | 44.6 | |
| Progression Factor | 1.00 | 1.00 | | 0.99 | 0.45 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 12.2 | 3.3 | | 9.0 | 2.1 | | 12.3 | 18.3 | 0.1 | 22.8 | 1.1 | |
| Delay (s) | 67.9 | 31.0 | | 64.9 | 14.7 | | 59.9 | 68.5 | 37.6 | 69.0 | 45.7 | |
| Level of Service | E | C | | E | B | | E | E | D | E | D | |
| Approach Delay (s) | | 34.1 | | | 22.9 | | | 57.8 | | | 54.6 | |
| Approach LOS | | C | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 85.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1440 | 81 | 0 | 1091 | 1 | 92 | 293 | 314 | 188 | 643 | 85 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | *0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3447 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3498 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3447 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3498 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 53 | 1532 | 86 | 0 | 1161 | 1 | 98 | 312 | 334 | 200 | 684 | 90 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 53 | 1615 | 0 | 0 | 1162 | 0 | 98 | 312 | 284 | 200 | 766 | 0 |
| Confl. Peds. (#/hr) | | | 4 | | | 2 | | | 3 | | | 16 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 8.0 | 67.7 | | | 54.7 | | 9.0 | 23.5 | 23.5 | 16.8 | 31.3 | |
| Effective Green, g (s) | 8.5 | 68.2 | | | 55.2 | | 9.5 | 24.0 | 24.0 | 17.3 | 31.8 | |
| Actuated g/C Ratio | 0.07 | 0.55 | | | 0.44 | | 0.08 | 0.19 | 0.19 | 0.14 | 0.25 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 117 | 1881 | | | 1518 | | 135 | 358 | 302 | 247 | 890 | |
| v/s Ratio Prot | 0.03 | c0.47 | | | 0.34 | | 0.06 | 0.17 | | 0.11 | c0.22 | |
| v/s Ratio Perm | | | | | | | | | c0.18 | | | |
| v/c Ratio | 0.45 | 0.86 | | | 0.77 | | 0.73 | 0.87 | 0.94 | 0.81 | 0.86 | |
| Uniform Delay, d1 | 56.0 | 24.3 | | | 29.4 | | 56.5 | 49.0 | 49.8 | 52.3 | 44.5 | |
| Progression Factor | 0.84 | 1.11 | | | 0.64 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 4.3 | | | 3.3 | | 17.6 | 19.5 | 35.8 | 17.5 | 8.2 | |
| Delay (s) | 47.6 | 31.1 | | | 22.0 | | 74.0 | 68.5 | 85.6 | 69.8 | 52.7 | |
| Level of Service | D | C | | | C | | E | E | F | E | D | |
| Approach Delay (s) | | 31.7 | | | 22.0 | | | 76.9 | | | 56.2 | |
| Approach LOS | | C | | | C | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 23 | 10 | 233 | 0 | 227 | 2 | 324 | 349 | 411 | 460 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.6 | | | 5.3 | 5.6 | 4.8 | 4.8 | | 4.8 | 4.8 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.98 | | | 1.00 | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | 1.00 | 0.99 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1775 | | | 1787 | 1583 | 1794 | 1686 | | 1805 | 1838 | |
| Flt Permitted | | 0.98 | | | 0.95 | 1.00 | 0.48 | 1.00 | | 0.10 | 1.00 | |
| Satd. Flow (perm) | | 1775 | | | 1787 | 1583 | 911 | 1686 | | 189 | 1838 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 24 | 24 | 11 | 245 | 0 | 239 | 2 | 341 | 367 | 433 | 484 | 11 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 226 | 0 | 25 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 53 | 0 | 0 | 245 | 13 | 2 | 683 | 0 | 433 | 495 | 0 |
| Confl. Peds. (#/hr) | | | 11 | 11 | | | 7 | | 7 | 7 | | 7 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 1% | 0% | 2% | 0% | 1% | 2% | 0% | 3% | 0% |
| Turn Type | Split | | | Split | | custom | pm+pt | | | pm+pt | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | | | 8 | 6 | | | 2 | | |
| Actuated Green, G (s) | | 7.4 | | | 20.0 | 7.4 | 64.4 | 63.4 | | 98.7 | 92.4 | |
| Effective Green, g (s) | | 7.9 | | | 20.5 | 7.9 | 65.4 | 63.9 | | 99.2 | 92.9 | |
| Actuated g/C Ratio | | 0.06 | | | 0.14 | 0.06 | 0.46 | 0.45 | | 0.69 | 0.65 | |
| Clearance Time (s) | | 6.1 | | | 5.8 | 6.1 | 5.3 | 5.3 | | 5.3 | 5.3 | |
| Vehicle Extension (s) | | 1.0 | | | 2.0 | 1.0 | 1.0 | 3.0 | | 2.5 | 0.2 | |
| Lane Grp Cap (vph) | | 98 | | | 256 | 87 | 425 | 752 | | 475 | 1192 | |
| v/s Ratio Prot | | c0.03 | | | c0.14 | | 0.00 | 0.41 | | c0.19 | 0.27 | |
| v/s Ratio Perm | | | | | | 0.01 | 0.00 | | | c0.44 | | |
| v/c Ratio | | 0.54 | | | 0.96 | 0.15 | 0.00 | 0.91 | | 0.91 | 0.41 | |
| Uniform Delay, d1 | | 65.9 | | | 61.0 | 64.5 | 21.2 | 37.0 | | 41.0 | 12.1 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 3.3 | | | 43.7 | 0.3 | 0.0 | 14.7 | | 21.7 | 0.1 | |
| Delay (s) | | 69.2 | | | 104.7 | 64.8 | 21.2 | 51.7 | | 62.6 | 12.2 | |
| Level of Service | | E | | | F | E | C | D | | E | B | |
| Approach Delay (s) | | 69.2 | | | 85.0 | | | 51.6 | | | 35.7 | |
| Approach LOS | | E | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 143.3 | Sum of lost time (s) | 15.7 |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 41 | 104 | 13 | 161 | 109 | 62 | 16 | 462 | 212 | 63 | 545 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 4.0 | | 3.5 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1797 | 1829 | | 1745 | 1754 | | 1804 | 1753 | | 1805 | 1843 | |
| Flt Permitted | 0.64 | 1.00 | | 0.44 | 1.00 | | 0.26 | 1.00 | | 0.17 | 1.00 | |
| Satd. Flow (perm) | 1212 | 1829 | | 806 | 1754 | | 490 | 1753 | | 327 | 1843 | |
| Peak-hour factor, PHF | 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) | 45 | 113 | 14 | 175 | 118 | 67 | 17 | 502 | 230 | 68 | 592 | 79 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 18 | 0 | 0 | 11 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 45 | 123 | 0 | 175 | 167 | 0 | 17 | 721 | 0 | 68 | 668 | 0 |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 9 | | 5 | 5 | | 9 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 3% | 1% | 2% | 0% | 3% | 1% | 0% | 1% | 0% |
| Turn Type | pm+pt | | | pm+pt | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.2 | 12.2 | | 25.8 | 18.8 | | 47.0 | 45.5 | | 51.6 | 47.8 | |
| Effective Green, g (s) | 16.2 | 12.7 | | 26.3 | 19.3 | | 48.0 | 46.0 | | 52.6 | 48.3 | |
| Actuated g/C Ratio | 0.18 | 0.14 | | 0.30 | 0.22 | | 0.55 | 0.53 | | 0.60 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.5 | | 4.0 | 4.5 | |
| Vehicle Extension (s) | 2.2 | 2.2 | | 2.2 | 2.2 | | 2.2 | 5.0 | | 2.2 | 5.0 | |
| Lane Grp Cap (vph) | 248 | 265 | | 350 | 386 | | 298 | 921 | | 269 | 1016 | |
| v/s Ratio Prot | 0.01 | 0.07 | | c0.06 | 0.10 | | 0.00 | c0.41 | | c0.01 | 0.36 | |
| v/s Ratio Perm | 0.03 | | | c0.09 | | | 0.03 | | | 0.14 | | |
| v/c Ratio | 0.18 | 0.46 | | 0.50 | 0.43 | | 0.06 | 0.78 | | 0.25 | 0.66 | |
| Uniform Delay, d1 | 29.8 | 34.3 | | 24.1 | 29.4 | | 10.7 | 16.8 | | 11.8 | 13.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.7 | | 0.6 | 0.4 | | 0.0 | 5.1 | | 0.3 | 2.1 | |
| Delay (s) | 30.0 | 35.0 | | 24.6 | 29.8 | | 10.8 | 21.8 | | 12.0 | 15.9 | |
| Level of Service | C | C | | C | C | | B | C | | B | B | |
| Approach Delay (s) | | 33.7 | | | 27.3 | | | 21.6 | | | 15.6 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 87.6 | Sum of lost time (s) | 14.5 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/Martinazzi
Jurisdiction:
Units: U. S. Customary
Analysis Year: Existing
Project ID:
East/West Street: Sagert
North/South Street: Martinazzi

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 114 | 226 | 12 | 87 | 189 | 159 | 2 | 175 | 74 | 201 | 287 | 232 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 126 | 264 | 96 | 386 | 2 | 276 | 223 | 575 |
| % Heavy Veh | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 126 | 264 | 96 | 386 | 2 | 276 | 223 | 575 |
| Left-Turn | 126 | 0 | 96 | 0 | 2 | 0 | 223 | 0 |
| Right-Turn | 0 | 13 | 0 | 176 | 0 | 82 | 0 | 257 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.0 | 0.4 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.0 | 0.5 | -0.3 | 0.5 | -0.2 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 126 | 264 | 96 | 386 | 2 | 276 | 223 | 575 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.11 | 0.23 | 0.09 | 0.34 | 0.00 | 0.25 | 0.20 | 0.51 |
| hd, final value | 9.14 | 8.60 | 8.93 | 8.11 | 9.32 | 8.61 | 8.67 | 7.86 |
| x, final value | 0.32 | 0.63 | 0.24 | 0.87 | 0.01 | 0.66 | 0.54 | 1.26 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 6.8 | 6.3 | 6.6 | 5.8 | 7.0 | 6.3 | 6.4 | 5.6 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 126 | 264 | 96 | 386 | 2 | 276 | 223 | 575 |
| Service Time | 6.8 | 6.3 | 6.6 | 5.8 | 7.0 | 6.3 | 6.4 | 5.6 |
| Utilization, x | 0.32 | 0.63 | 0.24 | 0.87 | 0.01 | 0.66 | 0.54 | 1.26 |
| Dep. headway, hd | 9.14 | 8.60 | 8.93 | 8.11 | 9.32 | 8.61 | 8.67 | 7.86 |
| Capacity | 376 | 413 | 346 | 442 | 252 | 411 | 413 | 575 |
| Delay | 16.08 | 24.90 | 14.39 | 44.90 | 12.07 | 26.51 | 20.99 | 155.89 |
| LOS | C | C | B | E | B | D | C | F |
| Approach: | | | | | | | | |
| Delay | 22.05 | | 38.83 | | 26.41 | | 118.19 | |
| LOS | C | | E | | D | | F | |

Intersection Delay 66.21 Intersection LOS F

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/65th
Jurisdiction:
Units: U. S. Customary
Analysis Year: Existing
Project ID:
East/West Street: Sagert
North/South Street: 65th

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 389 | 2 | 131 | 2 | 7 | 6 | 56 | 280 | 3 | 3 | 326 | |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 432 | 147 | 2 | 13 | 62 | 314 | 3 | 790 |
| % Heavy Veh | 1 | 1 | 0 | 0 | 1 | 2 | 1 | 2 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 432 | 147 | 2 | 13 | 62 | 314 | 3 | 790 |
| Left-Turn | 432 | 0 | 2 | 0 | 62 | 0 | 3 | 0 |
| Right-Turn | 0 | 145 | 0 | 6 | 0 | 3 | 0 | 428 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.7 | 0.5 | -0.3 | 0.5 | 0.0 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 432 | 147 | 2 | 13 | 62 | 314 | 3 | 790 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.38 | 0.13 | 0.00 | 0.01 | 0.06 | 0.28 | 0.00 | 0.70 |
| hd, final value | 7.70 | 6.51 | 9.15 | 8.33 | 7.93 | 7.44 | 7.69 | 6.83 |
| x, final value | 0.92 | 0.27 | 0.01 | 0.03 | 0.14 | 0.65 | 0.01 | 1.50 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 5.4 | 4.2 | 6.8 | 6.0 | 5.6 | 5.1 | 5.4 | 4.5 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 432 | 147 | 2 | 13 | 62 | 314 | 3 | 790 |
| Service Time | 5.4 | 4.2 | 6.8 | 6.0 | 5.6 | 5.1 | 5.4 | 4.5 |
| Utilization, x | 0.92 | 0.27 | 0.01 | 0.03 | 0.14 | 0.65 | 0.01 | 1.50 |
| Dep. headway, hd | 7.70 | 6.51 | 9.15 | 8.33 | 7.93 | 7.44 | 7.69 | 6.83 |
| Capacity | 467 | 397 | 252 | 263 | 312 | 479 | 253 | 790 |
| Delay | 52.42 | 11.55 | 11.90 | 11.28 | 11.89 | 22.90 | 10.44 | 252.56 |
| LOS | F | B | B | B | B | C | B | F |
| Approach: | | | | | | | | |
| Delay | 42.04 | | 11.37 | | 21.08 | | 251.65 | |
| LOS | E | | B | | C | | F | |

Intersection Delay 131.59 Intersection LOS F

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 405 | 121 | 250 | 416 | 180 | 295 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1582 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1582 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 426 | 127 | 263 | 438 | 189 | 311 |
| RTOR Reduction (vph) | 0 | 88 | 0 | 0 | 0 | 97 |
| Lane Group Flow (vph) | 426 | 39 | 263 | 438 | 189 | 214 |
| Confl. Peds. (#/hr) | | 11 | 11 | | 1 | 3 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 16.7 | 16.7 | 13.3 | 35.0 | 10.8 | 24.1 |
| Effective Green, g (s) | 17.2 | 17.2 | 13.8 | 35.5 | 11.3 | 25.1 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.25 | 0.64 | 0.20 | 0.45 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 574 | 493 | 442 | 1174 | 358 | 839 |
| v/s Ratio Prot | c0.23 | 0.02 | c0.15 | 0.24 | c0.11 | 0.06 |
| v/s Ratio Perm | | | | | | 0.07 |
| v/c Ratio | 0.74 | 0.08 | 0.60 | 0.37 | 0.53 | 0.25 |
| Uniform Delay, d1 | 17.3 | 13.7 | 18.5 | 4.8 | 19.9 | 9.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.2 | 0.1 | 2.2 | 0.2 | 1.4 | 0.2 |
| Delay (s) | 22.5 | 13.8 | 20.7 | 5.0 | 21.3 | 9.7 |
| Level of Service | C | B | C | A | C | A |
| Approach Delay (s) | 20.5 | | | 10.9 | 14.1 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 55.8 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 57.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 46 | 80 | 396 | 60 | 110 | 261 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 50 | 87 | 430 | 65 | 120 | 284 |
| Pedestrians | 13 | | | | | 6 |
| Lane Width (ft) | 12.0 | | | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | | | | 4.0 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 428 | | | 355 |
| pX, platoon unblocked | 0.98 | 0.98 | | | 0.98 | |
| vC, conflicting volume | 999 | 482 | | | 509 | |
| vC1, stage 1 conf vol | 476 | | | | | |
| vC2, stage 2 conf vol | 523 | | | | | |
| vCu, unblocked vol | 988 | 460 | | | 488 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 89 | 85 | | | 89 | |
| cM capacity (veh/h) | 447 | 583 | | | 1052 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 50 | 87 | 496 | 120 | 284 |
| Volume Left | 50 | 0 | 0 | 120 | 0 |
| Volume Right | 0 | 87 | 65 | 0 | 0 |
| cSH | 447 | 583 | 1700 | 1052 | 1700 |
| Volume to Capacity | 0.11 | 0.15 | 0.29 | 0.11 | 0.17 |
| Queue Length 95th (ft) | 10 | 14 | 0 | 10 | 0 |
| Control Delay (s) | 14.1 | 12.3 | 0.0 | 8.9 | 0.0 |
| Lane LOS | B | B | | A | |
| Approach Delay (s) | 12.9 | | 0.0 | 2.6 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 45.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 37 | 45 | 81 | 419 | 263 | 44 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 41 | 49 | 89 | 460 | 289 | 48 |
| Pedestrians | 1 | | | 4 | 10 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 1 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 308 | 475 | |
| pX, platoon unblocked | 0.96 | | | | | |
| vC, conflicting volume | 963 | 318 | 338 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 942 | 318 | 338 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 84 | 93 | 93 | | | |
| cM capacity (veh/h) | 261 | 724 | 1231 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 90 | 89 | 460 | 337 |
| Volume Left | 41 | 89 | 0 | 0 |
| Volume Right | 49 | 0 | 0 | 48 |
| cSH | 402 | 1231 | 1700 | 1700 |
| Volume to Capacity | 0.22 | 0.07 | 0.27 | 0.20 |
| Queue Length 95th (ft) | 22 | 6 | 0 | 0 |
| Control Delay (s) | 16.5 | 8.2 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 16.5 | 1.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 37.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 5 | 25 | 475 | 9 | 3 | 305 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 6 | 28 | 528 | 10 | 3 | 339 |
| Pedestrians | 19 | | | | | 2 |
| Lane Width (ft) | 12.0 | | | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | | | | 4.0 |
| Percent Blockage | 2 | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 227 | | | 556 |
| pX, platoon unblocked | 0.90 | 0.90 | | | 0.90 | |
| vC, conflicting volume | 728 | 554 | | | 557 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 641 | 448 | | | 451 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 94 | | | 100 | |
| cM capacity (veh/h) | 363 | 498 | | | 991 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 33 | 538 | 116 | 226 |
| Volume Left | 6 | 0 | 3 | 0 |
| Volume Right | 28 | 10 | 0 | 0 |
| cSH | 469 | 1700 | 991 | 1700 |
| Volume to Capacity | 0.07 | 0.32 | 0.00 | 0.13 |
| Queue Length 95th (ft) | 6 | 0 | 0 | 0 |
| Control Delay (s) | 13.3 | 0.0 | 0.3 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 13.3 | 0.0 | 0.1 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 36.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 10 | 474 | 0 | 1 | 309 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 11 | 533 | 0 | 1 | 347 |
| Pedestrians | 13 | | | | | |
| Lane Width (ft) | 12.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 1 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 125 | | | 658 |
| pX, platoon unblocked | 0.89 | 0.89 | | | 0.89 | |
| vC, conflicting volume | 721 | 546 | | | 546 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 623 | 425 | | | 425 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 98 | | | 100 | |
| cM capacity (veh/h) | 371 | 512 | | | 1006 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 11 | 533 | 117 | 231 |
| Volume Left | 0 | 0 | 1 | 0 |
| Volume Right | 11 | 0 | 0 | 0 |
| cSH | 512 | 1700 | 1006 | 1700 |
| Volume to Capacity | 0.02 | 0.31 | 0.00 | 0.14 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 |
| Control Delay (s) | 12.2 | 0.0 | 0.1 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 12.2 | 0.0 | 0.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 34.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 1 | 63 | 220 | 37 | 230 | 23 | 228 | 31 | 0 | 301 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1603 | | 1698 | 1730 | 1542 | 1683 | 1841 | | | 3559 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.55 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1603 | | 1698 | 1730 | 1542 | 970 | 1841 | | | 3559 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 18 | 1 | 69 | 242 | 41 | 253 | 25 | 251 | 34 | 0 | 331 | 9 |
| RTOR Reduction (vph) | 0 | 63 | 0 | 0 | 0 | 198 | 0 | 7 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 18 | 7 | 0 | 140 | 143 | 55 | 25 | 278 | 0 | 0 | 337 | 0 |
| Confl. Peds. (#/hr) | 2 | | | | | 2 | 3 | | 16 | 16 | | 3 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 3.1 | 3.1 | | 8.9 | 8.9 | 8.9 | 13.6 | 13.6 | | | 13.6 | |
| Effective Green, g (s) | 3.6 | 3.6 | | 9.4 | 9.4 | 9.4 | 14.1 | 14.1 | | | 14.1 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.22 | 0.22 | 0.22 | 0.32 | 0.32 | | | 0.32 | |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | | 6.0 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 149 | 132 | | 366 | 373 | 332 | 314 | 595 | | | 1151 | |
| v/s Ratio Prot | c0.01 | 0.00 | | 0.08 | c0.08 | | | c0.15 | | | 0.09 | |
| v/s Ratio Perm | | | | | | 0.04 | 0.03 | | | | | |
| v/c Ratio | 0.12 | 0.05 | | 0.38 | 0.38 | 0.16 | 0.08 | 0.47 | | | 0.29 | |
| Uniform Delay, d1 | 18.5 | 18.4 | | 14.6 | 14.6 | 13.9 | 10.2 | 11.8 | | | 11.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 0.5 | 0.5 | 0.2 | 0.2 | 1.2 | | | 0.3 | |
| Delay (s) | 18.8 | 18.5 | | 15.1 | 15.1 | 14.1 | 10.5 | 13.0 | | | 11.3 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 18.6 | | | 14.6 | | | 12.8 | | | 11.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 43.6 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 47.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 32 | 0 | 434 | 50 | 0 | 53 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 36 | 0 | 493 | 57 | 0 | 60 |
| Pedestrians | | | | | 4 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 245 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 554 | | | | 598 | 279 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 554 | | | | 598 | 279 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 92 |
| cM capacity (veh/h) | 1023 | | | | 421 | 722 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 36 | 329 | 221 | 60 |
| Volume Left | 36 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 57 | 60 |
| cSH | 1023 | 1700 | 1700 | 722 |
| Volume to Capacity | 0.04 | 0.19 | 0.13 | 0.08 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 7 |
| Control Delay (s) | 8.6 | 0.0 | 0.0 | 10.4 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 8.6 | 0.0 | | 10.4 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 23.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1335 | 59 | 257 | 1451 | 101 | 57 | 25 | 248 | 154 | 40 | 62 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | | | 5.0 | 4.5 | | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 4091 | | 3502 | 4941 | | | 1799 | 1599 | | 1813 | 1579 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.50 | 1.00 | | 0.71 | 1.00 |
| Satd. Flow (perm) | 1805 | 4091 | | 3502 | 4941 | | | 925 | 1599 | | 1347 | 1579 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1362 | 60 | 262 | 1481 | 103 | 58 | 26 | 253 | 157 | 41 | 63 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 51 | 1419 | 0 | 262 | 1579 | 0 | 0 | 84 | 253 | 0 | 198 | 11 |
| Confl. Peds. (#/hr) | | | | | | 4 | | | | | | 9 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | pm+ov | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | 1 | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 5.9 | 66.0 | | 11.6 | 71.7 | | | 20.4 | 32.0 | | 20.4 | 20.4 |
| Effective Green, g (s) | 6.4 | 66.5 | | 12.1 | 72.2 | | | 20.9 | 33.0 | | 20.9 | 20.9 |
| Actuated g/C Ratio | 0.06 | 0.58 | | 0.11 | 0.63 | | | 0.18 | 0.29 | | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | | | 5.5 | 5.0 | | 5.5 | 5.5 |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | | | 2.5 | 2.5 | | 2.5 | 2.5 |
| Lane Grp Cap (vph) | 100 | 2366 | | 368 | 3102 | | | 168 | 459 | | 245 | 287 |
| v/s Ratio Prot | 0.03 | c0.35 | | c0.07 | 0.32 | | | | 0.06 | | | |
| v/s Ratio Perm | | | | | | | | 0.09 | 0.10 | | c0.15 | 0.01 |
| v/c Ratio | 0.51 | 0.60 | | 0.71 | 0.51 | | | 0.50 | 0.55 | | 0.81 | 0.04 |
| Uniform Delay, d1 | 52.8 | 15.7 | | 49.8 | 11.7 | | | 42.3 | 34.7 | | 45.1 | 38.8 |
| Progression Factor | 0.84 | 0.72 | | 1.01 | 0.63 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.9 | | 4.9 | 0.5 | | | 1.7 | 1.1 | | 17.1 | 0.0 |
| Delay (s) | 47.0 | 12.2 | | 55.2 | 7.8 | | | 44.0 | 35.9 | | 62.2 | 38.8 |
| Level of Service | D | B | | E | A | | | D | D | | E | D |
| Approach Delay (s) | | 13.4 | | | 14.6 | | | 37.9 | | | 56.5 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 69.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 1737 | 1794 | 48 | 0 | 15 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 0 | 1791 | 1849 | 49 | 0 | 15 |
| Pedestrians | | | | | 6 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 1 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 373 | 260 | | | |
| pX, platoon unblocked | 0.84 | | | | 0.88 | 0.84 |
| vC, conflicting volume | 1905 | | | | 2477 | 647 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1407 | | | | 982 | 0 |
| tC, single (s) | 4.1 | | | | 6.8 | 7.4 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.5 |
| p0 queue free % | 100 | | | | 100 | 98 |
| cM capacity (veh/h) | 410 | | | | 220 | 847 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 597 | 597 | 597 | 740 | 740 | 419 | 15 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 49 | 15 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 847 |
| Volume to Capacity | 0.35 | 0.35 | 0.35 | 0.44 | 0.44 | 0.25 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 |
| Lane LOS | | | | | | | A |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 9.3 |
| Approach LOS | | | | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1332 | 405 | 187 | 1000 | 0 | 0 | 0 | 0 | 602 | 3 | 840 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 3.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1345 | 409 | 189 | 1010 | 0 | 0 | 0 | 0 | 608 | 3 | 848 |
| RTOR Reduction (vph) | 0 | 0 | 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| Lane Group Flow (vph) | 0 | 1345 | 210 | 189 | 1010 | 0 | 0 | 0 | 0 | 304 | 307 | 780 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 57.4 | 57.4 | 14.7 | 59.1 | | | | | 26.9 | 26.9 | 43.9 |
| Effective Green, g (s) | | 57.9 | 57.9 | 15.2 | 59.6 | | | | | 27.4 | 27.4 | 40.9 |
| Actuated g/C Ratio | | 0.50 | 0.50 | 0.13 | 0.52 | | | | | 0.24 | 0.24 | 0.36 |
| Clearance Time (s) | | 6.0 | 6.0 | 4.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 2089 | 789 | 236 | 1799 | | | | | 401 | 401 | 982 |
| v/s Ratio Prot | | c0.32 | | c0.11 | 0.29 | | | | | 0.18 | 0.18 | c0.28 |
| v/s Ratio Perm | | | 0.13 | | | | | | | | | |
| v/c Ratio | | 0.64 | 0.27 | 0.80 | 0.56 | | | | | 0.76 | 0.77 | 0.79 |
| Uniform Delay, d1 | | 21.0 | 16.4 | 48.4 | 18.8 | | | | | 40.7 | 40.8 | 33.3 |
| Progression Factor | | 0.72 | 0.65 | 0.72 | 1.23 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.3 | 0.7 | 16.2 | 1.2 | | | | | 7.4 | 7.9 | 4.3 |
| Delay (s) | | 16.3 | 11.3 | 51.0 | 24.5 | | | | | 48.1 | 48.7 | 37.6 |
| Level of Service | | B | B | D | C | | | | | D | D | D |
| Approach Delay (s) | | 15.1 | | | 28.6 | | | 0.0 | | | 42.1 | |
| Approach LOS | | B | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1045 | 890 | 0 | 610 | 646 | 575 | 0 | 213 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1100 | 937 | 0 | 642 | 680 | 605 | 0 | 224 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 313 | 0 | 0 | 230 | 0 | 0 | 37 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1100 | 624 | 0 | 642 | 450 | 302 | 303 | 187 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 76.1 | 76.1 | | 75.6 | 75.6 | 26.9 | 26.9 | 26.9 | | | |
| Effective Green, g (s) | | 76.6 | 76.6 | | 76.1 | 76.1 | 27.4 | 27.4 | 27.4 | | | |
| Actuated g/C Ratio | | 0.67 | 0.67 | | 0.66 | 0.66 | 0.24 | 0.24 | 0.24 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2381 | 1794 | | 2365 | 1048 | 386 | 386 | 371 | | | |
| v/s Ratio Prot | | c0.31 | | | 0.18 | | 0.19 | c0.19 | | | | |
| v/s Ratio Perm | | | 0.23 | | | 0.28 | | | 0.12 | | | |
| v/c Ratio | | 0.46 | 0.35 | | 0.27 | 0.43 | 0.78 | 0.78 | 0.51 | | | |
| Uniform Delay, d1 | | 9.3 | 8.3 | | 8.0 | 9.2 | 41.0 | 41.0 | 37.9 | | | |
| Progression Factor | | 1.29 | 5.34 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.5 | 0.4 | | 0.3 | 1.3 | 9.4 | 9.6 | 0.6 | | | |
| Delay (s) | | 12.5 | 45.0 | | 8.3 | 10.5 | 50.4 | 50.6 | 38.6 | | | |
| Level of Service | | B | D | | A | B | D | D | D | | | |
| Approach Delay (s) | | 27.5 | | | 9.4 | | | 47.3 | | | 0.0 | |
| Approach LOS | | C | | | A | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 524 | 544 | 57 | 15 | 672 | 101 | 103 | 11 | 12 | 101 | 11 | 322 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.99 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 3502 | 3481 | | 1805 | 3500 | | | 1768 | 1593 | | 1799 | 1594 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.66 | 1.00 | | 0.66 | 1.00 |
| Satd. Flow (perm) | 3502 | 3481 | | 1805 | 3500 | | | 1229 | 1593 | | 1249 | 1594 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 546 | 567 | 59 | 16 | 700 | 105 | 107 | 11 | 12 | 105 | 11 | 335 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 11 | 0 | 0 | 0 | 10 | 0 | 0 | 282 |
| Lane Group Flow (vph) | 546 | 620 | 0 | 16 | 794 | 0 | 0 | 118 | 2 | 0 | 116 | 53 |
| Confl. Peds. (#/hr) | 8 | | 2 | 2 | | 8 | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 13.8 | 35.6 | | 0.8 | 22.6 | | | 9.7 | 9.7 | | 9.7 | 9.7 |
| Effective Green, g (s) | 14.3 | 36.1 | | 1.3 | 23.1 | | | 10.2 | 10.2 | | 10.2 | 10.2 |
| Actuated g/C Ratio | 0.22 | 0.56 | | 0.02 | 0.36 | | | 0.16 | 0.16 | | 0.16 | 0.16 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 781 | 1960 | | 37 | 1261 | | | 196 | 253 | | 199 | 254 |
| v/s Ratio Prot | c0.16 | 0.18 | | 0.01 | c0.23 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.09 | 0.03 |
| v/c Ratio | 0.70 | 0.32 | | 0.43 | 0.63 | | | 0.60 | 0.01 | | 0.58 | 0.21 |
| Uniform Delay, d1 | 22.9 | 7.4 | | 31.0 | 17.0 | | | 25.1 | 22.7 | | 25.0 | 23.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | 0.1 | | 5.2 | 0.9 | | | 4.2 | 0.0 | | 3.3 | 0.2 |
| Delay (s) | 25.3 | 7.5 | | 36.3 | 17.8 | | | 29.2 | 22.7 | | 28.2 | 23.7 |
| Level of Service | C | A | | D | B | | | C | C | | C | C |
| Approach Delay (s) | | 15.8 | | | 18.2 | | | 28.6 | | | 24.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 64.1 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 63.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 67 | 1110 | 137 | 0 | 1086 | 0 | 97 | 215 | 210 | 125 | 371 | 85 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3428 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3465 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3428 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3465 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 71 | 1181 | 146 | 0 | 1155 | 0 | 103 | 229 | 223 | 133 | 395 | 90 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 71 | 1321 | 0 | 0 | 1155 | 0 | 103 | 229 | 110 | 133 | 465 | 0 |
| Confl. Peds. (#/hr) | | | | | | 6 | | | 23 | | | 3 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.4 | 67.9 | | | 55.5 | | 10.4 | 17.4 | 17.4 | 12.7 | 19.7 | |
| Effective Green, g (s) | 7.9 | 68.4 | | | 56.0 | | 10.9 | 17.9 | 17.9 | 13.2 | 20.2 | |
| Actuated g/C Ratio | 0.07 | 0.59 | | | 0.49 | | 0.09 | 0.16 | 0.16 | 0.11 | 0.18 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 118 | 2039 | | | 1674 | | 168 | 290 | 239 | 205 | 609 | |
| v/s Ratio Prot | 0.04 | c0.39 | | | c0.34 | | 0.06 | c0.12 | | 0.07 | c0.13 | |
| v/s Ratio Perm | | | | | | | | | 0.07 | | | |
| v/c Ratio | 0.60 | 0.65 | | | 0.69 | | 0.61 | 0.79 | 0.46 | 0.65 | 0.76 | |
| Uniform Delay, d1 | 52.0 | 15.4 | | | 22.8 | | 50.0 | 46.7 | 44.2 | 48.7 | 45.1 | |
| Progression Factor | 1.00 | 1.00 | | | 0.51 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.8 | 1.6 | | | 2.1 | | 6.5 | 12.4 | 0.5 | 6.9 | 5.1 | |
| Delay (s) | 57.8 | 17.0 | | | 13.9 | | 56.5 | 59.1 | 44.7 | 55.6 | 50.2 | |
| Level of Service | E | B | | | B | | E | E | D | E | D | |
| Approach Delay (s) | | 19.0 | | | 13.9 | | | 52.8 | | | 51.4 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 27.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

Intersection Sign configuration not allowed in HCM analysis.

# Appendix E
# 2014 Background Operations Worksheets

# HCM Signalized Intersection Capacity Analysis
## 1: SW Lower Boones Ferry Road & SW Upper Boones Ferry Road

4/15/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1 | 7 | 9 | 469 | 7 | 40 | 0 | 484 | 557 | 59 | 676 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 3.5 | | 3.5 | 3.5 | | | 4.0 | 3.5 | 3.5 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.92 | | 1.00 | 0.96 | | | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | 1.00 | 0.87 | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1597 | | 1787 | 1575 | | | 1900 | 1571 | 1805 | 1900 | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1597 | | 1787 | 1575 | | | 1900 | 1571 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1 | 7 | 9 | 494 | 7 | 42 | 0 | 509 | 586 | 62 | 712 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 26 | 0 | 0 | 0 | 157 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 8 | 0 | 494 | 23 | 0 | 0 | 509 | 429 | 62 | 713 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Split | | | Split | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | 4 | 5 | 2 | |
| Permitted Phases | | | | | | | | | 6 | | | |
| Actuated Green, G (s) | | 1.7 | | 32.0 | 32.0 | | | 28.3 | 60.3 | 5.3 | 37.6 | |
| Effective Green, g (s) | | 2.2 | | 32.5 | 32.5 | | | 28.8 | 61.3 | 5.8 | 38.1 | |
| Actuated g/C Ratio | | 0.03 | | 0.39 | 0.39 | | | 0.34 | 0.73 | 0.07 | 0.45 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | 4.5 | 4.0 | 4.0 | 4.5 | |
| Vehicle Extension (s) | | 2.5 | | 2.2 | 2.2 | | | 3.5 | 2.2 | 2.2 | 3.5 | |
| Lane Grp Cap (vph) | | 42 | | 693 | 611 | | | 653 | 1149 | 125 | 864 | |
| v/s Ratio Prot | | c0.01 | | c0.28 | 0.01 | | | 0.27 | 0.14 | 0.03 | c0.38 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | |
| v/c Ratio | | 0.20 | | 0.71 | 0.04 | | | 0.78 | 0.37 | 0.50 | 0.83 | |
| Uniform Delay, d1 | | 39.9 | | 21.7 | 15.9 | | | 24.7 | 4.2 | 37.6 | 19.9 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.7 | | 3.0 | 0.0 | | | 6.0 | 0.1 | 1.6 | 6.6 | |
| Delay (s) | | 41.6 | | 24.7 | 16.0 | | | 30.7 | 4.3 | 39.2 | 26.6 | |
| Level of Service | | D | | C | B | | | C | A | D | C | |
| Approach Delay (s) | | 41.6 | | | 23.9 | | | 16.5 | | | 27.6 | |
| Approach LOS | | D | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 83.8 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 81.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 410 | 834 | 200 | 298 | 443 | 365 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 | 3.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3467 | 1589 | 1900 | 1571 | 1805 | 1900 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3467 | 1589 | 1900 | 1571 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 432 | 878 | 211 | 314 | 466 | 384 |
| RTOR Reduction (vph) | 0 | 196 | 0 | 74 | 0 | 0 |
| Lane Group Flow (vph) | 432 | 682 | 211 | 240 | 466 | 384 |
| Confl. Peds. (#/hr) | 7 | 15 | | 8 | 8 | |
| Heavy Vehicles (%) | 1% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | | pm+ov | | pm+ov | Prot | |
| Protected Phases | 8 | 1 | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 11.6 | 32.0 | 13.4 | 25.0 | 20.4 | 37.3 |
| Effective Green, g (s) | 12.1 | 33.0 | 13.9 | 26.0 | 20.9 | 37.8 |
| Actuated g/C Ratio | 0.21 | 0.58 | 0.24 | 0.46 | 0.37 | 0.66 |
| Clearance Time (s) | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 2.0 | 5.0 | 3.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 737 | 1019 | 464 | 718 | 663 | 1262 |
| v/s Ratio Prot | 0.12 | c0.25 | c0.11 | 0.07 | 0.26 | 0.20 |
| v/s Ratio Perm | | 0.18 | | 0.08 | | |
| v/c Ratio | 0.59 | 0.67 | 0.45 | 0.33 | 0.70 | 0.30 |
| Uniform Delay, d1 | 20.1 | 8.2 | 18.3 | 9.9 | 15.4 | 4.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.2 | 1.3 | 1.5 | 0.3 | 2.8 | 0.0 |
| Delay (s) | 21.3 | 9.5 | 19.8 | 10.2 | 18.1 | 4.1 |
| Level of Service | C | A | B | B | B | A |
| Approach Delay (s) | 13.4 | | 14.0 | | | 11.8 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 56.9 | Sum of lost time (s) | 6.5 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 664 | 175 | 422 | 930 | 325 | 385 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1572 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1572 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 699 | 184 | 444 | 979 | 342 | 405 |
| RTOR Reduction (vph) | 0 | 51 | 0 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 699 | 133 | 444 | 979 | 342 | 367 |
| Confl. Peds. (#/hr) | | 7 | 7 | | 7 | 8 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 41.2 | 41.2 | 29.9 | 76.1 | 21.1 | 51.0 |
| Effective Green, g (s) | 41.7 | 41.7 | 30.4 | 76.6 | 21.6 | 52.0 |
| Actuated g/C Ratio | 0.39 | 0.39 | 0.28 | 0.71 | 0.20 | 0.49 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 725 | 622 | 507 | 1318 | 357 | 829 |
| v/s Ratio Prot | c0.38 | 0.08 | c0.25 | 0.53 | c0.19 | 0.13 |
| v/s Ratio Perm | | | | | | 0.11 |
| v/c Ratio | 0.96 | 0.21 | 0.88 | 0.74 | 0.96 | 0.44 |
| Uniform Delay, d1 | 32.0 | 21.8 | 36.6 | 9.3 | 42.4 | 18.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 24.7 | 0.2 | 15.5 | 2.3 | 36.3 | 0.4 |
| Delay (s) | 56.7 | 22.0 | 52.1 | 11.6 | 78.6 | 18.5 |
| Level of Service | E | C | D | B | E | B |
| Approach Delay (s) | 49.5 | | | 24.2 | 46.0 | |
| Approach LOS | D | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 107.2 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 87.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 30 | 110 | 598 | 70 | 145 | 450 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 33 | 121 | 657 | 77 | 159 | 495 |
| Pedestrians | 25 | | 16 | | | 26 |
| Lane Width (ft) | 12.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 2 | | 1 | | | 2 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 428 | | | 355 |
| pX, platoon unblocked | 0.91 | 0.91 | | | 0.91 | |
| vC, conflicting volume | 1550 | 747 | | | 759 | |
| vC1, stage 1 conf vol | 721 | | | | | |
| vC2, stage 2 conf vol | 829 | | | | | |
| vCu, unblocked vol | 1555 | 668 | | | 682 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 88 | 69 | | | 80 | |
| cM capacity (veh/h) | 276 | 393 | | | 795 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 33 | 121 | 734 | 159 | 495 |
| Volume Left | 33 | 0 | 0 | 159 | 0 |
| Volume Right | 0 | 121 | 77 | 0 | 0 |
| cSH | 276 | 393 | 1700 | 795 | 1700 |
| Volume to Capacity | 0.12 | 0.31 | 0.43 | 0.20 | 0.29 |
| Queue Length 95th (ft) | 10 | 33 | 0 | 19 | 0 |
| Control Delay (s) | 19.8 | 18.2 | 0.0 | 10.7 | 0.0 |
| Lane LOS | C | C | | B | |
| Approach Delay (s) | 18.5 | | 0.0 | 2.6 | |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 80 | 85 | 628 | 431 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 45 | 90 | 96 | 706 | 484 | 56 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 308 | 475 | |
| pX, platoon unblocked | 0.89 | | | | | |
| vC, conflicting volume | 1409 | 512 | 540 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1398 | 512 | 540 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 65 | 84 | 91 | | | |
| cM capacity (veh/h) | 127 | 566 | 1038 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 135 | 96 | 706 | 540 |
| Volume Left | 45 | 96 | 0 | 0 |
| Volume Right | 90 | 0 | 0 | 56 |
| cSH | 263 | 1038 | 1700 | 1700 |
| Volume to Capacity | 0.51 | 0.09 | 0.42 | 0.32 |
| Queue Length 95th (ft) | 70 | 8 | 0 | 0 |
| Control Delay (s) | 32.2 | 8.8 | 0.0 | 0.0 |
| Lane LOS | D | A | | |
| Approach Delay (s) | 32.2 | 1.1 | | 0.0 |
| Approach LOS | D | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.5 | | |
| Intersection Capacity Utilization | 47.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 32 | 681 | 6 | 10 | 502 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 0 | 35 | 748 | 7 | 11 | 552 |
| Pedestrians | 25 | | 16 | | | 26 |
| Lane Width (ft) | 12.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 2 | | 1 | | | 2 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 227 | | | 556 |
| pX, platoon unblocked | 0.86 | 0.86 | | | 0.86 | |
| vC, conflicting volume | 1090 | 803 | | | 780 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1023 | 687 | | | 661 | |
| tC, single (s) | 6.9 | 7.0 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 89 | | | 99 | |
| cM capacity (veh/h) | 185 | 314 | | | 759 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 35 | 755 | 195 | 368 |
| Volume Left | 0 | 0 | 11 | 0 |
| Volume Right | 35 | 7 | 0 | 0 |
| cSH | 314 | 1700 | 759 | 1700 |
| Volume to Capacity | 0.11 | 0.44 | 0.01 | 0.22 |
| Queue Length 95th (ft) | 10 | 0 | 1 | 0 |
| Control Delay (s) | 17.9 | 0.0 | 0.7 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 17.9 | 0.0 | 0.2 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.6 | | |
| Intersection Capacity Utilization | 52.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 12 | 675 | 0 | 0 | 502 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 13 | 758 | 0 | 0 | 564 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 125 | | | 658 |
| pX, platoon unblocked | 0.85 | 0.85 | | | 0.85 | |
| vC, conflicting volume | 1040 | 758 | | | 758 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 960 | 629 | | | 629 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 96 | | | 100 | |
| cM capacity (veh/h) | 220 | 366 | | | 820 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 13 | 758 | 282 | 282 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 13 | 0 | 0 | 0 |
| cSH | 366 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.45 | 0.17 | 0.17 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 0 |
| Control Delay (s) | 15.2 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | | | |
| Approach Delay (s) | 15.2 | 0.0 | 0.0 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 45.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 10 | 100 | 349 | 55 | 337 | 27 | 308 | 19 | 0 | 492 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1626 | | 1698 | 1728 | 1528 | 1682 | 1861 | | | 3562 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.41 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1626 | | 1698 | 1728 | 1528 | 719 | 1861 | | | 3562 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 32 | 11 | 110 | 384 | 60 | 370 | 30 | 338 | 21 | 0 | 541 | 11 |
| RTOR Reduction (vph) | 0 | 97 | 0 | 0 | 0 | 279 | 0 | 3 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 32 | 24 | 0 | 219 | 225 | 91 | 30 | 356 | 0 | 0 | 550 | 0 |
| Confl. Peds. (#/hr) | 10 | | | | | 10 | 6 | | 19 | 19 | | 6 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 4.8 | 4.8 | | 10.5 | 10.5 | 10.5 | 15.9 | 15.9 | | | 15.9 | |
| Effective Green, g (s) | 5.3 | 5.3 | | 11.0 | 11.0 | 11.0 | 16.4 | 16.4 | | | 16.4 | |
| Actuated g/C Ratio | 0.12 | 0.12 | | 0.25 | 0.25 | 0.25 | 0.37 | 0.37 | | | 0.37 | |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 214 | 193 | | 418 | 425 | 376 | 264 | 683 | | | 1307 | |
| v/s Ratio Prot | c0.02 | 0.01 | | 0.13 | c0.13 | | | c0.19 | | | 0.15 | |
| v/s Ratio Perm | | | | | | 0.06 | 0.04 | | | | | |
| v/c Ratio | 0.15 | 0.12 | | 0.52 | 0.53 | 0.24 | 0.11 | 0.52 | | | 0.42 | |
| Uniform Delay, d1 | 17.7 | 17.6 | | 14.6 | 14.6 | 13.5 | 9.3 | 11.1 | | | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 0.9 | 0.9 | 0.2 | 0.4 | 1.4 | | | 0.5 | |
| Delay (s) | 17.9 | 17.8 | | 15.5 | 15.5 | 13.8 | 9.7 | 12.4 | | | 11.1 | |
| Level of Service | B | B | | B | B | B | A | B | | | B | |
| Approach Delay (s) | | 17.9 | | | 14.7 | | | 12.2 | | | 11.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 44.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 28 | 0 | 658 | 40 | 0 | 82 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 32 | 0 | 748 | 45 | 0 | 93 |
| Pedestrians | | | | | 5 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 243 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 798 | | | | 839 | 402 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 798 | | | | 839 | 402 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 85 |
| cM capacity (veh/h) | 830 | | | | 295 | 601 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 32 | 498 | 295 | 93 |
| Volume Left | 32 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 45 | 93 |
| cSH | 830 | 1700 | 1700 | 601 |
| Volume to Capacity | 0.04 | 0.29 | 0.17 | 0.15 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 14 |
| Control Delay (s) | 9.5 | 0.0 | 0.0 | 12.1 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 9.5 | 0.0 | | 12.1 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.6 | | |
| Intersection Capacity Utilization | 31.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 1930 | 40 | 232 | 1725 | 72 | 36 | 10 | 236 | 182 | 24 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | | | 5.0 | 4.5 | | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 4100 | | 3502 | 4957 | | | 1768 | 1599 | | 1803 | 1565 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.54 | 1.00 | | 0.72 | 1.00 |
| Satd. Flow (perm) | 1805 | 4100 | | 3502 | 4957 | | | 1000 | 1599 | | 1350 | 1565 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 31 | 1969 | 41 | 237 | 1760 | 73 | 37 | 10 | 241 | 186 | 24 | 45 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 31 | 2009 | 0 | 237 | 1830 | 0 | 0 | 47 | 241 | 0 | 210 | 8 |
| Confl. Peds. (#/hr) | | | 2 | | | 8 | 15 | | | | | 15 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | pm+ov | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | 1 | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 5.4 | 73.7 | | 11.8 | 80.1 | | | 22.5 | 34.3 | | 22.5 | 22.5 |
| Effective Green, g (s) | 5.9 | 74.2 | | 12.3 | 80.6 | | | 23.0 | 35.3 | | 23.0 | 23.0 |
| Actuated g/C Ratio | 0.05 | 0.59 | | 0.10 | 0.64 | | | 0.18 | 0.28 | | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | | | 5.5 | 5.0 | | 5.5 | 5.5 |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | | | 2.5 | 2.5 | | 2.5 | 2.5 |
| Lane Grp Cap (vph) | 85 | 2434 | | 345 | 3196 | | | 184 | 452 | | 248 | 288 |
| v/s Ratio Prot | 0.02 | c0.49 | | c0.07 | 0.37 | | | | 0.05 | | | |
| v/s Ratio Perm | | | | | | | | 0.05 | 0.10 | | c0.16 | 0.01 |
| v/c Ratio | 0.36 | 0.83 | | 0.69 | 0.57 | | | 0.26 | 0.53 | | 0.85 | 0.03 |
| Uniform Delay, d1 | 57.7 | 20.2 | | 54.5 | 12.5 | | | 43.7 | 37.9 | | 49.3 | 41.8 |
| Progression Factor | 0.75 | 0.48 | | 1.00 | 0.97 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 1.7 | | 3.7 | 0.5 | | | 0.5 | 0.9 | | 22.2 | 0.0 |
| Delay (s) | 44.1 | 11.5 | | 58.4 | 12.7 | | | 44.2 | 38.8 | | 71.5 | 41.9 |
| Level of Service | D | B | | E | B | | | D | D | | E | D |
| Approach Delay (s) | | 12.0 | | | 17.9 | | | 39.7 | | | 66.3 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 2295 | 1995 | 35 | 0 | 4 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Hourly flow rate (vph) | 0 | 2318 | 2015 | 35 | 0 | 4 |
| Pedestrians | | | | | 1 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 373 | 260 | | | |
| pX, platoon unblocked | 0.80 | | | | 0.73 | 0.80 |
| vC, conflicting volume | 2052 | | | | 2807 | 690 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1447 | | | | 355 | 0 |
| tC, single (s) | 4.1 | | | | 6.8 | 7.0 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 380 | | | | 450 | 866 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 773 | 773 | 773 | 806 | 806 | 438 | 4 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 35 | 4 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 866 |
| Volume to Capacity | 0.45 | 0.45 | 0.45 | 0.47 | 0.47 | 0.26 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 |
| Lane LOS | | | | | | | A |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 9.2 |
| Approach LOS | | | | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 49.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1514 | 835 | 123 | 1001 | 0 | 0 | 0 | 0 | 659 | 5 | 1060 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1529 | 843 | 124 | 1011 | 0 | 0 | 0 | 0 | 666 | 5 | 1071 |
| RTOR Reduction (vph) | 0 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 0 | 1529 | 493 | 124 | 1011 | 0 | 0 | 0 | 0 | 333 | 338 | 1041 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 58.2 | 58.2 | 11.1 | 53.3 | | | | | 37.7 | 37.7 | 59.7 |
| Effective Green, g (s) | | 58.7 | 58.7 | 11.6 | 53.8 | | | | | 38.2 | 38.2 | 60.2 |
| Actuated g/C Ratio | | 0.47 | 0.47 | 0.09 | 0.43 | | | | | 0.31 | 0.31 | 0.48 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1949 | 736 | 166 | 1494 | | | | | 514 | 514 | 1329 |
| v/s Ratio Prot | | c0.37 | | 0.07 | c0.29 | | | | | 0.20 | 0.20 | c0.38 |
| v/s Ratio Perm | | | 0.31 | | | | | | | | | |
| v/c Ratio | | 0.78 | 0.67 | 0.75 | 0.68 | | | | | 0.65 | 0.66 | 0.78 |
| Uniform Delay, d1 | | 27.8 | 25.7 | 55.3 | 28.6 | | | | | 37.6 | 37.7 | 27.0 |
| Progression Factor | | 0.75 | 0.55 | 1.27 | 0.62 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.1 | 3.1 | 14.7 | 2.4 | | | | | 2.3 | 2.6 | 2.9 |
| Delay (s) | | 22.9 | 17.3 | 85.1 | 20.1 | | | | | 39.9 | 40.3 | 29.9 |
| Level of Service | | C | B | F | C | | | | | D | D | C |
| Approach Delay (s) | | 20.9 | | | 27.2 | | | 0.0 | | | 33.8 | |
| Approach LOS | | C | | | C | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 90.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1196 | 981 | 0 | 490 | 682 | 634 | 5 | 177 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.96 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1259 | 1033 | 0 | 516 | 718 | 667 | 5 | 186 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 327 | 0 | 0 | 252 | 0 | 0 | 23 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1259 | 706 | 0 | 516 | 466 | 333 | 339 | 163 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | 16 | | | 17 | | | |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 81.1 | 81.1 | | 80.6 | 80.6 | 31.9 | 31.9 | 31.9 | | | |
| Effective Green, g (s) | | 81.6 | 81.6 | | 81.1 | 81.1 | 32.4 | 32.4 | 32.4 | | | |
| Actuated g/C Ratio | | 0.65 | 0.65 | | 0.65 | 0.65 | 0.26 | 0.26 | 0.26 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2333 | 1802 | | 2319 | 974 | 419 | 420 | 392 | | | |
| v/s Ratio Prot | | c0.35 | | | 0.14 | | 0.21 | c0.21 | | | | |
| v/s Ratio Perm | | | 0.26 | | | 0.31 | | | 0.11 | | | |
| v/c Ratio | | 0.54 | 0.39 | | 0.22 | 0.48 | 0.79 | 0.81 | 0.42 | | | |
| Uniform Delay, d1 | | 11.6 | 10.1 | | 9.0 | 11.2 | 43.2 | 43.4 | 38.4 | | | |
| Progression Factor | | 0.44 | 0.20 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.6 | 0.5 | | 0.2 | 1.7 | 9.6 | 10.4 | 0.4 | | | |
| Delay (s) | | 5.8 | 2.5 | | 9.2 | 12.9 | 52.8 | 53.8 | 38.9 | | | |
| Level of Service | | A | A | | A | B | D | D | D | | | |
| Approach Delay (s) | | 4.3 | | | 11.3 | | | 50.2 | | | 0.0 | |
| Approach LOS | | A | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 71.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 981 | 61 | 10 | 813 | 80 | 112 | 7 | 17 | 81 | 5 | 191 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 3502 | 3503 | | 1805 | 3523 | | | 1761 | 1590 | | 1793 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.67 | 1.00 | | 0.65 | 1.00 |
| Satd. Flow (perm) | 3502 | 3503 | | 1805 | 3523 | | | 1243 | 1590 | | 1221 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 302 | 1022 | 64 | 10 | 847 | 83 | 117 | 7 | 18 | 84 | 5 | 199 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 165 |
| Lane Group Flow (vph) | 302 | 1083 | 0 | 10 | 923 | 0 | 0 | 124 | 3 | 0 | 89 | 34 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 9.1 | 33.8 | | 0.7 | 25.4 | | | 10.3 | 10.3 | | 10.3 | 10.3 |
| Effective Green, g (s) | 9.6 | 34.3 | | 1.2 | 25.9 | | | 10.8 | 10.8 | | 10.8 | 10.8 |
| Actuated g/C Ratio | 0.15 | 0.55 | | 0.02 | 0.41 | | | 0.17 | 0.17 | | 0.17 | 0.17 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 535 | 1913 | | 34 | 1453 | | | 214 | 273 | | 210 | 274 |
| v/s Ratio Prot | c0.09 | c0.31 | | 0.01 | c0.26 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.07 | 0.02 |
| v/c Ratio | 0.56 | 0.57 | | 0.29 | 0.64 | | | 0.58 | 0.01 | | 0.42 | 0.12 |
| Uniform Delay, d1 | 24.7 | 9.4 | | 30.4 | 14.7 | | | 23.9 | 21.6 | | 23.2 | 22.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.3 | | 3.1 | 0.8 | | | 3.0 | 0.0 | | 0.8 | 0.1 |
| Delay (s) | 25.7 | 9.7 | | 33.5 | 15.5 | | | 26.9 | 21.6 | | 24.0 | 22.1 |
| Level of Service | C | A | | C | B | | | C | C | | C | C |
| Approach Delay (s) | | 13.2 | | | 15.7 | | | 26.2 | | | 22.7 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 62.8 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 217 | 927 | 26 | 24 | 759 | 16 | 17 | 9 | 45 | 5 | 7 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 5.6 | 5.6 | | 5.3 | 4.8 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1848 | 1609 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.69 | 1.00 |
| Satd. Flow (perm) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1304 | 1609 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 226 | 966 | 27 | 25 | 791 | 17 | 18 | 9 | 47 | 5 | 7 | 141 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 44 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 226 | 993 | 0 | 25 | 807 | 0 | 0 | 27 | 3 | 0 | 12 | 28 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Perm | | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | | | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 11.5 | 48.9 | | 1.7 | 39.1 | | | 4.1 | 4.1 | | 3.6 | 15.1 |
| Effective Green, g (s) | 12.0 | 49.4 | | 2.2 | 39.6 | | | 4.6 | 4.6 | | 4.1 | 16.1 |
| Actuated g/C Ratio | 0.15 | 0.61 | | 0.03 | 0.49 | | | 0.06 | 0.06 | | 0.05 | 0.20 |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | | | 6.1 | 6.1 | | 5.8 | 5.3 |
| Vehicle Extension (s) | 2.5 | 3.0 | | 1.0 | 3.0 | | | 1.0 | 1.0 | | 2.0 | 2.5 |
| Lane Grp Cap (vph) | 268 | 1134 | | 49 | 1745 | | | 103 | 87 | | 66 | 321 |
| v/s Ratio Prot | c0.13 | c0.54 | | 0.01 | 0.23 | | | c0.01 | | | | 0.01 |
| v/s Ratio Perm | | | | | | | | | 0.00 | | c0.01 | 0.00 |
| v/c Ratio | 0.84 | 0.88 | | 0.51 | 0.46 | | | 0.26 | 0.03 | | 0.18 | 0.09 |
| Uniform Delay, d1 | 33.5 | 13.1 | | 38.8 | 13.6 | | | 36.5 | 36.0 | | 36.7 | 26.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 20.5 | 7.8 | | 3.7 | 0.2 | | | 0.5 | 0.1 | | 0.5 | 0.1 |
| Delay (s) | 54.0 | 20.9 | | 42.5 | 13.8 | | | 37.0 | 36.0 | | 37.2 | 26.4 |
| Level of Service | D | C | | D | B | | | D | D | | D | C |
| Approach Delay (s) | | 27.0 | | | 14.6 | | | 36.4 | | | 27.3 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 80.8 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 75.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 103 | 1014 | 138 | 224 | 1083 | 56 | 171 | 268 | 159 | 297 | 345 | 133 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | 4.5 | 5.5 | | 4.5 | 5.0 | 4.5 | 4.5 | 5.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1703 | 3319 | | 3502 | 3338 | | 1733 | 1810 | 1542 | 1761 | 3313 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.40 | 1.00 | 1.00 | 0.59 | 1.00 | |
| Satd. Flow (perm) | 1703 | 3319 | | 3502 | 3338 | | 737 | 1810 | 1542 | 1099 | 3313 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 104 | 1024 | 139 | 226 | 1094 | 57 | 173 | 271 | 161 | 300 | 348 | 134 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 54 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 104 | 1155 | 0 | 226 | 1148 | 0 | 173 | 271 | 107 | 300 | 448 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 6% | 7% | 3% | 0% | 7% | 6% | 4% | 5% | 3% | 2% | 4% | 3% |
| Turn Type | Prot | | | Prot | | | pm+pt | | pm+ov | pm+pt | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Actuated Green, G (s) | 10.0 | 55.9 | | 9.4 | 55.3 | | 21.3 | 21.3 | 30.7 | 27.3 | 26.8 | |
| Effective Green, g (s) | 10.5 | 56.4 | | 9.9 | 55.8 | | 21.8 | 21.8 | 31.7 | 27.8 | 27.3 | |
| Actuated g/C Ratio | 0.08 | 0.45 | | 0.08 | 0.45 | | 0.17 | 0.17 | 0.25 | 0.22 | 0.22 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | 2.0 | 3.5 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lane Grp Cap (vph) | 143 | 1498 | | 277 | 1490 | | 223 | 316 | 391 | 337 | 724 | |
| v/s Ratio Prot | 0.06 | c0.35 | | 0.06 | c0.34 | | 0.07 | c0.15 | 0.02 | c0.12 | 0.14 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.05 | c0.07 | | |
| v/c Ratio | 0.73 | 0.77 | | 0.82 | 0.77 | | 0.78 | 0.86 | 0.27 | 0.89 | 0.62 | |
| Uniform Delay, d1 | 55.9 | 28.9 | | 56.7 | 29.2 | | 47.5 | 50.1 | 37.4 | 45.8 | 44.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.26 | 0.41 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.4 | 3.9 | | 10.4 | 2.4 | | 14.2 | 19.3 | 0.1 | 23.5 | 1.1 | |
| Delay (s) | 70.3 | 32.8 | | 82.0 | 14.3 | | 61.7 | 69.3 | 37.5 | 69.4 | 45.3 | |
| Level of Service | E | C | | F | B | | E | E | D | E | D | |
| Approach Delay (s) | | 35.9 | | | 25.4 | | | 58.7 | | | 54.5 | |
| Approach LOS | | D | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 39.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 87.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 52 | 1484 | 83 | 0 | 1110 | 0 | 95 | 302 | 323 | 194 | 663 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | *0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3447 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3447 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 55 | 1579 | 88 | 0 | 1181 | 0 | 101 | 321 | 344 | 206 | 705 | 94 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 55 | 1664 | 0 | 0 | 1181 | 0 | 101 | 321 | 262 | 206 | 790 | 0 |
| Confl. Peds. (#/hr) | | | 4 | | | 2 | | | 3 | | | 16 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.8 | 65.5 | | | 52.7 | | 10.0 | 23.5 | 23.5 | 19.0 | 32.5 | |
| Effective Green, g (s) | 8.3 | 66.0 | | | 53.2 | | 10.5 | 24.0 | 24.0 | 19.5 | 33.0 | |
| Actuated g/C Ratio | 0.07 | 0.53 | | | 0.43 | | 0.08 | 0.19 | 0.19 | 0.16 | 0.26 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 114 | 1820 | | | 1463 | | 149 | 358 | 302 | 279 | 923 | |
| v/s Ratio Prot | 0.03 | c0.48 | | | 0.34 | | 0.06 | c0.17 | | 0.12 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.17 | | | |
| v/c Ratio | 0.48 | 0.91 | | | 0.81 | | 0.68 | 0.90 | 0.87 | 0.74 | 0.86 | |
| Uniform Delay, d1 | 56.3 | 26.9 | | | 31.4 | | 55.6 | 49.3 | 49.0 | 50.3 | 43.7 | |
| Progression Factor | 0.74 | 1.13 | | | 0.56 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 6.8 | | | 4.3 | | 11.6 | 23.3 | 21.6 | 9.8 | 7.6 | |
| Delay (s) | 42.5 | 37.2 | | | 21.9 | | 67.2 | 72.6 | 70.6 | 60.1 | 51.3 | |
| Level of Service | D | D | | | C | | E | E | E | E | D | |
| Approach Delay (s) | | 37.4 | | | 21.9 | | | 71.0 | | | 53.1 | |
| Approach LOS | | D | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 88.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 23 | 10 | 240 | 0 | 234 | 2 | 334 | 359 | 423 | 474 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.6 | | | 5.3 | 5.6 | 4.8 | 4.8 | | 4.8 | 4.8 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | 0.90 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1786 | | | 1805 | 1457 | 1748 | 1721 | | 1787 | 1893 | |
| Flt Permitted | | 0.98 | | | 0.95 | 1.00 | 0.48 | 1.00 | | 0.09 | 1.00 | |
| Satd. Flow (perm) | | 1786 | | | 1805 | 1457 | 880 | 1721 | | 165 | 1893 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 24 | 10 | 250 | 0 | 244 | 2 | 348 | 374 | 441 | 494 | 10 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 230 | 0 | 24 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 52 | 0 | 0 | 250 | 14 | 2 | 698 | 0 | 441 | 504 | 0 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Split | | | Split | | custom | pm+pt | | | pm+pt | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | | | 8 | 6 | | | 2 | | |
| Actuated Green, G (s) | | 7.6 | | | 20.0 | 7.6 | 64.4 | 63.4 | | 98.7 | 92.4 | |
| Effective Green, g (s) | | 8.1 | | | 20.5 | 8.1 | 65.4 | 63.9 | | 99.2 | 92.9 | |
| Actuated g/C Ratio | | 0.06 | | | 0.14 | 0.06 | 0.46 | 0.45 | | 0.69 | 0.65 | |
| Clearance Time (s) | | 6.1 | | | 5.8 | 6.1 | 5.3 | 5.3 | | 5.3 | 5.3 | |
| Vehicle Extension (s) | | 1.0 | | | 2.0 | 1.0 | 1.0 | 3.0 | | 2.5 | 0.2 | |
| Lane Grp Cap (vph) | | 101 | | | 258 | 82 | 410 | 766 | | 459 | 1226 | |
| v/s Ratio Prot | | c0.03 | | | c0.14 | | 0.00 | 0.41 | | c0.20 | 0.27 | |
| v/s Ratio Perm | | | | | | 0.01 | 0.00 | | | c0.46 | | |
| v/c Ratio | | 0.52 | | | 0.97 | 0.17 | 0.00 | 0.91 | | 0.96 | 0.41 | |
| Uniform Delay, d1 | | 65.8 | | | 61.2 | 64.5 | 21.3 | 37.1 | | 43.9 | 12.2 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.9 | | | 46.6 | 0.4 | 0.0 | 15.0 | | 32.0 | 0.1 | |
| Delay (s) | | 67.7 | | | 107.8 | 64.8 | 21.3 | 52.1 | | 75.9 | 12.2 | |
| Level of Service | | E | | | F | E | C | D | | E | B | |
| Approach Delay (s) | | 67.7 | | | 86.6 | | | 52.0 | | | 41.9 | |
| Approach LOS | | E | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 143.5 | Sum of lost time (s) | 15.7 |
| Intersection Capacity Utilization | 95.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 42 | 107 | 13 | 166 | 112 | 64 | 16 | 476 | 218 | 65 | 561 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 4.0 | | 3.5 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1781 | 1827 | | 1780 | 1733 | | 1768 | 1787 | | 1804 | 1860 | |
| Flt Permitted | 0.64 | 1.00 | | 0.44 | 1.00 | | 0.26 | 1.00 | | 0.17 | 1.00 | |
| Satd. Flow (perm) | 1202 | 1827 | | 825 | 1733 | | 482 | 1787 | | 331 | 1860 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 44 | 113 | 14 | 175 | 118 | 67 | 17 | 501 | 229 | 68 | 591 | 79 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 18 | 0 | 0 | 11 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 44 | 123 | 0 | 175 | 167 | 0 | 17 | 719 | 0 | 68 | 667 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | pm+pt | | | pm+pt | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.3 | 12.3 | | 25.7 | 18.7 | | 47.0 | 45.5 | | 51.6 | 47.8 | |
| Effective Green, g (s) | 16.3 | 12.8 | | 26.2 | 19.2 | | 48.0 | 46.0 | | 52.6 | 48.3 | |
| Actuated g/C Ratio | 0.19 | 0.15 | | 0.30 | 0.22 | | 0.55 | 0.53 | | 0.60 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.5 | | 4.0 | 4.5 | |
| Vehicle Extension (s) | 2.2 | 2.2 | | 2.2 | 2.2 | | 2.2 | 5.0 | | 2.2 | 5.0 | |
| Lane Grp Cap (vph) | 247 | 267 | | 355 | 380 | | 294 | 939 | | 271 | 1027 | |
| v/s Ratio Prot | 0.01 | 0.07 | | c0.06 | 0.10 | | 0.00 | c0.40 | | c0.01 | 0.36 | |
| v/s Ratio Perm | 0.03 | | | c0.09 | | | 0.03 | | | 0.14 | | |
| v/c Ratio | 0.18 | 0.46 | | 0.49 | 0.44 | | 0.06 | 0.77 | | 0.25 | 0.65 | |
| Uniform Delay, d1 | 29.7 | 34.2 | | 24.0 | 29.5 | | 10.7 | 16.5 | | 11.7 | 13.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.6 | | 0.6 | 0.4 | | 0.0 | 4.4 | | 0.2 | 1.9 | |
| Delay (s) | 29.9 | 34.8 | | 24.6 | 29.9 | | 10.7 | 20.9 | | 11.9 | 15.6 | |
| Level of Service | C | C | | C | C | | B | C | | B | B | |
| Approach Delay (s) | | 33.6 | | | 27.3 | | | 20.7 | | | 15.3 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 14.5 |
| Intersection Capacity Utilization | 73.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/Martinazzi
Jurisdiction:
Units: U. S. Customary
Analysis Year: Background
Project ID:
East/West Street: Sagert
North/South Street: Martinazzi

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 117 | 233 | 12 | 90 | 195 | 164 | 2 | 180 | 76 | 207 | 296 | |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 130 | 271 | 100 | 398 | 2 | 284 | 230 | 585 |
| % Heavy Veh | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 130 | 271 | 100 | 398 | 2 | 284 | 230 | 585 |
| Left-Turn | 130 | 0 | 100 | 0 | 2 | 0 | 230 | 0 |
| Right-Turn | 0 | 13 | 0 | 182 | 0 | 84 | 0 | 257 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.0 | 0.4 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.0 | 0.5 | -0.3 | 0.5 | -0.2 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 130 | 271 | 100 | 398 | 2 | 284 | 230 | 585 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.12 | 0.24 | 0.09 | 0.35 | 0.00 | 0.25 | 0.20 | 0.52 |
| hd, final value | 9.23 | 8.70 | 9.00 | 8.18 | 9.42 | 8.71 | 8.80 | 7.99 |
| x, final value | 0.33 | 0.65 | 0.25 | 0.90 | 0.01 | 0.69 | 0.56 | 1.30 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 6.9 | 6.4 | 6.7 | 5.9 | 7.1 | 6.4 | 6.5 | 5.7 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 130 | 271 | 100 | 398 | 2 | 284 | 230 | 585 |
| Service Time | 6.9 | 6.4 | 6.7 | 5.9 | 7.1 | 6.4 | 6.5 | 5.7 |
| Utilization, x | 0.33 | 0.65 | 0.25 | 0.90 | 0.01 | 0.69 | 0.56 | 1.30 |
| Dep. headway, hd | 9.23 | 8.70 | 9.00 | 8.18 | 9.42 | 8.71 | 8.80 | 7.99 |
| Capacity | 380 | 408 | 350 | 439 | 252 | 406 | 407 | 585 |
| Delay | 16.48 | 26.44 | 14.68 | 51.04 | 12.17 | 28.50 | 22.21 | 173.73 |
| LOS | C | D | B | F | B | D | C | F |
| Approach: | | | | | | | | |
| Delay | 23.21 | | 43.74 | | 28.38 | | 130.97 | |
| LOS | C | | E | | D | | F | |

Intersection Delay 72.97 Intersection LOS F

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/65th
Jurisdiction:
Units: U. S. Customary
Analysis Year: Background
Project ID:
East/West Street: Sagert
North/South Street: 65th

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 401 | 2 | 135 | 2 | 7 | 6 | 58 | 288 | 3 | 3 | 335 | 386 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 800 |
| % Heavy Veh | 1 | 1 | 0 | 0 | 1 | 2 | 1 | 2 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 800 |
| Left-Turn | 445 | 0 | 2 | 0 | 64 | 0 | 3 | 0 |
| Right-Turn | 0 | 150 | 0 | 6 | 0 | 3 | 0 | 428 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.7 | 0.5 | -0.3 | 0.5 | 0.0 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 800 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.40 | 0.14 | 0.00 | 0.01 | 0.06 | 0.29 | 0.00 | 0.71 |
| hd, final value | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.91 |
| x, final value | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.54 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 800 |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |
| Utilization, x | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.54 |
| Dep. headway, hd | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.91 |
| Capacity | 466 | 402 | 252 | 263 | 314 | 475 | 253 | 800 |
| Delay | 58.85 | 11.71 | 11.98 | 11.37 | 12.02 | 24.33 | 10.52 | 269.49 |
| LOS | F | B | B | B | B | C | B | F |
| Approach: | | | | | | | | |
| Delay | 46.85 | | 11.45 | | 22.29 | | 268.52 | |
| LOS | E | | B | | C | | F | |

Intersection Delay 140.06 Intersection LOS F

## Intersection: 12: Tualatin Sherwood Rd & I-5 SB Ramps

| Movement | EB | EB | EB | EB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | T | R | L | T | T | L | LT | R | R |
| Maximum Queue (ft) | 284 | 274 | 264 | 152 | 433 | 501 | 537 | 275 | 719 | 625 | 476 |
| Average Queue (ft) | 172 | 189 | 171 | 14 | 133 | 250 | 270 | 190 | 349 | 304 | 173 |
| 95th Queue (ft) | 265 | 285 | 246 | 89 | 324 | 483 | 512 | 304 | 664 | 552 | 387 |
| Link Distance (ft) | 181 | 181 | 181 | 181 | 635 | 635 | 635 | | 1148 | 1148 | |
| Upstream Blk Time (%) | 6 | 8 | 8 | 0 | 1 | 2 | 2 | | 0 | 0 | |
| Queuing Penalty (veh) | 32 | 48 | 45 | 1 | 2 | 7 | 7 | | 0 | 0 | |
| Storage Bay Dist (ft) | | | | | | | | 200 | | | 700 |
| Storage Blk Time (%) | | | | | | | | 7 | 25 | 1 | 0 |
| Queuing Penalty (veh) | | | | | | | | 22 | 82 | 4 | 0 |

## Intersection: 13: Tualatin Sherwood Rd & I-5 NB Ramps

| Movement | EB | EB | WB | WB | WB | NB | NB | NB | B33 |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | T | T | R | L | LT | R | T |
| Maximum Queue (ft) | 469 | 436 | 198 | 301 | 225 | 356 | 441 | 299 | 54 |
| Average Queue (ft) | 186 | 174 | 82 | 101 | 14 | 222 | 238 | 102 | 10 |
| 95th Queue (ft) | 384 | 364 | 166 | 218 | 103 | 336 | 401 | 225 | 93 |
| Link Distance (ft) | 635 | 635 | 468 | 468 | | | 463 | | 253 |
| Upstream Blk Time (%) | | | | 0 | | | 2 | | 2 |
| Queuing Penalty (veh) | | | | 1 | | | 0 | | 0 |
| Storage Bay Dist (ft) | | | | | 150 | 300 | | 225 | |
| Storage Blk Time (%) | | | | 3 | 0 | 3 | 10 | 0 | |
| Queuing Penalty (veh) | | | | 18 | 0 | 15 | 51 | 2 | |

# HCM Signalized Intersection Capacity Analysis
## 3: SW Boones Ferry Road & SW Martinazzi Ave

4/17/2013

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 417 | 125 | 258 | 429 | 185 | 304 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1581 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1581 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 439 | 132 | 272 | 452 | 195 | 320 |
| RTOR Reduction (vph) | 0 | 90 | 0 | 0 | 0 | 93 |
| Lane Group Flow (vph) | 439 | 42 | 272 | 452 | 195 | 227 |
| Confl. Peds. (#/hr) | | 11 | 11 | | 1 | 3 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 17.1 | 17.1 | 12.7 | 34.8 | 11.0 | 23.7 |
| Effective Green, g (s) | 17.6 | 17.6 | 13.2 | 35.3 | 11.5 | 24.7 |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.24 | 0.63 | 0.21 | 0.44 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 588 | 504 | 423 | 1167 | 365 | 827 |
| v/s Ratio Prot | c0.24 | 0.03 | c0.15 | 0.25 | c0.11 | 0.06 |
| v/s Ratio Perm | | | | | | 0.08 |
| v/c Ratio | 0.75 | 0.08 | 0.64 | 0.39 | 0.53 | 0.27 |
| Uniform Delay, d1 | 17.1 | 13.4 | 19.2 | 5.0 | 19.8 | 9.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.1 | 0.1 | 3.3 | 0.2 | 1.5 | 0.2 |
| Delay (s) | 22.2 | 13.5 | 22.5 | 5.2 | 21.3 | 10.0 |
| Level of Service | C | B | C | A | C | B |
| Approach Delay (s) | 20.2 | | | 11.7 | 14.3 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 55.8 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 58.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 46 | 80 | 408 | 60 | 110 | 269 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 50 | 87 | 443 | 65 | 120 | 292 |
| Pedestrians | 13 | | | | | 6 |
| Lane Width (ft) | 12.0 | | | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | | | | 4.0 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 428 | | | 355 |
| pX, platoon unblocked | 0.97 | 0.97 | | | 0.97 | |
| vC, conflicting volume | 1021 | 495 | | | 522 | |
| vC1, stage 1 conf vol | 489 | | | | | |
| vC2, stage 2 conf vol | 532 | | | | | |
| vCu, unblocked vol | 1007 | 467 | | | 494 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 89 | 85 | | | 88 | |
| cM capacity (veh/h) | 441 | 574 | | | 1039 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 50 | 87 | 509 | 120 | 292 |
| Volume Left | 50 | 0 | 0 | 120 | 0 |
| Volume Right | 0 | 87 | 65 | 0 | 0 |
| cSH | 441 | 574 | 1700 | 1039 | 1700 |
| Volume to Capacity | 0.11 | 0.15 | 0.30 | 0.12 | 0.17 |
| Queue Length 95th (ft) | 10 | 14 | 0 | 10 | 0 |
| Control Delay (s) | 14.2 | 12.4 | 0.0 | 8.9 | 0.0 |
| Lane LOS | B | B | | A | |
| Approach Delay (s) | 13.1 | | 0.0 | 2.6 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 46.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 37 | 45 | 81 | 432 | 271 | 44 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 41 | 49 | 89 | 475 | 298 | 48 |
| Pedestrians | 1 | | | 4 | 10 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 1 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 308 | 475 | |
| pX, platoon unblocked | 0.96 | | | | | |
| vC, conflicting volume | 986 | 327 | 347 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 962 | 327 | 347 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 84 | 93 | 93 | | | |
| cM capacity (veh/h) | 251 | 716 | 1222 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 90 | 89 | 475 | 346 |
| Volume Left | 41 | 89 | 0 | 0 |
| Volume Right | 49 | 0 | 0 | 48 |
| cSH | 391 | 1222 | 1700 | 1700 |
| Volume to Capacity | 0.23 | 0.07 | 0.28 | 0.20 |
| Queue Length 95th (ft) | 23 | 6 | 0 | 0 |
| Control Delay (s) | 17.0 | 8.2 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 17.0 | 1.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 37.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 5 | 25 | 489 | 9 | 3 | 314 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 6 | 28 | 543 | 10 | 3 | 349 |
| Pedestrians | 19 | | | | | 2 |
| Lane Width (ft) | 12.0 | | | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | | | | 4.0 |
| Percent Blockage | 2 | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 227 | | | 556 |
| pX, platoon unblocked | 0.90 | 0.90 | | | 0.90 | |
| vC, conflicting volume | 748 | 569 | | | 572 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 660 | 460 | | | 464 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 94 | | | 100 | |
| cM capacity (veh/h) | 352 | 487 | | | 976 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 33 | 553 | 120 | 233 |
| Volume Left | 6 | 0 | 3 | 0 |
| Volume Right | 28 | 10 | 0 | 0 |
| cSH | 457 | 1700 | 976 | 1700 |
| Volume to Capacity | 0.07 | 0.33 | 0.00 | 0.14 |
| Queue Length 95th (ft) | 6 | 0 | 0 | 0 |
| Control Delay (s) | 13.5 | 0.0 | 0.3 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 13.5 | 0.0 | 0.1 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 37.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 10 | 488 | 0 | 0 | 318 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 11 | 548 | 0 | 0 | 357 |
| Pedestrians | 13 | | | | | |
| Lane Width (ft) | 12.0 | | | | | |
| Walking Speed (ft/s) | 4.0 | | | | | |
| Percent Blockage | 1 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 125 | | | 658 |
| pX, platoon unblocked | 0.88 | 0.88 | | | 0.88 | |
| vC, conflicting volume | 740 | 561 | | | 561 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 640 | 438 | | | 438 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 98 | | | 100 | |
| cM capacity (veh/h) | 361 | 500 | | | 990 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 11 | 548 | 179 | 179 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 11 | 0 | 0 | 0 |
| cSH | 500 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.32 | 0.11 | 0.11 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 |
| Control Delay (s) | 12.4 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | | | |
| Approach Delay (s) | 12.4 | 0.0 | 0.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 35.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 1 | 63 | 227 | 37 | 237 | 23 | 235 | 31 | 0 | 310 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1603 | | 1698 | 1730 | 1542 | 1683 | 1842 | | | 3559 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.97 | 1.00 | 0.54 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1603 | | 1698 | 1730 | 1542 | 960 | 1842 | | | 3559 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 18 | 1 | 69 | 249 | 41 | 260 | 25 | 258 | 34 | 0 | 341 | 9 |
| RTOR Reduction (vph) | 0 | 63 | 0 | 0 | 0 | 204 | 0 | 7 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 18 | 7 | 0 | 144 | 146 | 56 | 25 | 285 | 0 | 0 | 347 | 0 |
| Confl. Peds. (#/hr) | 2 | | | | | 2 | 3 | | 16 | 16 | | 3 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 3.1 | 3.1 | | 8.9 | 8.9 | 8.9 | 13.8 | 13.8 | | | 13.8 | |
| Effective Green, g (s) | 3.6 | 3.6 | | 9.4 | 9.4 | 9.4 | 14.3 | 14.3 | | | 14.3 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.21 | 0.21 | 0.21 | 0.33 | 0.33 | | | 0.33 | |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | | 6.0 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 148 | 132 | | 364 | 371 | 331 | 313 | 601 | | | 1162 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.08 | 0.08 | | | c0.15 | | | 0.10 | |
| v/s Ratio Perm | | | | | | 0.04 | 0.03 | | | | | |
| v/c Ratio | 0.12 | 0.05 | | 0.40 | 0.39 | 0.17 | 0.08 | 0.47 | | | 0.30 | |
| Uniform Delay, d1 | 18.6 | 18.5 | | 14.8 | 14.8 | 14.0 | 10.2 | 11.8 | | | 11.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 0.5 | 0.5 | 0.2 | 0.2 | 1.2 | | | 0.3 | |
| Delay (s) | 18.9 | 18.6 | | 15.3 | 15.3 | 14.2 | 10.4 | 13.0 | | | 11.3 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 18.7 | | | 14.8 | | | 12.8 | | | 11.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 43.8 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 48.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 32 | 0 | 447 | 50 | 0 | 53 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 36 | 0 | 508 | 57 | 0 | 60 |
| Pedestrians | | | | | 4 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 248 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 569 | | | | 613 | 286 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 569 | | | | 613 | 286 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 92 |
| cM capacity (veh/h) | 1010 | | | | 412 | 714 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 36 | 339 | 226 | 60 |
| Volume Left | 36 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 57 | 60 |
| cSH | 1010 | 1700 | 1700 | 714 |
| Volume to Capacity | 0.04 | 0.20 | 0.13 | 0.08 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 7 |
| Control Delay (s) | 8.7 | 0.0 | 0.0 | 10.5 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 8.7 | 0.0 | | 10.5 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 24.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 50 | 1375 | 59 | 257 | 1498 | 101 | 57 | 25 | 248 | 154 | 40 | 62 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | | | 5.0 | 4.5 | | 5.0 | 5.0 |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 1805 | 4092 | | 3502 | 4943 | | | 1799 | 1599 | | 1813 | 1579 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.50 | 1.00 | | 0.71 | 1.00 |
| Satd. Flow (perm) | 1805 | 4092 | | 3502 | 4943 | | | 925 | 1599 | | 1347 | 1579 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 51 | 1403 | 60 | 262 | 1529 | 103 | 58 | 26 | 253 | 157 | 41 | 63 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 51 | 1460 | 0 | 262 | 1627 | 0 | 0 | 84 | 253 | 0 | 198 | 11 |
| Confl. Peds. (#/hr) | | | | | | 4 | | | | | | 9 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | pm+ov | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | 1 | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 8.0 | 65.9 | | 11.7 | 69.6 | | | 20.4 | 32.1 | | 20.4 | 20.4 |
| Effective Green, g (s) | 8.5 | 66.4 | | 12.2 | 70.1 | | | 20.9 | 33.1 | | 20.9 | 20.9 |
| Actuated g/C Ratio | 0.07 | 0.58 | | 0.11 | 0.61 | | | 0.18 | 0.29 | | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | | | 5.5 | 5.0 | | 5.5 | 5.5 |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | | | 2.5 | 2.5 | | 2.5 | 2.5 |
| Lane Grp Cap (vph) | 133 | 2363 | | 372 | 3013 | | | 168 | 460 | | 245 | 287 |
| v/s Ratio Prot | 0.03 | c0.36 | | c0.07 | 0.33 | | | | 0.06 | | | |
| v/s Ratio Perm | | | | | | | | 0.09 | 0.10 | | c0.15 | 0.01 |
| v/c Ratio | 0.38 | 0.62 | | 0.70 | 0.54 | | | 0.50 | 0.55 | | 0.81 | 0.04 |
| Uniform Delay, d1 | 50.8 | 16.0 | | 49.7 | 13.1 | | | 42.3 | 34.6 | | 45.1 | 38.8 |
| Progression Factor | 0.84 | 0.72 | | 0.98 | 0.68 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 1.0 | | 4.4 | 0.6 | | | 1.7 | 1.1 | | 17.1 | 0.0 |
| Delay (s) | 43.8 | 12.5 | | 52.9 | 9.4 | | | 44.0 | 35.8 | | 62.2 | 38.8 |
| Level of Service | D | B | | D | A | | | D | D | | E | D |
| Approach Delay (s) | | 13.6 | | | 15.5 | | | 37.8 | | | 56.5 | |
| Approach LOS | | B | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 70.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 1785 | 1847 | 48 | 0 | 15 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 0 | 1840 | 1904 | 49 | 0 | 15 |
| Pedestrians | | | | | 6 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 1 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 373 | 260 | | | |
| pX, platoon unblocked | 0.83 | | | | 0.88 | 0.83 |
| vC, conflicting volume | 1960 | | | | 2548 | 665 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1432 | | | | 956 | 0 |
| tC, single (s) | 4.1 | | | | 6.8 | 7.4 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.5 |
| p0 queue free % | 100 | | | | 100 | 98 |
| cM capacity (veh/h) | 396 | | | | 227 | 835 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | SB 1 |
|---|---|---|---|---|---|---|---|
| Volume Total | 613 | 613 | 613 | 762 | 762 | 430 | 15 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 | 49 | 15 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 835 |
| Volume to Capacity | 0.36 | 0.36 | 0.36 | 0.45 | 0.45 | 0.25 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.4 |
| Lane LOS | | | | | | | A |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 9.4 |
| Approach LOS | | | | | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 46.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1370 | 415 | 193 | 1030 | 0 | 0 | 0 | 0 | 620 | 3 | 865 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1384 | 419 | 195 | 1040 | 0 | 0 | 0 | 0 | 626 | 3 | 874 |
| RTOR Reduction (vph) | 0 | 0 | 208 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 0 | 1384 | 211 | 195 | 1040 | 0 | 0 | 0 | 0 | 313 | 316 | 813 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 54.8 | 54.8 | 14.6 | 58.4 | | | | | 27.6 | 27.6 | 44.6 |
| Effective Green, g (s) | | 55.3 | 55.3 | 15.1 | 58.9 | | | | | 28.1 | 28.1 | 41.6 |
| Actuated g/C Ratio | | 0.48 | 0.48 | 0.13 | 0.51 | | | | | 0.24 | 0.24 | 0.36 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1996 | 754 | 235 | 1778 | | | | | 411 | 411 | 998 |
| v/s Ratio Prot | | c0.33 | | c0.11 | 0.30 | | | | | 0.19 | 0.19 | c0.29 |
| v/s Ratio Perm | | | 0.13 | | | | | | | | | |
| v/c Ratio | | 0.69 | 0.28 | 0.83 | 0.58 | | | | | 0.76 | 0.77 | 0.81 |
| Uniform Delay, d1 | | 23.2 | 17.9 | 48.7 | 19.5 | | | | | 40.3 | 40.4 | 33.2 |
| Progression Factor | | 0.71 | 0.55 | 0.74 | 1.22 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.6 | 0.8 | 19.4 | 1.3 | | | | | 7.6 | 7.9 | 5.0 |
| Delay (s) | | 18.1 | 10.6 | 55.5 | 25.2 | | | | | 47.9 | 48.3 | 38.2 |
| Level of Service | | B | B | E | C | | | | | D | D | D |
| Approach Delay (s) | | 16.4 | | | 30.0 | | | 0.0 | | | 42.4 | |
| Approach LOS | | B | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 68.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1077 | 917 | 0 | 628 | 666 | 592 | 0 | 219 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1134 | 965 | 0 | 661 | 701 | 623 | 0 | 231 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 328 | 0 | 0 | 241 | 0 | 0 | 32 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1134 | 637 | 0 | 661 | 460 | 311 | 312 | 199 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 75.4 | 75.4 | | 74.9 | 74.9 | 27.6 | 27.6 | 27.6 | | | |
| Effective Green, g (s) | | 75.9 | 75.9 | | 75.4 | 75.4 | 28.1 | 28.1 | 28.1 | | | |
| Actuated g/C Ratio | | 0.66 | 0.66 | | 0.66 | 0.66 | 0.24 | 0.24 | 0.24 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2359 | 1778 | | 2343 | 1038 | 395 | 395 | 381 | | | |
| v/s Ratio Prot | | c0.32 | | | 0.18 | | 0.19 | c0.19 | | | | |
| v/s Ratio Perm | | | 0.24 | | | 0.29 | | | 0.13 | | | |
| v/c Ratio | | 0.48 | 0.36 | | 0.28 | 0.44 | 0.79 | 0.79 | 0.52 | | | |
| Uniform Delay, d1 | | 9.7 | 8.7 | | 8.4 | 9.6 | 40.7 | 40.7 | 37.6 | | | |
| Progression Factor | | 1.39 | 6.09 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.5 | 0.4 | | 0.3 | 1.4 | 9.5 | 9.6 | 0.8 | | | |
| Delay (s) | | 14.0 | 53.5 | | 8.7 | 11.0 | 50.1 | 50.3 | 38.5 | | | |
| Level of Service | | B | D | | A | B | D | D | D | | | |
| Approach Delay (s) | | 32.2 | | | 9.9 | | | 47.0 | | | 0.0 | |
| Approach LOS | | C | | | A | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 67.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 524 | 560 | 57 | 15 | 692 | 101 | 103 | 11 | 12 | 101 | 11 | 322 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.99 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 3502 | 3483 | | 1805 | 3502 | | | 1768 | 1593 | | 1799 | 1594 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.66 | 1.00 | | 0.66 | 1.00 |
| Satd. Flow (perm) | 3502 | 3483 | | 1805 | 3502 | | | 1229 | 1593 | | 1249 | 1594 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 546 | 583 | 59 | 16 | 721 | 105 | 107 | 11 | 12 | 105 | 11 | 335 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 0 | 0 | 282 |
| Lane Group Flow (vph) | 546 | 637 | 0 | 16 | 816 | 0 | 0 | 118 | 2 | 0 | 116 | 53 |
| Confl. Peds. (#/hr) | 8 | | 2 | 2 | | 8 | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 13.9 | 36.2 | | 0.8 | 23.1 | | | 9.8 | 9.8 | | 9.8 | 9.8 |
| Effective Green, g (s) | 14.4 | 36.7 | | 1.3 | 23.6 | | | 10.3 | 10.3 | | 10.3 | 10.3 |
| Actuated g/C Ratio | 0.22 | 0.57 | | 0.02 | 0.36 | | | 0.16 | 0.16 | | 0.16 | 0.16 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 778 | 1973 | | 36 | 1275 | | | 195 | 253 | | 199 | 253 |
| v/s Ratio Prot | c0.16 | 0.18 | | 0.01 | c0.23 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.09 | 0.03 |
| v/c Ratio | 0.70 | 0.32 | | 0.44 | 0.64 | | | 0.61 | 0.01 | | 0.58 | 0.21 |
| Uniform Delay, d1 | 23.2 | 7.5 | | 31.4 | 17.1 | | | 25.4 | 22.9 | | 25.3 | 23.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.5 | 0.1 | | 5.6 | 0.9 | | | 4.3 | 0.0 | | 3.3 | 0.2 |
| Delay (s) | 25.8 | 7.5 | | 37.0 | 18.0 | | | 29.6 | 23.0 | | 28.5 | 24.0 |
| Level of Service | C | A | | D | B | | | C | C | | C | C |
| Approach Delay (s) | | 15.9 | | | 18.4 | | | 29.0 | | | 25.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 64.8 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 69 | 1140 | 141 | 0 | 1119 | 0 | 100 | 221 | 216 | 129 | 382 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3428 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3463 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3428 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3463 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 73 | 1213 | 150 | 0 | 1190 | 0 | 106 | 235 | 230 | 137 | 406 | 94 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 108 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 73 | 1357 | 0 | 0 | 1190 | 0 | 106 | 235 | 122 | 137 | 480 | 0 |
| Confl. Peds. (#/hr) | | | | | | 6 | | | 23 | | | 3 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.4 | 67.3 | | | 54.9 | | 10.6 | 17.7 | 17.7 | 13.0 | 20.1 | |
| Effective Green, g (s) | 7.9 | 67.8 | | | 55.4 | | 11.1 | 18.2 | 18.2 | 13.5 | 20.6 | |
| Actuated g/C Ratio | 0.07 | 0.59 | | | 0.48 | | 0.10 | 0.16 | 0.16 | 0.12 | 0.18 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 118 | 2021 | | | 1656 | | 171 | 295 | 243 | 210 | 620 | |
| v/s Ratio Prot | 0.04 | c0.40 | | | c0.35 | | 0.06 | c0.13 | | 0.08 | c0.14 | |
| v/s Ratio Perm | | | | | | | | | 0.08 | | | |
| v/c Ratio | 0.62 | 0.67 | | | 0.72 | | 0.62 | 0.80 | 0.50 | 0.65 | 0.77 | |
| Uniform Delay, d1 | 52.1 | 16.0 | | | 23.6 | | 49.9 | 46.6 | 44.3 | 48.5 | 45.0 | |
| Progression Factor | 1.00 | 1.00 | | | 0.46 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 6.6 | 1.8 | | | 2.4 | | 6.5 | 13.0 | 0.6 | 7.1 | 5.5 | |
| Delay (s) | 58.7 | 17.8 | | | 13.3 | | 56.5 | 59.6 | 44.9 | 55.6 | 50.5 | |
| Level of Service | E | B | | | B | | E | E | D | E | D | |
| Approach Delay (s) | | 19.9 | | | 13.3 | | | 53.1 | | | 51.6 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

## Intersection: 12: Tualatin Sherwood Rd & I-5 SB Ramps

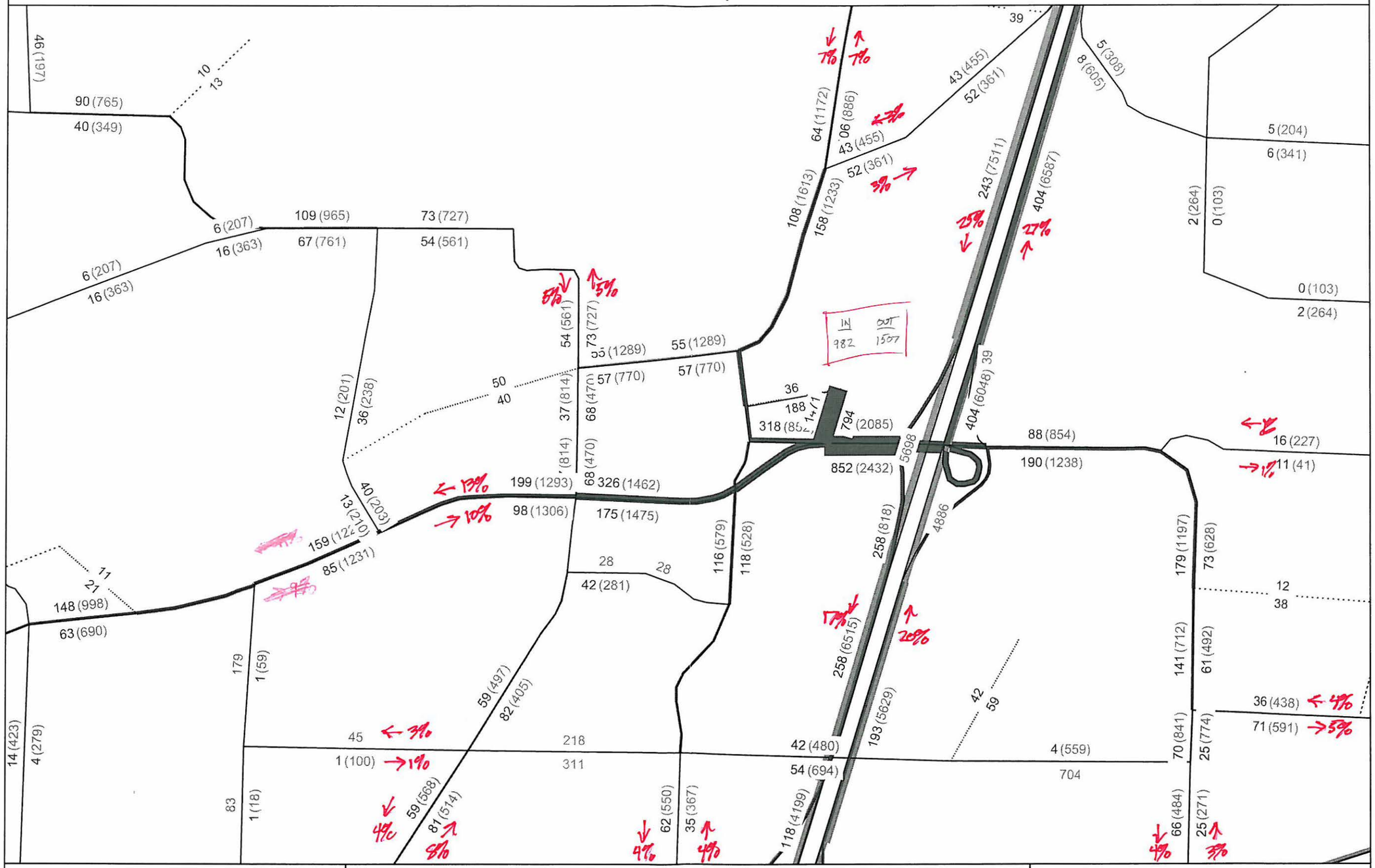
| Movement | EB | EB | EB | EB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | T | R | L | T | T | L | LT | R | R |
| Maximum Queue (ft) | 187 | 219 | 211 | 107 | 391 | 526 | 506 | 275 | 592 | 473 | 336 |
| Average Queue (ft) | 137 | 147 | 148 | 8 | 191 | 283 | 312 | 185 | 295 | 210 | 120 |
| 95th Queue (ft) | 209 | 216 | 215 | 47 | 324 | 418 | 437 | 285 | 540 | 396 | 270 |
| Link Distance (ft) | 169 | 169 | 169 | 169 | 625 | 625 | 625 | | 1146 | 1146 | |
| Upstream Blk Time (%) | 5 | 6 | 6 | 0 | | | | | | | |
| Queuing Penalty (veh) | 22 | 25 | 26 | 0 | | | | | | | |
| Storage Bay Dist (ft) | | | | | | | | 200 | | | 700 |
| Storage Blk Time (%) | | | | | | | | 4 | 19 | 0 | 0 |
| Queuing Penalty (veh) | | | | | | | | 12 | 60 | 1 | 0 |

## Intersection: 13: Tualatin Sherwood Rd & I-5 NB Ramps

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | B33 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | R | T | T | R | L | LT | R | T |
| Maximum Queue (ft) | 474 | 446 | 57 | 55 | 269 | 381 | 223 | 323 | 444 | 296 | 61 |
| Average Queue (ft) | 289 | 252 | 2 | 2 | 104 | 138 | 19 | 174 | 232 | 101 | 4 |
| 95th Queue (ft) | 442 | 397 | 44 | 43 | 209 | 265 | 120 | 275 | 372 | 229 | 51 |
| Link Distance (ft) | 625 | 625 | 625 | 625 | 459 | 459 | | | 467 | | 253 |
| Upstream Blk Time (%) | | | | | | 0 | | | 0 | | 0 |
| Queuing Penalty (veh) | | | | | | 1 | | | 0 | | 0 |
| Storage Bay Dist (ft) | | | | | | | 150 | 300 | | 225 | |
| Storage Blk Time (%) | | | | | | 5 | | 0 | 8 | 0 | |
| Queuing Penalty (veh) | | | | | | 33 | | 1 | 41 | 1 | |

# Appendix F
# Year 2014 Total Traffic Operations Worksheets

# 2010 Network: Select Zone Vehicles (Total PM Peak 1-Hour Vehicles)




| | | |
|---|---|---|
| Washington County | Westside Focus Model | 2010 Existing Network |
| Steve L Kelley | 2010_PM2veh_SZ_Tualatin.ver | 15.06.2012 |

# HCM Signalized Intersection Capacity Analysis
## 1: Lower Boones Ferry Road & SW Upper Boones Ferry Road

4/15/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1 | 7 | 9 | 479 | 7 | 40 | 0 | 504 | 567 | 59 | 697 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 3.5 | | 3.5 | 3.5 | | | 4.0 | 3.5 | 3.5 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.92 | | 1.00 | 0.95 | | | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | 1.00 | 0.87 | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1596 | | 1787 | 1574 | | | 1900 | 1570 | 1805 | 1900 | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1596 | | 1787 | 1574 | | | 1900 | 1570 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1 | 7 | 9 | 504 | 7 | 42 | 0 | 531 | 597 | 62 | 734 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 26 | 0 | 0 | 0 | 158 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 8 | 0 | 504 | 23 | 0 | 0 | 531 | 439 | 62 | 735 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Split | | | Split | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | 4 | 5 | 2 | |
| Permitted Phases | | | | | | | | | 6 | | | |
| Actuated Green, G (s) | | 1.7 | | 31.9 | 31.9 | | | 29.5 | 61.4 | 5.3 | 38.8 | |
| Effective Green, g (s) | | 2.2 | | 32.4 | 32.4 | | | 30.0 | 62.4 | 5.8 | 39.3 | |
| Actuated g/C Ratio | | 0.03 | | 0.38 | 0.38 | | | 0.35 | 0.73 | 0.07 | 0.46 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | 4.5 | 4.0 | 4.0 | 4.5 | |
| Vehicle Extension (s) | | 2.5 | | 2.2 | 2.2 | | | 3.5 | 2.2 | 2.2 | 3.5 | |
| Lane Grp Cap (vph) | | 41 | | 682 | 601 | | | 671 | 1154 | 123 | 880 | |
| v/s Ratio Prot | | c0.01 | | c0.28 | 0.01 | | | 0.28 | 0.15 | 0.03 | c0.39 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | |
| v/c Ratio | | 0.20 | | 0.74 | 0.04 | | | 0.79 | 0.38 | 0.50 | 0.84 | |
| Uniform Delay, d1 | | 40.5 | | 22.6 | 16.5 | | | 24.6 | 4.1 | 38.2 | 20.0 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.8 | | 3.8 | 0.0 | | | 6.5 | 0.1 | 1.7 | 7.1 | |
| Delay (s) | | 42.2 | | 26.4 | 16.5 | | | 31.2 | 4.2 | 39.8 | 27.0 | |
| Level of Service | | D | | C | B | | | C | A | D | C | |
| Approach Delay (s) | | 42.2 | | | 25.5 | | | 16.9 | | | 28.0 | |
| Approach LOS | | D | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 84.9 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 410 | 844 | 200 | 298 | 453 | 365 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 | 3.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3467 | 1590 | 1900 | 1574 | 1805 | 1900 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3467 | 1590 | 1900 | 1574 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 432 | 888 | 211 | 314 | 477 | 384 |
| RTOR Reduction (vph) | 0 | 182 | 0 | 75 | 0 | 0 |
| Lane Group Flow (vph) | 432 | 706 | 211 | 239 | 477 | 384 |
| Confl. Peds. (#/hr) | 7 | 15 | | 8 | 8 | |
| Heavy Vehicles (%) | 1% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | | pm+ov | | pm+ov | Prot | |
| Protected Phases | 8 | 1 | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 11.4 | 32.2 | 10.7 | 22.1 | 20.8 | 35.0 |
| Effective Green, g (s) | 11.9 | 33.2 | 11.2 | 23.1 | 21.3 | 35.5 |
| Actuated g/C Ratio | 0.22 | 0.61 | 0.21 | 0.42 | 0.39 | 0.65 |
| Clearance Time (s) | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 2.0 | 5.0 | 3.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 758 | 1073 | 391 | 668 | 707 | 1240 |
| v/s Ratio Prot | 0.12 | c0.26 | c0.11 | 0.08 | 0.26 | 0.20 |
| v/s Ratio Perm | | 0.19 | | 0.07 | | |
| v/c Ratio | 0.57 | 0.66 | 0.54 | 0.36 | 0.67 | 0.31 |
| Uniform Delay, d1 | 19.0 | 6.9 | 19.3 | 10.6 | 13.7 | 4.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 1.1 | 2.6 | 0.3 | 2.0 | 0.1 |
| Delay (s) | 20.0 | 8.0 | 21.9 | 10.9 | 15.7 | 4.2 |
| Level of Service | B | A | C | B | B | A |
| Approach Delay (s) | 11.9 | | 15.4 | | | 10.6 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 54.4 | Sum of lost time (s) | 6.5 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 664 | 185 | 453 | 930 | 335 | 415 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1571 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1571 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 699 | 195 | 477 | 979 | 353 | 437 |
| RTOR Reduction (vph) | 0 | 65 | 0 | 0 | 0 | 33 |
| Lane Group Flow (vph) | 699 | 130 | 477 | 979 | 353 | 404 |
| Confl. Peds. (#/hr) | | 7 | 7 | | 7 | 8 |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 41.2 | 41.2 | 31.8 | 78.0 | 24.1 | 55.9 |
| Effective Green, g (s) | 41.7 | 41.7 | 32.3 | 78.5 | 24.6 | 56.9 |
| Actuated g/C Ratio | 0.37 | 0.37 | 0.29 | 0.70 | 0.22 | 0.51 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 693 | 595 | 515 | 1292 | 388 | 860 |
| v/s Ratio Prot | c0.38 | 0.08 | c0.27 | 0.53 | c0.20 | 0.14 |
| v/s Ratio Perm | | | | | | 0.12 |
| v/c Ratio | 1.01 | 0.22 | 0.93 | 0.76 | 0.91 | 0.47 |
| Uniform Delay, d1 | 35.2 | 24.1 | 38.7 | 10.7 | 42.7 | 17.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 36.3 | 0.2 | 22.7 | 2.6 | 24.5 | 0.4 |
| Delay (s) | 71.5 | 24.2 | 61.5 | 13.3 | 67.2 | 18.2 |
| Level of Service | E | C | E | B | E | B |
| Approach Delay (s) | 61.2 | | | 29.1 | 40.1 | |
| Approach LOS | E | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 112.1 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 89.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 53 | 166 | 582 | 93 | 202 | 434 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 58 | 180 | 633 | 101 | 220 | 472 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 477 | | | 306 |
| pX, platoon unblocked | 0.91 | 0.91 | | | 0.91 | |
| vC, conflicting volume | 1594 | 683 | | | 734 | |
| vC1, stage 1 conf vol | 683 | | | | | |
| vC2, stage 2 conf vol | 911 | | | | | |
| vCu, unblocked vol | 1603 | 604 | | | 660 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 77 | 60 | | | 74 | |
| cM capacity (veh/h) | 253 | 454 | | | 847 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 58 | 180 | 734 | 220 | 472 |
| Volume Left | 58 | 0 | 0 | 220 | 0 |
| Volume Right | 0 | 180 | 101 | 0 | 0 |
| cSH | 253 | 454 | 1700 | 847 | 1700 |
| Volume to Capacity | 0.23 | 0.40 | 0.43 | 0.26 | 0.28 |
| Queue Length 95th (ft) | 21 | 47 | 0 | 26 | 0 |
| Control Delay (s) | 23.3 | 18.0 | 0.0 | 10.7 | 0.0 |
| Lane LOS | C | C | | B | |
| Approach Delay (s) | 19.3 | | 0.0 | 3.4 | |
| Approach LOS | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.2 | | |
| Intersection Capacity Utilization | 60.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 40 | 80 | 85 | 642 | 446 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 44 | 88 | 93 | 705 | 490 | 55 |
| Pedestrians | 5 | | | 16 | 26 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 1 | 2 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 316 | 467 | |
| pX, platoon unblocked | 0.89 | | | | | |
| vC, conflicting volume | 1441 | 539 | 550 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1434 | 539 | 550 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 63 | 84 | 91 | | | |
| cM capacity (veh/h) | 118 | 537 | 1026 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 132 | 93 | 705 | 545 |
| Volume Left | 44 | 93 | 0 | 0 |
| Volume Right | 88 | 0 | 0 | 55 |
| cSH | 245 | 1026 | 1700 | 1700 |
| Volume to Capacity | 0.54 | 0.09 | 0.41 | 0.32 |
| Queue Length 95th (ft) | 72 | 7 | 0 | 0 |
| Control Delay (s) | 35.5 | 8.9 | 0.0 | 0.0 |
| Lane LOS | E | A | | |
| Approach Delay (s) | 35.5 | 1.0 | | 0.0 |
| Approach LOS | E | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.7 | | |
| Intersection Capacity Utilization | 51.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 32 | 695 | 6 | 10 | 517 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 0 | 35 | 764 | 7 | 11 | 568 |
| Pedestrians | 26 | | | | | 25 |
| Lane Width (ft) | 12.0 | | | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | | | | 4.0 |
| Percent Blockage | 2 | | | | | 2 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 223 | | | 560 |
| pX, platoon unblocked | 0.85 | 0.85 | | | 0.85 | |
| vC, conflicting volume | 1099 | 818 | | | 796 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1029 | 699 | | | 674 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 89 | | | 99 | |
| cM capacity (veh/h) | 188 | 312 | | | 761 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 35 | 770 | 200 | 379 |
| Volume Left | 0 | 0 | 11 | 0 |
| Volume Right | 35 | 7 | 0 | 0 |
| cSH | 312 | 1700 | 761 | 1700 |
| Volume to Capacity | 0.11 | 0.45 | 0.01 | 0.22 |
| Queue Length 95th (ft) | 9 | 0 | 1 | 0 |
| Control Delay (s) | 18.0 | 0.0 | 0.7 | 0.0 |
| Lane LOS | C | | A | |
| Approach Delay (s) | 18.0 | 0.0 | 0.2 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.6 | | |
| Intersection Capacity Utilization | 53.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 12 | 682 | 0 | 0 | 509 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Hourly flow rate (vph) | 0 | 13 | 766 | 0 | 0 | 572 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 101 | | | 682 |
| pX, platoon unblocked | 0.84 | 0.84 | | | 0.84 | |
| vC, conflicting volume | 1052 | 766 | | | 766 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 970 | 632 | | | 632 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 96 | | | 100 | |
| cM capacity (veh/h) | 212 | 358 | | | 800 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 13 | 766 | 286 | 286 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 13 | 0 | 0 | 0 |
| cSH | 358 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.45 | 0.17 | 0.17 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 0 |
| Control Delay (s) | 15.5 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | | | |
| Approach Delay (s) | 15.5 | 0.0 | 0.0 | |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 45.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 10 | 100 | 357 | 55 | 337 | 27 | 315 | 26 | 0 | 499 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1626 | | 1698 | 1728 | 1533 | 1682 | 1855 | | | 3563 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.40 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1626 | | 1698 | 1728 | 1533 | 701 | 1855 | | | 3563 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 32 | 11 | 110 | 392 | 60 | 370 | 30 | 346 | 29 | 0 | 548 | 11 |
| RTOR Reduction (vph) | 0 | 96 | 0 | 0 | 0 | 276 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 32 | 25 | 0 | 223 | 229 | 94 | 30 | 371 | 0 | 0 | 557 | 0 |
| Confl. Peds. (#/hr) | 10 | | | | | 10 | 6 | | 19 | 19 | | 6 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 4.8 | 4.8 | | 10.3 | 10.3 | 10.3 | 13.7 | 13.7 | | | 13.7 | |
| Effective Green, g (s) | 5.3 | 5.3 | | 10.8 | 10.8 | 10.8 | 14.2 | 14.2 | | | 14.2 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | 0.26 | 0.26 | 0.26 | 0.34 | 0.34 | | | 0.34 | |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 226 | 204 | | 434 | 441 | 391 | 235 | 623 | | | 1196 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.13 | c0.13 | | | c0.20 | | | 0.16 | |
| v/s Ratio Perm | | | | | | 0.06 | 0.04 | | | | | |
| v/c Ratio | 0.14 | 0.12 | | 0.51 | 0.52 | 0.24 | 0.13 | 0.60 | | | 0.47 | |
| Uniform Delay, d1 | 16.5 | 16.4 | | 13.5 | 13.5 | 12.5 | 9.8 | 11.7 | | | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 0.8 | 0.8 | 0.2 | 0.5 | 2.3 | | | 0.6 | |
| Delay (s) | 16.7 | 16.6 | | 14.3 | 14.3 | 12.7 | 10.3 | 14.0 | | | 11.7 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 16.6 | | | 13.6 | | | 13.7 | | | 11.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 42.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 35 | 0 | 648 | 51 | 0 | 100 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 40 | 0 | 736 | 58 | 0 | 114 |
| Pedestrians | | | | | 5 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 278 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 799 | | | | 850 | 402 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 799 | | | | 850 | 402 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 95 | | | | 100 | 81 |
| cM capacity (veh/h) | 829 | | | | 288 | 601 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 40 | 491 | 303 | 114 |
| Volume Left | 40 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 58 | 114 |
| cSH | 829 | 1700 | 1700 | 601 |
| Volume to Capacity | 0.05 | 0.29 | 0.18 | 0.19 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 17 |
| Control Delay (s) | 9.6 | 0.0 | 0.0 | 12.4 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 9.6 | 0.0 | | 12.4 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 32.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 99 | 1899 | 40 | 232 | 1694 | 251 | 36 | 10 | 236 | 323 | 24 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | 6.0 | | 5.0 | 4.5 | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 | 1.00 | 0.97 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.96 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4100 | | 3502 | 4988 | 1545 | | 1786 | 1599 | 3502 | 1622 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.96 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4100 | | 3502 | 4988 | 1545 | | 1786 | 1599 | 3502 | 1622 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 101 | 1938 | 41 | 237 | 1729 | 256 | 37 | 10 | 241 | 330 | 24 | 115 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 99 | 0 |
| Lane Group Flow (vph) | 101 | 1978 | 0 | 237 | 1729 | 130 | 0 | 47 | 241 | 330 | 40 | 0 |
| Confl. Peds. (#/hr) | | | 2 | | | 8 | | | | | | 15 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | pt+ov | Split | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | 1 8 | 4 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | |
| Actuated Green, G (s) | 14.1 | 61.1 | | 16.1 | 63.1 | 63.1 | | 8.6 | 24.7 | 16.7 | 16.7 | |
| Effective Green, g (s) | 14.6 | 61.6 | | 16.6 | 63.6 | 63.6 | | 9.1 | 25.7 | 17.2 | 17.2 | |
| Actuated g/C Ratio | 0.12 | 0.49 | | 0.13 | 0.51 | 0.51 | | 0.07 | 0.21 | 0.14 | 0.14 | |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | 6.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | 4.0 | | 2.5 | | 2.5 | 2.5 | |
| Lane Grp Cap (vph) | 211 | 2020 | | 465 | 2538 | 786 | | 130 | 329 | 482 | 223 | |
| v/s Ratio Prot | 0.06 | c0.48 | | 0.07 | 0.35 | | | 0.03 | c0.15 | c0.09 | 0.02 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | |
| v/c Ratio | 0.48 | 0.98 | | 0.51 | 0.68 | 0.17 | | 0.36 | 0.73 | 0.68 | 0.18 | |
| Uniform Delay, d1 | 51.6 | 31.1 | | 50.4 | 23.1 | 16.5 | | 55.2 | 46.4 | 51.3 | 47.7 | |
| Progression Factor | 0.88 | 0.56 | | 1.04 | 0.86 | 1.12 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 9.4 | | 0.4 | 1.0 | 0.3 | | 1.2 | 7.7 | 3.7 | 0.3 | |
| Delay (s) | 46.2 | 26.6 | | 53.0 | 20.9 | 18.7 | | 56.4 | 54.2 | 55.0 | 47.9 | |
| Level of Service | D | C | | D | C | B | | E | D | D | D | |
| Approach Delay (s) | | 27.6 | | | 24.1 | | | 54.5 | | | 52.9 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 81.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1590 | 875 | 123 | 1063 | 0 | 0 | 0 | 0 | 659 | 5 | 1111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1606 | 884 | 124 | 1074 | 0 | 0 | 0 | 0 | 666 | 5 | 1122 |
| RTOR Reduction (vph) | 0 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 0 | 1606 | 408 | 124 | 1074 | 0 | 0 | 0 | 0 | 333 | 338 | 1099 |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 56.5 | 56.5 | 11.1 | 51.5 | | | | | 39.4 | 39.4 | 61.5 |
| Effective Green, g (s) | | 57.0 | 57.0 | 11.6 | 52.0 | | | | | 39.9 | 39.9 | 62.0 |
| Actuated g/C Ratio | | 0.46 | 0.46 | 0.09 | 0.42 | | | | | 0.32 | 0.32 | 0.50 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1892 | 715 | 166 | 1444 | | | | | 537 | 537 | 1369 |
| v/s Ratio Prot | | c0.39 | | 0.07 | c0.31 | | | | | 0.20 | 0.20 | c0.40 |
| v/s Ratio Perm | | | 0.26 | | | | | | | | | |
| v/c Ratio | | 0.85 | 0.57 | 0.75 | 0.74 | | | | | 0.62 | 0.63 | 0.80 |
| Uniform Delay, d1 | | 30.2 | 25.0 | 55.3 | 30.9 | | | | | 36.1 | 36.3 | 26.4 |
| Progression Factor | | 0.50 | 2.46 | 0.79 | 0.64 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.5 | 1.6 | 14.5 | 3.3 | | | | | 1.8 | 1.9 | 3.4 |
| Delay (s) | | 17.6 | 63.1 | 58.3 | 23.1 | | | | | 37.9 | 38.1 | 29.8 |
| Level of Service | | B | E | E | C | | | | | D | D | C |
| Approach Delay (s) | | 33.7 | | | 26.8 | | | 0.0 | | | 32.8 | |
| Approach LOS | | C | | | C | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1216 | 1031 | 0 | 511 | 682 | 675 | 5 | 177 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.96 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1280 | 1085 | 0 | 538 | 718 | 711 | 5 | 186 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 352 | 0 | 0 | 263 | 0 | 0 | 21 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1280 | 733 | 0 | 538 | 455 | 355 | 361 | 165 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | 16 | | | 17 | | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 79.3 | 79.3 | | 78.8 | 78.8 | 33.7 | 33.7 | 33.7 | | | |
| Effective Green, g (s) | | 79.8 | 79.8 | | 79.3 | 79.3 | 34.2 | 34.2 | 34.2 | | | |
| Actuated g/C Ratio | | 0.64 | 0.64 | | 0.63 | 0.63 | 0.27 | 0.27 | 0.27 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2282 | 1762 | | 2267 | 953 | 443 | 443 | 414 | | | |
| v/s Ratio Prot | | c0.36 | | | 0.15 | | 0.22 | c0.22 | | | | |
| v/s Ratio Perm | | | 0.27 | | | 0.30 | | | 0.11 | | | |
| v/c Ratio | | 0.56 | 0.42 | | 0.24 | 0.48 | 0.80 | 0.81 | 0.40 | | | |
| Uniform Delay, d1 | | 12.7 | 11.1 | | 9.8 | 12.0 | 42.2 | 42.4 | 37.0 | | | |
| Progression Factor | | 0.72 | 1.20 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.7 | 0.5 | | 0.2 | 1.7 | 9.6 | 10.6 | 0.4 | | | |
| Delay (s) | | 9.9 | 13.8 | | 10.1 | 13.7 | 51.9 | 53.1 | 37.4 | | | |
| Level of Service | | A | B | | B | B | D | D | D | | | |
| Approach Delay (s) | | 11.7 | | | 12.2 | | | 49.4 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 995 | 61 | 10 | 834 | 80 | 112 | 7 | 17 | 81 | 5 | 191 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 3502 | 3504 | | 1805 | 3525 | | | 1761 | 1590 | | 1793 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.67 | 1.00 | | 0.65 | 1.00 |
| Satd. Flow (perm) | 3502 | 3504 | | 1805 | 3525 | | | 1243 | 1590 | | 1221 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 302 | 1036 | 64 | 10 | 869 | 83 | 117 | 7 | 18 | 84 | 5 | 199 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 165 |
| Lane Group Flow (vph) | 302 | 1097 | 0 | 10 | 945 | 0 | 0 | 124 | 3 | 0 | 89 | 34 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 9.0 | 33.1 | | 0.7 | 24.8 | | | 10.2 | 10.2 | | 10.2 | 10.2 |
| Effective Green, g (s) | 9.5 | 33.6 | | 1.2 | 25.3 | | | 10.7 | 10.7 | | 10.7 | 10.7 |
| Actuated g/C Ratio | 0.15 | 0.54 | | 0.02 | 0.41 | | | 0.17 | 0.17 | | 0.17 | 0.17 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 537 | 1899 | | 35 | 1438 | | | 215 | 274 | | 211 | 275 |
| v/s Ratio Prot | c0.09 | c0.31 | | 0.01 | c0.27 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.07 | 0.02 |
| v/c Ratio | 0.56 | 0.58 | | 0.29 | 0.66 | | | 0.58 | 0.01 | | 0.42 | 0.12 |
| Uniform Delay, d1 | 24.3 | 9.5 | | 30.0 | 14.8 | | | 23.6 | 21.3 | | 22.9 | 21.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.4 | | 2.9 | 1.0 | | | 2.9 | 0.0 | | 0.8 | 0.1 |
| Delay (s) | 25.3 | 9.8 | | 32.9 | 15.8 | | | 26.5 | 21.3 | | 23.7 | 21.8 |
| Level of Service | C | A | | C | B | | | C | C | | C | C |
| Approach Delay (s) | | 13.2 | | | 16.0 | | | 25.8 | | | 22.4 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 62.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 221 | 943 | 26 | 24 | 775 | 16 | 17 | 9 | 45 | 5 | 7 | 139 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 5.6 | 5.6 | | 5.3 | 4.8 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1848 | 1609 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.69 | 1.00 |
| Satd. Flow (perm) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1304 | 1609 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 230 | 982 | 27 | 25 | 807 | 17 | 18 | 9 | 47 | 5 | 7 | 145 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 44 | 0 | 0 | 116 |
| Lane Group Flow (vph) | 230 | 1009 | 0 | 25 | 823 | 0 | 0 | 27 | 3 | 0 | 12 | 29 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Perm | | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | | | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 11.5 | 48.8 | | 1.7 | 39.0 | | | 4.1 | 4.1 | | 3.6 | 15.1 |
| Effective Green, g (s) | 12.0 | 49.3 | | 2.2 | 39.5 | | | 4.6 | 4.6 | | 4.1 | 16.1 |
| Actuated g/C Ratio | 0.15 | 0.61 | | 0.03 | 0.49 | | | 0.06 | 0.06 | | 0.05 | 0.20 |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | | | 6.1 | 6.1 | | 5.8 | 5.3 |
| Vehicle Extension (s) | 2.5 | 3.0 | | 1.0 | 3.0 | | | 1.0 | 1.0 | | 2.0 | 2.5 |
| Lane Grp Cap (vph) | 268 | 1133 | | 49 | 1743 | | | 103 | 87 | | 66 | 321 |
| v/s Ratio Prot | c0.13 | c0.54 | | 0.01 | 0.23 | | | c0.01 | | | | 0.01 |
| v/s Ratio Perm | | | | | | | | | 0.00 | | c0.01 | 0.00 |
| v/c Ratio | 0.86 | 0.89 | | 0.51 | 0.47 | | | 0.26 | 0.03 | | 0.18 | 0.09 |
| Uniform Delay, d1 | 33.5 | 13.4 | | 38.7 | 13.7 | | | 36.4 | 35.9 | | 36.7 | 26.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.5 | 9.0 | | 3.7 | 0.2 | | | 0.5 | 0.1 | | 0.5 | 0.1 |
| Delay (s) | 56.1 | 22.4 | | 42.4 | 13.9 | | | 36.9 | 36.0 | | 37.2 | 26.4 |
| Level of Service | E | C | | D | B | | | D | D | | D | C |
| Approach Delay (s) | | 28.6 | | | 14.7 | | | 36.3 | | | 27.2 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 80.7 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 76.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 103 | 1035 | 138 | 234 | 1103 | 56 | 171 | 268 | 169 | 297 | 345 | 133 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | 4.5 | 5.5 | | 4.5 | 5.0 | 4.5 | 4.5 | 5.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1703 | 3320 | | 3502 | 3339 | | 1732 | 1810 | 1543 | 1761 | 3313 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.41 | 1.00 | 1.00 | 0.59 | 1.00 | |
| Satd. Flow (perm) | 1703 | 3320 | | 3502 | 3339 | | 744 | 1810 | 1543 | 1099 | 3313 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 104 | 1045 | 139 | 236 | 1114 | 57 | 173 | 271 | 171 | 300 | 348 | 134 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 55 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 104 | 1177 | 0 | 236 | 1168 | 0 | 173 | 271 | 116 | 300 | 448 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 6% | 7% | 3% | 0% | 7% | 6% | 4% | 5% | 3% | 2% | 4% | 3% |
| Turn Type | Prot | | | Prot | | | pm+pt | | pm+ov | pm+pt | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Actuated Green, G (s) | 10.0 | 54.6 | | 10.7 | 55.3 | | 21.2 | 21.2 | 31.9 | 27.3 | 26.8 | |
| Effective Green, g (s) | 10.5 | 55.1 | | 11.2 | 55.8 | | 21.7 | 21.7 | 32.9 | 27.8 | 27.3 | |
| Actuated g/C Ratio | 0.08 | 0.44 | | 0.09 | 0.45 | | 0.17 | 0.17 | 0.26 | 0.22 | 0.22 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | 2.0 | 3.5 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lane Grp Cap (vph) | 143 | 1463 | | 314 | 1491 | | 223 | 314 | 406 | 337 | 724 | |
| v/s Ratio Prot | 0.06 | c0.35 | | 0.07 | c0.35 | | 0.07 | c0.15 | 0.03 | c0.12 | 0.14 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.05 | c0.07 | | |
| v/c Ratio | 0.73 | 0.80 | | 0.75 | 0.78 | | 0.78 | 0.86 | 0.29 | 0.89 | 0.62 | |
| Uniform Delay, d1 | 55.9 | 30.3 | | 55.5 | 29.5 | | 47.6 | 50.2 | 36.7 | 45.8 | 44.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.61 | 0.96 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.4 | 4.8 | | 5.3 | 2.5 | | 14.2 | 20.3 | 0.1 | 23.5 | 1.1 | |
| Delay (s) | 70.3 | 35.1 | | 39.2 | 30.9 | | 61.8 | 70.5 | 36.8 | 69.4 | 45.3 | |
| Level of Service | E | D | | D | C | | E | E | D | E | D | |
| Approach Delay (s) | | 37.9 | | | 32.3 | | | 58.7 | | | 54.5 | |
| Approach LOS | | D | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 55 | 1515 | 83 | 0 | 1146 | 0 | 95 | 312 | 333 | 194 | 673 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3448 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3448 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 59 | 1612 | 88 | 0 | 1219 | 0 | 101 | 332 | 354 | 206 | 716 | 96 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 59 | 1697 | 0 | 0 | 1219 | 0 | 101 | 332 | 274 | 206 | 802 | 0 |
| Confl. Peds. (#/hr) | | | 4 | | | 2 | | | 3 | | | 16 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.2 | 65.2 | | | 53.0 | | 9.9 | 24.1 | 24.1 | 18.7 | 32.9 | |
| Effective Green, g (s) | 7.7 | 65.7 | | | 53.5 | | 10.4 | 24.6 | 24.6 | 19.2 | 33.4 | |
| Actuated g/C Ratio | 0.06 | 0.53 | | | 0.43 | | 0.08 | 0.20 | 0.20 | 0.15 | 0.27 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 106 | 1812 | | | 1471 | | 147 | 367 | 310 | 274 | 934 | |
| v/s Ratio Prot | 0.03 | c0.49 | | | 0.35 | | 0.06 | c0.18 | | 0.12 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.17 | | | |
| v/c Ratio | 0.56 | 0.94 | | | 0.83 | | 0.69 | 0.90 | 0.88 | 0.75 | 0.86 | |
| Uniform Delay, d1 | 57.0 | 27.7 | | | 31.7 | | 55.7 | 49.1 | 48.8 | 50.6 | 43.6 | |
| Progression Factor | 1.20 | 0.74 | | | 1.09 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 8.5 | | | 4.4 | | 12.5 | 24.3 | 23.7 | 11.0 | 7.7 | |
| Delay (s) | 70.9 | 29.0 | | | 38.9 | | 68.3 | 73.4 | 72.5 | 61.7 | 51.2 | |
| Level of Service | E | C | | | D | | E | E | E | E | D | |
| Approach Delay (s) | | 30.4 | | | 38.9 | | | 72.3 | | | 53.3 | |
| Approach LOS | | C | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 89.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 23 | 10 | 240 | 0 | 244 | 2 | 334 | 369 | 433 | 474 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.6 | | | 5.3 | 5.6 | 4.8 | 4.8 | | 4.8 | 4.8 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | 0.90 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1785 | | | 1805 | 1456 | 1748 | 1719 | | 1787 | 1893 | |
| Flt Permitted | | 0.98 | | | 0.95 | 1.00 | 0.48 | 1.00 | | 0.08 | 1.00 | |
| Satd. Flow (perm) | | 1785 | | | 1805 | 1456 | 880 | 1719 | | 157 | 1893 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 24 | 10 | 250 | 0 | 254 | 2 | 348 | 384 | 451 | 494 | 10 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 240 | 0 | 25 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 52 | 0 | 0 | 250 | 14 | 2 | 707 | 0 | 451 | 504 | 0 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Split | | | Split | | custom | pm+pt | | | pm+pt | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | | | 8 | 6 | | | 2 | | |
| Actuated Green, G (s) | | 7.6 | | | 20.0 | 7.6 | 65.3 | 64.3 | | 99.6 | 93.3 | |
| Effective Green, g (s) | | 8.1 | | | 20.5 | 8.1 | 66.3 | 64.8 | | 100.1 | 93.8 | |
| Actuated g/C Ratio | | 0.06 | | | 0.14 | 0.06 | 0.46 | 0.45 | | 0.69 | 0.65 | |
| Clearance Time (s) | | 6.1 | | | 5.8 | 6.1 | 5.3 | 5.3 | | 5.3 | 5.3 | |
| Vehicle Extension (s) | | 1.0 | | | 2.0 | 1.0 | 1.0 | 3.0 | | 2.5 | 0.2 | |
| Lane Grp Cap (vph) | | 100 | | | 256 | 82 | 413 | 771 | | 453 | 1230 | |
| v/s Ratio Prot | | c0.03 | | | c0.14 | | 0.00 | 0.41 | | c0.21 | 0.27 | |
| v/s Ratio Perm | | | | | | 0.01 | 0.00 | | | c0.48 | | |
| v/c Ratio | | 0.52 | | | 0.98 | 0.17 | 0.00 | 0.92 | | 1.00 | 0.41 | |
| Uniform Delay, d1 | | 66.3 | | | 61.7 | 65.0 | 21.1 | 37.3 | | 45.6 | 12.1 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.3 | | | 49.0 | 0.4 | 0.0 | 15.5 | | 40.9 | 0.1 | |
| Delay (s) | | 68.5 | | | 110.8 | 65.3 | 21.1 | 52.8 | | 86.5 | 12.2 | |
| Level of Service | | E | | | F | E | C | D | | F | B | |
| Approach Delay (s) | | 68.5 | | | 87.9 | | | 52.7 | | | 47.2 | |
| Approach LOS | | E | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 144.4 | Sum of lost time (s) | 15.7 |
| Intersection Capacity Utilization | 96.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 42 | 117 | 13 | 166 | 122 | 64 | 16 | 486 | 218 | 65 | 571 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 4.0 | | 3.5 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1782 | 1830 | | 1781 | 1739 | | 1769 | 1789 | | 1804 | 1860 | |
| Flt Permitted | 0.64 | 1.00 | | 0.42 | 1.00 | | 0.25 | 1.00 | | 0.17 | 1.00 | |
| Satd. Flow (perm) | 1191 | 1830 | | 785 | 1739 | | 468 | 1789 | | 319 | 1860 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 44 | 123 | 14 | 175 | 128 | 67 | 17 | 512 | 229 | 68 | 601 | 79 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 16 | 0 | 0 | 11 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 44 | 133 | 0 | 175 | 179 | 0 | 17 | 730 | 0 | 68 | 677 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | pm+pt | | | pm+pt | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.3 | 12.4 | | 25.7 | 18.8 | | 47.1 | 45.6 | | 51.5 | 47.8 | |
| Effective Green, g (s) | 16.3 | 12.9 | | 26.2 | 19.3 | | 48.1 | 46.1 | | 52.5 | 48.3 | |
| Actuated g/C Ratio | 0.19 | 0.15 | | 0.30 | 0.22 | | 0.55 | 0.53 | | 0.60 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.5 | | 4.0 | 4.5 | |
| Vehicle Extension (s) | 2.2 | 2.2 | | 2.2 | 2.2 | | 2.2 | 5.0 | | 2.2 | 5.0 | |
| Lane Grp Cap (vph) | 245 | 270 | | 347 | 384 | | 287 | 943 | | 263 | 1027 | |
| v/s Ratio Prot | 0.01 | 0.07 | | c0.06 | 0.10 | | 0.00 | c0.41 | | c0.01 | 0.36 | |
| v/s Ratio Perm | 0.03 | | | c0.09 | | | 0.03 | | | 0.14 | | |
| v/c Ratio | 0.18 | 0.49 | | 0.50 | 0.47 | | 0.06 | 0.77 | | 0.26 | 0.66 | |
| Uniform Delay, d1 | 29.7 | 34.3 | | 24.1 | 29.6 | | 10.8 | 16.5 | | 11.9 | 13.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.7 | | 0.6 | 0.5 | | 0.0 | 4.7 | | 0.3 | 2.1 | |
| Delay (s) | 29.9 | 35.0 | | 24.7 | 30.1 | | 10.8 | 21.2 | | 12.2 | 15.9 | |
| Level of Service | C | D | | C | C | | B | C | | B | B | |
| Approach Delay (s) | | 33.8 | | | 27.5 | | | 21.0 | | | 15.5 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 14.5 |
| Intersection Capacity Utilization | 74.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

## Intersection: 12: Tualatin Sherwood Rd & I-5 SB Ramps

| Movement | EB | EB | EB | EB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | T | R | L | T | T | L | LT | R | R |
| Maximum Queue (ft) | 410 | 477 | 487 | 381 | 515 | 642 | 679 | 225 | 801 | 538 | 436 |
| Average Queue (ft) | 190 | 187 | 192 | 61 | 167 | 391 | 435 | 177 | 393 | 280 | 209 |
| 95th Queue (ft) | 352 | 369 | 372 | 232 | 422 | 641 | 680 | 267 | 703 | 449 | 373 |
| Link Distance (ft) | 507 | 507 | 507 | | 641 | 641 | 641 | | 1156 | 1156 | |
| Upstream Blk Time (%) | 0 | 0 | 1 | | 1 | 2 | 3 | | | | |
| Queuing Penalty (veh) | 1 | 3 | 4 | | 2 | 9 | 13 | | | | |
| Storage Bay Dist (ft) | | | | 400 | | | | 200 | | | 700 |
| Storage Blk Time (%) | | | 1 | 0 | | | | 6 | 23 | 0 | |
| Queuing Penalty (veh) | | | 6 | 0 | | | | 21 | 77 | 0 | |

## Intersection: 13: Tualatin Sherwood Rd & I-5 NB Ramps

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | R | T | T | R | L | LT | R |
| Maximum Queue (ft) | 634 | 555 | 111 | 105 | 194 | 328 | 223 | 357 | 652 | 300 |
| Average Queue (ft) | 336 | 215 | 11 | 7 | 83 | 119 | 18 | 237 | 295 | 121 |
| 95th Queue (ft) | 589 | 466 | 146 | 110 | 164 | 235 | 116 | 350 | 628 | 267 |
| Link Distance (ft) | 641 | 641 | 641 | 641 | 478 | 478 | | | 1328 | |
| Upstream Blk Time (%) | 1 | 0 | 0 | 0 | | 0 | | | 0 | |
| Queuing Penalty (veh) | 7 | 1 | 0 | 0 | | 1 | | | 0 | |
| Storage Bay Dist (ft) | | | | | | | 150 | 300 | | 225 |
| Storage Blk Time (%) | | | | | | 3 | 0 | 3 | 13 | 0 |
| Queuing Penalty (veh) | | | | | | 21 | 0 | 16 | 67 | 3 |

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/Martinazzi
Jurisdiction:
Units: U. S. Customary
Analysis Year: Total
Project ID:
East/West Street: Sagert
North/South Street: Martinazzi

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 127 | 233 | 12 | 90 | 195 | 164 | 2 | | 76 | 207 | 306 | 0 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| % Heavy Veh | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| Left-Turn | 141 | 0 | 100 | 0 | 2 | 0 | 230 | 0 |
| Right-Turn | 0 | 13 | 0 | 182 | 0 | 84 | 0 | 0 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.0 | 0.0 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.0 | 0.5 | -0.3 | 0.5 | -0.2 | 0.5 | 0.0 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.13 | 0.24 | 0.09 | 0.35 | 0.00 | 0.25 | 0.20 | 0.30 |
| hd, final value | 8.96 | 8.42 | 8.76 | 7.94 | 9.19 | 8.48 | 8.72 | 8.22 |
| x, final value | 0.35 | 0.63 | 0.24 | 0.88 | 0.01 | 0.67 | 0.56 | 0.78 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 6.7 | 6.1 | 6.5 | 5.6 | 6.9 | 6.2 | 6.4 | 5.9 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| Service Time | 6.7 | 6.1 | 6.5 | 5.6 | 6.9 | 6.2 | 6.4 | 5.9 |
| Utilization, x | 0.35 | 0.63 | 0.24 | 0.88 | 0.01 | 0.67 | 0.56 | 0.78 |
| Dep. headway, hd | 8.96 | 8.42 | 8.76 | 7.94 | 9.19 | 8.48 | 8.72 | 8.22 |
| Capacity | 391 | 418 | 350 | 450 | 252 | 413 | 407 | 433 |
| Delay | 16.42 | 24.61 | 14.25 | 45.54 | 11.93 | 26.70 | 21.85 | 34.14 |
| LOS | C | C | B | E | B | D | C | D |
| Approach: | | | | | | | | |
| Delay | 21.81 | | 39.26 | | 26.59 | | 29.18 | |
| LOS | C | | E | | D | | D | |

Intersection Delay 29.88 Intersection LOS D

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/65th
Jurisdiction:
Units: U. S. Customary
Analysis Year: Total
Project ID:
East/West Street: Sagert
North/South Street: 65th

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 401 | 2 | 135 | 2 | 7 | 6 | 58 | | 3 | 3 | 340 | 386 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| % Heavy Veh | 1 | 1 | 0 | 0 | 1 | 2 | 1 | 2 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| Left-Turn | 445 | 0 | 2 | 0 | 64 | 0 | 3 | 0 |
| Right-Turn | 0 | 150 | 0 | 6 | 0 | 3 | 0 | 428 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.7 | 0.5 | -0.3 | 0.5 | 0.0 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.40 | 0.14 | 0.00 | 0.01 | 0.06 | 0.29 | 0.00 | 0.72 |
| hd, final value | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.92 |
| x, final value | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.55 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |
| Utilization, x | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.55 |
| Dep. headway, hd | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.92 |
| Capacity | 466 | 402 | 252 | 263 | 314 | 475 | 253 | 805 |
| Delay | 58.85 | 11.71 | 11.98 | 11.37 | 12.02 | 24.33 | 10.52 | 273.87 |
| LOS | F | B | B | B | B | C | B | F |
| Approach: | | | | | | | | |
| Delay | 46.85 | | 11.45 | | 22.29 | | 272.89 | |
| LOS | E | | B | | C | | F | |

Intersection Delay 142.37 Intersection LOS F

| Movement | EBT | EBR | WBL | WBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 1051 | 10 | 0 | 1384 | 0 | 35 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1142 | 11 | 0 | 1504 | 0 | 38 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | None | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | 252 | | | | | |
| pX, platoon unblocked | | | 0.63 | | 0.63 | 0.63 |
| vC, conflicting volume | | | 1153 | | 1900 | 1148 |
| vC1, stage 1 conf vol | | | | | 1148 | |
| vC2, stage 2 conf vol | | | | | 752 | |
| vCu, unblocked vol | | | 949 | | 2136 | 940 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 77 |
| cM capacity (veh/h) | | | 453 | | 185 | 167 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NW 1 |
|---|---|---|---|---|
| Volume Total | 1153 | 752 | 752 | 38 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 11 | 0 | 0 | 38 |
| cSH | 1700 | 1700 | 1700 | 167 |
| Volume to Capacity | 0.68 | 0.44 | 0.44 | 0.23 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 21 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 32.9 |
| Lane LOS | | | | D |
| Approach Delay (s) | 0.0 | 0.0 | | 32.9 |
| Approach LOS | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 417 | 145 | 318 | 429 | 201 | 353 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1581 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1581 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 439 | 153 | 335 | 452 | 212 | 372 |
| RTOR Reduction (vph) | 0 | 105 | 0 | 0 | 0 | 96 |
| Lane Group Flow (vph) | 439 | 48 | 335 | 452 | 212 | 276 |
| Confl. Peds. (#/hr) | | 11 | 11 | | 1 | 3 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 20.4 | 20.4 | 17.3 | 42.7 | 14.1 | 31.4 |
| Effective Green, g (s) | 20.9 | 20.9 | 17.8 | 43.2 | 14.6 | 32.4 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.27 | 0.65 | 0.22 | 0.49 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 583 | 500 | 476 | 1193 | 387 | 873 |
| v/s Ratio Prot | c0.24 | 0.03 | c0.19 | 0.25 | c0.12 | 0.08 |
| v/s Ratio Perm | | | | | | 0.09 |
| v/c Ratio | 0.75 | 0.10 | 0.70 | 0.38 | 0.55 | 0.32 |
| Uniform Delay, d1 | 20.6 | 16.3 | 22.1 | 5.5 | 23.2 | 10.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 5.5 | 0.1 | 4.7 | 0.2 | 1.6 | 0.2 |
| Delay (s) | 26.1 | 16.3 | 26.8 | 5.7 | 24.8 | 10.7 |
| Level of Service | C | B | C | A | C | B |
| Approach Delay (s) | 23.6 | | | 14.7 | 15.8 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 66.8 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 62.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 62 | 157 | 396 | 77 | 202 | 257 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 67 | 171 | 430 | 84 | 220 | 279 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | TWLTL |
| Median storage veh) | | | | | | 2 |
| Upstream signal (ft) | | | 467 | | | 315 |
| pX, platoon unblocked | 1.00 | 1.00 | | | 1.00 | |
| vC, conflicting volume | 1191 | 472 | | | 514 | |
| vC1, stage 1 conf vol | 472 | | | | | |
| vC2, stage 2 conf vol | 718 | | | | | |
| vCu, unblocked vol | 1191 | 472 | | | 514 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 5.4 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 80 | 71 | | | 79 | |
| cM capacity (veh/h) | 345 | 592 | | | 1051 | |

| Direction, Lane # | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 67 | 171 | 514 | 220 | 279 |
| Volume Left | 67 | 0 | 0 | 220 | 0 |
| Volume Right | 0 | 171 | 84 | 0 | 0 |
| cSH | 345 | 592 | 1700 | 1051 | 1700 |
| Volume to Capacity | 0.20 | 0.29 | 0.30 | 0.21 | 0.16 |
| Queue Length 95th (ft) | 19 | 31 | 0 | 20 | 0 |
| Control Delay (s) | 17.9 | 13.5 | 0.0 | 9.3 | 0.0 |
| Lane LOS | C | B | | A | |
| Approach Delay (s) | 14.8 | | 0.0 | 4.1 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.4 | | |
| Intersection Capacity Utilization | 50.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 37 | 45 | 81 | 437 | 275 | 44 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 41 | 49 | 89 | 480 | 302 | 48 |
| Pedestrians | 1 | | | 4 | 10 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 1 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 307 | 475 | |
| pX, platoon unblocked | 0.97 | | | | | |
| vC, conflicting volume | 996 | 331 | 352 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 979 | 331 | 352 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 84 | 93 | 93 | | | |
| cM capacity (veh/h) | 249 | 712 | 1217 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 90 | 89 | 480 | 351 |
| Volume Left | 41 | 89 | 0 | 0 |
| Volume Right | 49 | 0 | 0 | 48 |
| cSH | 387 | 1217 | 1700 | 1700 |
| Volume to Capacity | 0.23 | 0.07 | 0.28 | 0.21 |
| Queue Length 95th (ft) | 23 | 6 | 0 | 0 |
| Control Delay (s) | 17.1 | 8.2 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 17.1 | 1.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 37.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 5 | 25 | 494 | 9 | 3 | 318 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 5 | 27 | 537 | 10 | 3 | 346 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 239 | | | 543 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 721 | 273 | | | 547 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 721 | 273 | | | 547 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 96 | | | 100 | |
| cM capacity (veh/h) | 361 | 724 | | | 1019 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 33 | 358 | 189 | 118 | 230 |
| Volume Left | 5 | 0 | 0 | 3 | 0 |
| Volume Right | 27 | 0 | 10 | 0 | 0 |
| cSH | 620 | 1700 | 1700 | 1019 | 1700 |
| Volume to Capacity | 0.05 | 0.21 | 0.11 | 0.00 | 0.14 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 11.1 | 0.0 | 0.0 | 0.3 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 11.1 | 0.0 | | 0.1 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 23.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 10 | 493 | 0 | 0 | 322 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 11 | 536 | 0 | 0 | 350 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 111 | | | 671 |
| pX, platoon unblocked | 0.89 | 0.89 | | | 0.89 | |
| vC, conflicting volume | 711 | 536 | | | 536 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 610 | 412 | | | 412 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 98 | | | 100 | |
| cM capacity (veh/h) | 378 | 522 | | | 1013 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 11 | 536 | 175 | 175 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 11 | 0 | 0 | 0 |
| cSH | 522 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.32 | 0.10 | 0.10 |
| Queue Length 95th (ft) | 2 | 0 | 0 | 0 |
| Control Delay (s) | 12.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | B | | | |
| Approach Delay (s) | 12.0 | 0.0 | 0.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 35.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 1 | 63 | 260 | 37 | 237 | 23 | 240 | 36 | 0 | 314 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1603 | | 1698 | 1727 | 1543 | 1683 | 1837 | | | 3559 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.54 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1603 | | 1698 | 1727 | 1543 | 957 | 1837 | | | 3559 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 18 | 1 | 69 | 286 | 41 | 260 | 25 | 264 | 40 | 0 | 345 | 9 |
| RTOR Reduction (vph) | 0 | 63 | 0 | 0 | 0 | 202 | 0 | 8 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 18 | 7 | 0 | 163 | 164 | 58 | 25 | 296 | 0 | 0 | 351 | 0 |
| Confl. Peds. (#/hr) | 2 | | | | | 2 | 3 | | 16 | 16 | | 3 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 3.1 | 3.1 | | 9.1 | 9.1 | 9.1 | 12.5 | 12.5 | | | 12.5 | |
| Effective Green, g (s) | 3.6 | 3.6 | | 9.6 | 9.6 | 9.6 | 13.0 | 13.0 | | | 13.0 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.22 | 0.22 | 0.22 | 0.30 | 0.30 | | | 0.30 | |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | | 6.0 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 152 | 135 | | 382 | 388 | 347 | 291 | 559 | | | 1084 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.10 | 0.09 | | | c0.16 | | | 0.10 | |
| v/s Ratio Perm | | | | | | 0.04 | 0.03 | | | | | |
| v/c Ratio | 0.12 | 0.05 | | 0.43 | 0.42 | 0.17 | 0.09 | 0.53 | | | 0.32 | |
| Uniform Delay, d1 | 18.1 | 18.0 | | 14.2 | 14.2 | 13.3 | 10.6 | 12.3 | | | 11.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 0.6 | 0.5 | 0.2 | 0.3 | 1.8 | | | 0.4 | |
| Delay (s) | 18.3 | 18.1 | | 14.8 | 14.7 | 13.5 | 10.9 | 14.1 | | | 11.8 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 18.1 | | | 14.2 | | | 13.8 | | | 11.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 42.7 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 37 | 0 | 466 | 60 | 0 | 67 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 42 | 0 | 530 | 68 | 0 | 76 |
| Pedestrians | | | | | 4 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 232 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 602 | | | | 652 | 303 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 602 | | | | 652 | 303 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 89 |
| cM capacity (veh/h) | 982 | | | | 387 | 697 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 42 | 353 | 245 | 76 |
| Volume Left | 42 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 68 | 76 |
| cSH | 982 | 1700 | 1700 | 697 |
| Volume to Capacity | 0.04 | 0.21 | 0.14 | 0.11 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 10 |
| Control Delay (s) | 8.8 | 0.0 | 0.0 | 10.8 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 8.8 | 0.0 | | 10.8 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 1335 | 59 | 257 | 1458 | 361 | 57 | 25 | 248 | 373 | 40 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | 6.0 | | 5.0 | 4.5 | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 1.00 | 1.00 | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4091 | | 3502 | 4988 | 1565 | | 1799 | 1599 | 3467 | 1634 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4091 | | 3502 | 4988 | 1565 | | 1799 | 1599 | 3467 | 1634 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 184 | 1362 | 60 | 262 | 1488 | 368 | 58 | 26 | 253 | 381 | 41 | 194 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 201 | 0 | 0 | 0 | 0 | 164 | 0 |
| Lane Group Flow (vph) | 184 | 1419 | 0 | 262 | 1488 | 167 | 0 | 84 | 253 | 381 | 71 | 0 |
| Confl. Peds. (#/hr) | | | | | | 4 | | | | | | 9 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | pt+ov | Split | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | 1 8 | 4 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | |
| Actuated Green, G (s) | 14.8 | 49.6 | | 17.0 | 51.8 | 51.8 | | 8.5 | 25.5 | 17.4 | 17.4 | |
| Effective Green, g (s) | 15.3 | 50.1 | | 17.5 | 52.3 | 52.3 | | 9.0 | 26.5 | 17.9 | 17.9 | |
| Actuated g/C Ratio | 0.13 | 0.44 | | 0.15 | 0.45 | 0.45 | | 0.08 | 0.23 | 0.16 | 0.16 | |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | 6.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | 4.0 | | 2.5 | | 2.5 | 2.5 | |
| Lane Grp Cap (vph) | 240 | 1782 | | 533 | 2268 | 712 | | 141 | 368 | 540 | 254 | |
| v/s Ratio Prot | 0.10 | c0.35 | | 0.07 | c0.30 | | | 0.05 | c0.16 | c0.11 | 0.04 | |
| v/s Ratio Perm | | | | | | 0.11 | | | | | | |
| v/c Ratio | 0.77 | 0.80 | | 0.49 | 0.66 | 0.24 | | 0.60 | 0.69 | 0.71 | 0.28 | |
| Uniform Delay, d1 | 48.1 | 28.0 | | 44.7 | 24.4 | 19.1 | | 51.2 | 40.5 | 46.1 | 42.9 | |
| Progression Factor | 0.90 | 1.35 | | 0.96 | 0.90 | 1.07 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.1 | 2.9 | | 0.3 | 1.0 | 0.5 | | 5.5 | 4.8 | 3.9 | 0.4 | |
| Delay (s) | 53.6 | 40.7 | | 43.3 | 23.0 | 20.9 | | 56.8 | 45.3 | 49.9 | 43.3 | |
| Level of Service | D | D | | D | C | C | | E | D | D | D | |
| Approach Delay (s) | | 42.2 | | | 25.2 | | | 48.2 | | | 47.4 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 77.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1484 | 480 | 193 | 1150 | 0 | 0 | 0 | 0 | 620 | 3 | 965 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1499 | 485 | 195 | 1162 | 0 | 0 | 0 | 0 | 626 | 3 | 975 |
| RTOR Reduction (vph) | 0 | 0 | 242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 0 | 1499 | 243 | 195 | 1162 | 0 | 0 | 0 | 0 | 313 | 316 | 935 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 49.4 | 49.4 | 17.0 | 55.4 | | | | | 30.6 | 30.6 | 47.6 |
| Effective Green, g (s) | | 49.9 | 49.9 | 17.5 | 55.9 | | | | | 31.1 | 31.1 | 44.6 |
| Actuated g/C Ratio | | 0.43 | 0.43 | 0.15 | 0.49 | | | | | 0.27 | 0.27 | 0.39 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1801 | 680 | 272 | 1687 | | | | | 455 | 455 | 1070 |
| v/s Ratio Prot | | c0.36 | | c0.11 | 0.33 | | | | | 0.19 | 0.19 | c0.34 |
| v/s Ratio Perm | | | 0.16 | | | | | | | | | |
| v/c Ratio | | 0.83 | 0.36 | 0.72 | 0.69 | | | | | 0.69 | 0.69 | 0.87 |
| Uniform Delay, d1 | | 28.8 | 21.8 | 46.4 | 22.8 | | | | | 37.6 | 37.7 | 32.6 |
| Progression Factor | | 0.60 | 0.38 | 0.88 | 0.62 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 3.3 | 1.0 | 7.3 | 2.2 | | | | | 3.7 | 4.0 | 7.9 |
| Delay (s) | | 20.5 | 9.4 | 48.1 | 16.3 | | | | | 41.3 | 41.7 | 40.5 |
| Level of Service | | C | A | D | B | | | | | D | D | D |
| Approach Delay (s) | | 17.8 | | | 20.9 | | | 0.0 | | | 40.9 | |
| Approach LOS | | B | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 74.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1110 | 998 | 0 | 668 | 666 | 672 | 0 | 219 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1168 | 1051 | 0 | 703 | 701 | 707 | 0 | 231 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 388 | 0 | 0 | 262 | 0 | 0 | 28 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1168 | 663 | 0 | 703 | 439 | 353 | 354 | 203 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 72.0 | 72.0 | | 71.5 | 71.5 | 31.0 | 31.0 | 31.0 | | | |
| Effective Green, g (s) | | 72.5 | 72.5 | | 72.0 | 72.0 | 31.5 | 31.5 | 31.5 | | | |
| Actuated g/C Ratio | | 0.63 | 0.63 | | 0.63 | 0.63 | 0.27 | 0.27 | 0.27 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2253 | 1698 | | 2238 | 991 | 443 | 443 | 427 | | | |
| v/s Ratio Prot | | c0.33 | | | 0.20 | | 0.22 | c0.22 | | | | |
| v/s Ratio Perm | | | 0.25 | | | 0.28 | | | 0.13 | | | |
| v/c Ratio | | 0.52 | 0.39 | | 0.31 | 0.44 | 0.80 | 0.80 | 0.47 | | | |
| Uniform Delay, d1 | | 11.7 | 10.4 | | 10.0 | 11.1 | 38.8 | 38.8 | 34.8 | | | |
| Progression Factor | | 1.39 | 3.10 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.6 | 0.4 | | 0.4 | 1.4 | 9.2 | 9.3 | 0.5 | | | |
| Delay (s) | | 16.7 | 32.8 | | 10.4 | 12.6 | 48.0 | 48.1 | 35.3 | | | |
| Level of Service | | B | C | | B | B | D | D | D | | | |
| Approach Delay (s) | | 24.3 | | | 11.5 | | | 44.9 | | | 0.0 | |
| Approach LOS | | C | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 69.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 524 | 593 | 57 | 15 | 732 | 101 | 103 | 11 | 12 | 101 | 11 | 322 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.99 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 3502 | 3486 | | 1805 | 3505 | | | 1768 | 1593 | | 1799 | 1594 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.66 | 1.00 | | 0.66 | 1.00 |
| Satd. Flow (perm) | 3502 | 3486 | | 1805 | 3505 | | | 1229 | 1593 | | 1248 | 1594 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 546 | 618 | 59 | 16 | 762 | 105 | 107 | 11 | 12 | 105 | 11 | 335 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 9 | 0 | 0 | 0 | 10 | 0 | 0 | 279 |
| Lane Group Flow (vph) | 546 | 672 | 0 | 16 | 858 | 0 | 0 | 118 | 2 | 0 | 116 | 56 |
| Confl. Peds. (#/hr) | 8 | | 2 | 2 | | 8 | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 14.5 | 38.4 | | 0.8 | 24.7 | | | 10.9 | 10.9 | | 10.9 | 10.9 |
| Effective Green, g (s) | 15.0 | 38.9 | | 1.3 | 25.2 | | | 11.4 | 11.4 | | 11.4 | 11.4 |
| Actuated g/C Ratio | 0.22 | 0.57 | | 0.02 | 0.37 | | | 0.17 | 0.17 | | 0.17 | 0.17 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 771 | 1991 | | 34 | 1297 | | | 206 | 267 | | 209 | 267 |
| v/s Ratio Prot | c0.16 | 0.19 | | 0.01 | c0.24 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.09 | 0.04 |
| v/c Ratio | 0.71 | 0.34 | | 0.47 | 0.66 | | | 0.57 | 0.01 | | 0.56 | 0.21 |
| Uniform Delay, d1 | 24.5 | 7.8 | | 33.1 | 17.9 | | | 26.1 | 23.6 | | 26.0 | 24.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.1 | | 6.6 | 1.2 | | | 3.0 | 0.0 | | 2.3 | 0.2 |
| Delay (s) | 27.2 | 7.8 | | 39.7 | 19.0 | | | 29.1 | 23.6 | | 28.3 | 24.7 |
| Level of Service | C | A | | D | B | | | C | C | | C | C |
| Approach Delay (s) | | 16.5 | | | 19.4 | | | 28.6 | | | 25.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 68.1 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 1194 | 141 | 0 | 1163 | 0 | 100 | 225 | 252 | 129 | 415 | 93 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3430 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3466 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3430 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3466 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 80 | 1270 | 150 | 0 | 1237 | 0 | 106 | 239 | 268 | 137 | 441 | 99 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 80 | 1414 | 0 | 0 | 1237 | 0 | 106 | 239 | 164 | 137 | 521 | 0 |
| Confl. Peds. (#/hr) | | | | | | 6 | | | 23 | | | 3 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 8.6 | 66.5 | | | 52.9 | | 10.6 | 17.9 | 17.9 | 13.6 | 20.9 | |
| Effective Green, g (s) | 9.1 | 67.0 | | | 53.4 | | 11.1 | 18.4 | 18.4 | 14.1 | 21.4 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | | 0.46 | | 0.10 | 0.16 | 0.16 | 0.12 | 0.19 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 136 | 1998 | | | 1596 | | 171 | 298 | 246 | 219 | 645 | |
| v/s Ratio Prot | 0.05 | c0.41 | | | c0.36 | | 0.06 | c0.13 | | 0.08 | c0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.59 | 0.71 | | | 0.78 | | 0.62 | 0.80 | 0.67 | 0.63 | 0.81 | |
| Uniform Delay, d1 | 51.1 | 17.0 | | | 25.8 | | 49.9 | 46.5 | 45.4 | 47.9 | 44.8 | |
| Progression Factor | 1.00 | 1.00 | | | 0.56 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.1 | 2.1 | | | 3.0 | | 6.5 | 13.6 | 5.2 | 5.5 | 7.0 | |
| Delay (s) | 55.3 | 19.2 | | | 17.5 | | 56.5 | 60.1 | 50.6 | 53.4 | 51.8 | |
| Level of Service | E | B | | | B | | E | E | D | D | D | |
| Approach Delay (s) | | 21.1 | | | 17.5 | | | 55.3 | | | 52.1 | |
| Approach LOS | | C | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 81.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# *SIGNALIZED QUEUE ANALYSIS*

**Project Name:** Nyberg Rivers
**Project Number:** 12116
**Analyst:** CLB
**Date:** 4/16/2013
**Filename:** C:\Users\mvandehey\Documents\[Signalized Queue FM Driveway2.xls]SIGQUEUE

**KITTELSON & ASSOCIATES, INC.**
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

**Intersection:** Fred Meyer Access/Nyberg Road
**Conditions (yr, alt., etc.):** Weekday

**GENERAL INPUT PARAMETERS:**

| | | |
|---|---|---|
| Cycle Length: | 125 | sec |
| Confidence Level (C.L.): | 95% | |
| Storage length/vehicle: | 25 | feet |

| | APPROACH/MOVEMENT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 |
| | EB LT EX | EB LT BK | EB LT WS | EX SB LT | BK SB LT | WS SB LT | | |
| **INPUT PARAMETERS:** | | | | | | | | |
| Volume (pre-PHF) (vph): | 30 | 30 | 100 | 182 | 182 | 323 | | |
| G/C for movement: | 0.05 | 0.05 | 0.12 | 0.18 | 0.18 | 0.14 | | |
| Number of lanes: | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| **CALCULATIONS:** | | | | | | | | |
| Length of red interval (sec): | 118.8 | 118.8 | 110.0 | 102.5 | 102.5 | 107.5 | | |
| Average total queue (veh): | 1.0 | 1.0 | 3.1 | 5.2 | 5.2 | 9.6 | | |
| Maximum total queue (veh): | **3** | **3** | **6** | **9** | **9** | **15** | | |
| Total queue length (feet): | 75 | 75 | 150 | 225 | 225 | 375 | | |
| Required storage/lane (feet): | **75** | **75** | **150** | **225** | **225** | **200** | | |
| **PERMITTED LEFT TURNS:** | | | | | | | | |
| Opposing volume (pre-PHF): | | | | | | | | |
| Opposing sat. flow rate: | | | | | | | | |
| **CALCULATIONS:** | | | | | | | | |
| Opposing flow ratio (Yo): | | | | | | | | |
| Unblocked G/C: | | | | | | | | |
| Effective red interval (sec): | | | | | | | | |
| Average total queue (veh): | | | | | | | | |
| Maximum total queue (veh): | | | | | | | | |
| Total queue length (feet): | | | | | | | | |
| Required storage/lane (feet): | | | | | | | | |

**METHODOLOGY AND FORMULAS USED:**

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%)
that the queue formed during each red interval will be less than
or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded
up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

# *SIGNALIZED QUEUE ANALYSIS*

**Project Name:** Nyberg Rivers
**Project Number:** 12116
**Analyst:** CLB
**Date:** 4/16/2013
**Filename:** C:\Users\mvandehey\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlo

**KITTELSON & ASSOCIATES, INC.**
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

**Intersection:** Fred Meyer Access/Nyberg Road
**Conditions (yr, alt., etc.):**

**GENERAL INPUT PARAMETERS:**

| | | |
|---|---|---|
| Cycle Length: | 125 | sec |
| Confidence Level (C.L.): | 95% | |
| Storage length/vehicle: | 25 | feet |

| | APPROACH/MOVEMENT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 |
| | NB RT EX PI | NB RT BK | NB RT WS | NB 2RT WS | EX WB LT | WB LT EX | WB LT BK | WB LT WS |
| **INPUT PARAMETERS:** | | | | | | | | |
| Volume (pre-PHF) (vph): | 236 | 236 | 236 | 236 | 232 | 232 | 232 | 232 |
| G/C for movement: | 0.28 | 0.28 | 0.21 | 0.17 | 0.10 | 0.10 | 0.10 | 0.13 |
| Number of lanes: | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| **CALCULATIONS:** | | | | | | | | |
| Length of red interval (sec): | 90.0 | 90.0 | 98.8 | 103.8 | 112.5 | 112.5 | 112.5 | 108.8 |
| Average total queue (veh): | 5.9 | 5.9 | 6.5 | 6.8 | 7.3 | 7.3 | 7.3 | 7.0 |
| Maximum total queue (veh): | **10** | **10** | **11** | **11** | **12** | **12** | **12** | **12** |
| Total queue length (feet): | 250 | 250 | 275 | 275 | 300 | 300 | 300 | 300 |
| Required storage/lane (feet): | **250** | **250** | **275** | **150** | **150** | **150** | **150** | **150** |
| **PERMITTED LEFT TURNS:** | | | | | | | | |
| Opposing volume (pre-PHF): | | | | | | | | |
| Opposing sat. flow rate: | | | | | | | | |
| **CALCULATIONS:** | | | | | | | | |
| Opposing flow ratio (Yo): | | | | | | | | |
| Unblocked G/C: | | | | | | | | |
| Effective red interval (sec): | | | | | | | | |
| Average total queue (veh): | | | | | | | | |
| Maximum total queue (veh): | | | | | | | | |
| Total queue length (feet): | | | | | | | | |
| Required storage/lane (feet): | | | | | | | | |

**METHODOLOGY AND FORMULAS USED:**

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%)
that the queue formed during each red interval will be less than
or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded
up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

# *SIGNALIZED QUEUE ANALYSIS*

| | |
|---|---|
| **Project Name:** | Nyberg Rivers |
| **Project Number:** | 12116 |
| **Analyst:** | CLB |
| **Date:** | 4/17/2013 |
| **Filename:** | C:\Users\mvandehey\Documents\[Signalized Queue FM Driveway saturday2.xlsx]SQUEUE2 |

**KITTELSON & ASSOCIATES, INC.**
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

| | |
|---|---|
| **Intersection:** | Fred Meyer Access/Nyberg Road |
| **Conditions (yr, alt., etc.):** | Saturday |

**GENERAL INPUT PARAMETERS:**

| | | |
|---|---|---|
| Cycle Length: | 115 | sec |
| Confidence Level (C.L.): | 95% | |
| Storage length/vehicle: | 25 | feet |

| | APPROACH/MOVEMENT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | #1 | #2 | #3 | #4 | #5 | #6 | #7 | |
| | EX EB LT | BK EB LT | WS EB LT | | EX SB LT | BK SB LT | WS SB LT | |
| **INPUT PARAMETERS:** | | | | | | | | |
| Volume (pre-PHF) (vph): | 50 | 50 | 180 | | 154 | 154 | 373 | |
| G/C for movement: | 0.06 | 0.07 | 0.13 | | 0.18 | 0.18 | 0.16 | |
| Number of lanes: | 1 | 1 | 1 | | 2 | 2 | 2 | |
| **CALCULATIONS:** | | | | | | | | |
| Length of red interval (sec): | 108.1 | 107.0 | 100.1 | | 94.3 | 94.3 | 96.6 | |
| Average total queue (veh): | 1.5 | 1.5 | 5.0 | | 4.0 | 4.0 | 10.0 | |
| Maximum total queue (veh): | **4** | **4** | **9** | | **8** | **8** | **15** | |
| Total queue length (feet): | 100 | 100 | 225 | | 200 | 200 | 375 | |
| Required storage/lane (feet): | **100** | **100** | **225** | | **100** | **100** | **200** | |
| **PERMITTED LEFT TURNS:** | | | | | | | | |
| Opposing volume (pre-PHF): | | | | | | | | |
| Opposing sat. flow rate: | | | | | | | | |
| **CALCULATIONS:** | | | | | | | | |
| Opposing flow ratio (Yo): | | | | | | | | |
| Unblocked G/C: | | | | | | | | |
| Effective red interval (sec): | | | | | | | | |
| Average total queue (veh): | | | | | | | | |
| Maximum total queue (veh): | | | | | | | | |
| Total queue length (feet): | | | | | | | | |
| Required storage/lane (feet): | | | | | | | | |

**METHODOLOGY AND FORMULAS USED:**

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%)
that the queue formed during each red interval will be less than
or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded
up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

# *SIGNALIZED QUEUE ANALYSIS*

**Project Name:** Nyberg Rivers
**Project Number:** 12116
**Analyst:** CLB
**Date:** 4/17/2013
**Filename:** C:\Users\mvandehey\Documents\[Signalized Queue FM Driveway saturday2.xlsx]SQUEUE2

**KITTELSON & ASSOCIATES, INC.**
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

**Intersection:** Fred Meyer Access/Nyberg Road
**Conditions (yr, alt., etc.):** Saturday

**GENERAL INPUT PARAMETERS:**

| | | |
|---|---|---|
| Cycle Length: | 115 | sec |
| Confidence Level (C.L.): | 95% | |
| Storage length/vehicle: | 25 | feet |

| | APPROACH/MOVEMENT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | #1 | #2 | #3 | #4 | #5 | #6 | #7 | |
| | NB RT EX PI | NB RT BK | NB RT WS | | EX WB LT | WB LT EX | WB LT BK | |
| **INPUT PARAMETERS:** | | | | | | | | |
| Volume (pre-PHF) (vph): | 248 | 248 | 248 | | 257 | 257 | 257 | |
| G/C for movement: | 0.29 | 0.29 | 0.23 | | 0.11 | 0.11 | 0.15 | |
| Number of lanes: | 1 | 1 | 1 | | 2 | 2 | 2 | |
| **CALCULATIONS:** | | | | | | | | |
| Length of red interval (sec): | 81.7 | 81.7 | 88.6 | | 102.4 | 102.4 | 97.8 | |
| Average total queue (veh): | 5.6 | 5.6 | 6.1 | | 7.3 | 7.3 | 7.0 | |
| Maximum total queue (veh): | **10** | **10** | **10** | | **12** | **12** | **12** | |
| Total queue length (feet): | 250 | 250 | 250 | | 300 | 300 | 300 | |
| Required storage/lane (feet): | **250** | **250** | **250** | | **150** | **150** | **150** | |
| **PERMITTED LEFT TURNS:** | | | | | | | | |
| Opposing volume (pre-PHF): | | | | | | | | |
| Opposing sat. flow rate: | | | | | | | | |
| **CALCULATIONS:** | | | | | | | | |
| Opposing flow ratio (Yo): | | | | | | | | |
| Unblocked G/C: | | | | | | | | |
| Effective red interval (sec): | | | | | | | | |
| Average total queue (veh): | | | | | | | | |
| Maximum total queue (veh): | | | | | | | | |
| Total queue length (feet): | | | | | | | | |
| Required storage/lane (feet): | | | | | | | | |

**METHODOLOGY AND FORMULAS USED:**

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%)
that the queue formed during each red interval will be less than
or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded
up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

## Intersection: 12: Tualatin Sherwood Rd & I-5 SB Ramps

| Movement | EB | EB | EB | EB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | T | R | L | T | T | L | LT | R | R |
| Maximum Queue (ft) | 445 | 482 | 482 | 299 | 653 | 651 | 680 | 274 | 654 | 570 | 440 |
| Average Queue (ft) | 193 | 214 | 224 | 43 | 275 | 371 | 393 | 196 | 348 | 281 | 203 |
| 95th Queue (ft) | 342 | 374 | 385 | 164 | 614 | 671 | 659 | 296 | 631 | 476 | 355 |
| Link Distance (ft) | 522 | 522 | 522 | 522 | 616 | 616 | 616 | | 1139 | 1139 | |
| Upstream Blk Time (%) | 0 | 0 | 0 | | 4 | 3 | 2 | | | | |
| Queuing Penalty (veh) | 0 | 1 | 1 | | 19 | 12 | 11 | | | | |
| Storage Bay Dist (ft) | | | | | | | | 200 | | | 700 |
| Storage Blk Time (%) | | | | | | | | 7 | 25 | 0 | |
| Queuing Penalty (veh) | | | | | | | | 23 | 79 | 0 | |

## Intersection: 13: Tualatin Sherwood Rd & I-5 NB Ramps

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | T | T | R | L | LT | R |
| Maximum Queue (ft) | 616 | 590 | 356 | 335 | 450 | 225 | 374 | 924 | 300 |
| Average Queue (ft) | 383 | 352 | 16 | 124 | 165 | 49 | 214 | 332 | 136 |
| 95th Queue (ft) | 610 | 578 | 161 | 251 | 323 | 201 | 354 | 675 | 287 |
| Link Distance (ft) | 616 | 616 | 616 | 459 | 459 | | | 1328 | |
| Upstream Blk Time (%) | 0 | 0 | 0 | 0 | 0 | | | | |
| Queuing Penalty (veh) | 1 | 1 | 0 | 0 | 1 | | | | |
| Storage Bay Dist (ft) | | | | | | 150 | 300 | | 225 |
| Storage Blk Time (%) | | | | | 10 | 0 | 1 | 16 | 0 |
| Queuing Penalty (veh) | | | | | 64 | 0 | 6 | 90 | 1 |

# Appendix G
# Year 2014 Operations Worksheets (for Alternative Access Scenario)

# HCM Signalized Intersection Capacity Analysis
## 1: Lower Boones Ferry Road & SW Upper Boones Ferry Road

4/15/2013

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 1 | 7 | 9 | 479 | 7 | 40 | 0 | 504 | 567 | 59 | 697 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 3.5 | | 3.5 | 3.5 | | | 4.0 | 3.5 | 3.5 | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.92 | | 1.00 | 0.95 | | | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.93 | | 1.00 | 0.87 | | | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1596 | | 1787 | 1574 | | | 1900 | 1570 | 1805 | 1900 | |
| Flt Permitted | | 1.00 | | 0.95 | 1.00 | | | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1596 | | 1787 | 1574 | | | 1900 | 1570 | 1805 | 1900 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1 | 7 | 9 | 504 | 7 | 42 | 0 | 531 | 597 | 62 | 734 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 26 | 0 | 0 | 0 | 158 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 8 | 0 | 504 | 23 | 0 | 0 | 531 | 439 | 62 | 735 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Split | | | Split | | | Prot | | pm+ov | Prot | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | 4 | 5 | 2 | |
| Permitted Phases | | | | | | | | | 6 | | | |
| Actuated Green, G (s) | | 1.7 | | 31.9 | 31.9 | | | 29.5 | 61.4 | 5.3 | 38.8 | |
| Effective Green, g (s) | | 2.2 | | 32.4 | 32.4 | | | 30.0 | 62.4 | 5.8 | 39.3 | |
| Actuated g/C Ratio | | 0.03 | | 0.38 | 0.38 | | | 0.35 | 0.73 | 0.07 | 0.46 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | 4.5 | 4.0 | 4.0 | 4.5 | |
| Vehicle Extension (s) | | 2.5 | | 2.2 | 2.2 | | | 3.5 | 2.2 | 2.2 | 3.5 | |
| Lane Grp Cap (vph) | | 41 | | 682 | 601 | | | 671 | 1154 | 123 | 880 | |
| v/s Ratio Prot | | c0.01 | | c0.28 | 0.01 | | | 0.28 | 0.15 | 0.03 | c0.39 | |
| v/s Ratio Perm | | | | | | | | | 0.13 | | | |
| v/c Ratio | | 0.20 | | 0.74 | 0.04 | | | 0.79 | 0.38 | 0.50 | 0.84 | |
| Uniform Delay, d1 | | 40.5 | | 22.6 | 16.5 | | | 24.6 | 4.1 | 38.2 | 20.0 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.8 | | 3.8 | 0.0 | | | 6.5 | 0.1 | 1.7 | 7.1 | |
| Delay (s) | | 42.2 | | 26.4 | 16.5 | | | 31.2 | 4.2 | 39.8 | 27.0 | |
| Level of Service | | D | | C | B | | | C | A | D | C | |
| Approach Delay (s) | | 42.2 | | | 25.5 | | | 16.9 | | | 28.0 | |
| Approach LOS | | D | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 84.9 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 83.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 410 | 844 | 200 | 298 | 453 | 365 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 | 3.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3467 | 1590 | 1900 | 1574 | 1805 | 1900 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3467 | 1590 | 1900 | 1574 | 1805 | 1900 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 432 | 888 | 211 | 314 | 477 | 384 |
| RTOR Reduction (vph) | 0 | 182 | 0 | 75 | 0 | 0 |
| Lane Group Flow (vph) | 432 | 706 | 211 | 239 | 477 | 384 |
| Confl. Peds. (#/hr) | 7 | 15 | | 8 | 8 | |
| Heavy Vehicles (%) | 1% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | | pm+ov | | pm+ov | Prot | |
| Protected Phases | 8 | 1 | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 11.4 | 32.2 | 10.7 | 22.1 | 20.8 | 35.0 |
| Effective Green, g (s) | 11.9 | 33.2 | 11.2 | 23.1 | 21.3 | 35.5 |
| Actuated g/C Ratio | 0.22 | 0.61 | 0.21 | 0.42 | 0.39 | 0.65 |
| Clearance Time (s) | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 2.0 | 5.0 | 3.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 758 | 1073 | 391 | 668 | 707 | 1240 |
| v/s Ratio Prot | 0.12 | c0.26 | c0.11 | 0.08 | 0.26 | 0.20 |
| v/s Ratio Perm | | 0.19 | | 0.07 | | |
| v/c Ratio | 0.57 | 0.66 | 0.54 | 0.36 | 0.67 | 0.31 |
| Uniform Delay, d1 | 19.0 | 6.9 | 19.3 | 10.6 | 13.7 | 4.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 1.1 | 2.6 | 0.3 | 2.0 | 0.1 |
| Delay (s) | 20.0 | 8.0 | 21.9 | 10.9 | 15.7 | 4.2 |
| Level of Service | B | A | C | B | B | A |
| Approach Delay (s) | 11.9 | | 15.4 | | | 10.6 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 54.4 | Sum of lost time (s) | 6.5 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 674 | 175 | 453 | 930 | 335 | 385 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1571 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1571 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 709 | 184 | 477 | 979 | 353 | 405 |
| RTOR Reduction (vph) | 0 | 61 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 709 | 123 | 477 | 979 | 353 | 371 |
| Confl. Peds. (#/hr) | | 7 | 7 | | 7 | 8 |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 42.2 | 42.2 | 33.1 | 80.3 | 24.1 | 57.2 |
| Effective Green, g (s) | 42.7 | 42.7 | 33.6 | 80.8 | 24.6 | 58.2 |
| Actuated g/C Ratio | 0.37 | 0.37 | 0.29 | 0.71 | 0.22 | 0.51 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 695 | 597 | 525 | 1303 | 381 | 861 |
| v/s Ratio Prot | c0.38 | 0.08 | c0.27 | 0.53 | c0.20 | 0.13 |
| v/s Ratio Perm | | | | | | 0.11 |
| v/c Ratio | 1.02 | 0.21 | 0.91 | 0.75 | 0.93 | 0.43 |
| Uniform Delay, d1 | 35.9 | 24.3 | 38.9 | 10.5 | 44.0 | 17.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 39.3 | 0.2 | 19.4 | 2.5 | 28.1 | 0.3 |
| Delay (s) | 75.2 | 24.5 | 58.4 | 13.0 | 72.1 | 18.0 |
| Level of Service | E | C | E | B | E | B |
| Approach Delay (s) | 64.7 | | | 27.9 | 43.2 | |
| Approach LOS | E | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 114.4 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 90.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 40 | 0 | 80 | 53 | 0 | 163 | 85 | 516 | 99 | 202 | 376 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | | | 3.5 | 3.5 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.97 | | | 1.00 | 0.97 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.96 | 1.00 | | | 0.99 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1739 | 1573 | | | 1747 | 1540 | 1802 | 1825 | | 1769 | 1828 | |
| Flt Permitted | 0.72 | 1.00 | | | 0.70 | 1.00 | 0.47 | 1.00 | | 0.20 | 1.00 | |
| Satd. Flow (perm) | 1317 | 1573 | | | 1287 | 1540 | 895 | 1825 | | 370 | 1828 | |
| Peak-hour factor, PHF | 0.91 | 0.92 | 0.91 | 0.92 | 0.92 | 0.92 | 0.91 | 0.91 | 0.92 | 0.92 | 0.91 | 0.91 |
| Adj. Flow (vph) | 44 | 0 | 88 | 58 | 0 | 177 | 93 | 567 | 108 | 220 | 413 | 55 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 0 | 127 | 0 | 9 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 44 | 12 | 0 | 0 | 58 | 50 | 93 | 667 | 0 | 220 | 462 | 0 |
| Confl. Peds. (#/hr) | 26 | | 16 | 16 | | 26 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 2% | 2% | 2% | 0% | 1% | 2% | 2% | 2% | 0% |
| Turn Type | Perm | | | Perm | | pm+ov | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | 1 | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 5.9 | 5.9 | | | 5.9 | 12.8 | 27.8 | 23.8 | | 33.6 | 26.7 | |
| Effective Green, g (s) | 6.4 | 6.4 | | | 6.4 | 13.8 | 28.8 | 24.3 | | 34.6 | 27.2 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | | 0.13 | 0.28 | 0.59 | 0.50 | | 0.71 | 0.56 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 173 | 207 | | | 169 | 548 | 614 | 913 | | 476 | 1023 | |
| v/s Ratio Prot | | 0.01 | | | | 0.01 | 0.01 | c0.37 | | c0.07 | 0.25 | |
| v/s Ratio Perm | 0.03 | | | | c0.05 | 0.02 | 0.08 | | | 0.26 | | |
| v/c Ratio | 0.25 | 0.06 | | | 0.34 | 0.09 | 0.15 | 0.73 | | 0.46 | 0.45 | |
| Uniform Delay, d1 | 19.0 | 18.5 | | | 19.2 | 12.8 | 4.3 | 9.6 | | 5.1 | 6.3 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.8 | 0.1 | | | 1.2 | 0.1 | 0.1 | 3.0 | | 0.7 | 0.3 | |
| Delay (s) | 19.7 | 18.6 | | | 20.4 | 12.9 | 4.4 | 12.6 | | 5.8 | 6.6 | |
| Level of Service | B | B | | | C | B | A | B | | A | A | |
| Approach Delay (s) | | 19.0 | | | 14.7 | | | 11.6 | | | 6.4 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 48.6 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 66.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 10 | 100 | 357 | 55 | 337 | 27 | 315 | 26 | 0 | 499 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1626 | | 1698 | 1728 | 1533 | 1682 | 1855 | | | 3563 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.40 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1626 | | 1698 | 1728 | 1533 | 701 | 1855 | | | 3563 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 32 | 11 | 110 | 392 | 60 | 370 | 30 | 346 | 29 | 0 | 548 | 11 |
| RTOR Reduction (vph) | 0 | 96 | 0 | 0 | 0 | 276 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 32 | 25 | 0 | 223 | 229 | 94 | 30 | 371 | 0 | 0 | 557 | 0 |
| Confl. Peds. (#/hr) | 10 | | | | | 10 | 6 | | 19 | 19 | | 6 |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 4.8 | 4.8 | | 10.3 | 10.3 | 10.3 | 13.7 | 13.7 | | | 13.7 | |
| Effective Green, g (s) | 5.3 | 5.3 | | 10.8 | 10.8 | 10.8 | 14.2 | 14.2 | | | 14.2 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | 0.26 | 0.26 | 0.26 | 0.34 | 0.34 | | | 0.34 | |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 226 | 204 | | 434 | 441 | 391 | 235 | 623 | | | 1196 | |
| v/s Ratio Prot | c0.02 | 0.02 | | 0.13 | c0.13 | | | c0.20 | | | 0.16 | |
| v/s Ratio Perm | | | | | | 0.06 | 0.04 | | | | | |
| v/c Ratio | 0.14 | 0.12 | | 0.51 | 0.52 | 0.24 | 0.13 | 0.60 | | | 0.47 | |
| Uniform Delay, d1 | 16.5 | 16.4 | | 13.5 | 13.5 | 12.5 | 9.8 | 11.7 | | | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 0.8 | 0.8 | 0.2 | 0.5 | 2.3 | | | 0.6 | |
| Delay (s) | 16.7 | 16.6 | | 14.3 | 14.3 | 12.7 | 10.3 | 14.0 | | | 11.7 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 16.6 | | | 13.6 | | | 13.7 | | | 11.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 42.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 56.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 35 | 0 | 648 | 51 | 0 | 100 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 40 | 0 | 736 | 58 | 0 | 114 |
| Pedestrians | | | | | 5 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 278 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 799 | | | | 850 | 402 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 799 | | | | 850 | 402 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 95 | | | | 100 | 81 |
| cM capacity (veh/h) | 829 | | | | 288 | 601 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 40 | 491 | 303 | 114 |
| Volume Left | 40 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 58 | 114 |
| cSH | 829 | 1700 | 1700 | 601 |
| Volume to Capacity | 0.05 | 0.29 | 0.18 | 0.19 |
| Queue Length 95th (ft) | 4 | 0 | 0 | 17 |
| Control Delay (s) | 9.6 | 0.0 | 0.0 | 12.4 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 9.6 | 0.0 | | 12.4 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 32.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 99 | 1899 | 40 | 232 | 1694 | 251 | 36 | 10 | 236 | 323 | 24 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | 6.0 | | 5.0 | 4.5 | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 | 1.00 | 0.97 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.96 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4100 | | 3502 | 4988 | 1545 | | 1786 | 1599 | 3502 | 1622 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.96 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4100 | | 3502 | 4988 | 1545 | | 1786 | 1599 | 3502 | 1622 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 101 | 1938 | 41 | 237 | 1729 | 256 | 37 | 10 | 241 | 330 | 24 | 115 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 99 | 0 |
| Lane Group Flow (vph) | 101 | 1978 | 0 | 237 | 1729 | 130 | 0 | 47 | 241 | 330 | 40 | 0 |
| Confl. Peds. (#/hr) | | | 2 | | | 8 | | | | | | 15 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | pt+ov | Split | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | 1 8 | 4 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | |
| Actuated Green, G (s) | 14.1 | 61.1 | | 16.1 | 63.1 | 63.1 | | 8.6 | 24.7 | 16.7 | 16.7 | |
| Effective Green, g (s) | 14.6 | 61.6 | | 16.6 | 63.6 | 63.6 | | 9.1 | 25.7 | 17.2 | 17.2 | |
| Actuated g/C Ratio | 0.12 | 0.49 | | 0.13 | 0.51 | 0.51 | | 0.07 | 0.21 | 0.14 | 0.14 | |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | 6.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | 4.0 | | 2.5 | | 2.5 | 2.5 | |
| Lane Grp Cap (vph) | 211 | 2020 | | 465 | 2538 | 786 | | 130 | 329 | 482 | 223 | |
| v/s Ratio Prot | 0.06 | c0.48 | | 0.07 | 0.35 | | | 0.03 | c0.15 | c0.09 | 0.02 | |
| v/s Ratio Perm | | | | | | 0.08 | | | | | | |
| v/c Ratio | 0.48 | 0.98 | | 0.51 | 0.68 | 0.17 | | 0.36 | 0.73 | 0.68 | 0.18 | |
| Uniform Delay, d1 | 51.6 | 31.1 | | 50.4 | 23.1 | 16.5 | | 55.2 | 46.4 | 51.3 | 47.7 | |
| Progression Factor | 0.88 | 0.56 | | 1.04 | 0.86 | 1.12 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.6 | 9.4 | | 0.4 | 1.0 | 0.3 | | 1.2 | 7.7 | 3.7 | 0.3 | |
| Delay (s) | 46.2 | 26.6 | | 53.0 | 20.9 | 18.7 | | 56.4 | 54.2 | 55.0 | 47.9 | |
| Level of Service | D | C | | D | C | B | | E | D | D | D | |
| Approach Delay (s) | | 27.6 | | | 24.1 | | | 54.5 | | | 52.9 | |
| Approach LOS | | C | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 81.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1590 | 875 | 123 | 1063 | 0 | 0 | 0 | 0 | 659 | 5 | 1111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1682 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1606 | 884 | 124 | 1074 | 0 | 0 | 0 | 0 | 666 | 5 | 1122 |
| RTOR Reduction (vph) | 0 | 0 | 476 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| Lane Group Flow (vph) | 0 | 1606 | 408 | 124 | 1074 | 0 | 0 | 0 | 0 | 333 | 338 | 1099 |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 56.5 | 56.5 | 11.1 | 51.5 | | | | | 39.4 | 39.4 | 61.5 |
| Effective Green, g (s) | | 57.0 | 57.0 | 11.6 | 52.0 | | | | | 39.9 | 39.9 | 62.0 |
| Actuated g/C Ratio | | 0.46 | 0.46 | 0.09 | 0.42 | | | | | 0.32 | 0.32 | 0.50 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1892 | 715 | 166 | 1444 | | | | | 537 | 537 | 1369 |
| v/s Ratio Prot | | c0.39 | | 0.07 | c0.31 | | | | | 0.20 | 0.20 | c0.40 |
| v/s Ratio Perm | | | 0.26 | | | | | | | | | |
| v/c Ratio | | 0.85 | 0.57 | 0.75 | 0.74 | | | | | 0.62 | 0.63 | 0.80 |
| Uniform Delay, d1 | | 30.2 | 25.0 | 55.3 | 30.9 | | | | | 36.1 | 36.3 | 26.4 |
| Progression Factor | | 0.50 | 2.46 | 0.79 | 0.64 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.5 | 1.6 | 14.5 | 3.3 | | | | | 1.8 | 1.9 | 3.4 |
| Delay (s) | | 17.6 | 63.1 | 58.3 | 23.1 | | | | | 37.9 | 38.1 | 29.8 |
| Level of Service | | B | E | E | C | | | | | D | D | C |
| Approach Delay (s) | | 33.7 | | | 26.8 | | | 0.0 | | | 32.8 | |
| Approach LOS | | C | | | C | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1216 | 1031 | 0 | 511 | 682 | 675 | 5 | 177 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.96 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2760 | | 3574 | 1502 | 1618 | 1620 | 1512 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1280 | 1085 | 0 | 538 | 718 | 711 | 5 | 186 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 352 | 0 | 0 | 263 | 0 | 0 | 21 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1280 | 733 | 0 | 538 | 455 | 355 | 361 | 165 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | | | | 16 | | | 17 | | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 79.3 | 79.3 | | 78.8 | 78.8 | 33.7 | 33.7 | 33.7 | | | |
| Effective Green, g (s) | | 79.8 | 79.8 | | 79.3 | 79.3 | 34.2 | 34.2 | 34.2 | | | |
| Actuated g/C Ratio | | 0.64 | 0.64 | | 0.63 | 0.63 | 0.27 | 0.27 | 0.27 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2282 | 1762 | | 2267 | 953 | 443 | 443 | 414 | | | |
| v/s Ratio Prot | | c0.36 | | | 0.15 | | 0.22 | c0.22 | | | | |
| v/s Ratio Perm | | | 0.27 | | | 0.30 | | | 0.11 | | | |
| v/c Ratio | | 0.56 | 0.42 | | 0.24 | 0.48 | 0.80 | 0.81 | 0.40 | | | |
| Uniform Delay, d1 | | 12.7 | 11.1 | | 9.8 | 12.0 | 42.2 | 42.4 | 37.0 | | | |
| Progression Factor | | 0.72 | 1.20 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.7 | 0.5 | | 0.2 | 1.7 | 9.6 | 10.6 | 0.4 | | | |
| Delay (s) | | 9.9 | 13.8 | | 10.1 | 13.7 | 51.9 | 53.1 | 37.4 | | | |
| Level of Service | | A | B | | B | B | D | D | D | | | |
| Approach Delay (s) | | 11.7 | | | 12.2 | | | 49.4 | | | 0.0 | |
| Approach LOS | | B | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 290 | 995 | 61 | 10 | 834 | 80 | 112 | 7 | 17 | 81 | 5 | 191 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 3502 | 3504 | | 1805 | 3525 | | | 1761 | 1590 | | 1793 | 1592 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.67 | 1.00 | | 0.65 | 1.00 |
| Satd. Flow (perm) | 3502 | 3504 | | 1805 | 3525 | | | 1243 | 1590 | | 1221 | 1592 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 302 | 1036 | 64 | 10 | 869 | 83 | 117 | 7 | 18 | 84 | 5 | 199 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 165 |
| Lane Group Flow (vph) | 302 | 1097 | 0 | 10 | 945 | 0 | 0 | 124 | 3 | 0 | 89 | 34 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 9.0 | 33.1 | | 0.7 | 24.8 | | | 10.2 | 10.2 | | 10.2 | 10.2 |
| Effective Green, g (s) | 9.5 | 33.6 | | 1.2 | 25.3 | | | 10.7 | 10.7 | | 10.7 | 10.7 |
| Actuated g/C Ratio | 0.15 | 0.54 | | 0.02 | 0.41 | | | 0.17 | 0.17 | | 0.17 | 0.17 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 537 | 1899 | | 35 | 1438 | | | 215 | 274 | | 211 | 275 |
| v/s Ratio Prot | c0.09 | c0.31 | | 0.01 | c0.27 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.07 | 0.02 |
| v/c Ratio | 0.56 | 0.58 | | 0.29 | 0.66 | | | 0.58 | 0.01 | | 0.42 | 0.12 |
| Uniform Delay, d1 | 24.3 | 9.5 | | 30.0 | 14.8 | | | 23.6 | 21.3 | | 22.9 | 21.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.0 | 0.4 | | 2.9 | 1.0 | | | 2.9 | 0.0 | | 0.8 | 0.1 |
| Delay (s) | 25.3 | 9.8 | | 32.9 | 15.8 | | | 26.5 | 21.3 | | 23.7 | 21.8 |
| Level of Service | C | A | | C | B | | | C | C | | C | C |
| Approach Delay (s) | | 13.2 | | | 16.0 | | | 25.8 | | | 22.4 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 62.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 61.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 221 | 943 | 26 | 24 | 775 | 16 | 17 | 9 | 45 | 5 | 7 | 139 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 5.6 | 5.6 | | 5.3 | 4.8 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.98 | 1.00 |
| Satd. Flow (prot) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1848 | 1609 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.97 | 1.00 | | 0.69 | 1.00 |
| Satd. Flow (perm) | 1805 | 1854 | | 1805 | 3561 | | | 1803 | 1527 | | 1304 | 1609 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 230 | 982 | 27 | 25 | 807 | 17 | 18 | 9 | 47 | 5 | 7 | 145 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 44 | 0 | 0 | 116 |
| Lane Group Flow (vph) | 230 | 1009 | 0 | 25 | 823 | 0 | 0 | 27 | 3 | 0 | 12 | 29 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Split | | Perm | Perm | | pm+ov |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | | | 4 | 5 |
| Permitted Phases | | | | | | | | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 11.5 | 48.8 | | 1.7 | 39.0 | | | 4.1 | 4.1 | | 3.6 | 15.1 |
| Effective Green, g (s) | 12.0 | 49.3 | | 2.2 | 39.5 | | | 4.6 | 4.6 | | 4.1 | 16.1 |
| Actuated g/C Ratio | 0.15 | 0.61 | | 0.03 | 0.49 | | | 0.06 | 0.06 | | 0.05 | 0.20 |
| Clearance Time (s) | 5.3 | 5.3 | | 5.3 | 5.3 | | | 6.1 | 6.1 | | 5.8 | 5.3 |
| Vehicle Extension (s) | 2.5 | 3.0 | | 1.0 | 3.0 | | | 1.0 | 1.0 | | 2.0 | 2.5 |
| Lane Grp Cap (vph) | 268 | 1133 | | 49 | 1743 | | | 103 | 87 | | 66 | 321 |
| v/s Ratio Prot | c0.13 | c0.54 | | 0.01 | 0.23 | | | c0.01 | | | | 0.01 |
| v/s Ratio Perm | | | | | | | | | 0.00 | | c0.01 | 0.00 |
| v/c Ratio | 0.86 | 0.89 | | 0.51 | 0.47 | | | 0.26 | 0.03 | | 0.18 | 0.09 |
| Uniform Delay, d1 | 33.5 | 13.4 | | 38.7 | 13.7 | | | 36.4 | 35.9 | | 36.7 | 26.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.5 | 9.0 | | 3.7 | 0.2 | | | 0.5 | 0.1 | | 0.5 | 0.1 |
| Delay (s) | 56.1 | 22.4 | | 42.4 | 13.9 | | | 36.9 | 36.0 | | 37.2 | 26.4 |
| Level of Service | E | C | | D | B | | | D | D | | D | C |
| Approach Delay (s) | | 28.6 | | | 14.7 | | | 36.3 | | | 27.2 | |
| Approach LOS | | C | | | B | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 80.7 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 76.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 103 | 1035 | 138 | 234 | 1103 | 56 | 171 | 268 | 169 | 297 | 345 | 133 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | 4.5 | 5.5 | | 4.5 | 5.0 | 4.5 | 4.5 | 5.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1703 | 3320 | | 3502 | 3339 | | 1732 | 1810 | 1543 | 1761 | 3313 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.41 | 1.00 | 1.00 | 0.59 | 1.00 | |
| Satd. Flow (perm) | 1703 | 3320 | | 3502 | 3339 | | 744 | 1810 | 1543 | 1099 | 3313 | |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 104 | 1045 | 139 | 236 | 1114 | 57 | 173 | 271 | 171 | 300 | 348 | 134 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 55 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 104 | 1177 | 0 | 236 | 1168 | 0 | 173 | 271 | 116 | 300 | 448 | 0 |
| Confl. Peds. (#/hr) | | | 7 | | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 6% | 7% | 3% | 0% | 7% | 6% | 4% | 5% | 3% | 2% | 4% | 3% |
| Turn Type | Prot | | | Prot | | | pm+pt | | pm+ov | pm+pt | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Actuated Green, G (s) | 10.0 | 54.6 | | 10.7 | 55.3 | | 21.2 | 21.2 | 31.9 | 27.3 | 26.8 | |
| Effective Green, g (s) | 10.5 | 55.1 | | 11.2 | 55.8 | | 21.7 | 21.7 | 32.9 | 27.8 | 27.3 | |
| Actuated g/C Ratio | 0.08 | 0.44 | | 0.09 | 0.45 | | 0.17 | 0.17 | 0.26 | 0.22 | 0.22 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 5.5 | 5.0 | 5.0 | 5.5 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | 2.0 | 3.5 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lane Grp Cap (vph) | 143 | 1463 | | 314 | 1491 | | 223 | 314 | 406 | 337 | 724 | |
| v/s Ratio Prot | 0.06 | c0.35 | | 0.07 | c0.35 | | 0.07 | c0.15 | 0.03 | c0.12 | 0.14 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.05 | c0.07 | | |
| v/c Ratio | 0.73 | 0.80 | | 0.75 | 0.78 | | 0.78 | 0.86 | 0.29 | 0.89 | 0.62 | |
| Uniform Delay, d1 | 55.9 | 30.3 | | 55.5 | 29.5 | | 47.6 | 50.2 | 36.7 | 45.8 | 44.1 | |
| Progression Factor | 1.00 | 1.00 | | 0.61 | 0.96 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 14.4 | 4.8 | | 5.3 | 2.5 | | 14.2 | 20.3 | 0.1 | 23.5 | 1.1 | |
| Delay (s) | 70.3 | 35.1 | | 39.2 | 30.9 | | 61.8 | 70.5 | 36.8 | 69.4 | 45.3 | |
| Level of Service | E | D | | D | C | | E | E | D | E | D | |
| Approach Delay (s) | | 37.9 | | | 32.3 | | | 58.7 | | | 54.5 | |
| Approach LOS | | D | | | C | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 42.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 20.5 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 55 | 1515 | 83 | 0 | 1146 | 0 | 95 | 312 | 333 | 194 | 673 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3448 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3448 | | | 3438 | | 1770 | 1863 | 1574 | 1787 | 3497 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 59 | 1612 | 88 | 0 | 1219 | 0 | 101 | 332 | 354 | 206 | 716 | 96 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 59 | 1697 | 0 | 0 | 1219 | 0 | 101 | 332 | 274 | 206 | 802 | 0 |
| Confl. Peds. (#/hr) | | | 4 | | | 2 | | | 3 | | | 16 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.2 | 65.2 | | | 53.0 | | 9.9 | 24.1 | 24.1 | 18.7 | 32.9 | |
| Effective Green, g (s) | 7.7 | 65.7 | | | 53.5 | | 10.4 | 24.6 | 24.6 | 19.2 | 33.4 | |
| Actuated g/C Ratio | 0.06 | 0.53 | | | 0.43 | | 0.08 | 0.20 | 0.20 | 0.15 | 0.27 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 106 | 1812 | | | 1471 | | 147 | 367 | 310 | 274 | 934 | |
| v/s Ratio Prot | 0.03 | c0.49 | | | 0.35 | | 0.06 | c0.18 | | 0.12 | c0.23 | |
| v/s Ratio Perm | | | | | | | | | 0.17 | | | |
| v/c Ratio | 0.56 | 0.94 | | | 0.83 | | 0.69 | 0.90 | 0.88 | 0.75 | 0.86 | |
| Uniform Delay, d1 | 57.0 | 27.7 | | | 31.7 | | 55.7 | 49.1 | 48.8 | 50.6 | 43.6 | |
| Progression Factor | 1.20 | 0.74 | | | 1.09 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | 8.5 | | | 4.4 | | 12.5 | 24.3 | 23.7 | 11.0 | 7.7 | |
| Delay (s) | 70.9 | 29.0 | | | 38.9 | | 68.3 | 73.4 | 72.5 | 61.7 | 51.2 | |
| Level of Service | E | C | | | D | | E | E | E | E | D | |
| Approach Delay (s) | | 30.4 | | | 38.9 | | | 72.3 | | | 53.3 | |
| Approach LOS | | C | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 125.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 89.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 23 | 10 | 240 | 0 | 244 | 2 | 334 | 369 | 433 | 474 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.6 | | | 5.3 | 5.6 | 4.8 | 4.8 | | 4.8 | 4.8 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | 0.90 | 1.00 | 0.98 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.98 | | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 1.00 | |
| Flt Protected | | 0.98 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1785 | | | 1805 | 1456 | 1748 | 1719 | | 1787 | 1893 | |
| Flt Permitted | | 0.98 | | | 0.95 | 1.00 | 0.48 | 1.00 | | 0.08 | 1.00 | |
| Satd. Flow (perm) | | 1785 | | | 1805 | 1456 | 880 | 1719 | | 157 | 1893 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 24 | 10 | 250 | 0 | 254 | 2 | 348 | 384 | 451 | 494 | 10 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 240 | 0 | 25 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 52 | 0 | 0 | 250 | 14 | 2 | 707 | 0 | 451 | 504 | 0 |
| Confl. Peds. (#/hr) | 9 | | 2 | 2 | | 9 | 3 | | 4 | 4 | | 3 |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Split | | | Split | | custom | pm+pt | | | pm+pt | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | | | 8 | 6 | | | 2 | | |
| Actuated Green, G (s) | | 7.6 | | | 20.0 | 7.6 | 65.3 | 64.3 | | 99.6 | 93.3 | |
| Effective Green, g (s) | | 8.1 | | | 20.5 | 8.1 | 66.3 | 64.8 | | 100.1 | 93.8 | |
| Actuated g/C Ratio | | 0.06 | | | 0.14 | 0.06 | 0.46 | 0.45 | | 0.69 | 0.65 | |
| Clearance Time (s) | | 6.1 | | | 5.8 | 6.1 | 5.3 | 5.3 | | 5.3 | 5.3 | |
| Vehicle Extension (s) | | 1.0 | | | 2.0 | 1.0 | 1.0 | 3.0 | | 2.5 | 0.2 | |
| Lane Grp Cap (vph) | | 100 | | | 256 | 82 | 413 | 771 | | 453 | 1230 | |
| v/s Ratio Prot | | c0.03 | | | c0.14 | | 0.00 | 0.41 | | c0.21 | 0.27 | |
| v/s Ratio Perm | | | | | | 0.01 | 0.00 | | | c0.48 | | |
| v/c Ratio | | 0.52 | | | 0.98 | 0.17 | 0.00 | 0.92 | | 1.00 | 0.41 | |
| Uniform Delay, d1 | | 66.3 | | | 61.7 | 65.0 | 21.1 | 37.3 | | 45.6 | 12.1 | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.3 | | | 49.0 | 0.4 | 0.0 | 15.5 | | 40.9 | 0.1 | |
| Delay (s) | | 68.5 | | | 110.8 | 65.3 | 21.1 | 52.8 | | 86.5 | 12.2 | |
| Level of Service | | E | | | F | E | C | D | | F | B | |
| Approach Delay (s) | | 68.5 | | | 87.9 | | | 52.7 | | | 47.2 | |
| Approach LOS | | E | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 58.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 144.4 | Sum of lost time (s) | 15.7 |
| Intersection Capacity Utilization | 96.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 42 | 117 | 13 | 166 | 122 | 64 | 16 | 486 | 218 | 65 | 571 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.5 | 3.5 | | 3.5 | 3.5 | | 3.5 | 4.0 | | 3.5 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1782 | 1830 | | 1781 | 1739 | | 1769 | 1789 | | 1804 | 1860 | |
| Flt Permitted | 0.64 | 1.00 | | 0.42 | 1.00 | | 0.25 | 1.00 | | 0.17 | 1.00 | |
| Satd. Flow (perm) | 1191 | 1830 | | 785 | 1739 | | 468 | 1789 | | 319 | 1860 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 44 | 123 | 14 | 175 | 128 | 67 | 17 | 512 | 229 | 68 | 601 | 79 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 16 | 0 | 0 | 11 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 44 | 133 | 0 | 175 | 179 | 0 | 17 | 730 | 0 | 68 | 677 | 0 |
| Confl. Peds. (#/hr) | 15 | | 7 | 7 | | 15 | 7 | | 8 | 8 | | 7 |
| Heavy Vehicles (%) | 0% | 2% | 1% | 1% | 3% | 0% | 2% | 0% | 1% | 0% | 0% | 0% |
| Turn Type | pm+pt | | | pm+pt | | | pm+pt | | | pm+pt | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.3 | 12.4 | | 25.7 | 18.8 | | 47.1 | 45.6 | | 51.5 | 47.8 | |
| Effective Green, g (s) | 16.3 | 12.9 | | 26.2 | 19.3 | | 48.1 | 46.1 | | 52.5 | 48.3 | |
| Actuated g/C Ratio | 0.19 | 0.15 | | 0.30 | 0.22 | | 0.55 | 0.53 | | 0.60 | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.5 | | 4.0 | 4.5 | |
| Vehicle Extension (s) | 2.2 | 2.2 | | 2.2 | 2.2 | | 2.2 | 5.0 | | 2.2 | 5.0 | |
| Lane Grp Cap (vph) | 245 | 270 | | 347 | 384 | | 287 | 943 | | 263 | 1027 | |
| v/s Ratio Prot | 0.01 | 0.07 | | c0.06 | 0.10 | | 0.00 | c0.41 | | c0.01 | 0.36 | |
| v/s Ratio Perm | 0.03 | | | c0.09 | | | 0.03 | | | 0.14 | | |
| v/c Ratio | 0.18 | 0.49 | | 0.50 | 0.47 | | 0.06 | 0.77 | | 0.26 | 0.66 | |
| Uniform Delay, d1 | 29.7 | 34.3 | | 24.1 | 29.6 | | 10.8 | 16.5 | | 11.9 | 13.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.7 | | 0.6 | 0.5 | | 0.0 | 4.7 | | 0.3 | 2.1 | |
| Delay (s) | 29.9 | 35.0 | | 24.7 | 30.1 | | 10.8 | 21.2 | | 12.2 | 15.9 | |
| Level of Service | C | D | | C | C | | B | C | | B | B | |
| Approach Delay (s) | | 33.8 | | | 27.5 | | | 21.0 | | | 15.5 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 87.5 | Sum of lost time (s) | 14.5 |
| Intersection Capacity Utilization | 74.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/Martinazzi
Jurisdiction:
Units: U. S. Customary
Analysis Year: Total
Project ID:
East/West Street: Sagert
North/South Street: Martinazzi

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 127 | 233 | 12 | 90 | 195 | 164 | 2 | | 76 | 207 | 306 | 0 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| % Heavy Veh | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| Left-Turn | 141 | 0 | 100 | 0 | 2 | 0 | 230 | 0 |
| Right-Turn | 0 | 13 | 0 | 182 | 0 | 84 | 0 | 0 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.3 | 0.0 | 0.0 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.0 | 0.5 | -0.3 | 0.5 | -0.2 | 0.5 | 0.0 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.13 | 0.24 | 0.09 | 0.35 | 0.00 | 0.25 | 0.20 | 0.30 |
| hd, final value | 8.96 | 8.42 | 8.76 | 7.94 | 9.19 | 8.48 | 8.72 | 8.22 |
| x, final value | 0.35 | 0.63 | 0.24 | 0.88 | 0.01 | 0.67 | 0.56 | 0.78 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 6.7 | 6.1 | 6.5 | 5.6 | 6.9 | 6.2 | 6.4 | 5.9 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 141 | 271 | 100 | 398 | 2 | 284 | 230 | 340 |
| Service Time | 6.7 | 6.1 | 6.5 | 5.6 | 6.9 | 6.2 | 6.4 | 5.9 |
| Utilization, x | 0.35 | 0.63 | 0.24 | 0.88 | 0.01 | 0.67 | 0.56 | 0.78 |
| Dep. headway, hd | 8.96 | 8.42 | 8.76 | 7.94 | 9.19 | 8.48 | 8.72 | 8.22 |
| Capacity | 391 | 418 | 350 | 450 | 252 | 413 | 407 | 433 |
| Delay | 16.42 | 24.61 | 14.25 | 45.54 | 11.93 | 26.70 | 21.85 | 34.14 |
| LOS | C | C | B | E | B | D | C | D |
| Approach: | | | | | | | | |
| Delay | 21.81 | | 39.26 | | 26.59 | | 29.18 | |
| LOS | C | | E | | D | | D | |

Intersection Delay 29.88 Intersection LOS D

Phone: Fax:
E-Mail:

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst:
Agency/Co.:
Date Performed: 4/16/2013
Analysis Time Period: Weekday PM
Intersection: Sagert/65th
Jurisdiction:
Units: U. S. Customary
Analysis Year: Total
Project ID:
East/West Street: Sagert
North/South Street: 65th

### Worksheet 2 - Volume Adjustments and Site Characteristics

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| Volume | 401 | 2 | 135 | 2 | 7 | 6 | 58 | | 3 | 3 | 340 | 386 |
| % Thrus Left Lane | | | | | | | | | | | | |

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Configuration | L | TR | L | TR | L | TR | L | TR |
| PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| % Heavy Veh | 1 | 1 | 0 | 0 | 1 | 2 | 1 | 2 |
| No. Lanes | 2 | | 2 | | 2 | | 2 | |
| Opposing-Lanes | 2 | | 2 | | 2 | | 2 | |
| Conflicting-lanes | 2 | | 2 | | 2 | | 2 | |
| Geometry group | 5 | | 5 | | 5 | | 5 | |

Duration, T 0.25 hrs.

### Worksheet 3 - Saturation Headway Adjustment Worksheet

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rates: | | | | | | | | |
| Total in Lane | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| Left-Turn | 445 | 0 | 2 | 0 | 64 | 0 | 3 | 0 |
| Right-Turn | 0 | 150 | 0 | 6 | 0 | 3 | 0 | 428 |
| Prop. Left-Turns | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 |
| Prop. Right-Turns | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| Prop. Heavy Vehicle | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Geometry Group | 5 | | 5 | | 5 | | 5 | |
| Adjustments Exhibit 17-33: | | | | | | | | |
| hLT-adj | 0.5 | | 0.5 | | 0.5 | | 0.5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| hRT-adj | -0.7 | | -0.7 | | -0.7 | | -0.7 | |
| hHV-adj | 1.7 | | 1.7 | | 1.7 | | 1.7 | |
| hadj, computed | 0.5 | -0.7 | 0.5 | -0.3 | 0.5 | 0.0 | 0.5 | -0.3 |

## Worksheet 4 - Departure Headway and Service Time

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| hd, initial value | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| x, initial | 0.40 | 0.14 | 0.00 | 0.01 | 0.06 | 0.29 | 0.00 | 0.72 |
| hd, final value | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.92 |
| x, final value | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.55 |
| Move-up time, m | 2.3 | | 2.3 | | 2.3 | | 2.3 | |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |

## Worksheet 5 - Capacity and Level of Service

| | Eastbound | | Westbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|
| | L1 | L2 | L1 | L2 | L1 | L2 | L1 | L2 |
| Flow Rate | 445 | 152 | 2 | 13 | 64 | 323 | 3 | 805 |
| Service Time | 5.4 | 4.2 | 6.9 | 6.1 | 5.7 | 5.2 | 5.5 | 4.6 |
| Utilization, x | 0.96 | 0.28 | 0.01 | 0.03 | 0.14 | 0.67 | 0.01 | 1.55 |
| Dep. headway, hd | 7.73 | 6.54 | 9.23 | 8.40 | 8.00 | 7.51 | 7.77 | 6.92 |
| Capacity | 466 | 402 | 252 | 263 | 314 | 475 | 253 | 805 |
| Delay | 58.85 | 11.71 | 11.98 | 11.37 | 12.02 | 24.33 | 10.52 | 273.87 |
| LOS | F | B | B | B | B | C | B | F |
| Approach: | | | | | | | | |
| Delay | 46.85 | | 11.45 | | 22.29 | | 272.89 | |
| LOS | E | | B | | C | | F | |

Intersection Delay 142.37 Intersection LOS F

| Movement | EBT | EBR | WBL | WBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 1051 | 10 | 0 | 1384 | 0 | 35 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1142 | 11 | 0 | 1504 | 0 | 38 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | None | | |
| Median storage veh) | 2 | | | | | |
| Upstream signal (ft) | 252 | | | | | |
| pX, platoon unblocked | | | 0.63 | | 0.63 | 0.63 |
| vC, conflicting volume | | | 1153 | | 1900 | 1148 |
| vC1, stage 1 conf vol | | | | | 1148 | |
| vC2, stage 2 conf vol | | | | | 752 | |
| vCu, unblocked vol | | | 949 | | 2136 | 940 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 77 |
| cM capacity (veh/h) | | | 453 | | 185 | 167 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NW 1 |
|---|---|---|---|---|
| Volume Total | 1153 | 752 | 752 | 38 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 11 | 0 | 0 | 38 |
| cSH | 1700 | 1700 | 1700 | 167 |
| Volume to Capacity | 0.68 | 0.44 | 0.44 | 0.23 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 21 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 32.9 |
| Lane LOS | | | | D |
| Approach Delay (s) | 0.0 | 0.0 | | 32.9 |
| Approach LOS | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 65.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 435 | 127 | 318 | 429 | 201 | 309 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1599 | 1787 | 1845 | 1770 | 1582 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1599 | 1787 | 1845 | 1770 | 1582 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 458 | 134 | 335 | 452 | 212 | 325 |
| RTOR Reduction (vph) | 0 | 89 | 0 | 0 | 0 | 86 |
| Lane Group Flow (vph) | 458 | 45 | 335 | 452 | 212 | 239 |
| Confl. Peds. (#/hr) | | 11 | 11 | | 1 | 3 |
| Confl. Bikes (#/hr) | 4 | | 2 | 10 | 1 | |
| Heavy Vehicles (%) | 2% | 1% | 1% | 3% | 2% | 1% |
| Turn Type | | Prot | Prot | | | pm+ov |
| Protected Phases | 2 | 2 | 1 | 6 | 8 | 1 |
| Permitted Phases | | | | | 8 | 8 |
| Actuated Green, G (s) | 20.0 | 20.0 | 16.8 | 41.8 | 12.6 | 29.4 |
| Effective Green, g (s) | 20.5 | 20.5 | 17.3 | 42.3 | 13.1 | 30.4 |
| Actuated g/C Ratio | 0.32 | 0.32 | 0.27 | 0.66 | 0.20 | 0.47 |
| Clearance Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 593 | 509 | 480 | 1212 | 360 | 857 |
| v/s Ratio Prot | c0.25 | 0.03 | c0.19 | 0.25 | c0.12 | 0.07 |
| v/s Ratio Perm | | | | | | 0.08 |
| v/c Ratio | 0.77 | 0.09 | 0.70 | 0.37 | 0.59 | 0.28 |
| Uniform Delay, d1 | 19.8 | 15.4 | 21.2 | 5.0 | 23.2 | 10.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.2 | 0.1 | 4.4 | 0.2 | 2.5 | 0.2 |
| Delay (s) | 26.0 | 15.5 | 25.6 | 5.2 | 25.7 | 10.5 |
| Level of Service | C | B | C | A | C | B |
| Approach Delay (s) | 23.6 | | | 13.9 | 16.5 | |
| Approach LOS | C | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 64.4 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 63.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 37 | 0 | 45 | 65 | 0 | 136 | 81 | 337 | 84 | 185 | 212 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 1.5 | 1.5 | | | 1.5 | 1.5 | 1.5 | 1.5 | | 1.5 | 1.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 0.99 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.85 | | | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | | 0.95 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1790 | 1592 | | | 1770 | 1583 | 1804 | 1822 | | 1770 | 1815 | |
| Flt Permitted | 0.75 | 1.00 | | | 0.75 | 1.00 | 0.59 | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 1422 | 1592 | | | 1406 | 1583 | 1115 | 1822 | | 638 | 1815 | |
| Peak-hour factor, PHF | 0.91 | 0.92 | 0.91 | 0.92 | 0.92 | 0.92 | 0.91 | 0.91 | 0.92 | 0.92 | 0.91 | 0.91 |
| Adj. Flow (vph) | 41 | 0 | 49 | 71 | 0 | 148 | 89 | 370 | 91 | 201 | 233 | 48 |
| RTOR Reduction (vph) | 0 | 40 | 0 | 0 | 0 | 121 | 0 | 11 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 41 | 9 | 0 | 0 | 71 | 27 | 89 | 450 | 0 | 201 | 271 | 0 |
| Confl. Peds. (#/hr) | 10 | | 4 | | | | 1 | | | | | 1 |
| Confl. Bikes (#/hr) | | | | | | | | 2 | | | 3 | |
| Heavy Vehicles (%) | 0% | 2% | 0% | 2% | 2% | 2% | 0% | 1% | 2% | 2% | 2% | 0% |
| Turn Type | Perm | | | Perm | | Perm | pm+pt | | | pm+pt | | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 4.8 | 4.8 | | | 4.8 | 4.8 | 17.1 | 14.2 | | 20.1 | 15.7 | |
| Effective Green, g (s) | 5.3 | 5.3 | | | 5.3 | 5.3 | 18.1 | 14.7 | | 21.1 | 16.2 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | | 0.18 | 0.18 | 0.62 | 0.50 | | 0.72 | 0.55 | |
| Clearance Time (s) | 2.0 | 2.0 | | | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 256 | 287 | | | 253 | 285 | 766 | 911 | | 647 | 1000 | |
| v/s Ratio Prot | | 0.01 | | | | | 0.01 | c0.25 | | c0.05 | 0.15 | |
| v/s Ratio Perm | 0.03 | | | | c0.05 | 0.02 | 0.06 | | | 0.17 | | |
| v/c Ratio | 0.16 | 0.03 | | | 0.28 | 0.09 | 0.12 | 0.49 | | 0.31 | 0.27 | |
| Uniform Delay, d1 | 10.2 | 9.9 | | | 10.4 | 10.0 | 2.3 | 4.9 | | 1.9 | 3.5 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.0 | | | 0.6 | 0.1 | 0.1 | 0.4 | | 0.3 | 0.1 | |
| Delay (s) | 10.5 | 10.0 | | | 11.0 | 10.2 | 2.4 | 5.3 | | 2.2 | 3.6 | |
| Level of Service | B | A | | | B | B | A | A | | A | A | |
| Approach Delay (s) | | 10.2 | | | 10.5 | | | 4.8 | | | 3.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 29.4 | Sum of lost time (s) | 4.5 |
| Intersection Capacity Utilization | 53.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 16 | 1 | 63 | 260 | 37 | 237 | 23 | 240 | 36 | 0 | 314 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | | | 5.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1805 | 1603 | | 1698 | 1727 | 1543 | 1683 | 1837 | | | 3559 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 | 0.54 | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 1805 | 1603 | | 1698 | 1727 | 1543 | 957 | 1837 | | | 3559 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 18 | 1 | 69 | 286 | 41 | 260 | 25 | 264 | 40 | 0 | 345 | 9 |
| RTOR Reduction (vph) | 0 | 63 | 0 | 0 | 0 | 202 | 0 | 8 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 18 | 7 | 0 | 163 | 164 | 58 | 25 | 296 | 0 | 0 | 351 | 0 |
| Confl. Peds. (#/hr) | 2 | | | | | 2 | 3 | | 16 | 16 | | 3 |
| Confl. Bikes (#/hr) | | | | | | 2 | | | | | 3 | |
| Heavy Vehicles (%) | 0% | 0% | 1% | 1% | 0% | 2% | 7% | 1% | 0% | 0% | 1% | 0% |
| Turn Type | Split | | | Split | | Perm | Perm | | | | | |
| Protected Phases | 8 | 8 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 3.1 | 3.1 | | 9.1 | 9.1 | 9.1 | 12.5 | 12.5 | | | 12.5 | |
| Effective Green, g (s) | 3.6 | 3.6 | | 9.6 | 9.6 | 9.6 | 13.0 | 13.0 | | | 13.0 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.22 | 0.22 | 0.22 | 0.30 | 0.30 | | | 0.30 | |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | | | 6.0 | |
| Vehicle Extension (s) | 2.5 | 2.5 | | 2.5 | 2.5 | 2.5 | 5.0 | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | 152 | 135 | | 382 | 388 | 347 | 291 | 559 | | | 1084 | |
| v/s Ratio Prot | c0.01 | 0.00 | | c0.10 | 0.09 | | | c0.16 | | | 0.10 | |
| v/s Ratio Perm | | | | | | 0.04 | 0.03 | | | | | |
| v/c Ratio | 0.12 | 0.05 | | 0.43 | 0.42 | 0.17 | 0.09 | 0.53 | | | 0.32 | |
| Uniform Delay, d1 | 18.1 | 18.0 | | 14.2 | 14.2 | 13.3 | 10.6 | 12.3 | | | 11.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | 0.6 | 0.5 | 0.2 | 0.3 | 1.8 | | | 0.4 | |
| Delay (s) | 18.3 | 18.1 | | 14.8 | 14.7 | 13.5 | 10.9 | 14.1 | | | 11.8 | |
| Level of Service | B | B | | B | B | B | B | B | | | B | |
| Approach Delay (s) | | 18.1 | | | 14.2 | | | 13.8 | | | 11.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 42.7 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 48.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 37 | 0 | 466 | 60 | 0 | 67 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 42 | 0 | 530 | 68 | 0 | 76 |
| Pedestrians | | | | | 4 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 4.0 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 232 | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 602 | | | | 652 | 303 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 602 | | | | 652 | 303 |
| tC, single (s) | 4.1 | | | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 89 |
| cM capacity (veh/h) | 982 | | | | 387 | 697 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 42 | 353 | 245 | 76 |
| Volume Left | 42 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 68 | 76 |
| cSH | 982 | 1700 | 1700 | 697 |
| Volume to Capacity | 0.04 | 0.21 | 0.14 | 0.11 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 10 |
| Control Delay (s) | 8.8 | 0.0 | 0.0 | 10.8 |
| Lane LOS | A | | | B |
| Approach Delay (s) | 8.8 | 0.0 | | 10.8 |
| Approach LOS | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 1335 | 59 | 257 | 1458 | 361 | 57 | 25 | 248 | 373 | 40 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 6.0 | | 4.5 | 6.0 | 6.0 | | 5.0 | 4.5 | 5.0 | 5.0 | |
| Lane Util. Factor | 1.00 | *0.75 | | 0.97 | 0.91 | 1.00 | | 1.00 | 1.00 | 0.97 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.97 | | 1.00 | 1.00 | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1805 | 4091 | | 3502 | 4988 | 1565 | | 1799 | 1599 | 3467 | 1634 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.97 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1805 | 4091 | | 3502 | 4988 | 1565 | | 1799 | 1599 | 3467 | 1634 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 184 | 1362 | 60 | 262 | 1488 | 368 | 58 | 26 | 253 | 381 | 41 | 194 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 201 | 0 | 0 | 0 | 0 | 164 | 0 |
| Lane Group Flow (vph) | 184 | 1419 | 0 | 262 | 1488 | 167 | 0 | 84 | 253 | 381 | 71 | 0 |
| Confl. Peds. (#/hr) | | | | | | 4 | | | | | | 9 |
| Confl. Bikes (#/hr) | | | | | 1 | | | 1 | | 1 | | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | 3% | 0% | 1% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | Perm | Split | | pt+ov | Split | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | 8 | 1 8 | 4 | 4 | |
| Permitted Phases | | | | | | 6 | | | | | | |
| Actuated Green, G (s) | 14.8 | 49.6 | | 17.0 | 51.8 | 51.8 | | 8.5 | 25.5 | 17.4 | 17.4 | |
| Effective Green, g (s) | 15.3 | 50.1 | | 17.5 | 52.3 | 52.3 | | 9.0 | 26.5 | 17.9 | 17.9 | |
| Actuated g/C Ratio | 0.13 | 0.44 | | 0.15 | 0.45 | 0.45 | | 0.08 | 0.23 | 0.16 | 0.16 | |
| Clearance Time (s) | 5.0 | 6.5 | | 5.0 | 6.5 | 6.5 | | 5.5 | | 5.5 | 5.5 | |
| Vehicle Extension (s) | 2.5 | 4.0 | | 2.5 | 4.0 | 4.0 | | 2.5 | | 2.5 | 2.5 | |
| Lane Grp Cap (vph) | 240 | 1782 | | 533 | 2268 | 712 | | 141 | 368 | 540 | 254 | |
| v/s Ratio Prot | 0.10 | c0.35 | | 0.07 | c0.30 | | | 0.05 | c0.16 | c0.11 | 0.04 | |
| v/s Ratio Perm | | | | | | 0.11 | | | | | | |
| v/c Ratio | 0.77 | 0.80 | | 0.49 | 0.66 | 0.24 | | 0.60 | 0.69 | 0.71 | 0.28 | |
| Uniform Delay, d1 | 48.1 | 28.0 | | 44.7 | 24.4 | 19.1 | | 51.2 | 40.5 | 46.1 | 42.9 | |
| Progression Factor | 0.90 | 1.35 | | 0.96 | 0.90 | 1.07 | | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 10.1 | 2.9 | | 0.3 | 1.0 | 0.5 | | 5.5 | 4.8 | 3.9 | 0.4 | |
| Delay (s) | 53.6 | 40.7 | | 43.3 | 23.0 | 20.9 | | 56.8 | 45.3 | 49.9 | 43.3 | |
| Level of Service | D | D | | D | C | C | | E | D | D | D | |
| Approach Delay (s) | | 42.2 | | | 25.2 | | | 48.2 | | | 47.4 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 35.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 77.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1484 | 480 | 193 | 1150 | 0 | 0 | 0 | 0 | 620 | 3 | 965 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | 5.5 | 5.5 | | | | | 5.5 | 5.5 | 5.5 |
| Lane Util. Factor | | *0.75 | 1.00 | 1.00 | 0.95 | | | | | 0.95 | 0.95 | 0.88 |
| Frpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | | 1.00 | 1.00 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Flt Permitted | | 1.00 | 1.00 | 0.95 | 1.00 | | | | | 0.95 | 0.95 | 1.00 |
| Satd. Flow (perm) | | 4150 | 1568 | 1787 | 3471 | | | | | 1681 | 1683 | 2760 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 0 | 1499 | 485 | 195 | 1162 | 0 | 0 | 0 | 0 | 626 | 3 | 975 |
| RTOR Reduction (vph) | 0 | 0 | 242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 0 | 1499 | 243 | 195 | 1162 | 0 | 0 | 0 | 0 | 313 | 316 | 935 |
| Confl. Bikes (#/hr) | | 1 | | | 2 | | | | | | | |
| Heavy Vehicles (%) | 0% | 3% | 3% | 1% | 4% | 0% | 0% | 0% | 0% | 2% | 20% | 3% |
| Turn Type | | | Perm | Prot | | | | | | Split | | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | | 4 | 4 | 4 5 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 49.4 | 49.4 | 17.0 | 55.4 | | | | | 30.6 | 30.6 | 47.6 |
| Effective Green, g (s) | | 49.9 | 49.9 | 17.5 | 55.9 | | | | | 31.1 | 31.1 | 44.6 |
| Actuated g/C Ratio | | 0.43 | 0.43 | 0.15 | 0.49 | | | | | 0.27 | 0.27 | 0.39 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | | | | | 6.0 | 6.0 | |
| Vehicle Extension (s) | | 6.1 | 6.1 | 2.3 | 6.1 | | | | | 2.3 | 2.3 | |
| Lane Grp Cap (vph) | | 1801 | 680 | 272 | 1687 | | | | | 455 | 455 | 1070 |
| v/s Ratio Prot | | c0.36 | | c0.11 | 0.33 | | | | | 0.19 | 0.19 | c0.34 |
| v/s Ratio Perm | | | 0.16 | | | | | | | | | |
| v/c Ratio | | 0.83 | 0.36 | 0.72 | 0.69 | | | | | 0.69 | 0.69 | 0.87 |
| Uniform Delay, d1 | | 28.8 | 21.8 | 46.4 | 22.8 | | | | | 37.6 | 37.7 | 32.6 |
| Progression Factor | | 0.60 | 0.38 | 0.88 | 0.62 | | | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 3.3 | 1.0 | 7.3 | 2.2 | | | | | 3.7 | 4.0 | 7.9 |
| Delay (s) | | 20.5 | 9.4 | 48.1 | 16.3 | | | | | 41.3 | 41.7 | 40.5 |
| Level of Service | | C | A | D | B | | | | | D | D | D |
| Approach Delay (s) | | 17.8 | | | 20.9 | | | 0.0 | | | 40.9 | |
| Approach LOS | | B | | | C | | | A | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 26.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 74.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1110 | 998 | 0 | 668 | 666 | 672 | 0 | 219 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.5 | 5.5 | | 6.0 | 6.0 | 5.5 | 5.5 | 5.5 | | | |
| Lane Util. Factor | | 0.95 | 0.88 | | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | | | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | | | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (prot) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | | | |
| Satd. Flow (perm) | | 3574 | 2694 | | 3574 | 1583 | 1618 | 1618 | 1559 | | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1168 | 1051 | 0 | 703 | 701 | 707 | 0 | 231 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 388 | 0 | 0 | 262 | 0 | 0 | 28 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1168 | 663 | 0 | 703 | 439 | 353 | 354 | 203 | 0 | 0 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 5 | | | | | 1 | | |
| Heavy Vehicles (%) | 0% | 1% | 3% | 0% | 1% | 2% | 6% | 20% | 2% | 0% | 0% | 0% |
| Turn Type | | | Perm | | | Perm | Split | | Perm | | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | | |
| Permitted Phases | | | 2 | | | 6 | | | 8 | | | |
| Actuated Green, G (s) | | 72.0 | 72.0 | | 71.5 | 71.5 | 31.0 | 31.0 | 31.0 | | | |
| Effective Green, g (s) | | 72.5 | 72.5 | | 72.0 | 72.0 | 31.5 | 31.5 | 31.5 | | | |
| Actuated g/C Ratio | | 0.63 | 0.63 | | 0.63 | 0.63 | 0.27 | 0.27 | 0.27 | | | |
| Clearance Time (s) | | 6.0 | 6.0 | | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 | | | |
| Vehicle Extension (s) | | 6.1 | 6.1 | | 4.2 | 4.2 | 2.3 | 2.3 | 2.3 | | | |
| Lane Grp Cap (vph) | | 2253 | 1698 | | 2238 | 991 | 443 | 443 | 427 | | | |
| v/s Ratio Prot | | c0.33 | | | 0.20 | | 0.22 | c0.22 | | | | |
| v/s Ratio Perm | | | 0.25 | | | 0.28 | | | 0.13 | | | |
| v/c Ratio | | 0.52 | 0.39 | | 0.31 | 0.44 | 0.80 | 0.80 | 0.47 | | | |
| Uniform Delay, d1 | | 11.7 | 10.4 | | 10.0 | 11.1 | 38.8 | 38.8 | 34.8 | | | |
| Progression Factor | | 1.39 | 3.10 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Incremental Delay, d2 | | 0.6 | 0.4 | | 0.4 | 1.4 | 9.2 | 9.3 | 0.5 | | | |
| Delay (s) | | 16.7 | 32.8 | | 10.4 | 12.6 | 48.0 | 48.1 | 35.3 | | | |
| Level of Service | | B | C | | B | B | D | D | D | | | |
| Approach Delay (s) | | 24.3 | | | 11.5 | | | 44.9 | | | 0.0 | |
| Approach LOS | | C | | | B | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 69.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 524 | 593 | 57 | 15 | 732 | 101 | 103 | 11 | 12 | 101 | 11 | 322 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.5 | 5.5 | | 5.5 | 5.5 | | | 5.5 | 5.5 | | 5.5 | 5.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.99 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.96 | 1.00 | | 0.96 | 1.00 |
| Satd. Flow (prot) | 3502 | 3486 | | 1805 | 3505 | | | 1768 | 1593 | | 1799 | 1594 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.66 | 1.00 | | 0.66 | 1.00 |
| Satd. Flow (perm) | 3502 | 3486 | | 1805 | 3505 | | | 1229 | 1593 | | 1248 | 1594 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 546 | 618 | 59 | 16 | 762 | 105 | 107 | 11 | 12 | 105 | 11 | 335 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 9 | 0 | 0 | 0 | 10 | 0 | 0 | 279 |
| Lane Group Flow (vph) | 546 | 672 | 0 | 16 | 858 | 0 | 0 | 118 | 2 | 0 | 116 | 56 |
| Confl. Peds. (#/hr) | 8 | | 2 | 2 | | 8 | 1 | | 2 | 2 | | 1 |
| Confl. Bikes (#/hr) | | 1 | | | 3 | | | | | | | |
| Heavy Vehicles (%) | 0% | 2% | 2% | 0% | 1% | 0% | 3% | 0% | 0% | 1% | 0% | 0% |
| Turn Type | Prot | | | Prot | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 14.5 | 38.4 | | 0.8 | 24.7 | | | 10.9 | 10.9 | | 10.9 | 10.9 |
| Effective Green, g (s) | 15.0 | 38.9 | | 1.3 | 25.2 | | | 11.4 | 11.4 | | 11.4 | 11.4 |
| Actuated g/C Ratio | 0.22 | 0.57 | | 0.02 | 0.37 | | | 0.17 | 0.17 | | 0.17 | 0.17 |
| Clearance Time (s) | 6.0 | 6.0 | | 6.0 | 6.0 | | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.3 | 2.5 | | 2.4 | 2.5 | | | 2.4 | 2.4 | | 2.3 | 2.3 |
| Lane Grp Cap (vph) | 771 | 1991 | | 34 | 1297 | | | 206 | 267 | | 209 | 267 |
| v/s Ratio Prot | c0.16 | 0.19 | | 0.01 | c0.24 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.10 | 0.00 | | 0.09 | 0.04 |
| v/c Ratio | 0.71 | 0.34 | | 0.47 | 0.66 | | | 0.57 | 0.01 | | 0.56 | 0.21 |
| Uniform Delay, d1 | 24.5 | 7.8 | | 33.1 | 17.9 | | | 26.1 | 23.6 | | 26.0 | 24.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | 0.1 | | 6.6 | 1.2 | | | 3.0 | 0.0 | | 2.3 | 0.2 |
| Delay (s) | 27.2 | 7.8 | | 39.7 | 19.0 | | | 29.1 | 23.6 | | 28.3 | 24.7 |
| Level of Service | C | A | | D | B | | | C | C | | C | C |
| Approach Delay (s) | | 16.5 | | | 19.4 | | | 28.6 | | | 25.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 68.1 | Sum of lost time (s) | 16.5 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 1194 | 141 | 0 | 1163 | 0 | 100 | 225 | 252 | 129 | 415 | 93 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 5.5 | | | 5.5 | | 4.5 | 5.5 | 5.5 | 4.5 | 5.5 | |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 3430 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3466 | |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 3430 | | | 3438 | | 1770 | 1863 | 1537 | 1787 | 3466 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 80 | 1270 | 150 | 0 | 1237 | 0 | 106 | 239 | 268 | 137 | 441 | 99 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 80 | 1414 | 0 | 0 | 1237 | 0 | 106 | 239 | 164 | 137 | 521 | 0 |
| Confl. Peds. (#/hr) | | | | | | 6 | | | 23 | | | 3 |
| Heavy Vehicles (%) | 5% | 4% | 0% | 0% | 5% | 0% | 2% | 2% | 1% | 1% | 1% | 1% |
| Turn Type | Prot | | | | | | Prot | | Perm | Prot | | |
| Protected Phases | 5 | 2 | | | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | | | | | | | 8 | | | |
| Actuated Green, G (s) | 8.6 | 66.5 | | | 52.9 | | 10.6 | 17.9 | 17.9 | 13.6 | 20.9 | |
| Effective Green, g (s) | 9.1 | 67.0 | | | 53.4 | | 11.1 | 18.4 | 18.4 | 14.1 | 21.4 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | | 0.46 | | 0.10 | 0.16 | 0.16 | 0.12 | 0.19 | |
| Clearance Time (s) | 5.0 | 6.0 | | | 6.0 | | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.0 | 3.5 | | | 3.5 | | 3.0 | 2.0 | 2.0 | 3.0 | 2.0 | |
| Lane Grp Cap (vph) | 136 | 1998 | | | 1596 | | 171 | 298 | 246 | 219 | 645 | |
| v/s Ratio Prot | 0.05 | c0.41 | | | c0.36 | | 0.06 | c0.13 | | 0.08 | c0.15 | |
| v/s Ratio Perm | | | | | | | | | 0.11 | | | |
| v/c Ratio | 0.59 | 0.71 | | | 0.78 | | 0.62 | 0.80 | 0.67 | 0.63 | 0.81 | |
| Uniform Delay, d1 | 51.1 | 17.0 | | | 25.8 | | 49.9 | 46.5 | 45.4 | 47.9 | 44.8 | |
| Progression Factor | 1.00 | 1.00 | | | 0.56 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.1 | 2.1 | | | 3.0 | | 6.5 | 13.6 | 5.2 | 5.5 | 7.0 | |
| Delay (s) | 55.3 | 19.2 | | | 17.5 | | 56.5 | 60.1 | 50.6 | 53.4 | 51.8 | |
| Level of Service | E | B | | | B | | E | E | D | D | D | |
| Approach Delay (s) | | 21.1 | | | 17.5 | | | 55.3 | | | 52.1 | |
| Approach LOS | | C | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 81.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBR | SWL | SWR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 822 | 23 | 0 | 49 | 0 | 747 |
| Sign Control | Free | | Stop | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 893 | 25 | 0 | 53 | 0 | 812 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | 324 | | | | | |
| pX, platoon unblocked | | | 0.77 | 0.77 | 0.77 | |
| vC, conflicting volume | | | 1718 | 906 | 918 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1783 | 728 | 745 | |
| tC, single (s) | | | 6.4 | 6.2 | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 3.5 | 3.3 | 2.2 | |
| p0 queue free % | | | 100 | 84 | 100 | |
| cM capacity (veh/h) | | | 69 | 326 | 664 | |

| Direction, Lane # | EB 1 | NB 1 | SW 1 |
|---|---|---|---|
| Volume Total | 918 | 53 | 812 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 25 | 53 | 0 |
| cSH | 1700 | 326 | 1700 |
| Volume to Capacity | 0.54 | 0.16 | 0.48 |
| Queue Length 95th (ft) | 0 | 15 | 0 |
| Control Delay (s) | 0.0 | 18.2 | 0.0 |
| Lane LOS | | C | |
| Approach Delay (s) | 0.0 | 18.2 | 0.0 |
| Approach LOS | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 50.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |