Traffic Impact Analysis

# WILLIAMS INDUSTRIAL

Prepared for:
Williams Investment

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# Introduction

The purpose of this traffic impact analysis (TIA) is to identify potential transportation-related impacts to the surrounding street network associated with the development of the proposed Industrial project in Marysville, WA.

## Project Description

The proposed project would develop an industrial and business park across parcels in Arlington and Marysville. This study focused on the approximately 2,055,069 square feet of industrial park that would be developed in Marysville. The project proponent is also developing approximately 131,566 square feet of business park in Arlington. The development includes areas south of Arlington, west of 51st Avenue NE. The site vicinity is shown in Figure 1. Access to the development is proposed driveways along 51st Avenue NE, 47th Avenue NE, and 160th Street NE. Figure 2 illustrates the preliminary site plan. It is anticipated that the development would be constructed and occupied by 2026.

## Study Scope

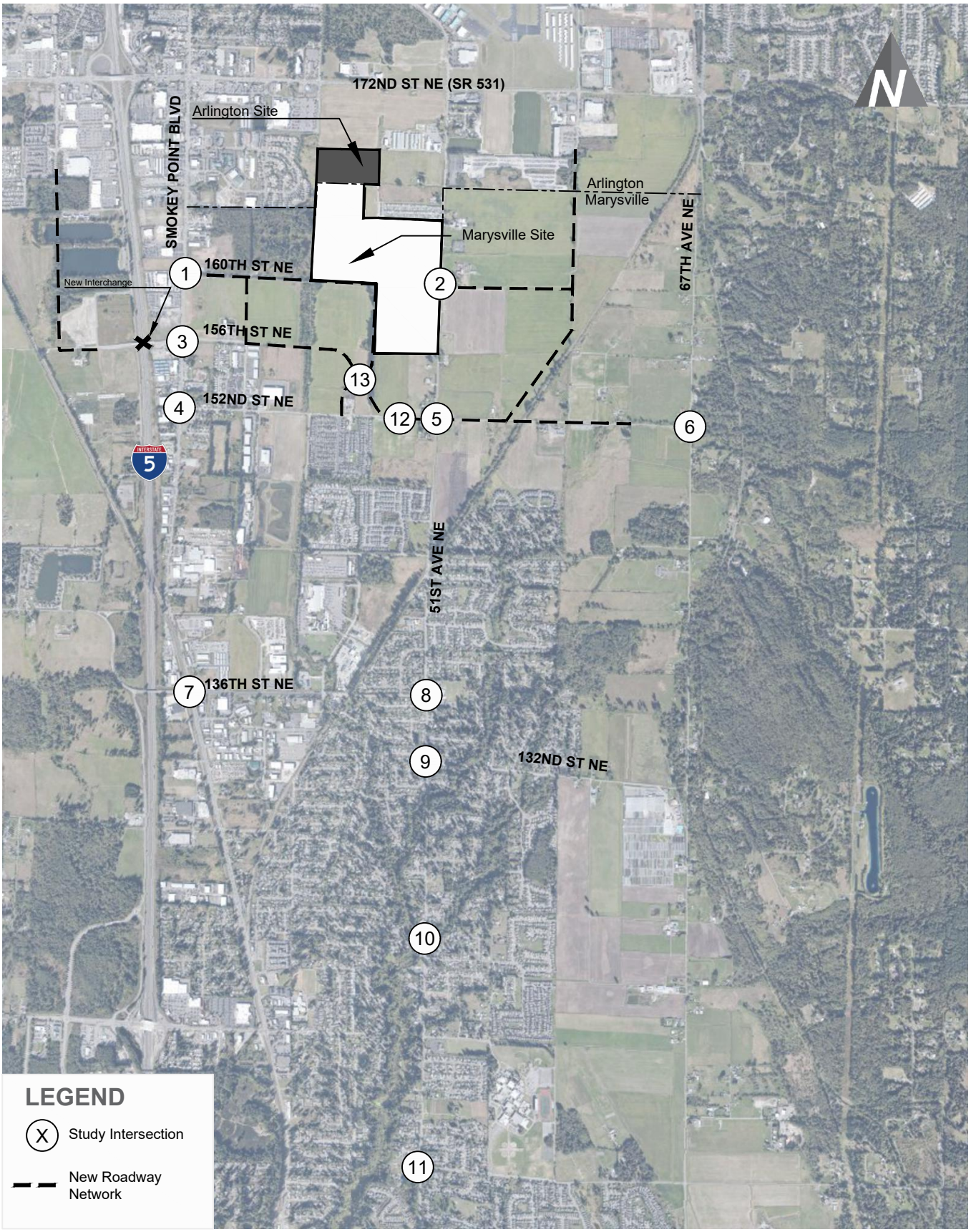
The scope of this analysis is based on anticipated impacts to WSDOT facilities as well as the 25-trip threshold in the City of Marysville. Given the interim and future buildout conditions of the network, additional intersections were added under future 2026 and 2032 conditions that don't exist under existing conditions. Based on anticipated travel patterns for project-generated vehicle traffic, the following intersections were selected for study during the designated years:

| Study Intersection | | Evaluation Years |
|---|---|---|
| • 1 | Smokey Point Boulevard/160th Street NE | 2032 |
| • 2 | 51st Avenue NE/160th Street NE | 2032 |
| • 3 | Smokey Point Boulevard/156th Street NE | Existing, 2026, 2032 |
| • 4 | Smokey Point Boulevard/152nd Street NE | Existing, 2026, 2032 |
| • 5 | 51st Avenue NE/152nd Street NE | Existing, 2026, 2032 |
| • 6 | 67th Avenue NE/152nd Street NE | Existing, 2026, 2032 |
| • 7 | Smokey Point Boulevard/136th Street NE | Existing, 2026, 2032 |
| • 8 | 51st Avenue NE/136th Street NE | Existing, 2026, 2032 |
| • 9 | 51st Avenue NE/132nd Street NE | Existing, 2026, 2032 |
| • 10 | 51st Avenue NE/122nd Place NE | Existing, 2026, 2032 |
| • 11 | 51st Avenue NE/108th Street NE/Shoultes Road | Existing, 2026, 2032 |
| • 12 | 152nd Street NE/156th Street NE | 2032 |
| • 13 | 47th Avenue NE/156th Street NE | 2032 |

The scope of the analysis included a review of the weekday PM peak hour conditions. The analysis includes a review of existing conditions in the vicinity of the project site, including the street network, non-motorized facilities, transit service, existing and future (2026 and 2032) without-project peak hour traffic volumes, traffic operations, and traffic safety. Future (2026 and 2032) with-project conditions are evaluated by adding site-generated traffic to future (2026 and 2032) without-project volumes and were then compared to future (2026 and 2032) without-project conditions to identify the relative impacts the proposed project has on the surrounding transportation system.

The City of Marysville utilizes two forecast analysis years, the year of opening and a horizon year. The horizon year is defined as six years after the year of opening. The year of opening is utilized for the State Environmental Policy Act (SEPA) disclosure and the horizon year analysis is utilized for the concurrency review.

Development of the parcels in the City of Arlington are included as a pipeline development in this analysis. As such the with-project forecasts and LOS analysis is representative of the cumulative conditions with the full development completed. The analysis of the Arlington parcels are summarized in a separate Traffic Impact Analysis submitted as part of the City of Arlington Land Use process.




# Site Vicinity & Study Intersections

FIGURE 1

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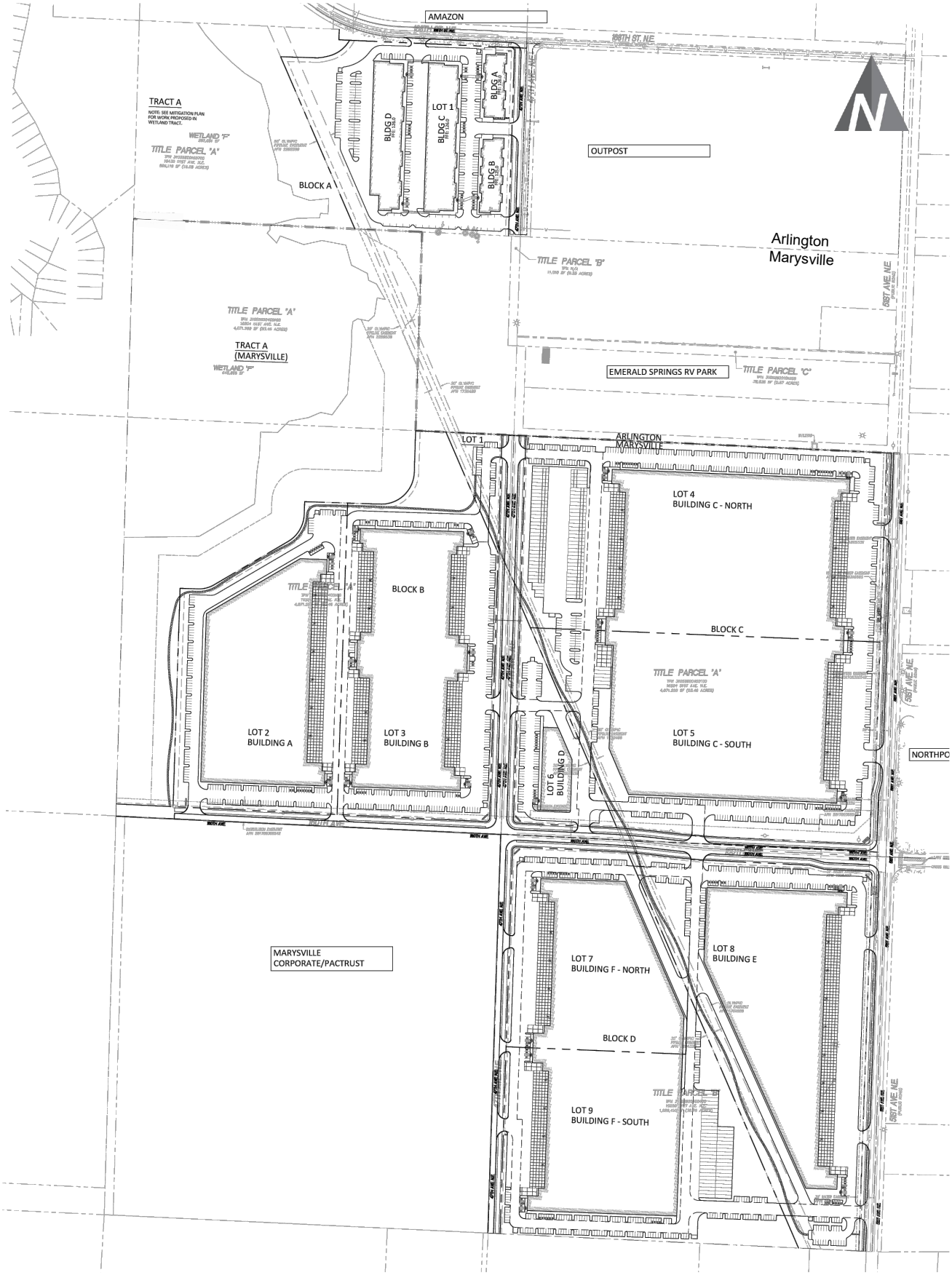


# Preliminary Site Plan

*Williams Industrial*

FIGURE
**2**

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# Existing & Future Without-Project Conditions

This section describes existing and future (2026 and 2032) without-project conditions within the study area. Study area characteristics are provided for the existing street network, non-motorized facilities, transit service, existing and future without-project peak hour traffic volumes, traffic operations, and traffic safety.

## Street System

The following describes the existing street network within the vicinity of the proposed project and any anticipated changes resulting from planned improvements.

### *Existing Inventory*

Characteristics of the existing street system in the project vicinity are described in Table 1.

**Table 1. Study Area Existing Roadway Network Summary**

| Roadway | Roadway Classification | Posted Speed Limit | Number of Travel Lanes | Parking? | Sidewalks? | Bicycle Facilities? |
|---|---|---|---|---|---|---|
| Interstate 5 (I-5) | Interstate | 60 to 70 mph[1] | 6 | No | No | No |
| 132nd Street NE | Arterial | 35 mph[3] | 2 | No | No | No |
| 136th Street NE | Arterial | 35 mph | 2 to 4 | No | Intermittent | Intermittent |
| 156th Street NE | Minor Arterial | 25 mph | 2 to 5 | No | Yes | No |
| 152nd Street NE | Major Collector | 35 mph | 2 | No | Intermittent | No |
| Smokey Point Boulevard | Arterial | 35 mph | 5 | No | Yes | No |
| 43rd Avenue NE | Local | 35 mph | 2 to 3 | No | Intermittent | No |
| 51st Avenue NE | Arterial | 35 mph | 2 to 3 | No | Intermittent | No |
| 59th Avenue NE | Minor Arterial | No Limit Posted | 2 to 3 | No | Intermittent[4] | No |
| 67th Avenue NE | Minor Arterial | 35 mph | 2 to 3 | No | Intermittent | No |
| 122nd Place NE | Local | 25 mph | 2 | No | No | No |

Note: mph = miles per hour
1. 60 mph south of SR 531 and 70 mph north of SR 531.
2. Other principal arterial between I-5 SB Ramps and Smokey Point Boulevard. Minor arterial between Smokey Point Boulevard and SR 9.
3. 20 mph when in school zone
4. The Airport Trail is located west of 59th Avenue NE.

As shown in Table 1, availability of sidewalks in the area are intermittent. The Centennial Trail is also located in the area, providing recreational and commute possibilities. The Centennial Trail is a 30-mile paved multiuse trail that starts in Snohomish County and ends in Skagit County running through the Cities of Marysville and Arlington. The improvements described below as well as frontage improvements as part of planned developments in the area include construction of non-motorized facilities.

### *Planned Improvements*

Based on a review of the Washington Department of Transportation (WSDOT) 2023-2026 Statewide Transportation Program (STIP), *Snohomish County 2023-2028 Transportation Improvement Plan,* and the *City of Marysville 2023-2028 Transportation Improvement Plan* there are a number of improvements in the area that would impact both capacity at study intersections and travel patterns in the area. The following summarizes the short (2026) and long-term (2032) projects planned in the area.

#### ***2026 Planned Improvements***

The following improvements were assumed to be complete by the 2026 opening year:

- **156th Street NE Widening:** Widen 156th Street NE from 3 lanes to 5 lanes from Smokey Point Boulevard to west of the Hayho Creek.
- **169th Street NE Extension:** Extension of 169th Street NE from Smokey Point Boulevard to 51st Avenue NE is anticipated to happen over 3 phases. The roadway would include a three-lane cross section with one travel lane in each direction and a center two-way left-turn lane.
- **67th Avenue NE/152nd Street NE All-Way Stop:** Conversion of the side-street stop-controlled intersection to an all-way stop control. Project was completed by Snohomish County in 2022.
- **Shoultes Elementary Safe Routes to School:** Construction of pedestrian facilities including curbs, gutters, sidewalks and bicycle lanes along 51st Avenue NE between 132nd Street NE and 136th Street NE.

***2032 Planned Improvements***

The following improvements were assumed to be complete by the 2032 horizon year:

- **152nd Street NE Widening:** Widen 152nd Street NE between 51st Avenue NE and the Marysville City limits to three lanes including sidewalk and bike lanes. Widening would provide for one travel lane in each direction and a central two-way left-turn lane.
- **51st Avenue NE/152nd Street NE Signalization:** Construct a traffic signal at the intersection with additional intersection improvements. Intersection improvements would include construction of left-turn and right-turn lanes on all approaches. The resulting intersection would have a four-lane northbound/southbound cross section and a six-lane eastbound/westbound cross section.
- **156th Street NE Extension:** Extension of 156th Street NE as a five-lane section from approximately 47th Avenue NE to 152nd Street NE.
- **168th Street Extension:** Complete the three-lane segment between 47th Avenue NE and 59th Avenue NE.
- **47th Avenue Construction:** Construction of a three-lane facility with one travel lane in each direction and a center two-way left-turn lane between 168th Street NE and 156th Street NE.
- **59th Avenue NE Widening:** Widen 59th Avenue NE between 172nd Street NE (SR 531) and 152nd Street NE to a three-lane segment.
- **160th Street NE Construction:** Construction of a new three-lane roadway (160th Street NE) between Smokey Point Boulevard and 59th Avenue NE.
- **New I-5 Interchange:** Construction of a new single point urban interchange (SPUI) at 156th Street NE and I-5. The construction of the new interchange is anticipated to result in traffic shifts away from the 172nd Street NE (SR 531) corridor.
- **51st Avenue NE/132nd Street NE Widening:** Widening of the intersection to include a southbound left-turn lane.

Additional improvements identified on the County or City of Marysville TIPs but were not included in the analysis because funding of the projects have not been secured. Those improvements include:

- **67th Avenue NE/152nd Street:** Intersection improvements to include construction of a roundabout or a traffic signal at the intersection.
- **51st Avenue NE/132nd Street NE:** Construction of a traffic signal at the intersection.

# Transit Service

Transit service in the study area is provided by Community Transit and is primarily provided along 172nd Street NE (SR 531), Smokey Point Boulevard, and 152nd Street NE. The nearest bus stop is located on 152nd Street NE at 47th Avenue NE and is served by route 202. **Route 202** provides service between the Smokey Point Transit Center in Arlington and the Lynwood Transit Center. Service is provided 7 days a week with AM and PM peak hour headways of approximately 15 minutes.

No planned transit improvements were identified. However, it is anticipated that transit service in the area may be adjusted to account for future growth.

# Traffic Volumes

The following summarizes the traffic volumes for existing and future without-project conditions.

## *Existing Traffic Volumes*

Existing traffic counts were obtained from the City of Marysville where available or collected at study intersections. All counts were collected between 2022 and 2023. Traffic volumes data collected in 2022 were grown at an average annual growth rate of 3 percent to establish existing 2023 conditions. The annual average growth rate of 3 percent is consistent with the City of Marysville Policy and previous work completed in the area. Detailed traffic counts are provided in Appendix A.

## *Future Without-Project Traffic Volumes*

The following sections describe the methodologies to develop the forecast 2026 and 2032 traffic volumes which represent the year of opening and the horizon year, respectively.

Consistent with City requirements, future 2026 and 2032 without-project traffic volumes were forecasted by applying an annual growth rate of 2 percent to existing traffic volumes and adding traffic from “pipeline” development projects that would also contribute traffic to the study intersections. Three pipeline projects were identified in the vicinity of the project site. The three pipeline projects identified are Project Roxy, a portion of the Cascade Commerce Center, and the Marysville Industrial project. In addition to the three pipeline projects, the Arlington portion of the Williams Industrial project was included in the background.

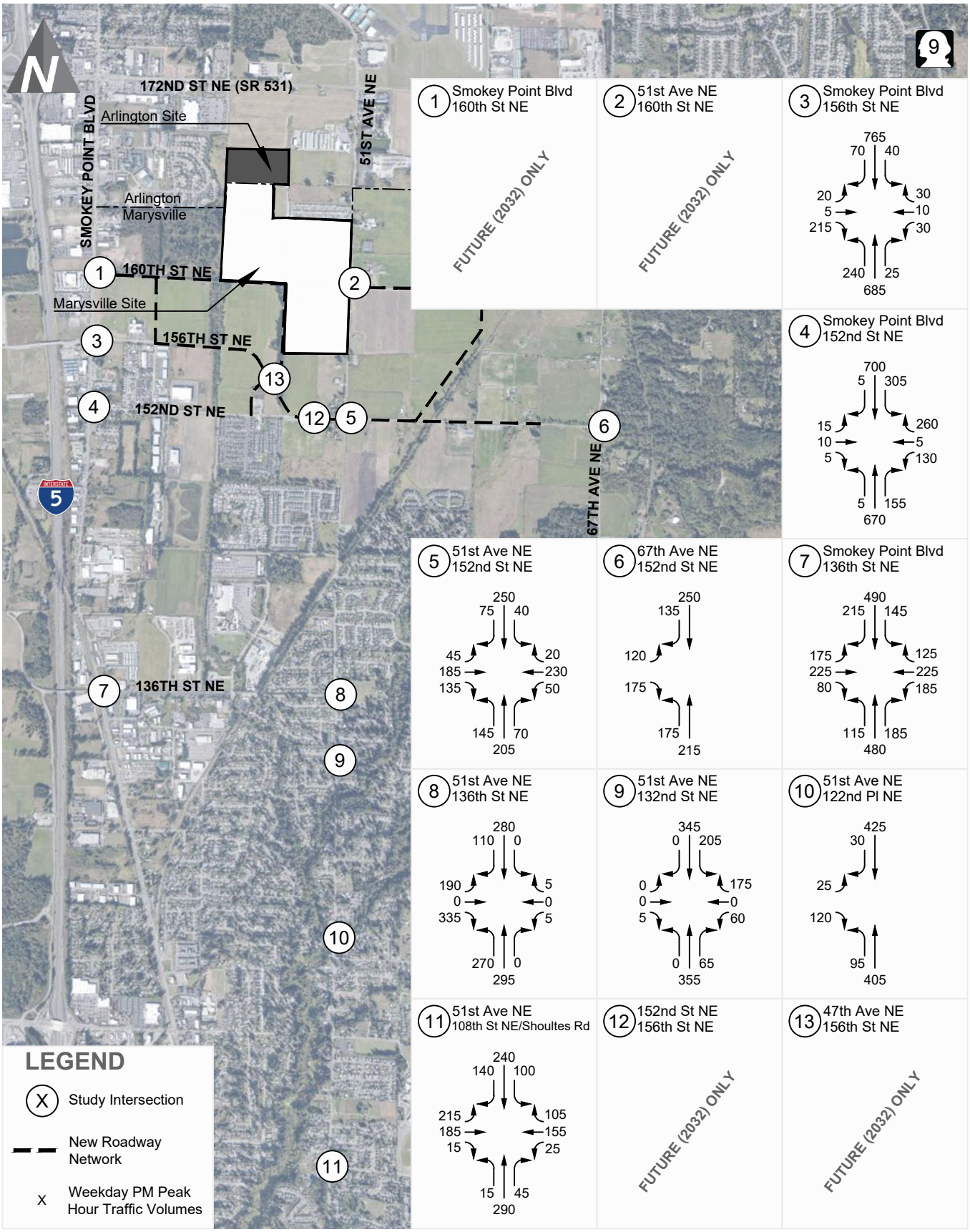
**Project Roxy** would develop an approximately 2.82 million square foot fulfillment center warehouse located between 172nd Street NE (SR 531) and 169th Street NE, and 43rd Avenue NE and 51st Avenue NE in the City of Arlington. Project Roxy is anticipated to be constructed and occupied by the end of 2022. Based on the timing of the counts used in this analysis and anticipation of the occupancy this project has been included in the background volume forecasting.

**The Cascade Commerce Center (CCC)** would develop approximately 4.15 million square feet of a mix of industrial uses anticipated to include a combination of industrial park, high-cube warehouse, and high-cube fulfillment center. The CCC is located in both the City of Arlington and the City of Marysville approximately south of 172nd Street NE (SR 531) and between 51st Avenue NE/59th Avenue NE and the railroad track to the east. The CCC is anticipated to be completed across 9 buildings which would be built and occupied separately. The full site is anticipated to be constructed by 2030; however, full buildout of the project has not been approved. Based on coordination with City staff only 250,000 square feet of warehouse have been approved. As such, a 250,000 square foot warehouse was assumed under future 2026 and 2032 without-project conditions.

**The PacTrust Project** would develop approximately 745,250 square feet of Industrial Park. The development includes areas north and south of 156th Street NE. Access to the development is provided by proposed driveways along 47th Avenue NE and 156th Street NE. It is anticipated that the development would be constructed and occupied by 2025.

**Williams Industrial (Marysville)** development of up to 131,566 square feet of business park. IT is anticipated that the development would be constructed and occupied by 2026.

Forecast future 2026 and 2032 without-project traffic volumes for the future horizon year are shown in Figure 4 and Figure 5.




# Existing Weekday PM Peak Hour Traffic Volumes

FIGURE 3

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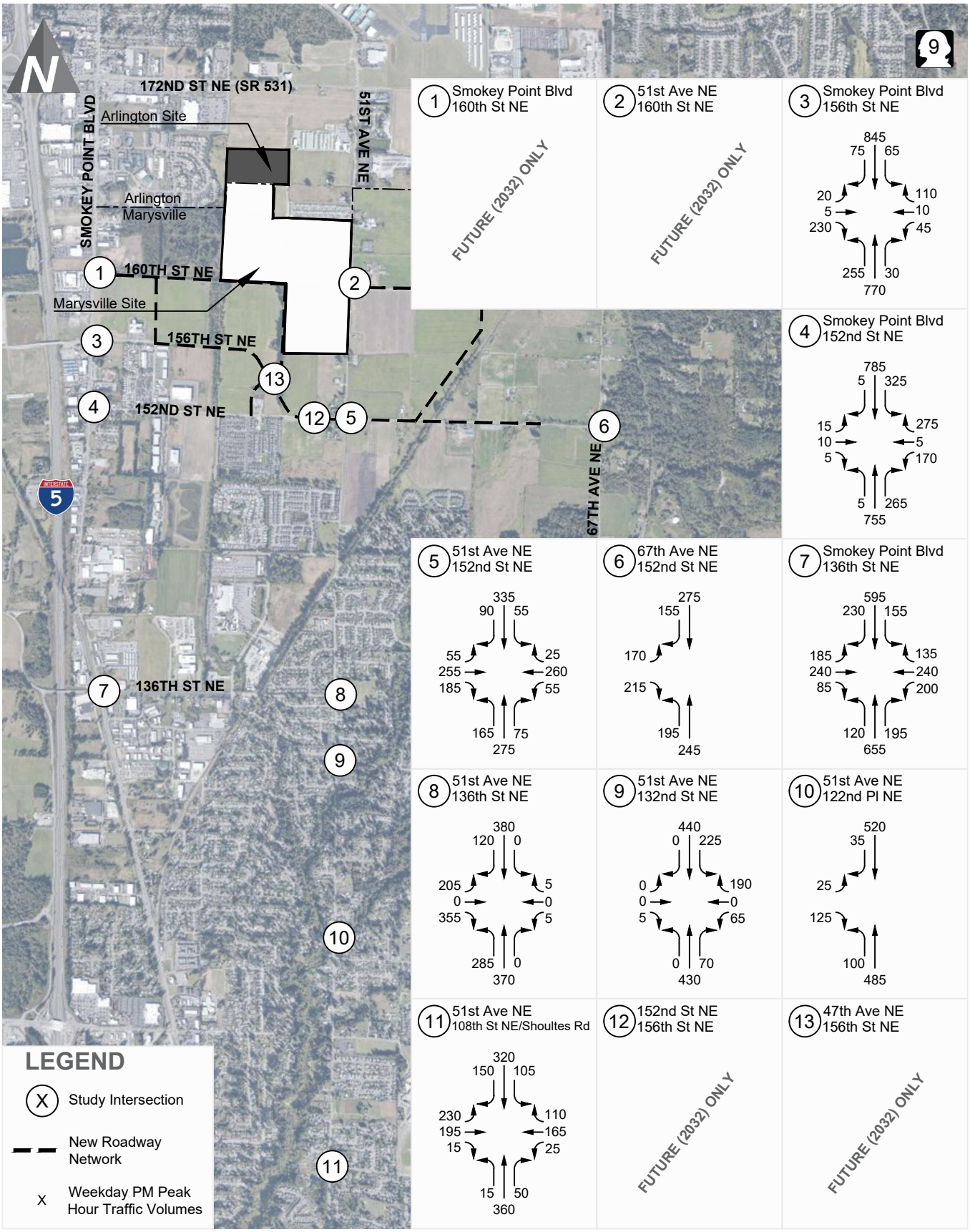


# Future (2026) Without-Project Weekday PM Peak Hour Traffic Volumes

FIGURE 4

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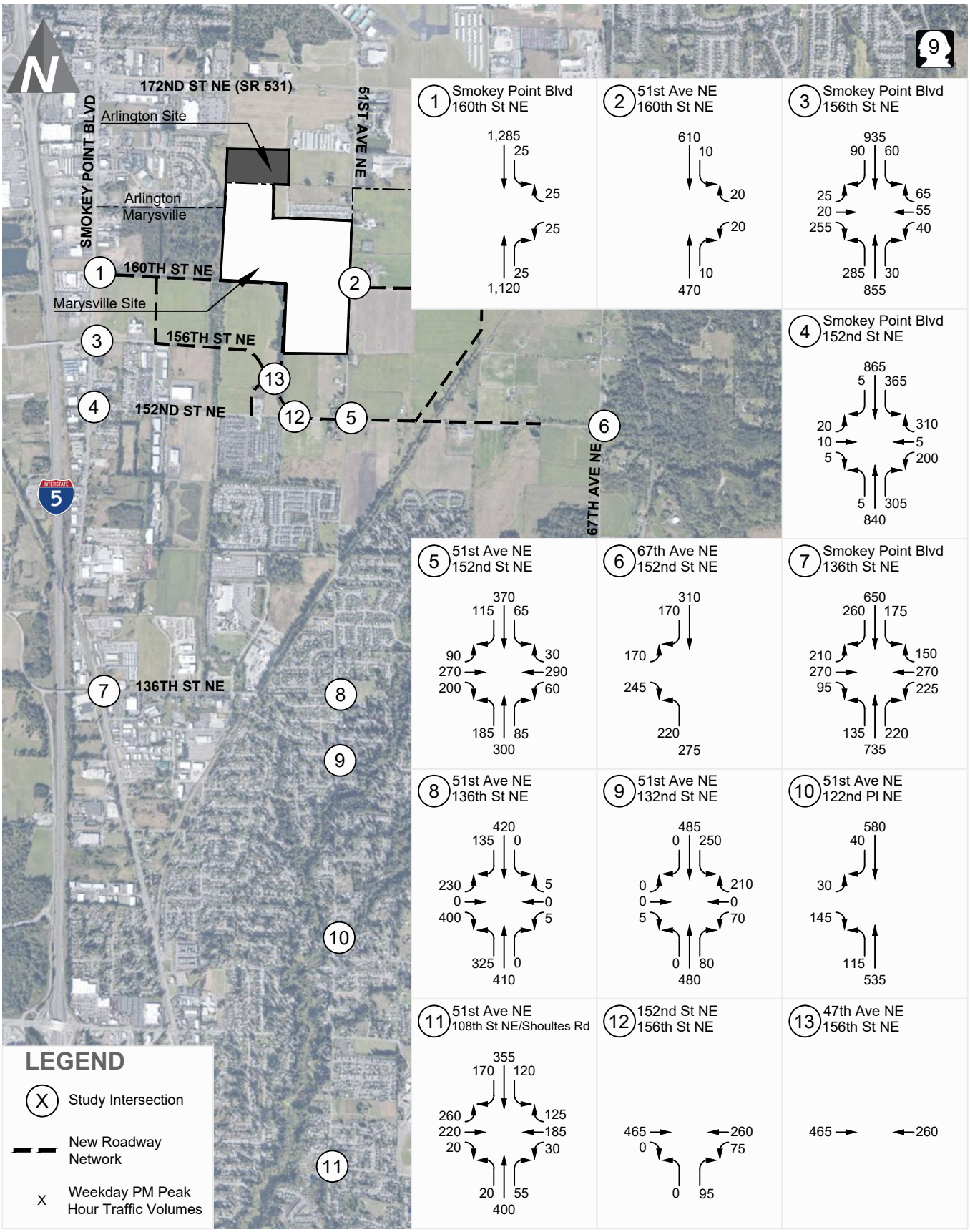


# Future (2032) Without-Project Weekday PM Peak Hour Traffic Volumes

FIGURE 5

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# Traffic Operations

The following sections summarize traffic operations for existing and future conditions within the study area.

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized, all-way stop, and roundabout intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay. At unsignalized side-street, stop-controlled intersections, LOS is measured by the average delay on the worst-movement of the intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions.

For the operations analysis of existing conditions at the signalized study intersections, signal timing and phasing information was obtained from the WSDOT or the City of Marysville. As described previously, there are a number of improvements planned by 2026 and 2032 that would impact intersection capacity and travel patterns. Those improvements were accounted for in the future 2026 and 2032 without-project analysis.

Weekday PM peak hour traffic operations for existing and future without-project conditions were evaluated at the study intersections based on the procedures identified in the *Highway Capacity Manual* 6th Edition, unless otherwise noted for signal timing constraints, and were evaluated using *Synchro 11*. *Synchro 11* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delays. Roundabout controlled intersections were evaluated utilizing *Sidra 9* and the WSDOT methodology for analyzing roundabouts. Results for the existing and future without-project operations analyses are summarized in Table 2. Detailed LOS worksheets for each intersection analysis are included in Appendix C.

The City of Marysville has an LOS E mitigated standard for arterial-arterial or arterial-collector intersections along the Smokey Point Boulevard corridor between the north and south City limits. The remaining intersections carry an LOS D standard. The intersection of 67th Avenue NE/152nd Street NE is under Snohomish County jurisdiction. Snohomish County evaluates concurrency on a corridor basis and as such does not have an individual intersection standard to be applied to this intersection.

**Table 2. Existing Weekday PM Peak Hour Intersection LOS Summary**

| Intersection | Traffic Control | Existing | | | Future 2026 Without-Project | | | Future 2032 Without-Project | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | LOS[1] | Delay[2] | v/c[3] | LOS | Delay | v/c | LOS | Delay | v/c |
| 1. Smokey Point Blvd/160th St NE | Signal | *2032 Only* | | | *2032 Only* | | | A | 6.6 | - |
| 2. 51st Ave NE/160th St NE | AWSC | *2032 Only* | | | *2032 Only* | | | A | 6.3 | - |
| 3. Smokey Point Blvd/156th St NE | Signal | B | 15.0 | - | C | 22.1 | - | C | 27.4 | - |
| 4. Smokey Point Blvd/152nd St NE | Signal | F | 117.3 | - | F | 143.1 | - | D | 53.8 | - |
| 5. 51st Ave NE/152nd St NE | AWSC/Signal[4] | F | 58.3 | - | F | 171.8 | - | B | 18.2 | - |
| 6. 67th Ave NE/152nd St NE | AWSC | C | 15.7 | - | C | 24.4 | - | E | 38.5 | - |
| 7. Smokey Point Blvd/136th St NE | Signal | D | 38.4 | - | D | 41.5 | - | D | 40.0 | - |
| 8. 51st Ave NE/136th St NE[5] | Signal | B | 14.5 | - | B | 16.8 | - | B | 18.7 | - |
| 9. 51st Ave NE/132nd St NE | AWSC | D | 27.8 | - | F | 67.2 | - | E | 45.1 | - |
| 10. 51st Ave NE/122nd Pl NE | Signal | A | 9.4 | - | A | 8.9 | - | A | 9.8 | - |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | RAB | A | 7.7 | 0.42 | A | 8.3 | 0.51 | A | 8.5 | 0.55 |
| 12. 156th St NE/152nd St NE[5] | Signal | *2032 Only* | | | *2032 Only* | | | B | 10.5 | - |
| 13. 47th Ave NE/156th NE | Signal | *2032 Only* | | | *2032 Only* | | | B | 18.9 | - |

Note: AWSC = All-way stop-control, RAB = roundabout.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB)
2. Average delay per vehicle in seconds.
3. Volume to capacity ratio reported for roundabouts.
4. Signal under future 2032 conditions.
5. Intersections evaluated utilizing HCM 2000 methodology due to signal timing constraints not allowed under HCM 6th Edition.

As shown in Table 2, under existing conditions, two intersections operate at LOS F and do not meet LOS standards. Under future (2026) without-project conditions, with inclusion of area planned improvements and increases in background traffic, the number of intersections forecast to not meet the applicable LOS standard is three intersections. The intersections forecast to not meet the LOS standard in 2026 include:

- Smokey Point Boulevard/152nd Street NE
- 51st Avenue NE/152nd Street NE
- 51st Avenue NE/132nd Street NE

Under future (2032) without-project conditions, one intersections are forecast not to meet the City of Marysville LOS standards. The 51st Avenue NE/132nd Street NE would improve from LOS F to LOS E with the implementation of the southbound left-turn lane but would not meet LOS standards.

# Traffic Safety

Recent collision records were reviewed within the study area to identify existing traffic safety issues at the study intersections. The most recent complete five-year summary of accident data from the WSDOT is for the period between January 1, 2018 and December 31, 2022. This information is summarized in Table 3.

**Table 3. Five-Year Collision Summary – 2018 to 2022**

| Location | Number of Collisions | | | | | Total | Annual Average |
|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | | |
| 3. Smokey Point Blvd/156th St NE | 5 | 1 | 3 | 5 | 4 | 18 | 3.60 |
| 4. Smokey Point Blvd/152nd St NE | 5 | 7 | 5 | 3 | 4 | 24 | 4.80 |
| 5. 51st Ave NE/152nd St NE | 3 | 4 | 3 | 6 | 1 | 17 | 3.40 |
| 6. 67th Ave NE/152nd St NE | 3 | 5 | 1 | 3 | 1 | 13 | 2.60 |
| 7. Smokey Point Blvd/136th St NE | 2 | 6 | 3 | 5 | 6 | 22 | 4.40 |
| 8. 51st Ave NE/136th St NE[5] | 0 | 0 | 3 | 1 | 1 | 5 | 1.00 |
| 9. 51st Ave NE/132nd St NE | 1 | 2 | 0 | 3 | 0 | 6 | 1.20 |
| 10. 51st Ave NE/122nd Pl NE | 0 | 1 | 0 | 1 | 0 | 2 | 0.40 |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | 9 | 5 | 4 | 5 | 2 | 25 | 5.00 |

Source: WSDOT, 2023

*Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.*

As shown in Table 3, the total number of collisions at the study area intersections ranged between 2 and 25 over the five years resulting in an annual average between 0.40 and 5.00 collisions per year. In the study area there were a total of 3 reported collisions that involved either a pedestrian or a cyclist. There was one reported fatality in the study area over the five-year period. The fatality was reported at the 67th Avenue NE/152nd Street NE intersection and involved an impaired driver exceeding safe speeds.

The highest number of reported collisions reported was at the 51st Avenue NE/Shoulters Road/108th Street NE intersection. Of the 25 reported collisions the majority were property damage only (88 percent). No pattern or safety issue are identified at the intersection.

# Project Impacts

This section of the report documents the proposed project's impacts on the surrounding street network and study intersections. First, estimated traffic volumes generated by the proposed project are distributed and assigned to adjacent streets and intersections within the study area for the weekday PM peak hour study period. Next, project trips are added to future without-project traffic volumes and any potential impact to traffic operations. Site specific items are also discussed such as the operation of the site's access driveway.

## Trip Generation

The proposed project is constructing approximately 131,566 square feet of Business Park in Arlington and 2,055,069 square feet of Industrial Park in Marysville. Trip generation estimates have been prepared for the development based on trip rates identified using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (2021) based on Business Park (LU #770) and Industrial Park (LU #130). The site is currently undeveloped.

Table 4 provides a summary of the trip generation for the proposed land use in Arlington and Marysville. A detailed summary of the trip generation calculations for these uses has been provided in Appendix D.

**Table 4. Estimated Weekday Vehicle Trip Generation**

| Land Use | Size | Daily Trips[1] | AM Peak-Hour Trips | | | PM Peak-Hour Trips | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total |
| ***Proposed*** | | | | | | | | |
| Marysville – Industrial Park (LU #130) | 2,055,069 sf | 6,926 | 566 | 133 | 699 | 154 | 545 | 699 |

Notes: sf = square-feet
1. Vehicle trips were estimated based on vehicle trip calculations and localized mode split information.

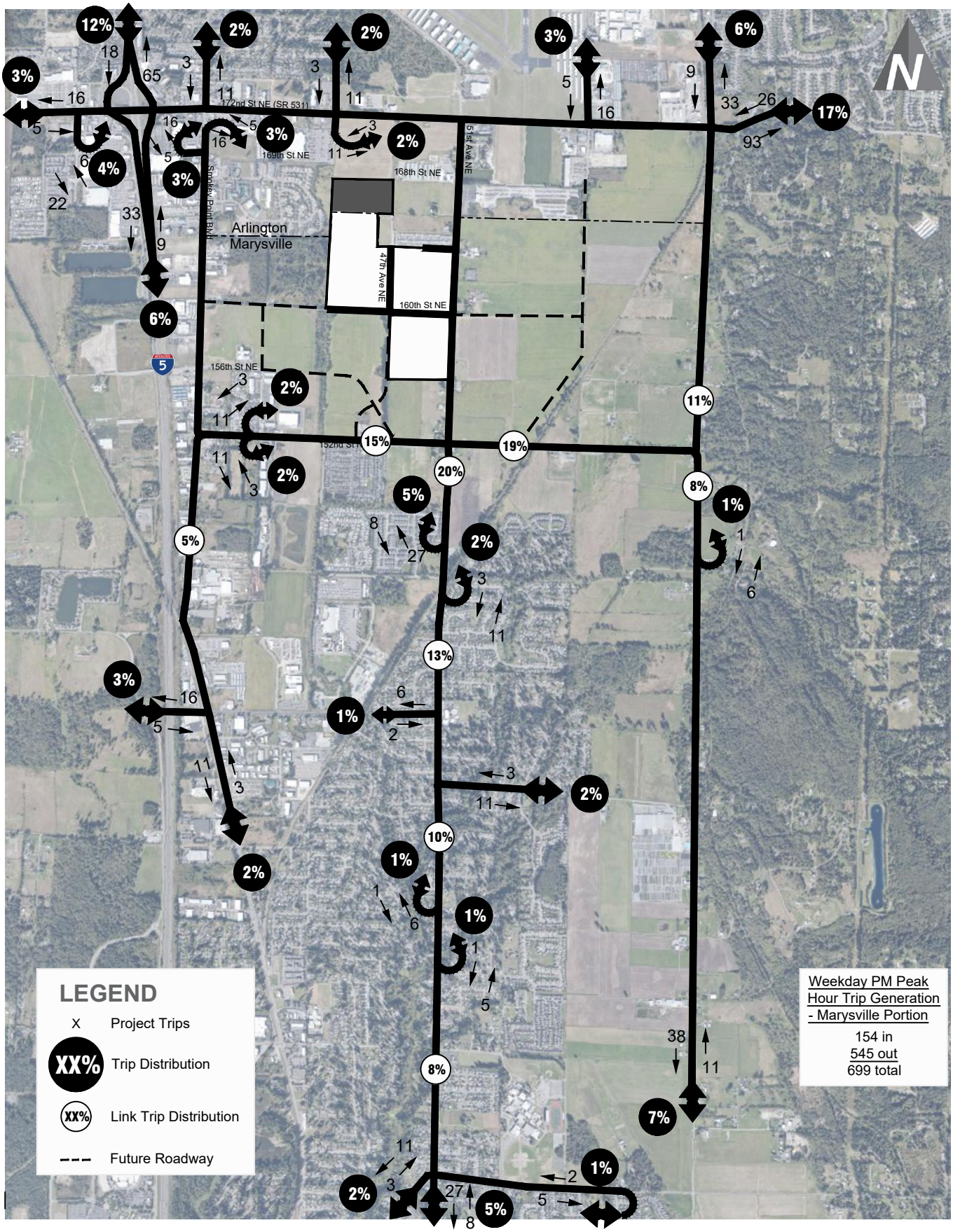
As shown in Table 4, within the Marysville parcels, the project is anticipated to generate 6,926 weekday daily trips with 699 during the AM peak hour and 699 during the PM peak hour.

## Trip Distribution & Assignment

Trip distribution patterns developed for the project were based on information provided by the City of Marysville which are reflective of the anticipated travel patterns for the industrial center. The 2026 year of opening trip distribution utilized the existing network, and the 2032 horizon year utilized the anticipated build out network with the exception of the 152nd Street NE extension to SR 9. The project is currently unfunded and not expected to be completed by 2032.

Figure 6 illustrates the year of opening (2026) vehicle trip distribution and assignment for the proposed project. Figure 7 illustrates the horizon year (2032) vehicle trip distribution and assignment for the proposed project. The resulting 2026 weekday PM peak hour traffic volumes are shown on Figure 8 and the 2032 PM peak hour traffic volumes are shown on Figure 9.

Additionally, consistent with Snohomish County requirements, project trips have been shown at key intersections impacted by three or more directional trips on an approach or departure. The project trips are shown graphically and in tabular form in Appendix E.




# Year of Opening (2026) Project Trip Distribution & Assignment

FIGURE 6

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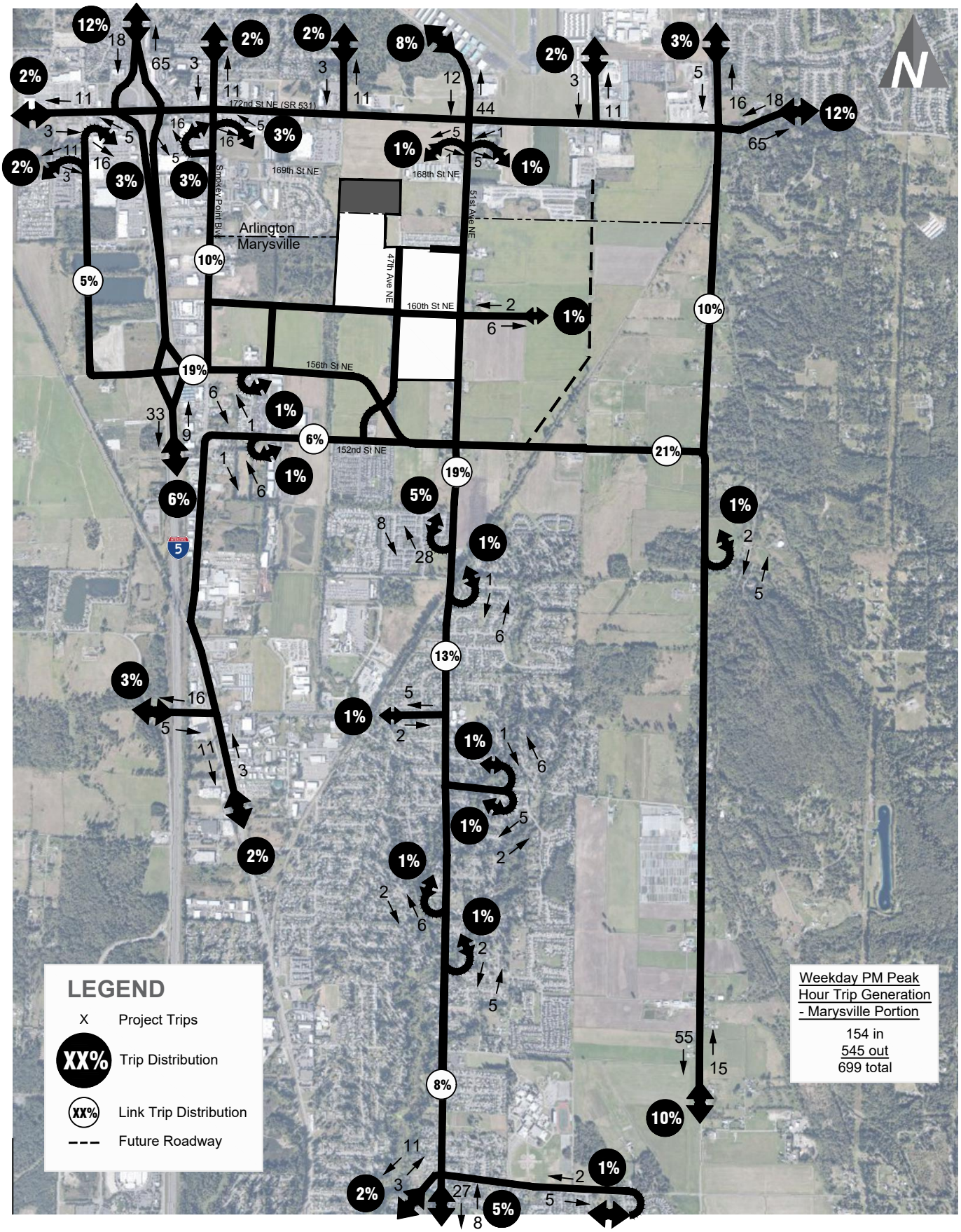


# Horizon Year (2032) Project Trip Distribution & Assignment

FIGURE 7

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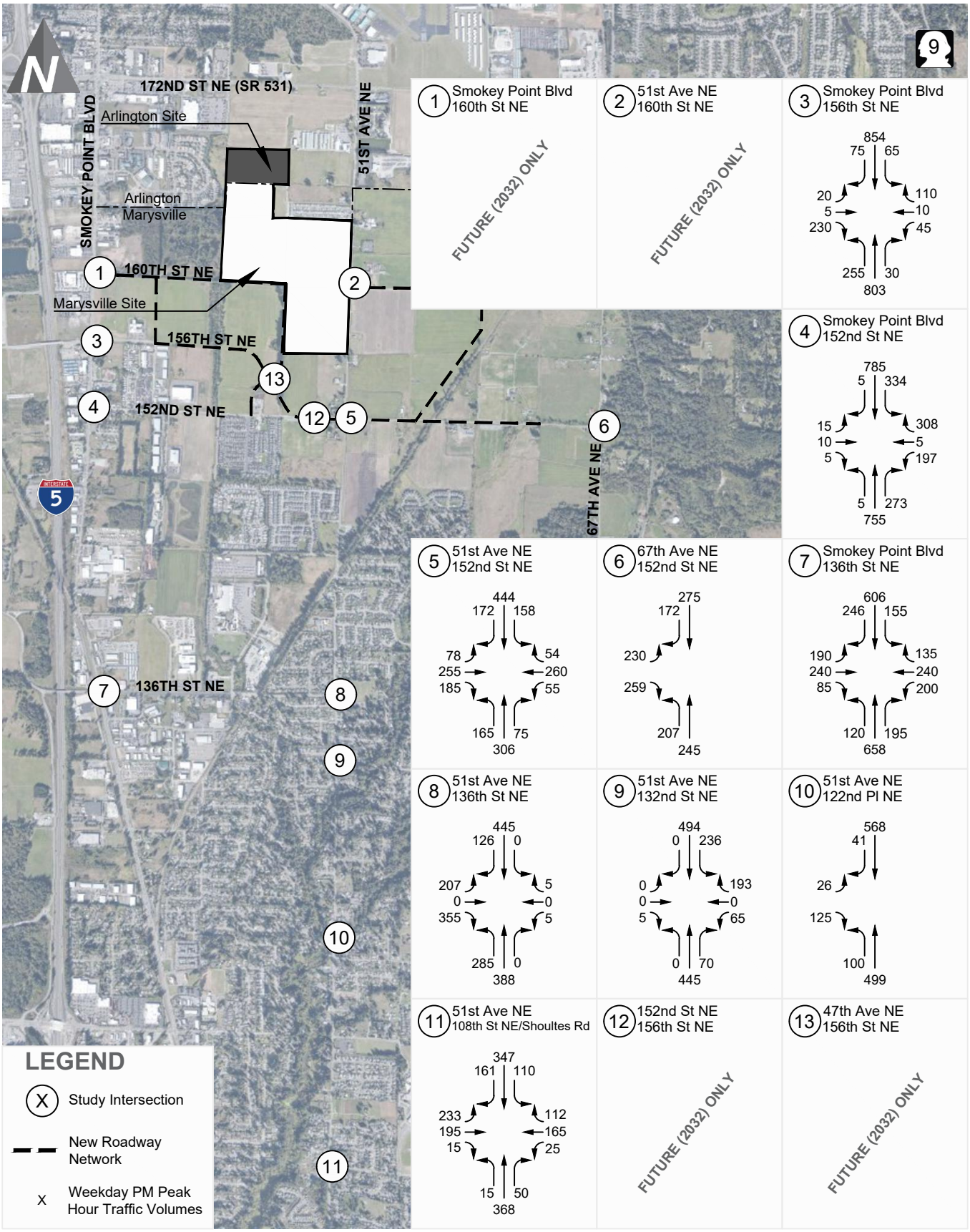


# Future (2026) With-Project Weekday PM Peak Hour Traffic Volumes

FIGURE 8

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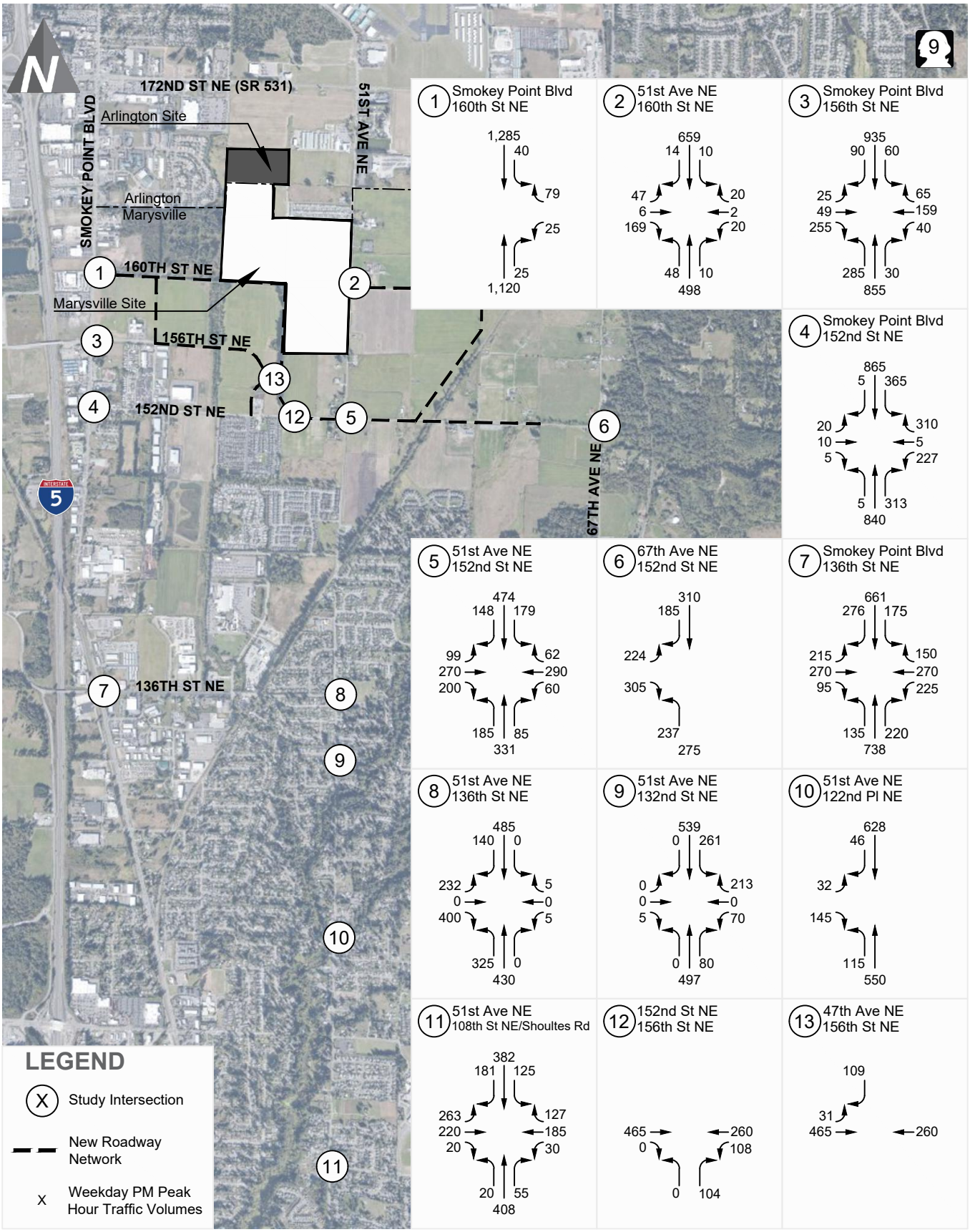


# Future (2032) With-Project Weekday PM Peak Hour Traffic Volumes

FIGURE 9

*Williams Industrial*

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# Volume Impact Summary

The assigned project generated traffic was added to the future without-project weekday PM peak hour traffic volumes at the study intersections under forecast 2026 and 2032 conditions. Table 5 summarizes the project share of traffic volumes at the study intersections during the weekday PM peak hour under forecast 2026 year of opening conditions. Table 6 summarizes the forecast 2032 horizon year weekday PM peak hour project share.

**Table 5. Future (2026) Weekday PM Peak Hour Traffic Volume Impacts at Study Intersections**

| | PM Peak Hour Total Entering Vehicles | | | |
|---|---|---|---|---|
| Intersection | 2026 Without-Project | Project Trips | 2026 With-Project | Project Share |
| 3. Smokey Point Blvd/156th St NE | 2,460 | 42 | 2,502 | 1.7% |
| 4. Smokey Point Blvd/152nd St NE | 2,620 | 77 | 2,697 | 2.9% |
| 5. 51st Ave NE/152nd St NE | 1,830 | 377 | 2,207 | 17.1% |
| 6. 67th Ave NE/152nd St NE | 1,255 | 133 | 1,388 | 9.6% |
| 7. Smokey Point Blvd/136th St NE | 3,035 | 35 | 3,070 | 1.1% |
| 8. 51st Ave NE/136th St NE | 1,725 | 91 | 1,816 | 5.0% |
| 9. 51st Ave NE/132nd St NE | 1,425 | 84 | 1,509 | 5.6% |
| 10. 51st Ave NE/122nd Pl NE | 1,295 | 71 | 1,366 | 5.2% |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | 1,740 | 56 | 1,796 | 3.1% |

As shown in Table 5, the proposed project is estimated to account for approximately 5 percent of the total weekday PM peak hour traffic at the majority of study intersections. Traffic volumes fluctuate day-to-day and the anticipated traffic increase at study intersections are within the range of typical daily traffic fluctuations which can be up to 5 percent. There are two intersections where the project is forecast to represent more than 5 percent of the total volumes, which are intersections closer to the site, and include:

- 51st Avenue NE/152nd Street NE
- 67th Avenue NE/152nd Street NE

**Table 6. Future (2032) Weekday PM Peak Hour Traffic Volume Impacts at Study Intersections**

| | PM Peak Hour Total Entering Vehicles | | | |
|---|---|---|---|---|
| Intersection | 2032 Without-Project | Project Trips | 2032 With-Project | Project Share |
| 1. Smokey Point Blvd/160th St NE | 2,505 | 69 | 2,574 | 2.7% |
| 2. 51st Ave NE/160th St NE | 1,140 | 363 | 1,503 | 24.4% |
| 3. Smokey Point Blvd/156th St NE | 2,715 | 133 | 2,848 | 4.7% |
| 4. Smokey Point Blvd/152nd St NE | 2,935 | 35 | 2,970 | 1.2% |
| 5. 51st Ave NE/152nd St NE | 2,060 | 321 | 2,381 | 13.5% |
| 6. 67th Ave NE/152nd St NE | 1,390 | 146 | 1,536 | 9.5% |
| 7. Smokey Point Blvd/136th St NE | 3,395 | 35 | 3,430 | 1.0% |
| 8. 51st Ave NE/136th St NE | 1,930 | 91 | 2,021 | 4.5% |
| 9. 51st Ave NE/132nd St NE | 1,580 | 84 | 1,664 | 5.0% |
| 10. 51st Ave NE/122nd Pl NE | 1,445 | 71 | 1,516 | 4.7% |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | 1,960 | 56 | 2,016 | 2.8% |
| 12. 156th St NE/152nd St NE | 895 | 42 | 937 | 4.5% |
| 13. 47th Ave NE/156th NE | 725 | 140 | 865 | 16.2% |

Under the horizon year conditions, with buildout of the network, the project is anticipated to represent between 1 and approximately 24 percent of the traffic volumes at the study intersections with the higher percentages closer to the site.

## Traffic Operations

The following section summarizes the future with-project LOS at the study intersections relative to the without-project conditions to identify project-related impacts.

Intersection parameters such as channelization and intersection control applied to the future with-project analyses were consistent with those used in the evaluation of future without-project conditions. Signal timing splits were optimized under future 2032 without project conditions. Those signal timings were then utilized for the future (2032) with-project conditions. A comparison of the future 2026 year of opening without-project and with-project weekday PM peak hour traffic operations are summarized in Table 7. A comparison of the future 2032 horizon year without-project and with-project weekday PM peak hour traffic operations are summarized in Table 8. Detailed LOS worksheets are provided in Appendix C.

**Table 7. Year of Opening (2026) Weekday PM Peak Hour Intersection LOS Summary**

| Intersection | Traffic Control | Future 2026 Without-Project | | | Future 2026 With-Project | | |
|---|---|---|---|---|---|---|---|
| | | LOS[1] | Delay[2] | v/c[4] | LOS | Delay | v/c |
| 3. Smokey Point Blvd/156th St NE | Signal | C | 22.1 | - | C | 21.5 | - |
| 4. Smokey Point Blvd/152nd St NE | Signal | F | 143.1 | - | F | 156.5 | - |
| 5. 51st Ave NE/152nd St NE | AWSC | F | 171.8 | - | F | 322.9 | - |
| 6. 67th Ave NE/152nd St NE | AWSC | C | 24.4 | - | E | 40.2 | - |
| 7. Smokey Point Blvd/136th St NE | Signal | D | 41.5 | - | D | 41.7 | - |
| 8. 51st Ave NE/136th St NE[4] | Signal | B | 16.8 | - | B | 19.6 | - |
| 9. 51st Ave NE/132nd St NE | AWSC | F | 67.2 | - | F | 93.2 | - |
| 10. 51st Ave NE/122nd Pl NE | Signal | A | 8.9 | - | A | 9.3 | - |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | RAB | A | 8.3 | 0.51 | A | 8.5 | 0.55 |

Note: AWSC = All-way stop-control, RAB = roundabout.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB)
2. Average delay per vehicle in seconds.
3. Volume to capacity ratio reported for roundabouts.
4. Intersections run utilizing HCM 2000 methodology due to signal timing constraints not allowed under HCM 6th Edition.

As shown in Table 7, all study intersections remain at the same LOS under with-project conditions with the exception of one intersection. The 67th Avenue NE/152nd Street NE intersection is forecast to degrade from LOS C to LOS E under with-project conditions. Under without or with-project conditions three intersections are anticipated to operate at LOS F and would not meet LOS standards.

This is an interim condition and as described in the following section, longer term improvements are being funded through the City's impact fee program at the intersections that would include widening and signalization or construction of roundabouts. Additionally, the County has identified a project at the 67th Avenue NE/152nd Street NE intersection that would include implementation of a signal or roundabout and widening at the intersection. The timing of this project hasn't been identified and therefore was not assumed in the horizon year described below.

**Table 8. Horizon Year (2032) Weekday PM Peak Hour Intersection LOS Summary**

| Intersection | Traffic Control | Future 2032 Without-Project | | | Future 2032 With-Project | | |
|---|---|---|---|---|---|---|---|
| | | LOS[1] | Delay[2] | v/c[3] | LOS | Delay | v/c |
| 1. Smokey Point Blvd/160th St NE | Signal | A | 6.6 | - | A | 8.2 | - |
| 2. 51st Ave NE/160th St NE | AWSC | A | 6.3 | - | C | 22.1 | - |
| 3. Smokey Point Blvd/156th St NE | Signal | C | 27.4 | - | C | 27.5 | - |
| 4. Smokey Point Blvd/152nd St NE | Signal | D | 53.8 | - | D | 54.6 | - |
| 5. 51st Ave NE/152nd St NE | Signal | B | 18.2 | - | C | 20.8 | - |
| 6. 67th Ave NE/152nd St NE | AWSC | E | 38.5 | - | F | 67.0 | - |
| 7. Smokey Point Blvd/136th St NE | Signal | D | 40.0 | - | D | 40.5 | - |
| 8. 51st Ave NE/136th St NE[5] | Signal | B | 18.7 | - | C | 21.2 | - |
| 9. 51st Ave NE/132nd St NE | AWSC | E | 45.1 | - | F | 56.5 | - |
| 10. 51st Ave NE/122nd Pl NE | Signal | A | 9.8 | - | B | 10.2 | - |
| 11. 51st Ave NE/Shoultes Rd/108th St NE | RAB | A | 8.5 | 0.55 | B | 10.3 | 0.63 |
| 12. 156th St NE/152nd St NE5 | Signal | B | 10.5 | - | B | 11.0 | - |
| 13. 47th Ave NE/156th NE | Signal | B | 18.9 | - | B | 19.1 | - |

Note: AWSC = All-way stop-control, RAB = roundabout.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB)
2. Average delay per vehicle in seconds.
3. Volume to capacity ratio reported for roundabouts.
4. Signal under future 2032 conditions.
5. Intersections run utilizing HCM 2000 methodology due to signal timing constraints not allowed under HCM 6th Edition.

As shown in Table 8, with completion of the roadway network and construction of the new interchange at 156th Street NE, two of the study intersections are not forecast to meet the LOS standards. Under forecast 2032 conditions the 67th Avenue NE/152nd Street NE and 51st Avenue NE/132nd Street NE intersections are forecast to degrade from LOS E to LOS F with between without and with-project conditions.

As noted previously, the City of Marysville has an LOS E mitigated standard for arterial-arterial or arterial-collector intersections along the Smokey Point Boulevard corridor between the north and south City limits. The remaining intersections carry an LOS D standard.

Snohomish County doesn't have an individual intersection LOS standard. As such, no mitigation is proposed at the 67th Avenue NE/152nd Street NE intersection. The County has identified the need for improvements at the intersection and the project proponent will contribute impact fees to the County, funding future improvements.

The 51st Avenue NE/132nd Street NE intersections don't meet concurrency standards for the City of Marysville and would require mitigation. The City, as part of the 2023-2028 TIP has identified the need for a signal at the intersection; however, the project is unfunded. As part of mitigation for the proposed project the project proponent will construct the traffic signal at the intersection.

## Site Access

Site access is proposed via 13 driveways with access to 47th Avenue NE, 51st Avenue NE, and 160th Street NE. As shown in Table 8, the 51st Avenue NE/160th Street NE intersection, which is a proximate to most site driveways is shown to operate at LOS C under future (2032) with-project conditions, as such this intersection would be representative of operations of the site driveways. As such, no operational issues are anticipated with site driveways given the number and locations of the driveways. Based on the geography of the site, sight distance issues are not anticipated; however, object heights less than 3.5 feet would be maintained at sight driveways.

# Mitigation and Recommendations

The proposed project would provide half-street construction of portions of 160th Street NE and 47th Avenue NE as well as frontage improvements along 51st Avenue NE. The project impacts to the surrounding transportation system would be mitigated through the City of Marysville, Snohomish County, and WSDOT impact fee programs.

## Transportation Mitigation Fees

To mitigate impacts of the proposal on the surrounding transportation system, the developer would be required to pay impact fees to three jurisdictions: the City of Marysville, Snohomish County, and WSDOT based on current interlocal agreements that have been established between these entities. The following provides an estimate only, the final fees will be calculated at time of permit issuance.

### *City of Marysville*

The City of Marysville traffic mitigation fees are currently $2,220 per PM peak hour trip. Based on the anticipated trip generation of 699 trips the resulting City of Marysville impact fee would be **$1,551,780** ($2,220/trip x 699 trips). These fees will be reduced for TIF eligible improvements constructed by the applicant. The fee rate is subject to annual increases and will be based on the adopted rates at the time of building permit issuance. As noted previously, the project proponent will construct a traffic signal at the 51st Avenue NE/132nd Street NE intersection as mitigation for project related impacts. The project proponent will seek a credit in impact fees assessed for the project as the intersection is not meeting standards without the proposed project and the City has identified this improvement on the adopted TIP.

### *Snohomish County*

Snohomish County has an interlocal agreement with the City of Marysville. Per the Snohomish County Traffic Mitigation Worksheet for City Developments Impacting County Streets, the percentage of trips impacting County Streets was determined to be 20 percent. Per SCC 30.66B.330 the fee for commercial uses within the urban growth area of TSA is $157 per average daily trip (ADT). The resulting fee was estimated to be approximately **$217,476.40** (20% x 6,926 ADT x $157 per ADT). The fee rate is subject to annual increases and will be based on the adopted rates at the time of building permit issuance.

### *WSDOT*

Per the interlocal agreement with WSDOT, project-related impacts can be mitigated through the payment of a flat fee of $36 per ADT or a proportional share based on the WSDOT projects currently planned. Based on the project distribution, the project would impact the WSDOT projects on 172nd Street NE (SR 531) and the I-5 Interchange at 156th Street NE; however, those projects have been identified as funded. As such no impact fees would be paid to WSDOT.

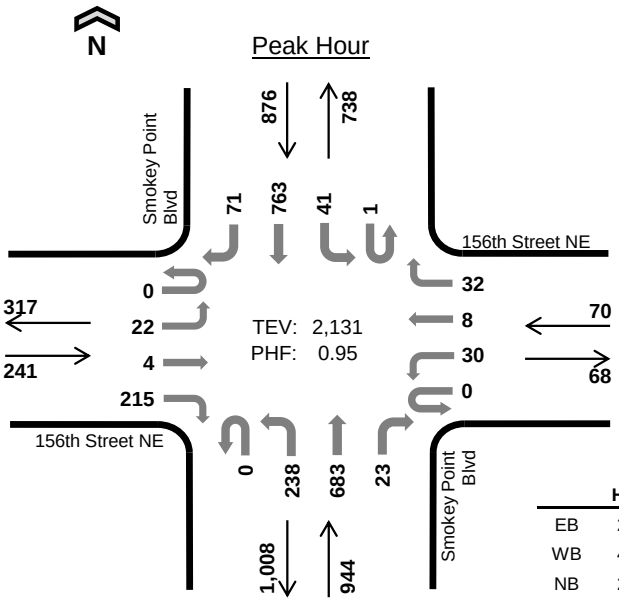
# Findings and Conclusions

This transportation impact analysis summarizes the transportation impacts associated with the proposed industrial project in Marysville, WA.

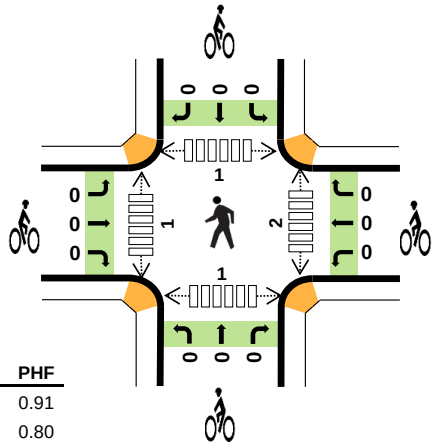
- The proposed project would construct approximately 2,055,069 square feet of industrial park.
- The development is anticipated to generate 6,926 weekday daily trips, with 699 trips occurring during the weekday AM peak hour and 699 trips during the PM peak hour.
- Under 2026 year of opening conditions all study intersections remain at the same LOS under with-project conditions with the exception of one intersection. The 67th Avenue NE/152nd Street intersection is forecast to degrade from LOS C to LOS E under with-project conditions.
- Under 2032 horizon year conditions one study intersection is anticipated to be below the LOS standard of LOS D with or without the proposed project. The 51st Avenue NE/132dn Street NE intersections are forecast to degrade from LOS E to LOS F and would not meet the LOS D standard. Improvements at the 51st Avenue NE/132dnd Street NE intersection has been identified by the City of Marysville which includes signalization of the intersection. The project proponent is proposing to construct at signal at the 51st Avenue NE/132nd Street NE intersection as mitigation for project impacts. The 67th Avenue NE/152nd Street NE intersection doesn't carry an intersection LOS standard; therefore, no improvements have been identified at the intersection. However, the project proponent will contribute impact fees to the County.
- Access to the project is proposed driveways along 51st Avenue NE, 47th Avenue NE, and 160th Street NE.
- The developer would be required to pay transportation mitigation fees. The mitigation fee is estimated to be a total of $1,769,256.40 based on the project's trip generation. Fees will be adjusted to reflect improvements constructed by the project proponent.

# Appendix A: Traffic Counts

# Smokey Point Blvd
# 156th Street NE




**Date: 05/31/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**



| | HV %: | PHF |
|---|---|---|
| EB | 2.5% | 0.91 |
| WB | 4.3% | 0.80 |
| NB | 2.8% | 0.90 |
| SB | 3.7% | 0.87 |
| TOTAL | 3.1% | 0.95 |

## Two-Hour Count Summaries

| Interval Start | | 156th Street NE Eastbound | | | | 156th Street NE Westbound | | | | Smokey Point Blvd Northbound | | | | Smokey Point Blvd Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 5 | 0 | 47 | 0 | 9 | 2 | 16 | 0 | 55 | 188 | 4 | 0 | 9 | 153 | 12 | 500 | 0 |
| **4:15 PM** | | **0** | **5** | **2** | **48** | **0** | **10** | **3** | **9** | **0** | **56** | **177** | **4** | **1** | **8** | **186** | **12** | **521** | 0 |
| **4:30 PM** | | **0** | **6** | **0** | **57** | **0** | **10** | **2** | **8** | **0** | **57** | **193** | **11** | **0** | **17** | **177** | **25** | **563** | 0 |
| **4:45 PM** | | **0** | **9** | **1** | **56** | **0** | **5** | **2** | **12** | **0** | **64** | **144** | **6** | **0** | **8** | **172** | **19** | **498** | 2,082 |
| **5:00 PM** | | **0** | **2** | **1** | **54** | **0** | **5** | **1** | **3** | **0** | **61** | **169** | **2** | **0** | **8** | **228** | **15** | **549** | **2,131** |
| 5:15 PM | | 0 | 9 | 1 | 63 | 0 | 6 | 3 | 10 | 0 | 52 | 138 | 3 | 0 | 8 | 177 | 12 | 482 | 2,092 |
| 5:30 PM | | 0 | 7 | 1 | 60 | 0 | 5 | 0 | 7 | 0 | 48 | 128 | 3 | 0 | 3 | 185 | 12 | 459 | 1,988 |
| 5:45 PM | | 0 | 3 | 1 | 41 | 0 | 2 | 2 | 5 | 0 | 43 | 141 | 1 | 0 | 8 | 162 | 8 | 417 | 1,907 |
| Count Total | | 0 | 46 | 7 | 426 | 0 | 52 | 15 | 70 | 0 | 436 | 1,278 | 34 | 1 | 69 | 1,440 | 115 | 3,989 | 0 |
| **Peak Hour** | **All** | **0** | **22** | **4** | **215** | **0** | **30** | **8** | **32** | **0** | **238** | **683** | **23** | **1** | **41** | **763** | **71** | **2,131** | **0** |
| | **HV** | **0** | **0** | **1** | **5** | **0** | **0** | **1** | **2** | **0** | **4** | **15** | **7** | **0** | **8** | **22** | **2** | **67** | **0** |
| | **HV%** | **-** | **0%** | **25%** | **2%** | **-** | **0%** | **13%** | **6%** | **-** | **2%** | **2%** | **30%** | **0%** | **20%** | **3%** | **3%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 0 | 5 | 2 | 8 | *15* | 0 | 0 | 0 | 1 | *1* | 0 | 1 | 0 | 0 | *1* |
| **4:15 PM** | **1** | **1** | **4** | **6** | ***12*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **0** | **1** | **4** | **15** | ***20*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **1** | **0** | *2* |
| **4:45 PM** | **2** | **0** | **11** | **2** | ***15*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **1** | *2* |
| **5:00 PM** | **3** | **1** | **7** | **9** | ***20*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **1** | **0** | **0** | ***1*** |
| 5:15 PM | 0 | 5 | 3 | 6 | *14* | 0 | 0 | 0 | 0 | *0* | 1 | 0 | 0 | 0 | *1* |
| 5:30 PM | 1 | 2 | 3 | 10 | *16* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 1 | 0 | 5 | 9 | *15* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 0 | 0 | *1* |
| Count Total | 8 | 15 | 39 | 65 | *127* | 0 | 0 | 0 | 1 | *1* | 3 | 3 | 1 | 1 | *8* |
| **Peak Hour** | **6** | **3** | **26** | **32** | ***67*** | **0** | **0** | **0** | **0** | ***0*** | **2** | **1** | **1** | **1** | ***5*** |

## Two-Hour Count Summaries - Heavy Vehicles

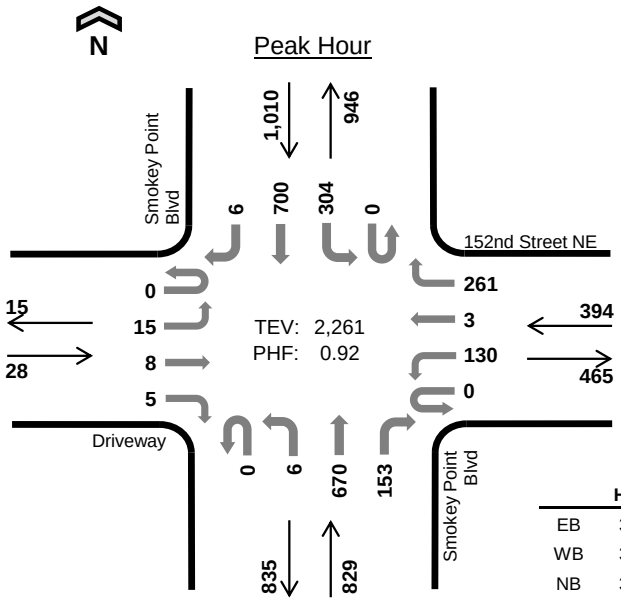
| Interval Start | 156th Street NE | | | | 156th Street NE | | | | Smokey Point Blvd | | | | Smokey Point Blvd | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 7 | 0 | 15 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **1** | **0** | **0** | **3** | **1** | **0** | **0** | **6** | **0** | **12** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **3** | **1** | **0** | **5** | **10** | **0** | **20** | 0 |
| **4:45 PM** | **0** | **0** | **1** | **1** | **0** | **0** | **0** | **0** | **0** | **2** | **5** | **4** | **0** | **1** | **1** | **0** | **15** | 62 |
| **5:00 PM** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **1** | **0** | **2** | **4** | **1** | **0** | **2** | **5** | **2** | **20** | **67** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 14 | 69 |
| 5:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 1 | 9 | 0 | 16 | 65 |
| 5:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 9 | 0 | 15 | 65 |
| Count Total | 0 | 0 | 1 | 7 | 0 | 6 | 1 | 8 | 0 | 6 | 26 | 7 | 0 | 10 | 53 | 2 | 127 | 0 |
| **Peak Hour** | **0** | **0** | **1** | **5** | **0** | **0** | **1** | **2** | **0** | **4** | **15** | **7** | **0** | **8** | **22** | **2** | **67** | **0** |

## Two-Hour Count Summaries - Bikes

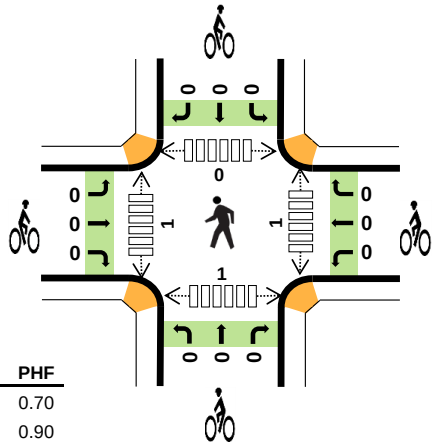
| Interval Start | 156th Street NE | | | 156th Street NE | | | Smokey Point Blvd | | | Smokey Point Blvd | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 1 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# Smokey Point Blvd
# 152nd Street NE




**Date: 05/31/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**



| | HV %: | PHF |
|---|---|---|
| EB | 3.6% | 0.70 |
| WB | 3.6% | 0.90 |
| NB | 3.6% | 0.91 |
| SB | 2.6% | 0.90 |
| TOTAL | 3.1% | 0.92 |

## Two-Hour Count Summaries

| Interval Start | | Driveway Eastbound | | | | 152nd Street NE Westbound | | | | Smokey Point Blvd Northbound | | | | Smokey Point Blvd Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 2 | 1 | 1 | 0 | 31 | 3 | 62 | 0 | 4 | 184 | 34 | 0 | 58 | 141 | 3 | 524 | 0 |
| **4:15 PM** | | **0** | **3** | **5** | **2** | **0** | **29** | **1** | **79** | **0** | **0** | **167** | **35** | **0** | **69** | **157** | **1** | **548** | 0 |
| **4:30 PM** | | **0** | **5** | **1** | **2** | **0** | **32** | **0** | **71** | **0** | **2** | **183** | **44** | **0** | **83** | **190** | **1** | **614** | 0 |
| **4:45 PM** | | **0** | **4** | **0** | **0** | **0** | **39** | **0** | **51** | **0** | **1** | **162** | **44** | **0** | **66** | **162** | **1** | **530** | 2,216 |
| **5:00 PM** | | **0** | **3** | **2** | **1** | **0** | **30** | **2** | **60** | **0** | **3** | **158** | **30** | **0** | **86** | **191** | **3** | **569** | **2,261** |
| 5:15 PM | | 0 | 0 | 1 | 4 | 0 | 32 | 1 | 51 | 0 | 3 | 144 | 37 | 1 | 78 | 177 | 5 | 534 | 2,247 |
| 5:30 PM | | 0 | 10 | 0 | 3 | 0 | 23 | 0 | 49 | 0 | 2 | 131 | 42 | 0 | 84 | 152 | 2 | 498 | 2,131 |
| 5:45 PM | | 0 | 5 | 1 | 3 | 0 | 18 | 2 | 44 | 0 | 0 | 123 | 30 | 0 | 66 | 135 | 0 | 427 | 2,028 |
| Count Total | | 0 | 32 | 11 | 16 | 0 | 234 | 9 | 467 | 0 | 15 | 1,252 | 296 | 1 | 590 | 1,305 | 16 | 4,244 | 0 |
| **Peak Hour** | **All** | **0** | **15** | **8** | **5** | **0** | **130** | **3** | **261** | **0** | **6** | **670** | **153** | **0** | **304** | **700** | **6** | **2,261** | **0** |
| | **HV** | **0** | **1** | **0** | **0** | **0** | **12** | **0** | **2** | **0** | **0** | **20** | **10** | **0** | **8** | **18** | **0** | **71** | **0** |
| | **HV%** | **-** | **7%** | **0%** | **0%** | **-** | **9%** | **0%** | **1%** | **-** | **0%** | **3%** | **7%** | **-** | **3%** | **3%** | **0%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 0 | 3 | 9 | 7 | *19* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 0 | 0 | *1* |
| **4:15 PM** | **0** | **1** | **6** | **6** | ***13*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **1** | **4** | **5** | **8** | ***18*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **0** | *1* |
| **4:45 PM** | **0** | **6** | **13** | **6** | ***25*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **5:00 PM** | **0** | **3** | **6** | **6** | ***15*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **1** | **0** | **1** | ***2*** |
| 5:15 PM | 0 | 2 | 2 | 6 | *10* | 0 | 0 | 0 | 0 | *0* | 1 | 0 | 1 | 0 | *2* |
| 5:30 PM | 0 | 0 | 3 | 7 | *10* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 0 | 3 | 2 | 4 | *9* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 0 | 0 | *1* |
| Count Total | 1 | 22 | 46 | 50 | *119* | 0 | 0 | 0 | 0 | *0* | 2 | 3 | 1 | 1 | *7* |
| **Peak Hour** | **1** | **14** | **30** | **26** | ***71*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **1** | **0** | **1** | ***3*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | Driveway | | | | 152nd Street NE | | | | Smokey Point Blvd | | | | Smokey Point Blvd | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 7 | 0 | 2 | 5 | 0 | 19 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **3** | **3** | **0** | **2** | **4** | **0** | **13** | 0 |
| **4:30 PM** | **0** | **1** | **0** | **0** | **0** | **3** | **0** | **1** | **0** | **0** | **4** | **1** | **0** | **1** | **7** | **0** | **18** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **5** | **0** | **1** | **0** | **0** | **11** | **2** | **0** | **3** | **3** | **0** | **25** | 75 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **0** | **2** | **4** | **0** | **2** | **4** | **0** | **15** | **71** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 6 | 0 | 10 | 68 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 5 | 0 | 10 | 60 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 0 | 9 | 44 |
| Count Total | 0 | 1 | 0 | 0 | 0 | 16 | 0 | 6 | 0 | 2 | 24 | 20 | 0 | 13 | 37 | 0 | 119 | 0 |
| **Peak Hour** | **0** | **1** | **0** | **0** | **0** | **12** | **0** | **2** | **0** | **0** | **20** | **10** | **0** | **8** | **18** | **0** | **71** | **0** |

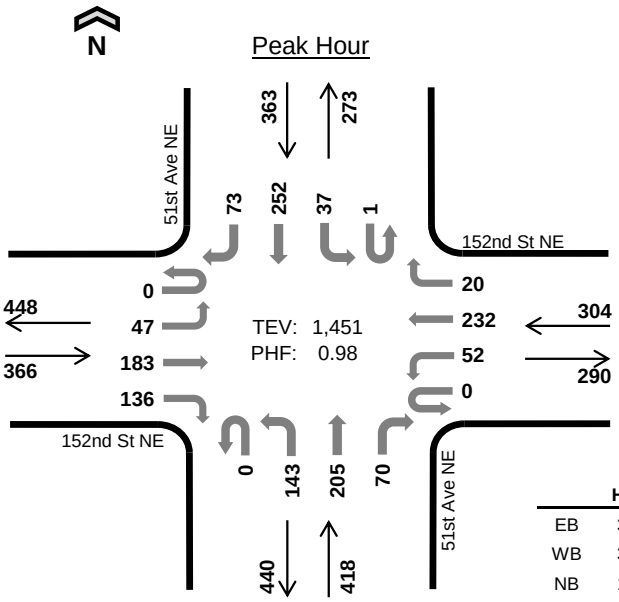
## Two-Hour Count Summaries - Bikes

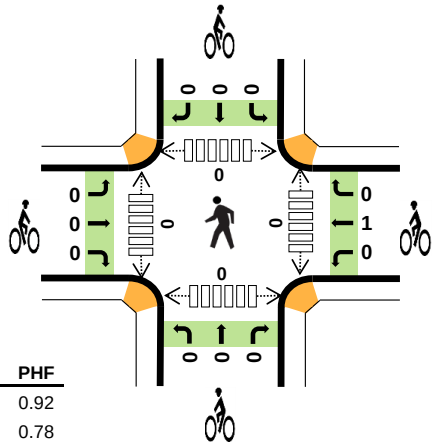
| Interval Start | Driveway | | | 152nd Street NE | | | Smokey Point Blvd | | | Smokey Point Blvd | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 51st Ave NE
# 152nd St NE

**Date: 06/01/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**



| | HV %: | PHF |
|---|---|---|
| EB | 3.3% | 0.92 |
| WB | 3.6% | 0.78 |
| NB | 1.4% | 0.96 |
| SB | 2.2% | 0.84 |
| TOTAL | 2.5% | 0.98 |

## Two-Hour Count Summaries

| Interval Start | | 152nd St NE Eastbound | | | | 152nd St NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 7 | 56 | 35 | 0 | 16 | 37 | 6 | 0 | 27 | 45 | 16 | 0 | 8 | 42 | 8 | 303 | 0 |
| **4:15 PM** | | **0** | **11** | **43** | **35** | **0** | **13** | **49** | **5** | **0** | **28** | **51** | **20** | **1** | **10** | **74** | **23** | **363** | 0 |
| **4:30 PM** | | **0** | **15** | **51** | **31** | **0** | **7** | **69** | **6** | **0** | **41** | **53** | **15** | **0** | **7** | **56** | **20** | **371** | 0 |
| **4:45 PM** | | **0** | **9** | **40** | **31** | **0** | **17** | **76** | **5** | **0** | **37** | **47** | **19** | **0** | **11** | **63** | **17** | **372** | 1,409 |
| **5:00 PM** | | **0** | **12** | **49** | **39** | **0** | **15** | **38** | **4** | **0** | **37** | **54** | **16** | **0** | **9** | **59** | **13** | **345** | **1,451** |
| 5:15 PM | | 0 | 7 | 48 | 32 | 0 | 12 | 46 | 1 | 0 | 26 | 36 | 27 | 0 | 5 | 58 | 9 | 307 | 1,395 |
| 5:30 PM | | 0 | 7 | 45 | 27 | 0 | 13 | 60 | 3 | 0 | 41 | 46 | 23 | 0 | 5 | 44 | 12 | 326 | 1,350 |
| 5:45 PM | | 0 | 11 | 43 | 50 | 0 | 12 | 62 | 9 | 0 | 50 | 48 | 15 | 0 | 8 | 39 | 15 | 362 | 1,340 |
| Count Total | | 0 | 79 | 375 | 280 | 0 | 105 | 437 | 39 | 0 | 287 | 380 | 151 | 1 | 63 | 435 | 117 | 2,749 | 0 |
| **Peak Hour** | **All** | **0** | **47** | **183** | **136** | **0** | **52** | **232** | **20** | **0** | **143** | **205** | **70** | **1** | **37** | **252** | **73** | **1,451** | **0** |
| | **HV** | **0** | **5** | **2** | **5** | **0** | **1** | **10** | **0** | **0** | **3** | **3** | **0** | **0** | **2** | **3** | **3** | **37** | **0** |
| | **HV%** | **-** | **11%** | **1%** | **4%** | **-** | **2%** | **4%** | **0%** | **-** | **2%** | **1%** | **0%** | **0%** | **5%** | **1%** | **4%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 1 | 1 | 1 | 11 | *14* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **4:15 PM** | **7** | **4** | **1** | **3** | ***15*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **1** | **1** | **5** | **2** | ***9*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **0** | **5** | **0** | **2** | ***7*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **5:00 PM** | **4** | **1** | **0** | **1** | ***6*** | **0** | **1** | **0** | **0** | ***1*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:15 PM | 1 | 2 | 1 | 1 | *5* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 0 | 0 | 3 | 2 | *5* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 1 | 0 | 0 | 0 | *1* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 15 | 14 | 11 | 22 | *62* | 0 | 1 | 0 | 0 | *1* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **12** | **11** | **6** | **8** | ***37*** | **0** | **1** | **0** | **0** | ***1*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | 152nd St NE Eastbound | | | | 152nd St NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 7 | 2 | 14 | 0 |
| **4:15 PM** | **0** | **3** | **1** | **3** | **0** | **0** | **4** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **2** | **1** | **15** | 0 |
| **4:30 PM** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **3** | **2** | **0** | **0** | **1** | **0** | **1** | **9** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **1** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **7** | 45 |
| **5:00 PM** | **0** | **1** | **1** | **2** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **6** | **37** |
| 5:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 27 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 5 | 23 |
| 5:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17 |
| Count Total | 0 | 5 | 3 | 7 | 0 | 1 | 13 | 0 | 0 | 6 | 5 | 0 | 0 | 4 | 11 | 7 | 62 | 0 |
| **Peak Hour** | **0** | **5** | **2** | **5** | **0** | **1** | **10** | **0** | **0** | **3** | **3** | **0** | **0** | **2** | **3** | **3** | **37** | **0** |

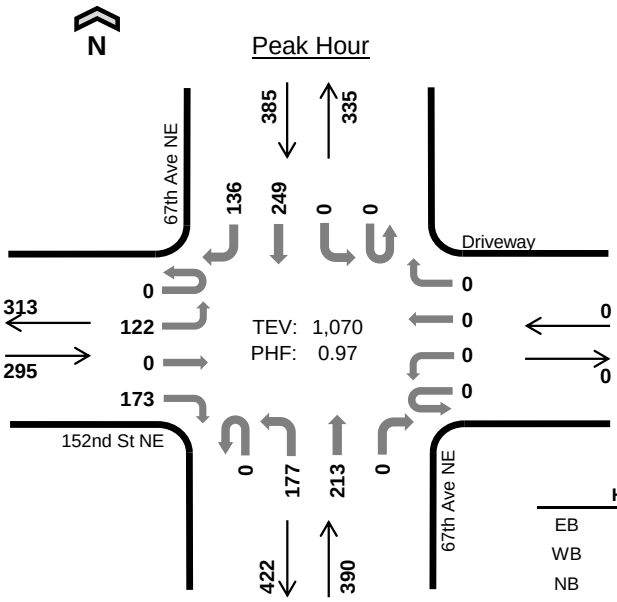
## Two-Hour Count Summaries - Bikes

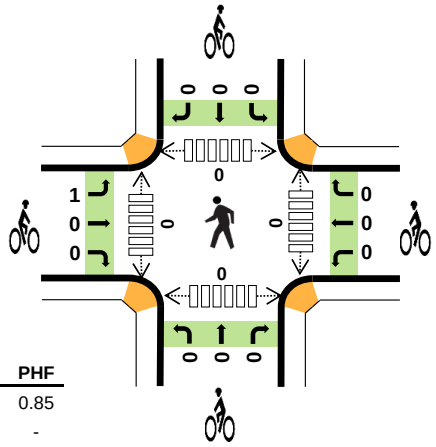
| Interval Start | 152nd St NE Eastbound | | | 152nd St NE Westbound | | | 51st Ave NE Northbound | | | 51st Ave NE Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Count Total | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 67th Ave NE
# 152nd St NE

**Date: 06/01/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:00 PM to 5:00 PM**




| | HV %: | PHF |
|---|---|---|
| EB | 1.7% | 0.85 |
| WB | - | - |
| NB | 2.8% | 0.94 |
| SB | 2.9% | 0.93 |
| TOTAL | 2.5% | 0.97 |

## Two-Hour Count Summaries

| Interval Start | | 152nd St NE Eastbound | | | | Driveway Westbound | | | | 67th Ave NE Northbound | | | | 67th Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | | **0** | **34** | **0** | **53** | **0** | **0** | **0** | **0** | **0** | **32** | **56** | **0** | **0** | **0** | **68** | **25** | **268** | 0 |
| **4:15 PM** | | **0** | **22** | **0** | **42** | **0** | **0** | **0** | **0** | **0** | **38** | **61** | **0** | **0** | **0** | **72** | **31** | **266** | 0 |
| **4:30 PM** | | **0** | **37** | **0** | **42** | **0** | **0** | **0** | **0** | **0** | **54** | **45** | **0** | **0** | **0** | **62** | **37** | **277** | 0 |
| **4:45 PM** | | **0** | **29** | **0** | **36** | **0** | **0** | **0** | **0** | **0** | **53** | **51** | **0** | **0** | **0** | **47** | **43** | **259** | **1,070** |
| 5:00 PM | | 0 | 39 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 22 | 47 | 0 | 0 | 0 | 58 | 26 | 231 | 1,033 |
| 5:15 PM | | 0 | 34 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 29 | 42 | 0 | 0 | 0 | 47 | 28 | 220 | 987 |
| 5:30 PM | | 0 | 37 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 46 | 43 | 0 | 0 | 0 | 44 | 30 | 232 | 942 |
| 5:45 PM | | 0 | 27 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 60 | 50 | 0 | 0 | 0 | 29 | 29 | 232 | 915 |
| Count Total | | 0 | 259 | 0 | 321 | 0 | 0 | 0 | 0 | 0 | 334 | 395 | 0 | 0 | 0 | 427 | 249 | 1,985 | 0 |
| **Peak Hour** | **All** | **0** | **122** | **0** | **173** | **0** | **0** | **0** | **0** | **0** | **177** | **213** | **0** | **0** | **0** | **249** | **136** | **1,070** | **0** |
| | **HV** | **0** | **1** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **6** | **5** | **0** | **0** | **0** | **8** | **3** | **27** | **0** |
| | **HV%** | **-** | **1%** | **-** | **2%** | **-** | **-** | **-** | **-** | **-** | **3%** | **2%** | **-** | **-** | **-** | **3%** | **2%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **4:00 PM** | **3** | **0** | **1** | **4** | ***8*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:15 PM** | **0** | **0** | **4** | **2** | ***6*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **2** | **0** | **3** | **1** | ***6*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **0** | **0** | **3** | **4** | ***7*** | **1** | **0** | **0** | **0** | ***1*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:00 PM | 2 | 0 | 1 | 1 | *4* | 0 | 0 | 0 | 1 | *1* | 0 | 0 | 0 | 0 | *0* |
| 5:15 PM | 1 | 0 | 2 | 1 | *4* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 0 | 0 | 1 | 0 | *1* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 0 | 0 | 1 | 0 | *1* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 8 | 0 | 16 | 13 | *37* | 1 | 0 | 0 | 1 | *2* | 0 | 0 | 0 | 0 | *0* |
| **Peak Hour** | **5** | **0** | **11** | **11** | ***27*** | **1** | **0** | **0** | **0** | ***1*** | **0** | **0** | **0** | **0** | ***0*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | 152nd St NE | | | | Driveway | | | | 67th Ave NE | | | | 67th Ave NE | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | **0** | **1** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **4** | **0** | **8** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **2** | **0** | **0** | **0** | **1** | **1** | **6** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **1** | **2** | **0** | **0** | **0** | **0** | **1** | **6** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **1** | **0** | **0** | **0** | **3** | **1** | **7** | **27** |
| 5:00 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 23 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 21 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 16 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 |
| Count Total | 0 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 8 | 5 | 37 | 0 |
| **Peak Hour** | **0** | **1** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **6** | **5** | **0** | **0** | **0** | **8** | **3** | **27** | **0** |

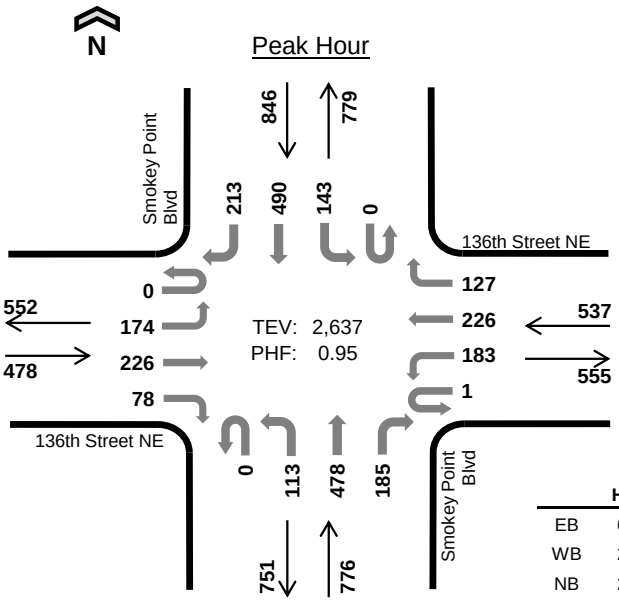
## Two-Hour Count Summaries - Bikes

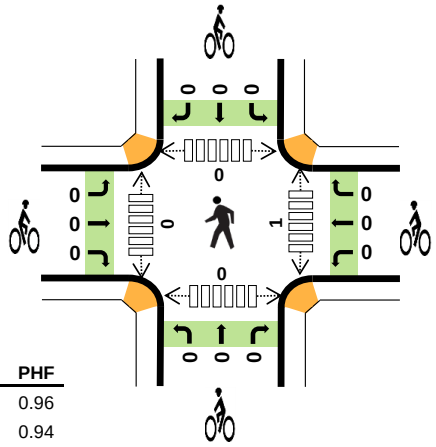
| Interval Start | 152nd St NE | | | Driveway | | | 67th Ave NE | | | 67th Ave NE | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **1** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Count Total | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 |
| **Peak Hour** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# Smokey Point Blvd
# 136th Street NE

**Date: 05/31/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**



| | HV %: | PHF |
|---|---|---|
| EB | 6.7% | 0.96 |
| WB | 2.2% | 0.94 |
| NB | 2.7% | 0.96 |
| SB | 2.4% | 0.89 |
| TOTAL | 3.2% | 0.95 |

## Two-Hour Count Summaries

| Interval Start | | 136th Street NE Eastbound | | | | 136th Street NE Westbound | | | | Smokey Point Blvd Northbound | | | | Smokey Point Blvd Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 24 | 55 | 13 | 0 | 47 | 70 | 34 | 0 | 28 | 128 | 49 | 0 | 20 | 106 | 50 | 624 | 0 |
| **4:15 PM** | | **0** | **46** | **59** | **17** | **0** | **40** | **55** | **29** | **0** | **21** | **119** | **40** | **0** | **31** | **110** | **42** | **609** | 0 |
| **4:30 PM** | | **0** | **46** | **57** | **21** | **0** | **50** | **57** | **35** | **0** | **30** | **133** | **36** | **0** | **46** | **126** | **54** | **691** | 0 |
| **4:45 PM** | | **0** | **45** | **51** | **18** | **1** | **44** | **46** | **37** | **0** | **31** | **112** | **59** | **0** | **26** | **114** | **60** | **644** | 2,568 |
| **5:00 PM** | | **0** | **37** | **59** | **22** | **0** | **49** | **68** | **26** | **0** | **31** | **114** | **50** | **0** | **40** | **140** | **57** | **693** | **2,637** |
| 5:15 PM | | 0 | 34 | 54 | 15 | 0 | 29 | 46 | 17 | 0 | 30 | 120 | 57 | 0 | 28 | 129 | 50 | 609 | 2,637 |
| 5:30 PM | | 0 | 50 | 44 | 27 | 0 | 25 | 16 | 10 | 0 | 20 | 122 | 44 | 0 | 35 | 99 | 49 | 541 | 2,487 |
| 5:45 PM | | 0 | 28 | 51 | 14 | 0 | 35 | 25 | 21 | 0 | 31 | 83 | 40 | 0 | 29 | 86 | 49 | 492 | 2,335 |
| Count Total | | 0 | 310 | 430 | 147 | 1 | 319 | 383 | 209 | 0 | 222 | 931 | 375 | 0 | 255 | 910 | 411 | 4,903 | 0 |
| **Peak Hour** | **All** | **0** | **174** | **226** | **78** | **1** | **183** | **226** | **127** | **0** | **113** | **478** | **185** | **0** | **143** | **490** | **213** | **2,637** | **0** |
| | **HV** | **0** | **7** | **24** | **1** | **0** | **3** | **9** | **0** | **0** | **1** | **18** | **2** | **0** | **1** | **12** | **7** | **85** | **0** |
| | **HV%** | **-** | **4%** | **11%** | **1%** | **0%** | **2%** | **4%** | **0%** | **-** | **1%** | **4%** | **1%** | **-** | **1%** | **2%** | **3%** | **3%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 5 | 3 | 4 | 5 | *17* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **4:15 PM** | **8** | **5** | **6** | **2** | ***21*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:30 PM** | **8** | **3** | **6** | **8** | ***25*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **0** | *1* |
| **4:45 PM** | **11** | **1** | **5** | **5** | ***22*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **5:00 PM** | **5** | **3** | **4** | **5** | ***17*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:15 PM | 3 | 2 | 2 | 5 | *12* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 2 | 1 | 2 | 7 | *12* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 0 | 4 | 2 | 5 | *11* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 42 | 22 | 31 | 42 | *137* | 0 | 0 | 0 | 0 | *0* | 1 | 0 | 0 | 0 | *1* |
| **Peak Hour** | **32** | **12** | **21** | **20** | ***85*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **0** | ***1*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | 136th Street NE | | | | 136th Street NE | | | | Smokey Point Blvd | | | | Smokey Point Blvd | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 1 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 4 | 0 | 17 | 0 |
| **4:15 PM** | **0** | **0** | **8** | **0** | **0** | **1** | **4** | **0** | **0** | **1** | **5** | **0** | **0** | **0** | **1** | **1** | **21** | 0 |
| **4:30 PM** | **0** | **1** | **7** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **4** | **2** | **0** | **1** | **4** | **3** | **25** | 0 |
| **4:45 PM** | **0** | **5** | **5** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **5** | **0** | **0** | **0** | **3** | **2** | **22** | 85 |
| **5:00 PM** | **0** | **1** | **4** | **0** | **0** | **2** | **1** | **0** | **0** | **0** | **4** | **0** | **0** | **0** | **4** | **1** | **17** | **85** |
| 5:15 PM | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 2 | 12 | 76 |
| 5:30 PM | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4 | 3 | 0 | 12 | 63 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 4 | 11 | 52 |
| Count Total | 0 | 11 | 30 | 1 | 0 | 6 | 12 | 4 | 0 | 1 | 26 | 4 | 0 | 7 | 22 | 13 | 137 | 0 |
| **Peak Hour** | **0** | **7** | **24** | **1** | **0** | **3** | **9** | **0** | **0** | **1** | **18** | **2** | **0** | **1** | **12** | **7** | **85** | **0** |

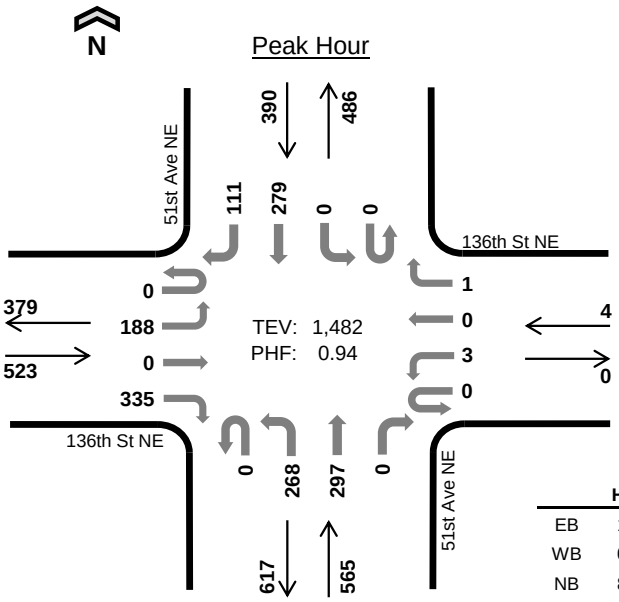
## Two-Hour Count Summaries - Bikes

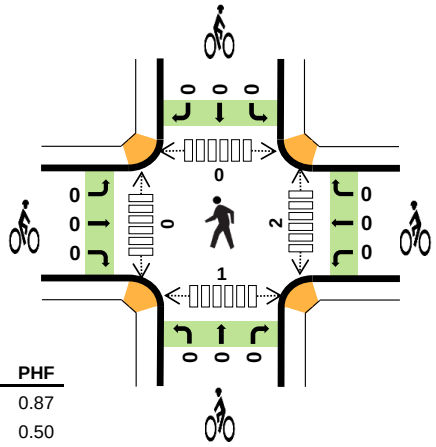
| Interval Start | 136th Street NE | | | 136th Street NE | | | Smokey Point Blvd | | | Smokey Point Blvd | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 51st Ave NE
# 136th St NE

**Date: 06/01/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**




| | HV %: | PHF |
|---|---|---|
| EB | 1.1% | 0.87 |
| WB | 0.0% | 0.50 |
| NB | 8.7% | 0.91 |
| SB | 2.3% | 0.92 |
| TOTAL | 4.3% | 0.94 |

## Two-Hour Count Summaries

| Interval Start | | 136th St NE Eastbound | | | | 136th St NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 40 | 0 | 61 | 0 | 3 | 3 | 2 | 0 | 60 | 62 | 0 | 0 | 0 | 50 | 38 | 319 | 0 |
| **4:15 PM** | | **0** | **41** | **0** | **76** | **0** | **1** | **0** | **1** | **0** | **69** | **68** | **0** | **0** | **0** | **66** | **31** | **353** | 0 |
| **4:30 PM** | | **0** | **64** | **0** | **87** | **0** | **0** | **0** | **0** | **0** | **75** | **80** | **0** | **0** | **0** | **66** | **22** | **394** | 0 |
| **4:45 PM** | | **0** | **44** | **0** | **92** | **0** | **0** | **0** | **0** | **0** | **66** | **68** | **0** | **0** | **0** | **77** | **29** | **376** | 1,442 |
| **5:00 PM** | | **0** | **39** | **0** | **80** | **0** | **2** | **0** | **0** | **0** | **58** | **81** | **0** | **0** | **0** | **70** | **29** | **359** | **1,482** |
| 5:15 PM | | 0 | 46 | 0 | 78 | 0 | 0 | 0 | 1 | 0 | 50 | 65 | 0 | 0 | 0 | 61 | 24 | 325 | 1,454 |
| 5:30 PM | | 0 | 48 | 0 | 51 | 0 | 2 | 0 | 0 | 0 | 47 | 83 | 0 | 0 | 0 | 47 | 30 | 308 | 1,368 |
| 5:45 PM | | 0 | 35 | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 40 | 86 | 0 | 0 | 0 | 69 | 24 | 313 | 1,305 |
| Count Total | | 0 | 357 | 0 | 584 | 0 | 8 | 3 | 4 | 0 | 465 | 593 | 0 | 0 | 0 | 506 | 227 | 2,747 | 0 |
| **Peak Hour** | **All** | **0** | **188** | **0** | **335** | **0** | **3** | **0** | **1** | **0** | **268** | **297** | **0** | **0** | **0** | **279** | **111** | **1,482** | **0** |
| | **HV** | **0** | **1** | **0** | **5** | **0** | **0** | **0** | **0** | **0** | **43** | **6** | **0** | **0** | **0** | **6** | **3** | **64** | **0** |
| | **HV%** | **-** | **1%** | **-** | **1%** | **-** | **0%** | **-** | **0%** | **-** | **16%** | **2%** | **-** | **-** | **-** | **2%** | **3%** | **4%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 3 | 0 | 3 | 6 | *12* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **4:15 PM** | **0** | **0** | **8** | **6** | ***14*** | **0** | **0** | **0** | **0** | ***0*** | **2** | **0** | **0** | **0** | *2* |
| **4:30 PM** | **2** | **0** | **22** | **0** | ***24*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **1** | *1* |
| **4:45 PM** | **2** | **0** | **15** | **2** | ***19*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **5:00 PM** | **2** | **0** | **4** | **1** | ***7*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:15 PM | 1 | 0 | 5 | 0 | *6* | 0 | 0 | 0 | 0 | *0* | 3 | 0 | 0 | 0 | *3* |
| 5:30 PM | 1 | 0 | 6 | 1 | *8* | 0 | 0 | 0 | 0 | *0* | 2 | 0 | 0 | 1 | *3* |
| 5:45 PM | 0 | 0 | 3 | 1 | *4* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| Count Total | 11 | 0 | 66 | 17 | *94* | 0 | 0 | 0 | 0 | *0* | 7 | 0 | 0 | 2 | *9* |
| **Peak Hour** | **6** | **0** | **49** | **9** | ***64*** | **0** | **0** | **0** | **0** | ***0*** | **2** | **0** | **0** | **1** | ***3*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | 136th St NE Eastbound | | | | 136th St NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 4 | 12 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **7** | **1** | **0** | **0** | **0** | **4** | **2** | **14** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **17** | **5** | **0** | **0** | **0** | **0** | **0** | **24** | 0 |
| **4:45 PM** | **0** | **1** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **15** | **0** | **0** | **0** | **0** | **1** | **1** | **19** | 69 |
| **5:00 PM** | **0** | **0** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **4** | **0** | **0** | **0** | **0** | **1** | **0** | **7** | **64** |
| 5:15 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 56 |
| 5:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 8 | 40 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 25 |
| Count Total | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 55 | 11 | 0 | 0 | 0 | 10 | 7 | 94 | 0 |
| **Peak Hour** | **0** | **1** | **0** | **5** | **0** | **0** | **0** | **0** | **0** | **43** | **6** | **0** | **0** | **0** | **6** | **3** | **64** | **0** |

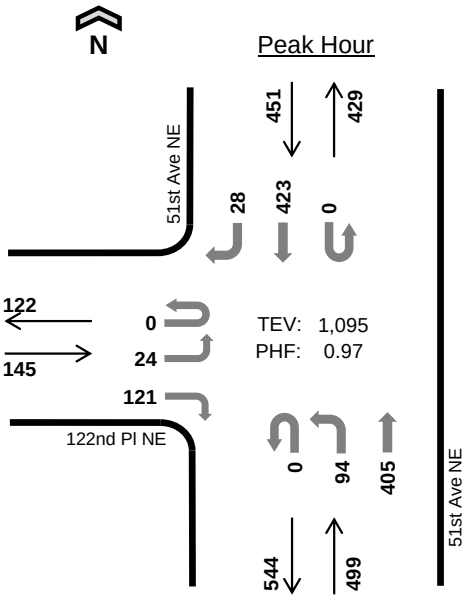
## Two-Hour Count Summaries - Bikes

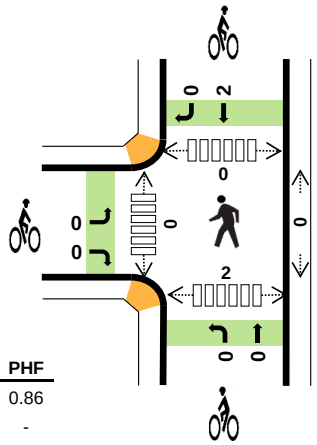
| Interval Start | 136th St NE Eastbound | | | 136th St NE Westbound | | | 51st Ave NE Northbound | | | 51st Ave NE Southbound | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 51st Ave NE
# 122nd Pl NE

**Date: 06/01/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:00 PM to 5:00 PM**




| | HV %: | PHF |
|---|---|---|
| EB | 2.8% | 0.86 |
| WB | - | - |
| NB | 7.4% | 0.86 |
| SB | 2.9% | 0.85 |
| TOTAL | 4.9% | 0.97 |

## Two-Hour Count Summaries

| Interval Start | | 122nd Pl NE Eastbound | | | | 0 Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | | **0** | **5** | **0** | **29** | **0** | **0** | **0** | **0** | **0** | **20** | **104** | **0** | **0** | **0** | **98** | **4** | **260** | 0 |
| **4:15 PM** | | **0** | **6** | **0** | **36** | **0** | **0** | **0** | **0** | **0** | **25** | **92** | **0** | **0** | **0** | **113** | **3** | **275** | 0 |
| **4:30 PM** | | **0** | **5** | **0** | **32** | **0** | **0** | **0** | **0** | **0** | **25** | **120** | **0** | **0** | **0** | **93** | **7** | **282** | 0 |
| **4:45 PM** | | **0** | **8** | **0** | **24** | **0** | **0** | **0** | **0** | **0** | **24** | **89** | **0** | **0** | **0** | **119** | **14** | **278** | **1,095** |
| 5:00 PM | | 0 | 8 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 12 | 98 | 0 | 0 | 0 | 104 | 8 | 247 | 1,082 |
| 5:15 PM | | 0 | 7 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 17 | 81 | 0 | 0 | 0 | 86 | 7 | 229 | 1,036 |
| 5:30 PM | | 0 | 9 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 20 | 85 | 0 | 0 | 0 | 77 | 2 | 220 | 974 |
| 5:45 PM | | 0 | 9 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 24 | 94 | 0 | 0 | 0 | 88 | 7 | 246 | 942 |
| Count Total | | 0 | 57 | 0 | 220 | 0 | 0 | 0 | 0 | 0 | 167 | 763 | 0 | 0 | 0 | 778 | 52 | 2,037 | 0 |
| **Peak Hour** | **All** | **0** | **24** | **0** | **121** | **0** | **0** | **0** | **0** | **0** | **94** | **405** | **0** | **0** | **0** | **423** | **28** | **1,095** | **0** |
| | **HV** | **0** | **0** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **1** | **36** | **0** | **0** | **0** | **13** | **0** | **54** | **0** |
| | **HV%** | **-** | **0%** | **-** | **3%** | **-** | **-** | **-** | **-** | **-** | **1%** | **9%** | **-** | **-** | **-** | **3%** | **0%** | **5%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| **4:00 PM** | **2** | **0** | **3** | **4** | ***9*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:15 PM** | **0** | **0** | **8** | **6** | ***14*** | **0** | **0** | **0** | **2** | ***2*** | **0** | **0** | **0** | **2** | *2* |
| **4:30 PM** | **1** | **0** | **13** | **0** | ***14*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **1** | **0** | **13** | **3** | ***17*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:00 PM | 0 | 0 | 3 | 2 | *5* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:15 PM | 0 | 0 | 3 | 0 | *3* | 0 | 0 | 1 | 0 | *1* | 0 | 0 | 0 | 0 | *0* |
| 5:30 PM | 1 | 0 | 2 | 1 | *4* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 0 | 0 | 1 | 1 | *2* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 1 | *1* |
| Count Total | 5 | 0 | 46 | 17 | *68* | 0 | 0 | 1 | 2 | *3* | 0 | 0 | 0 | 3 | *3* |
| **Peak Hr** | **4** | **0** | **37** | **13** | ***54*** | **0** | **0** | **0** | **2** | ***2*** | **0** | **0** | **0** | **2** | ***2*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | 122nd Pl NE | | | | 0 | | | | 51st Ave NE | | | | 51st Ave NE | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **4** | **0** | **9** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **7** | **0** | **0** | **0** | **6** | **0** | **14** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **13** | **0** | **0** | **0** | **0** | **0** | **14** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **13** | **0** | **0** | **0** | **3** | **0** | **17** | **54** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 5 | 50 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 39 |
| 5:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 4 | 29 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 14 |
| Count Total | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 43 | 0 | 0 | 0 | 17 | 0 | 68 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **4** | **0** | **0** | **0** | **0** | **0** | **1** | **36** | **0** | **0** | **0** | **13** | **0** | **54** | **0** |

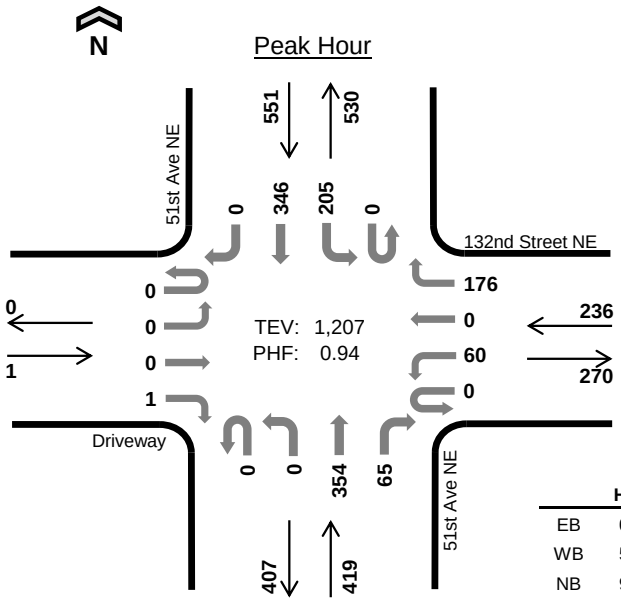
## Two-Hour Count Summaries - Bikes

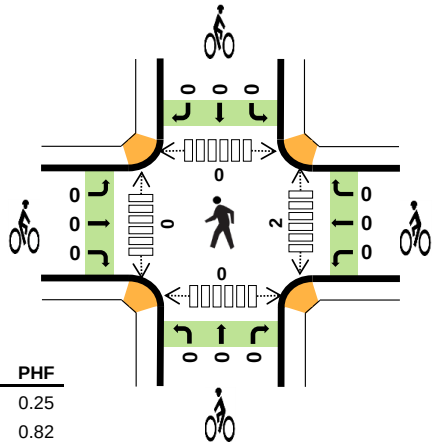
| Interval Start | 122nd Pl NE | | | 0 | | | 51st Ave NE | | | 51st Ave NE | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **0** | **2** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **0** | **2** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 51st Ave NE
# 132nd Street NE

**Date: 05/31/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:15 PM to 5:15 PM**



| | HV %: | PHF |
|---|---|---|
| EB | 0.0% | 0.25 |
| WB | 5.9% | 0.82 |
| NB | 9.3% | 0.94 |
| SB | 1.6% | 0.85 |
| TOTAL | 5.1% | 0.94 |

## Two-Hour Count Summaries

| Interval Start | | Driveway Eastbound | | | | 132nd Street NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 50 | 0 | 0 | 87 | 14 | 0 | 63 | 80 | 1 | 313 | 0 |
| **4:15 PM** | | **0** | **0** | **0** | **1** | **0** | **21** | **0** | **51** | **0** | **0** | **79** | **14** | **0** | **51** | **75** | **0** | **292** | 0 |
| **4:30 PM** | | **0** | **0** | **0** | **0** | **0** | **13** | **0** | **43** | **0** | **0** | **91** | **19** | **0** | **51** | **77** | **0** | **294** | 0 |
| **4:45 PM** | | **0** | **0** | **0** | **0** | **0** | **17** | **0** | **37** | **0** | **0** | **98** | **14** | **0** | **46** | **89** | **0** | **301** | 1,200 |
| **5:00 PM** | | **0** | **0** | **0** | **0** | **0** | **9** | **0** | **45** | **0** | **0** | **86** | **18** | **0** | **57** | **105** | **0** | **320** | **1,207** |
| 5:15 PM | | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 47 | 0 | 1 | 91 | 19 | 0 | 35 | 85 | 0 | 290 | 1,205 |
| 5:30 PM | | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 29 | 0 | 0 | 79 | 17 | 0 | 59 | 72 | 0 | 264 | 1,175 |
| 5:45 PM | | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 33 | 0 | 0 | 64 | 19 | 0 | 42 | 81 | 0 | 251 | 1,125 |
| Count Total | | 0 | 0 | 0 | 1 | 0 | 110 | 0 | 335 | 0 | 1 | 675 | 134 | 0 | 404 | 664 | 1 | 2,325 | 0 |
| **Peak Hour** | **All** | **0** | **0** | **0** | **1** | **0** | **60** | **0** | **176** | **0** | **0** | **354** | **65** | **0** | **205** | **346** | **0** | **1,207** | **0** |
| | **HV** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **13** | **0** | **0** | **37** | **2** | **0** | **4** | **5** | **0** | **62** | **0** |
| | **HV%** | **-** | **-** | **-** | **0%** | **-** | **2%** | **-** | **7%** | **-** | **-** | **10%** | **3%** | **-** | **2%** | **1%** | **-** | **5%** | **0** |

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

| Interval Start | Heavy Vehicle Totals | | | | | Bicycles | | | | | Pedestrians (Crossing Leg) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EB | WB | NB | SB | Total | EB | WB | NB | SB | Total | East | West | North | South | Total |
| 4:00 PM | 0 | 6 | 4 | 2 | *12* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| **4:15 PM** | **0** | **5** | **11** | **3** | ***19*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **0** | *1* |
| **4:30 PM** | **0** | **3** | **11** | **3** | ***17*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | *0* |
| **4:45 PM** | **0** | **4** | **10** | **1** | ***15*** | **0** | **0** | **0** | **0** | ***0*** | **1** | **0** | **0** | **0** | *1* |
| **5:00 PM** | **0** | **2** | **7** | **2** | ***11*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **0** | **0** | **0** | ***0*** |
| 5:15 PM | 0 | 2 | 4 | 3 | *9* | 0 | 0 | 0 | 0 | *0* | 2 | 2 | 0 | 0 | *4* |
| 5:30 PM | 0 | 2 | 0 | 0 | *2* | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | *0* |
| 5:45 PM | 0 | 2 | 2 | 4 | *8* | 0 | 0 | 0 | 0 | *0* | 0 | 2 | 0 | 0 | *2* |
| Count Total | 0 | 26 | 49 | 18 | *93* | 0 | 0 | 0 | 0 | *0* | 4 | 4 | 0 | 0 | *8* |
| **Peak Hour** | **0** | **14** | **39** | **9** | ***62*** | **0** | **0** | **0** | **0** | ***0*** | **2** | **0** | **0** | **0** | ***2*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | Driveway | | | | 132nd Street NE | | | | 51st Ave NE | | | | 51st Ave NE | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 12 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **5** | **0** | **0** | **11** | **0** | **0** | **0** | **3** | **0** | **19** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **0** | **0** | **11** | **0** | **0** | **2** | **1** | **0** | **17** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **4** | **0** | **0** | **9** | **1** | **0** | **1** | **0** | **0** | **15** | 63 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **0** | **0** | **6** | **1** | **0** | **1** | **1** | **0** | **11** | **62** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 1 | 2 | 0 | 9 | 52 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 37 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 3 | 0 | 8 | 30 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 23 | 0 | 0 | 46 | 3 | 0 | 7 | 11 | 0 | 93 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **13** | **0** | **0** | **37** | **2** | **0** | **4** | **5** | **0** | **62** | **0** |

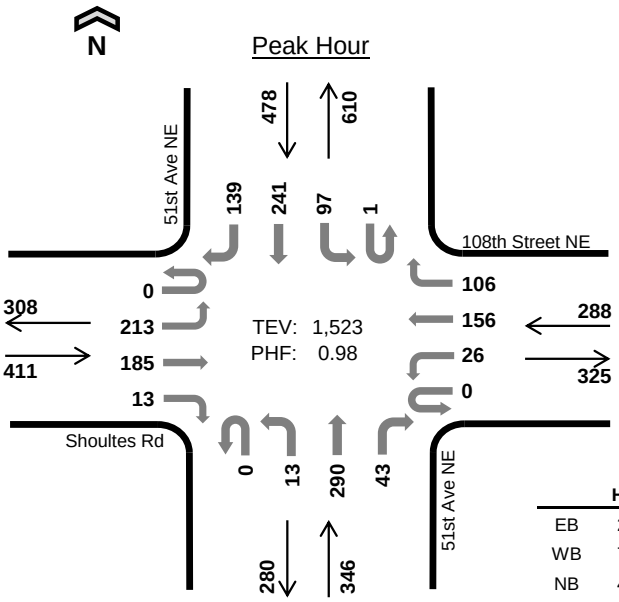
## Two-Hour Count Summaries - Bikes

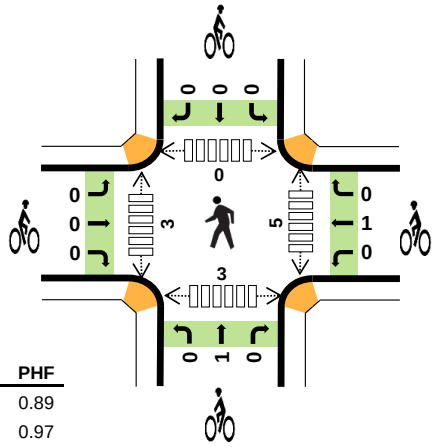
| Interval Start | Driveway | | | 132nd Street NE | | | 51st Ave NE | | | 51st Ave NE | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **5:00 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# 51st Ave NE
# 108th Street NE

**Date: 05/31/2023**
**Count Period: 4:00 PM to 6:00 PM**
**Peak Hour: 4:00 PM to 5:00 PM**




| | HV %: | PHF |
|---|---|---|
| EB | 2.4% | 0.89 |
| WB | 7.6% | 0.97 |
| NB | 4.9% | 0.84 |
| SB | 1.7% | 0.95 |
| TOTAL | 3.7% | 0.98 |

## Two-Hour Count Summaries

| Interval Start | | Shoultes Rd Eastbound | | | | 108th Street NE Westbound | | | | 51st Ave NE Northbound | | | | 51st Ave NE Southbound | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | | **0** | **52** | **37** | **5** | **0** | **7** | **43** | **19** | **0** | **6** | **81** | **16** | **1** | **26** | **55** | **37** | **385** | 0 |
| **4:15 PM** | | **0** | **52** | **38** | **2** | **0** | **8** | **44** | **22** | **0** | **2** | **72** | **6** | **0** | **24** | **60** | **33** | **363** | 0 |
| **4:30 PM** | | **0** | **52** | **54** | **3** | **0** | **3** | **33** | **38** | **0** | **1** | **70** | **6** | **0** | **26** | **60** | **40** | **386** | 0 |
| **4:45 PM** | | **0** | **57** | **56** | **3** | **0** | **8** | **36** | **27** | **0** | **4** | **67** | **15** | **0** | **21** | **66** | **29** | **389** | **1,523** |
| 5:00 PM | | 0 | 56 | 50 | 3 | 0 | 10 | 33 | 19 | 0 | 3 | 71 | 18 | 1 | 28 | 62 | 30 | 384 | 1,522 |
| 5:15 PM | | 0 | 70 | 36 | 2 | 0 | 5 | 28 | 24 | 0 | 1 | 52 | 17 | 0 | 25 | 60 | 29 | 349 | 1,508 |
| 5:30 PM | | 0 | 55 | 44 | 2 | 0 | 4 | 38 | 18 | 0 | 2 | 42 | 12 | 1 | 30 | 57 | 36 | 341 | 1,463 |
| 5:45 PM | | 0 | 65 | 34 | 3 | 0 | 6 | 48 | 22 | 0 | 4 | 34 | 13 | 1 | 20 | 49 | 36 | 335 | 1,409 |
| Count Total | | 0 | 459 | 349 | 23 | 0 | 51 | 303 | 189 | 0 | 23 | 489 | 103 | 4 | 200 | 469 | 270 | 2,932 | 0 |
| **Peak Hour** | **All** | **0** | **213** | **185** | **13** | **0** | **26** | **156** | **106** | **0** | **13** | **290** | **43** | **1** | **97** | **241** | **139** | **1,523** | **0** |
| | **HV** | **0** | **5** | **3** | **2** | **0** | **1** | **2** | **19** | **0** | **0** | **17** | **0** | **1** | **2** | **2** | **3** | **57** | **0** |
| | **HV%** | **-** | **2%** | **2%** | **15%** | **-** | **4%** | **1%** | **18%** | **-** | **0%** | **6%** | **0%** | **100%** | **2%** | **1%** | **2%** | **4%** | **0** |

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

| Interval Start | Heavy Vehicle Totals EB | WB | NB | SB | Total | Bicycles EB | WB | NB | SB | Total | Pedestrians (Crossing Leg) East | West | North | South | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4:00 PM** | **1** | **2** | **7** | **3** | ***13*** | **0** | **1** | **0** | **0** | ***1*** | **1** | **0** | **0** | **0** | *1* |
| **4:15 PM** | **4** | **6** | **3** | **4** | ***17*** | **0** | **0** | **0** | **0** | ***0*** | **3** | **1** | **0** | **0** | *4* |
| **4:30 PM** | **2** | **10** | **2** | **1** | ***15*** | **0** | **0** | **1** | **0** | ***1*** | **1** | **1** | **0** | **3** | *5* |
| **4:45 PM** | **3** | **4** | **5** | **0** | ***12*** | **0** | **0** | **0** | **0** | ***0*** | **0** | **1** | **0** | **0** | ***1*** |
| 5:00 PM | 0 | 6 | 7 | 2 | *15* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 0 | 0 | *1* |
| 5:15 PM | 1 | 4 | 1 | 2 | *8* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 1 | 0 | *2* |
| 5:30 PM | 0 | 0 | 1 | 0 | *1* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 0 | 0 | *1* |
| 5:45 PM | 1 | 0 | 0 | 2 | *3* | 0 | 0 | 0 | 0 | *0* | 0 | 1 | 1 | 1 | *3* |
| Count Total | 12 | 32 | 26 | 14 | *84* | 0 | 1 | 1 | 0 | *2* | 5 | 7 | 2 | 4 | *18* |
| **Peak Hour** | **10** | **22** | **17** | **8** | ***57*** | **0** | **1** | **1** | **0** | ***2*** | **5** | **3** | **0** | **3** | ***11*** |

## Two-Hour Count Summaries - Heavy Vehicles

| Interval Start | Shoultes Rd | | | | 108th Street NE | | | | 51st Ave NE | | | | 51st Ave NE | | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | | |
| | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | UT | LT | TH | RT | | |
| **4:00 PM** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | **1** | **0** | **0** | **7** | **0** | **1** | **1** | **1** | **0** | **13** | 0 |
| **4:15 PM** | **0** | **2** | **2** | **0** | **0** | **0** | **0** | **6** | **0** | **0** | **3** | **0** | **0** | **1** | **1** | **2** | **17** | 0 |
| **4:30 PM** | **0** | **1** | **1** | **0** | **0** | **1** | **0** | **9** | **0** | **0** | **2** | **0** | **0** | **0** | **0** | **1** | **15** | 0 |
| **4:45 PM** | **0** | **1** | **0** | **2** | **0** | **0** | **1** | **3** | **0** | **0** | **5** | **0** | **0** | **0** | **0** | **0** | **12** | **57** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 1 | 15 | 59 |
| 5:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 8 | 50 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 36 |
| 5:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 27 |
| Count Total | 0 | 7 | 3 | 2 | 0 | 1 | 5 | 26 | 0 | 0 | 26 | 0 | 1 | 3 | 4 | 6 | 84 | 0 |
| **Peak Hour** | **0** | **5** | **3** | **2** | **0** | **1** | **2** | **19** | **0** | **0** | **17** | **0** | **1** | **2** | **2** | **3** | **57** | **0** |

## Two-Hour Count Summaries - Bikes

| Interval Start | Shoultes Rd | | | 108th Street NE | | | 51st Ave NE | | | 51st Ave NE | | | 15-min Total | Rolling One Hour |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT | | |
| **4:00 PM** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | 0 |
| **4:15 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | 0 |
| **4:30 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **1** | 0 |
| **4:45 PM** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **2** |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Count Total | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 |
| **Peak Hour** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **2** | **0** |

*Note: U-Turn volumes for bikes are included in Left-Turn, if any.*

# Appendix B: LOS Definitions

## Highway Capacity Manual, 2000

**Signalized intersection** level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

**Table 1. Level of Service Criteria for Signalized Intersections**

| Level of Service | Average Control Delay (sec/veh) | General Description (Signalized Intersections) |
|---|---|---|
| A | ≤10 | Free Flow |
| B | >10 - 20 | Stable Flow (slight delays) |
| C | >20 - 35 | Stable flow (acceptable delays) |
| D | >35 - 55 | Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding) |
| E | >55 - 80 | Unstable flow (intolerable delay) |
| F | >80 | Forced flow (jammed) |

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

**Unsignalized intersection** LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

**Table 2. Level of Service Criteria for Unsignalized Intersections**

| Level of Service | Average Control Delay (sec/veh) |
|---|---|
| A | 0 - 10 |
| B | >10 - 15 |
| C | >15 - 25 |
| D | >25 - 35 |
| E | >35 - 50 |
| F | >50 |

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

## Highway Capacity Manual 2010/6th Edition

**Signalized intersection** level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

**Table 1. Level of Service Criteria for Signalized Intersections**

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

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

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

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

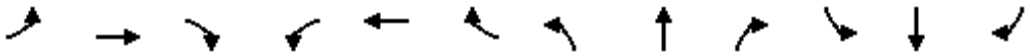
**Table 2. Level of Service Criteria for Unsignalized Intersections**

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

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.

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

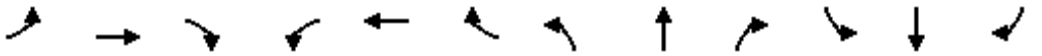
# Appendix C: LOS Worksheets



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 5 | 215 | 30 | 10 | 30 | 240 | 685 | 25 | 40 | 765 | 70 |
| Future Volume (veh/h) | 20 | 5 | 215 | 30 | 10 | 30 | 240 | 685 | 25 | 40 | 765 | 70 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 21 | 5 | 226 | 32 | 11 | 32 | 253 | 721 | 26 | 42 | 805 | 74 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 466 | 357 | 494 | 346 | 51 | 148 | 434 | 1480 | 53 | 421 | 1177 | 108 |
| Arrive On Green | 0.12 | 0.19 | 0.19 | 0.05 | 0.12 | 0.12 | 0.12 | 0.43 | 0.43 | 0.06 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1570 | 1753 | 414 | 1206 | 1767 | 3470 | 125 | 1753 | 3237 | 298 |
| Grp Volume(v), veh/h | 21 | 5 | 226 | 32 | 0 | 43 | 253 | 366 | 381 | 42 | 435 | 444 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1570 | 1753 | 0 | 1620 | 1767 | 1763 | 1833 | 1753 | 1749 | 1786 |
| Q Serve(g_s), s | 0.5 | 0.1 | 6.7 | 0.9 | 0.0 | 1.4 | 4.7 | 8.8 | 8.8 | 0.8 | 12.3 | 12.3 |
| Cycle Q Clear(g_c), s | 0.5 | 0.1 | 6.7 | 0.9 | 0.0 | 1.4 | 4.7 | 8.8 | 8.8 | 0.8 | 12.3 | 12.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.74 | 1.00 | | 0.07 | 1.00 | | 0.17 |
| Lane Grp Cap(c), veh/h | 466 | 357 | 494 | 346 | 0 | 198 | 434 | 752 | 781 | 421 | 636 | 649 |
| V/C Ratio(X) | 0.05 | 0.01 | 0.46 | 0.09 | 0.00 | 0.22 | 0.58 | 0.49 | 0.49 | 0.10 | 0.68 | 0.68 |
| Avail Cap(c_a), veh/h | 890 | 825 | 890 | 891 | 0 | 582 | 702 | 1386 | 1441 | 796 | 1375 | 1404 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.7 | 19.1 | 16.1 | 20.5 | 0.0 | 23.1 | 10.9 | 12.1 | 12.1 | 10.2 | 15.8 | 15.8 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.7 | 0.1 | 0.0 | 0.5 | 1.2 | 0.5 | 0.5 | 0.1 | 1.3 | 1.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.1 | 2.3 | 0.4 | 0.0 | 0.5 | 1.7 | 3.2 | 3.3 | 0.3 | 4.7 | 4.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 15.7 | 19.1 | 16.7 | 20.6 | 0.0 | 23.7 | 12.1 | 12.6 | 12.6 | 10.3 | 17.1 | 17.1 |
| LnGrp LOS | B | B | B | C | A | C | B | B | B | B | B | B |
| Approach Vol, veh/h | | 252 | | | 75 | | | 1000 | | | 921 | |
| Approach Delay, s/veh | | 16.7 | | | 22.4 | | | 12.5 | | | 16.8 | |
| Approach LOS | | B | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 28.9 | 6.8 | 15.3 | 11.1 | 25.3 | 10.9 | 11.2 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | 16.0 | 46.0 | 21.0 | 26.0 | 16.0 | 46.0 | 21.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 10.8 | 2.9 | 8.7 | 6.7 | 14.3 | 2.5 | 3.4 |
| Green Ext Time (p_c), s | 0.0 | 5.7 | 0.0 | 0.7 | 0.5 | 6.9 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 15.0 |
| HCM 6th LOS | B |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 10 | 5 | 130 | 5 | 260 | 5 | 670 | 155 | 305 | 700 | 5 |
| Future Volume (veh/h) | 15 | 10 | 5 | 130 | 5 | 260 | 5 | 670 | 155 | 305 | 700 | 5 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 16 | 11 | 5 | 141 | 5 | 283 | 5 | 728 | 168 | 332 | 761 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 227 | 196 | 89 | 499 | 6 | 361 | 9 | 922 | 213 | 130 | 1418 | 9 |
| Arrive On Green | 0.02 | 0.16 | 0.16 | 0.09 | 0.24 | 0.24 | 0.01 | 0.33 | 0.33 | 0.07 | 0.40 | 0.40 |
| Sat Flow, veh/h | 1753 | 1197 | 544 | 1753 | 27 | 1535 | 1753 | 2820 | 651 | 1767 | 3590 | 24 |
| Grp Volume(v), veh/h | 16 | 0 | 16 | 141 | 0 | 288 | 5 | 451 | 445 | 332 | 374 | 392 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1742 | 1753 | 0 | 1562 | 1753 | 1749 | 1722 | 1767 | 1763 | 1851 |
| Q Serve(g_s), s | 0.4 | 0.0 | 0.4 | 3.4 | 0.0 | 9.4 | 0.2 | 12.8 | 12.8 | 4.0 | 8.9 | 8.9 |
| Cycle Q Clear(g_c), s | 0.4 | 0.0 | 0.4 | 3.4 | 0.0 | 9.4 | 0.2 | 12.8 | 12.8 | 4.0 | 8.9 | 8.9 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 0.98 | 1.00 | | 0.38 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 227 | 0 | 285 | 499 | 0 | 367 | 9 | 572 | 563 | 130 | 696 | 731 |
| V/C Ratio(X) | 0.07 | 0.00 | 0.06 | 0.28 | 0.00 | 0.78 | 0.53 | 0.79 | 0.79 | 2.56 | 0.54 | 0.54 |
| Avail Cap(c_a), veh/h | 360 | 0 | 671 | 507 | 0 | 602 | 129 | 674 | 664 | 130 | 696 | 731 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.8 | 0.0 | 19.2 | 15.2 | 0.0 | 19.5 | 27.0 | 16.6 | 16.6 | 25.2 | 12.7 | 12.7 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 0.1 | 0.3 | 0.0 | 3.7 | 39.8 | 5.4 | 5.5 | 723.8 | 0.8 | 0.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 0.2 | 1.3 | 0.0 | 3.5 | 0.2 | 5.4 | 5.4 | 27.7 | 3.2 | 3.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 18.9 | 0.0 | 19.3 | 15.5 | 0.0 | 23.2 | 66.8 | 22.0 | 22.1 | 749.1 | 13.5 | 13.4 |
| LnGrp LOS | B | A | B | B | A | C | E | C | C | F | B | B |
| Approach Vol, veh/h | | 32 | | | 429 | | | 901 | | | 1098 | |
| Approach Delay, s/veh | | 19.1 | | | 20.7 | | | 22.3 | | | 235.9 | |
| Approach LOS | | B | | | C | | | C | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 22.8 | 8.8 | 13.9 | 5.3 | 26.5 | 4.9 | 17.8 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 | 5.0 | 4.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 21.0 | 5.0 | 21.0 | 4.0 | 21.0 | 5.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 14.8 | 5.4 | 2.4 | 2.2 | 10.9 | 2.4 | 11.4 |
| Green Ext Time (p_c), s | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 3.6 | 0.0 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 117.3 |
| HCM 6th LOS | F |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 58.3 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 45 | 185 | 135 | 50 | 230 | 20 | 145 | 205 | 70 | 40 | 250 | 75 |
| Future Vol, veh/h | 45 | 185 | 135 | 50 | 230 | 20 | 145 | 205 | 70 | 40 | 250 | 75 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Heavy Vehicles, % | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 2 | 2 | 2 |
| Mvmt Flow | 46 | 189 | 138 | 51 | 235 | 20 | 148 | 209 | 71 | 41 | 255 | 77 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 52 | 38.2 | 82.7 | 52.9 |
| HCM LOS | F | E | F | F |

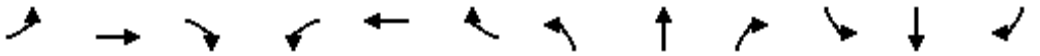
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 35% | 12% | 17% | 11% |
| Vol Thru, % | 49% | 51% | 77% | 68% |
| Vol Right, % | 17% | 37% | 7% | 21% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 420 | 365 | 300 | 365 |
| LT Vol | 145 | 45 | 50 | 40 |
| Through Vol | 205 | 185 | 230 | 250 |
| RT Vol | 70 | 135 | 20 | 75 |
| Lane Flow Rate | 429 | 372 | 306 | 372 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.032 | 0.892 | 0.775 | 0.896 |
| Departure Headway (Hd) | 8.666 | 8.871 | 9.387 | 8.912 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 420 | 410 | 389 | 410 |
| Service Time | 6.666 | 6.871 | 7.387 | 6.912 |
| HCM Lane V/C Ratio | 1.021 | 0.907 | 0.787 | 0.907 |
| HCM Control Delay | 82.7 | 52 | 38.2 | 52.9 |
| HCM Lane LOS | F | F | E | F |
| HCM 95th-tile Q | 13.5 | 9.2 | 6.5 | 9.3 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 15.7 |
| Intersection LOS | C |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 120 | 175 | 175 | 215 | 250 | 135 |
| Future Vol, veh/h | 120 | 175 | 175 | 215 | 250 | 135 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 124 | 180 | 180 | 222 | 258 | 139 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | SB | EB | |
| Conflicting Lanes Left | 1 | 1 | 0 |
| Conflicting Approach Right | NB | | EB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 14 | 17.3 | 15.5 |
| HCM LOS | B | C | C |

| Lane | NBLn1 | EBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 45% | 41% | 0% |
| Vol Thru, % | 55% | 0% | 65% |
| Vol Right, % | 0% | 59% | 35% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 390 | 295 | 385 |
| LT Vol | 175 | 120 | 0 |
| Through Vol | 215 | 0 | 250 |
| RT Vol | 0 | 175 | 135 |
| Lane Flow Rate | 402 | 304 | 397 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.619 | 0.481 | 0.582 |
| Departure Headway (Hd) | 5.546 | 5.699 | 5.279 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 651 | 630 | 683 |
| Service Time | 3.596 | 3.754 | 3.329 |
| HCM Lane V/C Ratio | 0.618 | 0.483 | 0.581 |
| HCM Control Delay | 17.3 | 14 | 15.5 |
| HCM Lane LOS | C | B | C |
| HCM 95th-tile Q | 4.3 | 2.6 | 3.8 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 175 | 225 | 80 | 185 | 225 | 125 | 115 | 480 | 185 | 145 | 490 | 215 |
| Future Volume (veh/h) | 175 | 225 | 80 | 185 | 225 | 125 | 115 | 480 | 185 | 145 | 490 | 215 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 184 | 237 | 84 | 195 | 237 | 132 | 121 | 505 | 195 | 153 | 516 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Cap, veh/h | 282 | 454 | 385 | 381 | 285 | 159 | 115 | 721 | 277 | 116 | 1030 | |
| Arrive On Green | 0.07 | 0.25 | 0.25 | 0.07 | 0.25 | 0.25 | 0.07 | 0.29 | 0.29 | 0.07 | 0.29 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 1522 | 1781 | 1129 | 629 | 1767 | 2488 | 956 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 184 | 237 | 84 | 195 | 0 | 369 | 121 | 357 | 343 | 153 | 516 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 1522 | 1781 | 0 | 1757 | 1767 | 1763 | 1682 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 4.0 | 7.0 | 2.7 | 4.0 | 0.0 | 12.2 | 4.0 | 11.0 | 11.1 | 4.0 | 7.4 | 0.0 |
| Cycle Q Clear(g_c), s | 4.0 | 7.0 | 2.7 | 4.0 | 0.0 | 12.2 | 4.0 | 11.0 | 11.1 | 4.0 | 7.4 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.36 | 1.00 | | 0.57 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 282 | 454 | 385 | 381 | 0 | 444 | 115 | 511 | 487 | 116 | 1030 | |
| V/C Ratio(X) | 0.65 | 0.52 | 0.22 | 0.51 | 0.00 | 0.83 | 1.05 | 0.70 | 0.70 | 1.31 | 0.50 | |
| Avail Cap(c_a), veh/h | 282 | 792 | 671 | 381 | 0 | 603 | 115 | 864 | 824 | 116 | 1219 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 19.5 | 19.7 | 18.1 | 17.8 | 0.0 | 21.6 | 28.6 | 19.4 | 19.4 | 28.6 | 18.1 | 0.0 |
| Incr Delay (d2), s/veh | 5.3 | 0.9 | 0.3 | 1.1 | 0.0 | 7.1 | 97.2 | 1.7 | 1.9 | 189.7 | 0.4 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 2.9 | 0.9 | 2.1 | 0.0 | 5.6 | 4.8 | 4.5 | 4.3 | 7.8 | 2.9 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 24.8 | 20.6 | 18.4 | 19.0 | 0.0 | 28.8 | 125.8 | 21.1 | 21.3 | 218.3 | 18.4 | 0.0 |
| LnGrp LOS | C | C | B | B | A | C | F | C | C | F | B | |
| Approach Vol, veh/h | | 505 | | | 564 | | | 821 | | | 669 | |
| Approach Delay, s/veh | | 21.8 | | | 25.4 | | | 36.6 | | | 64.1 | |
| Approach LOS | | C | | | C | | | D | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 22.7 | 9.0 | 20.5 | 9.0 | 22.7 | 9.0 | 20.5 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 30.0 | 4.0 | 27.0 | 4.0 | 21.0 | 4.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 13.1 | 6.0 | 9.0 | 6.0 | 9.4 | 6.0 | 14.2 |
| Green Ext Time (p_c), s | 0.0 | 4.4 | 0.0 | 1.6 | 0.0 | 2.8 | 0.0 | 1.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 38.4 |
| HCM 6th LOS | D |

**Notes**

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 190 | 0 | 335 | 5 | 0 | 5 | 270 | 295 | 0 | 0 | 280 | 110 |
| Future Volume (vph) | 190 | 0 | 335 | 5 | 0 | 5 | 270 | 295 | 0 | 0 | 280 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 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 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1787 | 1583 | | 1805 | 1615 | 1656 | 1743 | | | 1863 | 1583 |
| Flt Permitted | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.43 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1787 | 1583 | | 1805 | 1615 | 742 | 1743 | | | 1863 | 1583 |
| 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) | 202 | 0 | 356 | 5 | 0 | 5 | 287 | 314 | 0 | 0 | 298 | 117 |
| RTOR Reduction (vph) | 0 | 0 | 212 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 0 | 202 | 144 | 0 | 5 | 0 | 287 | 314 | 0 | 0 | 298 | 65 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 9% | 9% | 2% | 2% | 2% |
| Turn Type | Split | NA | pm+ov | Split | NA | Perm | D.P+P | NA | | | NA | pm+ov |
| Protected Phases | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | | 6 | 4 |
| Permitted Phases | | | 4 | | | 8 | 6 | | | | | 6 |
| Actuated Green, G (s) | | 11.6 | 24.8 | | 1.0 | 1.0 | 28.7 | 33.7 | | | 15.5 | 27.1 |
| Effective Green, g (s) | | 11.6 | 24.8 | | 1.0 | 1.0 | 28.7 | 33.7 | | | 15.5 | 27.1 |
| Actuated g/C Ratio | | 0.19 | 0.40 | | 0.02 | 0.02 | 0.47 | 0.55 | | | 0.25 | 0.44 |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Vehicle Extension (s) | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 338 | 640 | | 29 | 26 | 544 | 958 | | | 471 | 828 |
| v/s Ratio Prot | | c0.11 | 0.05 | | c0.00 | | c0.11 | 0.18 | | | c0.16 | 0.01 |
| v/s Ratio Perm | | | 0.04 | | | 0.00 | 0.13 | | | | | 0.03 |
| v/c Ratio | | 0.60 | 0.23 | | 0.17 | 0.00 | 0.53 | 0.33 | | | 0.63 | 0.08 |
| Uniform Delay, d1 | | 22.7 | 12.0 | | 29.7 | 29.7 | 10.7 | 7.6 | | | 20.4 | 9.9 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.9 | 0.1 | | 1.0 | 0.0 | 0.4 | 0.1 | | | 2.0 | 0.0 |
| Delay (s) | | 24.6 | 12.0 | | 30.8 | 29.7 | 11.1 | 7.7 | | | 22.4 | 9.9 |
| Level of Service | | C | B | | C | C | B | A | | | C | A |
| Approach Delay (s) | | 16.6 | | | 30.2 | | | 9.3 | | | 18.9 | |
| Approach LOS | | B | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 14.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 61.3 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 59.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

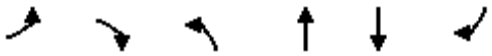
c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 27.8 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 60 | 0 | 175 | 0 | 355 | 65 | 205 | 345 | 0 |
| Future Vol, veh/h | 0 | 0 | 5 | 60 | 0 | 175 | 0 | 355 | 65 | 205 | 345 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 0 | 0 | 0 | 6 | 6 | 6 | 9 | 9 | 9 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 5 | 64 | 0 | 186 | 0 | 378 | 69 | 218 | 367 | 0 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 10 | 14.1 | 21.3 | 38.8 |
| HCM LOS | A | B | C | E |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 0% | 0% | 26% | 37% |
| Vol Thru, % | 85% | 0% | 0% | 63% |
| Vol Right, % | 15% | 100% | 74% | 0% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 420 | 5 | 235 | 550 |
| LT Vol | 0 | 0 | 60 | 205 |
| Through Vol | 355 | 0 | 0 | 345 |
| RT Vol | 65 | 5 | 175 | 0 |
| Lane Flow Rate | 447 | 5 | 250 | 585 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.705 | 0.01 | 0.434 | 0.9 |
| Departure Headway (Hd) | 5.684 | 6.917 | 6.246 | 5.54 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 630 | 521 | 573 | 649 |
| Service Time | 3.756 | 4.917 | 4.328 | 3.604 |
| HCM Lane V/C Ratio | 0.71 | 0.01 | 0.436 | 0.901 |
| HCM Control Delay | 21.3 | 10 | 14.1 | 38.8 |
| HCM Lane LOS | C | A | B | E |
| HCM 95th-tile Q | 5.7 | 0 | 2.2 | 11.2 |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 120 | 95 | 405 | 425 | 30 |
| Future Volume (veh/h) | 25 | 120 | 95 | 405 | 425 | 30 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | 1.00 | | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1378 | 1378 | 1913 | 1913 | 2012 | 2012 |
| Adj Flow Rate, veh/h | 26 | 124 | 98 | 418 | 438 | 31 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 3 | 3 | 7 | 7 | 3 | 3 |
| Cap, veh/h | 31 | 148 | 522 | 1102 | 650 | 46 |
| Arrive On Green | 0.15 | 0.15 | 0.09 | 0.58 | 0.35 | 0.35 |
| Sat Flow, veh/h | 204 | 973 | 1822 | 1913 | 1854 | 131 |
| Grp Volume(v), veh/h | 151 | 0 | 98 | 418 | 0 | 469 |
| Grp Sat Flow(s),veh/h/ln | 1185 | 0 | 1822 | 1913 | 0 | 1985 |
| Q Serve(g_s), s | 4.1 | 0.0 | 1.1 | 3.9 | 0.0 | 6.7 |
| Cycle Q Clear(g_c), s | 4.1 | 0.0 | 1.1 | 3.9 | 0.0 | 6.7 |
| Prop In Lane | 0.17 | 0.82 | 1.00 | | | 0.07 |
| Lane Grp Cap(c), veh/h | 180 | 0 | 522 | 1102 | 0 | 696 |
| V/C Ratio(X) | 0.84 | 0.00 | 0.19 | 0.38 | 0.00 | 0.67 |
| Avail Cap(c_a), veh/h | 913 | 0 | 937 | 1473 | 0 | 1528 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 13.6 | 0.0 | 6.2 | 3.8 | 0.0 | 9.1 |
| Incr Delay (d2), s/veh | 9.8 | 0.0 | 0.2 | 0.2 | 0.0 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 0.0 | 0.3 | 0.7 | 0.0 | 2.3 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 23.5 | 0.0 | 6.4 | 4.0 | 0.0 | 10.3 |
| LnGrp LOS | C | A | A | A | A | B |
| Approach Vol, veh/h | 151 | | | 516 | 469 | |
| Approach Delay, s/veh | 23.5 | | | 4.5 | 10.3 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 23.6 | | 9.5 | 7.5 | 16.1 |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | | 25.5 | | 25.5 | 10.5 | 25.5 |
| Max Q Clear Time (g_c+I1), s | | 5.9 | | 6.1 | 3.1 | 8.7 |
| Green Ext Time (p_c), s | | 2.7 | | 0.4 | 0.1 | 2.9 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 9.4 |
| HCM 6th LOS | A |

**Notes**

User approved volume balancing among the lanes for turning movement.

# MOVEMENT SUMMARY

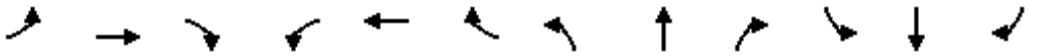
## Site: 11 [51st Avenue NE/108th Street NE - Existing (Site Folder: General)]

Existing PM Peak Hour
Site Category: -
Roundabout

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] % | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] ft | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: 51st Avenue NE | | | | | | | | | | | | | | |
| 3u | U | 1 | 5.0 | 1 | 5.0 | 0.399 | 14.8 | LOS B | 2.6 | 67.0 | 0.70 | 0.73 | 0.70 | 35.7 |
| 3 | L2 | 15 | 5.0 | 15 | 5.0 | 0.399 | 12.6 | LOS B | 2.6 | 67.0 | 0.70 | 0.73 | 0.70 | 35.0 |
| 8 | T1 | 290 | 5.0 | 296 | 5.0 | 0.399 | 7.3 | LOS A | 2.6 | 67.0 | 0.70 | 0.73 | 0.70 | 35.0 |
| 18 | R2 | 45 | 5.0 | 46 | 5.0 | 0.399 | 7.2 | LOS A | 2.6 | 67.0 | 0.70 | 0.73 | 0.70 | 34.1 |
| Approach | | 351 | 5.0 | 358 | 5.0 | 0.399 | 7.6 | LOS A | 2.6 | 67.0 | 0.70 | 0.73 | 0.70 | 34.9 |
| East: 108th Street NE | | | | | | | | | | | | | | |
| 1 | L2 | 25 | 8.0 | 26 | 8.0 | 0.340 | 12.8 | LOS B | 2.1 | 54.8 | 0.68 | 0.75 | 0.68 | 34.9 |
| 6 | T1 | 155 | 8.0 | 158 | 8.0 | 0.340 | 7.5 | LOS A | 2.1 | 54.8 | 0.68 | 0.75 | 0.68 | 35.0 |
| 16 | R2 | 105 | 8.0 | 107 | 8.0 | 0.340 | 7.4 | LOS A | 2.1 | 54.8 | 0.68 | 0.75 | 0.68 | 34.0 |
| Approach | | 285 | 8.0 | 291 | 8.0 | 0.340 | 8.0 | LOS A | 2.1 | 54.8 | 0.68 | 0.75 | 0.68 | 34.6 |
| North: 51st Avenue NE | | | | | | | | | | | | | | |
| 7u | U | 1 | 2.0 | 1 | 2.0 | 0.421 | 12.9 | LOS B | 2.9 | 72.8 | 0.50 | 0.59 | 0.50 | 36.2 |
| 7 | L2 | 100 | 2.0 | 102 | 2.0 | 0.421 | 10.7 | LOS B | 2.9 | 72.8 | 0.50 | 0.59 | 0.50 | 35.5 |
| 4 | T1 | 240 | 2.0 | 245 | 2.0 | 0.421 | 5.4 | LOS A | 2.9 | 72.8 | 0.50 | 0.59 | 0.50 | 35.5 |
| 14 | R2 | 140 | 2.0 | 143 | 2.0 | 0.421 | 5.3 | LOS A | 2.9 | 72.8 | 0.50 | 0.59 | 0.50 | 34.6 |
| Approach | | 481 | 2.0 | 491 | 2.0 | 0.421 | 6.5 | LOS A | 2.9 | 72.8 | 0.50 | 0.59 | 0.50 | 35.2 |
| West: Shoultes Road | | | | | | | | | | | | | | |
| 5 | L2 | 215 | 3.0 | 219 | 3.0 | 0.411 | 11.6 | LOS B | 2.6 | 67.6 | 0.61 | 0.71 | 0.61 | 34.4 |
| 2 | T1 | 185 | 3.0 | 189 | 3.0 | 0.411 | 6.4 | LOS A | 2.6 | 67.6 | 0.61 | 0.71 | 0.61 | 34.4 |
| 12 | R2 | 15 | 3.0 | 15 | 3.0 | 0.411 | 6.3 | LOS A | 2.6 | 67.6 | 0.61 | 0.71 | 0.61 | 33.5 |
| Approach | | 415 | 3.0 | 423 | 3.0 | 0.411 | 9.1 | LOS A | 2.6 | 67.6 | 0.61 | 0.71 | 0.61 | 34.4 |
| All Vehicles | | 1532 | 4.1 | 1563 | 4.1 | 0.421 | 7.7 | LOS A | 2.9 | 72.8 | 0.61 | 0.68 | 0.61 | 34.8 |

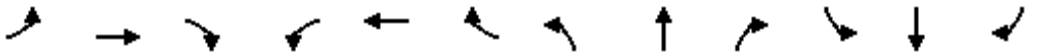
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 5 | 230 | 45 | 10 | 110 | 255 | 770 | 30 | 65 | 845 | 75 |
| Future Volume (veh/h) | 20 | 5 | 230 | 45 | 10 | 110 | 255 | 770 | 30 | 65 | 845 | 75 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 21 | 5 | 242 | 47 | 11 | 116 | 268 | 811 | 32 | 68 | 889 | 79 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 334 | 345 | 292 | 404 | 29 | 304 | 386 | 1329 | 52 | 401 | 1176 | 104 |
| Arrive On Green | 0.03 | 0.19 | 0.19 | 0.06 | 0.21 | 0.21 | 0.12 | 0.38 | 0.38 | 0.10 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1570 | 1753 | 137 | 1442 | 1767 | 3457 | 136 | 1753 | 3248 | 289 |
| Grp Volume(v), veh/h | 21 | 5 | 242 | 47 | 0 | 127 | 268 | 413 | 430 | 68 | 479 | 489 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1570 | 1753 | 0 | 1579 | 1767 | 1763 | 1831 | 1753 | 1749 | 1788 |
| Q Serve(g_s), s | 0.7 | 0.2 | 11.0 | 1.5 | 0.0 | 5.1 | 6.8 | 14.0 | 14.0 | 1.6 | 17.8 | 17.8 |
| Cycle Q Clear(g_c), s | 0.7 | 0.2 | 11.0 | 1.5 | 0.0 | 5.1 | 6.8 | 14.0 | 14.0 | 1.6 | 17.8 | 17.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.91 | 1.00 | | 0.07 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 334 | 345 | 292 | 404 | 0 | 333 | 386 | 678 | 704 | 401 | 633 | 647 |
| V/C Ratio(X) | 0.06 | 0.01 | 0.83 | 0.12 | 0.00 | 0.38 | 0.69 | 0.61 | 0.61 | 0.17 | 0.76 | 0.76 |
| Avail Cap(c_a), veh/h | 633 | 626 | 529 | 774 | 0 | 639 | 525 | 1070 | 1111 | 577 | 1061 | 1085 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.0 | 24.6 | 29.1 | 21.8 | 0.0 | 25.1 | 15.2 | 18.4 | 18.4 | 12.2 | 20.8 | 20.8 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 6.0 | 0.1 | 0.0 | 0.7 | 2.4 | 0.9 | 0.9 | 0.2 | 1.9 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.1 | 4.5 | 0.6 | 0.0 | 1.9 | 2.7 | 5.5 | 5.7 | 0.6 | 7.1 | 7.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 23.0 | 24.7 | 35.1 | 21.9 | 0.0 | 25.8 | 17.6 | 19.3 | 19.2 | 12.4 | 22.6 | 22.6 |
| LnGrp LOS | C | C | D | C | A | C | B | B | B | B | C | C |
| Approach Vol, veh/h | | 268 | | | 174 | | | 1111 | | | 1036 | |
| Approach Delay, s/veh | | 34.0 | | | 24.7 | | | 18.9 | | | 22.0 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 12.5 | 33.5 | 9.3 | 18.8 | 14.2 | 31.8 | 7.5 | 20.7 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 15.0 | 45.0 | 20.0 | 25.0 | 15.0 | 45.0 | 15.0 | 30.0 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 16.0 | 3.5 | 13.0 | 8.8 | 19.8 | 2.7 | 7.1 |
| Green Ext Time (p_c), s | 0.1 | 6.0 | 0.1 | 0.6 | 0.4 | 7.0 | 0.0 | 0.7 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 22.1 |
| HCM 6th LOS | C |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 10 | 5 | 170 | 5 | 275 | 5 | 755 | 265 | 325 | 785 | 5 |
| Future Volume (veh/h) | 15 | 10 | 5 | 170 | 5 | 275 | 5 | 755 | 265 | 325 | 785 | 5 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 16 | 11 | 5 | 185 | 5 | 299 | 5 | 821 | 288 | 353 | 853 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 204 | 224 | 102 | 483 | 6 | 366 | 9 | 883 | 309 | 117 | 1469 | 9 |
| Arrive On Green | 0.02 | 0.19 | 0.19 | 0.07 | 0.24 | 0.24 | 0.01 | 0.35 | 0.35 | 0.07 | 0.41 | 0.41 |
| Sat Flow, veh/h | 1753 | 1197 | 544 | 1753 | 26 | 1536 | 1753 | 2539 | 890 | 1767 | 3593 | 21 |
| Grp Volume(v), veh/h | 16 | 0 | 16 | 185 | 0 | 304 | 5 | 565 | 544 | 353 | 418 | 440 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1742 | 1753 | 0 | 1562 | 1753 | 1749 | 1680 | 1767 | 1763 | 1852 |
| Q Serve(g_s), s | 0.4 | 0.0 | 0.5 | 4.0 | 0.0 | 11.1 | 0.2 | 18.8 | 18.8 | 4.0 | 11.1 | 11.1 |
| Cycle Q Clear(g_c), s | 0.4 | 0.0 | 0.5 | 4.0 | 0.0 | 11.1 | 0.2 | 18.8 | 18.8 | 4.0 | 11.1 | 11.1 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 0.98 | 1.00 | | 0.53 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 204 | 0 | 327 | 483 | 0 | 372 | 9 | 608 | 584 | 117 | 721 | 757 |
| V/C Ratio(X) | 0.08 | 0.00 | 0.05 | 0.38 | 0.00 | 0.82 | 0.54 | 0.93 | 0.93 | 3.01 | 0.58 | 0.58 |
| Avail Cap(c_a), veh/h | 293 | 0 | 607 | 483 | 0 | 545 | 116 | 610 | 586 | 117 | 721 | 757 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.8 | 0.0 | 20.1 | 18.8 | 0.0 | 21.7 | 29.9 | 18.9 | 19.0 | 28.1 | 13.8 | 13.8 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.1 | 0.5 | 0.0 | 6.2 | 40.2 | 20.9 | 21.7 | 926.1 | 1.2 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 0.2 | 2.1 | 0.0 | 4.4 | 0.2 | 10.2 | 10.0 | 31.8 | 4.1 | 4.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 20.0 | 0.0 | 20.1 | 19.3 | 0.0 | 27.9 | 70.1 | 39.8 | 40.7 | 954.2 | 15.0 | 14.9 |
| LnGrp LOS | C | A | C | B | A | C | E | D | D | F | B | B |
| Approach Vol, veh/h | | 32 | | | 489 | | | 1114 | | | 1211 | |
| Approach Delay, s/veh | | 20.1 | | | 24.6 | | | 40.4 | | | 288.7 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 25.9 | 9.0 | 16.3 | 5.3 | 29.6 | 5.9 | 19.4 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 21.0 | 4.0 | 21.0 | 4.0 | 21.0 | 4.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 20.8 | 6.0 | 2.5 | 2.2 | 13.1 | 2.4 | 13.1 |
| Green Ext Time (p_c), s | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 143.1 |
| HCM 6th LOS | F |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 171.8 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 55 | 255 | 185 | 55 | 260 | 25 | 165 | 275 | 75 | 55 | 335 | 90 |
| Future Vol, veh/h | 55 | 255 | 185 | 55 | 260 | 25 | 165 | 275 | 75 | 55 | 335 | 90 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Heavy Vehicles, % | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 2 | 2 | 2 |
| Mvmt Flow | 56 | 260 | 189 | 56 | 265 | 26 | 168 | 281 | 77 | 56 | 342 | 92 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 186.8 | 74.5 | 216.3 | 177.5 |
| HCM LOS | F | F | F | F |

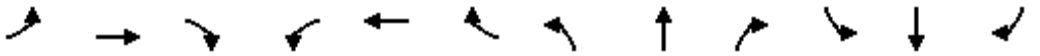
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 32% | 11% | 16% | 11% |
| Vol Thru, % | 53% | 52% | 76% | 70% |
| Vol Right, % | 15% | 37% | 7% | 19% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 515 | 495 | 340 | 480 |
| LT Vol | 165 | 55 | 55 | 55 |
| Through Vol | 275 | 255 | 260 | 335 |
| RT Vol | 75 | 185 | 25 | 90 |
| Lane Flow Rate | 526 | 505 | 347 | 490 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.373 | 1.3 | 0.93 | 1.273 |
| Departure Headway (Hd) | 11.2 | 11.122 | 12.694 | 11.444 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 331 | 333 | 288 | 323 |
| Service Time | 9.2 | 9.122 | 10.694 | 9.444 |
| HCM Lane V/C Ratio | 1.589 | 1.517 | 1.205 | 1.517 |
| HCM Control Delay | 216.3 | 186.8 | 74.5 | 177.5 |
| HCM Lane LOS | F | F | F | F |
| HCM 95th-tile Q | 22.4 | 20 | 8.8 | 18.7 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 24.4 |
| Intersection LOS | C |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 170 | 215 | 195 | 245 | 275 | 155 |
| Future Vol, veh/h | 170 | 215 | 195 | 245 | 275 | 155 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 175 | 222 | 201 | 253 | 284 | 160 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | SB | EB | |
| Conflicting Lanes Left | 1 | 1 | 0 |
| Conflicting Approach Right | NB | | EB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 21.9 | 27.6 | 23.3 |
| HCM LOS | C | D | C |

| Lane | NBLn1 | EBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 44% | 44% | 0% |
| Vol Thru, % | 56% | 0% | 64% |
| Vol Right, % | 0% | 56% | 36% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 440 | 385 | 430 |
| LT Vol | 195 | 170 | 0 |
| Through Vol | 245 | 0 | 275 |
| RT Vol | 0 | 215 | 155 |
| Lane Flow Rate | 454 | 397 | 443 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.778 | 0.688 | 0.728 |
| Departure Headway (Hd) | 6.171 | 6.236 | 5.915 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 585 | 583 | 612 |
| Service Time | 4.22 | 4.236 | 3.964 |
| HCM Lane V/C Ratio | 0.776 | 0.681 | 0.724 |
| HCM Control Delay | 27.6 | 21.9 | 23.3 |
| HCM Lane LOS | D | C | C |
| HCM 95th-tile Q | 7.2 | 5.3 | 6.2 |



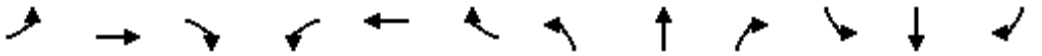
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 185 | 240 | 85 | 200 | 240 | 135 | 120 | 655 | 195 | 155 | 595 | 230 |
| Future Volume (veh/h) | 185 | 240 | 85 | 200 | 240 | 135 | 120 | 655 | 195 | 155 | 595 | 230 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 195 | 253 | 89 | 211 | 253 | 142 | 126 | 689 | 205 | 163 | 626 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Cap, veh/h | 247 | 464 | 394 | 352 | 291 | 163 | 0 | 887 | 264 | 104 | 1646 | |
| Arrive On Green | 0.06 | 0.26 | 0.26 | 0.06 | 0.26 | 0.26 | 0.00 | 0.33 | 0.33 | 0.06 | 0.46 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 1522 | 1781 | 1125 | 632 | 0 | 2678 | 796 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 195 | 253 | 89 | 211 | 0 | 395 | 0 | 454 | 440 | 163 | 626 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 1522 | 1781 | 0 | 1757 | 0 | 1763 | 1711 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 4.0 | 8.3 | 3.1 | 4.0 | 0.0 | 14.7 | 0.0 | 15.8 | 15.8 | 4.0 | 7.8 | 0.0 |
| Cycle Q Clear(g_c), s | 4.0 | 8.3 | 3.1 | 4.0 | 0.0 | 14.7 | 0.0 | 15.8 | 15.8 | 4.0 | 7.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.36 | 0.00 | | 0.47 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 247 | 464 | 394 | 352 | 0 | 454 | 0 | 584 | 567 | 104 | 1646 | |
| V/C Ratio(X) | 0.79 | 0.54 | 0.23 | 0.60 | 0.00 | 0.87 | 0.00 | 0.78 | 0.78 | 1.56 | 0.38 | |
| Avail Cap(c_a), veh/h | 247 | 710 | 602 | 352 | 0 | 540 | 0 | 774 | 752 | 104 | 1646 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 23.7 | 21.8 | 19.9 | 21.5 | 0.0 | 24.2 | 0.0 | 20.5 | 20.6 | 32.1 | 11.9 | 0.0 |
| Incr Delay (d2), s/veh | 15.7 | 1.0 | 0.3 | 2.8 | 0.0 | 12.6 | 0.0 | 3.6 | 3.7 | 294.2 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.3 | 3.4 | 1.1 | 1.4 | 0.0 | 7.3 | 0.0 | 6.6 | 6.4 | 10.2 | 2.8 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 39.5 | 22.8 | 20.2 | 24.3 | 0.0 | 36.8 | 0.0 | 24.2 | 24.3 | 326.3 | 12.1 | 0.0 |
| LnGrp LOS | D | C | C | C | A | D | A | C | C | F | B | |
| Approach Vol, veh/h | | 537 | | | 606 | | | 894 | | | 789 | |
| Approach Delay, s/veh | | 28.4 | | | 32.5 | | | 24.2 | | | 77.0 | |
| Approach LOS | | C | | | C | | | C | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 27.6 | 9.0 | 22.7 | 0.0 | 36.6 | 9.0 | 22.7 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 30.0 | 4.0 | 27.0 | 4.0 | 21.0 | 4.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 17.8 | 6.0 | 10.3 | 0.0 | 9.8 | 6.0 | 16.7 |
| Green Ext Time (p_c), s | 0.0 | 4.7 | 0.0 | 1.6 | 0.0 | 3.2 | 0.0 | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 41.5 |
| HCM 6th LOS | D |

**Notes**

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 205 | 0 | 355 | 5 | 0 | 5 | 285 | 370 | 0 | 0 | 380 | 120 |
| Future Volume (vph) | 205 | 0 | 355 | 5 | 0 | 5 | 285 | 370 | 0 | 0 | 380 | 120 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 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 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1787 | 1584 | | 1805 | 1615 | 1656 | 1743 | | | 1863 | 1583 |
| Flt Permitted | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.29 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1787 | 1584 | | 1805 | 1615 | 513 | 1743 | | | 1863 | 1583 |
| 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) | 218 | 0 | 378 | 5 | 0 | 5 | 303 | 394 | 0 | 0 | 404 | 128 |
| RTOR Reduction (vph) | 0 | 0 | 228 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 0 | 218 | 150 | 0 | 5 | 0 | 303 | 394 | 0 | 0 | 404 | 88 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 9% | 9% | 2% | 2% | 2% |
| Turn Type | Split | NA | pm+ov | Split | NA | Perm | D.P+P | NA | | | NA | pm+ov |
| Protected Phases | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | | 6 | 4 |
| Permitted Phases | | | 4 | | | 8 | 6 | | | | | 6 |
| Actuated Green, G (s) | | 12.2 | 27.4 | | 1.1 | 1.1 | 35.8 | 40.8 | | | 20.6 | 32.8 |
| Effective Green, g (s) | | 12.2 | 27.4 | | 1.1 | 1.1 | 35.8 | 40.8 | | | 20.6 | 32.8 |
| Actuated g/C Ratio | | 0.18 | 0.40 | | 0.02 | 0.02 | 0.52 | 0.59 | | | 0.30 | 0.47 |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Vehicle Extension (s) | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 315 | 628 | | 28 | 25 | 517 | 1029 | | | 555 | 865 |
| v/s Ratio Prot | | c0.12 | 0.05 | | c0.00 | | c0.13 | 0.23 | | | c0.22 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.00 | 0.17 | | | | | 0.04 |
| v/c Ratio | | 0.69 | 0.24 | | 0.18 | 0.00 | 0.59 | 0.38 | | | 0.73 | 0.10 |
| Uniform Delay, d1 | | 26.7 | 13.9 | | 33.6 | 33.5 | 10.7 | 7.5 | | | 21.7 | 10.0 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.2 | 0.1 | | 1.1 | 0.0 | 1.1 | 0.1 | | | 4.0 | 0.0 |
| Delay (s) | | 31.9 | 14.0 | | 34.7 | 33.5 | 11.8 | 7.6 | | | 25.8 | 10.0 |
| Level of Service | | C | B | | C | C | B | A | | | C | B |
| Approach Delay (s) | | 20.5 | | | 34.1 | | | 9.4 | | | 22.0 | |
| Approach LOS | | C | | | C | | | A | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 16.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 69.1 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 66.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

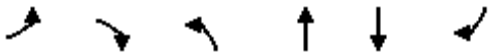
c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 67.2 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 65 | 0 | 190 | 0 | 430 | 70 | 225 | 440 | 0 |
| Future Vol, veh/h | 0 | 0 | 5 | 65 | 0 | 190 | 0 | 430 | 70 | 225 | 440 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.94 | 0.95 | 0.94 | 0.95 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 |
| Heavy Vehicles, % | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 9 | 9 | 2 | 2 | 5 |
| Mvmt Flow | 0 | 0 | 5 | 69 | 0 | 202 | 0 | 457 | 74 | 239 | 468 | 0 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 11.1 | 16.5 | 37.7 | 109.3 |
| HCM LOS | B | C | E | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 0% | 0% | 25% | 34% |
| Vol Thru, % | 86% | 0% | 0% | 66% |
| Vol Right, % | 14% | 100% | 75% | 0% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 500 | 5 | 255 | 665 |
| LT Vol | 0 | 0 | 65 | 225 |
| Through Vol | 430 | 0 | 0 | 440 |
| RT Vol | 70 | 5 | 190 | 0 |
| Lane Flow Rate | 532 | 5 | 271 | 707 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.874 | 0.011 | 0.496 | 1.155 |
| Departure Headway (Hd) | 6.184 | 7.975 | 6.906 | 5.879 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 590 | 451 | 526 | 615 |
| Service Time | 4.184 | 5.975 | 4.906 | 3.92 |
| HCM Lane V/C Ratio | 0.902 | 0.011 | 0.515 | 1.15 |
| HCM Control Delay | 37.7 | 11.1 | 16.5 | 109.3 |
| HCM Lane LOS | E | B | C | F |
| HCM 95th-tile Q | 10 | 0 | 2.7 | 23.2 |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 125 | 100 | 485 | 525 | 35 |
| Future Volume (veh/h) | 25 | 125 | 100 | 485 | 525 | 35 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | 1.00 | | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1796 | 1796 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 26 | 129 | 103 | 500 | 541 | 36 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 3 | 3 | 7 | 7 | 3 | 3 |
| Cap, veh/h | 35 | 171 | 463 | 1122 | 710 | 47 |
| Arrive On Green | 0.13 | 0.13 | 0.09 | 0.62 | 0.41 | 0.41 |
| Sat Flow, veh/h | 266 | 1318 | 1711 | 1796 | 1718 | 114 |
| Grp Volume(v), veh/h | 156 | 0 | 103 | 500 | 0 | 577 |
| Grp Sat Flow(s),veh/h/ln | 1594 | 0 | 1711 | 1796 | 0 | 1832 |
| Q Serve(g_s), s | 3.5 | 0.0 | 1.2 | 5.3 | 0.0 | 9.9 |
| Cycle Q Clear(g_c), s | 3.5 | 0.0 | 1.2 | 5.3 | 0.0 | 9.9 |
| Prop In Lane | 0.17 | 0.83 | 1.00 | | | 0.06 |
| Lane Grp Cap(c), veh/h | 207 | 0 | 463 | 1122 | 0 | 758 |
| V/C Ratio(X) | 0.75 | 0.00 | 0.22 | 0.45 | 0.00 | 0.76 |
| Avail Cap(c_a), veh/h | 1107 | 0 | 801 | 1248 | 0 | 1273 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.4 | 0.0 | 6.4 | 3.6 | 0.0 | 9.2 |
| Incr Delay (d2), s/veh | 4.1 | 0.0 | 0.1 | 0.3 | 0.0 | 1.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 0.0 | 0.2 | 0.7 | 0.0 | 3.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 19.5 | 0.0 | 6.5 | 3.9 | 0.0 | 10.8 |
| LnGrp LOS | B | A | A | A | A | B |
| Approach Vol, veh/h | 156 | | | 603 | 577 | |
| Approach Delay, s/veh | 19.5 | | | 4.3 | 10.8 | |
| Approach LOS | B | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 27.4 | | 9.3 | 7.7 | 19.7 |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | | 25.5 | | 25.5 | 10.5 | 25.5 |
| Max Q Clear Time (g_c+I1), s | | 7.3 | | 5.5 | 3.2 | 11.9 |
| Green Ext Time (p_c), s | | 3.1 | | 0.3 | 0.1 | 3.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 8.9 |
| HCM 6th LOS | A |

# MOVEMENT SUMMARY

## Site: 11 [51st Avenue NE/108th Street NE - Baseline 2026 (Site Folder: General)]

Future (2026) Without-Project PM Peak Hour
Site Category: -
Roundabout

**Vehicle Movement Performance**

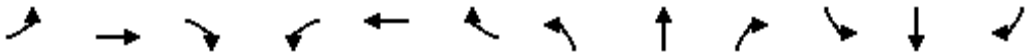
| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] % | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] ft | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: 51st Avenue NE | | | | | | | | | | | | | | |
| 3u | U | 1 | 5.0 | 1 | 5.0 | 0.503 | 16.0 | LOS B | 3.9 | 101.6 | 0.78 | 0.84 | 0.85 | 35.3 |
| 3 | L2 | 15 | 5.0 | 15 | 5.0 | 0.503 | 13.7 | LOS B | 3.9 | 101.6 | 0.78 | 0.84 | 0.85 | 34.6 |
| 8 | T1 | 360 | 5.0 | 367 | 5.0 | 0.503 | 8.5 | LOS A | 3.9 | 101.6 | 0.78 | 0.84 | 0.85 | 34.7 |
| 18 | R2 | 50 | 5.0 | 51 | 5.0 | 0.503 | 8.4 | LOS A | 3.9 | 101.6 | 0.78 | 0.84 | 0.85 | 33.8 |
| Approach | | 426 | 5.0 | 435 | 5.0 | 0.503 | 8.7 | LOS A | 3.9 | 101.6 | 0.78 | 0.84 | 0.85 | 34.6 |
| East: 108th Street NE | | | | | | | | | | | | | | |
| 1 | L2 | 25 | 8.0 | 26 | 8.0 | 0.393 | 13.6 | LOS B | 2.5 | 67.7 | 0.76 | 0.82 | 0.76 | 34.5 |
| 6 | T1 | 165 | 8.0 | 168 | 8.0 | 0.393 | 8.3 | LOS A | 2.5 | 67.7 | 0.76 | 0.82 | 0.76 | 34.7 |
| 16 | R2 | 110 | 8.0 | 112 | 8.0 | 0.393 | 8.3 | LOS A | 2.5 | 67.7 | 0.76 | 0.82 | 0.76 | 33.7 |
| Approach | | 300 | 8.0 | 306 | 8.0 | 0.393 | 8.8 | LOS A | 2.5 | 67.7 | 0.76 | 0.82 | 0.76 | 34.3 |
| North: 51st Avenue NE | | | | | | | | | | | | | | |
| 7u | U | 1 | 2.0 | 1 | 2.0 | 0.510 | 13.1 | LOS B | 3.9 | 98.9 | 0.57 | 0.60 | 0.57 | 36.0 |
| 7 | L2 | 105 | 2.0 | 107 | 2.0 | 0.510 | 10.9 | LOS B | 3.9 | 98.9 | 0.57 | 0.60 | 0.57 | 35.3 |
| 4 | T1 | 320 | 2.0 | 327 | 2.0 | 0.510 | 5.6 | LOS A | 3.9 | 98.9 | 0.57 | 0.60 | 0.57 | 35.4 |
| 14 | R2 | 150 | 2.0 | 153 | 2.0 | 0.510 | 5.5 | LOS A | 3.9 | 98.9 | 0.57 | 0.60 | 0.57 | 34.4 |
| Approach | | 576 | 2.0 | 588 | 2.0 | 0.510 | 6.6 | LOS A | 3.9 | 98.9 | 0.57 | 0.60 | 0.57 | 35.1 |
| West: Shoultes Road | | | | | | | | | | | | | | |
| 5 | L2 | 230 | 3.0 | 235 | 3.0 | 0.470 | 12.4 | LOS B | 3.3 | 84.8 | 0.71 | 0.78 | 0.72 | 34.0 |
| 2 | T1 | 195 | 3.0 | 199 | 3.0 | 0.470 | 7.2 | LOS A | 3.3 | 84.8 | 0.71 | 0.78 | 0.72 | 34.1 |
| 12 | R2 | 15 | 3.0 | 15 | 3.0 | 0.470 | 7.1 | LOS A | 3.3 | 84.8 | 0.71 | 0.78 | 0.72 | 33.2 |
| Approach | | 440 | 3.0 | 449 | 3.0 | 0.470 | 9.9 | LOS A | 3.3 | 84.8 | 0.71 | 0.78 | 0.72 | 34.0 |
| All Vehicles | | 1742 | 4.0 | 1778 | 4.0 | 0.510 | 8.3 | LOS A | 3.9 | 101.6 | 0.69 | 0.74 | 0.71 | 34.6 |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 25 | 1120 | 25 | 25 | 1285 |
| Future Volume (veh/h) | 25 | 25 | 1120 | 25 | 25 | 1285 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 27 | 27 | 1217 | 27 | 27 | 1397 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 104 | 93 | 1693 | 38 | 59 | 2322 |
| Arrive On Green | 0.06 | 0.06 | 0.48 | 0.48 | 0.03 | 0.65 |
| Sat Flow, veh/h | 1781 | 1585 | 3648 | 79 | 1781 | 3647 |
| Grp Volume(v), veh/h | 27 | 27 | 608 | 636 | 27 | 1397 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1585 | 1777 | 1856 | 1781 | 1777 |
| Q Serve(g_s), s | 0.5 | 0.6 | 9.5 | 9.5 | 0.5 | 7.8 |
| Cycle Q Clear(g_c), s | 0.5 | 0.6 | 9.5 | 9.5 | 0.5 | 7.8 |
| Prop In Lane | 1.00 | 1.00 | | 0.04 | 1.00 | |
| Lane Grp Cap(c), veh/h | 104 | 93 | 846 | 884 | 59 | 2322 |
| V/C Ratio(X) | 0.26 | 0.29 | 0.72 | 0.72 | 0.46 | 0.60 |
| Avail Cap(c_a), veh/h | 257 | 228 | 1024 | 1070 | 257 | 3072 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.6 | 15.6 | 7.2 | 7.2 | 16.5 | 3.4 |
| Incr Delay (d2), s/veh | 1.3 | 1.7 | 1.9 | 1.9 | 5.5 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.2 | 2.5 | 2.5 | 0.3 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 16.9 | 17.4 | 9.2 | 9.1 | 22.0 | 3.7 |
| LnGrp LOS | B | B | A | A | C | A |
| Approach Vol, veh/h | 54 | | 1244 | | | 1424 |
| Approach Delay, s/veh | 17.1 | | 9.1 | | | 4.0 |
| Approach LOS | B | | A | | | A |

| Timer - Assigned Phs | 1 | 2 | | | 6 | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.1 | 21.5 | | | 27.7 | 7.0 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 5.0 | 20.0 | | | 30.0 | 5.0 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 11.5 | | | 9.8 | 2.6 |
| Green Ext Time (p_c), s | 0.0 | 5.1 | | | 10.9 | 0.0 |

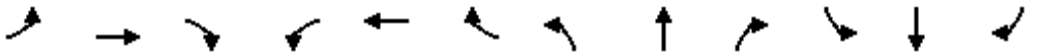
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 6.6 |
| HCM 6th LOS | A |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 20 | 0 | 20 | 0 | 470 | 10 | 10 | 610 | 0 |
| Future Volume (veh/h) | 0 | 0 | 0 | 20 | 0 | 20 | 0 | 470 | 10 | 10 | 610 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 0 | 0 | 0 | 22 | 0 | 22 | 0 | 511 | 11 | 11 | 663 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 6 | 6 | 0 | 50 | 0 | 82 | 6 | 761 | 16 | 26 | 1130 | 0 |
| Arrive On Green | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 | 0.42 | 0.42 | 0.01 | 0.60 | 0.00 |
| Sat Flow, veh/h | 1781 | 1870 | 0 | 1781 | 0 | 1585 | 1781 | 1824 | 39 | 1781 | 1870 | 0 |
| Grp Volume(v), veh/h | 0 | 0 | 0 | 22 | 0 | 22 | 0 | 0 | 522 | 11 | 663 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1870 | 0 | 1781 | 0 | 1585 | 1781 | 0 | 1863 | 1781 | 1870 | 0 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 6.6 | 0.2 | 6.3 | 0.0 |
| Cycle Q Clear(g_c), s | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 | 6.6 | 0.2 | 6.3 | 0.0 |
| Prop In Lane | 1.00 | | 0.00 | 1.00 | | 1.00 | 1.00 | | 0.02 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 6 | 6 | 0 | 50 | 0 | 82 | 6 | 0 | 777 | 26 | 1130 | 0 |
| V/C Ratio(X) | 0.00 | 0.00 | 0.00 | 0.44 | 0.00 | 0.27 | 0.00 | 0.00 | 0.67 | 0.42 | 0.59 | 0.00 |
| Avail Cap(c_a), veh/h | 307 | 1160 | 0 | 307 | 0 | 983 | 307 | 0 | 2055 | 307 | 2063 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 0.0 | 0.0 | 0.0 | 13.9 | 0.0 | 13.2 | 0.0 | 0.0 | 6.9 | 14.2 | 3.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 0.0 | 6.0 | 0.0 | 1.8 | 0.0 | 0.0 | 1.0 | 10.5 | 0.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 1.5 | 0.1 | 0.5 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 0.0 | 0.0 | 0.0 | 19.9 | 0.0 | 15.0 | 0.0 | 0.0 | 7.9 | 24.7 | 4.0 | 0.0 |
| LnGrp LOS | A | A | A | B | A | B | A | A | A | C | A | A |
| Approach Vol, veh/h | | 0 | | | 44 | | | 522 | | | 674 | |
| Approach Delay, s/veh | | 0.0 | | | 17.4 | | | 7.9 | | | 4.4 | |
| Approach LOS | | | | | B | | | A | | | A | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.4 | 17.1 | 5.8 | 0.7 | 0.0 | 22.5 | 0.0 | 6.5 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 5.0 | 32.0 | 5.0 | 18.0 | 5.0 | 32.0 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.2 | 8.6 | 2.4 | 0.0 | 0.0 | 8.3 | 0.0 | 2.4 |
| Green Ext Time (p_c), s | 0.0 | 3.5 | 0.0 | 0.0 | 0.0 | 4.9 | 0.0 | 0.0 |

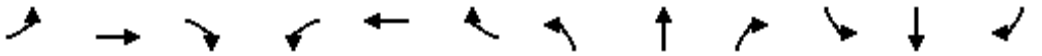
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 6.3 |
| HCM 6th LOS | A |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 25 | 20 | 255 | 40 | 55 | 65 | 285 | 855 | 30 | 60 | 935 | 90 |
| Future Volume (veh/h) | 25 | 20 | 255 | 40 | 55 | 65 | 285 | 855 | 30 | 60 | 935 | 90 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 26 | 21 | 268 | 42 | 58 | 68 | 300 | 900 | 32 | 63 | 984 | 95 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 399 | 369 | 312 | 392 | 394 | 333 | 362 | 1453 | 52 | 339 | 1146 | 111 |
| Arrive On Green | 0.04 | 0.20 | 0.20 | 0.05 | 0.21 | 0.21 | 0.13 | 0.42 | 0.42 | 0.07 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1570 | 1753 | 1841 | 1558 | 1767 | 3472 | 123 | 1753 | 3221 | 311 |
| Grp Volume(v), veh/h | 26 | 21 | 268 | 42 | 58 | 68 | 300 | 457 | 475 | 63 | 534 | 545 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1570 | 1753 | 1841 | 1558 | 1767 | 1763 | 1833 | 1753 | 1749 | 1784 |
| Q Serve(g_s), s | 0.9 | 0.7 | 12.6 | 1.4 | 2.0 | 2.7 | 7.7 | 15.6 | 15.6 | 1.6 | 21.7 | 21.7 |
| Cycle Q Clear(g_c), s | 0.9 | 0.7 | 12.6 | 1.4 | 2.0 | 2.7 | 7.7 | 15.6 | 15.6 | 1.6 | 21.7 | 21.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.07 | 1.00 | | 0.17 |
| Lane Grp Cap(c), veh/h | 399 | 369 | 312 | 392 | 394 | 333 | 362 | 738 | 767 | 339 | 622 | 635 |
| V/C Ratio(X) | 0.07 | 0.06 | 0.86 | 0.11 | 0.15 | 0.20 | 0.83 | 0.62 | 0.62 | 0.19 | 0.86 | 0.86 |
| Avail Cap(c_a), veh/h | 492 | 485 | 410 | 458 | 481 | 407 | 432 | 829 | 862 | 381 | 685 | 699 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.6 | 24.8 | 29.6 | 21.9 | 24.4 | 24.7 | 16.3 | 17.5 | 17.5 | 14.1 | 22.9 | 22.9 |
| Incr Delay (d2), s/veh | 0.1 | 0.1 | 13.2 | 0.1 | 0.2 | 0.3 | 11.0 | 1.2 | 1.1 | 0.3 | 9.9 | 9.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.3 | 5.7 | 0.6 | 0.8 | 1.0 | 3.8 | 6.1 | 6.3 | 0.6 | 10.0 | 10.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 22.6 | 24.9 | 42.9 | 22.0 | 24.6 | 25.0 | 27.3 | 18.6 | 18.6 | 14.3 | 32.8 | 32.7 |
| LnGrp LOS | C | C | D | C | C | C | C | B | B | B | C | C |
| Approach Vol, veh/h | | 315 | | | 168 | | | 1232 | | | 1142 | |
| Approach Delay, s/veh | | 40.0 | | | 24.1 | | | 20.7 | | | 31.7 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.2 | 37.0 | 9.1 | 20.2 | 15.0 | 32.2 | 8.0 | 21.4 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 7.0 | 36.0 | 7.0 | 20.0 | 13.0 | 30.0 | 7.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 17.6 | 3.4 | 14.6 | 9.7 | 23.7 | 2.9 | 4.7 |
| Green Ext Time (p_c), s | 0.0 | 5.9 | 0.0 | 0.5 | 0.3 | 3.5 | 0.0 | 0.4 |

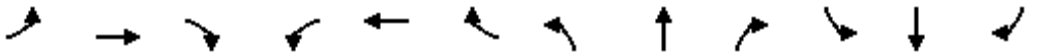
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 27.4 |
| HCM 6th LOS | C |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 10 | 5 | 200 | 5 | 310 | 5 | 840 | 305 | 365 | 865 | 5 |
| Future Volume (veh/h) | 20 | 10 | 5 | 200 | 5 | 310 | 5 | 840 | 305 | 365 | 865 | 5 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 22 | 11 | 5 | 217 | 5 | 337 | 5 | 913 | 332 | 397 | 940 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 106 | 218 | 99 | 394 | 5 | 322 | 9 | 915 | 331 | 396 | 2095 | 11 |
| Arrive On Green | 0.02 | 0.18 | 0.18 | 0.05 | 0.21 | 0.21 | 0.01 | 0.36 | 0.36 | 0.22 | 0.58 | 0.58 |
| Sat Flow, veh/h | 1753 | 1197 | 544 | 1753 | 23 | 1538 | 1753 | 2514 | 910 | 1767 | 3596 | 19 |
| Grp Volume(v), veh/h | 22 | 0 | 16 | 217 | 0 | 342 | 5 | 634 | 611 | 397 | 461 | 484 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1742 | 1753 | 0 | 1561 | 1753 | 1749 | 1675 | 1767 | 1763 | 1852 |
| Q Serve(g_s), s | 1.0 | 0.0 | 0.7 | 4.5 | 0.0 | 20.5 | 0.3 | 35.3 | 35.6 | 21.9 | 14.4 | 14.4 |
| Cycle Q Clear(g_c), s | 1.0 | 0.0 | 0.7 | 4.5 | 0.0 | 20.5 | 0.3 | 35.3 | 35.6 | 21.9 | 14.4 | 14.4 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 0.99 | 1.00 | | 0.54 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 106 | 0 | 317 | 394 | 0 | 327 | 9 | 637 | 610 | 396 | 1027 | 1079 |
| V/C Ratio(X) | 0.21 | 0.00 | 0.05 | 0.55 | 0.00 | 1.05 | 0.55 | 1.00 | 1.00 | 1.00 | 0.45 | 0.45 |
| Avail Cap(c_a), veh/h | 145 | 0 | 356 | 394 | 0 | 327 | 72 | 637 | 610 | 396 | 1027 | 1079 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 33.3 | 0.0 | 33.0 | 34.0 | 0.0 | 38.6 | 48.5 | 31.0 | 31.1 | 37.9 | 11.5 | 11.5 |
| Incr Delay (d2), s/veh | 1.0 | 0.0 | 0.1 | 1.6 | 0.0 | 62.0 | 42.9 | 34.4 | 37.0 | 46.0 | 0.3 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.0 | 0.3 | 2.6 | 0.0 | 13.3 | 0.2 | 20.4 | 20.1 | 14.3 | 5.4 | 5.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 34.2 | 0.0 | 33.1 | 35.7 | 0.0 | 100.7 | 91.4 | 65.5 | 68.1 | 84.0 | 11.8 | 11.8 |
| LnGrp LOS | C | A | C | D | A | F | F | E | F | F | B | B |
| Approach Vol, veh/h | | 38 | | | 559 | | | 1250 | | | 1342 | |
| Approach Delay, s/veh | | 33.8 | | | 75.4 | | | 66.9 | | | 33.2 | |
| Approach LOS | | C | | | E | | | E | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 26.4 | 40.1 | 9.0 | 22.3 | 5.0 | 61.5 | 6.3 | 25.0 |
| Change Period (Y+Rc), s | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | 21.9 | 35.6 | 4.5 | 20.0 | 4.0 | 53.5 | 4.0 | 20.5 |
| Max Q Clear Time (g_c+I1), s | 23.9 | 37.6 | 6.5 | 2.7 | 2.3 | 16.4 | 3.0 | 22.5 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 53.8 |
| HCM 6th LOS | D |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 270 | 200 | 60 | 290 | 30 | 185 | 300 | 85 | 65 | 370 | 115 |
| Future Volume (veh/h) | 90 | 270 | 200 | 60 | 290 | 30 | 185 | 300 | 85 | 65 | 370 | 115 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 92 | 276 | 204 | 61 | 296 | 31 | 189 | 306 | 87 | 66 | 378 | 117 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 2 | 2 | 2 |
| Cap, veh/h | 128 | 672 | 514 | 101 | 614 | 362 | 245 | 657 | 648 | 107 | 509 | 546 |
| Arrive On Green | 0.07 | 0.19 | 0.19 | 0.06 | 0.18 | 0.18 | 0.14 | 0.35 | 0.35 | 0.06 | 0.27 | 0.27 |
| Sat Flow, veh/h | 1767 | 3526 | 1572 | 1753 | 3497 | 1525 | 1795 | 1885 | 1598 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 92 | 276 | 204 | 61 | 296 | 31 | 189 | 306 | 87 | 66 | 378 | 117 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1572 | 1753 | 1749 | 1525 | 1795 | 1885 | 1598 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 2.5 | 3.4 | 5.0 | 1.7 | 3.8 | 0.8 | 5.0 | 6.3 | 1.7 | 1.8 | 9.1 | 2.6 |
| Cycle Q Clear(g_c), s | 2.5 | 3.4 | 5.0 | 1.7 | 3.8 | 0.8 | 5.0 | 6.3 | 1.7 | 1.8 | 9.1 | 2.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 128 | 672 | 514 | 101 | 614 | 362 | 245 | 657 | 648 | 107 | 509 | 546 |
| V/C Ratio(X) | 0.72 | 0.41 | 0.40 | 0.61 | 0.48 | 0.09 | 0.77 | 0.47 | 0.13 | 0.62 | 0.74 | 0.21 |
| Avail Cap(c_a), veh/h | 246 | 2136 | 1167 | 485 | 2599 | 1228 | 489 | 1351 | 1237 | 496 | 974 | 941 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.5 | 17.6 | 12.9 | 22.8 | 18.4 | 14.8 | 20.6 | 12.5 | 9.2 | 22.7 | 16.4 | 11.5 |
| Incr Delay (d2), s/veh | 7.3 | 0.4 | 0.5 | 5.8 | 0.6 | 0.1 | 5.1 | 0.5 | 0.1 | 5.6 | 2.2 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 1.3 | 1.6 | 0.8 | 1.4 | 0.3 | 2.2 | 2.3 | 0.5 | 0.9 | 3.7 | 0.8 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 29.8 | 18.0 | 13.4 | 28.6 | 19.0 | 14.9 | 25.8 | 13.1 | 9.3 | 28.3 | 18.6 | 11.7 |
| LnGrp LOS | C | B | B | C | B | B | C | B | A | C | B | B |
| Approach Vol, veh/h | | 572 | | | 388 | | | 582 | | | 561 | |
| Approach Delay, s/veh | | 18.2 | | | 20.2 | | | 16.6 | | | 18.3 | |
| Approach LOS | | B | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 21.3 | 7.3 | 13.4 | 11.3 | 17.5 | 8.1 | 12.7 |
| Change Period (Y+Rc), s | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 |
| Max Green Setting (Gmax), s | 13.8 | 35.5 | 13.7 | 30.0 | 13.5 | 25.8 | 6.9 | 36.8 |
| Max Q Clear Time (g_c+I1), s | 3.8 | 8.3 | 3.7 | 7.0 | 7.0 | 11.1 | 4.5 | 5.8 |
| Green Ext Time (p_c), s | 0.1 | 2.2 | 0.1 | 2.5 | 0.3 | 2.4 | 0.0 | 2.1 |

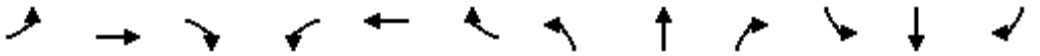
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 18.2 |
| HCM 6th LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 38.5 |
| Intersection LOS | E |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 170 | 245 | 220 | 275 | 310 | 170 |
| Future Vol, veh/h | 170 | 245 | 220 | 275 | 310 | 170 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 175 | 253 | 227 | 284 | 320 | 175 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | SB | EB | |
| Conflicting Lanes Left | 1 | 1 | 0 |
| Conflicting Approach Right | NB | | EB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 29 | 47.7 | 37.1 |
| HCM LOS | D | E | E |

| Lane | NBLn1 | EBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 44% | 41% | 0% |
| Vol Thru, % | 56% | 0% | 65% |
| Vol Right, % | 0% | 59% | 35% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 495 | 415 | 480 |
| LT Vol | 220 | 170 | 0 |
| Through Vol | 275 | 0 | 310 |
| RT Vol | 0 | 245 | 170 |
| Lane Flow Rate | 510 | 428 | 495 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.925 | 0.778 | 0.864 |
| Departure Headway (Hd) | 6.522 | 6.546 | 6.284 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 556 | 552 | 574 |
| Service Time | 4.584 | 4.603 | 4.346 |
| HCM Lane V/C Ratio | 0.917 | 0.775 | 0.862 |
| HCM Control Delay | 47.7 | 29 | 37.1 |
| HCM Lane LOS | E | D | E |
| HCM 95th-tile Q | 11.4 | 7.1 | 9.6 |



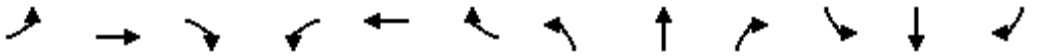
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 210 | 270 | 95 | 225 | 270 | 150 | 135 | 735 | 220 | 175 | 650 | 260 |
| Future Volume (veh/h) | 210 | 270 | 95 | 225 | 270 | 150 | 135 | 735 | 220 | 175 | 650 | 260 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 221 | 284 | 100 | 237 | 284 | 158 | 142 | 774 | 232 | 184 | 684 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Cap, veh/h | 241 | 500 | 424 | 351 | 303 | 169 | 0 | 980 | 294 | 172 | 1807 | |
| Arrive On Green | 0.09 | 0.28 | 0.28 | 0.08 | 0.27 | 0.27 | 0.00 | 0.37 | 0.37 | 0.10 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 1522 | 1781 | 1129 | 628 | 0 | 2672 | 801 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 221 | 284 | 100 | 237 | 0 | 442 | 0 | 511 | 495 | 184 | 684 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 1522 | 1781 | 0 | 1757 | 0 | 1763 | 1710 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 8.5 | 13.4 | 5.0 | 7.5 | 0.0 | 24.3 | 0.0 | 25.5 | 25.5 | 9.5 | 11.6 | 0.0 |
| Cycle Q Clear(g_c), s | 8.5 | 13.4 | 5.0 | 7.5 | 0.0 | 24.3 | 0.0 | 25.5 | 25.5 | 9.5 | 11.6 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.36 | 0.00 | | 0.47 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 241 | 500 | 424 | 351 | 0 | 472 | 0 | 646 | 627 | 172 | 1807 | |
| V/C Ratio(X) | 0.92 | 0.57 | 0.24 | 0.67 | 0.00 | 0.94 | 0.00 | 0.79 | 0.79 | 1.07 | 0.38 | |
| Avail Cap(c_a), veh/h | 241 | 510 | 432 | 351 | 0 | 481 | 0 | 1465 | 1421 | 172 | 3083 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 28.7 | 30.5 | 27.5 | 28.3 | 0.0 | 35.3 | 0.0 | 27.9 | 27.9 | 44.6 | 14.8 | 0.0 |
| Incr Delay (d2), s/veh | 36.5 | 1.4 | 0.3 | 5.0 | 0.0 | 25.9 | 0.0 | 2.2 | 2.3 | 89.4 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 6.2 | 5.9 | 1.8 | 2.0 | 0.0 | 13.5 | 0.0 | 10.8 | 10.5 | 8.4 | 4.5 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 65.2 | 31.9 | 27.8 | 33.3 | 0.0 | 61.2 | 0.0 | 30.1 | 30.1 | 134.0 | 14.9 | 0.0 |
| LnGrp LOS | E | C | C | C | A | E | A | C | C | F | B | |
| Approach Vol, veh/h | | 605 | | | 679 | | | 1006 | | | 868 | |
| Approach Delay, s/veh | | 43.4 | | | 51.5 | | | 30.1 | | | 40.1 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 14.0 | 40.7 | 12.0 | 32.0 | 0.0 | 54.7 | 13.0 | 31.0 |
| Change Period (Y+Rc), s | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | 9.5 | 82.0 | 7.5 | 28.0 | 5.9 | 85.6 | 8.5 | 27.0 |
| Max Q Clear Time (g_c+I1), s | 11.5 | 27.5 | 9.5 | 15.4 | 0.0 | 13.6 | 10.5 | 26.3 |
| Green Ext Time (p_c), s | 0.0 | 8.7 | 0.0 | 1.6 | 0.0 | 5.7 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 40.0 |
| HCM 6th LOS | D |

**Notes**

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 230 | 0 | 400 | 5 | 0 | 5 | 325 | 410 | 0 | 0 | 420 | 135 |
| Future Volume (vph) | 230 | 0 | 400 | 5 | 0 | 5 | 325 | 410 | 0 | 0 | 420 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 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 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1787 | 1581 | | 1803 | 1615 | 1656 | 1743 | | | 1863 | 1583 |
| Flt Permitted | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.26 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1787 | 1581 | | 1803 | 1615 | 446 | 1743 | | | 1863 | 1583 |
| 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) | 245 | 0 | 426 | 5 | 0 | 5 | 346 | 436 | 0 | 0 | 447 | 144 |
| RTOR Reduction (vph) | 0 | 0 | 200 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 52 |
| Lane Group Flow (vph) | 0 | 245 | 226 | 0 | 5 | 0 | 346 | 436 | 0 | 0 | 447 | 92 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 9% | 9% | 2% | 2% | 2% |
| Turn Type | Split | NA | pm+ov | Split | NA | Perm | D.P+P | NA | | | NA | pm+ov |
| Protected Phases | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | | 6 | 4 |
| Permitted Phases | | | 4 | | | 8 | 6 | | | | | 6 |
| Actuated Green, G (s) | | 14.4 | 27.5 | | 0.9 | 0.9 | 35.4 | 40.4 | | | 22.3 | 36.7 |
| Effective Green, g (s) | | 14.4 | 27.5 | | 0.9 | 0.9 | 35.4 | 40.4 | | | 22.3 | 36.7 |
| Actuated g/C Ratio | | 0.20 | 0.39 | | 0.01 | 0.01 | 0.50 | 0.57 | | | 0.32 | 0.52 |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Vehicle Extension (s) | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 363 | 614 | | 22 | 20 | 447 | 996 | | | 587 | 933 |
| v/s Ratio Prot | | c0.14 | 0.07 | | c0.00 | | c0.14 | 0.25 | | | 0.24 | 0.02 |
| v/s Ratio Perm | | | 0.07 | | | 0.00 | c0.24 | | | | | 0.04 |
| v/c Ratio | | 0.67 | 0.37 | | 0.23 | 0.00 | 0.77 | 0.44 | | | 0.76 | 0.10 |
| Uniform Delay, d1 | | 26.0 | 15.4 | | 34.6 | 34.5 | 12.5 | 8.7 | | | 21.8 | 8.6 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 3.9 | 0.1 | | 1.9 | 0.0 | 7.5 | 0.1 | | | 5.2 | 0.0 |
| Delay (s) | | 29.9 | 15.5 | | 36.5 | 34.5 | 20.0 | 8.8 | | | 27.0 | 8.6 |
| Level of Service | | C | B | | D | C | C | A | | | C | A |
| Approach Delay (s) | | 20.8 | | | 35.5 | | | 13.7 | | | 22.5 | |
| Approach LOS | | C | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 18.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 70.7 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 72.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

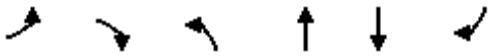
c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 45.1 |
| Intersection LOS | E |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 70 | 0 | 210 | 0 | 480 | 80 | 250 | 485 | 0 |
| Future Vol, veh/h | 0 | 0 | 5 | 70 | 0 | 210 | 0 | 480 | 80 | 250 | 485 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles, % | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 9 | 9 | 2 | 2 | 5 |
| Mvmt Flow | 0 | 0 | 5 | 74 | 0 | 223 | 0 | 511 | 85 | 266 | 516 | 0 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 1 |
| HCM Control Delay | 11.2 | 18.1 | 67.2 | 38.7 |
| HCM LOS | B | C | F | E |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 0% | 0% | 25% | 100% | 0% |
| Vol Thru, % | 86% | 0% | 0% | 0% | 100% |
| Vol Right, % | 14% | 100% | 75% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 560 | 5 | 280 | 250 | 485 |
| LT Vol | 0 | 0 | 70 | 250 | 0 |
| Through Vol | 480 | 0 | 0 | 0 | 485 |
| RT Vol | 80 | 5 | 210 | 0 | 0 |
| Lane Flow Rate | 596 | 5 | 298 | 266 | 516 |
| Geometry Grp | 5 | 2 | 2 | 7 | 7 |
| Degree of Util (X) | 1.019 | 0.012 | 0.558 | 0.52 | 0.936 |
| Departure Headway (Hd) | 6.16 | 8.06 | 6.747 | 7.144 | 6.633 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 584 | 447 | 530 | 508 | 552 |
| Service Time | 4.242 | 6.06 | 4.836 | 4.844 | 4.333 |
| HCM Lane V/C Ratio | 1.021 | 0.011 | 0.562 | 0.524 | 0.935 |
| HCM Control Delay | 67.2 | 11.2 | 18.1 | 17.3 | 49.7 |
| HCM Lane LOS | F | B | C | C | E |
| HCM 95th-tile Q | 15.5 | 0 | 3.4 | 3 | 11.8 |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 30 | 145 | 115 | 535 | 580 | 40 |
| Future Volume (veh/h) | 30 | 145 | 115 | 535 | 580 | 40 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | 1.00 | | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1796 | 1796 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 31 | 149 | 119 | 552 | 598 | 41 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 3 | 3 | 7 | 7 | 3 | 3 |
| Cap, veh/h | 41 | 195 | 435 | 1152 | 767 | 53 |
| Arrive On Green | 0.15 | 0.15 | 0.09 | 0.64 | 0.45 | 0.45 |
| Sat Flow, veh/h | 273 | 1313 | 1711 | 1796 | 1714 | 118 |
| Grp Volume(v), veh/h | 181 | 0 | 119 | 552 | 0 | 639 |
| Grp Sat Flow(s),veh/h/ln | 1595 | 0 | 1711 | 1796 | 0 | 1831 |
| Q Serve(g_s), s | 4.7 | 0.0 | 1.5 | 6.8 | 0.0 | 12.7 |
| Cycle Q Clear(g_c), s | 4.7 | 0.0 | 1.5 | 6.8 | 0.0 | 12.7 |
| Prop In Lane | 0.17 | 0.82 | 1.00 | | | 0.06 |
| Lane Grp Cap(c), veh/h | 237 | 0 | 435 | 1152 | 0 | 820 |
| V/C Ratio(X) | 0.76 | 0.00 | 0.27 | 0.48 | 0.00 | 0.78 |
| Avail Cap(c_a), veh/h | 749 | 0 | 503 | 1926 | 0 | 1536 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 17.5 | 0.0 | 7.2 | 4.0 | 0.0 | 10.0 |
| Incr Delay (d2), s/veh | 3.8 | 0.0 | 0.1 | 0.3 | 0.0 | 1.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 0.0 | 0.3 | 1.2 | 0.0 | 4.0 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 21.3 | 0.0 | 7.3 | 4.3 | 0.0 | 11.7 |
| LnGrp LOS | C | A | A | A | A | B |
| Approach Vol, veh/h | 181 | | | 671 | 639 | |
| Approach Delay, s/veh | 21.3 | | | 4.8 | 11.7 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 32.0 | | 10.9 | 8.3 | 23.7 |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | | 45.9 | | 20.1 | 5.5 | 35.9 |
| Max Q Clear Time (g_c+I1), s | | 8.8 | | 6.7 | 3.5 | 14.7 |
| Green Ext Time (p_c), s | | 4.2 | | 0.3 | 0.0 | 4.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 9.8 |
| HCM 6th LOS | A |

# MOVEMENT SUMMARY

## Site: 11 [51st Avenue NE/108th Street NE - With-Poject 2026 (Site Folder: General)]

Future (2026) With-Project PM Peak Hour
Site Category: -
Roundabout

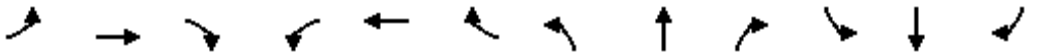
**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] % | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] ft | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: 51st Avenue NE | | | | | | | | | | | | | | |
| 3u | U | 1 | 5.0 | 1 | 5.0 | 0.518 | 16.3 | LOS B | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 35.3 |
| 3 | L2 | 15 | 5.0 | 15 | 5.0 | 0.518 | 14.0 | LOS B | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.6 |
| 8 | T1 | 368 | 5.0 | 376 | 5.0 | 0.518 | 8.8 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.7 |
| 18 | R2 | 50 | 5.0 | 51 | 5.0 | 0.518 | 8.7 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 33.7 |
| Approach | | 434 | 5.0 | 443 | 5.0 | 0.518 | 8.9 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.6 |
| East: 108th Street NE | | | | | | | | | | | | | | |
| 1 | L2 | 25 | 8.0 | 26 | 8.0 | 0.400 | 13.8 | LOS B | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.5 |
| 6 | T1 | 165 | 8.0 | 168 | 8.0 | 0.400 | 8.5 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.6 |
| 16 | R2 | 112 | 8.0 | 114 | 8.0 | 0.400 | 8.4 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 33.7 |
| Approach | | 302 | 8.0 | 308 | 8.0 | 0.400 | 8.9 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.2 |
| North: 51st Avenue NE | | | | | | | | | | | | | | |
| 7u | U | 1 | 2.0 | 1 | 2.0 | 0.549 | 13.2 | LOS B | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 36.0 |
| 7 | L2 | 110 | 2.0 | 112 | 2.0 | 0.549 | 11.0 | LOS B | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.3 |
| 4 | T1 | 347 | 2.0 | 354 | 2.0 | 0.549 | 5.7 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.3 |
| 14 | R2 | 161 | 2.0 | 164 | 2.0 | 0.549 | 5.6 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 34.4 |
| Approach | | 619 | 2.0 | 632 | 2.0 | 0.549 | 6.6 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.0 |
| West: Shoultes Road | | | | | | | | | | | | | | |
| 5 | L2 | 233 | 3.0 | 238 | 3.0 | 0.488 | 12.9 | LOS B | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.8 |
| 2 | T1 | 195 | 3.0 | 199 | 3.0 | 0.488 | 7.7 | LOS A | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.9 |
| 12 | R2 | 15 | 3.0 | 15 | 3.0 | 0.488 | 7.6 | LOS A | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.0 |
| Approach | | 443 | 3.0 | 452 | 3.0 | 0.488 | 10.4 | LOS B | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.8 |
| All Vehicles | | 1798 | 4.0 | 1835 | 4.0 | 0.549 | 8.5 | LOS A | 4.4 | 111.6 | 0.71 | 0.76 | 0.74 | 34.5 |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 465 | 0 | 75 | 260 | 0 | 95 |
| Future Volume (vph) | 465 | 0 | 75 | 260 | 0 | 95 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | | 1.00 |
| Frt | 1.00 | | 1.00 | 1.00 | | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (prot) | 3374 | | 1770 | 3539 | | 1568 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (perm) | 3374 | | 1770 | 3539 | | 1568 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 489 | 0 | 79 | 274 | 0 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 489 | 0 | 79 | 274 | 0 | 8 |
| Heavy Vehicles (%) | 7% | 7% | 2% | 2% | 3% | 3% |
| Turn Type | NA | | Split | NA | Prot | Perm |
| Protected Phases | | | 8 | 8 | 2 | |
| Permitted Phases | 4 | | | | | 2 |
| Actuated Green, G (s) | 12.4 | | 6.5 | 6.5 | | 2.6 |
| Effective Green, g (s) | 12.4 | | 6.5 | 6.5 | | 2.6 |
| Actuated g/C Ratio | 0.36 | | 0.19 | 0.19 | | 0.08 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 1230 | | 338 | 676 | | 119 |
| v/s Ratio Prot | | | 0.04 | c0.08 | | |
| v/s Ratio Perm | c0.14 | | | | | c0.00 |
| v/c Ratio | 0.40 | | 0.23 | 0.41 | | 0.06 |
| Uniform Delay, d1 | 8.0 | | 11.6 | 12.1 | | 14.6 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | 0.2 | | 0.4 | 0.4 | | 0.2 |
| Delay (s) | 8.2 | | 12.0 | 12.5 | | 14.8 |
| Level of Service | A | | B | B | | B |
| Approach Delay (s) | 8.2 | | | 12.4 | 14.8 | |
| Approach LOS | A | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 34.0 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 25.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



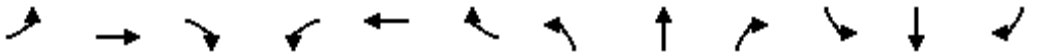
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 465 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (veh/h) | 0 | 465 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 0 | 489 | 0 | 0 | 274 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 3 | 778 | 0 | 3 | 778 | 0 | 3 | 1075 | 0 | 3 | 1075 | 0 |
| Arrive On Green | 0.00 | 0.22 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sat Flow, veh/h | 1739 | 3561 | 0 | 1739 | 3561 | 0 | 1739 | 1826 | 0 | 1739 | 1826 | 0 |
| Grp Volume(v), veh/h | 0 | 489 | 0 | 0 | 274 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 0 | 1739 | 1735 | 0 | 1739 | 1826 | 0 | 1739 | 1826 | 0 |
| Q Serve(g_s), s | 0.0 | 6.8 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 0.0 | 6.8 | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop In Lane | 1.00 | | 0.00 | 1.00 | | 0.00 | 1.00 | | 0.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 3 | 778 | 0 | 3 | 778 | 0 | 3 | 1075 | 0 | 3 | 1075 | 0 |
| V/C Ratio(X) | 0.00 | 0.63 | 0.00 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Avail Cap(c_a), veh/h | 569 | 1848 | 0 | 163 | 1070 | 0 | 163 | 1075 | 0 | 569 | 1075 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Uniform Delay (d), s/veh | 0.0 | 18.7 | 0.0 | 0.0 | 17.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 2.5 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 0.0 | 19.6 | 0.0 | 0.0 | 17.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| LnGrp LOS | A | B | A | A | B | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 489 | | | 274 | | | 0 | | | 0 | |
| Approach Delay, s/veh | | 19.6 | | | 17.8 | | | 0.0 | | | 0.0 | |
| Approach LOS | | B | | | B | | | | | | | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 0.0 | 36.5 | 0.0 | 17.0 | 0.0 | 36.5 | 0.0 | 17.0 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | * 5 |
| Max Green Setting (Gmax), s | 17.5 | 19.0 | 5.0 | 28.5 | 5.0 | 31.5 | 17.5 | * 17 |
| Max Q Clear Time (g_c+I1), s | 0.0 | 0.0 | 0.0 | 8.8 | 0.0 | 0.0 | 0.0 | 5.6 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 18.9 |
| HCM 6th LOS | B |

**Notes**

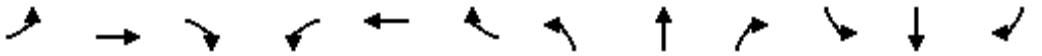
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 5 | 230 | 45 | 10 | 110 | 255 | 803 | 30 | 65 | 854 | 75 |
| Future Volume (veh/h) | 20 | 5 | 230 | 45 | 10 | 110 | 255 | 803 | 30 | 65 | 854 | 75 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 21 | 5 | 242 | 47 | 11 | 116 | 268 | 845 | 32 | 68 | 899 | 79 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 333 | 344 | 291 | 404 | 29 | 304 | 382 | 1440 | 55 | 363 | 1187 | 104 |
| Arrive On Green | 0.03 | 0.19 | 0.19 | 0.06 | 0.21 | 0.21 | 0.12 | 0.42 | 0.42 | 0.07 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1570 | 1753 | 137 | 1442 | 1767 | 3463 | 131 | 1753 | 3251 | 286 |
| Grp Volume(v), veh/h | 21 | 5 | 242 | 47 | 0 | 127 | 268 | 430 | 447 | 68 | 484 | 494 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1570 | 1753 | 0 | 1579 | 1767 | 1763 | 1832 | 1753 | 1749 | 1788 |
| Q Serve(g_s), s | 0.7 | 0.2 | 11.0 | 1.5 | 0.0 | 5.1 | 6.7 | 14.0 | 14.0 | 1.7 | 18.0 | 18.0 |
| Cycle Q Clear(g_c), s | 0.7 | 0.2 | 11.0 | 1.5 | 0.0 | 5.1 | 6.7 | 14.0 | 14.0 | 1.7 | 18.0 | 18.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.91 | 1.00 | | 0.07 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 333 | 344 | 291 | 404 | 0 | 333 | 382 | 733 | 762 | 363 | 638 | 653 |
| V/C Ratio(X) | 0.06 | 0.01 | 0.83 | 0.12 | 0.00 | 0.38 | 0.70 | 0.59 | 0.59 | 0.19 | 0.76 | 0.76 |
| Avail Cap(c_a), veh/h | 750 | 624 | 528 | 773 | 0 | 425 | 523 | 1067 | 1109 | 592 | 1058 | 1082 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 23.0 | 24.7 | 29.1 | 21.8 | 0.0 | 25.2 | 15.1 | 16.8 | 16.8 | 13.1 | 20.7 | 20.7 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 6.1 | 0.1 | 0.0 | 0.7 | 2.6 | 0.7 | 0.7 | 0.2 | 1.9 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 0.1 | 4.5 | 0.6 | 0.0 | 1.9 | 2.6 | 5.4 | 5.6 | 0.6 | 7.2 | 7.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 23.1 | 24.7 | 35.2 | 22.0 | 0.0 | 25.9 | 17.7 | 17.5 | 17.5 | 13.3 | 22.6 | 22.6 |
| LnGrp LOS | C | C | D | C | A | C | B | B | B | B | C | C |
| Approach Vol, veh/h | | 268 | | | 174 | | | 1145 | | | 1046 | |
| Approach Delay, s/veh | | 34.1 | | | 24.8 | | | 17.6 | | | 22.0 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.3 | 35.9 | 9.3 | 18.8 | 14.1 | 32.1 | 7.5 | 20.7 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 15.0 | 45.0 | 20.0 | 25.0 | 15.0 | 45.0 | 20.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 3.7 | 16.0 | 3.5 | 13.0 | 8.7 | 20.0 | 2.7 | 7.1 |
| Green Ext Time (p_c), s | 0.1 | 6.3 | 0.1 | 0.6 | 0.4 | 7.1 | 0.0 | 0.5 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 21.5 |
| HCM 6th LOS | C |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 15 | 10 | 5 | 197 | 5 | 308 | 5 | 755 | 273 | 334 | 785 | 5 |
| Future Volume (veh/h) | 15 | 10 | 5 | 197 | 5 | 308 | 5 | 755 | 273 | 334 | 785 | 5 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 16 | 11 | 5 | 214 | 5 | 335 | 5 | 821 | 297 | 363 | 853 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 196 | 250 | 114 | 506 | 6 | 397 | 9 | 853 | 308 | 114 | 1431 | 8 |
| Arrive On Green | 0.02 | 0.21 | 0.21 | 0.06 | 0.26 | 0.26 | 0.01 | 0.34 | 0.34 | 0.06 | 0.40 | 0.40 |
| Sat Flow, veh/h | 1753 | 1198 | 544 | 1753 | 23 | 1539 | 1753 | 2516 | 909 | 1767 | 3593 | 21 |
| Grp Volume(v), veh/h | 16 | 0 | 16 | 214 | 0 | 340 | 5 | 570 | 548 | 363 | 418 | 440 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1742 | 1753 | 0 | 1562 | 1753 | 1749 | 1676 | 1767 | 1763 | 1852 |
| Q Serve(g_s), s | 0.4 | 0.0 | 0.5 | 4.0 | 0.0 | 12.8 | 0.2 | 19.8 | 19.9 | 4.0 | 11.6 | 11.6 |
| Cycle Q Clear(g_c), s | 0.4 | 0.0 | 0.5 | 4.0 | 0.0 | 12.8 | 0.2 | 19.8 | 19.9 | 4.0 | 11.6 | 11.6 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 0.99 | 1.00 | | 0.54 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 196 | 0 | 364 | 506 | 0 | 403 | 9 | 593 | 568 | 114 | 702 | 737 |
| V/C Ratio(X) | 0.08 | 0.00 | 0.04 | 0.42 | 0.00 | 0.84 | 0.54 | 0.96 | 0.96 | 3.18 | 0.60 | 0.60 |
| Avail Cap(c_a), veh/h | 282 | 0 | 590 | 506 | 0 | 529 | 113 | 593 | 568 | 114 | 702 | 737 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.6 | 0.0 | 19.6 | 18.8 | 0.0 | 21.8 | 30.7 | 20.1 | 20.1 | 29.0 | 14.7 | 14.7 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 0.0 | 0.6 | 0.0 | 9.3 | 40.3 | 27.7 | 28.8 | 1004.2 | 1.4 | 1.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 0.2 | 2.5 | 0.0 | 5.3 | 0.2 | 11.7 | 11.5 | 33.4 | 4.4 | 4.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 19.7 | 0.0 | 19.6 | 19.4 | 0.0 | 31.1 | 71.1 | 47.8 | 48.9 | 1033.2 | 16.1 | 16.0 |
| LnGrp LOS | B | A | B | B | A | C | E | D | D | F | B | B |
| Approach Vol, veh/h | | 32 | | | 554 | | | 1123 | | | 1221 | |
| Approach Delay, s/veh | | 19.7 | | | 26.6 | | | 48.4 | | | 318.5 | |
| Approach LOS | | B | | | C | | | D | | | F | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 26.0 | 9.0 | 18.0 | 5.3 | 29.7 | 6.0 | 21.0 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 21.0 | 4.0 | 21.0 | 4.0 | 21.0 | 4.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 21.9 | 6.0 | 2.5 | 2.2 | 13.6 | 2.4 | 14.8 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 1.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 156.5 |
| HCM 6th LOS | F |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 322.9 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 78 | 255 | 185 | 55 | 260 | 54 | 165 | 306 | 75 | 158 | 444 | 172 |
| Future Vol, veh/h | 78 | 255 | 185 | 55 | 260 | 54 | 165 | 306 | 75 | 158 | 444 | 172 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Heavy Vehicles, % | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 2 | 2 | 2 |
| Mvmt Flow | 80 | 260 | 189 | 56 | 265 | 55 | 168 | 312 | 77 | 161 | 453 | 176 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 230.5 | 105.7 | 270 | 525.7 |
| HCM LOS | F | F | F | F |

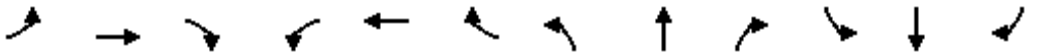
| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 30% | 15% | 15% | 20% |
| Vol Thru, % | 56% | 49% | 70% | 57% |
| Vol Right, % | 14% | 36% | 15% | 22% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 546 | 518 | 369 | 774 |
| LT Vol | 165 | 78 | 55 | 158 |
| Through Vol | 306 | 255 | 260 | 444 |
| RT Vol | 75 | 185 | 54 | 172 |
| Lane Flow Rate | 557 | 529 | 377 | 790 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 1.478 | 1.384 | 1.005 | 2.084 |
| Departure Headway (Hd) | 14.295 | 13.97 | 16.141 | 12.297 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 262 | 264 | 230 | 308 |
| Service Time | 12.295 | 11.97 | 14.141 | 10.297 |
| HCM Lane V/C Ratio | 2.126 | 2.004 | 1.639 | 2.565 |
| HCM Control Delay | 270 | 230.5 | 105.7 | 525.7 |
| HCM Lane LOS | F | F | F | F |
| HCM 95th-tile Q | 21.5 | 19.3 | 9.2 | 44.8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 40.2 |
| Intersection LOS | E |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 230 | 259 | 207 | 245 | 275 | 172 |
| Future Vol, veh/h | 230 | 259 | 207 | 245 | 275 | 172 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 237 | 267 | 213 | 253 | 284 | 177 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | SB | EB | |
| Conflicting Lanes Left | 1 | 1 | 0 |
| Conflicting Approach Right | NB | | EB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 44.6 | 41.2 | 34.3 |
| HCM LOS | E | E | D |

| Lane | NBLn1 | EBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 46% | 47% | 0% |
| Vol Thru, % | 54% | 0% | 62% |
| Vol Right, % | 0% | 53% | 38% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 452 | 489 | 447 |
| LT Vol | 207 | 230 | 0 |
| Through Vol | 245 | 0 | 275 |
| RT Vol | 0 | 259 | 172 |
| Lane Flow Rate | 466 | 504 | 461 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.878 | 0.908 | 0.833 |
| Departure Headway (Hd) | 6.783 | 6.487 | 6.506 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 531 | 560 | 553 |
| Service Time | 4.854 | 4.547 | 4.577 |
| HCM Lane V/C Ratio | 0.878 | 0.9 | 0.834 |
| HCM Control Delay | 41.2 | 44.6 | 34.3 |
| HCM Lane LOS | E | E | D |
| HCM 95th-tile Q | 9.7 | 10.9 | 8.6 |



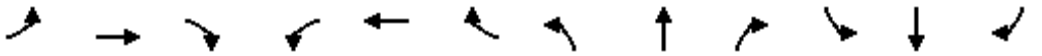
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 190 | 240 | 85 | 200 | 240 | 135 | 120 | 658 | 195 | 155 | 606 | 246 |
| Future Volume (veh/h) | 190 | 240 | 85 | 200 | 240 | 135 | 120 | 658 | 195 | 155 | 606 | 246 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 200 | 253 | 89 | 211 | 253 | 142 | 126 | 693 | 205 | 163 | 638 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Cap, veh/h | 246 | 464 | 393 | 352 | 291 | 163 | 0 | 891 | 264 | 104 | 1648 | |
| Arrive On Green | 0.06 | 0.26 | 0.26 | 0.06 | 0.26 | 0.26 | 0.00 | 0.33 | 0.33 | 0.06 | 0.46 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 1522 | 1781 | 1125 | 632 | 0 | 2682 | 793 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 200 | 253 | 89 | 211 | 0 | 395 | 0 | 455 | 443 | 163 | 638 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 1522 | 1781 | 0 | 1757 | 0 | 1763 | 1712 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 4.0 | 8.3 | 3.2 | 4.0 | 0.0 | 14.7 | 0.0 | 15.9 | 15.9 | 4.0 | 8.0 | 0.0 |
| Cycle Q Clear(g_c), s | 4.0 | 8.3 | 3.2 | 4.0 | 0.0 | 14.7 | 0.0 | 15.9 | 15.9 | 4.0 | 8.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.36 | 0.00 | | 0.46 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 246 | 464 | 393 | 352 | 0 | 454 | 0 | 586 | 569 | 104 | 1648 | |
| V/C Ratio(X) | 0.81 | 0.55 | 0.23 | 0.60 | 0.00 | 0.87 | 0.00 | 0.78 | 0.78 | 1.56 | 0.39 | |
| Avail Cap(c_a), veh/h | 246 | 709 | 601 | 352 | 0 | 539 | 0 | 773 | 751 | 104 | 1648 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 24.1 | 21.9 | 20.0 | 21.6 | 0.0 | 24.3 | 0.0 | 20.6 | 20.6 | 32.2 | 12.0 | 0.0 |
| Incr Delay (d2), s/veh | 18.3 | 1.0 | 0.3 | 2.8 | 0.0 | 12.7 | 0.0 | 3.7 | 3.8 | 295.4 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.6 | 3.4 | 1.1 | 1.4 | 0.0 | 7.3 | 0.0 | 6.6 | 6.5 | 10.2 | 2.9 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 42.3 | 22.9 | 20.3 | 24.4 | 0.0 | 36.9 | 0.0 | 24.3 | 24.4 | 327.6 | 12.1 | 0.0 |
| LnGrp LOS | D | C | C | C | A | D | A | C | C | F | B | |
| Approach Vol, veh/h | | 542 | | | 606 | | | 898 | | | 801 | |
| Approach Delay, s/veh | | 29.6 | | | 32.6 | | | 24.3 | | | 76.3 | |
| Approach LOS | | C | | | C | | | C | | | E | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 27.7 | 9.0 | 22.7 | 0.0 | 36.7 | 9.0 | 22.7 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 4.0 | 30.0 | 4.0 | 27.0 | 4.0 | 21.0 | 4.0 | 21.0 |
| Max Q Clear Time (g_c+I1), s | 6.0 | 17.9 | 6.0 | 10.3 | 0.0 | 10.0 | 6.0 | 16.7 |
| Green Ext Time (p_c), s | 0.0 | 4.7 | 0.0 | 1.6 | 0.0 | 3.2 | 0.0 | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 41.7 |
| HCM 6th LOS | D |

**Notes**

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 207 | 0 | 355 | 5 | 0 | 5 | 285 | 388 | 0 | 0 | 445 | 126 |
| Future Volume (vph) | 207 | 0 | 355 | 5 | 0 | 5 | 285 | 388 | 0 | 0 | 445 | 126 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 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 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1787 | 1583 | | 1805 | 1615 | 1656 | 1743 | | | 1863 | 1583 |
| Flt Permitted | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.20 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1787 | 1583 | | 1805 | 1615 | 345 | 1743 | | | 1863 | 1583 |
| 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) | 220 | 0 | 378 | 5 | 0 | 5 | 303 | 413 | 0 | 0 | 473 | 134 |
| RTOR Reduction (vph) | 0 | 0 | 228 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 38 |
| Lane Group Flow (vph) | 0 | 220 | 150 | 0 | 5 | 0 | 303 | 413 | 0 | 0 | 473 | 96 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 9% | 9% | 2% | 2% | 2% |
| Turn Type | Split | NA | pm+ov | Split | NA | Perm | D.P+P | NA | | | NA | pm+ov |
| Protected Phases | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | | 6 | 4 |
| Permitted Phases | | | 4 | | | 8 | 6 | | | | | 6 |
| Actuated Green, G (s) | | 12.3 | 27.5 | | 1.1 | 1.1 | 35.8 | 40.8 | | | 20.6 | 32.9 |
| Effective Green, g (s) | | 12.3 | 27.5 | | 1.1 | 1.1 | 35.8 | 40.8 | | | 20.6 | 32.9 |
| Actuated g/C Ratio | | 0.18 | 0.40 | | 0.02 | 0.02 | 0.52 | 0.59 | | | 0.30 | 0.48 |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Vehicle Extension (s) | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 317 | 629 | | 28 | 25 | 466 | 1027 | | | 554 | 866 |
| v/s Ratio Prot | | c0.12 | 0.05 | | c0.00 | | c0.14 | 0.24 | | | c0.25 | 0.02 |
| v/s Ratio Perm | | | 0.04 | | | 0.00 | 0.19 | | | | | 0.04 |
| v/c Ratio | | 0.69 | 0.24 | | 0.18 | 0.00 | 0.65 | 0.40 | | | 0.85 | 0.11 |
| Uniform Delay, d1 | | 26.7 | 13.9 | | 33.6 | 33.5 | 11.6 | 7.6 | | | 22.9 | 10.0 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.2 | 0.1 | | 1.1 | 0.0 | 2.5 | 0.1 | | | 11.8 | 0.0 |
| Delay (s) | | 31.9 | 14.0 | | 34.7 | 33.5 | 14.0 | 7.7 | | | 34.6 | 10.1 |
| Level of Service | | C | B | | C | C | B | A | | | C | B |
| Approach Delay (s) | | 20.6 | | | 34.1 | | | 10.4 | | | 29.2 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 19.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 69.2 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 69.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

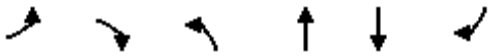
c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 93.2 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 65 | 0 | 193 | 0 | 445 | 70 | 236 | 494 | 0 |
| Future Vol, veh/h | 0 | 0 | 5 | 65 | 0 | 193 | 0 | 445 | 70 | 236 | 494 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.94 | 0.95 | 0.94 | 0.95 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 |
| Heavy Vehicles, % | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 9 | 9 | 2 | 2 | 5 |
| Mvmt Flow | 0 | 0 | 5 | 69 | 0 | 205 | 0 | 473 | 74 | 251 | 526 | 0 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay | 11.4 | 17 | 42.7 | 156.4 |
| HCM LOS | B | C | E | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 0% | 0% | 25% | 32% |
| Vol Thru, % | 86% | 0% | 0% | 68% |
| Vol Right, % | 14% | 100% | 75% | 0% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 515 | 5 | 258 | 730 |
| LT Vol | 0 | 0 | 65 | 236 |
| Through Vol | 445 | 0 | 0 | 494 |
| RT Vol | 70 | 5 | 193 | 0 |
| Lane Flow Rate | 548 | 5 | 274 | 777 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.903 | 0.011 | 0.502 | 1.276 |
| Departure Headway (Hd) | 6.33 | 8.287 | 7.101 | 5.915 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 575 | 434 | 511 | 614 |
| Service Time | 4.33 | 6.287 | 5.101 | 3.961 |
| HCM Lane V/C Ratio | 0.953 | 0.012 | 0.536 | 1.265 |
| HCM Control Delay | 42.7 | 11.4 | 17 | 156.4 |
| HCM Lane LOS | E | B | C | F |
| HCM 95th-tile Q | 10.9 | 0 | 2.8 | 30.4 |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 26 | 125 | 100 | 499 | 568 | 41 |
| Future Volume (veh/h) | 26 | 125 | 100 | 499 | 568 | 41 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | 1.00 | | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1796 | 1796 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 27 | 129 | 103 | 514 | 586 | 42 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 3 | 3 | 7 | 7 | 3 | 3 |
| Cap, veh/h | 36 | 171 | 440 | 1145 | 743 | 53 |
| Arrive On Green | 0.13 | 0.13 | 0.09 | 0.64 | 0.43 | 0.43 |
| Sat Flow, veh/h | 274 | 1310 | 1711 | 1796 | 1708 | 122 |
| Grp Volume(v), veh/h | 157 | 0 | 103 | 514 | 0 | 628 |
| Grp Sat Flow(s),veh/h/ln | 1594 | 0 | 1711 | 1796 | 0 | 1830 |
| Q Serve(g_s), s | 3.7 | 0.0 | 1.2 | 5.6 | 0.0 | 11.4 |
| Cycle Q Clear(g_c), s | 3.7 | 0.0 | 1.2 | 5.6 | 0.0 | 11.4 |
| Prop In Lane | 0.17 | 0.82 | 1.00 | | | 0.07 |
| Lane Grp Cap(c), veh/h | 208 | 0 | 440 | 1145 | 0 | 796 |
| V/C Ratio(X) | 0.75 | 0.00 | 0.23 | 0.45 | 0.00 | 0.79 |
| Avail Cap(c_a), veh/h | 1048 | 0 | 756 | 1181 | 0 | 1204 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.3 | 0.0 | 6.7 | 3.6 | 0.0 | 9.4 |
| Incr Delay (d2), s/veh | 4.1 | 0.0 | 0.1 | 0.3 | 0.0 | 2.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.4 | 0.0 | 0.3 | 0.8 | 0.0 | 3.5 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 20.3 | 0.0 | 6.8 | 3.9 | 0.0 | 11.5 |
| LnGrp LOS | C | A | A | A | A | B |
| Approach Vol, veh/h | 157 | | | 617 | 628 | |
| Approach Delay, s/veh | 20.3 | | | 4.3 | 11.5 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 29.2 | | 9.6 | 7.9 | 21.4 |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | | 25.5 | | 25.5 | 10.5 | 25.5 |
| Max Q Clear Time (g_c+I1), s | | 7.6 | | 5.7 | 3.2 | 13.4 |
| Green Ext Time (p_c), s | | 3.2 | | 0.3 | 0.1 | 3.4 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 9.3 |
| HCM 6th LOS | A |

# MOVEMENT SUMMARY

## Site: 11 [51st Avenue NE/108th Street NE - With-Poject 2026 (Site Folder: General)]

Future (2026) With-Project PM Peak Hour
Site Category: -
Roundabout

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] % | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] ft | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: 51st Avenue NE | | | | | | | | | | | | | | |
| 3u | U | 1 | 5.0 | 1 | 5.0 | 0.518 | 16.3 | LOS B | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 35.3 |
| 3 | L2 | 15 | 5.0 | 15 | 5.0 | 0.518 | 14.0 | LOS B | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.6 |
| 8 | T1 | 368 | 5.0 | 376 | 5.0 | 0.518 | 8.8 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.7 |
| 18 | R2 | 50 | 5.0 | 51 | 5.0 | 0.518 | 8.7 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 33.7 |
| Approach | | 434 | 5.0 | 443 | 5.0 | 0.518 | 8.9 | LOS A | 4.2 | 108.2 | 0.79 | 0.85 | 0.88 | 34.6 |
| East: 108th Street NE | | | | | | | | | | | | | | |
| 1 | L2 | 25 | 8.0 | 26 | 8.0 | 0.400 | 13.8 | LOS B | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.5 |
| 6 | T1 | 165 | 8.0 | 168 | 8.0 | 0.400 | 8.5 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.6 |
| 16 | R2 | 112 | 8.0 | 114 | 8.0 | 0.400 | 8.4 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 33.7 |
| Approach | | 302 | 8.0 | 308 | 8.0 | 0.400 | 8.9 | LOS A | 2.6 | 70.2 | 0.77 | 0.83 | 0.78 | 34.2 |
| North: 51st Avenue NE | | | | | | | | | | | | | | |
| 7u | U | 1 | 2.0 | 1 | 2.0 | 0.549 | 13.2 | LOS B | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 36.0 |
| 7 | L2 | 110 | 2.0 | 112 | 2.0 | 0.549 | 11.0 | LOS B | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.3 |
| 4 | T1 | 347 | 2.0 | 354 | 2.0 | 0.549 | 5.7 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.3 |
| 14 | R2 | 161 | 2.0 | 164 | 2.0 | 0.549 | 5.6 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 34.4 |
| Approach | | 619 | 2.0 | 632 | 2.0 | 0.549 | 6.6 | LOS A | 4.4 | 111.6 | 0.60 | 0.61 | 0.60 | 35.0 |
| West: Shoultes Road | | | | | | | | | | | | | | |
| 5 | L2 | 233 | 3.0 | 238 | 3.0 | 0.488 | 12.9 | LOS B | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.8 |
| 2 | T1 | 195 | 3.0 | 199 | 3.0 | 0.488 | 7.7 | LOS A | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.9 |
| 12 | R2 | 15 | 3.0 | 15 | 3.0 | 0.488 | 7.6 | LOS A | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.0 |
| Approach | | 443 | 3.0 | 452 | 3.0 | 0.488 | 10.4 | LOS B | 3.6 | 93.0 | 0.74 | 0.82 | 0.78 | 33.8 |
| All Vehicles | | 1798 | 4.0 | 1835 | 4.0 | 0.549 | 8.5 | LOS A | 4.4 | 111.6 | 0.71 | 0.76 | 0.74 | 34.5 |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 79 | 1120 | 25 | 40 | 1285 |
| Future Volume (veh/h) | 25 | 79 | 1120 | 25 | 40 | 1285 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | No | | | No |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 27 | 86 | 1217 | 27 | 43 | 1397 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 165 | 146 | 1627 | 36 | 86 | 2274 |
| Arrive On Green | 0.09 | 0.09 | 0.46 | 0.46 | 0.05 | 0.64 |
| Sat Flow, veh/h | 1781 | 1585 | 3648 | 79 | 1781 | 3647 |
| Grp Volume(v), veh/h | 27 | 86 | 608 | 636 | 43 | 1397 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 1585 | 1777 | 1856 | 1781 | 1777 |
| Q Serve(g_s), s | 0.5 | 1.9 | 10.5 | 10.6 | 0.9 | 8.7 |
| Cycle Q Clear(g_c), s | 0.5 | 1.9 | 10.5 | 10.6 | 0.9 | 8.7 |
| Prop In Lane | 1.00 | 1.00 | | 0.04 | 1.00 | |
| Lane Grp Cap(c), veh/h | 165 | 146 | 814 | 850 | 86 | 2274 |
| V/C Ratio(X) | 0.16 | 0.59 | 0.75 | 0.75 | 0.50 | 0.61 |
| Avail Cap(c_a), veh/h | 238 | 212 | 951 | 994 | 238 | 2854 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.6 | 16.3 | 8.3 | 8.3 | 17.3 | 4.0 |
| Incr Delay (d2), s/veh | 0.5 | 3.7 | 2.8 | 2.7 | 4.5 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.7 | 3.2 | 3.3 | 0.4 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 16.1 | 20.0 | 11.1 | 11.0 | 21.8 | 4.3 |
| LnGrp LOS | B | B | B | B | C | A |
| Approach Vol, veh/h | 113 | | 1244 | | | 1440 |
| Approach Delay, s/veh | 19.0 | | 11.1 | | | 4.8 |
| Approach LOS | B | | B | | | A |

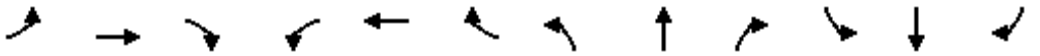
| Timer - Assigned Phs | 1 | 2 | | | 6 | 8 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.8 | 22.1 | | | 28.9 | 8.5 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 5.0 | 20.0 | | | 30.0 | 5.0 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 12.6 | | | 10.7 | 3.9 |
| Green Ext Time (p_c), s | 0.0 | 4.6 | | | 10.6 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 8.2 |
| HCM 6th LOS | A |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 47 | 6 | 169 | 20 | 2 | 20 | 48 | 498 | 10 | 10 | 659 | 14 |
| Future Volume (veh/h) | 47 | 6 | 169 | 20 | 2 | 20 | 48 | 498 | 10 | 10 | 659 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 51 | 7 | 184 | 22 | 2 | 22 | 52 | 541 | 11 | 11 | 716 | 15 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 84 | 9 | 241 | 45 | 18 | 199 | 85 | 872 | 18 | 25 | 809 | 17 |
| Arrive On Green | 0.05 | 0.16 | 0.16 | 0.03 | 0.14 | 0.14 | 0.05 | 0.48 | 0.48 | 0.01 | 0.44 | 0.44 |
| Sat Flow, veh/h | 1781 | 58 | 1536 | 1781 | 134 | 1472 | 1781 | 1827 | 37 | 1781 | 1825 | 38 |
| Grp Volume(v), veh/h | 51 | 0 | 191 | 22 | 0 | 24 | 52 | 0 | 552 | 11 | 0 | 731 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1594 | 1781 | 0 | 1605 | 1781 | 0 | 1864 | 1781 | 0 | 1863 |
| Q Serve(g_s), s | 1.7 | 0.0 | 7.0 | 0.7 | 0.0 | 0.8 | 1.8 | 0.0 | 13.5 | 0.4 | 0.0 | 22.0 |
| Cycle Q Clear(g_c), s | 1.7 | 0.0 | 7.0 | 0.7 | 0.0 | 0.8 | 1.8 | 0.0 | 13.5 | 0.4 | 0.0 | 22.0 |
| Prop In Lane | 1.00 | | 0.96 | 1.00 | | 0.92 | 1.00 | | 0.02 | 1.00 | | 0.02 |
| Lane Grp Cap(c), veh/h | 84 | 0 | 250 | 45 | 0 | 217 | 85 | 0 | 890 | 25 | 0 | 826 |
| V/C Ratio(X) | 0.60 | 0.00 | 0.76 | 0.48 | 0.00 | 0.11 | 0.61 | 0.00 | 0.62 | 0.44 | 0.00 | 0.88 |
| Avail Cap(c_a), veh/h | 145 | 0 | 468 | 145 | 0 | 472 | 145 | 0 | 973 | 145 | 0 | 973 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.6 | 0.0 | 24.7 | 29.5 | 0.0 | 23.3 | 28.6 | 0.0 | 11.9 | 30.0 | 0.0 | 15.6 |
| Incr Delay (d2), s/veh | 6.8 | 0.0 | 4.8 | 7.8 | 0.0 | 0.2 | 6.8 | 0.0 | 1.1 | 11.9 | 0.0 | 8.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 0.0 | 2.8 | 0.4 | 0.0 | 0.3 | 0.9 | 0.0 | 5.0 | 0.2 | 0.0 | 9.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 35.4 | 0.0 | 29.5 | 37.3 | 0.0 | 23.5 | 35.4 | 0.0 | 13.0 | 41.9 | 0.0 | 24.4 |
| LnGrp LOS | D | A | C | D | A | C | D | A | B | D | A | C |
| Approach Vol, veh/h | | 242 | | | 46 | | | 604 | | | 742 | |
| Approach Delay, s/veh | | 30.8 | | | 30.1 | | | 14.9 | | | 24.6 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 5.9 | 34.3 | 6.6 | 14.6 | 7.9 | 32.2 | 7.9 | 13.3 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 5.0 | 32.0 | 5.0 | 18.0 | 5.0 | 32.0 | 5.0 | 18.0 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 15.5 | 2.7 | 9.0 | 3.8 | 24.0 | 3.7 | 2.8 |
| Green Ext Time (p_c), s | 0.0 | 3.3 | 0.0 | 0.7 | 0.0 | 3.1 | 0.0 | 0.0 |

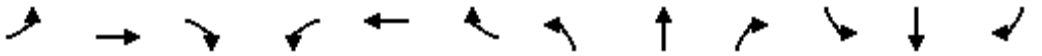
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 22.1 |
| HCM 6th LOS | C |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 25 | 49 | 255 | 40 | 159 | 65 | 285 | 855 | 30 | 60 | 935 | 90 |
| Future Volume (veh/h) | 25 | 49 | 255 | 40 | 159 | 65 | 285 | 855 | 30 | 60 | 935 | 90 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 |
| Adj Flow Rate, veh/h | 26 | 52 | 268 | 42 | 167 | 68 | 300 | 900 | 32 | 63 | 984 | 95 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| Cap, veh/h | 317 | 370 | 313 | 372 | 395 | 335 | 361 | 1452 | 52 | 339 | 1145 | 111 |
| Arrive On Green | 0.04 | 0.20 | 0.20 | 0.05 | 0.21 | 0.21 | 0.13 | 0.42 | 0.42 | 0.07 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1767 | 1856 | 1570 | 1753 | 1841 | 1558 | 1767 | 3472 | 123 | 1753 | 3221 | 311 |
| Grp Volume(v), veh/h | 26 | 52 | 268 | 42 | 167 | 68 | 300 | 457 | 475 | 63 | 534 | 545 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1856 | 1570 | 1753 | 1841 | 1558 | 1767 | 1763 | 1833 | 1753 | 1749 | 1784 |
| Q Serve(g_s), s | 0.9 | 1.8 | 12.6 | 1.4 | 6.0 | 2.7 | 7.7 | 15.6 | 15.6 | 1.6 | 21.7 | 21.7 |
| Cycle Q Clear(g_c), s | 0.9 | 1.8 | 12.6 | 1.4 | 6.0 | 2.7 | 7.7 | 15.6 | 15.6 | 1.6 | 21.7 | 21.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.07 | 1.00 | | 0.17 |
| Lane Grp Cap(c), veh/h | 317 | 370 | 313 | 372 | 395 | 335 | 361 | 737 | 767 | 339 | 621 | 634 |
| V/C Ratio(X) | 0.08 | 0.14 | 0.85 | 0.11 | 0.42 | 0.20 | 0.83 | 0.62 | 0.62 | 0.19 | 0.86 | 0.86 |
| Avail Cap(c_a), veh/h | 410 | 484 | 409 | 438 | 480 | 406 | 431 | 828 | 861 | 381 | 684 | 698 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.7 | 25.3 | 29.6 | 21.9 | 26.0 | 24.7 | 16.3 | 17.5 | 17.5 | 14.1 | 22.9 | 22.9 |
| Incr Delay (d2), s/veh | 0.1 | 0.2 | 12.9 | 0.1 | 0.7 | 0.3 | 11.2 | 1.2 | 1.1 | 0.3 | 10.0 | 9.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.8 | 5.7 | 0.6 | 2.6 | 1.0 | 3.8 | 6.1 | 6.4 | 0.6 | 10.1 | 10.3 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 22.8 | 25.4 | 42.6 | 22.0 | 26.7 | 25.0 | 27.5 | 18.7 | 18.7 | 14.4 | 33.0 | 32.8 |
| LnGrp LOS | C | C | D | C | C | C | C | B | B | B | C | C |
| Approach Vol, veh/h | | 346 | | | 277 | | | 1232 | | | 1142 | |
| Approach Delay, s/veh | | 38.5 | | | 25.6 | | | 20.8 | | | 31.9 | |
| Approach LOS | | D | | | C | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 10.2 | 37.1 | 9.1 | 20.3 | 15.0 | 32.3 | 8.0 | 21.5 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Max Green Setting (Gmax), s | 7.0 | 36.0 | 7.0 | 20.0 | 13.0 | 30.0 | 7.0 | 20.0 |
| Max Q Clear Time (g_c+I1), s | 3.6 | 17.6 | 3.4 | 14.6 | 9.7 | 23.7 | 2.9 | 8.0 |
| Green Ext Time (p_c), s | 0.0 | 5.9 | 0.0 | 0.6 | 0.3 | 3.5 | 0.0 | 0.8 |

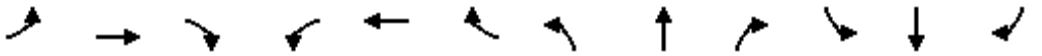
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 27.5 |
| HCM 6th LOS | C |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 20 | 10 | 5 | 227 | 5 | 310 | 5 | 840 | 313 | 365 | 865 | 5 |
| Future Volume (veh/h) | 20 | 10 | 5 | 227 | 5 | 310 | 5 | 840 | 313 | 365 | 865 | 5 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1841 | 1856 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 22 | 11 | 5 | 247 | 5 | 337 | 5 | 913 | 340 | 397 | 940 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 |
| Cap, veh/h | 106 | 218 | 99 | 394 | 5 | 322 | 9 | 909 | 337 | 396 | 2095 | 11 |
| Arrive On Green | 0.02 | 0.18 | 0.18 | 0.05 | 0.21 | 0.21 | 0.01 | 0.36 | 0.36 | 0.22 | 0.58 | 0.58 |
| Sat Flow, veh/h | 1753 | 1197 | 544 | 1753 | 23 | 1538 | 1753 | 2497 | 925 | 1767 | 3596 | 19 |
| Grp Volume(v), veh/h | 22 | 0 | 16 | 247 | 0 | 342 | 5 | 638 | 615 | 397 | 461 | 484 |
| Grp Sat Flow(s),veh/h/ln | 1753 | 0 | 1742 | 1753 | 0 | 1561 | 1753 | 1749 | 1673 | 1767 | 1763 | 1852 |
| Q Serve(g_s), s | 1.0 | 0.0 | 0.7 | 4.5 | 0.0 | 20.5 | 0.3 | 35.6 | 35.6 | 21.9 | 14.4 | 14.4 |
| Cycle Q Clear(g_c), s | 1.0 | 0.0 | 0.7 | 4.5 | 0.0 | 20.5 | 0.3 | 35.6 | 35.6 | 21.9 | 14.4 | 14.4 |
| Prop In Lane | 1.00 | | 0.31 | 1.00 | | 0.99 | 1.00 | | 0.55 | 1.00 | | 0.01 |
| Lane Grp Cap(c), veh/h | 106 | 0 | 317 | 394 | 0 | 327 | 9 | 637 | 609 | 396 | 1027 | 1079 |
| V/C Ratio(X) | 0.21 | 0.00 | 0.05 | 0.63 | 0.00 | 1.05 | 0.55 | 1.00 | 1.01 | 1.00 | 0.45 | 0.45 |
| Avail Cap(c_a), veh/h | 145 | 0 | 356 | 394 | 0 | 327 | 72 | 637 | 609 | 396 | 1027 | 1079 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 33.3 | 0.0 | 33.0 | 35.0 | 0.0 | 38.6 | 48.5 | 31.1 | 31.1 | 37.9 | 11.5 | 11.5 |
| Incr Delay (d2), s/veh | 1.0 | 0.0 | 0.1 | 3.1 | 0.0 | 62.0 | 42.9 | 36.2 | 39.0 | 46.0 | 0.3 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.0 | 0.3 | 3.6 | 0.0 | 13.3 | 0.2 | 20.8 | 20.4 | 14.3 | 5.4 | 5.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 34.2 | 0.0 | 33.1 | 38.1 | 0.0 | 100.7 | 91.4 | 67.3 | 70.1 | 84.0 | 11.8 | 11.8 |
| LnGrp LOS | C | A | C | D | A | F | F | F | F | F | B | B |
| Approach Vol, veh/h | | 38 | | | 589 | | | 1258 | | | 1342 | |
| Approach Delay, s/veh | | 33.8 | | | 74.4 | | | 68.8 | | | 33.2 | |
| Approach LOS | | C | | | E | | | E | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 26.4 | 40.1 | 9.0 | 22.3 | 5.0 | 61.5 | 6.3 | 25.0 |
| Change Period (Y+Rc), s | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | 21.9 | 35.6 | 4.5 | 20.0 | 4.0 | 53.5 | 4.0 | 20.5 |
| Max Q Clear Time (g_c+I1), s | 23.9 | 37.6 | 6.5 | 2.7 | 2.3 | 16.4 | 3.0 | 22.5 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 54.6 |
| HCM 6th LOS | D |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 99 | 270 | 200 | 60 | 290 | 62 | 185 | 331 | 85 | 179 | 474 | 148 |
| Future Volume (veh/h) | 99 | 270 | 200 | 60 | 290 | 62 | 185 | 331 | 85 | 179 | 474 | 148 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1856 | 1841 | 1841 | 1841 | 1885 | 1885 | 1885 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 101 | 276 | 204 | 61 | 296 | 63 | 189 | 338 | 87 | 183 | 484 | 151 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, % | 3 | 3 | 3 | 4 | 4 | 4 | 1 | 1 | 1 | 2 | 2 | 2 |
| Cap, veh/h | 129 | 642 | 498 | 96 | 573 | 455 | 242 | 612 | 607 | 234 | 602 | 626 |
| Arrive On Green | 0.07 | 0.18 | 0.18 | 0.05 | 0.16 | 0.16 | 0.13 | 0.32 | 0.32 | 0.13 | 0.32 | 0.32 |
| Sat Flow, veh/h | 1767 | 3526 | 1572 | 1753 | 3497 | 1525 | 1795 | 1885 | 1598 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 101 | 276 | 204 | 61 | 296 | 63 | 189 | 338 | 87 | 183 | 484 | 151 |
| Grp Sat Flow(s),veh/h/ln | 1767 | 1763 | 1572 | 1753 | 1749 | 1525 | 1795 | 1885 | 1598 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 3.1 | 3.9 | 5.6 | 1.9 | 4.3 | 1.7 | 5.6 | 8.2 | 2.0 | 5.5 | 13.1 | 3.5 |
| Cycle Q Clear(g_c), s | 3.1 | 3.9 | 5.6 | 1.9 | 4.3 | 1.7 | 5.6 | 8.2 | 2.0 | 5.5 | 13.1 | 3.5 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 129 | 642 | 498 | 96 | 573 | 455 | 242 | 612 | 607 | 234 | 602 | 626 |
| V/C Ratio(X) | 0.78 | 0.43 | 0.41 | 0.63 | 0.52 | 0.14 | 0.78 | 0.55 | 0.14 | 0.78 | 0.80 | 0.24 |
| Avail Cap(c_a), veh/h | 220 | 1907 | 1062 | 433 | 2320 | 1217 | 437 | 1207 | 1110 | 443 | 870 | 853 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 25.3 | 20.1 | 14.9 | 25.7 | 21.2 | 14.4 | 23.2 | 15.4 | 11.3 | 23.3 | 17.2 | 11.2 |
| Incr Delay (d2), s/veh | 9.7 | 0.5 | 0.5 | 6.7 | 0.7 | 0.1 | 5.5 | 0.8 | 0.1 | 5.6 | 3.6 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 1.5 | 1.9 | 0.9 | 1.7 | 0.5 | 2.6 | 3.2 | 0.6 | 2.5 | 5.5 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 35.0 | 20.6 | 15.4 | 32.4 | 21.9 | 14.5 | 28.7 | 16.2 | 11.4 | 28.9 | 20.8 | 11.4 |
| LnGrp LOS | C | C | B | C | C | B | C | B | B | C | C | B |
| Approach Vol, veh/h | | 581 | | | 420 | | | 614 | | | 818 | |
| Approach Delay, s/veh | | 21.3 | | | 22.3 | | | 19.4 | | | 20.9 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 11.8 | 22.0 | 7.5 | 14.1 | 12.0 | 21.8 | 8.6 | 13.1 |
| Change Period (Y+Rc), s | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 | 4.5 | 4.0 |
| Max Green Setting (Gmax), s | 13.8 | 35.5 | 13.7 | 30.0 | 13.5 | 25.8 | 6.9 | 36.8 |
| Max Q Clear Time (g_c+I1), s | 7.5 | 10.2 | 3.9 | 7.6 | 7.6 | 15.1 | 5.1 | 6.3 |
| Green Ext Time (p_c), s | 0.2 | 2.4 | 0.1 | 2.5 | 0.2 | 2.7 | 0.0 | 2.2 |

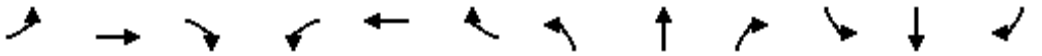
| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 20.8 |
| HCM 6th LOS | C |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 67 |
| Intersection LOS | F |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 224 | 305 | 237 | 275 | 310 | 185 |
| Future Vol, veh/h | 224 | 305 | 237 | 275 | 310 | 185 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 3 | 3 |
| Mvmt Flow | 231 | 314 | 244 | 284 | 320 | 191 |
| Number of Lanes | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | SB | EB | |
| Conflicting Lanes Left | 1 | 1 | 0 |
| Conflicting Approach Right | NB | | EB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 68.6 | 75.1 | 56.8 |
| HCM LOS | F | F | F |

| Lane | NBLn1 | EBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 46% | 42% | 0% |
| Vol Thru, % | 54% | 0% | 63% |
| Vol Right, % | 0% | 58% | 37% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 512 | 529 | 495 |
| LT Vol | 237 | 224 | 0 |
| Through Vol | 275 | 0 | 310 |
| RT Vol | 0 | 305 | 185 |
| Lane Flow Rate | 528 | 545 | 510 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 1.029 | 1.012 | 0.96 |
| Departure Headway (Hd) | 7.258 | 6.875 | 7.018 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 501 | 534 | 521 |
| Service Time | 5.258 | 4.875 | 5.018 |
| HCM Lane V/C Ratio | 1.054 | 1.021 | 0.979 |
| HCM Control Delay | 75.1 | 68.6 | 56.8 |
| HCM Lane LOS | F | F | F |
| HCM 95th-tile Q | 14.8 | 14.5 | 12.4 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 215 | 270 | 95 | 225 | 270 | 150 | 135 | 738 | 220 | 175 | 661 | 276 |
| Future Volume (veh/h) | 215 | 270 | 95 | 225 | 270 | 150 | 135 | 738 | 220 | 175 | 661 | 276 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1796 | 1796 | 1796 | 1870 | 1870 | 1870 | 1856 | 1856 | 1856 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 226 | 284 | 100 | 237 | 284 | 158 | 142 | 777 | 232 | 184 | 696 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 7 | 7 | 7 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Cap, veh/h | 240 | 500 | 424 | 351 | 303 | 169 | 0 | 983 | 294 | 171 | 1810 | |
| Arrive On Green | 0.09 | 0.28 | 0.28 | 0.08 | 0.27 | 0.27 | 0.00 | 0.37 | 0.37 | 0.10 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1711 | 1796 | 1522 | 1781 | 1129 | 628 | 0 | 2675 | 799 | 1781 | 3647 | 0 |
| Grp Volume(v), veh/h | 226 | 284 | 100 | 237 | 0 | 442 | 0 | 512 | 497 | 184 | 696 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1711 | 1796 | 1522 | 1781 | 0 | 1757 | 0 | 1763 | 1711 | 1781 | 1777 | 0 |
| Q Serve(g_s), s | 8.5 | 13.4 | 5.0 | 7.5 | 0.0 | 24.3 | 0.0 | 25.6 | 25.6 | 9.5 | 11.8 | 0.0 |
| Cycle Q Clear(g_c), s | 8.5 | 13.4 | 5.0 | 7.5 | 0.0 | 24.3 | 0.0 | 25.6 | 25.6 | 9.5 | 11.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.36 | 0.00 | | 0.47 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 240 | 500 | 424 | 351 | 0 | 471 | 0 | 648 | 629 | 171 | 1810 | |
| V/C Ratio(X) | 0.94 | 0.57 | 0.24 | 0.68 | 0.00 | 0.94 | 0.00 | 0.79 | 0.79 | 1.07 | 0.38 | |
| Avail Cap(c_a), veh/h | 240 | 509 | 431 | 351 | 0 | 480 | 0 | 1462 | 1419 | 171 | 3077 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 29.3 | 30.6 | 27.5 | 28.4 | 0.0 | 35.4 | 0.0 | 27.9 | 27.9 | 44.7 | 14.8 | 0.0 |
| Incr Delay (d2), s/veh | 41.9 | 1.4 | 0.3 | 5.1 | 0.0 | 26.1 | 0.0 | 2.2 | 2.3 | 90.1 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 6.7 | 5.9 | 1.8 | 2.0 | 0.0 | 13.6 | 0.0 | 10.9 | 10.5 | 8.4 | 4.6 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 71.2 | 32.0 | 27.8 | 33.5 | 0.0 | 61.4 | 0.0 | 30.1 | 30.1 | 134.8 | 14.9 | 0.0 |
| LnGrp LOS | E | C | C | C | A | E | A | C | C | F | B | |
| Approach Vol, veh/h | | 610 | | | 679 | | | 1009 | | | 880 | |
| Approach Delay, s/veh | | 45.9 | | | 51.7 | | | 30.1 | | | 40.0 | |
| Approach LOS | | D | | | D | | | C | | | D | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 14.0 | 40.8 | 12.0 | 32.0 | 0.0 | 54.8 | 13.0 | 31.0 |
| Change Period (Y+Rc), s | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | 9.5 | 82.0 | 7.5 | 28.0 | 5.9 | 85.6 | 8.5 | 27.0 |
| Max Q Clear Time (g_c+I1), s | 11.5 | 27.6 | 9.5 | 15.4 | 0.0 | 13.8 | 10.5 | 26.3 |
| Green Ext Time (p_c), s | 0.0 | 8.7 | 0.0 | 1.6 | 0.0 | 5.8 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 40.5 |
| HCM 6th LOS | D |

**Notes**

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 232 | 0 | 400 | 5 | 0 | 5 | 325 | 430 | 0 | 0 | 485 | 140 |
| Future Volume (vph) | 232 | 0 | 400 | 5 | 0 | 5 | 325 | 430 | 0 | 0 | 485 | 140 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 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 | 0.85 | | 1.00 | 0.85 | 1.00 | 1.00 | | | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1787 | 1582 | | 1805 | 1615 | 1656 | 1743 | | | 1863 | 1583 |
| Flt Permitted | | 0.95 | 1.00 | | 0.95 | 1.00 | 0.19 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1787 | 1582 | | 1805 | 1615 | 334 | 1743 | | | 1863 | 1583 |
| 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) | 247 | 0 | 426 | 5 | 0 | 5 | 346 | 457 | 0 | 0 | 516 | 149 |
| RTOR Reduction (vph) | 0 | 0 | 174 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 0 | 247 | 252 | 0 | 5 | 0 | 346 | 457 | 0 | 0 | 516 | 104 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | 2 | 2 | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 9% | 9% | 2% | 2% | 2% |
| Turn Type | Split | NA | pm+ov | Split | NA | Perm | D.P+P | NA | | | NA | pm+ov |
| Protected Phases | 4 | 4 | 5 | 8 | 8 | | 5 | 2 | | | 6 | 4 |
| Permitted Phases | | | 4 | | | 8 | 6 | | | | | 6 |
| Actuated Green, G (s) | | 15.2 | 30.7 | | 1.0 | 1.0 | 42.0 | 47.0 | | | 26.5 | 41.7 |
| Effective Green, g (s) | | 15.2 | 30.7 | | 1.0 | 1.0 | 42.0 | 47.0 | | | 26.5 | 41.7 |
| Actuated g/C Ratio | | 0.19 | 0.39 | | 0.01 | 0.01 | 0.54 | 0.60 | | | 0.34 | 0.53 |
| Clearance Time (s) | | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | 5.0 |
| Vehicle Extension (s) | | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 347 | 621 | | 23 | 20 | 441 | 1047 | | | 631 | 945 |
| v/s Ratio Prot | | c0.14 | 0.08 | | c0.00 | | c0.16 | 0.26 | | | c0.28 | 0.02 |
| v/s Ratio Perm | | | 0.08 | | | 0.00 | 0.27 | | | | | 0.04 |
| v/c Ratio | | 0.71 | 0.41 | | 0.22 | 0.00 | 0.78 | 0.44 | | | 0.82 | 0.11 |
| Uniform Delay, d1 | | 29.5 | 17.2 | | 38.2 | 38.1 | 13.9 | 8.4 | | | 23.6 | 9.0 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.6 | 0.2 | | 1.7 | 0.0 | 8.2 | 0.1 | | | 7.7 | 0.0 |
| Delay (s) | | 35.1 | 17.3 | | 39.9 | 38.1 | 22.1 | 8.5 | | | 31.3 | 9.1 |
| Level of Service | | D | B | | D | D | C | A | | | C | A |
| Approach Delay (s) | | 23.8 | | | 39.0 | | | 14.4 | | | 26.4 | |
| Approach LOS | | C | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 21.2 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 78.2 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 75.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

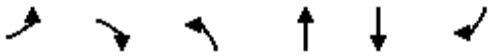
c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 56.5 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 70 | 0 | 213 | 0 | 497 | 80 | 261 | 539 | 0 |
| Future Vol, veh/h | 0 | 0 | 5 | 70 | 0 | 213 | 0 | 497 | 80 | 261 | 539 | 0 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 |
| Heavy Vehicles, % | 5 | 5 | 5 | 6 | 5 | 6 | 5 | 9 | 9 | 2 | 2 | 5 |
| Mvmt Flow | 0 | 0 | 5 | 74 | 0 | 227 | 0 | 529 | 85 | 278 | 573 | 0 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 2 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 2 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 2 | 1 | 1 |
| HCM Control Delay | 11.3 | 18.5 | 76.9 | 55.5 |
| HCM LOS | B | C | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 | SBLn2 |
|---|---|---|---|---|---|
| Vol Left, % | 0% | 0% | 25% | 100% | 0% |
| Vol Thru, % | 86% | 0% | 0% | 0% | 100% |
| Vol Right, % | 14% | 100% | 75% | 0% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 577 | 5 | 283 | 261 | 539 |
| LT Vol | 0 | 0 | 70 | 261 | 0 |
| Through Vol | 497 | 0 | 0 | 0 | 539 |
| RT Vol | 80 | 5 | 213 | 0 | 0 |
| Lane Flow Rate | 614 | 5 | 301 | 278 | 573 |
| Geometry Grp | 5 | 2 | 2 | 7 | 7 |
| Degree of Util (X) | 1.052 | 0.012 | 0.562 | 0.54 | 1.035 |
| Departure Headway (Hd) | 6.305 | 8.235 | 6.937 | 7.187 | 6.675 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 583 | 437 | 524 | 505 | 550 |
| Service Time | 4.305 | 6.235 | 4.937 | 4.887 | 4.375 |
| HCM Lane V/C Ratio | 1.053 | 0.011 | 0.574 | 0.55 | 1.042 |
| HCM Control Delay | 76.9 | 11.3 | 18.5 | 18 | 73.6 |
| HCM Lane LOS | F | B | C | C | F |
| HCM 95th-tile Q | 17 | 0 | 3.4 | 3.2 | 15.7 |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 32 | 145 | 115 | 550 | 628 | 46 |
| Future Volume (veh/h) | 32 | 145 | 115 | 550 | 628 | 46 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 0.99 | 1.00 | | | 0.98 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | No | | | No | No | |
| Adj Sat Flow, veh/h/ln | 1856 | 1856 | 1796 | 1796 | 1856 | 1856 |
| Adj Flow Rate, veh/h | 33 | 149 | 119 | 567 | 647 | 47 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Percent Heavy Veh, % | 3 | 3 | 7 | 7 | 3 | 3 |
| Cap, veh/h | 43 | 194 | 410 | 1176 | 805 | 58 |
| Arrive On Green | 0.15 | 0.15 | 0.09 | 0.65 | 0.47 | 0.47 |
| Sat Flow, veh/h | 288 | 1300 | 1711 | 1796 | 1706 | 124 |
| Grp Volume(v), veh/h | 183 | 0 | 119 | 567 | 0 | 694 |
| Grp Sat Flow(s),veh/h/ln | 1597 | 0 | 1711 | 1796 | 0 | 1830 |
| Q Serve(g_s), s | 5.1 | 0.0 | 1.5 | 7.3 | 0.0 | 14.8 |
| Cycle Q Clear(g_c), s | 5.1 | 0.0 | 1.5 | 7.3 | 0.0 | 14.8 |
| Prop In Lane | 0.18 | 0.81 | 1.00 | | | 0.07 |
| Lane Grp Cap(c), veh/h | 238 | 0 | 410 | 1176 | 0 | 863 |
| V/C Ratio(X) | 0.77 | 0.00 | 0.29 | 0.48 | 0.00 | 0.80 |
| Avail Cap(c_a), veh/h | 699 | 0 | 469 | 1796 | 0 | 1431 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 18.8 | 0.0 | 7.7 | 4.0 | 0.0 | 10.3 |
| Incr Delay (d2), s/veh | 3.9 | 0.0 | 0.1 | 0.3 | 0.0 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.9 | 0.0 | 0.4 | 1.4 | 0.0 | 4.7 |
| Unsig. Movement Delay, s/veh | | | | | | |
| LnGrp Delay(d),s/veh | 22.7 | 0.0 | 7.9 | 4.3 | 0.0 | 12.1 |
| LnGrp LOS | C | A | A | A | A | B |
| Approach Vol, veh/h | 183 | | | 686 | 694 | |
| Approach Delay, s/veh | 22.7 | | | 4.9 | 12.1 | |
| Approach LOS | C | | | A | B | |

| Timer - Assigned Phs | | 2 | | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | | 34.6 | | 11.3 | 8.4 | 26.2 |
| Change Period (Y+Rc), s | | 4.5 | | 4.5 | 4.5 | 4.5 |
| Max Green Setting (Gmax), s | | 45.9 | | 20.1 | 5.5 | 35.9 |
| Max Q Clear Time (g_c+I1), s | | 9.3 | | 7.1 | 3.5 | 16.8 |
| Green Ext Time (p_c), s | | 4.3 | | 0.3 | 0.0 | 4.8 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 10.2 |
| HCM 6th LOS | B |

# MOVEMENT SUMMARY

## Site: 10 [51st Avenue NE/108th Street NE - With-Project 2032 (Site Folder: General)]

Future (2032) With-Project PM Peak Hour
Site Category: (None)
Roundabout

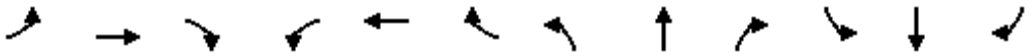
**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] % | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] ft | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: 51st Avenue NE | | | | | | | | | | | | | | |
| 3u | U | 1 | 5.0 | 1 | 5.0 | 0.633 | 19.0 | LOS B | 6.3 | 163.7 | 0.90 | 1.01 | 1.14 | 33.9 |
| 3 | L2 | 20 | 5.0 | 20 | 5.0 | 0.633 | 16.7 | LOS B | 6.3 | 163.7 | 0.90 | 1.01 | 1.14 | 33.3 |
| 8 | T1 | 408 | 5.0 | 416 | 5.0 | 0.633 | 11.4 | LOS B | 6.3 | 163.7 | 0.90 | 1.01 | 1.14 | 33.4 |
| 18 | R2 | 55 | 5.0 | 56 | 5.0 | 0.633 | 11.4 | LOS B | 6.3 | 163.7 | 0.90 | 1.01 | 1.14 | 32.5 |
| Approach | | 484 | 5.0 | 494 | 5.0 | 0.633 | 11.7 | LOS B | 6.3 | 163.7 | 0.90 | 1.01 | 1.14 | 33.3 |
| East: 108th Street NE | | | | | | | | | | | | | | |
| 1 | L2 | 30 | 8.0 | 31 | 8.0 | 0.501 | 16.1 | LOS B | 4.0 | 106.4 | 0.86 | 0.96 | 1.00 | 33.4 |
| 6 | T1 | 185 | 8.0 | 189 | 8.0 | 0.501 | 10.8 | LOS B | 4.0 | 106.4 | 0.86 | 0.96 | 1.00 | 33.5 |
| 16 | R2 | 127 | 8.0 | 130 | 8.0 | 0.501 | 10.7 | LOS B | 4.0 | 106.4 | 0.86 | 0.96 | 1.00 | 32.6 |
| Approach | | 342 | 8.0 | 349 | 8.0 | 0.501 | 11.2 | LOS B | 4.0 | 106.4 | 0.86 | 0.96 | 1.00 | 33.2 |
| North: 51st Avenue NE | | | | | | | | | | | | | | |
| 7u | U | 1 | 2.0 | 1 | 2.0 | 0.631 | 14.0 | LOS B | 5.9 | 150.0 | 0.70 | 0.68 | 0.72 | 35.7 |
| 7 | L2 | 125 | 2.0 | 128 | 2.0 | 0.631 | 11.7 | LOS B | 5.9 | 150.0 | 0.70 | 0.68 | 0.72 | 34.9 |
| 4 | T1 | 382 | 2.0 | 390 | 2.0 | 0.631 | 6.5 | LOS A | 5.9 | 150.0 | 0.70 | 0.68 | 0.72 | 35.0 |
| 14 | R2 | 181 | 2.0 | 185 | 2.0 | 0.631 | 6.4 | LOS A | 5.9 | 150.0 | 0.70 | 0.68 | 0.72 | 34.1 |
| Approach | | 689 | 2.0 | 703 | 2.0 | 0.631 | 7.4 | LOS A | 5.9 | 150.0 | 0.70 | 0.68 | 0.72 | 34.7 |
| West: Shoultes Road | | | | | | | | | | | | | | |
| 5 | L2 | 263 | 3.0 | 268 | 3.0 | 0.594 | 14.8 | LOS B | 5.5 | 140.8 | 0.84 | 0.93 | 1.00 | 33.1 |
| 2 | T1 | 220 | 3.0 | 224 | 3.0 | 0.594 | 9.6 | LOS A | 5.5 | 140.8 | 0.84 | 0.93 | 1.00 | 33.2 |
| 12 | R2 | 20 | 3.0 | 20 | 3.0 | 0.594 | 9.5 | LOS A | 5.5 | 140.8 | 0.84 | 0.93 | 1.00 | 32.3 |
| Approach | | 503 | 3.0 | 513 | 3.0 | 0.594 | 12.3 | LOS B | 5.5 | 140.8 | 0.84 | 0.93 | 1.00 | 33.1 |
| All Vehicles | | 2018 | 4.0 | 2059 | 4.0 | 0.633 | 10.3 | LOS B | 6.3 | 163.7 | 0.81 | 0.87 | 0.94 | 33.7 |

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 465 | 0 | 108 | 260 | 0 | 104 |
| Future Volume (vph) | 465 | 0 | 108 | 260 | 0 | 104 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | 4.0 | 4.0 | | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | | 1.00 |
| Frt | 1.00 | | 1.00 | 1.00 | | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (prot) | 3374 | | 1770 | 3539 | | 1568 |
| Flt Permitted | 1.00 | | 0.95 | 1.00 | | 1.00 |
| Satd. Flow (perm) | 3374 | | 1770 | 3539 | | 1568 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 489 | 0 | 114 | 274 | 0 | 109 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 101 |
| Lane Group Flow (vph) | 489 | 0 | 114 | 274 | 0 | 8 |
| Heavy Vehicles (%) | 7% | 7% | 2% | 2% | 3% | 3% |
| Turn Type | NA | | Split | NA | Prot | Perm |
| Protected Phases | | | 8 | 8 | 2 | |
| Permitted Phases | 4 | | | | | 2 |
| Actuated Green, G (s) | 11.5 | | 9.1 | 9.1 | | 2.7 |
| Effective Green, g (s) | 11.5 | | 9.1 | 9.1 | | 2.7 |
| Actuated g/C Ratio | 0.32 | | 0.25 | 0.25 | | 0.08 |
| Clearance Time (s) | 4.0 | | 4.0 | 4.0 | | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 1083 | | 449 | 899 | | 118 |
| v/s Ratio Prot | | | 0.06 | c0.08 | | |
| v/s Ratio Perm | c0.14 | | | | | c0.01 |
| v/c Ratio | 0.45 | | 0.25 | 0.30 | | 0.07 |
| Uniform Delay, d1 | 9.6 | | 10.6 | 10.8 | | 15.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | 0.3 | | 0.3 | 0.2 | | 0.3 |
| Delay (s) | 9.9 | | 10.9 | 11.0 | | 15.6 |
| Level of Service | A | | B | B | | B |
| Approach Delay (s) | 9.9 | | | 11.0 | 15.6 | |
| Approach LOS | A | | | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 11.0 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 35.8 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 26.4% | 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 | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 31 | 465 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| Future Volume (veh/h) | 31 | 465 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 | 1826 |
| Adj Flow Rate, veh/h | 33 | 489 | 0 | 0 | 274 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Cap, veh/h | 62 | 891 | 0 | 3 | 456 | 0 | 3 | 1030 | 0 | 3 | 0 | 873 |
| Arrive On Green | 0.04 | 0.26 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 |
| Sat Flow, veh/h | 1739 | 3561 | 0 | 1739 | 3561 | 0 | 1739 | 1826 | 0 | 1739 | 0 | 1547 |
| Grp Volume(v), veh/h | 33 | 489 | 0 | 0 | 274 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| Grp Sat Flow(s),veh/h/ln | 1739 | 1735 | 0 | 1739 | 1735 | 0 | 1739 | 1826 | 0 | 1739 | 0 | 1547 |
| Q Serve(g_s), s | 1.0 | 6.8 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 |
| Cycle Q Clear(g_c), s | 1.0 | 6.8 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 |
| Prop In Lane | 1.00 | | 0.00 | 1.00 | | 0.00 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 62 | 891 | 0 | 3 | 456 | 0 | 3 | 1030 | 0 | 3 | 0 | 873 |
| V/C Ratio(X) | 0.53 | 0.55 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 |
| Avail Cap(c_a), veh/h | 545 | 1770 | 0 | 156 | 1025 | 0 | 156 | 1030 | 0 | 545 | 0 | 873 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.5 | 18.0 | 0.0 | 0.0 | 22.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 |
| Incr Delay (d2), s/veh | 6.8 | 0.5 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 2.5 | 0.0 | 0.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 33.2 | 18.5 | 0.0 | 0.0 | 24.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 |
| LnGrp LOS | C | B | A | A | C | A | A | A | A | A | A | A |
| Approach Vol, veh/h | | 522 | | | 274 | | | 0 | | | 115 | |
| Approach Delay, s/veh | | 19.4 | | | 24.1 | | | 0.0 | | | 6.0 | |
| Approach LOS | | B | | | C | | | | | | A | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 0.0 | 36.5 | 0.0 | 19.3 | 0.0 | 36.5 | 7.0 | 12.3 |
| Change Period (Y+Rc), s | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | * 5 |
| Max Green Setting (Gmax), s | 17.5 | 19.0 | 5.0 | 28.5 | 5.0 | 31.5 | 17.5 | * 17 |
| Max Q Clear Time (g_c+I1), s | 0.0 | 0.0 | 0.0 | 8.8 | 0.0 | 4.0 | 3.0 | 6.2 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.7 | 0.0 | 1.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 19.1 |
| HCM 6th LOS | B |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 0 | 0 | 15 | 0 | 0 |
| Future Vol, veh/h | 5 | 0 | 0 | 15 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 2 | 2 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 6 | 6 | 9 | 9 | 2 | 2 |
| Mvmt Flow | 5 | 0 | 0 | 16 | 0 | 0 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 11 | 10 | 0 | 0 | 18 | 0 |
| Stage 1 | 10 | - | - | - | - | - |
| Stage 2 | 1 | - | - | - | - | - |
| Critical Hdwy | 6.46 | 6.26 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.46 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.46 | - | - | - | - | - |
| Follow-up Hdwy | 3.554 | 3.354 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 999 | 1060 | - | - | 1599 | - |
| Stage 1 | 1003 | - | - | - | - | - |
| Stage 2 | 1012 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 997 | 1058 | - | - | 1596 | - |
| Mov Cap-2 Maneuver | 997 | - | - | - | - | - |
| Stage 1 | 1001 | - | - | - | - | - |
| Stage 2 | 1012 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.6 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 997 | 1596 | - |
| HCM Lane V/C Ratio | - | - | 0.005 | - | - |
| HCM Control Delay (s) | - | - | 8.6 | 0 | - |
| HCM Lane LOS | - | - | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 5 | 0 | 11 | 16 | 0 | 5 | 3 | 5 | 5 | 1 | 2 | 2 |
| Future Vol, veh/h | 5 | 0 | 11 | 16 | 0 | 5 | 3 | 5 | 5 | 1 | 2 | 2 |
| Conflicting Peds, #/hr | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 8 | 4 | 4 | 4 |
| Mvmt Flow | 5 | 0 | 12 | 17 | 0 | 5 | 3 | 5 | 5 | 1 | 2 | 2 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 23 | 22 | 5 | 26 | 21 | 9 | 5 | 0 | 0 | 10 | 0 | 0 |
| Stage 1 | 6 | 6 | - | 14 | 14 | - | - | - | - | - | - | - |
| Stage 2 | 17 | 16 | - | 12 | 7 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.18 | - | - | 4.14 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.272 | - | - | 2.236 | - | - |
| Pot Cap-1 Maneuver | 994 | 876 | 1084 | 990 | 877 | 1079 | 1578 | - | - | 1597 | - | - |
| Stage 1 | 1021 | 895 | - | 1011 | 888 | - | - | - | - | - | - | - |
| Stage 2 | 1008 | 886 | - | 1014 | 894 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 985 | 872 | 1082 | 976 | 873 | 1078 | 1576 | - | - | 1597 | - | - |
| Mov Cap-2 Maneuver | 985 | 872 | - | 976 | 873 | - | - | - | - | - | - | - |
| Stage 1 | 1018 | 893 | - | 1009 | 886 | - | - | - | - | - | - | - |
| Stage 2 | 1000 | 884 | - | 1001 | 892 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 8.5 | 8.7 | 1.7 | 1.5 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1576 | - | - | 1050 | 998 | 1597 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.016 | 0.022 | 0.001 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | - | 8.5 | 8.7 | 7.3 | 0 | - |
| HCM Lane LOS | A | A | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

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

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 22 | 6 | 8 | 27 | 2 |
| Future Vol, veh/h | 5 | 22 | 6 | 8 | 27 | 2 |
| Conflicting Peds, #/hr | 0 | 3 | 3 | 0 | 0 | 3 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 3 | 3 | 5 | 5 | 2 | 2 |
| Mvmt Flow | 5 | 22 | 6 | 8 | 28 | 2 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 52 | 35 | 33 | 0 | - | 0 |
| Stage 1 | 32 | - | - | - | - | - |
| Stage 2 | 20 | - | - | - | - | - |
| Critical Hdwy | 6.43 | 6.23 | 4.15 | - | - | - |
| Critical Hdwy Stg 1 | 5.43 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.43 | - | - | - | - | - |
| Follow-up Hdwy | 3.527 | 3.327 | 2.245 | - | - | - |
| Pot Cap-1 Maneuver | 954 | 1035 | 1560 | - | - | - |
| Stage 1 | 988 | - | - | - | - | - |
| Stage 2 | 1000 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 944 | 1029 | 1556 | - | - | - |
| Mov Cap-2 Maneuver | 944 | - | - | - | - | - |
| Stage 1 | 981 | - | - | - | - | - |
| Stage 2 | 997 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.7 | 3.1 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1556 | - | 1012 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.027 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.7 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 14 | 50 | 8 | 27 | 4 |
| Future Vol, veh/h | 1 | 14 | 50 | 8 | 27 | 4 |
| Conflicting Peds, #/hr | 5 | 0 | 0 | 5 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 1 | 0 | 0 | 1 | 1 |
| Mvmt Flow | 1 | 15 | 54 | 9 | 29 | 4 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 68 | 0 | - | 0 | 81 | 64 |
| Stage 1 | - | - | - | - | 64 | - |
| Stage 2 | - | - | - | - | 17 | - |
| Critical Hdwy | 4.11 | - | - | - | 6.41 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | 2.209 | - | - | - | 3.509 | 3.309 |
| Pot Cap-1 Maneuver | 1540 | - | - | - | 924 | 1003 |
| Stage 1 | - | - | - | - | 961 | - |
| Stage 2 | - | - | - | - | 1008 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1533 | - | - | - | 914 | 998 |
| Mov Cap-2 Maneuver | - | - | - | - | 914 | - |
| Stage 1 | - | - | - | - | 955 | - |
| Stage 2 | - | - | - | - | 1003 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0 | 9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1533 | - | - | - | 924 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.036 |
| HCM Control Delay (s) | 7.3 | 0 | - | - | 9 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 40 | 52 | 4 | 16 | 6 |
| Future Vol, veh/h | 1 | 40 | 52 | 4 | 16 | 6 |
| Conflicting Peds, #/hr | 2 | 0 | 0 | 2 | 0 | 5 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 3 | 3 | 2 | 2 |
| Mvmt Flow | 1 | 42 | 55 | 4 | 17 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 61 | 0 | - | 0 | 103 | 64 |
| Stage 1 | - | - | - | - | 59 | - |
| Stage 2 | - | - | - | - | 44 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1542 | - | - | - | 895 | 1000 |
| Stage 1 | - | - | - | - | 964 | - |
| Stage 2 | - | - | - | - | 978 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1539 | - | - | - | 891 | 993 |
| Mov Cap-2 Maneuver | - | - | - | - | 891 | - |
| Stage 1 | - | - | - | - | 961 | - |
| Stage 2 | - | - | - | - | 976 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1539 | - | - | - | 917 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.025 |
| HCM Control Delay (s) | 7.3 | 0 | - | - | 9 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

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

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 56 | 56 | 5 | 17 | 0 |
| Future Vol, veh/h | 0 | 56 | 56 | 5 | 17 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 0 | 3 | 3 | 2 | 2 |
| Mvmt Flow | 0 | 60 | 60 | 5 | 18 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 65 | 0 | - | 0 | 123 | 63 |
| Stage 1 | - | - | - | - | 63 | - |
| Stage 2 | - | - | - | - | 60 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1550 | - | - | - | 872 | 1002 |
| Stage 1 | - | - | - | - | 960 | - |
| Stage 2 | - | - | - | - | 963 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1550 | - | - | - | 872 | 1002 |
| Mov Cap-2 Maneuver | - | - | - | - | 872 | - |
| Stage 1 | - | - | - | - | 960 | - |
| Stage 2 | - | - | - | - | 963 | - |

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

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1550 | - | - | - | 872 |
| HCM Lane V/C Ratio | - | - | - | - | 0.021 |
| HCM Control Delay (s) | 0 | - | - | - | 9.2 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ⇕ | | | ⇕ | | | ⇕ | | | ⇕ | |
| Traffic Vol, veh/h | 8 | 84 | 11 | 15 | 69 | 7 | 38 | 0 | 55 | 22 | 0 | 27 |
| Future Vol, veh/h | 8 | 84 | 11 | 15 | 69 | 7 | 38 | 0 | 55 | 22 | 0 | 27 |
| Conflicting Peds, #/hr | 0 | 0 | 5 | 5 | 0 | 0 | 3 | 0 | 3 | 3 | 0 | 3 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 8 | 85 | 11 | 15 | 70 | 7 | 38 | 0 | 56 | 22 | 0 | 27 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 77 | 0 | 0 | 101 | 0 | 0 | 232 | 219 | 99 | 242 | 221 | 77 |
| Stage 1 | - | - | - | - | - | - | 112 | 112 | - | 104 | 104 | - |
| Stage 2 | - | - | - | - | - | - | 120 | 107 | - | 138 | 117 | - |
| Critical Hdwy | 4.11 | - | - | 4.12 | - | - | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.11 | 5.51 | - | 6.11 | 5.51 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.11 | 5.51 | - | 6.11 | 5.51 | - |
| Follow-up Hdwy | 2.209 | - | - | 2.218 | - | - | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 |
| Pot Cap-1 Maneuver | 1528 | - | - | 1491 | - | - | 725 | 681 | 960 | 714 | 679 | 987 |
| Stage 1 | - | - | - | - | - | - | 895 | 805 | - | 904 | 811 | - |
| Stage 2 | - | - | - | - | - | - | 887 | 809 | - | 868 | 801 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1528 | - | - | 1484 | - | - | 690 | 666 | 953 | 662 | 664 | 984 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 690 | 666 | - | 662 | 664 | - |
| Stage 1 | - | - | - | - | - | - | 885 | 796 | - | 899 | 802 | - |
| Stage 2 | - | - | - | - | - | - | 850 | 800 | - | 810 | 792 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.6 | 1.2 | 9.9 | 9.7 |
| HCM LOS | | | A | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 825 | 1528 | - | - | 1484 | - | - | 808 |
| HCM Lane V/C Ratio | 0.114 | 0.005 | - | - | 0.01 | - | - | 0.061 |
| HCM Control Delay (s) | 9.9 | 7.4 | 0 | - | 7.5 | 0 | - | 9.7 |
| HCM Lane LOS | A | A | A | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - | 0.2 |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 7 | 146 | 8 | 14 | 42 | 8 | 27 | 0 | 49 | 27 | 0 | 22 |
| Future Vol, veh/h | 7 | 146 | 8 | 14 | 42 | 8 | 27 | 0 | 49 | 27 | 0 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 159 | 9 | 15 | 46 | 9 | 29 | 0 | 53 | 29 | 0 | 24 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 55 | 0 | 0 | 168 | 0 | 0 | 273 | 265 | 164 | 287 | 265 | 51 |
| Stage 1 | - | - | - | - | - | - | 180 | 180 | - | 81 | 81 | - |
| Stage 2 | - | - | - | - | - | - | 93 | 85 | - | 206 | 184 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1550 | - | - | 1410 | - | - | 679 | 640 | 881 | 665 | 640 | 1017 |
| Stage 1 | - | - | - | - | - | - | 822 | 750 | - | 927 | 828 | - |
| Stage 2 | - | - | - | - | - | - | 914 | 824 | - | 796 | 747 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1550 | - | - | 1410 | - | - | 655 | 629 | 881 | 616 | 629 | 1017 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 655 | 629 | - | 616 | 629 | - |
| Stage 1 | - | - | - | - | - | - | 817 | 746 | - | 921 | 819 | - |
| Stage 2 | - | - | - | - | - | - | 883 | 815 | - | 743 | 743 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.3 | 1.7 | 10.1 | 10.2 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 785 | 1550 | - | - | 1410 | - | - | 749 |
| HCM Lane V/C Ratio | 0.105 | 0.005 | - | - | 0.011 | - | - | 0.071 |
| HCM Control Delay (s) | 10.1 | 7.3 | 0 | - | 7.6 | 0 | - | 10.2 |
| HCM Lane LOS | B | A | A | - | A | A | - | B |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 50 | 33 | 9 | 565 | 642 | 14 |
| Future Vol, veh/h | 50 | 33 | 9 | 565 | 642 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 36 | 10 | 614 | 698 | 15 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1340 | 706 | 713 | 0 | - | 0 |
| Stage 1 | 706 | - | - | - | - | - |
| Stage 2 | 634 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 168 | 436 | 887 | - | - | - |
| Stage 1 | 489 | - | - | - | - | - |
| Stage 2 | 529 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 165 | 436 | 887 | - | - | - |
| Mov Cap-2 Maneuver | 165 | - | - | - | - | - |
| Stage 1 | 481 | - | - | - | - | - |
| Stage 2 | 529 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 32.5 | 0.1 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 887 | - | 219 | - | - |
| HCM Lane V/C Ratio | 0.011 | - | 0.412 | - | - |
| HCM Control Delay (s) | 9.1 | 0 | 32.5 | - | - |
| HCM Lane LOS | A | A | D | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.9 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.4 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 11 | 2 | 563 | 672 | 3 |
| Future Vol, veh/h | 11 | 11 | 2 | 563 | 672 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 12 | 2 | 612 | 730 | 3 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1348 | 732 | 733 | 0 | - | 0 |
| Stage 1 | 732 | - | - | - | - | - |
| Stage 2 | 616 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 166 | 421 | 872 | - | - | - |
| Stage 1 | 476 | - | - | - | - | - |
| Stage 2 | 539 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 166 | 421 | 872 | - | - | - |
| Mov Cap-2 Maneuver | 166 | - | - | - | - | - |
| Stage 1 | 475 | - | - | - | - | - |
| Stage 2 | 539 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 21.8 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 872 | - | 238 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | 0.1 | - | - |
| HCM Control Delay (s) | 9.1 | 0 | 21.8 | - | - |
| HCM Lane LOS | A | A | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |

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

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 27 | 8 | 545 | 845 | 3 |
| Future Vol, veh/h | 11 | 27 | 8 | 545 | 845 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 29 | 9 | 592 | 918 | 3 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1530 | 920 | 921 | 0 | - | 0 |
| Stage 1 | 920 | - | - | - | - | - |
| Stage 2 | 610 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 129 | 328 | 741 | - | - | - |
| Stage 1 | 388 | - | - | - | - | - |
| Stage 2 | 542 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 127 | 328 | 741 | - | - | - |
| Mov Cap-2 Maneuver | 127 | - | - | - | - | - |
| Stage 1 | 381 | - | - | - | - | - |
| Stage 2 | 542 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 24.6 | 0.1 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 741 | - | 225 | - | - |
| HCM Lane V/C Ratio | 0.012 | - | 0.184 | - | - |
| HCM Control Delay (s) | 9.9 | 0 | 24.6 | - | - |
| HCM Lane LOS | A | A | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.7 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 11 | 2 | 548 | 870 | 2 |
| Future Vol, veh/h | 5 | 11 | 2 | 548 | 870 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 12 | 2 | 596 | 946 | 2 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1547 | 947 | 948 | 0 | - | 0 |
| Stage 1 | 947 | - | - | - | - | - |
| Stage 2 | 600 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 126 | 317 | 724 | - | - | - |
| Stage 1 | 377 | - | - | - | - | - |
| Stage 2 | 548 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 125 | 317 | 724 | - | - | - |
| Mov Cap-2 Maneuver | 125 | - | - | - | - | - |
| Stage 1 | 375 | - | - | - | - | - |
| Stage 2 | 548 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 23.3 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 724 | - | 214 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | 0.081 | - | - |
| HCM Control Delay (s) | 10 | 0 | 23.3 | - | - |
| HCM Lane LOS | A | A | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |

# Appendix D: Trip Generation Worksheets

## 1.21144 Williams Industrial

| ***Proposed Use*** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Total Trips | | |
| **Land Use** | **Setting** | **Size** | **Units** | **Model** | **Rate** | **Units** | **Inbound %** | **Inbound** | **Outbound** | **Total** |
| **Industrial Park (LU 130) - Marysville** | | **2,055,069** | sf | | | | | | | |
| Daily | General Urban/Suburban | | | Rate | 3.37 | per ksf | 50% | 3,463 | 3,463 | 6,926 |
| AM Peak Hour | General Urban/Suburban | | | Rate | 0.34 | per ksf | 81% | 566 | 133 | 699 |
| PM Peak Hour | General Urban/Suburban | | | Rate | 0.34 | per ksf | 22% | 154 | 545 | 699 |

**Notes:**

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.

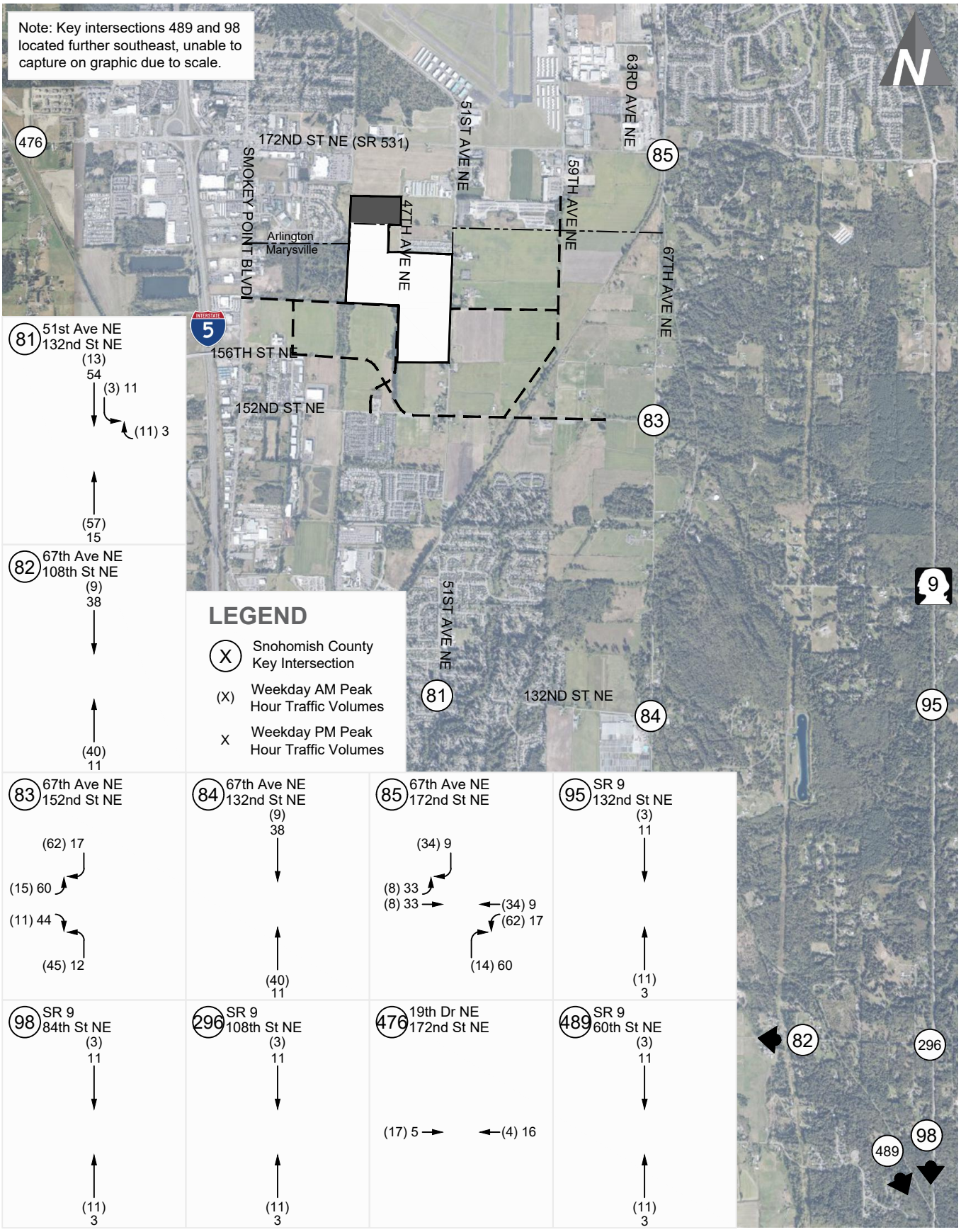
# Appendix E: Snohomish County Key Intersections

| | | | 2026 AM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Key Intersection # | North/South Street | East/West Street | EBL | EBT | EBR | NBL | NBT | NBR | WBL | WBT | WBR | SBL | SBT | SBR |
| 81 | 51st Ave NE | 132nd St NE | | | | | 57 | | | | 11 | 3 | 13 | |
| 82 | 67th Ave NE | 108th St NE | | | | | 40 | | | | | | 9 | |
| 83 | 67th Ave NE | 152nd St NE | 15 | | 11 | 45 | | | | | | | | 62 |
| 84 | 67th Ave NE | 132nd St NE | | | | | 40 | | | | | | 9 | |
| 85 | 67th Ave NE | 172nd St NE | 8 | 8 | | | | 14 | 62 | 34 | | | | 34 |
| 95 | SR 9 | 132nd St NE | | | | | 11 | | | | | | 3 | |
| 98 | SR 9 | 84th St NE | | | | | 11 | | | | | | 3 | |
| 296 | SR 9 | 108th St NE | | | | | 11 | | | | | | 3 | |
| 476 | 19th Dr NE | 172nd St NE | | 17 | | | | | | 4 | | | | |
| 489 | SR 9 | 60th St NE | | | | | 11 | | | | | | 3 | |

| | | | 2026 PM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Key Intersection # | North/South Street | East/West Street | EBL | EBT | EBR | NBL | NBT_PM | NBR | WBL | WBT | WBR | SBL | SBT_AM | SBR |
| 81 | 51st Ave NE | 132nd St NE | | | | | 15 | | | | 3 | 11 | 54 | |
| 82 | 67th Ave NE | 108th St NE | | | | | 11 | | | | | | 38 | |
| 83 | 67th Ave NE | 152nd St NE | 60 | | 44 | 12 | | | | | | | | 17 |
| 84 | 67th Ave NE | 132nd St NE | | | | | 11 | | | | | | 38 | |
| 85 | 67th Ave NE | 172nd St NE | 33 | 33 | | | | 60 | 17 | 9 | | | | 9 |
| 95 | SR 9 | 132nd St NE | | | | | 3 | | | | | | 11 | |
| 98 | SR 9 | 84th St NE | | | | | 3 | | | | | | 11 | |
| 296 | SR 9 | 108th St NE | | | | | 3 | | | | | | 11 | |
| 476 | 19th Dr NE | 172nd St NE | | 5 | | | | | | 16 | | | | |
| 489 | SR 9 | 60th St NE | | | | | 3 | | | | | | 11 | |

| | | | 2032 AM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Key Intersection # | North/South Street | East/West Street | EBL | EBT | EBR | NBL | NBT_PM | NBR | WBL | WBT | WBR | SBL | SBT_AM | SBR |
| 81 | 51st Ave NE | 132nd St NE | | | | | 57 | | | | 11 | 3 | 13 | |
| 82 | 67th Ave NE | 108th St NE | | | | | 57 | | | | | | 13 | |
| 83 | 67th Ave NE | 152nd St NE | 13 | | 15 | 62 | | | | | | | | 57 |
| 84 | 67th Ave NE | 132nd St NE | | | | | 57 | | | | | | 13 | |
| 85 | 67th Ave NE | 172nd St NE | 4 | 3 | | | | 13 | 57 | 11 | | | | 17 |
| 95 | SR 9 | 132nd St NE | | | | | 6 | | | | | | 1 | |
| 98 | SR 9 | 84th St NE | | | | | 6 | | | | | | 1 | |
| 296 | SR 9 | 108th St NE | | | | | 6 | | | | | | 1 | |
| 476 | 19th Dr NE | 172nd St NE | | 11 | | | | | | 3 | | | | |
| 489 | SR 9 | 60th St NE | | | | | 6 | | | | | | 1 | |

| | | | 2032 PM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Key Intersection # | North/South Street | East/West Street | EBL | EBT | EBR | NBL | NBT_PM | NBR | WBL | WBT | WBR | SBL | SBT_AM | SBR |
| 81 | 51st Ave NE | 132nd St NE | | | | | 17 | | | | 3 | 11 | 54 | |
| 82 | 67th Ave NE | 108th St NE | | | | | 15 | | | | | | 55 | |
| 83 | 67th Ave NE | 152nd St NE | 54 | | 60 | 17 | | | | | | | | 57 |
| 84 | 67th Ave NE | 132nd St NE | | | | | 15 | | | | | | 55 | |
| 85 | 67th Ave NE | 172nd St NE | 16 | 11 | | | | 54 | 15 | 3 | | | | 17 |
| 95 | SR 9 | 132nd St NE | | | | | 2 | | | | | | 5 | |
| 98 | SR 9 | 84th St NE | | | | | 2 | | | | | | 5 | |
| 296 | SR 9 | 108th St NE | | | | | 2 | | | | | | 5 | |
| 476 | 19th Dr NE | 172nd St NE | | 3 | | | | | | 11 | | | | |
| 489 | SR 9 | 60th St NE | | | | | 2 | | | | | | 5 | |

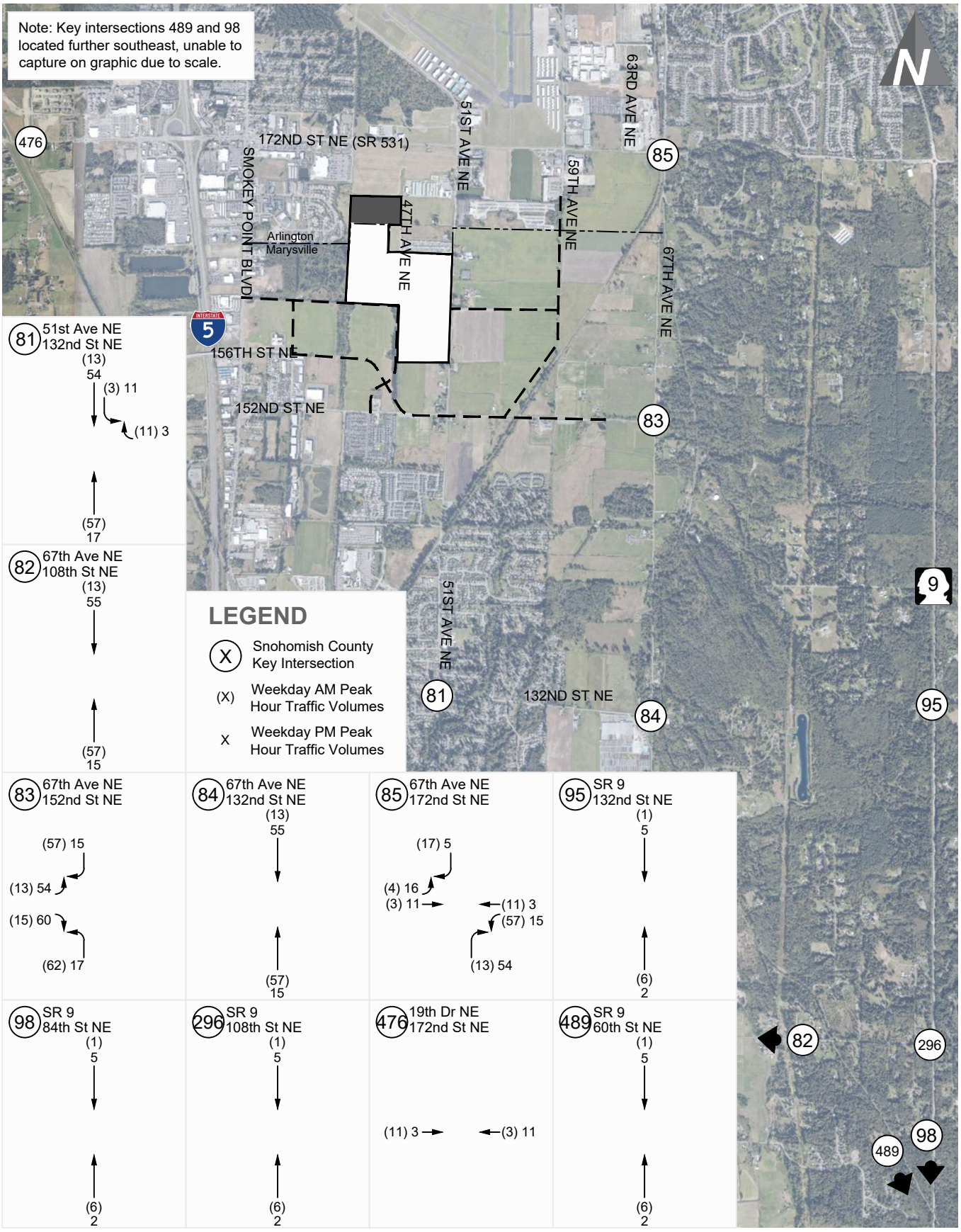



# Future (2026) Peak Hour Project Trips at Snohomish County Key Intersections

APPENDIX **E**

*Williams Industrial*

transpogroup




# Future (2032) Peak Hour Project Trips at Snohomish County Key Intersections

APPENDIX **E**

*Williams Industrial*

transpogroup